# International Transport Corridors

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International Transport Corridors. Muhammad Eid Balbaa - Ministry of Higher and Secondary Special Education of the Republic of Uzbekistan: «YANGI NASHR», 2022. - 207 pages.

The book *International Transport Corridors* is designed to give international economics students a simplified understanding to the significance of International Transport Corridors, with a practical knowledge of basic transport tools to be applied in governing these corridors. The book contains an illustrative examples, diagrams and graphs, real-world examples; highlighted the most popular International Transport Corridors, as well as the new methods of dealing with any unexpected events like COVID-19.

“Xalqaro transport koridorlari” kitobi xalqaro iqtisod fakulteti talabalariga Xalqaro transport koridorlarining ahamiyati haqida soddalashtirilgan tushuncha berish va ushbu yo‘laklarni boshqarishda qo‘llanilishi kerak bo‘lgan asosiy transport vositalari haqida amaliy bilim berish uchun mo‘ljallangan. Kitobda illyustrativ misollar, diagrammalar va grafiklar, real hayot misollari mavjud; eng ommabop Xalqaro transport koridorlarini, shuningdek, COVID-19 kabi har qanday kutilmagan hodisalar bilan kurashishning yangi usullarini ta’kidladi.

Книга «Международные транспортные коридоры» предназначена для того, чтобы дать студентам, изучающим международную экономику, упрощенное понимание значения международных транспортных коридоров, а также практическое знание основных транспортных инструментов, которые необходимо применять при управлении этими коридорами. Книга содержит наглядные примеры, диаграммы и графики, примеры из реальной жизни; выделил самые популярные международные транспортные коридоры, а также новые методы борьбы с любыми неожиданными событиями, такими как COVID-19.

This book was reviewed at the department meeting No.14 held on 9th March, 2022.
This book was accepted by the Study System Committee meeting

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# Mundarija

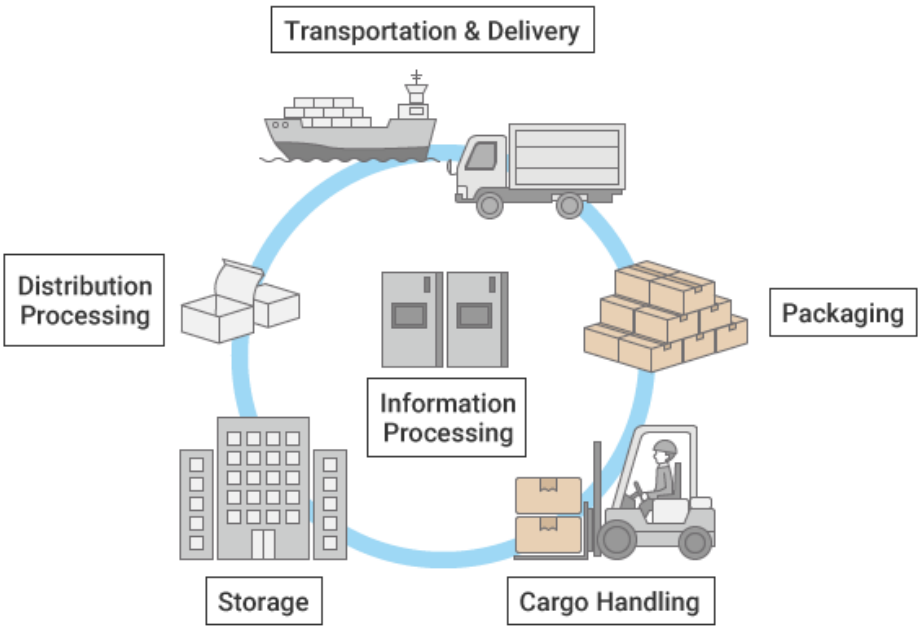
# Оглавление

## Introduction

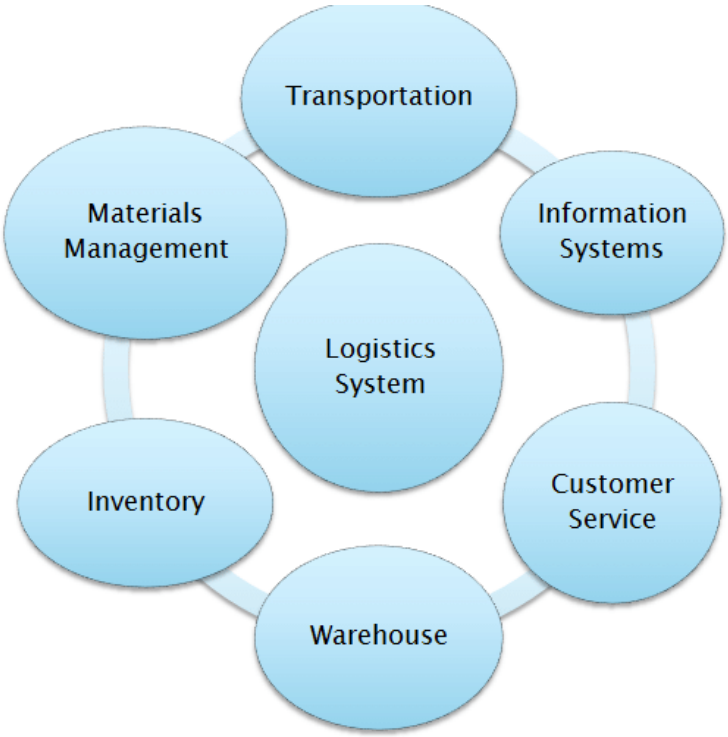
The concept of corridors plays an important role in economic development as economies have to be supported by efficient and sustainable logistics systems. It is often used as a development concept to create fast lanes between points of origin and points of destination in different countries. It is used as a concept to facilitate trade and transport and increase connectivity.

In studies and policy documents one can find various types of corridors: development corridors; economic corridors; (multimodal) transport corridors; transit corridors; trade corridors; logistics corridors; core corridors and ancillary networks, etc. From a purely spatial perspective, corridors are links in a (transport) network and refer to a geographical connection linking two or more nodes (often economic hubs) by transport infrastructure and flows of various modes of transport. These nodes are in many cases economic centers where freight cargo is being handled, processed or stored such as cities, ports, industrial centers and freight villages. We will focus here on the concept of the multimodal transport corridor.

The **transport logistics system** implies: moving the required quantity of goods to the desired point by the optimal route for the required time and with the lowest costs. The component of transportation costs for international shipments is significant in the goods total price ready for sale. This share can be 5-10%, and for raw materials can be 50% or more. The most effective transport agent presence, who is a single delivery operator, especially when organizing multimodal transport.




The logistics system involves the use of: a single transportation rate; single transport document; consistently-central scheme of participants' interaction; high responsibility degree for the cargo. Effective functioning of global logistics systems (GLS) involves their integrated design, taking into account such factors as: transportation costs, optimal routes, environmental impact, which is particular relevance in currently.



The business globalization and the transport systems of different countries integration into the world transport system taken the intensive development of international transport corridors (ITC), through which the main transit cargo flows pass. Currently, ITCs are becoming not only a tool for implementing global logistics strategies, but also a testing ground for introducing the most up-to-date logistics concepts and technologies for cargo delivery (inter- and multimodal, terminal, door-to-door, etc.).

## 1. The Concept of International Transport Corridors and its Classification

Under the ITC is meant part of the national or international transport system, which provides significant international freight and passenger traffic between separate geographic areas, as well as includes rolling stock and stationary devices of all transport types which operating in this direction, and moreover, a set of technological, organizational and legal conditions for the implementation of these traffic.

### a. The Concept of International Transport Corridors

The ITC organization aims to unify nationals' legislations, harmonize the transport systems of the participating countries, create an international transport infrastructure that has common technical parameters and ensures the use of a single transport technology as the GLS basis and the national transport systems integration into the global transport system. The most advanced form of transport organization that meets the new requirements is integrated logistics intermodal technologies that allow you to integrate to take advantage of each transport type and provide the client with a high services level at affordable prices.

One of the transport policy directions to developed countries of Europe, Asia and America is to intensify actions aimed at creating new and developing existing ITC connecting all types of land and water transport at the level of regions, countries, continents (for example, the TC “Northern and South America”, trans-European: “Europe-Asia”). The transport corridors infrastructure consists of railway, road, water, and combined transport infrastructures, main and access roads, border crossings, service centers, terminals, and various structures that transport goods by certain routes.

Successful transport corridors functioning is only possible due to the large organizational work being carried out, as well as the ability of transport and forwarding firms engaged in international transportation to introduce modern transportation and cargo processing technologies, use various transportation systems, “door-to-door” goods delivery, as well as modern telecommunications, tracking systems and cargo escort.

Thus, international transport corridors provide for the modern cargo carrying system operation based on the efficient transport infrastructure creation with using advanced information and logistics technologies in the transportation process (intermodal, mixed and other transportation types), compliance with legal, environmental and other requirements on the using territories.

Such systems will function successfully only if innovative technical and technological solutions are used in their creation and modernization, and management will be carried out using digital technologies.

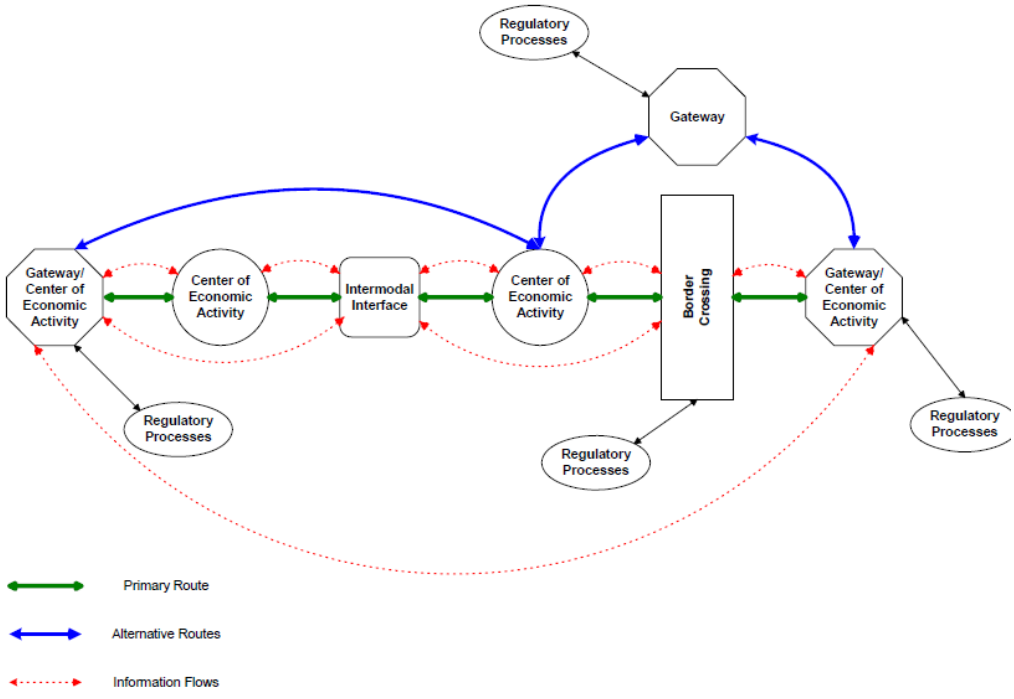



*Figure 1: sample corridor model*

## b. Classification of Transport Corridors

The five types of corridors are identified as National, Bilateral, Multilateral, Multimodal, and Intermodal.

### *1. National trade corridor*

A designated route within the national transport network that is used to transport imports and exports from and to an international gateway or a border crossing. It connects to one or more of the country's major centers for production and consumption. The most common corridor is that connecting a country's national capital or industrial heartland with its major port.

### *2. Bilateral trade corridors*

Corridors used to transport trade between two countries and to allow each country to use the international gateways of the other. As such, they include one or more border crossings and connect to one or more international gateways. The corridors are determined by national legislation that stipulates not only the routes, but also locations where bilateral trade may enter and exit the country.

Bilateral trade corridors are used to transport trade between two countries and to allow each country to use the international gateway of the other. As such, bilateral trade corridors include one or more border crossings and connect one or more international gateways.

They are usually established by national legislation which stipulates the routes and locations where the bilateral trade may take place. The legislation may also establish regulations, such as those pertaining to moving goods across the border, moving goods under customs bond between a border crossing, and either an internal location (where customs clearance procedures can be completed) or moving goods through the international gateway.

The national government controls the land border crossings, but only regulates the international gateways, which are usually administered by the provincial government.

Customs and related border agencies control border crossings, and usually provincial offices have administrative control over the agencies.

The costs of maintaining the gateway and border crossings are generally recovered through user fees and duties and the costs for maintaining links and other nodes are covered through general tax revenues.


*Figure 2: Northern Corridor, Kenya*

### *3. Multilateral trade corridors*

Corridors used to transport cargo through three or more countries of which at least one acts as a transit country. As a result, there are at least two border crossings and there may be a connection to one or more international gateways.

Another method of differentiating corridors concerns the range of transport modes and routes included in the definition of the corridor. A single-mode, single route corridor, such as a road or railroad line, is relatively simple to manage. A single agency

is responsible for development of infrastructure. The same or another agency is responsible for regulation of that mode of transport.

Multilateral trade corridors are used for transporting cargo through three or more countries, of which at least one is a transit country. As a result, there are at least two border crossings and there may be a connection to one or more international gateways in multilateral trade corridors.

The routes in these corridors may be designated through bilateral agreements, although regional agreements may be required to ensure that consistent procedures are being followed for transporting cargo across borders and transiting countries. This includes regional provisions regarding insurance of goods and vehicles and levying of customs duties on goods and vehicles that fail to complete their journey through the transit country.

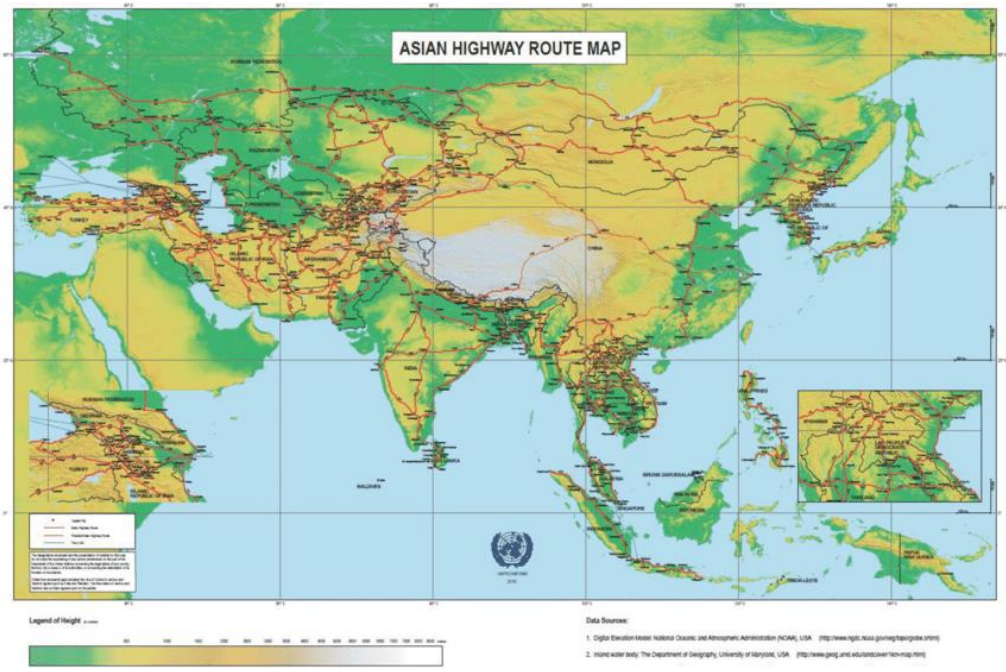



*Figure 3: Asian Highway, C. Asia*

The objective of these routes is to promote regional integration and economic cooperation between neighboring or adjacent states. The costs of maintaining multilateral trade

corridors are covered in the same way as the costs of maintaining bilateral trade routes. However, the transit countries may collect fees to cover the costs of infrastructure used by vehicles transiting the country.

| Bilateral | Multilateral |
|---|---|
| Bolivia-Chile | TEN, EU |
| Northern Corridor, Kenya | TRACECA, C. Asia |
| Maputo, Mozambique | Can-Mex (NAFTA) |
| Mongolia-China | Pan American |
| SAARC Corridors, S. Asia | Trans-Kalahari, Namibia |
| Mercosur, S. America | ECOWAS, W. Africa |
| Northern West Borneo | Turkey-Jordan |
| West Bengal, India | Asian Highway, C. Asia |
| West Bank-Gaza, Palestine | GMS Corridors, S.E. Asia |

*Table 1: Types of Trade Corridors*

### *4. Multimodal corridor*s

Another method of differentiating corridors concerns the range of transport modes and routes included in the definition of the corridor.

A single-mode (or a single route corridor), such as a road or railroad line, is relatively easier to manage. A single agency is responsible for developing the infrastructure and the same agency may be responsible for regulating that mode of transport.


*Figure 4: Delhi-Mumbai, India multimodal corridor "road/rail"*

A multimodal corridor, in which there are parallel routes using different modes, is more difficult to manage. It requires coordination between modal agencies, both for development and regulation. In order to achieve this coordination, there must be participation by senior political leadership, for example, prime minister, planning commission, a senior ministry, or legislative committee.


*Figure 5: Rhine-Main-Danube, EU multimodal corridor "inland water/rod/rail"*

A multimodal corridor, in which there are parallel routes using different modes, is more difficult to manage. It requires coordination between modal agencies, both for developmental and regulatory functions. In order to achieve this coordination, participation by senior political leadership may be required (for example, prime minister, planning commission, a senior ministry, or legislative committee).

| Road/Rail | Inland Water/Road/Rail |
|---|---|
| Seoul-Pusan, Republic of S. Korea | Rhine-Main-Danube, EU |
| Delhi-Mumbai, India | Grand Canal, China |
| Karachi-Lahore, Pakistan | Mississippi, USA |
| Johannesburg-Durban, S. Africa | |
| Moscow-Vladivostok, Russian Federation | |
| Chicago-Los Angeles, USA | |
| Klaipedia-Vilnius, Lithuania | |

*Table 2: Multimodal National Corridors*

### *5. Intermodal corridor*

It is more difficult to manage as it has individual routes that include more than one mode with intermodal connections. This requires even better coordination between the ministries/agencies responsible for each of the modes and therefore stronger leadership from senior government officials.

An intermodal corridor is also difficult to manage as such corridors have individual routes that include more than one mode with intermodal connections. Such corridors require even greater coordination between the ministries/agencies responsible for each of the modes and therefore, such corridors require stronger leadership from senior government officials.

The distinction between a single mode, multimodal, or intermodal corridors is somewhat artificial, in that most international trade corridors are intermodal and include parallel routes with different modes. At issue is how inconclusive is the definition of the corridor and therefore, the scope and effectiveness of the corridor management. With the exception of a road corridor providing connections between adjoining countries, all foreign trade corridors include a domestic land mode and an international ocean or air mode.

For corridors that end in a gateway port, it is important to include the seaport as the intermodal connection between the land and water transport. Unlike land transport, transit through the gateway port often requires more resources (both in terms of costs and in terms of time). Such transit may also affect the efficiency of land transport, by limiting the options for reliable scheduling of movements. Rail and air routes are also intermodal because road transport is required at both ends of the movement. Even road routes that cross borders can be treated as intermodal, since

the border crossing generally acts as a point of transfer between transport services, albeit of the same mode.

Although intermodal corridors are more complex to manage, efforts to limit the corridor to individual modes will, besides limiting the effectiveness of the corridor management, possibly lead to partial, or worse, ineffective initiatives.

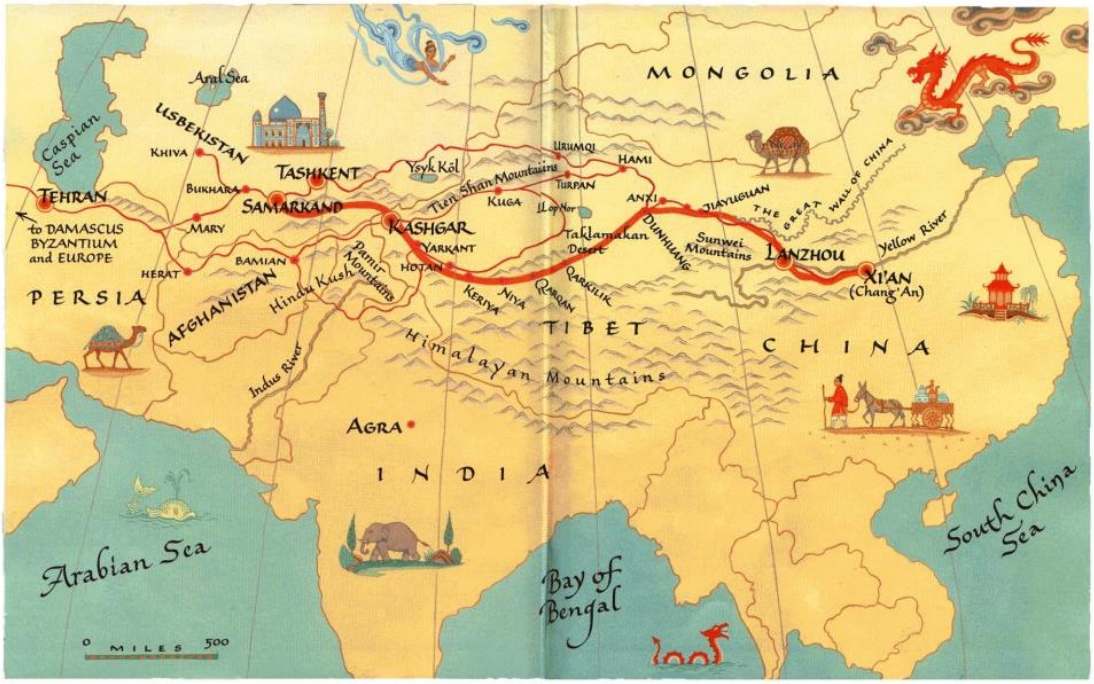



*Figure 6: Ancient Silk Road*

**Box 1-1. Silk Road - The Continuing Challenge**

The "Seidenstrasse" was so named in the late 19th century long after its decline. This route was established during the Han dynasty in the middle of the 2nd century BC for strengthening its military and political regional position. This corridor evolved into a network connecting Northern India, the Black and Caspian Seas, the Arabian Peninsula and Istanbul and linking the Roman Empire with the Imperial court in China.

The volume of trade along this route was relatively modest until the middle of the 1st century BC until the Romans began rapidly expanding trade in silk. Trade then diversified along this route to include a range of goods including gold, ivory, glass, perfumes, and textiles moving east and furs, ceramics, spices, jade, lacquer objects, and silk moving west. During its long history the Silk Road served not only as a trade route, but also as means for exchanging information. Over this route traveled the concepts of mathematics and technologies for gunpowder, printing press, and sericulture.

Trade along the corridor was conducted by caravans transporting goods from one border to the next, where goods were sold to a trader of the adjoining region. This trade, in turn, would then transport the goods to the next border. Thus Chinese traders could sell to Central Asians who in turn would trade with Persians. The Persians in turn, provided the goods to the Syrians who could ship them to the Romans through the Greek or Jewish traders. Although the movement of goods was slow under this system, the system was lucrative for the middlemen and besides, the system entailed limited risks.

The decline of the Han dynasty in the early 3rd century AD led to a decline in trade along this network. The network further regained

its importance in the 7th century with the rise of the Tang dynasty, but then declined along with the dynasty in the early 10th century. In the 13th century, the network was revived with the rise of the Mogul Empire, which stretched from China to the Mediterranean only to once again decline in the 14th century with the demise of the Mogul empire and the isolationist policies of the Ming. Perhaps the most important reason for its final demise was the discovery of the sea route to India.

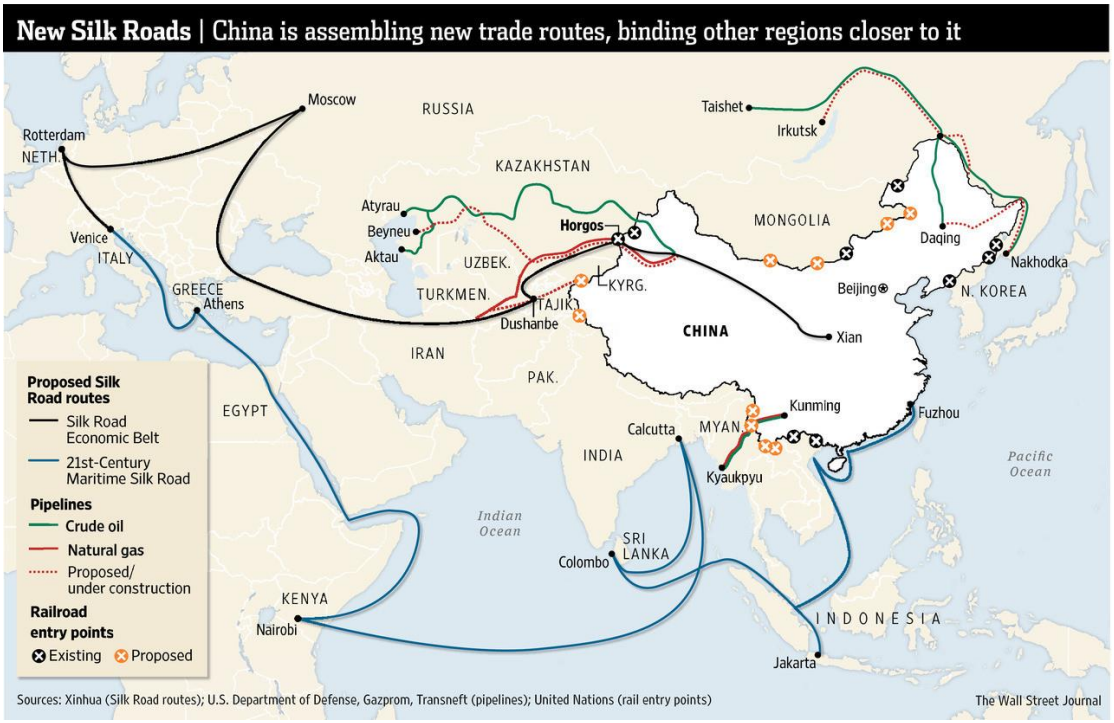



*Figure 7: New Silk Road*

Current efforts to revise parts of this network have been confronted with problems of political integration, significant financial risks, transshipments at the borders, and competing sea routes.

## 2. Multimodal transport corridors – Further elaboration

An important element of logistics and hinterland connectivity is the link between the multimodal transport facilities (road, railways, inland waterways, maritime, air) and the location of economic zones and industrial areas.

Multimodal logistics centers and economic zones are more and more connected through multimodal transport corridors which are planned, developed and governed in multiple ways.

The multimodal transport corridors may provide simultaneous connections by various modes of transport on the same track of the corridors (road, railways, and in-land waterways on the continental part) or provide seamless connections in a consecutive way along the corridor. Inland ports and extended gates are important elements in this development, by functioning as facilitator for multimodal connections and as platform for the region.

The concept of multimodal transport corridors is promoted in many countries and regions and is often an important component of national and international transport and trade facilitation agendas. Important examples in Asia are the ESCAP Eurasian Transport Corridors; the CAREC Transport Corridors; the ASEAN Master Plan on Connectivity 2025; and the Belt and Road initiative (BRI), a development strategy proposed by the Chinese Government that focuses on connectivity and cooperation between Eurasian countries and beyond.

Also, the China-Mongolia-Russia Economic Corridor (Figure: 8) forms part of such a corridor: it is part of the ESCAP Eurasian Northern Transport Corridor, but also of the CAREC Transport Corridors.


*Figure 8: China-Mongolia-Russia Economic Corridor*

The concept of multimodal corridors is relatively new, but in more and more countries, the authorities see the concept as a possibility to achieve improvements in the logistics and transport between the seaports and the hinterland, but also for international and national land transport guided by these corridors.

The multimodal corridor concept looks at transportation from an integrated transport perspective: what are the overall transport requirements on a corridor that can be met by a combination of transport modes in an efficient and seamless way.

A corridor in this case is a connection between the hinterland and the port outlet, from a trade and logistics point of view, or between inland national or international nodes.

In most countries and regions, the multimodal transport network is (still) a patchwork of single modal networks of roads, railways, waterways, airports and seaports. These modal networks might be of high quality and well developed, however, it this does not automatically guarantee smooth and seamless

connections and logistics operations. Realizing efficient supply chains in practice is hampered especially by:

- cross border or cross region infrastructures
- cross border or cross region operations
- different cross border regulatory and legal regimes
- technical interoperability
- integration of different transport modes

Efficient multimodal transport systems, which require high volumes of cargo and close coordination and facilitation, will normally develop faster in parts of these networks that connect high volume generating areas, with destination areas, or international nodes such as seaports.

A multimodal transport network or corridor consists of various components, described from the perspective of freight transportation, (Figure 9) which make cargo transport along a transport axis possible.

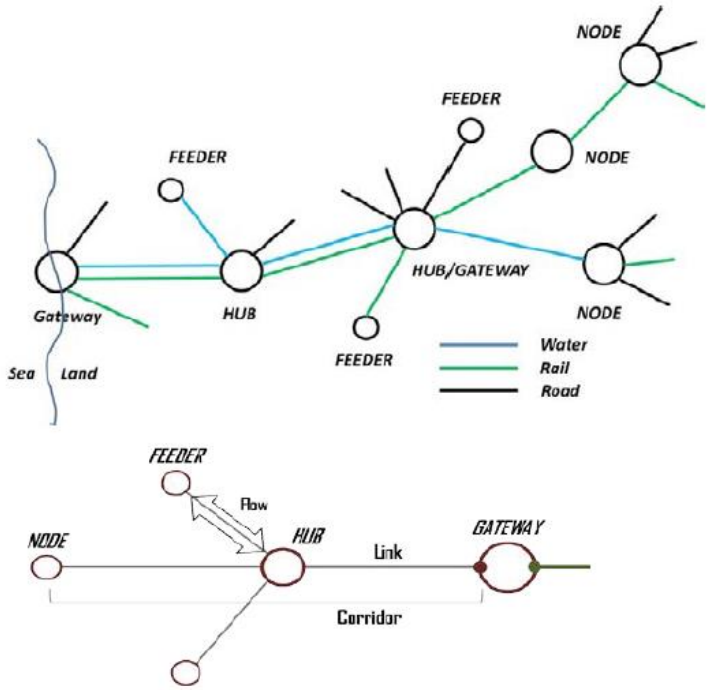



*Figure 9: Transport networks (with nodes and links)*

Nodes are locations along the multimodal transport network, which provide access to the transport network through available transshipment facilities and transport services (e.g. at inland ports, distribution centers, logistics zones, etc.). Connections between several nodes along a corridor are enabled through (transport) links, mostly physical infrastructure like highways, railway tracks and waterways. Although the link itself lacks infrastructure, connections between airports are also nominated as links in this matter.

A transport hub is a location or node which typically handles large volumes of cargo and/or where cargo is consolidated into larger transport flows and/or where cargo flows are exchanged between modes. Typically, feeder locations (or feeder ports) are nodes where regional flows are consolidated and integrated in the multimodal corridor by means of a direct link to and from the transport hub.

The multimodal corridor networks typically link gateways (e.g. seaports) to the hinterland. It differs from hubs in such a way that hubs mostly consolidate cargo from various links of the same mode deeper in the network and gateways typically involve also a change of transport mode, such from maritime connections to road, rail or inland waterways. Therefore gateways connect multiple multimodal transport networks on a global scale and enable the import and export of cargo worldwide.

Initiatives on multimodal transport corridors acknowledge the fact that transport and trade facilitation and corridor development need to be a combination of infrastructure investment and a wide variety of softer measures and activities. This combination of hard and soft measures related with the development of transport corridors may take into account the following considerations (COMCEC 2018):

- It is important to provide countries, particularly landlocked countries, with basic access to maritime ports for their overseas trade.
- Transport corridors provide a visible and direct opportunity to bring about regional integration. Regional integration improves the growth prospects of middle- and low-income countries, especially landlocked countries.
- Legal, regulatory and other constraints to facilitate international trade and transport become visible and transparent at corridor level, giving the opportunity to take appropriate measures to solve them.
- Corridors provide a spatial framework for organizing cooperation and collaboration between countries and public and private sector agencies involved in providing trade and transport infrastructure and services.

The governance and management of corridors are critical success factors. The concepts of corridor governance and corridor management are related with each other (COMCEC 2018):

- Corridor governance: Governance deals with doing the right things and concentrates on high-level decision-making process, primarily setting strategic directions.
- Corridor management: Management concentrates on doing things right and concentrates on day-to-day administration and implementing the systems of governance.

- **Conceptual framework for corridor governance and corridor management: Domains**

The COMCEC study (2018) defines four levels of transport corridor governance:

- Information exchange: exchange of information to facilitate corridor performance.
- Coordination: increased level of coordination.
- Cooperation: a coordinated approach, working close together, joint systems.
- Integration: integration of systems and working arrangements.

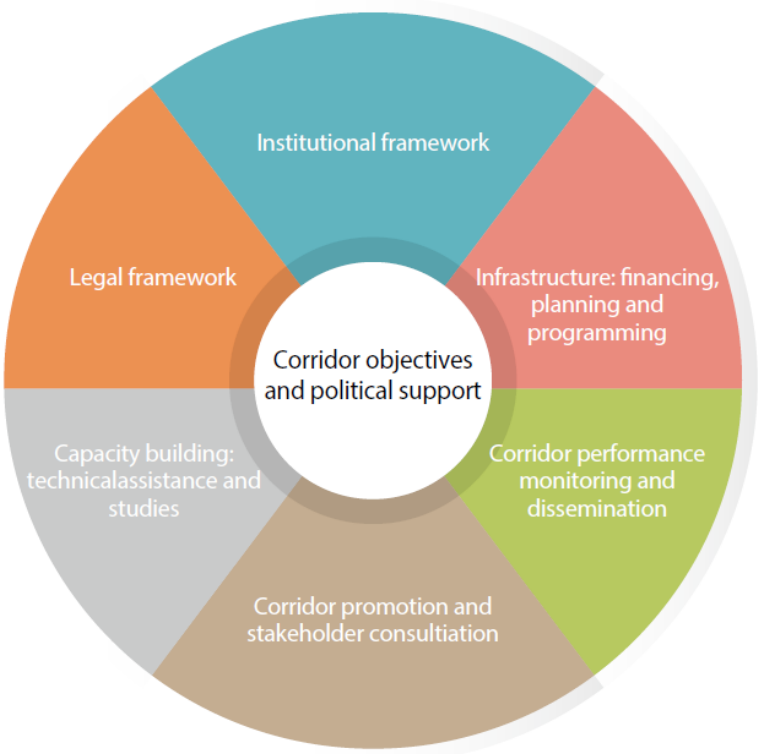



*Figure 10: Conceptual framework for corridor governance and corridor management*

## a) Corridor objectives, political support

The first and most important domain is defining a clear central objective for the development of the corridor. This main objective can be split-up in various sub-objectives. What do stakeholders want to achieve with the development of the transport corridor? The other six domains are geared to reaching this central objective.

A legal framework is set up to make juridical enforcement possible of the measures to be taken; an institutional framework is built to have an organization in place involving the main stakeholders in the decision-making process and in the operation of the corridor; infrastructure planning and financing are embedded in national plans and budgets; performance is monitored and analyzed to learn from the reality in practice on how the corridors operates and to adjust measures as well as to take additional measures if needed.

A corridor does not only relate with transport. Corridor objectives can also have social, political, environmental and economic dimensions. A corridor may facilitate access to social services such as health care and increase the mobility of people; contribute to food security; enhance social cohesion by integrating remote areas; boost economic development in the areas along the corridor. Governments may also want to achieve political goals such as regional development and job creation and stimulate political dialogue with neighboring countries.

**b) Legal framework**

A legal framework forms the foundation for the development and operation of a transport corridor, an economic corridor or a trade corridor. The creation of such a legal basis starts when the different stakeholders reaching consensus on the objectives and management of the corridor. A legal basis is important as legal instruments may be binding in various degrees and commit countries to carry out agreed actions for its development and operation. The legal framework is in most cases an agreement between the various parties normally. If an international corridor is at stake, national governments should guarantee that within the country all relevant governmental institutions at national, regional and local level, and also the private sector are well aligned to the concept of the corridor.

Agreements normally cover the overall strategic perspective and objectives of the corridor as well as institutional arrangements and working principles and, last but not least, its financing.

**There are two main types of legal agreements used in corridors:**

- Memorandum of Understanding (MoU): a MoU expresses a willingness and intention to cooperate, but is not binding; there are no consequences for non-compliance, unless otherwise stated in the MoU.
- Treaty: the content of a treaty is legally binding and in most cases Governments/Ministries of Finance commit themselves to the financing of the development and operation of the corridor.

One of the major challenges that a seamless operation of an international corridor is facing is the fact that countries apply different legal and regulatory regimes.

Legal harmonization is very important to simplify trade and transport processes and increase the efficiency of the logistics system. There are many non-tariff barriers to trade putting obstacles for smooth and seamless international transport such as different and non-compatible systems of licenses, certificates, quotas, procedures, inspections and different technical standards. Harmonization of legislation between the members of an agreement is, therefore, an important component of a MoU. Harmonization of technical standards and mutual recognition of each other's certificates, licenses and inspections is a prerequisite for a smooth functioning of the corridor. To facilitate this process of legal harmonization various UN organisations such as UNECE, ESCAP and UNCTAD have elaborated international standards for trade and transport and launched international

conventions to which member states can adhere and transpose the contents of these conventions into national legislation.

**c) Institutional framework**

A dedicated corridor management body is crucial for the effective development and operation of a corridor. There are many ways for how such a management structure can be constituted. It depends on the objectives of establishment of the corridor and the commitment of its stakeholders.

It is common practice that in the governance of corridors the following institutional structures are involved:

- Ministerial meetings to define the policies and set out the broad courses of action.
- Steering committee meeting on regular basis and responsible for the monitoring and planning of the activities.
- (Technical) Secretariat to provide technical support to the steering committee and the Ministerial meetings.
- National coordinators or focal points that coordinate between the stakeholders and the secretariat.
- Working groups or expert groups involving stakeholders to elaborate on specific subjects and items.

The main activities of corridor management bodies are:

- Planning and prioritizing corridor improvements
- Seeking/guaranteeing financing for investments in infrastructure and operations
- Advocating for legal and regulatory reforms and harmonization of standards
- Monitoring corridor performance
- Promoting the use of the corridor
- Proposing and guiding reforms in trade and transport facilitation and logistics

- Supporting project implementation

It is important to involve not only national representatives from the public sector, but also local and regional authorities and the business sector. The local and regional authorities have an important role in the land-use planning of the areas alongside and adjacent to the corridor and host socio-economic activities which may relate with and take benefit of the existence of the corridor. Also, the business sector is important as they also may contribute to and benefit from the existence of the corridor. The business sector may also become a partner in co-financing in transport and logistics infrastructure in so-called Public-Private Partnerships.

**d) Infrastructure: planning and financing**

For international transport corridors to become efficient, safe, secure and reliable, it is important to agree upon common standards for its design, construction and maintenance. It is important that the planning and financing of this infrastructure is embedded in national transport infrastructure plans. If more countries are involved in a corridor, countries should agree to inform neighboring countries about their transport infrastructure plans, not only for the core network along the transport corridors, but also for the development of the ancillary network.

Countries may also explore opportunities to cooperate in looking for financing options to plan and implement transport infrastructure projects together.

It is advisable to define common minimum standards for the transport infrastructure as well as the financing principles in the MoU, agreement or Treaty. Also, the sign and signaling systems along the corridors should be harmonized.

Agreements about uniform or common border post infrastructure could also be part of a MoU as well as the design, planning and financing of a system of safe and secure parking

places which could offer a minimum of mutually agreed services along the corridor.

**e) Corridor performance monitoring and dissemination**

It is crucial to establish systems for monitoring corridor performance and evaluating corridor management performance. Monitoring and evaluation show the impact of the measures and actions and indicate whether the expected results have been achieved. The outcome of monitoring and evaluation will also provide guidance for taking additional measures to realize the objectives and improve the performance.

There are many ways of monitoring corridor performance: traffic studies; surveys amongst shippers, freight forwarders and transporters about corridor performance; time release studies at customs and other inspection agencies at border crossings; average speed of vehicles or trains without delay; average speed of vehicles or trains with delays (stops); truck driver surveys registering time and costs along the route; GPS based monitoring of trucks and trains; etc. The data obtained from this type of studies give often a good indication of the main bottlenecks along the corridor and useful directions for the right course of action to improve the corridor performance.

It is important to disseminate the results of this type of monitoring to the public via dedicated websites.

**f) Corridor promotion and stakeholder consultation**

Many corridors are promoting themselves as safe, secure and seamless transport corridors. They have dedicated websites where one can find all kind of useful information about the existing infrastructure, the legal and regulatory regimes along the corridors and at the border post procedures that apply for vehicles, trains, drivers, cargo, passengers, etc. Sometimes they provide data and statistics about performance and additional services that

the corridor offers. Some corridors provide even real-time information about waiting times at borders or estimated driving times on certain tracks making use of GPS systems. There are also corridors, which provide hot line communication systems for drivers who face difficulties on route.

This type of systems also do contribute to the promotion of the corridor. Many corridors publish on regular basis reports on the performance of the corridors providing traffic and transport statistics and corridor performance data.

Stakeholder consultation is used to improve the performance of the corridor. It is recommended to involve stakeholders in the operation of the corridor in a more structural way including them in organization structures such as working groups for the governance and management of the corridor.

**g) Capacity building: technical assistance and studies**

Capacity building should be an ongoing activity in the governance and management of corridors. All stakeholders should be involved in capacity development: public sector (in the field of transport, infrastructure, finance, customs, trade, agriculture, health, industry, etc.) at various governmental levels (national, regional, local); shippers associations; freight forwarders; transport operators; logistics service providers; knowledge institutes.

Technical assistance can often be provided by international organizations to provide studies, deliver training and organize seminars and workshops.

## 3. Management of Transport Corridor Development and its Objectives

The role of corridor management should be consistent with the goals that the trade corridor is meant to achieve. While there is a common objective of providing for efficient movement of trade, there are often broader economic goals that the corridor is meant to achieve.

Some corridors have been developed to **promote economic activity along the corridor**, others to **increase activity at the international gateway** at the end of the corridor.

A corridor may also be developed to **provide an international gateway for one or more landlocked countries**. While there is usually substantial trade between the landlocked country and its neighbors, trade with third countries must often be conducted through intermediaries due to lack of direct access to the sea.

Still other corridors have been developed as part of a broader effort to **promote or expand an economic union**. Promotion was the rationale underlying the development of the corridors in the Greater Mekong Sub-region, and Mercosur region, while expansion was the case for the extension of the TEN transport network to Eastern Europe through TRACECA in support of the enlargement of the EU.

Finally, some corridors have evolved with no objective other than to **facilitate bilateral and multi-country trade** that is controlled through back-to-back agreements. This has been the case for the land routes in the Middle East, including those from the Eastern Mediterranean through to Iraq, from Iran up through the Central Asian Republics, and from Jordan through to Syria and Iraq. Efforts to create an Asian Highway have followed this incremental approach.

There are three categories of participants in the corridor management. The first and most important is the leadership. To be effective, the management must have sufficient authority to obtain cooperation from the public agencies that develop the infrastructure and facilities, prepare the trade and transit legislation, and formulate and enforce the standards and regulations affecting services in the corridor.

This implies relatively senior officials from either the executive or legislative branches of government. For bilateral or multilateral corridors, the leadership would have to be senior political officials from each of the participating countries with comparable status. When they exist, regional organizations with competence in customs and transportation policies have also a natural role to play.


*Figure 11: Transport infrastructure priority projects of the European Union*

## a. Trade and Transit Agreements

A number of areas in corridor management require management oversight. These areas can be grouped into five general areas: trade and transit agreements, infrastructure and facilities, transport and logistics services, procedures and regulations, and overall corridor performance.

The effectiveness of trade corridors with cross-border movements depends on trade and transit agreements. These agreements establish the conditions under which movements of cargo and transport take place. These agreements are not fixed, but evolve over time. In recent decades, the trade agreements have been modified to allow more goods to be traded under

favorable circumstances. Agreements to allow goods and transport to move in transit through a country, either through an international gateway or through an adjoining country, have however, been slower to evolve. Corridor management can be involved in not only seeking revisions of these agreements, but also in defining the implementing regulations and ensuring that these regulations are properly implemented.

Since the transit and trade agreements are negotiated between respective governments, it is important to have the involved government officials actively coordinate with the management of trade corridors. It is also crucial to have private sector representation of traders and logistics service providers. EU and ASEAN have attempted to manage this process with varying levels of effectiveness.

They have been effective in the initial drafting of the agreements, but less successful in making adjustments over a sustained period.

**b. Infrastructure and Facilities**

Efficient movement of goods and transport through a trade corridor depends on the capacity and quality of the corridor infrastructure and facilities. Corridor infrastructure, including border crossings and international gateways, have usually been planned and funded primarily by the public sector in the past, but increasingly, these corridors are being constructed and maintained by the private sector.

While capital costs for the infrastructure are covered through general tax revenues, user fees are often charged to cover maintenance costs. Capital costs for facilities located at the nodes and gateways are generally recovered through activity charges. For most corridor infrastructures, development implies upgrading existing assets rather than new construction. An increasing

portion of these efforts are being undertaken by the private sector, which is increasingly being held responsible for designing, financing and operating the improved assets. The principal exceptions have been land border crossings which, so far, continue to be developed by customs and other border security agencies.

During the last two decades, there has been a dramatic shift from public to private operation and maintenance of corridor infrastructure. However, these processes are currently incomplete. In some cases, the transfer from public to private has not been well defined and hence, the transfer requires restructuring. In others, the role of the public sector as the developer of common user infrastructure requires clarification, especially with regard to funding.

Corridor management can be involved in planning, developing/upgrading, and maintaining infrastructure and facilities. It can also be involved in ensuring that the infrastructure is both effectively managed and fully utilized. This process, however, requires coordination with those line agencies involved in developing infrastructure and facilities. It would also involve efforts to improve the mix of public and private sector participation and designing user fees for promoting the efficient use of infrastructure.

### c. Transport and Logistics Services

The effectiveness of a corridor depends on the variety and quality of transport and logistics services offered to the users (the shippers). Since most of these services are provided by the private sector in a competitive market, the role of corridor management would generally be limited to removing the impediments to the entry of new providers/new services.

At the same time, there is a need to promote integration of services, particularly if such integration would improve the efficiency of movement along the entire corridor. In this regard, vertical integration offers advantages to the class of shippers who want to contract for door-to-door services, rather than be dependent on a sequential series of services.

On the other hand, horizontal integration can provide scale economies in marketing and utilizing transport equipment and information technology. Corridor management can address these issues through participating in efforts to improve the economic regulation of this sector and promoting efforts to improve service quality. It could also aid in monitoring competition among service providers and identifying and addressing regulatory constraints.

Where some services continue to be provided by the public sector, rail services, for example, the role of corridor management may be more pro-active in promoting new public-private partnerships for improving the quantity and quality of rail services offered. Efforts to concession rail services are one example which was introduced in the Northern Corridor in East Africa and the Mali-Senegal corridor in West Africa, albeit with mixed success.

**d. Standards, Regulations and Procedures**

The performance of a corridor is often determined by the standards and these pertain to: (1) the physical infrastructure and transport vehicles; (2) regulations on their use; and (3) the procedures followed for enforcing these standards. These standards are particularly important at borders where differences in standards and regulations often result in complex procedures that impede the movement of cargo and transport.

Although corridors management can have some regulatory oversight over procedures that affect the movement of goods in

the corridor and the transport and logistics services that operate in the corridor, they are usually not involved in enacting or enforcing these standards and regulations.

However, they can have the responsibility of proposing revisions for improving performance. They can also monitor the effectiveness of the procedures used for enforcing regulatory procedures and thereby facilitating in encouraging greater consistency and procedure transparency.

The management can act in an advocacy role in order to:

- promote revisions to procedures and regulations that inhibit competition and efficiency;
- simplify documentation and procedures for minimizing unnecessary delays and informal payments;
- introducing greater transparency regarding procedures;
- encouraging the expanded use of ICT and risk management; and
- Promoting the harmonization of procedures on both sides of the border.

For this function, it is necessary that the management have formal interaction with the agencies responsible for regulating trade and transport services. These efforts should avoid opportunities for monopolistic behavior by ensuring contestable commercial operations and, if necessary, through economic regulation.

**e. Security**

For bilateral corridors, the difficulties confronting management are greater due to the addition of the border crossings and gateways. The concerns of management would include ensuring the security of the borders, enforcing trade agreements, and interdicting the movement of hazardous, dangerous, and prohibited cargoes.

It would also involve preventing monopolistic behavior and resolving the inherent conflict between trade facilitation and increased security. The latter includes the problems of illegal immigration. For land border crossings, there is the problem of remoteness from headquarters, which makes it difficult to supervise personnel and enforce standard procedures in practice.

Multilateral corridors add to these concerns the problem of ensuring the efficient and safe movement of transit cargo through countries along the border. The primary problem is preventing leakage of cargo into the domestic economy.

To remedy this, management must focus on improving coordination between border crossings and gateways while developing effective methods for verifying that the cargo is not tampered with during its journey across the country. The problems become daunting where there are serious security concerns.

## 4. Organization and Evaluation of Transport Corridor Management

The form of the organization depends on both the issues it will address and the period over which it is expected to be active. If the management's primary concern is with the legal component of the corridor, then it is likely that the organization would take the form of a standing committee within the legislature or a special section within the Ministries of Transport or Planning. The life of the organization would be linked to the time required to ratify the treaties and enact the legislation required to allow the corridor to operate, but is unlikely to extend beyond 1-2 years. Therefore, the organization should have a flexible structure relying on consultants or seconded staff for technical support.

If the primary concern were project development, then the tenure would continue through the planning and construction of infrastructure and facilities. If management's responsibility is limited to planning, then a task force or inter-ministerial committee, as have been established in Pakistan and India, would be the suitable structure. However, if management were also responsible for construction, then a special department within a senior Ministry (for example, Finance or Planning) would be more appropriate.

If the primary concern were operational, then a more permanent organizational structure would be required. At the same time, it would operate independently of government. An association or commission could be set up if management's primary duties are to monitor performance and promote the use of the corridor. If the duties include coordinating activities of public agencies, for example, for upgrading infrastructure, contracting for construction and/or concessioning, then an autonomous authority would be more effective.

In all cases, the corridor management would be a relatively small organization with a technical rather than administrative orientation, but with leadership that is involved in public dialogue. The requirement to interact with a large number of political and private sector actors does not require size, but flexibility. The same applies for the requirement to act across provincial and national boundaries. For the latter, working committees can be established involving senior officials involved in trade and transport to focus on the legal components, but the physical and operational components must be dealt with at a national level. The exception would be efforts to improve performance at the border, in which case bilateral working groups can be established.

The activities of a corridor's management could include: planning and financing, legislation, regulation, operation, monitoring and promotion of the corridor. But more likely management will be responsible for coordinating or promoting these activities by others.

## Mexican-US Border Slowdown

NAFTA came into effect in 1994 during a period in which US-Mexico trade was growing rapidly (~twelve percent per annum). However, this agreement did not specify the mechanism for regulating the movement of goods through roads, even though about eighty-five percent of the trade in value terms were through roads across the approximately 3,000 km border. The agreement initially included a provision for trucks to operate in the trans-border area, but this provision was unilaterally suspended by the US based on concerns put forth by the domestic trucking sector as to the safety of Mexican trucks. No effort was made either to introduce a vehicle inspection regime or to recognize the considerable improvement in the trucking fleet over the last decade. As a result, the delays at the border for the approximately 10,000 trucks crossing each day was considerable and the requirement for transshipment remained as a significant non-tariff barrier supported by vested interests on both sides of the border.

There are four corridors in Mexico: Chihuahua, Pacific, Central, and Gulf Coast. About one-half of all traffic crosses over at the Laredo crossing, a part of the central Corridor. Because of the restrictions on cross-border movements, two back-to-back trailer exchanges are required with a separate movement between a Mexican parking area near the border, across the Mexican and US Customs, to a US truck terminal near the border. For southbound movements, a further movement is required due to the Mexican customs procedures. From the US truck terminal, the trailer is moved to a Mexican brokers' warehouse where the cargo is unloaded, inspected by the broker for pre-clearance, and reloaded. From there, the trailer is transported through US and Mexican customs to the Mexican parking area. Added to this cumbersome procedure is the lack

of coordination between the customs authorities in terms of documentation, limited hours for customs inspections, and significant congestion during peak hours.

The impact of these procedures on direct costs is significant, adding an estimated nineteen percent for the movement between Chicago and Monterrey (almost 3,000 km). There is a similar impact on transit time adding only about half a day to a two day trip. However, these problems are eclipsed by Mexican customs procedures, which can add up to three days for pre-clearance. This difficult border crossing contrasts with the seamless crossing at the US-Canada border where trucks cross over the border with minimum delay for checking. Both countries require the shippers to have a bond to guarantee payments for taxes and fees. There is no similar arrangement between Mexico and the US.

The unnecessarily complex procedure, which is maintained to protect the markets of the US trucking companies and the Mexican customs brokers, has been challenged in court. A 2001 decision made by the NAFTA panel found the US in violation of the treaty, but opponents then introduced a requirement for an environmental study of the impact of Mexican trucks on US roads. A 2004 ruling by the US Supreme Court overruled this requirement, but it remains to be seen if the US Congress will introduce new impediments to the implication of the NAFTA accords. While trade has continued to grow, one estimate is that these impediments have reduced trade by one to two percent.

### a. The Project Coordination Model:

Efforts to expand and improve corridors are usually undertaken by government agencies on a project-by-project basis. The corridor management can coordinate these activities either through direct interaction with the agencies or by providing

oversight as part of a senior ministry or the prime minister's office.

The government agencies would undertake improvements in the corridor infrastructure based on local requirements and problems, but as the nature and importance of the corridor evolves, there would be a greater effort to relate these projects to corridor development.


The management does not concern itself with the variety, quality, and competitiveness of the transport services, which is expected to develop through market forces and growth in trade. Nor does it become involved in issues of deregulation of transport and logistics or negotiation of agreements to expedite cross-border movements or improve access to international gateways.

| **West Bengal Corridor - Path to the Sky** |
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| The development of the West Bengal Corridor is part of a larger effort to develop freight corridors in the SAARC region. This north-south transport corridor extends from the river ports of |

Haldia and Kolkata to northern West Bengal, where the corridor divides into routes going northwest to Nepal and Sikkim, up to the Chinese border, and northeast to Assam, Bhutan, and beyond. The corridor also connects with Bangladesh at various points along the border. After years of disjointed efforts by various donors to upgrade components of the corridor, a strategic investment plan was prepared in 1998 under a technical assistance grant from the ADB to the Government of West Bengal.* This plan identified a number of high-priority investments in multimodal transport infrastructure. In the intervening years, ADB and World Bank have financed improvements in the interconnections to Nepal and Bhutan as well as various projects to upgrade the primary road route.

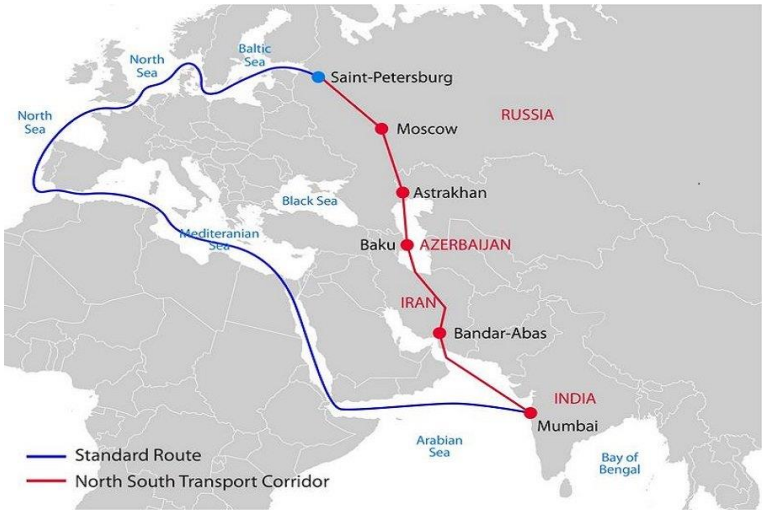



*Figure 12: International North South Transport Corridor (INSTC)*

Both India and Bangladesh have invested in new facilities at the Benapole / Petrapole crossing. Haldia and Kolkata have dramatically increased their efficiency as part of the on-going reforms in Indian ports. In 2004, the government of Nepal awarded a concession for operation of the rail Inland Container Depot (ICD) at Birgunj that allows for unit train operations to Kolkata and Haldia. In Phuentsholing, efforts are continuing to develop a road ICD to facilitate cross-border movements. These

improvements have significantly improved access of the landlocked countries to markets outside of the region; however, the majority of the traffic on the corridor will continue to be intra-regional. The profile of this corridor was raised when the Indian government designated it as an extension of the Golden Quadrilateral.

The development of this corridor was undertaken as small projects by various state and national government agencies, but with little coordination. The activities of the various donors are guided by a similar vision, but lack a common blueprint. Instead, the corridor remains a concept around which various projects are developed. While there is a growing interest in developing this region through trade and in improving security through economic development, there is no focus for this development. The corridor exists by virtue of its growing commercial activity rather than through any organizational structure or coordinated development program.

**b. The Consensus-Building Model**:

It is a formal institution created to mobilize support from stakeholders for improvements in the corridor and for reforms in regulations and procedures, especially border-crossing procedures.

This model can be used to mobilize support for the legal, physical, and operational components of the corridor, but with limited scope for direct action.

Its primary activity is advocating improvements to the corridor by providing information to stakeholders, including government agencies, concerning current performance, needs for improvement, and success of previous initiatives.

The effectiveness of this model depends on the level of participation by public and private sector stakeholders as well as its ability to maintain a professional staff that can address issues related to planning, regulation, and performance.

While its primary focus would be national, it can be used to develop consensus between the countries along the border. This institution would have an indefinite tenure, but requires specific tasks to be sustainable.

**c. The Legislative Model:**

Typically, the corridor management is imbedded in the legislative committees that produce policies and legislation that support the development of the corridor. It is extremely important during the formative period of a corridor, as its objective is to produce:

- Bilateral and multilateral trade and transit agreements;
- Formal recognition of the importance of the corridor;
- Designation of specific routes, border crossings and connected gateways;
- Programmatic funding for corridor infrastructure.

It is also effective for initiating reforms to harmonize standards, simplify cross-border movements, and reduce regulatory impediments to efficient corridor services. This form of management resolves many of the difficulties with coordination among government agencies, but has relatively little impact on the physical and operational components of the corridor. Implementation of investments in infrastructure and facilities and changes in procedures are left to individual jurisdictions and line agencies. While the management structure is formal, it tends to be short-lived.

### d. The Public-Private Partnership Model:

This model is an institution responsible for developing public-private partnerships in order to improve the operation of facilities and services in the corridor.

The management develops concessions, operating agreements and other arrangements to involve the private sector in managing the corridor's infrastructure and facilities and to mobilize funding for corridor development.

This model is effective at the domestic level, but has some limitations for addressing problems with cross border improvements.

However, it can be used to develop toll roads, rail concessions, and dry ports multimodal services which extend across borders. This institution would have an indefinite tenure, which could be limited to the development of these partnerships or could be extended to the supervision of the resulting contracts.

| **Eastern and Southern AfricaPublic-Private Partnerships in Corridor Development** |
| --- |
| The corridors in southern and eastern Africa have been developed using a variety of public-private partnerships, both to improve the transport infrastructure and to simplify the procedures for cross-border movements. Concessions were used to develop the Maputo corridor connecting the port of Maputo with the industrial area around the South African province of Gauteng. The concessions were used to rehabilitate the transport network while providing improved services. The port was converted to private operation through an operating concession that also provided for rehabilitation of its facilities. A BOT concession was used to rehabilitate 380 km of the highway between Witbank and Maputo and to construct an additional |

50 km. It was to include a joint inspection facility at the border. A concession to provide rail services on the corridor, which included provisions to upgrade the rail link between Maputo and the border, was awarded as a joint venture that included South African Railways, Spoornet. This concession was also supposed to provide for a one-stop inspection at the border. These arrangements were successful in producing a rapid improvement in service and increase in traffic. However, the emphasis on a purely private initiative meant that insufficient attention was given to improving border procedures.

The Trans-Kalahari corridor was established in 1999 through the efforts of the Walvis Bay corridor group, a public-private partnership. This corridor connects the port of Walvis Bay with the rest of Namibia, Botswana, and the Gauteng in South Africa. It already had good road connections and required limited capital investment in the gravel road between Mamuno and the South African border. Also there was an existing customs union that simplified cross border movements. The Corridor Group, which was established to promote the use of the port, worked with Customs in the three countries to introduce a single administrative document, a single set of regulations, and a single bond as security for payment. This arrangement provided the industrial area of South Africa with an efficient outlet to the Atlantic. It allowed Walvis Bay to compete against larger rivals in Richards Bay and Durban. Although its traffic levels remain small, its general cargo volumes have tripled since 1999 and the number of vehicles handled has increased eightfold.

The Central Corridor provides road and rail-road connections between Tanzania's port of Dar Es Salaam and the land-locked countries of Uganda, Burundi, Rwanda, and D.R. Congo. It competes directly with the Northern Corridor through Mombassa for transit trade and has a competitive advantage in terms of time and cost for

the countries. While there has been some investment in infrastructure over the past decades, the Central Corridor has had difficulty in improving the performance of its transit services. In 2000, the government concessioned the container terminal at Dar Es Salaam, with the result that the rate of growth in traffic increased four fold and exceeded 200,000 TEU. However, the transit trade continues to be constrained by the rail service. The government is now in the process of privatizing the operations of the Tanzanian Railways Corporation. The improvements should allow the Corridor to increase its market share vis-à-vis the Northern Corridor, even in Uganda where the distances are greater.

The Northern Corridor offers a number of potential benefits including the size of the Kenyan economy relative to its neighbors, its proximity to Uganda and its transport infrastructure which, though poorly maintained, provides better access. In order to promote transit, the Northern Corridor Transit Transport Coordination Authority (NCTTCA), which consists of ministers from the four member countries, was formed to enforce transit agreements, harmonize policies, and promote use of the corridor. It established a stakeholders' forum to develop consensus between the public and private sector, including manufacturers, logistics providers, and financial institutions. It was able to convince customs to simplify clearance procedures and introduce a single administrative document for road transit. It was also able to harmonize and reduce transit charges. Largely as a result of these efforts, the volume of transit traffic doubled in the period 1998–2003. Nearly all of this increase was transit cargo moving by road to/from Uganda. Despite the breadth of the participation and efforts to improve infrastructure, the Authority has been unable to improve the basic rail and port services. The poor condition of the Kenyan Railway, which had experienced a steady decline in traffic over the last three decades, prevented it from

capturing much of this increase. It is now proposed to have a concession for joint operation of the Kenyan and Ugandan railways, in order to improve their performance. Even if successful, it is unlikely to resolve the problem of moving the cargo out of the port of Mombasa, which continues to be plagued by congestion and corruption after an earlier attempt to place the container terminal under a management contract failed.

Despite the non-linear and often chaotic nature of corridor development, it is clear that a long-term plan is important to identify problems that need to be addressed. This requires a consensus concerning the objectives of corridor development and identification of the impediments to efficient end-to-end transport services. The latter can be determined by an elaborate regional economic/transport analysis, as was the case for West Bengal, or a simpler supply chain analysis of major trades that use the corridor. For continuous development of the corridor, it is necessary to undertake parallel initiatives including:

- short-term improvements in customs, border crossing procedures, and traffic control;
- medium-term improvements in infrastructure and interoperability; and
- long-term improvements in harmonization and trade facilitation.

Although a corridor is often amorphous, it is essential that its performance be monitored. The collection and dissemination of performance data is one of the more important responsibilities of a corridor organization. This data can be used by providers of transport and logistics services to improve quality of services. It can be used to identify chokepoints and evaluate the effectiveness of different initiatives for eliminating them. It can also be used to justify improvements and additions to the corridor infrastructure.

Much of the data on physical performance is reported as part of specific activities within the corridor, for example, port operating statistics, customs trade, and operating statistics. Additional data on demand needs to be collected through surveys, interviews with shippers, and transport providers to determine the demand for different levels of service, negotiated costs, and range in transit times. There are several methods available for collecting the data needed for evaluating performance.

Supply chain analysis can be used to determine the relative importance of different activities in overall corridor performance and to identify the features of these activities that contribute most in terms of time, cost, and unreliability. Transport systems analysis can be used to identify the physical and operational problems that contribute to cost, time, and delays. Transaction analysis can be used to evaluate the time and cost for processing the information associated with typical shipments. These techniques are also useful in estimating the potential improvement in performance and relative cost for various initiatives.

Benchmarks or comparison between routes with similar modes can be used to identify activities with the potential for significant improvements. However, benchmarks must be used with care because of country differences in terms of external factors, such as geography, types of trade, competitive requirements, and skill levels. Comparisons based on historical data are more useful. Trends in costs (adjusted for inflation), time, and reliability indicate how effective efforts have been in improving corridor performance in the past. Unfortunately, these are not necessarily representative of what can be achieved in the future and provide little insight as to the cost of achieving the improvements.

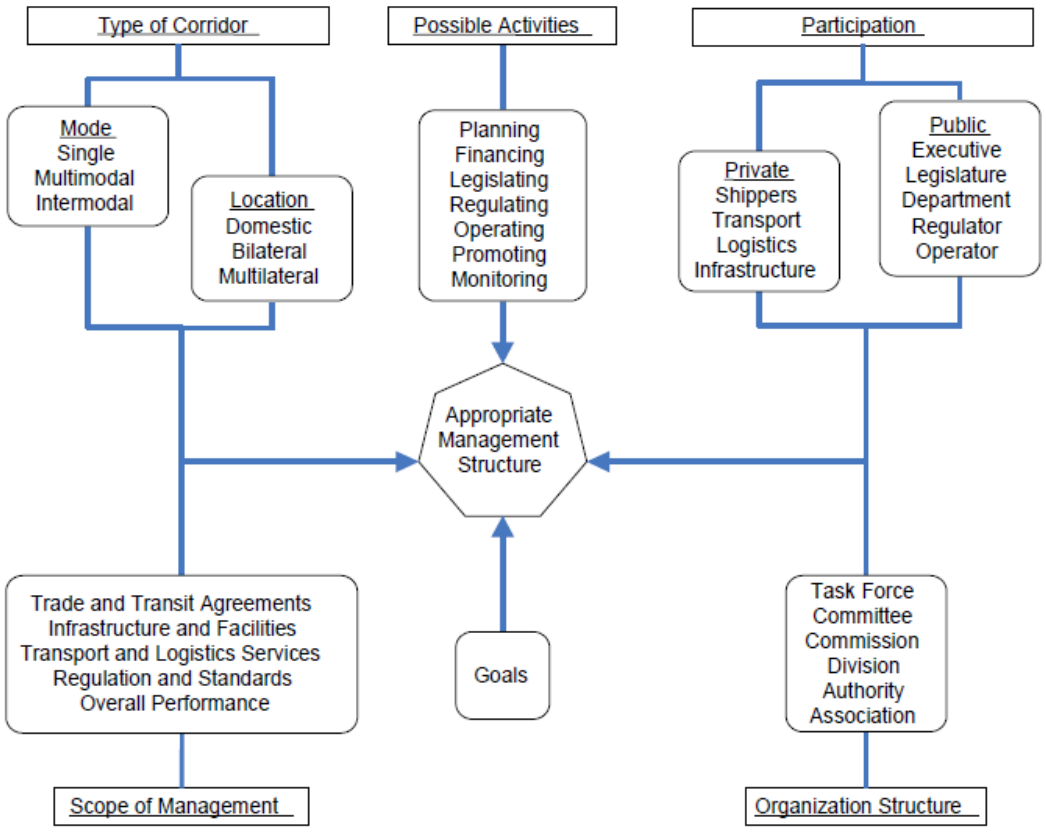



*Figure 13: choosing appropriate management structure*

### e. International Transport Corridor Performance Evaluation

The performance of a corridor can be evaluated from three perspectives.

The first is an **infrastructure** perspective. This considers the physical capacity of the links and nodes in a corridor and the utilization of these components. This approach is often used when deciding on requirements for additional capacity, but provides little insight into the effect of corridor performance on trade.

The second perspective examines the **quality of the services** provided for the goods moving on the various routes. Performance is measured in terms of average time and cost for transport units moving through this corridor. These may be evaluated for individual links and nodes.

The third perspective is the **shipment of goods** through the corridor. Again cost and time are measured, but this time for each of the principal supply chains. The costs and time can be disaggregated for the transport services on the links and the processing services at the nodes.

### f. Transport Corridor Supply Chain Analysis

For each trade that uses the corridor, there is an **average cost** and **transit time** for the complete movement from origin to destination of which only a part may be in the corridor. There is also a level of **reliability** for the complete movement, which is equated with the variation in transit time. These factors can be combined into a generalized *cost function* by assigning values to *time* and *reliability*. Since reliability is measured as the additional time required for ensuring timely delivery, the values for the two can be estimated using the same value.

- **Value of Time**

The marginal value of time can be estimated as the reduction in costs resulting from a reduction in transit time or, where there are alternative services, as the willingness to pay for a faster transit time.

The lowest value of time can be estimated using the daily cost for financing goods in transit and in inventory. An intermediate value of time can be computed where there is a range of competing services with different combinations of cost and time offered. For example, container shipping lines may offer more direct services with a higher freight rate and more circuitous routes with lower freight rates. For land and air express services, it is increasingly common to differentiate services according to delivery time. A premium is charged for overnight delivery and the rates decrease as delivery time increases.

The importance of time is linked not only to the value of cargo, but also to the competitive pressure on order times. Producers with shorter order times can obtain competitive advantage and higher prices for their goods. For example, the Bangladesh garment industry ships about ten percent of its output by air in order to offer a shorter order cycle and compensate for missed ocean shipments.

Another approach to examining the impact of corridor improvement is to consider the discreet impacts. A reduction in delivery time may allow a shipper to compete in markets that require shorter delivery times.

- **Reliability**

The cost of unreliable service can be estimated by considering the direct cost for missed delivery dates. In some cases, the buyer will charge a penalty or refuse to accept the shipment until the price has been discounted. In other cases, the buyer may cancel subsequent orders. The extent of the penalty is related to the impact on the buyer due to missed sales and/or over-stockages, as well as the availability of competing suppliers.

## 5. Measures to Improve International Transport Corridor Performance

The concept of a corridor is a powerful construct for addressing most of the major issues confronting freight transportation and especially for freight movements between and through adjoining countries. The concept includes not only a collection of routes, but also a portfolio of transport services.

It provides a mechanism for focusing public and private sector efforts on a common objective: moving goods efficiently throughout the corridor. It creates a framework in which initiatives to improve cross-border freight movements can be defined, appraised, and evaluated. This framework can accommodate intermodal transport and integrated logistics. The mechanisms available to the public sector for improving corridor performance include **capital investment**, **legislation**, **technical standards**, and **regulatory reform**.

Capital investment was the key component of the strategy for developing the Pan-American Highway, but its performance suffered from lack of attention given to the regulatory reform and legislation to facilitate cross-border movements.

The Northern and Central Corridors in East Africa initially relied on investment, but have since focused on legislation and regulatory reform to facilitate the movement of goods on the road and rail infrastructure. The EU relied on three basic strategies for development of the trans-European transport network:

- Ensure interoperability through harmonization of technical standards for infrastructure and rules applied to transport service providers;
- Improve interconnections of national networks that have been designed primarily to meet domestic needs; and

- Increase market access for transport services provided by one Member State in other Member States.

Responsibility for investment in infrastructure was assigned to individual governments. The private sector was given responsibility for improving the management of transport and other logistics services.

For international corridors, interoperability refers to the ability of transport units to operate across the countries through which the corridor passes. This requires compatibility of transport infrastructure on both sides of the border. It also requires **harmonization** of the physical characteristics, policies and procedures that would otherwise prevent cross-border movements. Without harmonization, it is necessary to perform back-to-back transfers of cargo between transport units at the border. This adds to the costs and time for the crossing and the losses during cargo handling. Most of the features of interoperability are achieved through bilateral agreements and back-to-back agreements where there are more than two countries within the corridor.

All efforts to develop a corridor have employed some combination of these strategies. Two of the basic mechanisms for implementing these strategies are the trade and transit agreements and related procedures for clearing cargo.

## A. Trade and Transit Agreements

The protocols and procedures governing cross-border movements in an international corridor are set out in bilateral and multilateral agreements covering trade and transit. The agreements covering trade, combined with the implementing rules and regulations, stipulate the documentation required for clearing import/export cargo and the procedures involved for checking the documents/cargo and restrictions, if any, on goods

that can be traded. The transit agreements stipulate the requirements for moving goods under bond either into or across the country, the cargoes to which this applies, the routes that can be used (including border crossings and international gateways), and the access granted to transport providers from other countries. These agreements specify the documentation and procedures required for clearing transit cargo. The latter is usually limited to an inspection of the cargo documents and customs seal on the vehicles and their cargo. The trade and transit agreements will set out the rights of transport companies in the participating countries to participate in these trades. This will generally be complemented by other regulations covering the type of transport that can cross the border, the routes on which this transport can operate, and the period of time over which this transport is allowed to be in the country. As a result, these agreements have an important role in determining the efficiency with which the corridor operates.

| **Mercosur Agreement: Cross Border Movements** |
| --- |
| The regional agreement for integration of the trading union among the MERCOSUR countries in Latin America introduced a uniform legal regime for international transport by authorized transport companies. It provided for the development of an international transport document, a customs regime modeled after the TIR Convention (but without a guarantee scheme), and obliged the participants to implement an international third party liability scheme. It provided for standards regarding carrier responsibility for lost, damaged, and delayed goods. Among the general provisions is:<br>"Each contracting Party undertakes to give, on the basis of reciprocity, national treatment to the transport companies authorized by other Parties to carry out international transport under the terms of the Agreement. |

Such transport companies from other countries can also be given exemption from domestic taxes duties and rates to reciprocal basis."

The agreement has provisions that apply to both bilateral and transit road transport. It provides for reciprocity in the allocation of passenger and goods traffic between the parties. It also distinguishes between goods carried on own account and those carried by third parties. Finally, it allows for temporary use of the vehicles of third countries by an authorized transport company.

From the perspective of an international corridor, the most important issues these agreements address relate to:

- **Interconnection**: All major nodes along the corridor where cargo clearance takes place.
- **Border Clearance Procedures**: The documentation and clearance procedures applied for imports, exports, and transit cargo.
- **Interoperability**: Technical standards for infrastructure and services.
- **Transport Market Access**: Ability to offer transport services in other countries.
- **Liabilities**: The allocation of responsibility for damage or loss of goods and for duty due of these goods and associated requirements for insurance or guarantees.
- **Route Capacity**: Further development in available infrastructure.

The following discussion covers each of these issues. It examines the strategies available to the public sector either acting alone or in concert with the private sector. Within each strategy there are various mechanisms that can be employed, as shown in Table 3.

| **Strategies and Mechanisms for Developing and Improving a Corridor** | | | | |
|---|---|---|---|---|
| | | | **Impacts Affecting** | |
| **Strategy** | **Mechanisms** | **Areas Affected** | **Costs** | **Time** |
| Increase and Improve Interconnections | - Establish New Transfer Points<br>- Add Facilities<br>- Simplify Procedures and Documentation<br>- Standardize Documentation<br>- Consolidate CIQS Inspections<br>- Relocate Inspection Inland or at Marshalling Yards (for rail)<br>- Provide New Logistic Services<br>- Monitor Performance | - Border Crossings and Gateways | - Shorten Door-to-Door Routes<br>- Reduce Door-to-Door Delays<br>- Reduce Administration<br>- Reduce Processing Time<br>- Increase Transparency<br>- Simplify Handling of Vehicles and Cargo<br>- Value added<br>- Reduce Delays | |
| Establish Interoperability | - Harmonize Technical | - Transport Services | - Increase Cross-border | - Reduce Equipment Exchange |

| | | | | |
|---|---|---|---|---|
| | Standards and Rules for Operators<br>- Simplify Allocation of Liabilities<br>- Standardize Certification | | Competition and Provide Economies of Scale<br>- Reduce Equipment Exchange | |
| Increase Market Access | - Allow Cross-border Movements<br>- Eliminate Cabotage<br>- Deregulate Pricing<br>- Commercialize Public Services<br>- Regulate Anti-competitive Behavior | - Transport Services<br>- Border Crossings and Gateways | - Reduce Equipment Exchange and cargo handling<br>- Improve Variety and Quality of Services<br>- Increase Availability of Services<br>- Introduce Competitive Pricing and Variety of Services | |

*Table 3: Strategies and Mechanisms for Developing and Improving a Corridor*

- **Interconnections**

The major constraint on corridor performance is generally found at interconnections. These include not only border crossings and international gateways, but also the major nodes along the corridor. The transport units and their cargo are

normally cleared at these border crossings and gateways. It is at these points that the majority of the unnecessary delays and informal payments occur. These delays and costs can be reduced by moving the clearance to an interior location, especially a node where there would normally be delays associated with intermodal transfer, equipment interchange, or cargo storage. If interconnections are to operate efficiently, it is necessary to provide sufficient investment in infrastructure and effective management of the services at these interconnections.

These interconnections have traditionally focused on investment in new capacity, but in the last few decades, increasing attention has been given to the quality and efficiency of cargo handling and processing services offered with the result that the public monopolies have been replaced by competitive private sector service providers. More recently, efforts have focused on reducing the regulatory constraints on efficient interconnections. All three–capital investment, commercialization, and simplification of regulations–continue to be important initiatives for improving corridor performance.

- **Improvements in Border Clearance Procedures**

Nearly all of the corridors have adopted a strategy of improving the performance at border crossings and international gateways. In the case of TRACECA, it is the core strategy. This strategy has been most successful in corridors passing through a Customs Union. The TEN transport network and the Trans-Kalahari Corridor have been able to simplify cross-border procedures and significantly reduce delays through agreements developed as part of the Customs Union. In contrast, the Customs Unions on the Pan-American Highway cover only the beginning (NAFTA) and the end (Mercosur). As a result, the efficiency of the border crossings has not improved in Central America and northern South America and relatively little traffic moves through

the middle of the corridor. The success of improving cross-border performance on the Maputo corridor, and the resulting growth of traffic at the expense of South African ports, contrasts with the difficulties in improving performance on the Northern and Central Corridors where there has been relatively slow growth in traffic even though these corridors provide essential outlets for landlocked countries.

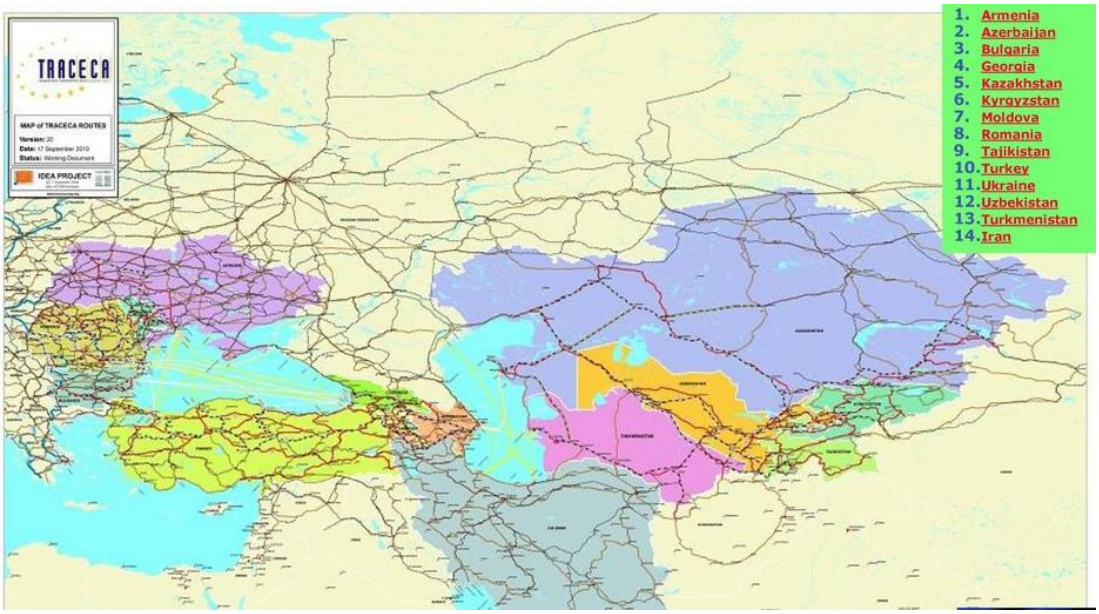



*Figure 14: The Transport Corridor Europe Caucasus Asia (TRACECA)*

The times for Customs clearance have declined over the last decade with many border crossings achieving clearance times for properly documented cargoes of less than two days for imports, a matter of hours for exports, and even less time for transit cargo. These improvements have occurred during a period in which the traditional responsibilities of the Customs authorities for revenue collection, enforcement, and statistical reporting have broadened. Revenues to be collected include not only duties and excise taxes, but also VAT and countervailing duties. Enforcement responsibilities have extended beyond prevention of smuggling and trade in banned commodities to enforcement of trade agreements and prevention of terrorist activities. During this same period, the participation of other agencies involved in

certification of traded goods (CIQS) has increased and added to the total time for clearing cargo. In line with the Geneva Convention on the Harmonization of Frontier Control of Goods (1982), Customs is increasingly tasked with coordinating its activities with these agencies, especially those responsible for regulating imports and exports (for example, product standards, sanitary and phyto-sanitary requirements, restrictions on livestock, arms, illicit drugs, etcetera). Finally, Customs is responsible for collecting and publishing trade statistics and data on its activities.

Greater efficiency in border clearance has been achieved through simplification of procedures, greater transparency in implementing these procedures and providing better information to the public on these procedures. This has been complemented by a substantial increase in the use of computer systems, which not only increases the amount of information that can be processed, but also improves the quality of the data collection. Other reforms have been directed at improving operating procedures including improving training and compensation, extending operating hours on major international crossing points for freight and synchronizing operating times on both sides of the border.

Mechanisms for simplifying and automating procedures include the introduction of:

- Single Administrative Document (SAD) with a standard format, for example, UN layout key.
- Direct Trade Input for pre-notification using EDI and Internet-based systems.
- Channeling and risk management.
- Movement of transit cargo under improved one-time seals without border inspections.

- Better inspection facilities and equipment.
- One-stop services.
- Collocation of processing and inspection facilities.

These mechanisms can significantly reduce the time for clearance and inspection and, by implication, increase the capacity of the border crossings and international gateways. They can also reduce the costs of operating and maintaining these facilities.

The SAD replaces individual documents for imports, exports, and temporary imports and, in the process, reduces the administrative costs of shippers, consignees, and customs. It also increases the efficiency of the clearance process by reducing the discrepancies between documents and by preventing the proliferation of special procedures and signatures associated with multiple documents. While it is still necessary to provide a number of supporting documents from both public and private sources, the list of these documents, which includes commercial invoice, packing list and Bill of Lading or waybill, is relatively standard. The addition of documents beyond this standard list is generally associated with non-tariff barriers to trade.

The concerns of shippers with excessive documentation and lack of transparency are universal. In some countries specific entities have been created to improve exchange of information between shippers and the public agencies responsible for border control, for example, Trade-net in Singapore. In other countries, either customs or the seaport authorities have taken the lead in developing information systems to facilitate data entry procedures and thereby minimize duplication of data. At the same time they provide better information to shippers and logistics service providers on the status of shipping lines. Freight forwarders and other logistics providers have become more sophisticated in their use of EDI and cargo tracking systems.

Increasingly they have taken over the function of providing information for facilitating cross border movements and for tracking cargo to shippers, customs, and other agencies involved in clearing cargo.

Channeling, the segregation of traffic according to the level of risk, reduces the average time for clearance and permits better allocation of customs inspectors. Additional measures to assess risk can be introduced through computer-based analysis of past experiences with specific cargoes, trades, and shippers. This is combined with information obtained from intelligence gathering and the experience of customs inspectors. Customs can then adjust its clearance procedures according to the likelihood of misrepresentation by the shipper. With this information, customs can establish a relationship with "authorized traders" who assume responsibility for ensuring the conformance of their shipments and in return benefit from expedited cargo clearance procedures. Ultimately, this relationship allows customs to audit the traders' records rather than individual trades.

Transit cargo that moves in a sealed container under bond requires minimum checking at the border or international gateways. For land borders, the processing time can be reduced to a few minutes Transit cargo that moves in a sealed container under bond requires minimum checking at the border or international gateways. For land borders, the processing time can be reduced to a few minutes through use of an express lane. Earlier practices requiring convoys accompanied by customs officials and movements along fixed routes are being gradually replaced by other forms of monitoring, including time limits and RFIDs. These require better communication between the points of entry to and exit from the transit country.

Improvements in inspection technology including the use of in-motion weighbridges, various types of scanners, and tamper-

proof seals can reduce the time and cost for inspecting import and transit cargoes, provided proper implementation strategies are put in place. Proper design of the customs facilities can reduce congestion by taking into account traffic flow, queuing requirements, segregation of traffic, fewer movements by inspectors and transport units, loading/unloading docks, and space requirements for physical inspections. While most of these improvements have been introduced at the major gateways, it has been difficult to introduce them at land borders that are further from urban centers.

The one-stop shop, a much-touted effort to expedite Customs' procedures, has been less successful. While Customs in many countries have increased their use of EDI and computers to facilitate cargo clearance, the other border agencies have not. These agencies continue to require paper documentation and do not provide information on cargo status. Efforts by Customs to introduce one-stop services have been frustrated by limited cooperation from these agencies and incompatibility in data requirements.

Another tool for improving customs performance is to create incentives by introducing systems for monitoring and reporting this performance. This was the technique applied in the TTFSE project for Southeast Europe.

– **Relocation of Cargo Clearance Activities**

One of the best options for increasing efficiency of cargo clearance is to relocate the clearance procedures away from the border. Indeed this is one of the basic insights of the EU's program. Inspections of truck registration, driver's licenses and certificate for road-worthiness can be conducted along the corridor but away from the border as part of the domestic program of roadside inspections. Trains can be inspected at marshalling

yards where trains are reconfigured or shipments transferred to road transport, instead of at border crossing points. Cargo inspection and clearance procedures can be relocated at inland bonded warehouses, container depots, and dry ports. This approach was pioneered at international seaports in order to alleviate congestion, but is now being adapted for imports arriving through land borders. It allows for movement of goods under bond from the border to inland customs facilities or special economic zones or other enclaves that are granted duty free status. This can include allowing cargo to be cleared at factories.

- **Interoperability**

For international corridors, interoperability refers to the ability of transport units to operate across the countries through which the corridor passes. This requires compatibility of transport infrastructure on both sides of the border. It also requires harmonizing the physical characteristics, policies, and procedures that would otherwise prevent cross-border movements. Without harmonization, it is necessary to perform back-to-back transfers of cargo between transport units at the border. This adds to the costs and time for the crossing and the losses during cargo handling. Most of the features of interoperability are achieved through bilateral agreements and back-to-back agreements where there are more than two countries within the corridor.

Harmonization is needed for both transport infrastructure and transport units. It requires an agreement on a common set of technical standards or an acceptance of the technical standards applied by adjoining countries. Harmonization of infrastructure is difficult to achieve because it implies a modification of existing infrastructure or a change in engineering practices. There is often an agreement to gradually adjust designs towards a common standard as was done in the Mekong su-bregion.

For **railroads**, it is necessary to have a common set of standards. The critical standard, rail gauge, has been a problem for the countries in South Asia and the Mercosur area where there is a colonial legacy of mixed gauges. It has not been a problem for East Asia and Southern Africa where the rail system was developed on a regional basis. Other standards, such as length of sidings and type of signaling, affect maximum train length. Additional standards such as rail strength and track geometry (minimum curvature and maximum incline) affect the type of wagons that can be used and their capacity. Even where a rail network is well integrated, there can be problems when modifying the system to perform new functions (for example, the introduction of double stack trains or high speed services).

For **seaports and airports**, most of the standards are based on general engineering standards, many of which are promoted by international agencies (for example, ICAO). The physical parameters for individual facilities (for example, draft, backup area, runway length, and terminal size), are determined primarily by market forces. As such, there is less risk of incompatibility. Standards are also applied to the transport units crossing the border. The EC has developed an extensive set of technical standards for transport units covering the parameters shown in Table 4.

For **road transport**, the principal criteria are the gross vehicle weight, which is constrained by the capacity of bridges, overall vehicle length, which is limited by road geometry in urban areas, and safety of operation on the main arteries. There are also standards regarding vehicle emissions. It has been difficult to develop a common set of standards for road transport or to gain acceptance by one country for the standards of the other. However, this has not been a serious impediment to efficient corridor operation since private operators are willing to procure

trucks that satisfy the different sets of standards applied on the route. Restrictions preventing trucks from crossing borders are generally associated with efforts to create barriers to trade. However, private operators are willing to establish cross-border alliances to overcome this problem.

For **rail transport**, the compatibility of rolling stock depends on the physical constraints associated with both the rail network and the characteristics of the domestic rolling stock. Differences in axle configuration and braking systems can prevent efficient operation and thus discourage cross-border movements. There is almost no cross-border movement of locomotives, in part because they are in short supply and in part because they are critical to efficient operation of a country's rail network. Cross border movements of wagons are more common, but still limited. Sometimes there are problems of incompatibility in terms of wagon size and braking systems. Since the power and availability of the locomotives determine total train weight, trains must often be reconfigured at the border. There are additional delays for inspecting wagons and testing of brakes. The national railroads usually have the responsibility for deciding whether wagons can cross the border. Their decision depends not just on physical limits, but also on agreement as to charges for track access and responsibility for returning wagons.

For **vessels and aircraft**, there are international and regional standards. These apply to both transport units and the supporting navigational systems. For vessels, the IMO is actively involved in developing these standards, whereas for aircraft this responsibility is left largely to national civil aviation authorities. From time to time, countries have introduced restrictions on the foreign vessels and aircraft allowed to use their seaports and airports, but these are usually considered to be barriers to trade. The growing international concern for security in the movement

of goods is expected to introduce new restrictions, but it is unclear whether these will be determined by international standards or more parochial interests.

| | |
|---|---|
| **Road** | Truck length overall<br>Axle Weight<br>Gross Vehicle Weight<br>Registration Plate |
| **Rail** | Axle Load<br>Vehicle Loading Gauge<br>Minimum Braking Distance<br>Maximum Train Length |
| **vessel** | Freeboard<br>Vessel Class and Certification |
| **Aircraft** | Type Certification<br>Certification for Airworthiness |

*Table 4: Technical Parameters for Transport Units*

– **Certification**

Associated with physical standards for transport units are the procedures for certifying transport units that meet these criteria and the documents that confirm that these procedures have been performed. Harmonizing inspection procedures and frequency of these inspections can be accomplished on a bilateral or multilateral basis. The most common mechanism is bilateral agreements that provide for mutual recognition of the other country's procedures and documents.

The three modes that present the greatest challenge for certification are trucks, inland water, and coastal shipping. Their

certification is traditionally governed by local rules. Where they operate on a multi-country corridor, it is necessary to have agreement on inspection procedures and reciprocal recognition of the documentation. Trucks are inspected for road-worthiness and emissions. Inland water and coastal vessels are inspected for seaworthiness based on domestic classification requirements. The procedures for licensing truck drivers and the officers and crew of inland water and coastal vessels are also determined by local regulation. There must be reciprocity through mutual acceptance of qualifications and licenses or each country must issue licenses for operators from the other country. These arrangements are generally achieved through bilateral agreement, but there have been efforts by regional associations to introduce regional procedures (for example, ASEAN).

There is no demand for certification of rail equipment. Instead, the national railroad determines whether foreign wagons are in a condition to be hauled. For seagoing vessels, there are international societies that certify the vessels, but the officers and crews are locally certified. Aircraft, pilots and crew are certified by their local civil aviation authorities, but may also be subject to certification by the country of destination.

- **Market Access**

An important complement to interoperability is the ability of service providers from one country to compete in the provision of transport services in other countries along the corridor. In order to have meaningful competition between countries, there must be a legal framework that gives transport operators access to the transport market throughout the corridor. Without this, an international corridor is merely a collection of interconnected domestic corridors.

Improvements in market access increase the pool of transport operators, thereby offering more options in terms of the cost and quality of service. There is also a greater potential for economies of scale. In order to improve market access, it is necessary to have an effective transit agreement and supporting agreements on standards and certification. In addition, it is necessary to allocate the liabilities so that transport operators can obtain the necessary insurance coverage. Finally, the government must guarantee a level playing field in which the transport operators can compete.

- **Allocation of Liabilities**

Effective allocation of liabilities requires identifying the parties responsible for various actions and providing financial services that cover these liabilities for the complete movement through the corridor. A general problem for intermodal freight transport, and a special problem for cross-border trades, is the liability in the event that cargo is lost or damaged. Many countries require transport service providers to carry only third party liability coverage. Coverage for the cargo is generally at the discretion of the shipper. However, for cross border movements, there is a need for cargo insurance.

This is not usually a problem for ocean and air transport as these modes have access to regional coverage, but it is a problem for truck and rail transport. While some regions have a liberalized insurance market, it is more often the case that the transporters must obtain insurance from local companies upon entering each country. It is anticipated that this problem will diminish with liberalization of domestic insurance markets as part of reforms associated with the General Agreement on Trade in Services.

In addition to coverage for loss or damage of cargo, there is also a need for coverage of the liability for taxes and duties on

cargo moving in transit through a country. For European road transport, this concern has been addressed through a self-insurance program managed by transport associations as part of the TIR convention coordinated by a secretariat in the UN/Economic Commission for Europe. Under this convention, the goods are transported under a bond covering possible duties. The transporter carries a carnet that is presented to customs at each border crossing. While this system has been extended for some shipments to Central Asia and the Mahgreb countries, it has yet to achieve wider acceptance. Attempts to create similar systems in West Africa (the TIE system), in

Southeast Asia (ASEAN), in Mercosur, and in Southern Africa (COMESA) have had limited success. Different arrangements are available for goods moving to an inland customs facility under a combined bill of lading or a marine bill of lading. The shipping lines and forwarders arrange for coverage through a Customs bond or guarantee that is maintained to cover all shipments.

– **Cabotage**

Once agreement has been reached among the countries along the corridor concerning standards and certification and restrictions of cross border movements of transport units have been eliminated, there remains the contentious issue of cabotage. Foreign transport service providers are usually prohibited from carrying domestic cargo. This applies to all modes.

In order for transport services to operate efficiently, they must have the opportunity to carry cargo and achieve reasonable load factors on all legs of their journey. Where trade is balanced, this can be accomplished, but where it is not there is a risk of a significant portion of empty backhauls, which increases transport costs. This situation can be mitigated through an accommodation

which allows one country's transport service providers to carry the other country's domestic cargo in specific situations (for example, while en-route to the border). However, this accommodation has rarely been achieved outside of a customs union (for example, the European Union and SADC) or in areas linked by regional trade agreements (for example, NAFTA and SAARC). Most countries enforce cabotage laws to protect domestic shipping, trucking and air services, but some allow cross ownership of transport companies or other forms of participation that allow cross-border movement.18 There are other forms of accommodation. The most important is allowing one country's transport service providers to carry the imports and exports between two other countries (for airfreight this is referred to as the Fifth Freedom).

– **Commercialization of Services**

Another opportunity for improving market access is commercialization of the operations at intermodal transfer points along the corridor and at gateways. In most cases, the replacement of public sector monopolies with private sector management of seaports, airports, rail ICDs, road ICDs, and other intermodal terminals has provided significant improvements in the time and cost of moving cargo. Commercial management allows fixed tariffs to be replaced by negotiated prices and uniform standards of service to be replaced with services designed to meet specific needs of the transport operators and their cargo. Different levels of service can be provided for high-value, time-sensitive cargoes and for low value, time-insensitive cargoes. This change in management allows the replacement of policies that discriminate between domestic and foreign transport operators with ones that discriminate between efficient and inefficient operators. It encourages the introduction of value-added services including automated document preparation and cargo tracking. The overall

result is lower cost and fewer delays when transferring cargo at intermodal transfer facilities.

– **Competition Policy**

Assuming that market access has been improved for transport service providers and there is sufficient commercialization of the activities at the multimodal transfer points, then it is necessary to ensure that a high level of competition is maintained. While independent truck operators and small trucking companies cannot manage international shipments, there are few barriers to entry or exit into this business and very limited economies of scale. Ocean and inland water transport offer significant economies of scale, but have traditionally enjoyed strong competition with few barriers to entry or exit. Rail transport does not have these advantages, but faces strong competition from road transport which has captured significant market share from the railroads in recent times. Air transport had been a problem in regions where national flag carriers are dominant, but competition has increased dramatically as the markets for both local and international services have been liberalized.

The only area in which competition is likely to be constrained is the provision of services at the transfer nodes, especially at the international gateways. For these, it is important to ensure either direct competition in the provision of services or sufficient contestability in the granting of concessions for these services. Further protection can be provided through general legislation against anticompetitive behavior.

The benefits from improving market access for transport operators from different countries within a corridor include not only lower costs and greater diversity of services, but also savings in cost and time from not having to transship cargo at the border,

and greater ability to respond to peak demands without substantial price increases.

- **Route Capacity**

Since the corridors reviewed for this study were developed from existing routes, investments in new links are relatively rare. Even programs for developing a national highway network, such as the Golden Quadrilateral in India generally upgrade an existing network rather than develop entirely new links. Most investments are made to remove choke points or increase quality of transport services by adding capacity or improving the configuration in order to reduce average transit time and accommodate larger transport units.

| **Golden Quadrilateral - Upgrading Corridors** |
| --- |
| The Golden Quadrilateral is approximately 12 thousand kilometers of limited access four lane roads connecting the four major cities in India, Mumbai, Delhi, Kolkata, and Chennai. This massive construction program was begun in 199? under the direction of the newly formed National Highway Authority and implemented through a mix of financing strategies and public-private collaborations.<br><br>The introduction of the four lane highways on traditional corridors has dramatically changed the freight logistics of India, allowing for the introduction of modern trucking using articulated trucks and creating the opportunity for national trucking services. While the network has not been extended to the borders, it provides access to the seaports at Nhava Sheva, Kolkata, and Chennai. It also connects to the West Bengal Corridor. This system is complemented by the expanding unit train services of Concor. The principal services are from Nhava Sheva to Delhi and other major markets, but are expected to |

expand in parallel with improvements in Indian ports as a result of the increased role of the private sector in port operations.

All of these improvements are occurring as the country rapidly expands its trade and positions itself to become a major exporter.

Capital investments for extending transport network to the border are rare. A number of factors limit the opportunities for investing in these connections (in particular, physical constraints since borders frequently conform to natural barriers, for example, mountains, rivers, etcetera). There are usually a large number of low capacity roads developed by local interests to facilitate informal cross-border trade, but national governments have been reluctant to formalize these connections because of the low traffic volume relative to cost. Even where cross-border connections can be developed at reasonably little capital cost, there is the associated cost for the facilities and staff to monitor cross-border traffic. Furthermore, border areas tend to be in locations where the government has limited control and there is the concern that efforts to improve interconnections will facilitate cross-border movements of contraband, illegal immigrants, and insurgents. Such concerns have prevented the completion of Pan-American Highway, restricting the official crossings between Sabah (Malaysia) and West Kalimantan (Indonesia), and Sabah and East Kalimantan to single roads.

For rail border crossings, the principal constraint is the relatively small volumes carried by branch lines between the existing network and the border relative to the cost for these extensions. This cost includes not only the branch line to the corridor, but also significant investment in cross-border infrastructure including sidings for inspection, switching of

locomotives and reconfiguration of trains. Furthermore, this investment must take place simultaneously on both sides of the border. Finally, there is the difficulty of changing the allocation of network capacity to allow for through movements to the border and the reassignment of trains to this route.

The capital investment in road and rail connections to the border are undertaken as part of development of the domestic network and funded through the domestic budget. As such, these investments must complement the rest of the network while competing with other domestic priorities. Where fees are charged to international transit traffic for the use of the national network, they rarely cover anything other than a portion of the maintenance and operation costs.

The development of corridors can be used as a mechanism to mobilize support for development of links to the border that would otherwise receive relatively low priority in domestic budgets. This was the situation for the corridors in the SAARC region, East Africa, and West Africa where financing for development of land routes to the borders has been justified in terms of the benefits of providing an outlet for the trade of landlocked countries. In some cases, corridors have been established to provide a focal point for investment. This is the case for the Can-Mex corridor where the various routes have been identified in order to obtain funding from the Federal government. For the GMS and SAARC regions, ADB has developed lending programs specifically for developing corridors that serve two or more countries in these regions (for example, the East-West and West Bengal Corridors).


*Figure 15: CANAMEX Trade Corridor, linking Canada and Mexico through the United States*

– **Gateways**

Since most of bottlenecks on corridors occur at the gateways and border crossings, especially seaports and land border crossings, much of the investment for improving corridors has focused on these facilities. Simplifying procedures and increasing efficiency of operations can eliminate many of the bottlenecks, but in the long run, changes in technology and growth in traffic will require capital investment.

Public investment in **port infrastructure** is justified as a means to support a country's foreign trade and to maintain global competitiveness. Where ports handle transit cargo from other countries, this traffic normally uses the same facilities as import/export cargo and thus does not require additional infrastructure.19 Instead, it improves the utilization of existing capacity and increases the profitability of the port. The exception

occurs where customs and border agency regulations require isolation of these cargos and in turn separate facilities and operations. This not only adds to the costs of port operations, but can also reduce overall efficiency. This is less of a problem with the growth in experience of handling transshipment cargo, which has similar requirements. Also, the procedures for handling transit cargo have been simplified. It remains to be seen what the impact of new security regulations will have on the handling of transit cargo, but over the long run there should be no reason for segregating this cargo.

Investments in **border crossings** have similar benefits for foreign trade, but often receive less attention. Because the borders are usually far from the major urban centers, congestion and poor service quality at these crossings receive less attention than at the seaports. As a result, the facilities provided are generally minimal and the performance of customs and other border control agencies is of a lower standard. In some sense, this has benefited cross border trade. While there is less transparency there is also less opportunity for delaying shipments because of the lack of facilities for storage and inspection of goods and queuing of transport units. The crossing between Bangladesh and India at Petrapole/Benapole provides a useful lesson in this regard. Petrapole has experienced horrific queues because of the lack of processing capacity. In contrast, Benapole has a land port with several big parking areas and a large number of go-downs. However, transit time at the latter is longer because the additional capacity compensates for inefficient procedures and encourages rent-seeking activities by the participants in the land port.

In the case of seaports and airports, the physical requirements for efficient operation are well understood and the planning techniques are relatively standard throughout the world. Inefficiencies are generally caused by insufficient investment and

ineffective management. Unfortunately, less attention has been given to the design and operation of land border crossings. In most countries, the design and traffic engineering for similar types of facilities are understood, but this knowledge is rarely applied to the design of land border crossings. The result is often elaborate facilities constructed with donor funding in locations where there is relatively little traffic, for example, Savannahkhet on the EWEC and Karkarbhitta and Birgunj on the India/Nepal border, while minimal facilities are provided at sites where there is a large volume of traffic. The design of these facilities is more difficult in remote areas with relatively poor infrastructure, lacking reliable power and communications, and subject to minimal management oversight. There the border crossings must be simple, but designed to encourage transparency and consistency in clearance procedures.


*Figure 16: east west economic corridor*

Capital investments address physical capacity constraints, but not underlying problems of efficiency. If the objective is to

have a seamless border, then the number of activities occurring at the border and the time to complete them needs to be minimized. The only reason for providing substantial infrastructure facilities at the border is to accommodate structural impediments to the free movement of goods and transport. Two areas in which capital investment can increase productivity are the facilities for cargo inspection and supporting ICT systems. The former are truck docking facilities that allow quick off-load and reload cargo for physical inspection and full truck scanners for goods that are fragile, perishable, or otherwise require special handling. To better coordinate activities with shippers and transport companies, as well as to facilitate the submission of cargo documents, communication systems link border crossings with central customs offices and other border agencies. They also provide links with other border crossings to monitor the entry and exit of vehicles and cargo moving in transit. These are supported by information systems that expedite the processing and inspection of cargo and their documents (for example, ASYCUDA and ACIS, as well as the transmission of documents and trade data through EDI).

– **Other Nodes**

While the border crossings and gateways are the major nodes for the international corridors, there are additional nodes that are part of the domestic transport networks but contribute to the performance of these corridors. These include intermodal terminals that increase diversity of routes by providing for an efficient exchange of cargo between modes. These are primarily rail-based terminals of which the most important are Inland Container Depots. There are also single mode terminals that provide an interface between urban and interurban transport. Among these are truck terminals and rail yards located at the periphery of cities. The development of this infrastructure is

usually a local undertaking and is increasingly funded by the private sector.

## B. New Technologies to Develop the International Transport Corridors

A developed transport system is one of the necessary factors for the effective functioning and development of the state's economy and international trade. In modern conditions, when the countries' economies are connected into a single network of regional and world production, the efficient transport systems development is a prerequisite for the further mutual integration of national economies. To date, multimodal transport corridors (systems) have become widespread, focusing on the public transport general directions: *rail*, *road*, *sea*, *pipeline*, and *telecommunications*.

World trends in improving the goods transportation technology are now associated with the traffic flows concentration and the container traffic growth along intermodal transport corridors, which become the unified transport network basis of the 21st century. Such a transport network formation is the main task of the Eurasian transport policy.

If in Western and Central Europe, where communications are more developed, the transport corridors basic system has been largely created, then in Asia, where high rates of economic growth are maintained, this process is just beginning.

Transit is a kind of transport services export, it increases the transport network use efficiency, stimulates its improvement. In a number of European countries (Poland, Germany, Hungary, Austria, the Netherlands, etc.), transit has been turned into budget revenues. Thus, in the Netherlands, the transit revenues share is estimated at 40% of the total income from the goods and services export.

Under these conditions, the tasks of using the Developing Countries' transit potential, in combination with the tasks of developing the global transport network, become one of the priorities for such countries. Moreover, the potential revenues from international transit may be comparable to income from energy exports. Besides, the possibility of high-speed rail transport, supplemented by a highways system, inland waterways and multimodal logistics centers, are just beginning to unfold.

With the new computer technologies development, there is an increasing tendency to use them for the information exchange between the trade participating countries, and more advanced information communications are emerging. The communications industry in the leading world countries has become one of the most dynamic economy sectors. Telecommunications, including digital methods of transmitting and communicating messages, fiber-optic and space communication channels, and cellular radiotelephone links, are becoming a strategic resource. Telecommunications and computer technologies contribute to the synchronization various systems' docking of transportation, storage and redistribution of cargo flows.

## 6. Road transport and international corridors

Road transport is the dominant transport mode on international corridors. For long distances over land also railway transport is often being used, but the total volume transported by railways is much less than by road. Railway transport is often used to transport bulk in large quantities, but also dedicated container trains are running on railway tracks. Railway transport in most cases also needs road transport to bring the goods to the railway station and to transport freight from the railway station to its final destination, the so-called ‘first and last mile’. Road transport is much more flexible than railway transport, which has a fixed track and can only stop at railway stations.

### a. Intergovernmental Agreement on the Asian Highway Network

The Intergovernmental Agreement on the Asian Highway Network1 formalized regional road network, mapping out main existing and potential road transport corridors that support regional economic growth and intraregional and interregional trade. As of June 2019, the network spans more than 143,000 kilometers (Figure 17). To date, 30 ESCAP member States are Parties to the Agreement. In addition to defining the network itself, the Agreement sets out minimal technical design standards and classifications to ensure the quality of the road infrastructure along the Asian Highway routes. While initially focused primarily on the road design for accommodating increasing freight and traffic volumes, the technical standards have been expanded to other areas. The coverage of the Asian Highway network is comprehensive. It has been consolidated over the past two decades with very few missing links, if any, along the network. While the overall extension of the network tends to remain stable, its exact configuration continues to evolve, with the Parties adding new itineraries or regrouping parts of existing

sub-regional routes as a single Asian Highway route. Overall road density assigned to be part of Asian Highway network among parties to the Agreement is estimated at approximately 0.3 kilometer per 100 square kilometers. There is, however, wide divergence among sub-regions.

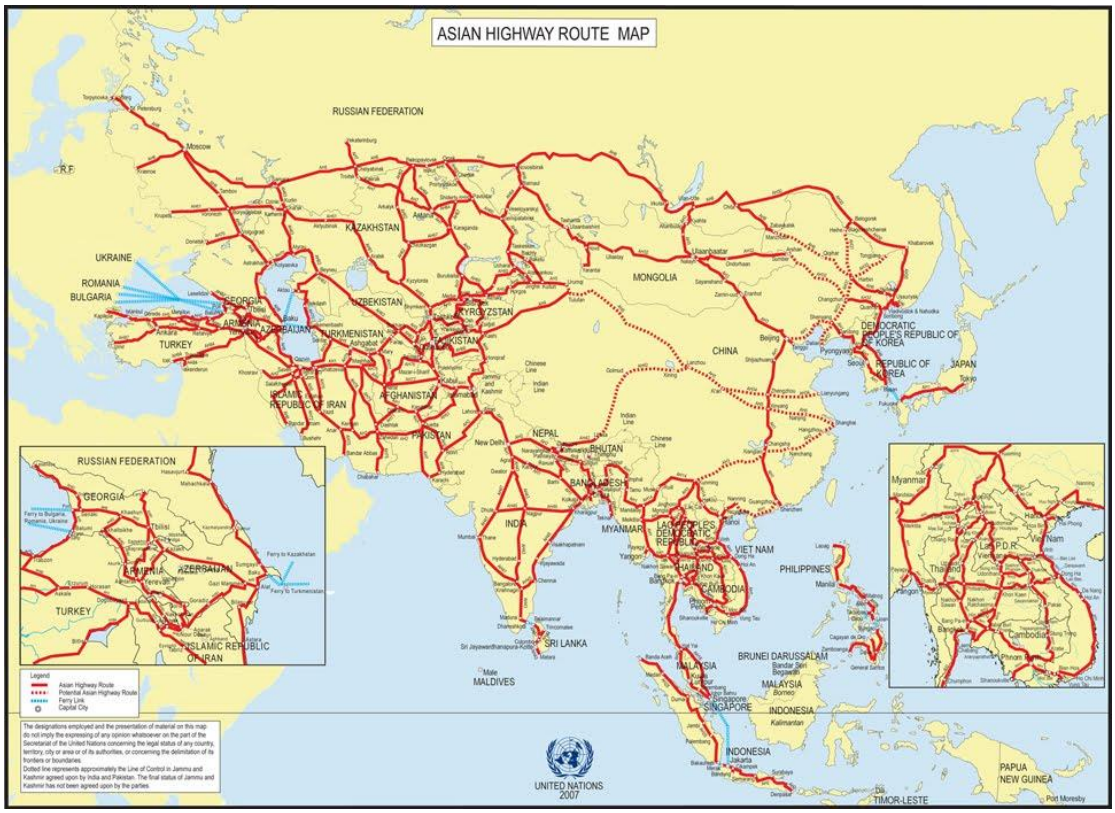



*Figure 17: Map of the Asian Highway Network*

## b. Design standards for the Asian Highway Network

One of the important elements of the governance and management of international corridors is to agree upon common standards for the road infrastructure taking into account items such as road capacity, safety and speed. ESCAP has proposed detailed design guidelines and standards for the Asian Highway Network on road infrastructure safety facilities.

Table 5 shows the Asian Highway design standards of which the road section of the China-Mongolia-Russian Economic Corridor is part.

| Highway classification | | Primary (4 or more lanes) | | | | Class I (4 or more lanes) | | | | Class II (2 lanes) | | | | Class III (2 lanes) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Terrain classification | | Level (L) | Rolling (R) | Mountainous (M) | Steep (S) | L | R | M | S | L | R | M | S | L | R | M | S |
| Design speed (km/h) | | 120 | 100 | 80 | 60 | 100 | 80 | 50 | | 80 | 60 | 50 | 40 | 60 | 50 | 40 | 30 |
| Width (m) | Right of way | (50) | | | | (40) | | | | (40) | | | | (30) | | | |
| | Lane | 3.50 | | | | 3.50 | | | | 3.50 | | | | 3.00 (3.25) | | | |
| | Shoulder | 3.00 | | 2.50 | | 3.00 | | 2.50 | | 2.50 | | 2.00 | | 1.5 (2.0) | | 0.75 (1.5) | |
| | Median strip | 4.00 | | 3.00 | | 3.00 | | 2.50 | | N/A | | N/A | | N/A | | N/A | |
| Minimum radii of horizontal curve (m) | | 520 | 350 | 210 | 115 | 350 | 210 | 80 | | 210 | 115 | 80 | 50 | 115 | 80 | 50 | 30 |
| Pavement slope (%) | | 2 | | | | 2 | | | | 2 | | | | 2 - 5 | | | |
| Shoulder slope (%) | | 3 - 6 | | | | 3 - 6 | | | | 3 - 6 | | | | 3 - 6 | | | |
| Type of pavement | | Asphalt/cement concrete | | | | Asphalt/cement concrete | | | | Asphalt/cement concrete | | | | Double bituminous treatment | | | |
| Maximum superelevation (%) | | 10 | | | | 10 | | | | 10 | | | | 10 | | | |
| Maximum vertical grade (%) | | 4 | 5 | 6 | 7 | 4 | 5 | 6 | 7 | 4 | 5 | 6 | 7 | 4 | 5 | 6 | 7 |
| Structure loading (minimum) | | HS20-44 | | | | HS20-44 | | | | HS20-44 | | | | HS20-44 | | | |

*Table 5: Asian Highway Network design standards*

## c. Road infrastructure

The Eurasian Northern Corridor is an operational link between Asia and Europe (Figure 18). The corridor is important for the promotion of economic activities along its routes. The corridor routes may boost economic development in areas along and adjacent to the corridor. The China-Mongolia-Russia Corridor may facilitate the diversification of the economy of Mongolia (Figures 19, 20 and 21). Therefore, this corridor is also called an 'Economic Corridor'. The private sector and governments are investing in so-called dry ports and logistics freight centres along the corridor. Some examples in Mongolia are Ulaanbaatar, Saynshand and Zamin-Uud. Mongolia is also creating special economic zones at important nodes to encourage the usage of the corridor's existing facilities and attract new investments in both transport, manufacturing and processing including Altanbulag Free trade Zone and Zamin-Uud free economic zone.

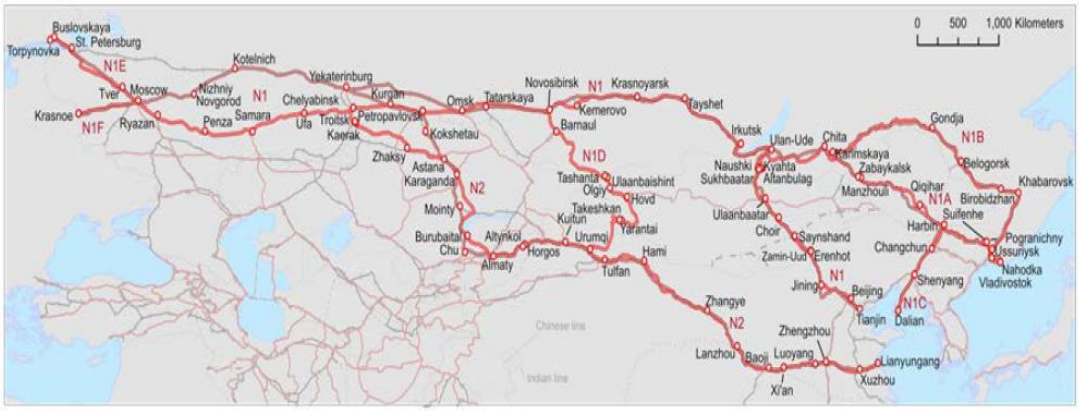



*Figure 18: Eurasian Northern Corridor routes*

The state of road infrastructure along the N1D route within Mongolia, where there are a mix of Class II and below Class III roads, is challenging. In the short distance before the border with China (which is upgraded to Class II), the Tsaganor to Hovd stretch contains sections of Class II and sections below Class III. The sections from Ulaanbaishint to Tsaganor and from Hovd to Bulgan Sum are entirely below Class III.


*Figure 19: Mongolia – Road transit corridors*

With the completion in 2015 of road construction works along the road running Choir – Zamin-Uud – border with China, transit transport from the Russian Federation to the border with China on the N1 route became possible. The section from Choir

to Zamin-Uud is now a two-lane asphalt-paved road, and the last 3.3 km to the border with China is a four- lane asphalt road.


*Figure 20: Mongolia – Rail transit corridors*

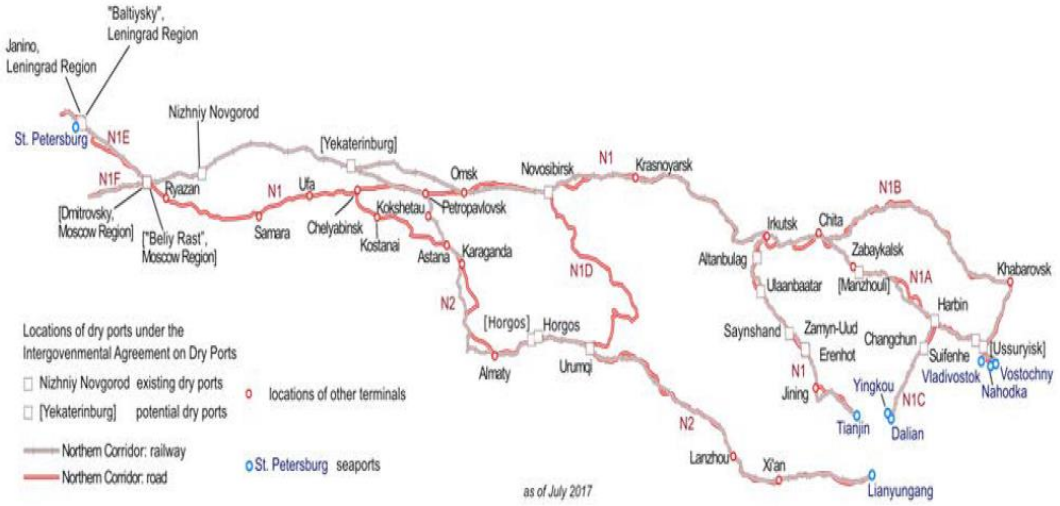



*Figure 21: Dry ports, terminals and seaports along the Eurasian Northern Corridor*

## d. Border crossing posts

Border crossing posts (BCPs) present bottlenecks for international transport though they may be well-designed. Most of these bottlenecks relate to the fact that different laws and

regulations apply between countries and also inspection regimes are often different. Coordination and cooperation between the border posts of the two countries would facilitate the border crossing of persons, vehicles and cargo. Mutual recognition of each other's licenses, permits, inspection documentation would be helpful to guarantee smooth and seamless border crossing. This type of documentation refers to immigration; transport (import, export and transit freight; technical vehicle standards; driver license) and trade (trade documentation, health regulation, phyto-sanitary requirements, certificates of origin, etc.). Some countries are even building one-stop border posts and avoid duplication of procedures and inspections (the inspection by an agency at one side of the border post is recognized by the agency at the other side of the border post; in some case there is even only one agency).

### e. Bilateral and Multilateral Road Transport Agreements

In the road transport sector, bilateral and multilateral road transport agreements are quite common to regulate international road transport. Figure 19 shows that Mongolia still has not adhered to various sub-regional agreements. There is a variety of issues that can be covered by such agreements: access to the market; cabotage regimes; transit regulations; technical standards on weight, dimension and emissions for the vehicle; recognition of driving licenses of international truck and bus drivers; road tax; etc. Access to the market can be granted, for instance, by issuing road permits for individual trips, certain vehicles and/or for certain time periods. The bilateral road permit system along the Eurasian Northern Corridor is presented in Figure 22.

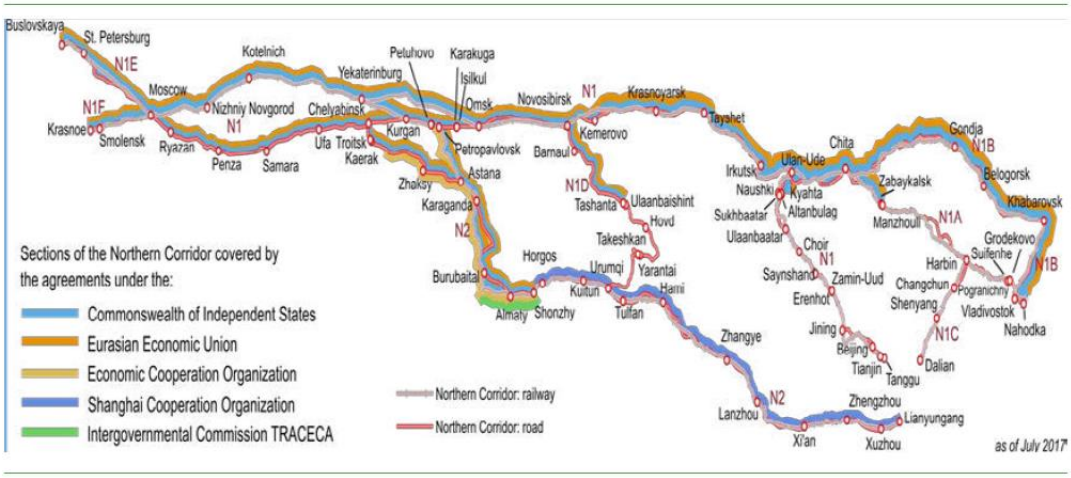



*Figure 22: Eurasian Northern Corridor – Coverage by subregional agreements*

- **Mongolia – China**

The border crossings of Takeshkan (China) – Yarantai (Mongolia) and Erenhot (China) – Zamin- Uud (Mongolia) on the N1 route of the Eurasian Northern Corridor are covered by the China – Mongolia Agreement on International Road Transport from 2011. The ESCAP survey on international road transport practices between the countries showed that the two countries use a permit system, whereby China issues a single round-trip permit subject to an annual quota, while Mongolia issues both single round-trip and multiple round-trip permits. There are no designated routes for Chinese trucks in Mongolia, while China allows Mongolian trucks to use the Takeshkan – Qinghe route at the first Border Crossing Post and to travel up to Erenhot at the second BCP. Both sides require third-party insurance, a national driving license translated into the national language of the other country, and for transport operators to be registered at the respective national authorities. There are differences in the weight and dimensions standards of China and Mongolia. The transport authorities of the two countries require a similar list of documents for entering vehicles. The customs requirements of the

two countries for the temporary importation of vehicles and cargoes do not match (the rules in China are stricter than the Mongolian ones).

- **Mongolia – Russian Federation**

Mongolia and the Russian Federation have two border crossings along the Eurasian Northern Corridor route N1: Tashanta (Russian Federation) – Ulaanbaishint (Mongolia), and Kyahta (Russian Federation) – Altanbulag (Mongolia). They are regulated by the Mongolia – Russian Federation agreement on international road transport from 1996. The two countries reported during the ESCAP survey that they are using a permit system, both issuing single round-trip permits subject to quota (8,000 in case of the Russian Federation). There are no designated routes. The countries have similar weight and dimensions standards, both require third-party insurance and the transport operator should be registered with the relevant authority of its home country. The Russian Federation requests the purchase of insurance at the border or accepts a green card. Both countries accept national or international driving licenses, but the Russian Federation requests the translation of the Mongolian driving license into Russian. Customs requirements for the temporary importation of vehicles and cargoes are the same. The requirements of their transport authorities for bringing in vehicles are similar, except that Mongolia requires the submission of a transport operator registration certificate.

In addition to above, the agreement prohibits cabotage, allows transport from/to the territory of the other country to/from the territory of a third country subject to separate permission, and it envisages the possibility of special procedures for border regions. The agreement states that cargo transport should be carried out under a national consignment note in an internationally accepted format.

- **China – Mongolia – Russian Federation**

The Governments of China, Mongolia and the Russian Federation signed the Intergovernmental Agreement on International Road Transport along the Asian Highway network in Moscow on 8 December 2016. In doing so, each country agreed to grant the other two countries traffic rights for international road transport on the sections of AH3 and AH4 that connect their respective territories.

Through the Agreement, the three ESCAP member States have operationalized the following Asian Highway routes: AH3 from Ulan-Ude in the Russian Federation to Tianjin port in China, through Ulaanbaatar and Beijing, providing access to the sea for landlocked Mongolia; and AH4 from Novosibirsk in the Russian Federation to Honqiraf at the Chinese border with Pakistan, through Urumqi and Kashi in China. This constitutes the first intergovernmental agreement concluded within the framework of the China-Mongolia-Russian Federation economic corridor.

At the first meeting of the Joint Committee under the agreement in 2019 it was agreed that each country will issue 200 permits. This exchange of permits under the Agreement is set to ease international road transport on these segments.

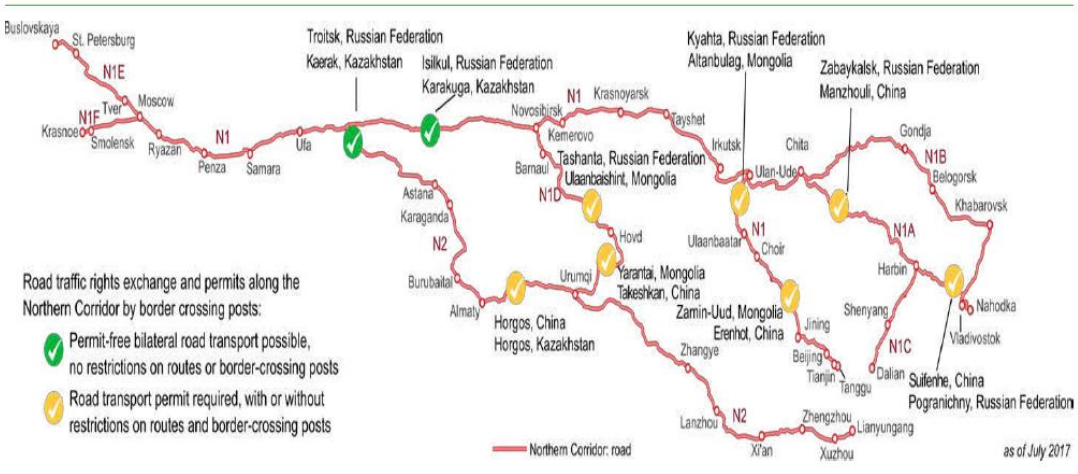



*Figure 23: Road permits for bilateral transport along the Eurasian Northern Corridor*

## f. Non-infrastructure road transport and customs impediments along the Eurasian Northern Corridor

- **Roads**
  - Regulatory mismatches occur at the borders of countries along the Corridor during international road transport operations. Differences in weight standards, and requirements for the translation of national driving licenses for international transport to occur can lead to decreased efficiency, and an increase in the number of documents needed for international transport along with respective costs.
  - There are geographical restrictions on entry to partner countries in some country pairings along the Corridor: Mongolian trucks can enter China only up to certain points.
  - Cabotage is forbidden in all countries.
- **Customs**
  - Customs requirements between China, Mongolia and the Russian Federation differ, complicating the environment for transit. The three countries' authorities are taking steps towards improving the situation through the holding of trilateral meetings. Most of the issues raised by freight forwarders concern borders with China, rather than the Russian Federation – Mongolia border.
  - The treatment of Mongolia-bound cargoes at Tianjin port is known to induce delays, since a large amount of cargoes are subject to detailed physical inspection regardless of the advance electronic submission of documentation prior to a vessel's arrival.
  - Chinese requirements for the temporary importation of vehicles and cargoes are stricter than those in bordering countries.

**g. Monitoring road transport performance and road transport costs**

- **Establishing an observatory to monitor road transport performance and related road transport and logistics costs**

It is good international practice to set-up an observatory along the main transport and trade corridors to monitor road transport performance and related transportation and logistics costs.

There are worldwide many good practices of establishing such observatories. Some of these observatories sometimes monitor driving and waiting times in real time using chip technology and present the real-time data on a website. A good example of such an observatory is the CAREC Corridor Performance Measurement and Monitoring (CPMM) system of Central Asia Regional Economic Cooperation (CAREC) in Asia.

- **The ESCAP Time/Cost-Distance Methodology**

Figure 24 shows graphically the ESCAP Time/Cost-Distance Methodology. The model is the graphical representation of cost and time data associated with transit transport processes. The purpose of the methodology is to identify inefficiencies and isolate bottlenecks along a particular transit route by looking at the cost and time characteristics of every section along a transit route.

The methodology requires a minimum amount of information: the route from origin to destination, including stops and border crossings, the mode of transport of each leg of the trip, the distance travelled, and the travel time, and the cost of each leg and node by mode of transport.

The methodology enables policy makers to: compare—over a period of time—the changes of cost and/or time required for

transportation on a certain route; compare and evaluate competing modes of transport operating on the same route; and compare alternative transit routes.

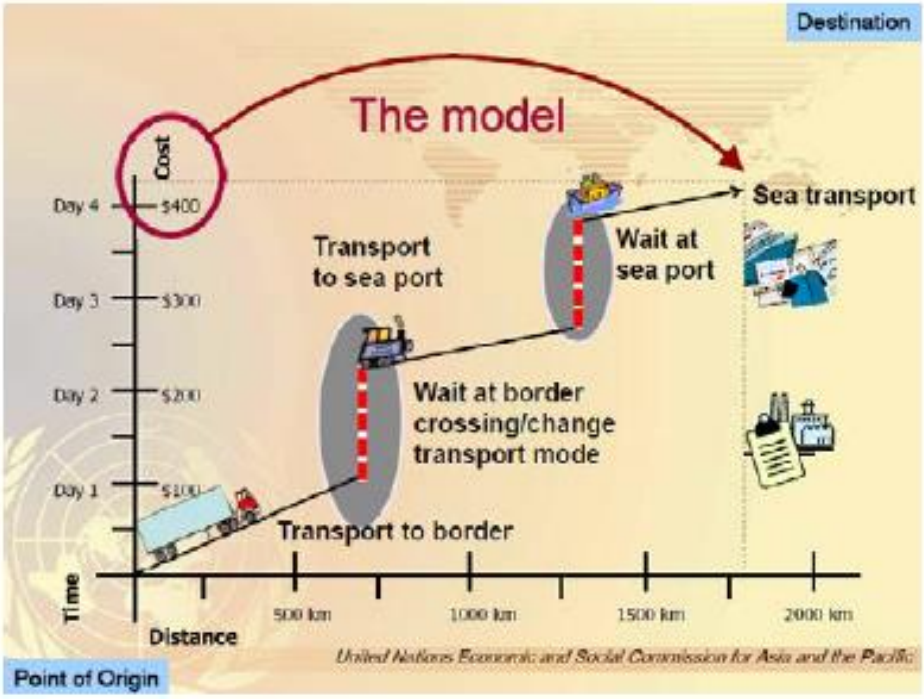
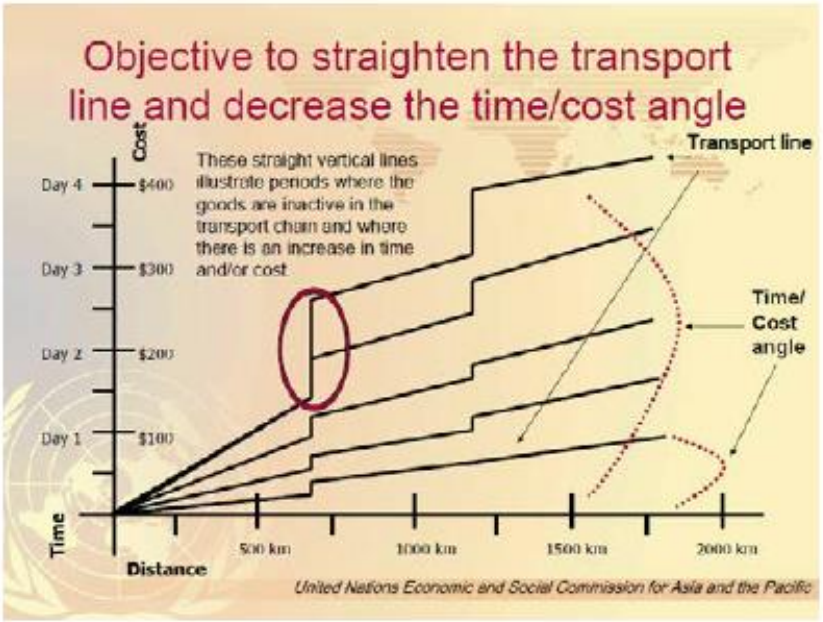



*Figure 24: Time/Cost-Distance methodology (ESCAP)*




The performance of a corridor can be evaluated from three perspectives. The first is an **infrastructure** perspective, which

considers the physical capacity of the links and nodes in a corridor and the utilization of these components. This approach is often used for deciding on requirements for additional capacity, but provides little insight into the effect of corridor performance on trade. The second perspective examines the **quality of the services** provided for the goods moving on the various routes. Performance is measured in terms of average time and cost for transport units moving through this corridor. These may be evaluated for individual links and nodes. The third perspective is the **shipment of goods** through the corridor. Once again, cost and time are measured, but this time for each of the principal supply chains. The costs and time can be disaggregated for the transport services on the links and the processing services at the nodes.

- **Quality of Service**
  - **Cost and Time**

Since a corridor is generally composed of several alternative routes, it is necessary to measure the performance of each route. This includes the movement across borders and through international gateways. In determining performance, costs are measured in terms of the out-of-pocket costs plus any loss or damage to cargo while en-route. Time is measured as the time to complete all the activities essential for moving from the beginning to the end of the route. This includes the delays associated with the frequency of services and with congestion at the nodes and can be presented as a function of distance along the route using a graph of the form shown in Figure 25.

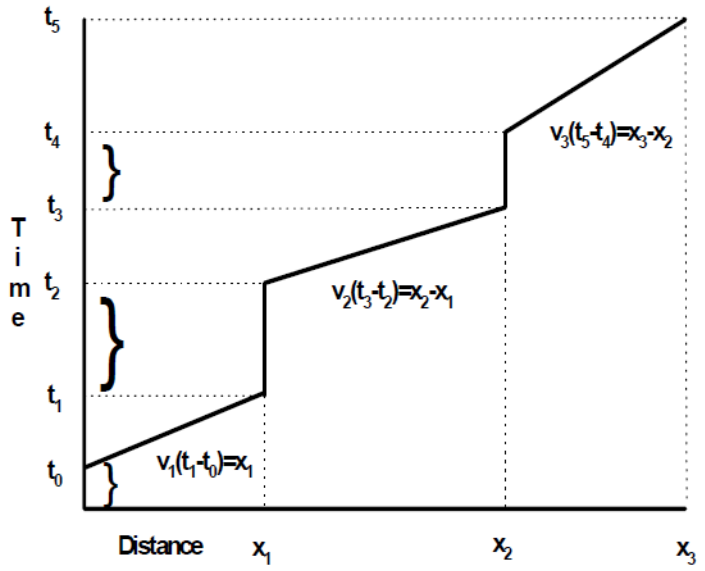



*Figure 25: Transit Time for Route 1*

The sloping lines represent the time spent moving along a link. The slope is inversely proportional to the average link velocity, "vj." The vertical lines represent the time spent at the nodes that connect these links. A variety of activities can occur at these nodes, some required and others discretionary. One required activity is the transfer of cargo between transport units where there is a change of mode (for example, rail to road), type of transport (for example, linehaul to distribution), or regulatory requirements (for example, hazardous materials). Another is the inspection of the vehicle and its cargo occurring at the boundaries, especially international borders. The most common discretionary activities occurring at these nodes are storage, intermediate processing, consolidation/ deconsolidation, repackaging, and labeling. It is important to exclude these activities when evaluating the performance of a route. The graph can be modified to display the nondiscretionary components, as shown in Figure 26.

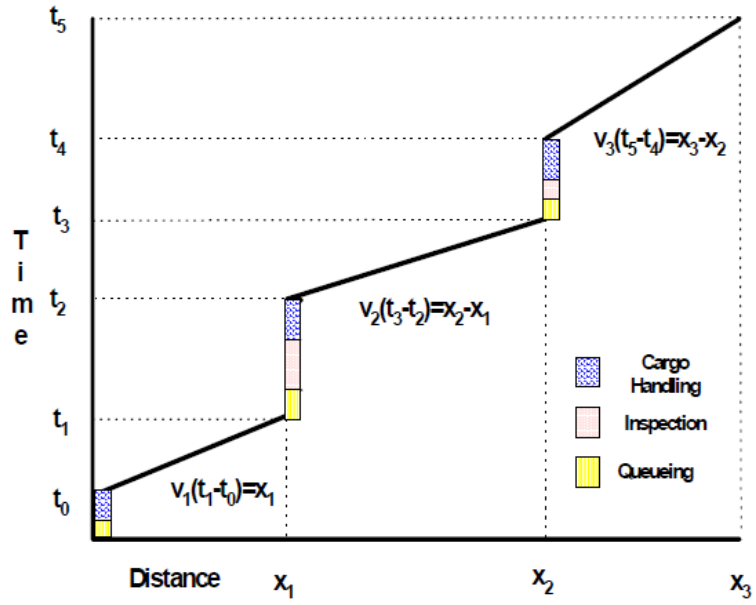



*Figure 26: Components of Transit Time on Route 1*

Where there are alternative routes, including modal combinations, the times can be compared, as shown in Figure 26. In this example, the first service is the fastest over the entire length of the route. In other situations one service might be faster over certain segments of the route, but not over other segments, in which case the lines might cross.

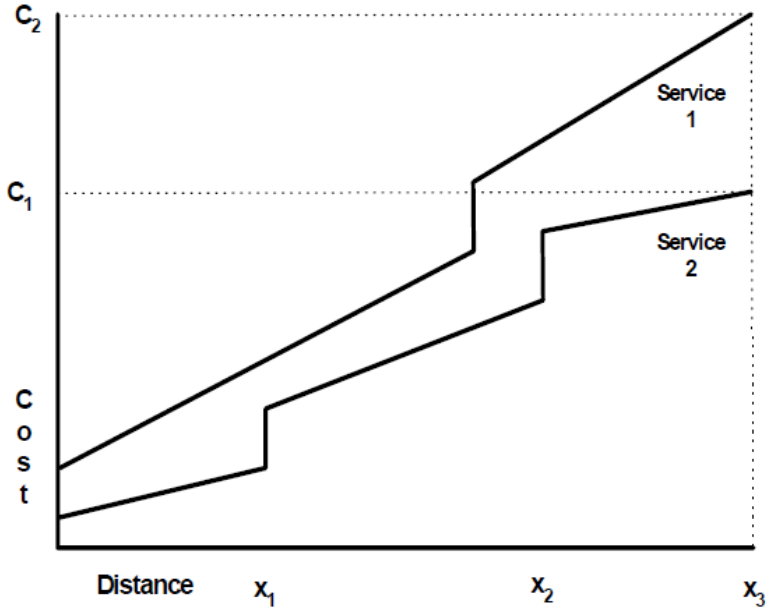



*Figure 27: Transit Times for Multiple Services*

The performance of the services on a route can be improved by reducing time either on the links or at the nodes. Time on a link can be shortened by improving infrastructure, better traffic management, or a change in the regulations affecting use of infrastructure (for example, limits on type of vehicle, speed and frequency of service). The times at nodes can be reduced by introducing new technologies and equipment, improving management of services, simplifying procedures and providing additional facilities to handle the traffic without significant delays. The value of these improvements for overall corridor performance can be evaluated, as shown in Figure 28, in which the dashed lines show the changes that have occurred.

The reduction in slope indicates where average travel speed on a link has increased, x $[1/t'_1 - 1/t_1]$, whereas the shortening of the vertical lines indicates where time at the nodes has been reduced, $(t_4 - t'_4)$.

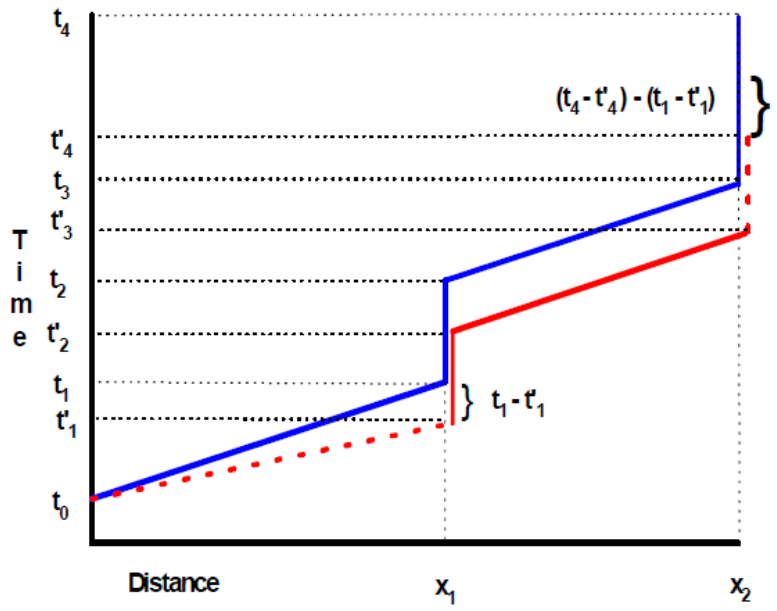



*Figure 28: Modeling Improvements in Service*

This comparison is useful not only for determining total time savings in corridor, but also for identifying those components that offer the greatest potential savings in time.

While it may be possible to make a significant reduction in the time at certain nodes, if these nodes do not account for a significant portion of total transit time, then it is better to focus on other nodes where there is a larger vertical component. Similarly, links with the steepest slopes will usually offer the best opportunity for improvement, but if the time on this link is small relative to total transit time, then it is better to focus on other links.

An analysis similar to that shown in Figures 25 to 28 can be performed for the cost of using the corridor.

Where there are multiple services on a route, each service can be represented by its average cost and time for transit. Similarly for the corridor, different combinations of routes, modes, and services can be represented by the average time and cost for transiting the corridor. These combinations can then be combined to form a curve showing the range of services available for movement through the corridor (Figure 29). For movements that do not extend the full length of the corridor, i.e. shipments that have an origin, destination, or both within the corridor ($x_2<x_3$), a similar curve could be produced by shifting down and to the left.

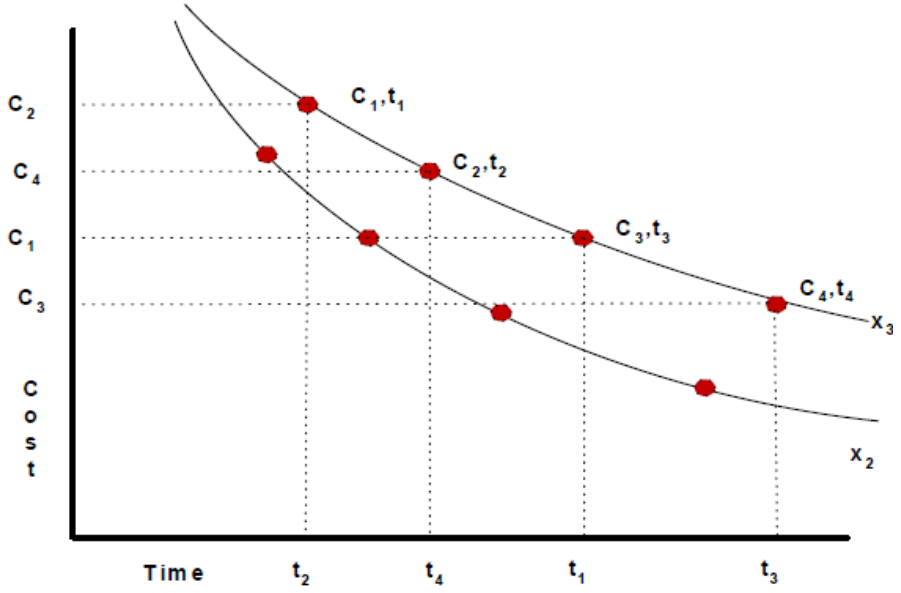



*Figure 29: Corridor Time-Cost Options*

– **Reliability**

Two additional parameters should be considered in evaluating corridor performance–reliability and flexibility. The importance of reliability varies for different trades. It is very important for manufacturers with capital-intensive production facilities that must coordinate the shipment of a wide range of inputs from multiple suppliers. It is also very important for just-in-time manufacturers that must adjust output to meet changing orders for the quantity and mix of different products. It has become increasingly important for large-scale retailers and wholesalers who want to achieve a cost advantage by minimizing their inventories in warehouses, in transit, and on their shelves. They accomplish this by reducing order sizes, shortening order cycles, and increasing their requirements for on-time shipments. Finally, it is important for pipeline-type operations, where the time in transit is less important than ensuring a continuous flow of product at the destination.

Because of increasing attention to the timeliness of shipments and the importance of order fulfillment as a component of competitive advantage, it is necessary to consider not only the average time and cost for moving through a corridor, but also the reliability in meeting specific transit times. For purposes of this discussion, reliability refers to the variation in transit time for a specific combination of services and origin-destination pair. This variation is due to a combination of controllable factors, such as condition and availability of equipment, coordination of sequential activities, labor productivity, and uncontrollable environmental factors, such as fluctuations in demand, level of background traffic, and weather conditions.

The greater the variation, the harder it is to predict actual transit time and, in turn, harder to coordinate sequential activities in the supply chain. Shippers and consignees accommodate this uncertainty by adding slack time to their planned delivery times. This increases the average order cycle time. An improvement in the quality of a transport service is one that reduces transit time variations, allows shippers/consignees to reduce their slack time, and thus the average order cycle. It also reduces the likelihood of bunching of arrivals and departures and of the associated delays. This positive feedback is modeled in Figure 30.


*Figure 30: Impact of Reliability on Transit Time*

– **Variety and Flexibility in Services**

The variety of services available and the flexibility provided by this variety, although difficult to measure, are becoming increasingly important in evaluating corridor performance. Manufacturers and other suppliers are introducing more flexible manufacturing in order to fill smaller orders, to allow more frequent changes in design, and to respond to modifications in orders that occur closer to the time of shipment. Retailers are becoming more flexible as shelf life decreases and consumers demand better product quality and more up-to-date products. In this competitive environment, it is necessary to have flexible supply chains. Some orders may require shorter delivery times, others lower shipping costs. The shipping date and the destination may be revised until shortly before the actual shipment. In some

cases, the cargo may be rerouted while in transit or even resold to another customer while en-route.

**Cargill - Flexibility in Trading**

Cargill, one of the largest grain traders in the world, does not produce grain, but acts as a logistics company organizing the flow of grain from the farm to the international markets. Grain trading itself is a business of large volumes, narrow margins, and rapid execution of trades. Despite the large volumes in which grain is traded, there is increasing emphasis on flexibility. One consignment may be traded several times before finally being shipped. In the US, grain continues to be traded after being loaded into the barges for the journey down the Mississippi. The decision as to which ocean-going vessel the grain will be loaded into is delayed as long as possible in hopes of obtaining a better price for the shipment. Even after it is loaded onto the vessel, it can still be traded and the vessel rerouted. In this business, flexibility is the source of profits.

Cargill is now combining this flexibility with tighter control of its supply chain to deliver higher value identity-preserved grains. These are grains raised under specific conditions, for example, organic, exotic varieties. These grains are shipped using the same logistics as other cargoes, but are kept isolated, lest they become mixed with inferior grains. Separate holds are used in the barges. The conveyor belts at the loading terminals are cleaned prior to handling the grain. Because the shipments are often too small to occupy a full hold, the grain is placed in a separate layer in the hold sealed above and below to avoid contamination. By preserving the identity of the product throughput the supply chain, Cargill is able to earn a substantial premium. By using its normal supply chain in a more flexible way, it is able to minimize the cost of providing this service.

The availability of multiple routes and modes is an important source of this flexibility, but more important is the availability of different types and qualities of transport services. The growing role of logistic service integrators (4PLs), which can provide different combinations of logistics services to meet the needs of individual customer, is evidence of the growing importance of flexibility. The industry leaders are capable of handling any size shipment anywhere in the world using various combinations of air, ocean, rail, and road transport.

With increased flexibility comes the requirement for tighter control over the movement of goods and real-time integration of information on the status of shipments, the demand for these goods, and the alternatives for adjusting not only the time and cost to complete delivery, but also the options for diverting the shipment to meet more pressing demand.

As global competition increases and the difference in the production costs of competing suppliers diminishes, greater attention will be given to the quality of logistics that links buyers and sellers. In this environment, transport and other logistics service providers must compete in terms of cost, time, reliability, and flexibility (C/T/R/F). In a competitive market, there will be a range of transport services offering different combinations of cost, time, and reliability. In combination they will provide varying levels of flexibility. The total demand for transport services in a corridor depends on how well these services match the requirements for specific cargo movements.

- **Corridor Supply Chain Analysis**

For each trade that uses the corridor, there is an average cost and transit time for the complete movement from origin to destination of which only a part may be in the corridor. There is

also a level of reliability for the complete movement, which is equated with the variation in transit time. These factors can be combined into a generalized cost function by assigning values to time and reliability. Since reliability is measured as the additional time required for ensuring timely delivery, the values for the two can be estimated using the same value. As a result the generalized cost function for a unit of trade k is:

$$Ck = ck + \alpha\, k\, (tk + \beta\, \sigma\, t,k\,)$$

where:

ck = direct cost for the movement of a unit of trade k from origin to destination;

αk = value of time for a unit of trade k;

tk = average transit time from origin to destination;

σ t,k = variation in transit time from origin to destination used to measure unreliability, and

β = reliability criteria, e.g., β = 1.96 => 2.5% missed delivery dates.

– **Value of Time**

The marginal value of time can be estimated as the reduction in costs resulting from a reduction in transit time or, where there are alternative services, as the willingness to pay for a faster transit time. The lowest value of time can be estimated using the daily cost for financing goods in transit and in inventory. For goods valued in the $2,000-$5,000 per ton range, this cost amounts to only $0.75 to $2.50 per day per ton. An intermediate value of time can be computed where there is a range of competing services with different combinations of cost and time offered. For example, container shipping lines may offer more direct services with a higher freight rate and more circuitous routes with lower freight rates. A typical trade-off would be in the range of $20.00-$30.00 per TEU day, or about $2.00-$3.00 per day per ton. For land and air express services, it is increasingly

common to differentiate services according to delivery time. A premium is charged for overnight delivery and the rates decrease as delivery time increases. The importance of time is linked not only to the value of cargo, but also to the competitive pressure on order times. Producers with shorter order times can obtain competitive advantage and higher prices for their goods. For example, the Bangladesh garment industry ships about ten percent of its output by air in order to offer a shorter order cycle and compensate for missed ocean shipments. Airfreight costs about $2,500 per ton to northern Europe, whereas ocean freight plus port charges for containerized cargoes costs about $180 per ton. The reduction in shipping time is twenty to twenty-five days, implying a value of about $100 per day per ton.

Another approach to examining the impact of corridor improvement is to consider the discreet impacts. A reduction in delivery time may allow a shipper to compete in markets that require shorter delivery times. For example, a reduction in transit time that allows for a decrease in order cycle from two months to one and one-half months allows a shipper to compete in market niches that require more rapid replenishment. In this situation, the benefit to the shipper would be the profits earned from the additional volume shipped to this market niche. A similar but more dramatic impact occurs for trade in perishables where the reduction in transit time allows the shipper to extend the range in which goods can be sold.

– **Reliability**

The cost of unreliable service can be estimated by considering the direct cost for missed delivery dates. In some cases, the buyer will charge a penalty or refuse to accept the shipment until the price has been discounted. In other cases, the buyer may cancel subsequent orders. The extent of the penalty is related to the impact on the buyer due to missed sales and/or over-

stockages, as well as the availability of competing suppliers. As discussed above, shippers introduce slack time to avoid missed deliveries. The slack time will be set proportional to the standard deviation of the transit time. The greater the penalty the greater the multiple of standard deviation used for slack time. A shipper normally establishes a standard for on-time deliveries and adjusts the slack time to meet this standard.

## 7. The Impact of COVID-19 on International Transport Corridors

ESCAP's Policy Brief on policy responses to COVID-19 highlights that one of the first lessons of the COVID-19 pandemic is the importance of maintaining transport connectivity and the cross-border movement of essential goods. This is very challenging to implement as it has gone against the global trend of lockdown responses resulting in the closing of borders and a severe reduction in mobility. Recent practices in the countries in Asia-Pacific have revealed fragmented policy responses following the COVID-19 outbreak, which would suggest that there may not be sufficient cooperation mechanisms in place to ensure that cross-border trade and transport take place as smoothly as possible in times of pandemic or other similar cross-border emergencies.

Countries also may seize upon the lessons learned during the pandemic for a decisive shift towards innovation and digitizing the processes involved in exchange of information to complete operational and regulatory transport, trade, import, export and transit controls. Several countries introduced priority lanes (sometimes called 'green lanes') and accelerated customs procedures for essential goods, accepted electronic documents, piloted new automated and digital technologies, promoting contactless processing and delivery and other measures. Box 2 presents examples of facilitation measures.

### a. Health related measures under COVID-19 proposed by the IRU "International Road Transport Union".

The transport industry proposed measures to protect the safety of their drivers and workers minimizing the chances for transmission of COVID-19 during operations.

The International Road Transport Union IRU: Short term actions to keep road networks safe and open:

- **Safety**
  - Operating companies should implement higher driver health and safety standards for loading and unloading goods (particularly in quarantine areas) and concerning the carriage of documents to demonstrate compliance with health rules.
  - Operating companies must ensure traceability in recording and maintaining driver and worker movements.
  - Governments and authorities should clearly communicate enforcement procedures for vehicles, drivers and cargo or passengers, especially for quarantine areas.
  - Governments and authorities should closely coordinate and publish measures to mitigate the impact of the restrictions they adopt on supply chains and related movements of goods and people.
- **Economic**
  - Ease driving and resting time rules to ensure efficient logistics for critical goods (food and medical supplies) and enable drivers to leave affected regions or quarantine zones as quickly as possible to return home.
  - Lift delivery restrictions to ensure delivery can take place at safer times, in the night for example.

- Ease loan and mortgage repayment terms from financial institutions, especially for large vehicle loans, and VAT and tax payment deadlines.
- Remove or reduce tolls and road user charges for trucks and coaches.
- Set up support programs for temporarily unemployed road transport workers.
- Avoid unilateral measures by the relevant authorities so that cross-border transport of goods is facilitated (especially essential items such as food and medical supplies).
- Provide emergency financial aid programs for impacted businesses to prevent bankruptcies.

## b. COVID-19 measures, adopted by the EU International Corridors for Road Transport safety and Operations efficiency

The European Union issued guidelines for border management measures to protect health and ensure the availability of goods and essential services at the same time. These guidelines stipulate that individual EU Member States should not undertake measures that jeopardize the integrity of the Single Market for goods, particularly of supply chains, or engage in any unfair practices. The guidelines address five topics:

- **Transport of goods and services**

As transport and mobility are essential to ensure economic continuity, control measures should not undermine this continuity of economic activity and preserve the operation of the supply chains. EU Member States may impose restrictions to the transport of goods and passengers on grounds of public health, but only if these restrictions are transparent, duly motivated,

proportionate, relevant and mode-specific, and nondiscriminatory.

- **Supply of goods**

Member States should preserve the free circulation of all goods and guarantee the supply chain of essential products such as medicines, medical equipment, essential and perishable food products and livestock. Member States should also designate priority lanes for freight transport, e.g. via so-called green lanes and consider waiving existing weekend bans. Transport workers should be enabled to circulate across borders.

- **Health-related measures**

It is recommended to put in place primary and secondary entry and exit screening measures and provide information in various forms. Suspected case should be isolated and actual cases transferred to a health care facility. Protective equipment for healthcare and non-health care workers should be provided.

- **External borders**

All persons, EU and non-EU nationals, who cross the external borders to enter the Schengen area will be subject to systematic checks at border crossing points and Member States are allowed to refuse entry to non-resident third country nationals where they present relevant symptoms or have been particularly exposed to risk of infection and are considered to be a threat to public health.

- **Internal borders**

EU Member States are allowed to reintroduce temporary border controls at internal borders if justified for reasons of public policy or internal security. Member States can also require persons entering their territory to undergo self-isolation or similar measures upon return from an area affected by COVID-19 if they

impose the same requirements on their own nationals. Member States should also coordinate to carry out health screening on one side of the border to avoid overlaps and waiting times.

### c. Examples of facilitation measures introduced to fight the COVID-19 outbreak

- **Georgia**

Within the frames of the measures to prevent the spread of COVID-19, movement of the freight vehicles through the customs checkpoint on Georgian-Azerbaijani border (including transit and rail freight traffic) is ensured according to the specially developed protocol in 24-hour regime.

- **China**

Transport facilitation measures taken include removing all road tolls (including for bridge and tunnels) across the country for all vehicles, until the pandemic ends; putting in place a no-stop, no-check, toll free policy for vehicles transporting emergency supplies and essential personnel and cutting operational costs of international air cargo, including exemptions from the civil aviation development funds as well as reduction of airport charges and air traffic control. Passenger airlines are also encouraged to turn passenger planes into all-cargo freighters for carrying out freight transportation to make up for the shortage of air freight capacity amid the escalating pandemic.

- **India**

Special facilitation measures at main ports. To ensure smooth flow of supply chain of essential items during national lockdown to fight COVID-19, clarifications were provided to ensure that stakeholders in logistics and warehousing receive necessary assistance to continue their operations.

- **Republic of Korea**

To address delays at airports and seaports, allowing cargo to be transported directly to manufacturing plants without entry into the terminal after arrival in order to solve the problems of delayed unloading and shortage of storage space at airports and seaports driven by the concentration of imports.

- **Russian Federation**

A headquarters has been set up at Russian Railways to provide operational support to shippers and ensure coordination of all links in the transport chains in the context of preventing and eliminating the spread of new coronavirus infection. Temporary exemption from weight control of vehicles carrying essential goods and temporary cancellation restrictions on the movement of such vehicles and their loading and unloading within the city limits.

- **Singapore**

The Singapore-Malaysia Special Working Committee has agreed that the transport of all types of goods between Malaysia and Singapore will be facilitated during the duration of Malaysia's Movement Control Order. As such, those conveying essential services, or supplies (e.g. lorry drivers, vegetable supply truckers, frozen supply truckers) via land and sea crossings will be exempted from the Ministry of Manpower's (MOM) entry approval and quarantine ("Stay Home Notice" (SHN)) requirements.

However, the outbreak of the pandemic also made clear that in reality the many regional trade, transport or transit cooperation mechanisms, which in practice should be regulating and facilitating cross-border trade and transport, offered insufficient guidance to handle a crisis like the one caused by COVID-19. Regional cooperation can alleviate the cross-border transport

complications arising from the COVID-19 response and this regional cooperation should be further developed, strengthened in implemented in the post-COVID era.

**d. Design and apply measures towards more safe, secure and seamless road transport**

- **On exchange of information**

Exchange of information is crucial and is the first towards integrating the various information systems. It is the first step towards safe and seamless digital trade and transport corridors.

Relevant information regarding transport and trade regulations should become more transparent and should be made available in various languages in the public domain.

- **On coordination, cooperation and integration**

The main lesson to be drawn from the COVID-19 pandemic is that despite the growing trend of globalization of the social and economic system, there is still lack of coordination, cooperation an integration of information systems at all levels. The crisis, however, has also brought governmental institutions and the business sector all over the world to work closer together in combatting a common enemy: COVID-19.

It is important that this experience of working together between the public and private sector at national level, and between countries at international level will result in a further development of this cooperation.

An important cornerstone for the post-pandemic socio-economic recovery is investing in digital infrastructure, which will facilitate more coordination, cooperation and integration of information systems.

- **On observatories to monitor corridor performance**

The Observatory on Border Crossings9 was launched in March 2020 in response to an increasing number of countries around the world that were closing their borders and imposing travel restrictions during COVID-19 pandemic. The patchwork of uncoordinated actions taken by governments were causing delays at border crossings in many countries making it difficult to keep transport supply chains open. The observatory provides available information on the border crossing limitations worldwide and the continuously changing rules and regimes affecting border crossings.

It is recommended to continue with this observatory after the end of the COVID-19 pandemic and widen the scope of monitoring. Important information for the observatory includes:

- Changing national laws, decrees and regulations affecting international incoming and outgoing transport
- Border procedures and requirements for drivers, vehicles/trains and cargo; inspection regimes at border crossings
- Estimated waiting time at border crossings

Additionally, a permanent observatory could also coordinate the monitoring of performance of transport along the corridors and at border crossings by organizing regular surveys measuring time, cost and reliability of cargo of individual trips.

- **On border crossings along the corridors**

At the border crossings along the corridors, Customs and other inspection agencies should coordinate and cooperate much better amongst themselves at each side of the border, but also coordinate and cooperate with Customs and the other inspection agencies at the other side of the border.

- Opportunities should be identified towards establishing one-stop-border posts.
- International harmonization and simplification of border procedures are needed as well.
- There is an urgent need for global harmonization and simplification of documents required for trade, transport, sanitary and phyto-sanitary inspection, etc.
- Progress should be made in the mutual recognition of licenses, certificates and other transport and trade-related documents.

It is important to accelerate the introduction and acceptance of electronic submission of national and international documents for trade and transport taking into account standards as elaborated by UN/CEFACT; this also includes the global acceptance of e-signatures. Examples are the legal acceptance of eCMR (road transport document), eTIR (road transport document for international container transport), FIATA Bill of Lading, CIM/SMGS (railway document), etc.

- **On safe and secure parking places along corridors**

Along the national and international Eurasian transport corridors, a system should be developed to set-up safe and secure parking places for trucks and buses with a minimum level of facilities and services to be defined by the Member States of ESCAP.

- **On sanitary conditions**

COVID-19 has shown that good sanitary conditions, availability and use of personal protection equipment in specific cases and personal safety deserve particular attention at the work spot, at home and in social interaction, also in normal times.

International associations with member companies and institutes operating in the field of transport, warehousing, cargo

handling, freight forwarding, logistics, trade, customs, health and phyto-sanitary inspections have proposed a wide range of measures to improve the sanitary conditions of its operations and to provide protection against infection by COVID-19. Some of these measures will be valid after the end of the pandemic as well.

- **On gender**

Women are worldwide dramatically underrepresented in the transport work force. According to information from the International Transport Forum only 22% of transport employees in the European Union are female; in de Asian-Pacific region 20%; and in the United States 14%10. However, women are particularly rare in senior positions in the transport, logistics and infrastructure sectors. The result is that gender specific perspectives in the elaboration of all kind of measures addressing the transport sector, and in particular the road transport sector, are less likely to be considered. More special gender-specific attention is thus needed.

## 8. International Transport Corridors in the Eurasian Space

International transport corridors (ITC) are designed to overcome objective physical, economic and political restrictions on the way of commodity flow through establishment of a predictable and transparent operational environment for shippers and consumers of their services. As they connect spaces, transport corridors are considered particularly important on the territory of Eurasia, where states are challenged with their continental location. ITCs are also a point of economic growth, since they connect regions, attract investments and allow countries deriving a benefit from cargo transits across their territories.

In the context of rapid development of various latitudinal routes in the East —West direction (China — EU), particularly of the Eurasian transit route through Kazakhstan, Russia and Belarus, greater attention is paid to development of complementary meridional corridors. The North — South Corridor is one of the vital historical corridors that link Europe and Russia with Iran and South Asian countries. Despite the early start (in accordance with the intergovernmental agreement, a decision was made to set up the North — South ITC in 2000 already), the corridor faced some fundamental restriction that hindered its development.

The North — South ITC is currently a set of logistically unrelated routes united under the shared title of the North — South ITC. Yet, all the countries along the route are interested in fulfillment of its transit potential, though there are also their own interests coming from flow pulling. Though efforts of states are often poorly coordinated, availability of their own development plans, update and expansion of the corridor infrastructure, including railroad one, has been already changing the competitive landscape and geography of commodity flows.

However, its trade that remains the major barrier leading to restrictions associated with a cargo base. While the cargo flow from India to Russia has some containerization potential coming from deliveries of pharmaceutical products and food industry products, the backward flow largely comprised of raw commodities, i.e. liquid bulk cargos and bulk loads, presents a problem of deadheading backwards.

However, gradual, though multidirectional, development of infrastructure along the route, Russia's aspiration to create a uniform operator (which was voiced in 2020), India's inevitable development as one of the critical economic poles of the modern world, these factors tell that it is crucial to estimate possible ways of linking Northern latitudinal routes in the East — West direction to the North— South ITC.

**a. Architecture of the North — South Transport Corridor**

- *Institutional Framework and Prerequisites of Corridor Setup*

The international agreement between Russia, Iran and India on the International North — South Transport Corridor was signed on September 12, 2000, in the course of the Second International Euro-Asian Conference on Transport. In May 2003, ministers of transport signed the protocol on official opening of the corridor in Saint Petersburg. When making the decision parties relied upon increasing regional and global interdependence, their aspiration to enhance trade exchange and transit traffic as a means to accelerate economic growth both within the countries and in the regions along the route.

To support those efforts the Charter of the Coordination Council (CC) of the North — South ITC, the ITC governing body, was approved by ministers of participating countries in 2002. Countries are rotated to chair in CC for the period of one year.

Two expert groups operate in the framework of the CC: Commercial & Operational Matters and Documents, Custom Duties & Collateral Issues.

Re-orientation of land transport logistic chains requires significant time and investment. It puts the issue of arranging predictable long-term rules on the part of ITC participants in the foreground. Meanwhile, the longer a transport corridor functions, the more stable and strong the economic relations built around it get, particularly when intracontinental corridors such as North — South ITC are involved.

As it has been pointed out in the previous overview dedicated to the main routes in Eurasia in the East — West direction, a transport corridor is a set of conciliations aimed at changing the speed and direction of commodity flows within a certain space. According to the UN, a transport corridor is also a set of rules regulating the aspects of transportation and transit of goods along a specific route, supported by an agreement signed by the participating countries. Transparency and predictability are key factors in practical application of ITCs.

Investments in transport connectivity reduce the expenses of enterprises, ensure synergetic effect, and become a driver for development of territories. As Russian practices have shown, each ruble invested in infrastructure brings more than one ruble of extra revenue to related branches of the economy. Similar multiplicative effect can be caused by implementation of transport corridor projects.

Thus, countries of the North — South Corridor (NS ITC) seemed to have established required rules for accelerated development of the project through the intergovernmental agreement. Moreover, the North — South Transport Corridor largely takes priorities of development of countries along the

route into account, since, aside from the transit between India and Russia, creating of NS ITC was also aimed at development of regional ties in the Trans-Caspian area.

A corridor with a transit across territories of several countries along the way irrespective of priorities for national or regional development and establishment of trans-regional relations face some barriers in the long term. Thus, the issues of transit logistics should be linked with the issues of trans-regional interaction and establishment of local points of economic growth, as well as with improved regulation and modernization of the infrastructure to serve long-term interests of NS ITC countries.

Following this paradigm, after the agreement on NS ITC is concluded, it was joined by other interested countries. In 2005, the agreement was joined by Azerbaijan. It was followed by Armenia, Belarus, Kazakhstan, Oman and Syria. Thus, NS ITC became a truly multilateral initiative that united Trans-Caspian region with those adjacent to it. However, active launch and expansion of NS ITC didn't result in successful implementation.

- *Main Advantages and Disadvantages of the Corridor*

From the perspective of pulling transit flows to the railroads, NS ITC is positioned as an alternative to the Suez Canal and sea communication in general. A direct track from St. Petersburg (the point of diffusion to Europe) to the Bandar Abbas Port (the largest port in the South of Iran, a point of freight diffusion) is over 7,000 km depending on the route in the central segment where the corridor is divided into three routes: Trans-Caspian (through the Caspian Sea), Western (through Azerbaijan) and Eastern (through Turkmenistan and Kazakhstan).

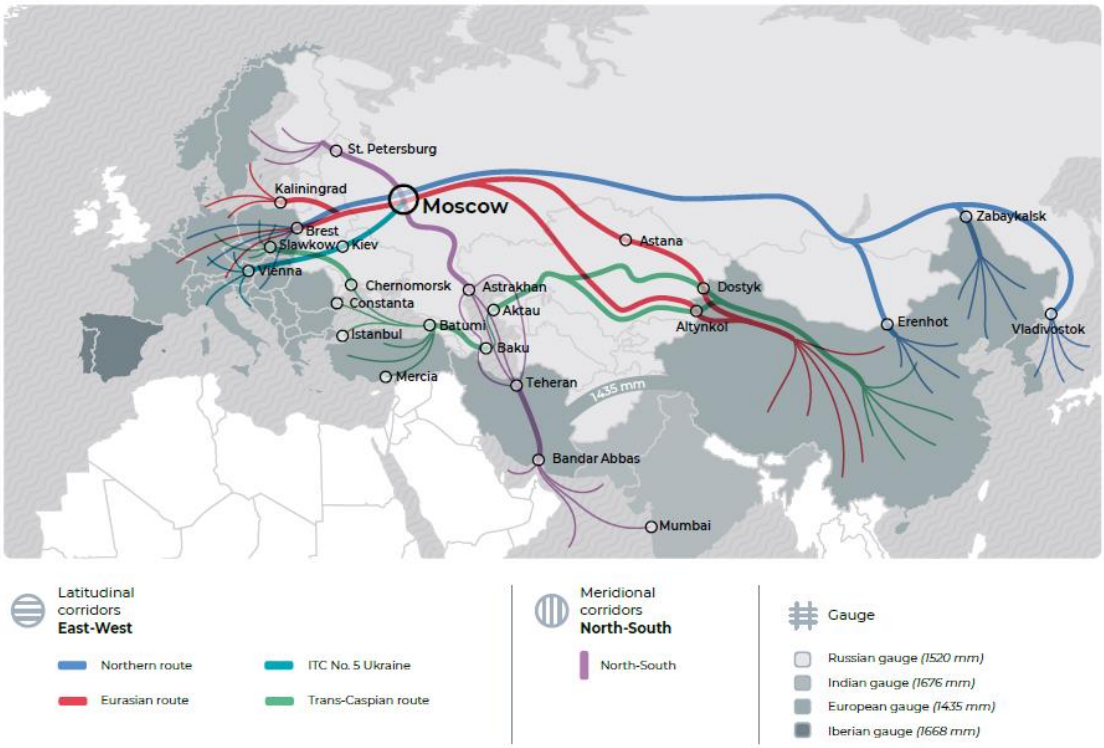



*Figure 31: BASIC CONTINENTAL INTERNATIONAL TRANSPORT ROUTES OF EURASIA*

As the market analysis has shown, at the average the term of container delivery from the Bandar Abbas Port to St. Petersburg is up to 30–35 days by sea and up to 7–10 days by air. Direct delivery from Mumbai (the Port of Bombay on the Western Indian coast, the largest one in the country) to St. Petersburg takes 43–45 days ($1,850 for TEU). Besides, both paths require transshipment in ports of the Netherlands or Germany. However, these time calculations include customs procedures. According to other data, the term of container delivery by sea along the route Mumbai — St. Petersburg can take about 30 days.

According to the transportation logistics calculator, currently there's no opportunity for direct international transportation of a container by railroad along the route St. Petersburg — Bandar Abbas. Therefore, NS ITC is currently a set

of logistically unrelated routes united under the shared title of the North — South ITC.

After a trial dispatch of cargos for the Federation of Freight Forwarders' Associations in India in 2014 suggested at the 5th Meeting of ITC CC in Baku on June 24–25, 2013, that had taken place along various routes, the following results were obtained:

1. **Route 1**: Nhava Sheva (Mumbai, India) — Bandar Abbas (Iran) by sea (1,265 nautical miles). Bandar Abbas — Baku by car (1,900 km across the territory of Iran plus 250 km through Azerbaijan).
2. **Route 2**: Nhava Sheva — Bandar Abbas by sea (1,265 nautical miles). Bandar Abbas — Amirabad (Iran) by car or by railroad (1,500 km). Amirabad — Astrakhan through the Caspian Sea (1,000 nautical miles).
3. **The current delivery route**: Mumbai — Hamburg/Bremerhaven — St. Petersburg (8,675 nautical miles; transit time — 30 days). The cost is $955–1,400 for a 20 HQ container; $1,500–1,900 for a 40 HQ one. Main operators: Maersk Line, MSC Line, CMA CGM Line, CSAV Line.

By some estimates, the launch of direct traffic along the entire route will allow delivering cargos in 12–14 days. However, to achieve such performance targets a whole range of transportation and logistics problems needs to be solved, infrastructure needs to be updates and, which is more, potential cargo flow needs to be increased along the route.

On the first stage it's important to map a route to Astrakhan that might become a logistics hub for both NS ITC and the possible adjustment of the corridor to latitudinal routes. However, the trial dispatch of containers to Astrakhan and Baku has

revealed significant overrun of the expected delivery time — 43 days. First of all, such a result was caused by down time in ports: The cargo crossed the Caspian Sea in eight days (instead of expected four), while the path from Mumbai to Bandar Abbas took ten days (instead of three). As a result, by some estimates, no more than 12–16% of the Russian-Iranian container flow go through Russian ports of the Caspian Sea (Astrakhan, Olya, Makhachkala). There are almost no cargos from India.

In a matter of two decades while the corridor has existed, estimates of the potential flow for a fully operating North — South Corridor have been gradually decreased. Nowadays the trafficability of transit through NS ITC is estimated at 5,000,000 tons (by some estimates — 3.5 mln tons) at the early stage and at up to 15–20 mln tons in the prospect. So, firstly, these estimates are by several orders lower than the current turnover of the Suez Canal — more than 900,000,000 tons of net tonnage (about a half of the tonnage is container ships). Secondly, this potential is largely based on bulk loads and liquid bulk cargos, and the containerization potential here might be even lower.

**Thus, the following advantages of NS ITC can be noted:**

- Potentially shorter time of cargo delivery between India and Russia.
- Already existing link of the corridor to national and regional development priorities of Caspian Region countries which makes countries strategically interested in development of NS ITC.
- The potential adjust of NS ITC to latitudinal corridors in the East — West direction in selected transportation and logistics hubs, for example, in Astrakhan. As for the major challenges at the current stage, the following ones can be noted:

- A lack of a uniform multimodal operator and, therefore, a uniform through rate.
- A lack of the container fleet: as a rule, container lines reluctantly provide their containers for deliveries from Bandar Abbas to Moscow, since the line loses control over the container that travels by land and, therefore, doesn't make money off sea deliveries with this container.
- The problem of returning empty containers. It's largely raw commodities (bulk loads) and liquid bulk cargos that go from the North to the South. Therefore, there's deadheading for containers in this direction. To set up a transportation hub for customs clearing and cargo distribution before they arrive to Moscow could have become a solution. Here NS ITC could be integrated with latitudinal routes.
- All the above mentioned results in non-competitive delivery terms (by some estimates, approximately from $3,486 to $7,000 for FEU), particularly for raw commodities (bulk loads) that are more cost-efficient to be sent by sea (for example, from Novorossiysk) which is cheaper.

- *Infrastructure along the Route and Interests of Participants*

In its central part NS ITC is geographically divided into three routes:

- Trans-Caspian Route: using Russian ports of Astrakhan, Olya, Makhachkala, and ports of Iran — Anzali, Nowshahr and Amirabad.
- Western Route: direct railway communication through border-crossing points, such as Samur (Russia) / Yalama

(Azerbaijan) with further access to the Iranian railway system through the border-crossing point of Astara (Azerbaijan) / Astara
- (Iran).

- Eastern Route: direct railway communication through Kazakhstan and Turkmenistan with an access to the Iranian railway system.

Considering the abovementioned transportation and logistics problems infrastructural barriers are an obstacle for the route development. Whether they are overcome largely depends on commitment of states along the way. Consequently, it's important to address their interests and attitudes.

***INDIA***

For India to take part in NS ITC is an opportunity to increase its export, especially when it comes to high-added value products, and get access to deliveries of raw materials from Caspian Region countries (uranium, copper, titanium, coal, phosphorus, gas, ironstone, oil, etc.) Considering some forecasts that suggest a chance for India to become the third economy in the world by 2030, and the population of the country to grow enormously (as well as the consumer market), India has prospects to become a new driver of global development. Hence, India has a potential to become an important actor of the global trade just like China, which will affect the potential of all ITCs focused on this country.

Meanwhile Iran as a point of transit has a few positive and negative effects on Deli. First, since the Iranian Revolution of 1979 Teheran has been under the US sanctions that have not just hindered development of the country significantly (PL 115-44, CAATSA), but also restricted third countries in their interactions with Iran, primarily when it comes to finances. It's a largely

constraining, though not major factor for India as an ally of the USA.

India's pragmatic approach and focus on its national interests of development impose a need to expand transport routes through Iran, especially considering confrontation with Pakistan. India strives to balance Chinese investments in Pakistan, modernization of the Gwadar Port and a railroad in the North of the country (the project worth of $7.2 bln. with an access to Western China). India plans investing $500,000,000 in development of the Chabahar Port on the coast of Iran and about $1.5 bln. in construction of railroads and motor roads. The Chabahar Port will be the first deep water port in Iran, also located straight on the coast of the Indian Ocean instead of the Gulf.

However, Indian projects are not focused on NS ITC as such only. One of India's goals is to launch a corridor from Chabahar to Kabul in order to get access to Herat, the headmost province in Afghanistan, and then, most likely, straight to Uzbekistan and Turkmenistan. In 2016, a Trilateral Agreement for Transit was concluded. In 2019, container traffic along the corridor started, though in scope of tens only. Volumes of cargo transshipments in Chabahar are supposed to amount up to 10 mln. Tones annually with a prospect of 80 mln. tons in the future.

***IRAN***

NS ITC offers Iran a possibility to use beneficial economic and geographical situation of the country, overcome negative external effects and drive economic development of the country. Iran has 13,000 km of railroads. Iran requires investments of up to $2 bln. into railroads and land terminals, and up to $1 bln. into the port business annually. By some estimates, it might take up to 30 bln. dollars in total to update the railroad infrastructure for NS ITC needs. Due to external sanctions imposed on the country as

well as the country's landscape railroads of the country are poorly developed in comparison with neighboring countries.

From the perspective of NS ITC development, the problem was caused by 'bottle necks' in the railroad infrastructure of the country. Only about 4% of cargos in the country are transported by rail. The fact that most railroads in Iran are also single track and non-electrified restricts opportunities for rapid growth of transit cargo traffic.

A lack of direct railway communication between Russia and Iran is caused by two factors. Firstly, the historical road that connects Teheran and Moscow through Armenia and Nakhchivan (Azerbaijanian enclave) was closed, because Armenia was placed under siege by Azerbaijan. Secondly, the Astara — Rasht — Qazvin section designed to connect the railway systems of Iran and Azerbaijan is still under construction. In 2019, due to the credit in the amount of $500,000,000 provided by Azerbaijan communication along the Rasht — Qazvin section was launched. It is planned to put the Rasht — Astara section into operation in 2021 completing the project.

Insufficient financing makes Iranian railroads severely dependent on external investments, which is obviously exemplified by Indian, Azerbaijanian and Russian investment projects. In 2017, JSC Russian Railways and Islamic Republic of Iran Railways signed the Memorandum on Strategic Partnership, including the contract for electrification of the Garmsar — Incheh Borun railway section (with access to Turkmenistan) and supply of Russian equipment and locomotives to Iran. To fulfill the project Iran was granted a credit of about €1 bln. (85% of financing for the project). In February 2020, JSC Russian Railways made decision to withdraw from the project because of sectoral sanctions of the USA.

### *AZERBAIJAN*

The government of Azerbaijan consistently pursues a course on turning the country into a critical transportation hub of the region. Both beneficial economic and geographical situation of Azerbaijan and availability of funds for investments in large projects are advantageous for the country. Aside from the project on connecting with Iranian railroads, Azerbaijan was the main investor in construction of the Baku — Tbilisi — Kars latitudinal railroad (about $775,000,000) which is a part of the Trans-Caspian Corridor.

In the framework of NS ITC Azerbaijan also develops a piece of track that gives into Russia. In 2018, about $180,000,000 was invested to expand the trafficability of the Sumgait — Yalama section in the framework of the national investment program. As early as on May 6, 2019, the Memorandum on Cooperation was signed by JSC Russian Railways, CJSC Azerbaijan Railways (AzRW) and Turkish State Railways (TCDD). Thus, Azerbaijan managed to ensure adjustment of latitudinal and meridional routes, while Turkey was included in the system of Eurasian transport corridors.

Since oil products constitute a significant part of Azerbaijanian export, the country has a substantial export potential which also drives development of infrastructure and logistics.

### *KAZAKHSTAN AND TURKMENISTAN*

Just like Azerbaijan, Kazakhstan strives to use benefits of its location at the joint of European roads to the fullest extent through development of transit. The Eastern route of NS ITC goes through Kazakhstan and Turkmenistan. Since the breakup of the Soviet Union three joints with Iranian railroads have been constructed in Turkmenistan. By 2014 construction of the

railroad Uzen (Kazakhstan) — Gyzylgaya — Bereket — Etrek (Turkmenia) — Gorgan (Iran) with an access to the railway system of JSC Russian Railways was completed. Considering small commodity turnover between Central Asian countries and Iran this trunk line is designed specifically for potential transit of NS ITC.

As of yet, the road is underemployed. In 2018, the volume of cargos passing across the border with Iran amounted to 1,200,000 tons only, including 226,000 tons of transit flow. Thus, the rout is hardly connected with transit flows and used as a regional route for trade of Kazakhstan and Turkmenistan with Iran. Specificity of commodities transported along the route is also important, since they are mostly raw commodities and low-added value products that make containerization difficult.

Some prospects for increasing transit volumes are linked with Chinese export to Iran which is obviously limited due to the economic situation in Iran. Nevertheless, by some estimates, shipment from China to Iran by rail is still better in terms of speed than by sea. Besides, 80% of the Iranian population live in Northern regions that gravitate toward the Caspian region.

As for European cargos, in this case the Eastern route is inferior to the Western one laid through Azerbaijan at least because of a slightly larger transportation leg. It takes 12 days for a TEU container to arrive from Moscow to Astara, while the way from Moscow to, let’s say, Turkmenian Bereket takes 14 days. It’s important to consider the distance of the latter one from the Iranian border.

***RUSSIA***

At the moment NS ITC fulfills several tasks for Russia. Firstly, South — East is designed to drive economic development of Southern regions of the country, primarily such as the

Astrakhan Region, the Republic of Dagestan and the Republic of Kalmykia. Secondly, the corridor must fulfill the transit potential of the country in terms of meridional routes. Thirdly, it is to drive trade with India and Iran. Currently none of these tasks is fulfilled to the full extent.

Economies of the Astrakhan Region and the Republic of Dagestan have significant fulfillment potential due to unique location of regions. Historically, Astrakhan has been a center of trade with Persia. It's the 'Caspian Gate' merchant Afanasy Nikitin started his 'journey beyond three seas' with. Nowadays 91% of port turnover in the Astrakhan Region is accounted for by cargos of the Iranian direction.

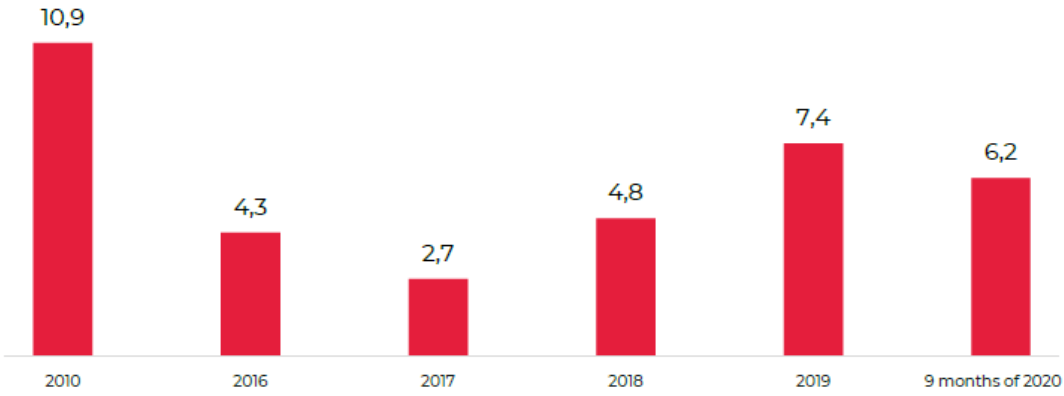



*Figure 32: TURNOVER OF RUSSIAN CASPIAN BASIN PORTS. mln. t*

Despite positive dynamics of the cargo turnover in 2019 and 2020 (+53% against 2018), such a dynamics is rather a recovery, since in 2010 the turnover used to reach 10,900,000 tons. As evidenced by statistics, the main cargos are liquid bulk cargos (oil going through the Makhachkala port), bulk loads (grains showing sustainable growth) and break-bulk cargos (primarily ferrous metals). Dependency on raw commodities makes the turnover subject to the state of the market. Therefore, Iran's development

of its own ferrous metallurgy gradually reduces traffic for commodities of the industry.

Existing capacities of Russian ports in the Caspian Region don't have a competitive port infrastructure to develop container traffic. According to the results of 2019, the container turnover of the Russian Caspian Basin amounted up to 3,000 TEU. Meanwhile, only 1–1.5% of turnover of the Russian ports is accounted for by Caspian ports.

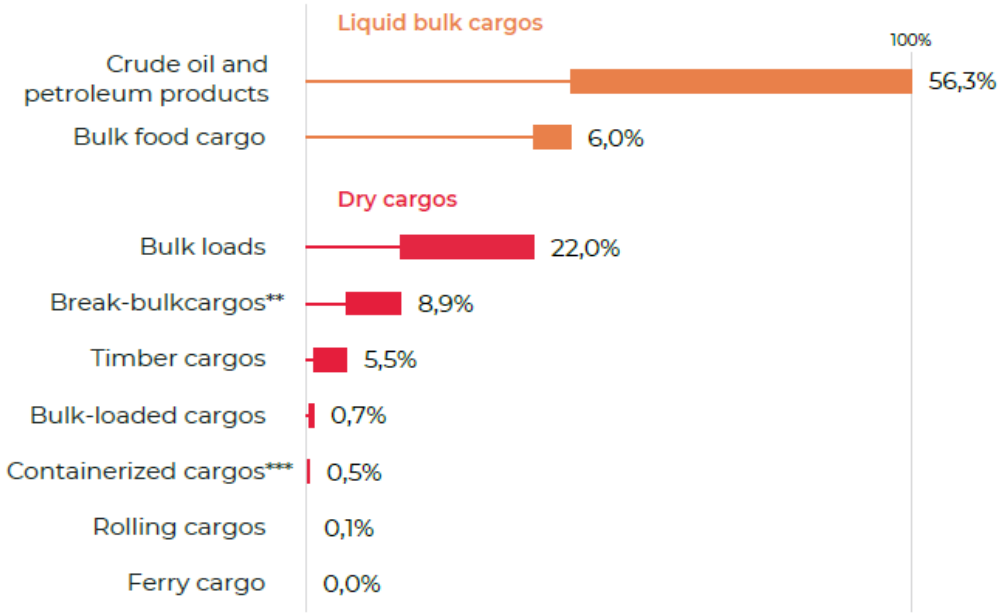



*Figure 33: CARGO TRANSSHIPMENT IN RUSSIAN PORTS OF THE CASPIAN SEA* IN 2019 (TT). thousand tons*

According to the Strategy for the development of Russian seaports in the Caspian Basin as well as road and railway approaches to them till 2030, container cargo turnover between Russia and India through the Caspian Region and further transit across the territory of Iran is a promising direction with a potential fulfillment of which requires a few measures, including construction of a new deep water sea port (terminal) to be taken. Given all the measures are successfully taken by 2030, it is planned to reach the mark of 265,000 TEU of container cargo turnover.

In the context of NS ITC the phenomenon of flow pulling and development prioritization manifested itself starkly. For a long time there had been high hopes for development of the Lagan Port on the territory of the Republic of Kalmykia. The Strategy of 2017 pointed out inexpediency of modernization of Kalmykia's only port in Lagan. However, by Edict of the Government of the Russian Federation No.1980-r dated July 29, 2020, renovation of the Lagan Port at the cost of 41.3 bln. RUB was included in landing planning of the Russian Federation. The port will be expected to have a capacity of 12.5 mln. tons annually, include a terminal of liquid bulk cargos with the capacity of 500,00 tons per year, a container terminal with a capacity of 5 mln. tons per year, and a terminal of break-bulk cargos with a capacity of 2 mln. tons per year.

Significant support for unlocking the transit potential of the Caspian Sea Region can be derived from granting the status of a special economic zone to Astrakhan ports. It would allow establishing stable 'rules of the game' for completion of customs formalities, as well as transferring the center of those formalities straight to the transportation hub. Such a special status is already assigned to Iranian ports in Gilan Province (Anzali Free Zone) which makes the Anzali Port one of the best equipped and most modern in the Caspian region.

As for development of linear infrastructure, JSC Russian Railways has the following plans in the framework of work on NS ITC in the period until 2025:

- arrangement of high-speed operation of passenger train in the St. Petersburg —
- Buslovskaya section;
- development of the Moscow railway junction;
- reconstruction of and electrification of the Rtishchevo — Kochetovka section;

- reconstruction of a roundabout route for the Saratov railway junction;
- comprehensive reconstruction of the Trubnaya — Verkhny Baskunchak — Askaraiskaya section;
- projects on arrangement of high-speed operation and high-speed running, etc. Finally, in February 2020 a Set of Measures for development of North — South ITC transit potential was approved by A.R. Belousov, First Deputy Prime Minister of the Russian Federation. Key measures can be pointed out:
- establishment of ANO Directorate of International Transport Corridors responsible for expert and analytical follow-up of North — South ITC;
- organization of reception for the first trial containers along North — South ITC using existing infrastructure in the Astrakhan Region;
- design of a financial model for the organizational structure of the Uniform Operator of North — South ITC and establishment of this operator; conclusion of agreement with large shippers;
- examination of reasonability of arranging international sea (container and ferry) communication along the following routes:
    - ports Olya/Astrakhan/Makhachkala — Anzali, Amirabad (main route),
    - ports Olya/Astrakhan/Makhachkala — Aktau/Kuryk,
    - ports Olya/Astrakhan/Makhachkala — Turkmenbashi,
    - ports Olya/Astrakhan — Baku;
- organization of a special port economic zone in the Astrakhan Region (on the territory next to the Olya sea port), its integration into the Caspian cluster with the

SEZ Lotos of production and industrial type as a cargo base for North — South ITC with a uniform managing company and delegation of authorities regarding cluster management to the Ministry of Economic Development of Russia;

- exploration of the issue of creating multimodal transport and logistics centers in key foreign ports of North — South ITC (Anzali, Aktau (Kuryk), Chabahar, Mumbai) and delegation of authorities regarding their establishment and management to the managing company of the Caspian cluster, and a few others.

In addition to the government efforts there was an important practical step in the form of agreement between RZD Logistics and Indian corporation CONCOR (Container Corporation of India Ltd), the largest operator of railway container traffic in India, signed in February 2020. The agreement calls for provision of a container fleet by the Indian party to organize the flow across the corridor.

Thus, despite certain stagnancy of the recent years and existing restrictions, NS ITC can soon receive its uniform operator which will allow shaping the final architecture of the corridor — on both institutional and transportation-logistics levels. It makes sense to examine the issue of possible connection of the Eurasian route to NS ITC in case implementation of all the above mentioned measures is successful.

## b. Cargo Base Of The North — South Transport Corridor

- *India's Special Aspects of Trade: Partners and Commodity Pattern*

Its social and economic dynamics makes India one of the most promising markets. In 2019, the population of the country amounted to 1.36 bln. people, while remaining rates of natural

increase will soon bring the country to the first place in the world by population. Besides, the country is relatively young; the average age of the population is 28.7 years. And a level of urbanization is 34.9%. Per capita GDP is $7,200 (compare with PRC where it's $19,000). All of it makes India a country with a huge potential despite existing problems.

According to the World Bank, in 2019, India's GDP at purchasing power parity reached the mark of $9.6 trln. At the same time, India's trade-to-GDP ratio, a major indicator of the country's openness to the world, is about 40% and has been decreasing consistently since 2012 (55%).

According to ITC data of 2019, India has a negative balance of the commodity turnover (–157 bln. dollars). The total export volume of the country is $322.8 bln., and the import volume is $480 bln. As the diagrams show, lists of key trade partners for export and import differ. The main importer of Indian commodities is the USA ($54.1 bln.) Meanwhile, the major volume of India's export is accounted for by PRC ($68.2 bln).

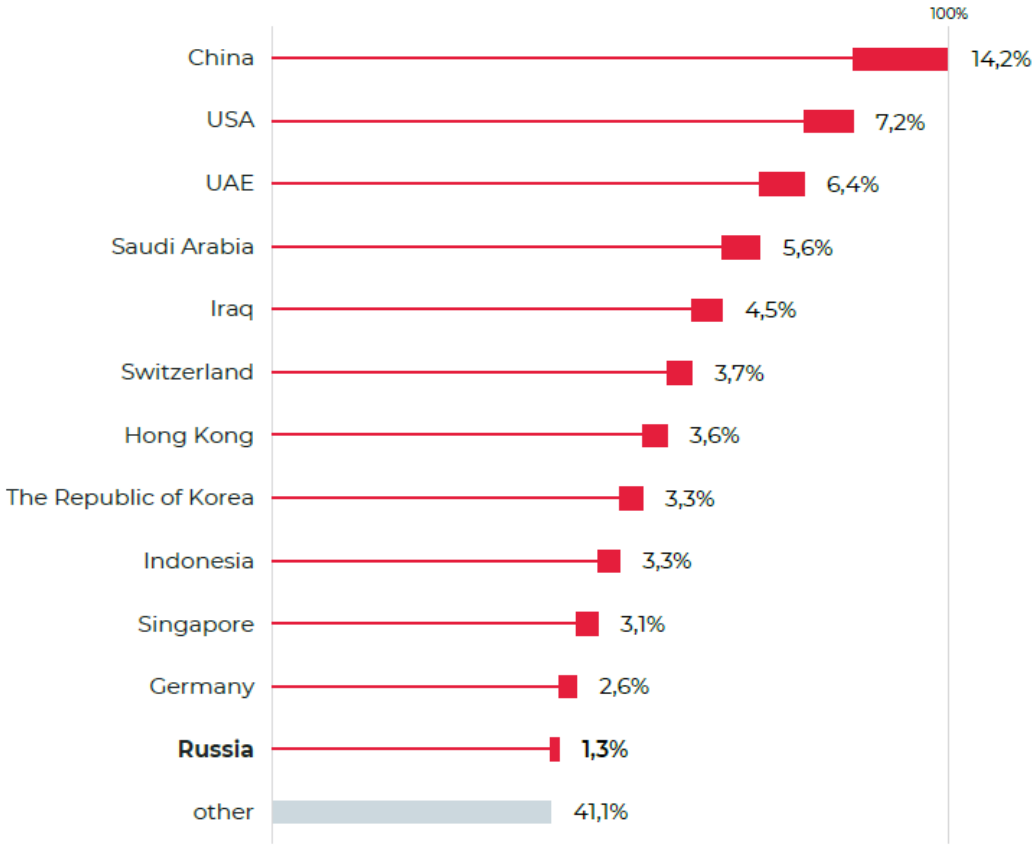



*Figure 34: MAIN DIRECTIONS OF IMPORT TO INDIA (2019)*

Historically, the country has had strong ties with the USA and Great Britain. Latitudinal relations are well-developed as well: firstly, with Gulf countries, suppliers of energy resources with the Indian diaspora of about 6,000,000 people, and, secondly, with Asia-Pacific Region States (Hong-Kong, Singapore, Korea, Indonesia).

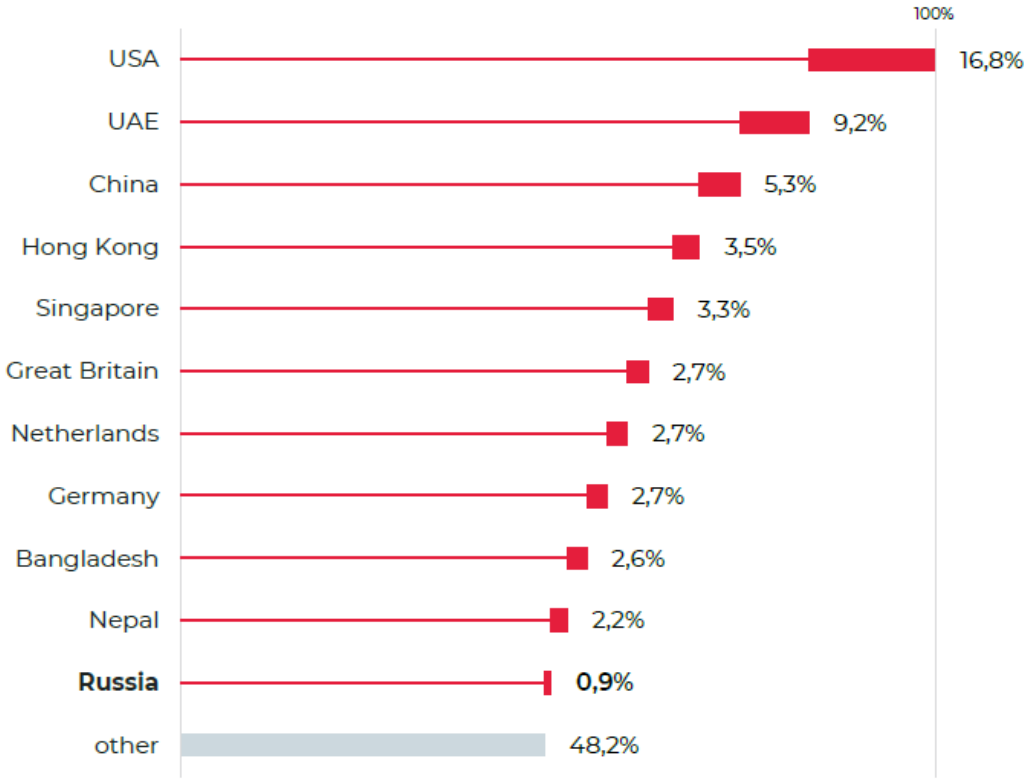



*Figure 35: MAIN DIRECTIONS OF EXPORT FROM INDIA (2019)*

India's participation in the global trade has its special features. Limited natural resources make the country put the issue of energy supplies in the foreground. Almost 32% of the country's import is accounted for by mineral fuel, including oil. Import of precious stones that ranks second in the world is also raw materials-based for a well-developed jewelry industry of the country. The country also imports a lot of electronics from PRC and Eastern Asia. As for the structure of the country's export, it's more diverse.

Examination of India's trade commodity composition allows making some important conclusions. First of all, the country is oriented on latitudinal trade. Secondly, India's import largely consists of raw commodities that are less subject to containerization. Thirdly, the export potential of the country in terms of container traffic is tied to pharmaceuticals (about 5% of valuable export) and textiles (also about 5% of export in total).

Fourthly, analysis of the country's trade partners points out a relatively small share of EU member countries in India's import which hampers full-fledged focus on this end market.

- *India-Russia Bilateral Trade: Promising Transit Commodities*

In 2019, India-Russia bilateral trade reached the mark of $8.9 bln. Meanwhile, India has a negative balance of –3,3 bln. dollars in commodity trade with Russia. India's export to Russia that amounted to $2.8 bln. in 2019 features positive dynamics with an increment of 31% in comparison with 2017. India's import from Russia in 2019 amounted to $6.1 bln. with a reduction by 23% in comparison with 2017.

A list of export nomenclature from India to Russia largely correlate with the trade composition of the country in general, though it has a few special features. Two main items of export to Russia are electric machines and equipment and pharmaceutical products that rank sixth and seventh respectively in the total export of the country. Besides, export nomenclature to Russia is largely represented with agricultural and food industry commodities (coffee, fish, meat, fruits, vegetable juices) amounting to about $500,000,000 in total. A lack of Indian textiles among major commodities is also interesting.

Import from India to Russia is extremely concentrated: 47% of import in value terms is accounted for by mineral fuel represented with oil and oil products. Also, due to well-developed jewelry industry various precious stones are transported to India for processing. Besides, about 6% of import is comprised of private article commodities.

As a rule, this category includes export of weaponry which is subject to fluctuations of the political environment and does not abide by laws of the market economy. Thus, among all the items

of a promising commodity nomenclature pharmaceuticals, food products (in refrigerator containers) and, if there's a demand for it, textiles can be pinpointed for organization of transit container traffic across North — South ITC. A large problem is backward cargo flow represented mainly with liquid bulk cargos. As a result, transport and logistics development of North — South ITC faces restrictions of the cargo base.

- *Iran's Special Aspects of Trade: Partners and Commodity Pattern*

Despite Iran's status of one of leaders in the region, its economy has been under the external pressure for a long time, including pressure caused by sanctions, which is one of the largest factors defining specificities of Iran's external trade. In its turn, trade inequalities have a negative impact on development of North — South ITC caused by the issue of the route's cargo base.

When analyzing Iran's external trade, it's important to note the problem of accessibility and correctness of statistical data. Since such a work relies on UN statistics processed by ITC (International Trade Center), the most proper year to describe tendencies of Iran's trade is 2018.

In 2018, Iran's trade import amounted to $41.2 bln. with the export of $96.6 bln. (data by UN Comtrade Database). Thus, the country has a significant positive balance. However, detailed analysis of Iran's trade commodity composition has revealed that the country's export is based on raw commodities. 69% of export in value terms ($66.34 bln.) is accounted for by mineral fuel, oil in particular. Other important export items are plastics (6%), organic chemistry (4%) and ferrous metals (4%), fruits and nuts (2%).

Iran's import is diverse enough which is related to the sanctions imposed on the country, since they determine the inflow

of the most important commodities and parts that are not produced within the country. Iran imports such commodities as equipment of all kinds (19% of import); cereals, including grains (10%), electronics (9%), pharmaceuticals (4%), vehicles for land transport (4%), etc. Therefore, Iran's structure of trade creates some restrictions for the process of cargo flow containerization because of raw materials-based export of the country and its import comprised of higher-added value commodities.

Interestingly, import of ferrous metals is gradually reduced due to efforts of the government of the country to develop the industry. Import of ferrous metals has been reduced since $1.9 bln in 2016 to $1.3 bln. in 2018, and it's still being reduced.

Specificities of commodity composition determine a set of major export directions for Iran. The first place is occupied by PRC with a share of 21% which amounts to $9.2 bln. Meanwhile, trade with PRC is organized largely by sea in conjunction with places of mining and production of four major commodities: plastics ($2.9 bln.), mineral fuel ($2.4 bln.), organic chemistry ($2.2 bln.), ore ($1 bln.) A significant share is also accounted for by Iraq, UAE, Afghanistan, Republic of Korea and Turkey.

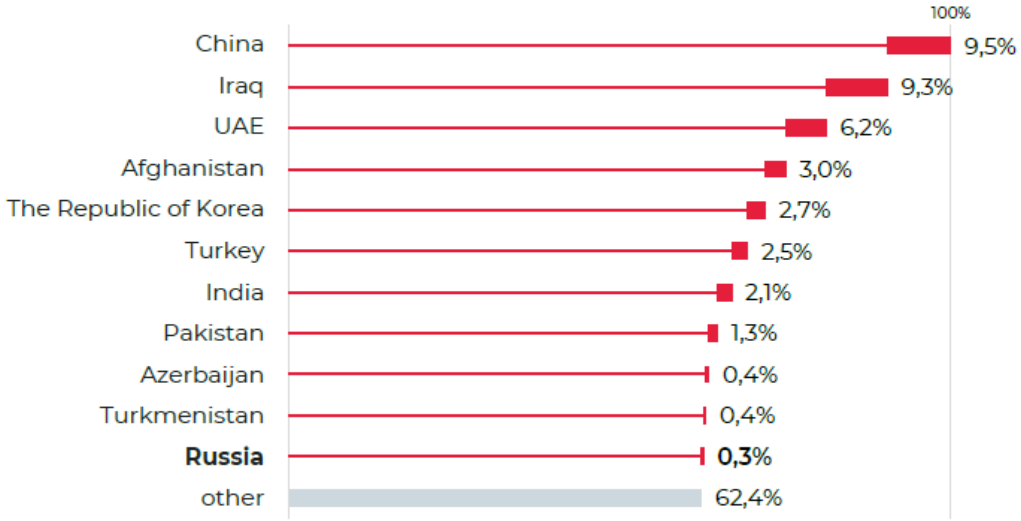



*Figure 36: IRAN'S EXPORT IN 2018*

As for import, the first place here also goes to China (25% of Iran's import). Chinese import amounts to $10.2 bln. and comprises mostly equipment ($2.4 bln.), electronics ($1.6 bln.) and various consumer goods ($1.7 bln.) In the list of importing country China is followed by UAE (14%), India (6%), Turkey (6%) and Germany (6%). Import from these countries is similar to the Chinese one by structure, since it's where electronics, equipment and consumer goods prevail.

Trade between Iran and Russia is slightly different by nature. According to the Federal Customs Service of Russia, in 2019, Russia-Iran turnover was $1.6 bln. Having been reduced by 8.73% in comparison with 2018. Russia's export to Iran amounted to $1.2 bln., and import — $391 mln.

Russia's export comprises such groups as food commodities and agricultural products (about 80% of export; grains and fat-and-oil products), machines and equipment (8%), timber and pulp and paper products (7%). Meanwhile, in 2019 only export of ferrous metals was reduced by $72.4 mln.

Russia's import from Iran has a similar structure, though it's largely raw materials based, and it also differs from Iran's export to other key partner countries. About 78% of import is accounted for by food commodities and agriculture. Then there are products of the chemical industry (9%) and metals (3%). Thus, on the one hand, Russia's import and export in the country's trade with Iran are similar by structure. On the other hand, the fundamental role of low-added value products or raw materials restricts development of container cargo traffic and makes the trade between countries subject to the state of the market depriving it of any predictability.

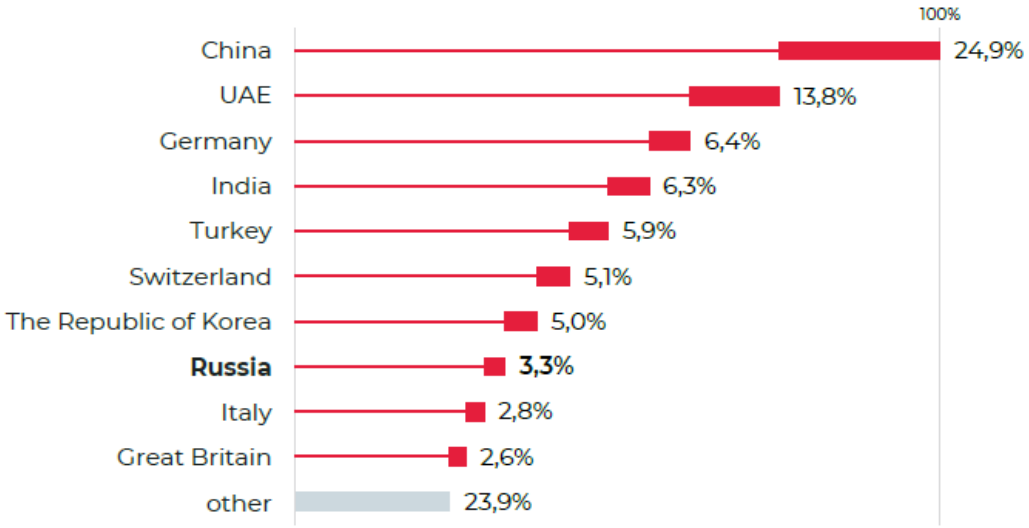



*Figure 37: IRAN'S IMPORT IN 2018*

As a result, Iran's external trade is quite specific by both commodity composition and partner countries. Sanctions against the country make a significant impact on the economy of the country resulting in dominancy of raw commodities and low added commodities in the country's export structure and in the reverse situation for import, which is represented with higher-added value commodities. Such a situation presents a challenge for development of North — South ITC from the perspective of both loading the route with commodities and consistency of these flows.

**Conclusion.**

*Potential of Linking Northern Latitudinal and Meridional Routes*

Development of North — South ITC faces some fundamental challenges: a limited cargo base, fragmented essence of the route at the current stage, various interests of states though joint under the shared aegis. From the perspective of transportation and logistics, potential railway trains will have to cross the sea at least once, change the gauges (1,676 mm in India, 1,435 mm in Iran, 1,520 mm in Russia) and cross several borders.

When estimating the integration potential of the Eurasian corridor in the East — West direction to North — South ITC, the cargo base and a possible route need to be estimated. Examination of the cargo flow has revealed restrictions related to specificities of India's external trade and the containerization potential. India's trade is mostly latitudinal. While the cargo flow from India includes some highadded-value commodities suitable for container transportation, the counter flow from Russia comprises mainly raw materials.

The issue of transit to EU countries of PRC requires further examination when it comes to cargo flows. Nevertheless, based on trade statistics, a secondary role of the European market for India can be noted. As for trade with China, India has a significant negative trade balance of $51.2 bln. This will also lead to inequalities when arranging transport corridors.

From the perspective of transport logistics, only some regions of PRC, Europe and India will gravitate toward North — South ITC given convenient sea routes available. In India the state focused on trade through Iran is Gujarat, one of the most important centers of the country. In Europe the most important connections for India are still through Great Britain, as they are logically organized by sea. In this regard, India should possibly focus on trade with Germany, Poland and Nordic countries which is insignificant in the total volume of Indian trade.

India's relations with PRC are potentially restricted with political differences that can become a hindrance on the way of creating any transport corridors. Essentially, transport corridors are aimed at establishment of world economic relations through a certain degree of integration (a uniform rate, a uniform operator or a set of solid agreements).

Nowadays North — South ITC in its northern part mostly operates in favor of trade between Russia and Iran. Given there are already three routes in the central part of the corridor, they start competing. Russia most likely tends to the central or Trans-Caspian Route that goes through Iran directly to Russia. It is promising to set up a transportation hub in Astrakhan or in any other place on the territory of the country.

The path that using a single economic space of the EAEU seems the most convenient, i.e. a route through the Caspian Sea to the ports of Kazakhstan or Russia depending on the destination of the cargo. Therefore, when choosing adjustment routes, it would be reasonable to focus on Astrakhan/Olya or Kuryk/Aktau ports specifically considering them integration points.

It’s important to consider that even with the positive institutional dynamics (establishment of a uniform operator, elimination of ‘narrow places’ in the infrastructure) North — South ITC will face limitations of the cargo base for trade with India. Hence, increased cargo flow at this route will be primarily caused by trade with Iran and only then — with development of a transit from India.

## 9. Central Asia in international transport corridors system: Uzbekistan's approach

Taking into account the importance and urgency of the development of Central Asia as a coherent whole region, the from the first days of the presidency of Uzbekistan focused attention on the implementation of proactive regional policies, the creation of a favorable political atmosphere in Central Asia, the building of constructive and mutually beneficial relations with the countries of the region in all directions, including transport — the main priority of Uzbekistan's foreign policy.

In Uzbekistan special attention is paid to the further development of transport infrastructure and the increase in the volume of transit cargo transportation.

Currently, the Uzbek Government is implementing the Program for development and modernization of engineering communications and road infrastructure for 2015-2019, which provides for the elaboration of a single complex development strategy for the national transport industry, which meets high international standards, and ensures its broad integration into international transport communications, taking into account the long-term needs of domestic manufacturers in promoting their products to the regional and world markets.

It should be taken into account that today in the country all the necessary conditions have been created for the further development of the transport and transit potential.

The country is making efforts to increase the capacity of the transport system, remove existing barriers to unimpeded transit through the territory of Uzbekistan, which plays great importance for the development of international transport corridors in Central Asia.

In order to implement key issues of regional development, in November 2017 Samarkand hosted the international conference, "Central Asia: One past and common future, cooperation for sustainable development and mutual prosperity." Addressing the conference, President Shavkat Mirziyoyev spoke about the latest trends in the development of regional cooperation in all relevant areas and initiated a number of proposals on Central Asia. One of the key initiatives of the Head of Uzbekistan — the adoption of the U.N. resolution on Central Asia has triggered international support for its implementation and in June this year the U.N. General Assembly adopted the resolution on "Strengthening regional and international cooperation for ensuring peace, stability and sustainable development in the Central Asian region." The resolution envisages the development of sustainable, best-value infrastructure supporting transport and transit corridors and the strengthening of links between all modes of transport, including by opening new roads and railways, as well as flight routes, as well as the implementation of transport and transit agreements encompassing Central Asia.

These are the shortest routes in the region, which connect the major international markets. The transport and transit potential of the region is determined by its geostrategic position — in the center of the "Great Silk Road," historically serving as a bridge between East and West, North and South.

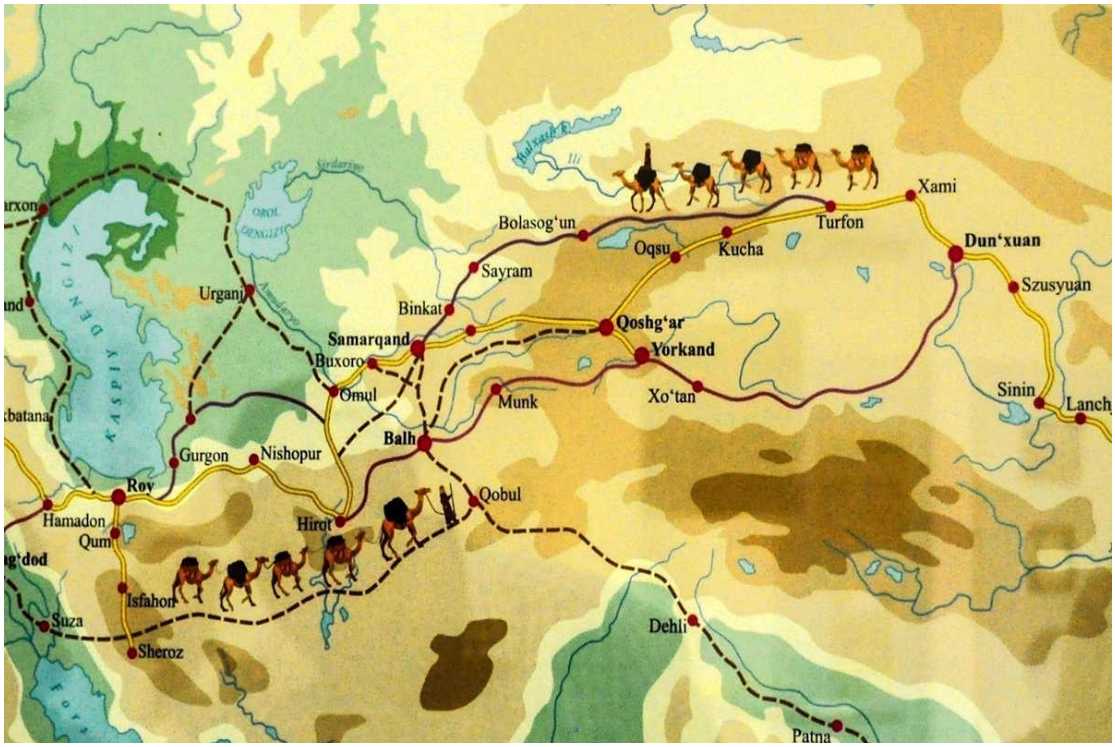



*Figure 38: Great Silk Road*

According to some reports, the length of the railway communication system of Central Asian countries extends more than 22,000 km.

Kazakhstan has the largest and most exploited railway, which accounts for 66 percent of the total length of the region's railways and accounts for 84 percent of all freight transport. About 18 percent of regional railways pass through Uzbekistan, accounting for about 11 percent of all traffic. Turkmenistan has about 12 percent of regional railways and 4 percent of all traffic.

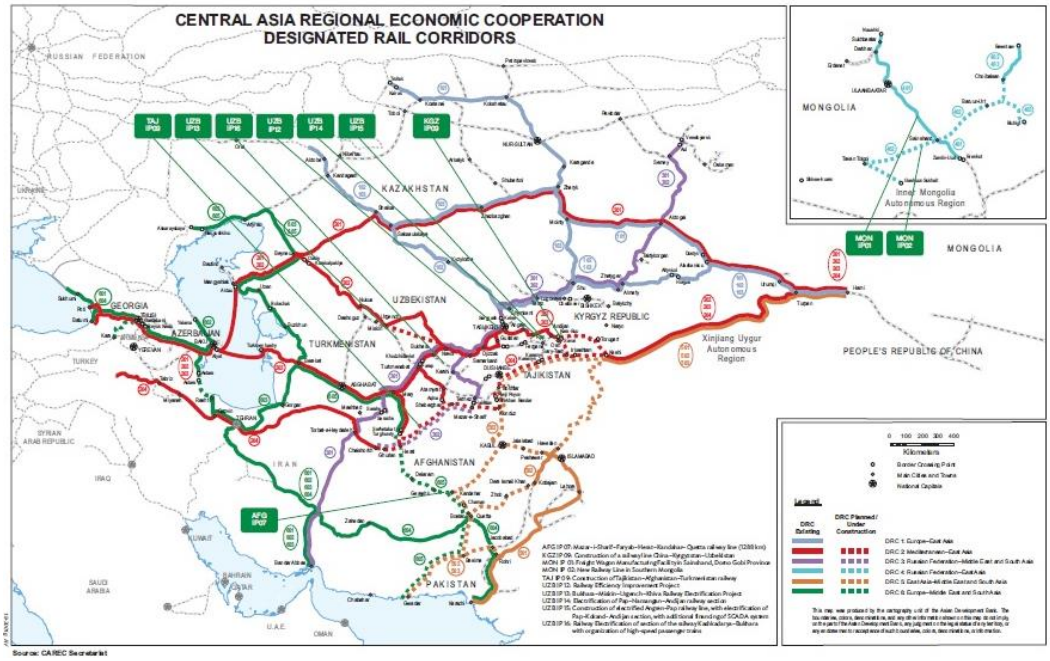



*Figure 39: the railway communication system of Central Asian countries*

Recently, under the conditions of a confident and friendly atmosphere in Central Asia, it is becoming possible to take practical measures to implement real transport projects. The activity of the International Intermodal Logistics Center "Navoi" is intensively developing, which connects Uzbekistan with major logistics centers of foreign countries, in particular, Frankfurt, Milan, Brussels, Vienna, Zaragoza, Oslo, Basel, Dubai, Delhi, Tehran, Shanghai.

In 2016, the Angren-Pap railway line was put into operation. This road, being an important link in the railway corridor "China-Central Asia-Europe," will provide China's access to the countries of Central and South Asia in the shortest possible way and will contribute to the development of the economy of Uzbekistan.


*Figure 40: Angren-Pap railway line*

In February 2017, the air connection between Tashkent and Dushanbe resumed after a 25-year hiatus.

In September 2017, the Dustlik checkpoint on the Uzbek-Kyrgyz border was resumed, which is a landmark event in the history of the Uzbek and Kyrgyz peoples. This event will give impetus for the development of multilateral cooperation between the two countries.

In 2017 new railway and automobile bridges were opened _ the Turkmenabat-Farab across the Amudarya River, which made it possible to increase the volume of cargo transportation by 2.5 times. Bridges across the Amudarya open a direct access of freight traffic from the states of Asian-Pacific region, South Asia to the Caspian Sea and further to the Black Sea and Mediterranean regions, the countries of Europe, the Caucasus, and the Middle East. In addition, bridges are important links of the transport corridor Uzbekistan-Turkmenistan-Iran-Oman.

The work on the construction of the Uzbekistan-Kyrgyzstan-China railway has been intensified.


*Figure 41: Uzbekistan-Kyrgyzstan-China railway*

This transport project is relevant in the SCO space, as China, Kyrgyzstan and Uzbekistan are members of this organization, moreover due to this transport project, trade and economic relations will grow and expand not only between the project participants, but also between all the countries of Central Asia with China. The railway will provide the opportunity to transport goods from China through Kyrgyzstan and Uzbekistan to Eastern Europe and the Middle East, thereby becoming one of the shortest routes for transporting of Chinese goods to Europe and also will allow the transport-logistical infrastructure of the Central Asian countries to develop.

In February this year the Tashkent-Andijan-Osh-Irkeshtam-Kashgar automobile corridor was opened, which allowed road haulers from Central Asia to directly enter China for the first time.

In March this year, the Jartepa checkpoint on the border of Uzbekistan and Tajikistan was opened, connecting Samarkand with Penjikent. the activity of eight automobile and one railway checkpoint "Amuzang" has been restored. The commissioning of the restored section of the Uzbek-Tajik interstate railway line

Galaba-Amuzang-Khushadi will play an important role in the development of transit traffic and will create conditions for the opening of additional opportunities for access to Turkmenistan and Afghanistan.

The strategic future and prospects of Central Asia are directly related to the involvement and active participation in regional processes of Afghanistan, as this country is an integral part of the region. During the visit of President of Afghanistan A. Gani in 2017 to Uzbekistan, the parties signed agreements on the implementation of the Surkhan-Puli Khumri transmission line. The new line will undoubtedly increase the supply of electricity from Uzbekistan to Afghanistan by 70 percent — up to 6 billion kWh per year.

Uzbekistan has made a great contribution to the development of Afghanistan. In 2011, the first railway in Afghanistan, the "Hayraton-Mazari-Sharif," was built. In the long term, the sides will implement a project for the construction of the Mazari-Sharif-Herat railway line, which will make a significant contribution to the economic reconstruction of Afghanistan. The railway line will definitely increase the trade turnover and transit potential of Uzbekistan and our country will have a direct access to Iranian ports, including Bander Abbas and Chabahar.

In 2017, an air communication between two countries was established. This step will contribute to the formation of Tashkent Airport as an air hub, which will be used by passengers of the Afghan airline for connecting flights to Germany, the United Kingdom and other European countries.

The development of cooperation with Afghanistan in the field of transport and construction of new railways within the "Trans-Afghan" corridor in the future will provide Central Asia

with the shortest access to the ports of the Indian Ocean and the Persian Gulf, and will connect South and South-East Asia with the markets of Europe and China.

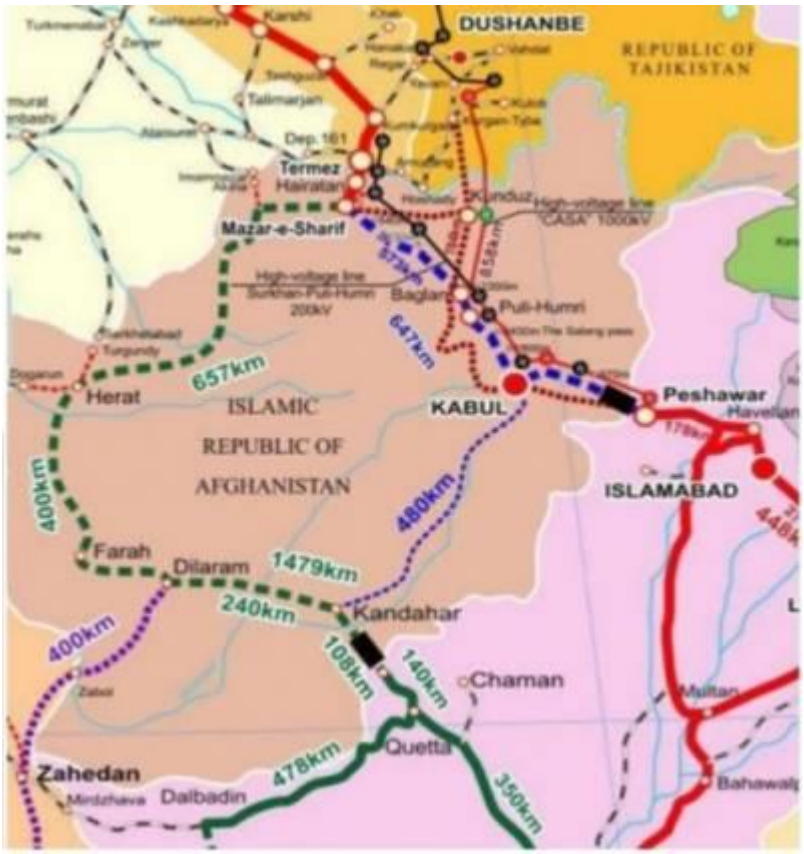



*Figure 42: Trans-Afghan corridor*

The countries of Central Asia region have recently intensified their efforts to increase their transport capabilities of international importance. Today, a number of international transport projects are being laid across Central Asia. Among them is "Eurasia" transport corridor. This corridor is planned to be built and launched during 2018-2023, which will connect China and Western Europe. The highway will pass from Beijing via Astana, Moscow and Minsk to Berlin. According to some forecasts, by 2050, 20 million tons of cargo and 37 million passengers will be transported through the highway annually.


*Figure 43: Eurasia transport corridor*

### *Western Europe-Western China*

The China-Kazakhstan section began operating in 2016, which will become the shortest route to Europe with a transportation period of from 10 to 12 days. Full-scale launch of the project is not expected until 2030. The corridor will run along the route St. Petersburg- Moscow-Orenburg-Aktobe-Almaty-Khorgos.

### *Lapis lazuli*

In 2017 representatives of Afghanistan, Turkmenistan, Azerbaijan, Georgia and Turkey signed an agreement on the creation of the transport corridor "Lapis lazuli." It is supposed that railway and automobile routes will connect the city of Torgundi (Afghanistan) with Ashgabat, the port of Turkmenbashi on the Caspian Sea. The corridor will further pass through the Caspian Sea to Baku, then through Tbilisi to Ankara with branches to Poti and Batumi, further from Ankara to Istanbul, Kars in Turkey with further access to the transport system of Europe.

### *Kazakhstan-Turkmenistan-Iran*

In May 2018 a container train traveled along the route China-Kazakhstan-Turkmenistan-Iran. The total travel time along the railway route was about 2 weeks, which is on average twice as fast than by sea. It is believed that by 2022 the volume of cargo transportation by rail will be 15 million tons per year.

### *East-West*

The project is designed to provide transport links between China and Europe. The key link in the East-West transport corridor is the Baku-Tbilisi-Kars railway line. This project will play a key role in establishing regular shipments of goods from Turkey and Europe to the countries of Central Asia and China, as well as to Iran.

Uzbekistan is interested in participating in this project. According to the decree of the President of Uzbekistan "On measures to improve the transport infrastructure and diversify foreign trade routes for carriage of goods for the period from 2018 to 2022," measures are being taken to implement pilot transit of foreign trade goods via the Baku-Tbilisi-Akhalkalaki-Kars railway line with access to ports.

### *North-South*

According to some information, the opening of the transport corridor is planned for 2020. This transport corridor will connect the port of St. Petersburg with the Iranian ports of Bender-Abbas and Chakhbahar, across which the sea branch reaches to the Indian port of Mumbai. Importance for Central Asia is that the transport corridor will simplify the transport of goods from Central Asia, passing through Iran to the countries of the Persian Gulf. The corridor will be able to provide transit of 3-5 million tons of cargo annually.

This transport corridor is of great importance for Uzbekistan. During the SCO summit in Qingdao in June 2018 President of Uzbekistan Shavkat Mirziyoyev said that Uzbekistan supports the construction of the railway lines Mazare Sharif - Herat, China - Kyrgyzstan — Uzbekistan, and the development of the trans-regional corridors Central Asia-Persian Gulf, North-South and East-West.

In conclusion, I would like to note, that on September 20-21, 2018, Tashkent hosted an international conference on "Central Asia in the system of international transport corridors: strategic prospects and unrealized opportunities."

During the event participants discussed such issues as transport and transit potential of Central Asian countries, new corridors in the region, creation of network of customs warehouses, training of specialists for the sphere, creation of modern conditions and development of customs and border procedures for international freight transport, introduction of information technologies, marketing and digital transport services, regulation of railway tariffs.

President of Uzbekistan Shavkat Mirziyoyev in his greeting to the participants of the international conference, proposed a number of initiatives:

- develop a Strategy for the development of regional transport corridors in Central Asia, with the assistance of experts from the World Bank, the Asian and Islamic Development Banks and other international institutions, and on its basis to adopt a regional program on the sustainable development of the transport system in Central Asia
- create a regional council for transport communications of the countries of Central Asia, which will become a

coordinating structure in solving problems in the transport and logistics sphere

- establish a system of integrated transport management
- Jointly develop transport communications and infrastructure in order to increase the tourist attractiveness of the region.
  This would be facilitated by the development in cooperation with the World Tourism Organization of the Concept for the development of tourist hubs in Central Asia.

## 10. Uzbekistan’s strategy for the development of transport corridors

Over the past 4 years, Uzbekistan under the leadership of President Shavkat Mirziyoyev has been carrying out systemic reforms aimed at liberalizing and modernizing the national economy, ensuring its sustainable development and consistent integration into world economic relations. Improving the competitiveness of manufactured products and the country's export potential are identified as the most important priorities in this direction.

According to official data, at the end of 2019, Uzbekistan's foreign trade turnover amounted to US$42.2 billion. However, amid the pandemic crisis in 2020, this figure decreased by 13.1% (compared to 2019) - to US$36 billion, At the same time, according to ADB forecasts, in 2021 GDP growth will amount to 5.8%, as reforms will stimulate growth in agriculture, industry and services.

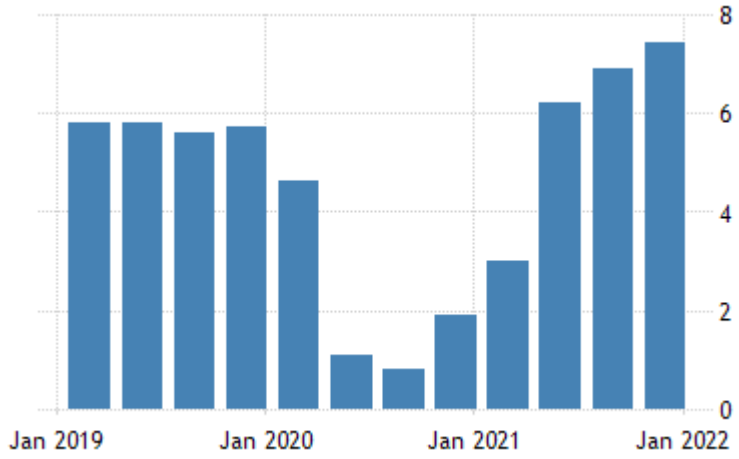



*Figure 44: Uzbekistan’s gross domestic product advanced 7.4 percent in 2021*

The measures being implemented in Uzbekistan to modernize the economy, provide comprehensive support and stimulate exports, and ensure sustainable growth in its volumes

require the development of additional measures to create favorable conditions for further diversification of foreign trade routes, the formation of alternative most efficient transit corridors that provide the country's export products to promising international markets.

According to experts from the international company Boston Consulting Group, Uzbekistan occupies a strategic location in Central Asia and has a developed transport infrastructure. In their opinion, in the next ten years, the investment potential of Uzbekistan will amount to US$65 billion, of which up to US$20 billion will be spent on non-resource industries.

In 2020, the volume of international transportation of goods of the Republic of Uzbekistan has already amounted to 47.1 million tons, of which: export - 13.3 million tons (+ 17.2%), import - 24.7 million tons (+3 , 1%), transit - 9.1 million tons (+ 15.3%).

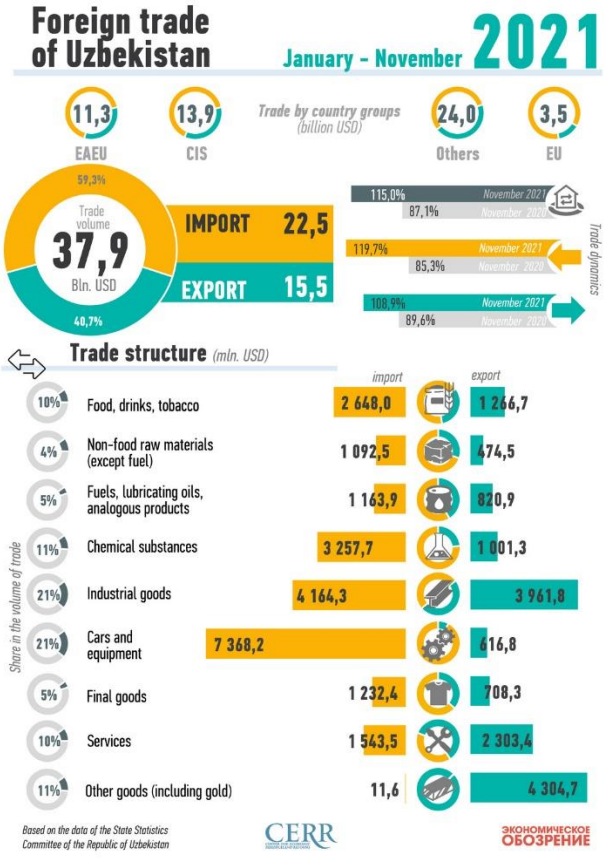



*Figure 45: Foreign trade turnover of the Republic of Uzbekistan for January-December 2021*

In order to increase the transport and logistics potential of the country, the institutional framework and the regulatory framework for this industry are being strengthened. In particular, by the Decree of the Head of Uzbekistan dated February 1, 2019, the Ministry of Transport was created, which is defined as a government body for the development and implementation of a unified state policy in the development of road, rail, air, river transport, metro, and road facilities.

As part of the implementation of the "Comprehensive program for improving transport infrastructure and diversifying foreign trade routes for the transportation of goods for 2018-2022" systematic work is being carried out to develop new transport and transit corridors and a network of logistics centers, expand the fleet of vehicles and aircraft, create conditions for

efficient transportation and handling of goods in Uzbekistan in neighboring countries.

In addition, the "Strategy for the development of the transport system of the Republic of Uzbekistan until 2035" is currently being developed, which envisages the creation of conditions for the growth of volumes and quality of passenger and freight traffic, improvement of the transport sector management system, as well as the introduction of fundamentally new approaches to training, retraining and advanced training of workers in the transport system.

Decree of the President of the Republic of Uzbekistan No.UP-5647 of February 1, 2019 "On measures to radically improve the system of public administration in the field of transport" stipulates the development of a draft Law of the Republic of Uzbekistan "On Transport" transport into a single transport network and the use of efficient transport and logistics systems.

It is also important to note the entry into force from April this year for Uzbekistan, a special system of preferences of the European Union for sustainable development and good governance (GSP +), where our republic was accepted as a beneficiary country. It offers additional opportunities to increase trade between the EU and Uzbekistan, as tariffs on a number of important export goods such as textiles, clothing and plastic products will be removed.

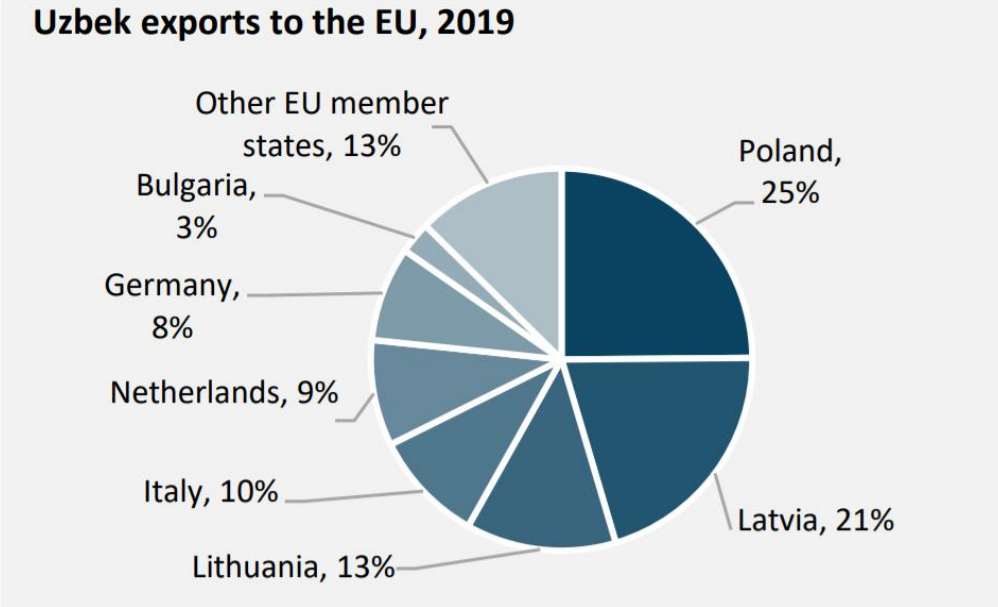



*Figure 46: Uzbekistan exports to the EU countries, by country.*

In addition, within the framework of GSP +, the country can import more than 6.2 thousand goods without duties. This will give a powerful impetus to attract investors, primarily from the EU countries, to the implementation of promising projects in Uzbekistan, as well as form a solid basis for diversification and accelerated development of trade and economic relations between Uzbekistan and the EU countries.

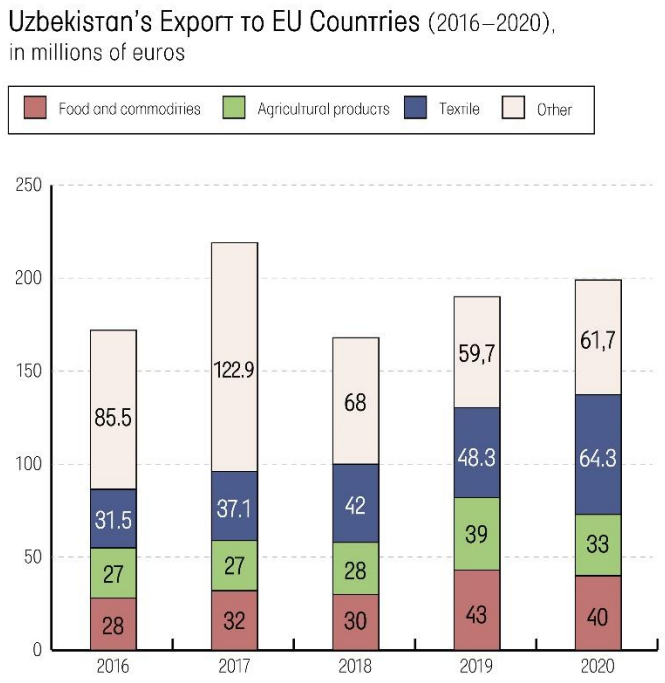



*Figure 47: Uzbekistan Exports to the EU countries, by sector*

In these conditions, the development of transport corridors in Central Asia, capable of connecting transport corridors passing along the North-South and West-East routes, is of particular importance.

However, the region still retains factors that negatively affect the development of transport communications. According to the experts of the international company Boston Consulting Group, despite the fact that Central Asia is a region with great transit potential in the global transport system, the problems observed in the interaction of the countries of the region in using existing communications hinder the effective use of these opportunities. Most of the problems arise from the lack of a common strategy among the countries of the region. In addition, such problems as the transport isolation of the region, non-diversified transport routes, as well as the unstable situation in Afghanistan remain relevant.

World Bank experts note that the countries of Central Asia have not yet realized the huge potential of domestic and foreign

trade. This requires an integrated approach to improve transport connectivity within and between the countries of the region, which will contribute to an increase in the GDP of the countries of the region by 15%.

At the same time, in the absence of direct access of the countries of the region to seaports, according to experts, more than 90% of freight traffic in intercontinental trade between Asia and Europe is carried out by sea. This imposes an additional cost on the starting price of the exported and imported goods.

According to UN Secretary General A. Guterres, the products of countries far from the sea are practically not represented on international trade markets. These countries account for less than 1% of world exports. According to UNCTAD, for Central Asian countries, transport costs in many cases reach 60% of the value of imported goods.

According to the estimates of the Institute of Central Asia and the Caucasus at the J. Hopkins University, transport isolation seriously hinders the economic growth of the Central Asian countries. This contributes to the development lag behind the maritime states by 20%. At the same time, the volume of GDP in terms of purchasing power parity is reduced to 57%. The main losses are incurred by Uzbekistan, which must overcome the territory of the two states to enter world markets.

At the same time, more than 23 million containers are transported annually to China, Southeast Asia and Europe. However, only 1% of them are transported by rail, 99% by sea.

All this requires the consolidation of efforts in this direction with the participation of the countries of the region and international organizations. It is important to emphasize that a strong guarantee of sustainable development and prosperity in Central Asia is the desire for cooperation and the responsibility

of all countries in the region for a common future. Practical confirmation of this is the concrete political and diplomatic steps taken by Uzbekistan over the past 4 years in key areas of cooperation, primarily in the transport and communication sphere.

Today in Central Asia, strengthening cooperation in the transport sector acts as an important tool for the development of social and economic relations, contributes to the free movement of goods and services, as well as improving the conditions and quality of life of the population.

Currently, transport projects, which are the driver of economic prosperity for the entire region, are being successfully implemented in a trusting and friendly atmosphere.

As you know, the President of Uzbekistan Sh.Mirziyoyev identified the main priorities of Uzbekistan in the development of transport corridors in Central Asia: first, the implementation of transport and communication projects that allow connecting Central Asia with the largest seaports and world markets; secondly, the formation of a trans-Afghan corridor with access to South Asia, as well as the construction of the China-Kyrgyzstan-Uzbekistan railway line; third, further development of transit potential and increase in the transport component in the national economy.


*Figure 48: Trans-Afghan transport corridor*

Already today, Uzbekistan has managed to take practical measures to reach agreements with neighboring countries on the implementation of new infrastructure projects. In particular, in recent years, road, aviation and rail links with Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan have been actively developing.


*Figure 49: China-Kyrgyzstan-Uzbekistan railway*

Uzbekistan and Tajikistan resumed air traffic, restored the Galaba-Amuzang-Khoshady railway. The operation of eight automobile and one railway checkpoints has been restored. The

commissioning of the restored section of the Uzbek-Tajik interstate railway line Amuzang-Khoshady can play an important role in the development of transit traffic, as well as create additional opportunities for Tajikistan to enter Turkmenistan and Afghanistan.

Uzbekistan and Turkmenistan have built the Turkmenabad-Farab railway and road bridges, which are important corridors of the Uzbekistan-Turkmenistan-Iran-Oman transport and transit route. This transport corridor has expanded due to the joining of Kazakhstan and India, giving the countries of the region access to the Indian Ocean. The corridor is designed to connect Central Asia with Iranian ports in the Persian and Oman Gulfs.


*Figure 50: Uzbekistan-Turkmenistan-Iran-Oman transport and transit route*

Uzbekistan and Kazakhstan have launched bus routes, high-speed rail links.

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Currently, transport projects, which are the driver of economic prosperity for the entire region, are being successfully implemented in a trusting and friendly atmosphere.

The implementation of the outlined priority tasks in these strategic documents in the future will provide significant assistance in improving the regulatory framework for cooperation in the field of transport, increasing the efficiency of implementing the transit potential of the CIS member states, developing international transport corridors in the CIS space, increasing the efficiency of the agreed tariff policy in the field of international railway transportation and the implementation of a coordinated policy in the field of transport security, as well as solving problematic issues in this area.

Important initiatives of Uzbekistan are also being raised within the framework of the SCO. Uzbekistan views the SCO as a promising platform for building up cooperation in the field of

transport and logistics. More than 13 million km of highways (about 20% of all world highways) and about 250 thousand km of railways have already been laid in the SCO region, which contribute to the development of regional transport connectivity.

The huge transit potential of Central Asia is evidenced by the fact that in 2019 China imported goods worth more than 2 trillion dollars, and from the SCO countries - only US$100 billion. At the same time, Chinese President Xi Jinping says that in 15 years China will import US$30 trillion. It should be noted that the distance of transportation of goods from China to Europe through Central Asia is 2 times shorter than by sea, and 2.5 times shorter than along the transport corridor through Russia.

It should be noted that today there are 61 railway routes in the Europe - China direction, and 84 routes from China to Europe. More than 85% of transit containers pass through Kazakhstan, while traffic volumes through Russia and Mongolia are declining. Another growing route of transit is from China through the Kazakh Saryagash to the countries of Central Asia and Afghanistan. In the context of the coronavirus pandemic, in the first nine months of 2020, container shipments along the China-Europe route amounted to 388 thousand units (an increase of 61% compared to the same period in 2019).

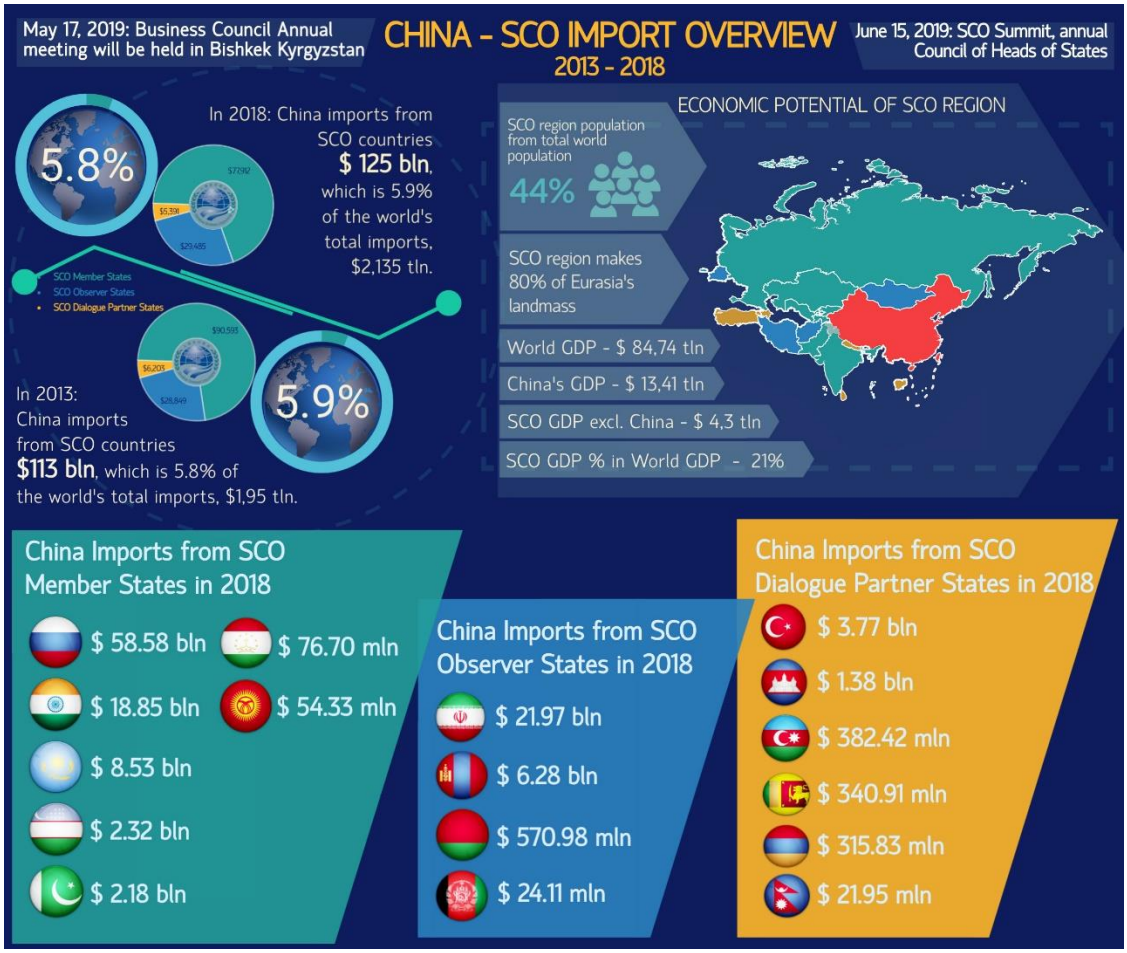


*Figure 51: SCO-China Imports*

To expand mutually beneficial trade between the SCO member states, create new and improve existing transport and logistics infrastructures in the name of the common interests of the SCO member states, President of Uzbekistan Sh.Mirziyoyev, in his speeches at the meetings of the Council of Heads of SCO member states, put forward a number of initiatives aimed at consolidation of efforts of the SCO members in the transport sector.

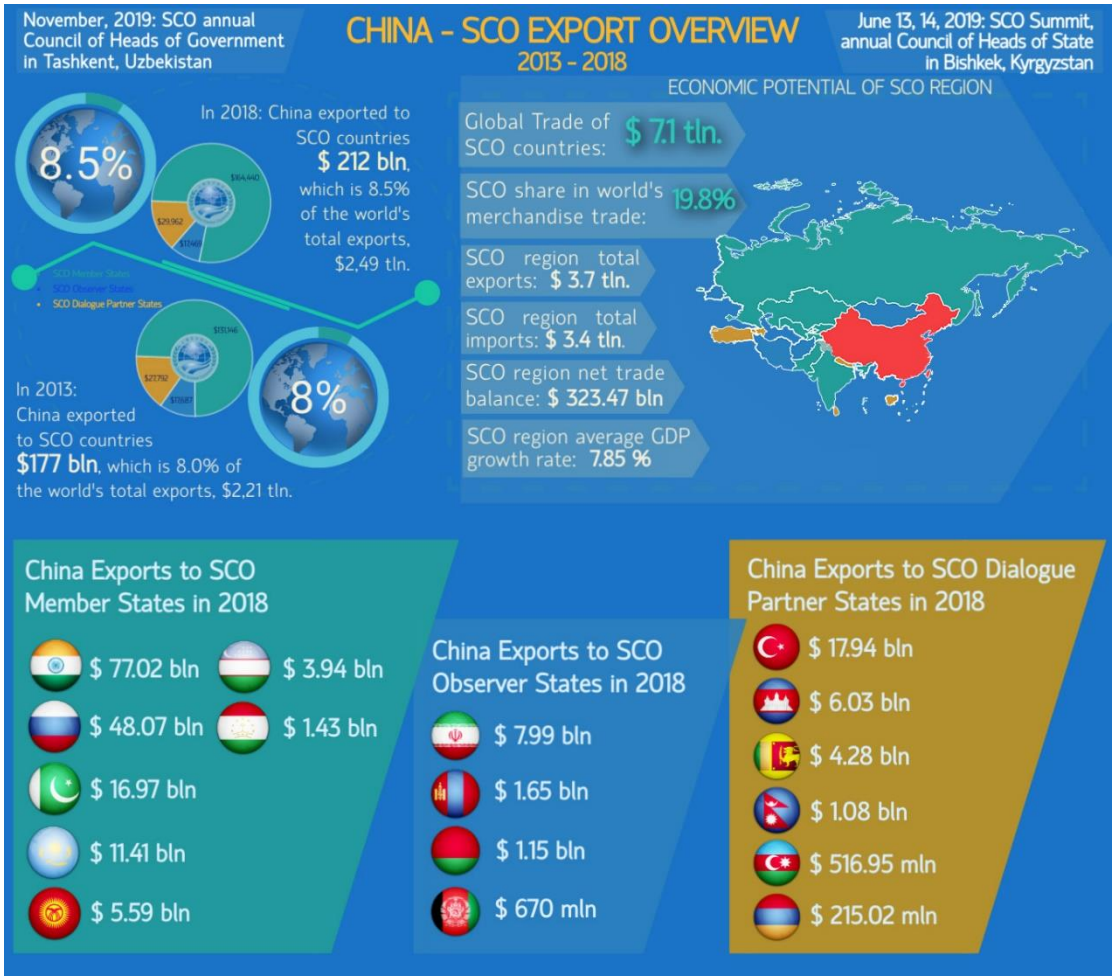


*Figure 52: SCO-China exports*

At a meeting of the Council of Heads of SCO Member States (Qingdao, China, on June 10, 2018), it was proposed to consider the possibility of establishing an International Transport and Logistics Association of the SCO. In addition, the Qingdao Declaration of the Council of Heads of SCO Member States (June 10, 2018) supported the holding of the first meeting of the heads of railway administrations of the SCO member states in Uzbekistan. At a meeting of the Council of Heads of SCO Member States in Bishkek (June, 2019), the President of Uzbekistan proposed to develop a SCO Cooperation Strategy to develop interconnectedness, effective economic and transport corridors.

The initiatives and proposals of the Head of Uzbekistan find wide support among the SCO member states. A striking example is the approval, during a meeting of the Council of Heads of Government of the SCO States in Tashkent in November 2019, of the Concept of Interaction between Railway Administrations of the SCO Member States, developed at the initiative of Sh.Mirziyoyev.

It is also important to note that Uzbekistan considers cooperation with the Caspian states as one of the priority directions of its foreign policy strategy and is interested in giving new dynamics to multilateral relations. Using the transit potential of the Baku-Tbilisi-Kars railway will allow the Central Asian countries to diversify transport directions. This project will play a key role in establishing regular transportation of goods from Turkey and Europe to the countries of Central Asia and China.


*Figure 53: Baku-Tbilisi-Kars railway*

In general, the formation of an extensive transport and communication system in Central Asia will fully realize the transport and transit potential of the region and will have a multiplier effect for the sustainable development of Central Asia.

In this regard, the practical implementation of the initiatives of the President of the Republic of Uzbekistan, put forward at global and regional forums, in particular within the framework of the UN, SCO, and CIS, is acquiring special relevance. The initiatives of the Government of Uzbekistan voiced at the international conference "Central Asia in the system of international transport corridors: strategic prospects and unrealized opportunities" in Tashkent in 2018 are also in demand. In particular, on the development of a Strategy for the development of regional transport corridors in Central Asia, the adoption on its basis the regional Program for the sustainable development of the transport system of Central Asia and the formation of the Regional Council for transport communications of the countries of Central Asia, which will become a coordinating structure in solving the problems of the transport and logistics sector.

The practical and systematic implementation of these initiatives will make a great contribution to the formation of a common transport space in Central Asia, as well as increase the competitiveness of international transport corridors passing through the territories of the states of the region.

## a. Analysis of the potential of international transport corridors in the development of a modern international transport and logistics system in Uzbekistan

The active development of foreign economic relations of the Republic of Uzbekistan largely depends on the solution of existing problems facing the whole of Central Asia in the development of foreign trade and freight transportation. "The future of Turkestan depends on its place in world trade," Barthold said. The commercial significance of Turkestan depends on the development of railways, which restore the essence of land and sea trade.

After the collapse of the USSR, the number of landlocked countries increased to 29, and the Republic of Uzbekistan has a special place in it, as it is one of only two countries in the world separated from the world's oceans by at least two territories.

Prior to independence, Uzbekistan could conduct its foreign economic relations through the following three seaports - Ilichevsk (access to the Black Sea), St. Petersburg (access to the Baltic Sea) and Vladivostok (access to ports in the Far East). At 4,300 and 8,000 km, the freight cost would increase. However, during the years of independent development of the country, thanks to the goal-oriented policy of the state leadership, the situation in this direction has changed radically.

As a result of active measures of the Government of the Republic of Uzbekistan to search for and effectively use alternative transport corridors for the transportation of foreign trade cargo, as well as the coordinated work of relevant ministries and departments, an international transport corridor network has been established and improved.

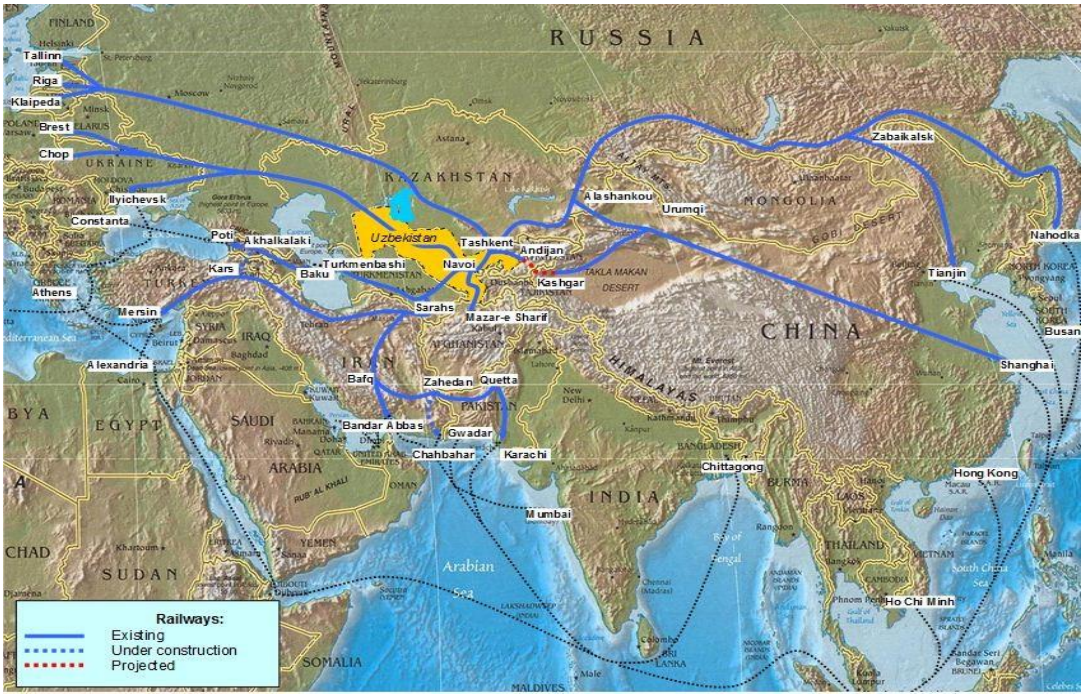


*Figure 54: the Republic of Uzbekistan external trade load while transporting main transport corridors*

**At present, the foreign trade of the Republic of Uzbekistan is carried out through the following main transport corridors:**

Corridor 1 - in the direction of the ports of the Baltic States (via transit from Kazakhstan and Russia) - Klaipeda (Lithuania), Riga, Liepaja, Ventspils (Latvia), Tallinn (Estonia);

Corridor 2 - in the direction of EU countries, via Belarus and Ukraine (via transit from Kazakhstan and Russia) - Print (Ukraine) and Brest (Belarus) border;

Corridor 3 - to the Ukrainian port of Ilichevsk (via transit from Kazakhstan and Russia), with access to the Black Sea;

Corridor 4 - in the direction of the Transcaucasian corridor, known as the TRACECA corridor (via transit from Turkmenistan, Kazakhstan and Azerbaijan), with access to the Black Sea;

Corridor 5 - to the Iranian port of Bandar Abbas (via transit from Turkmenistan), with access to the Persian Gulf;

Corridor 6 - via the Kazakhstan-China border in an easterly direction (Dostiq / Alalshankou) to the eastern ports of China, as well as to the ports of Nakhodka, Vladivostok and others in the Far East;

Corridor 7 - with access to Chinese ports (via transit from Kyrgyzstan) to the Yellow, East China and South China Seas;

Corridor 8 - In connection with the settlement of the Afghan problem, new prospects are opening up for the development of southern alternative transport corridors through the transit from Afghanistan to the Iranian and Pakistani ports of Bandar Abbas, Chahbahar (IRI), Gwadar and Karachi (IRP).

On May 12, 1996, with the active participation of Uzbekistan, the launch of the 320-kilometer Tejon-Serakhs-Mashhad railway (with a pair of wheels at the Seraxs station from 1520 mm to 1435 mm) was a significant achievement in the development of international transport corridors. Central Asian countries have opened a new Trans-Asian corridor to enter the world market through the territories of Iran and Turkey. In the same year, the leaders of Uzbekistan, Azerbaijan, Georgia and Turkmenistan signed the Agreement on Coordination of Railway Transport Activities and the Agreement on Cooperation in the Regulation of Transit Cargo between the Participating Countries.

In May 2005, the distance to the port of Bandar Abbas was reduced to at least 800 km due to the completion of the Bafk-Mashhad railway on the Mashhad-Bandar Abbas route (bypassing Tehran) in Iran.

In September 1998, at the initiative of Azerbaijan, Georgia and Uzbekistan, as well as with the assistance of the European Union, the International Conference "TRACECA - Restoration of

the Historical Silk Road" was held in Baku. At the end of the conference, 12 heads of state, including the leadership of Uzbekistan, signed the Basic Multilateral Agreement on International Transport for the Development of the Europe-Caucasus-Asia Corridor. Signed Technical Applications.

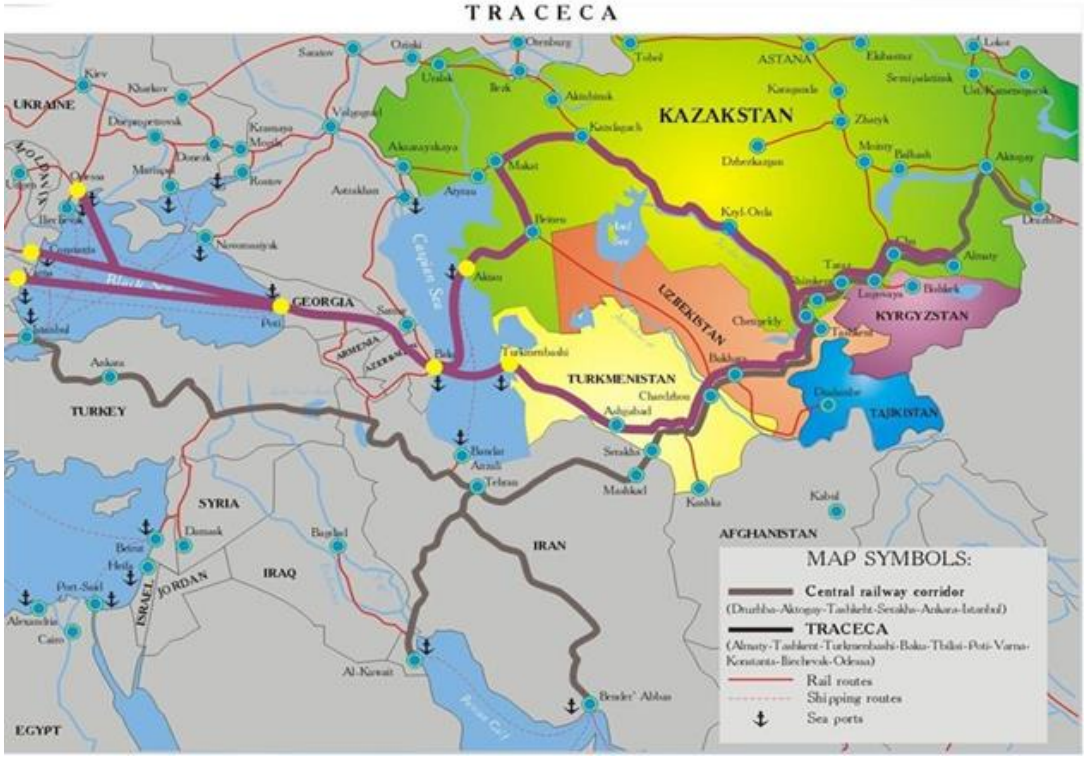


*Figure 55: Europe-Caucasus-Asia Transport Corridor (TRACECA) land and sea routes*

From Figure 48 we can see the Europe-Caucasus-Asia Transport Corridor (TRACECA) network of land and sea routes, which pass through the Black Sea from Europe to the Central Asian republics via the Caucasus and the Caspian Sea. On the one hand, the development of trade relations between Europe and Asia and the location of major producers in Asia and consumers in Europe, on the other hand, the TRACECA route can be concluded by transporting goods to Europe via the TRACECA transport corridor. Giving seems very tempting. The distance of the main transokean route from Yokohama to the largest Western

European ports (Rotterdam, Hamburg, Antwerp, etc.) is at least 2 times longer than the TRACECA route.

On June 18, 2003, in Tehran (Iran), the Presidents of the Republic of Uzbekistan, the Islamic Republic of Afghanistan and the Islamic Republic of Iran signed the Agreement on the Construction of an International Trans-Afghan Transport Corridor.

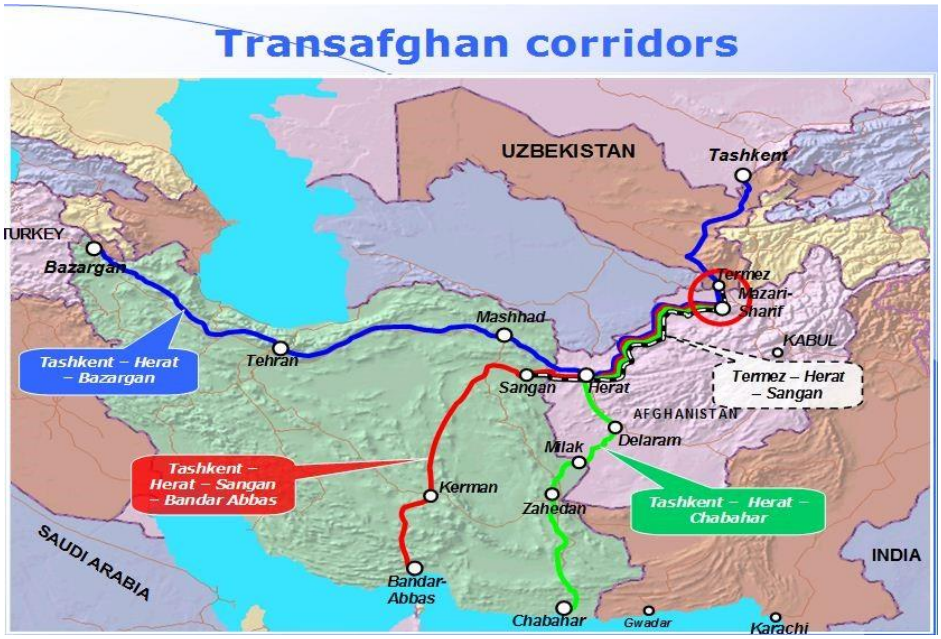


*Figure 56: International transafg'on transport corridor*

The entry into force of the Agreement between the Government of the Republic of Uzbekistan and the Government of the Islamic Republic of Pakistan on cooperation in the field of transport and transit of goods in March 2011 and the stabilization of the situation in Afghanistan opens new prospects for the use of Afghan territory. has a positive impact on the diversification of routes to the ports of Iran and Pakistan .

In order to increase the transit potential of the country, Uzbekistan pays great attention to the formation of mainline railway communications. This is confirmed by the completion in 2001 of the construction of the Navoi-Uchkuduk-Sultan Uvaystog railway with a distance of 341 km and the completion

of the construction of the Toshguzar-Boysun-Kumkurgan railway with a distance of 220 km in 2007.

The 75-kilometer-long Hayraton-Mazar-e-Sharif railway line in Afghanistan, built and commissioned in November 2010, is of special significance for the entire Central Asian region. The project was implemented by Uzbekistan Railways with the support of the ADB.

If we analyze the routes within the North-South MTC, due to geographical factors, Uzbekistan will not be able to compete with Russia, Kazakhstan, Turkmenistan and Azerbaijan on the India-Northern Europe route, which provides four routes.

According to the above-mentioned 8-lane project, the first will be the ports of Bandar Abbas and Chabaharna on the Persian and Gulf coasts, then the Iranian railways and highways, the Iranian ports in the south of the Caspian Sea (Bender-Enzeli, Amirabad, Noushehr) by ferry across the Caspian Sea. It aims to take you to the Russian ports of Astrakhan and Oliya. In Makhachkala and then along the Russian railways and highways leading to Northern Europe. The second route will rely on the ports of Aktau and Kuryk in Kazakhstan and the Kazakhstan-Turkmenistan-Iran railway, which will be connected to the Russian railway system. The third possible route is Eron, rail and road corridors through Azerbaijan and Russia, a highway through Armenia and Georgia, as well as the 556-kilometer North-South MTC to the Black Sea and the EU.

In most cases, the North-South MTK project includes the Uzbek Railway, which connects this railway through the Teen-Seraxs border crossing. However, from a methodological point of view, in order to further develop Uzbekistan's transit strategy, it is appropriate to consider Uzbekistan as part of a separate Indian

strategy to understand routes to Afghanistan and Central Asia, as well as the North-South transport complex to Northern Europe.

Currently, the main participants of the project are consulting on how to start shipping faster by India, which is trying to find more cost-effective ways to export to Europe and compete with China, which is implementing its One Place, One Way initiative. In addition, work is underway to improve the quality of existing infrastructure and build new ones. In particular, Delhi will invest $ 500 million in the development of the port of Chabahar, where in February 2017 it leased the port of Shahid Beheshti (Phase 1 of the port of Chabahar). In November 2018, Azerbaijan, Russia and Iran agreed to establish a working group on further development of freight transportation across the North-South Transport and Logistics Company and an appropriate monitoring system. Iran is actively developing port infrastructure as part of the North-South project. Iran's investment in the development of its ports has allowed them to increase their cargo turnover to 142 million tonnes by 2018. In particular, special attention is paid to the port of Amirabad on the Caspian Sea , which in 2013 invested $ 237 million, which increased the capacity of cargo transportation by 4 times to 7.5 million tons per year. Iran is also an integral part of Qazvin-Rasht-Astara. The Qazvin-Rasht railway line was commissioned on March 6, 2019 and is designed to connect Iran, Azerbaijan and Russia within the North-South ITC. In the first stage, the capacity of the road should be 6 million tons of cargo per year, with subsequent production of 15-20 million tons. Russia, in turn, has built a railway to the port of Olya in the North Caspian.

India is implementing a $ 100 billion large-scale Sagarmala project aimed at modernizing existing ports and developing new ones as one of the key centers for cargo formation for this corridor; improving their relationship with domestic production

by optimizing the costs and time spent on transportation of goods; development near industrial cluster ports; promoting sustainable coastal development programs.

It should be noted that today all the necessary conditions are being created in the country for the further development of transport and transit potential . Efforts are being made to increase the capacity of the transport system, to eliminate existing barriers to the passage of Uzbekistan, which will play an important role in the development of international transport corridors in Central Asia.

Uzbekistan is interested in participating in the One Place - One Road project. In accordance with the Presidential Decree "On measures to improve the transport infrastructure and diversify foreign trade routes in 2018-2022", measures are being taken to carry out the first transit of foreign trade cargo via the Baku-Tbilisi-Akhalkalaki-Kars railway.

The opening of the North-South project is scheduled for 2021. This transport corridor connects the port of St. Petersburg with the Iranian ports of Bandar Abbas and Chobahor, thus extending the sea route to the port of Mumbai in India.

This transport corridor is important for Central Asia because it simplifies the process of transporting goods to the Gulf countries via Iran. Every year there is an opportunity to transit 3-5 million tons of cargo through the corridor.

This transport corridor is also important for Uzbekistan. At the SCO summit in Xindao in June 2018, President Shavkat Mirziyoyev discussed the construction of the Uzbek-Mazar-i-Sharif-Herat, China-Kyrgyzstan-Uzbekistan railway lines, as well as the Central Asia-Persian Gulf, North-South and East-West trans-regional corridors. stressed that he was in favor of development .

Recently, the world community of experts has been talking a lot about the transport part of the "One Place - One Road" initiative put forward by China. In general, very high results can be expected from the work in this area.

Uzbekistan is interested in supporting the "One Place - One Way" initiative and more active participation in it. It is well known that the One Place One Way initiative is primarily aimed at developing trade and economic relations, creating new transport routes connecting China with a country that accounts for 60 percent of the world's population and 30 percent of its gross domestic product.

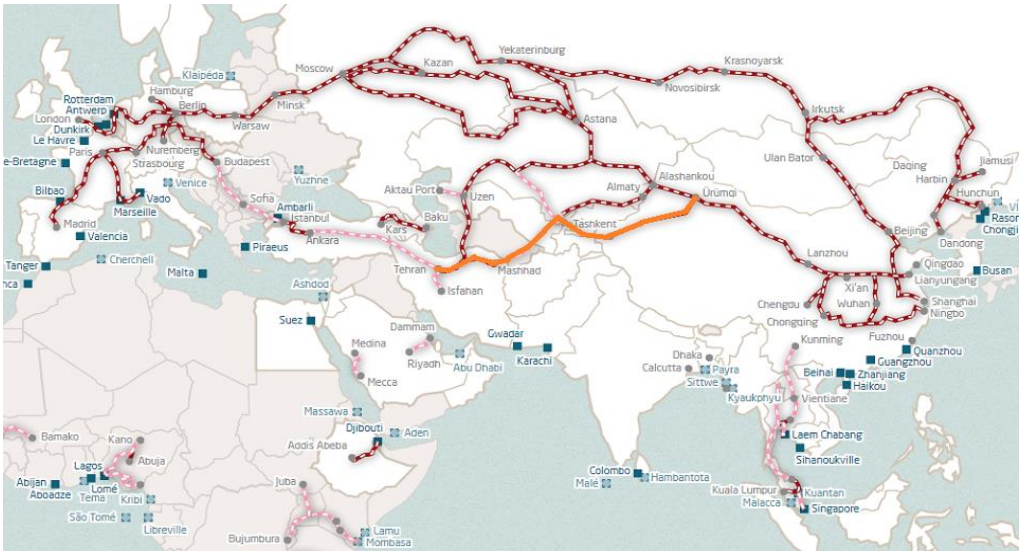


*Figure 57: From China Eronga Map of the road through Kyrgyzstan and Uzbekistan*

By joining the project, the Uzbek government can seize the opportunity to diversify trade routes. Of particular importance are the three trans-Eurasian economic corridors of the Silk Road economic space, the economic corridor from China to Central Asia, then through Russia to Europe (the Baltic Sea), and from China through Central Asia and West Asia to the Persian Gulf and the Mediterranean.

In 2016, Uzbekistan managed to build a 19.2 km long Kamchik tunnel in the mountainous part of eastern Uzbekistan,

attracting an $ 455 million infrastructure loan from the Eximbank of China. In June 2016, the leaders of Uzbekistan and the People's Republic of China held the opening ceremony of the Angren-Pop electrified railway and the Kamchik tunnel. It was done by China Railwey Group. The work did not stop there, with Uzbekistan proposing to build the Uzbekistan-Kyrgyzstan- China railway project together with neighboring Kyrgyzstan as part of the One Place - One Road initiative.

It should be noted that this project was proposed not by China, but by Central Asian countries, before the announcement of the initiative. The inclusion of this project in the Uzbek-Chinese joint statement can be seen as a diplomatic achievement of President Shavkat Mirziyoyev. However, differences in the width of the railways of China and the former Soviet republics have led to a 20-year delay in the construction of this railway line.

In addition to the above projects, Uzbekistan applied to the Asian Bank for Infrastructure and Investment early last year to finance a project to electrify the Bukhara-Urgench-Khiva railway. The project consists of 3 stages and requires a total of $ 340 million for the Bukhara-Miskan, Miskan-Urgench and Urgench-Khiva routes. If it is implemented, traffic between these cities will be accelerated, tourist traffic will be facilitated and transportation will be easier. It is unknown at this time when the project will be approved by the bank's board. In addition, the construction of Line D, the 4th line of the China-Central Asia gas pipeline initiated by China and also supported by Central Asian countries, has been postponed in recent years. While the Tajik government has high hopes for the line, for some uncertain reasons, this major project has not materialized.

It should be noted that the proposed projects must be economically viable, far-sighted, improve the living conditions of the population in the project areas, and ensure sustainable

development. Otherwise, the projects will consist of infrastructure that is not used by many, as in African countries, or that does not benefit the surrounding population. In order to prevent this, our people, especially the interested citizens and experts in the regions, should have enough information about One Place - One Road projects. All agreements with China should be disclosed, interpreted, examined and made available to the public as much as possible. Only then can international relations with China justify themselves and be mutually beneficial.

Over the past two years, the volume of loans received by domestic banks from Chinese public banks has increased significantly, which has caused concern in some academic circles. Between April and June 2018, a number of Uzbek banks signed financial agreements with Chinese banks worth $ 1 billion. Loan agreements in excess of US $ 1 million were signed and most of the financing was covered by China Insurance. Under this cooperation, Uzbek banks can receive loans for a period of 3 to 10 years. The final conditions for each project were determined separately. These credit lines will be used by Chinese contractors to finance process equipment and services. In addition, the Silk Road Foundation intends to actively promote a number of construction projects in the ancient cities of Uzbekistan.

The analysis shows that the country's external debt from the PRC and its public banks is not as large as it should be. However, the amount of debt is growing every year. In this situation, first of all, the situation in neighboring Kyrgyzstan and Tajikistan should be an example for us, foreign debt should be diversified so that we do not become too dependent on China.

Encouraging local transport enterprises to build transport infrastructure along the One Road One Road, cooperate in the international transport market and take an active part in building global transport enterprises is a requirement of the times.

## b. The importance of the International Conference: “Central and South Asia: regional interconnectedness. Challenges and Opportunities”

Initiative of the President of Uzbekistan Shavkat Mirziyoyev to hold the International Conference on 15-16 July: “Central and South Asia: Regional Interconnectedness. Challenges and Opportunities” is aimed at developing and strengthening constructive and mutually beneficial cooperation between two large, historically interconnected regions - Central and South Asia.

- ***Relevance of the International Conference.***

During the meeting, it is planned to consider the state and prospects for the development of interregional cooperation in Central and South Asia, the possibilities of developing transport and communication interconnection in Central and South Asia, including projects to expand existing and build new transport corridors, etc.

Considering the issue of practical interaction with regional partners, an important and fundamental role is assigned to Afghanistan, which acts as a transit country between the Central Asian and Southern regions.

Increasing the volume of trade between the Central Asian countries and the countries of South and Southeast Asia is impossible without the creation of reliable transport corridors that ensure timely delivery of goods.

According to domestic and foreign experts, the event will make it possible to develop concrete proposals for the accelerated advancement of the construction of a new railway line (Mazar-i-Sharif-Kabul-Peshawar, the so-called "Kabul Corridor") between Pakistan and Uzbekistan through Afghanistan, which is

strategically important for the countries. Two regions in the development of foreign trade.

- ***Problems of interaction between Central South and South-East Asia***

The countries of Central Asia do not have direct access to sea transportation and thus are cut off from the cheapest type of transport routes, in this regard, the development of transport communications in the region remains one of the key problems.

In the practice of forming international transport corridors, there are a number of problems, the main of which is the inconsistency of the regulatory framework of various countries participating in the transportation process:

- Lack of a unified standard for a shipping document;
- Various technical standards - lack of a unified railway track along the entire route.

The need to develop overland transcontinental trade routes is explained as follows:

- The congestion of the main world ports of Eurasia;
- Dynamic development of the economies of Western China, India and Pakistan.

In turn, Russia is successfully developing its project in the region by forming a North-South transport corridor (EU-Russia-India). The transport corridor is designed to provide communication between the Baltic countries and India through Iran. The main advantages of the North-South transport corridor over sea routes are: a twofold or more reduction in the distance of transportation (7200 km) and a decrease in the cost of transporting containers in comparison with sea routes. The corridor is formed along the following routes:

- Russia - Kazakhstan - Turkmenistan - ports of Iran - ports of Pakistan - ports of India;
- Russia - ports of the Caspian Sea - ports of Iran - ports of Pakistan - ports of India;
- Russia - Azerbaijan - Iran - ports of Iran - ports of Pakistan - ports of India.

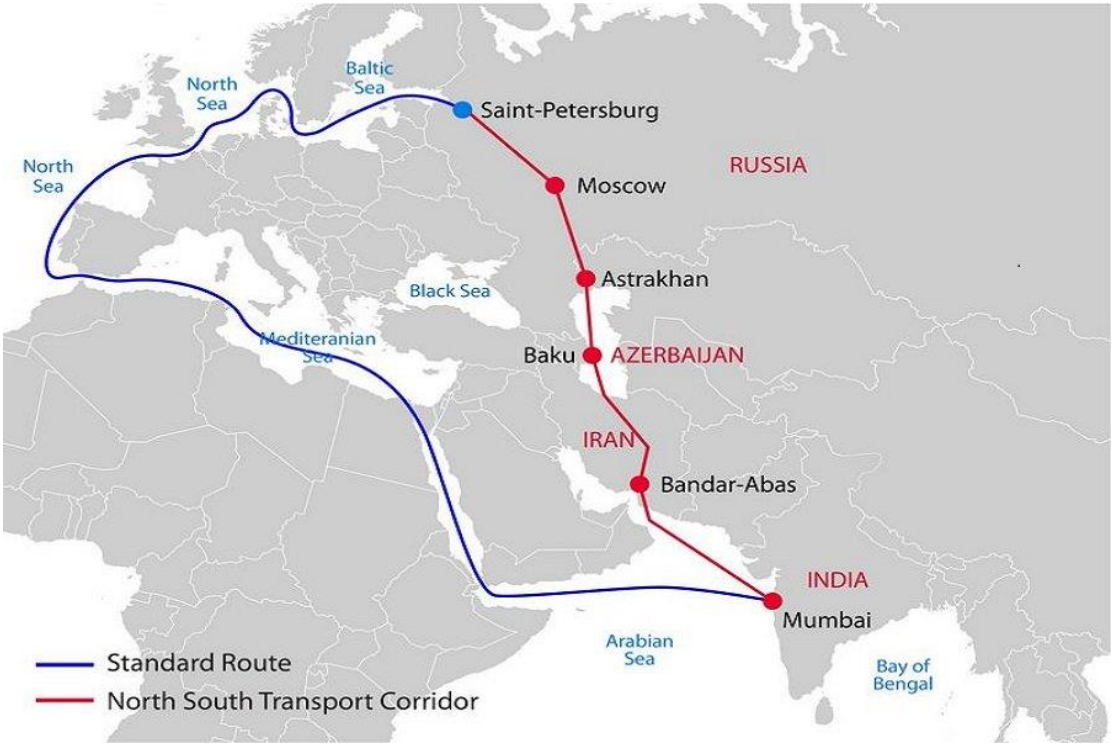


*Figure 58: North-South transport corridor (EU-Russia-India)*

When implementing the construction of the Herat-Kandahar-Quetta (Afghanistan) railway line, the route can serve as an alternative for connecting Russia with India along the existing North-South corridors:

- Russia – Kazakhstan – Turkmenistan – Iran – Afghanistan – Pakistan – India;
- Russia – Caucasus – Iran – Afghanistan – Pakistan – India;
- Russia – Caspian Sea ports – Iran – Afghanistan – Pakistan – India.


*Figure 59: Herat-Kandahar-Quetta (Afghanistan) railway line*

The route through the Kabul corridor Russia - Kazakhstan - Uzbekistan - Afghanistan - ports of Pakistan - ports of India can serve as a competitive alternative, since it is 500 - 600 km shorter than the existing routes of the North - South corridor.

- ***Estimates of the untapped potential of the countries of Central and South Asia***

The Central Asian region today has a huge untapped export and transit potential, which, if used in the future, may increase trade between large regions of the Asia-Pacific region, South and Southeast Asia, Russia and Europe through the implementation of large transport projects.

The Asian Development Bank (ADB) predicts that emerging economies in Asia will grow by an average of 7.3% in 2021, despite the lingering threat of coronavirus. Experts note that the optimistic forecast is associated with hopes for the recovery of the world economy, as well as with progress in the

dissemination of vaccines. ADB expects China's GDP to grow by 8.1% and India's GDP to grow by 11% in 2021.

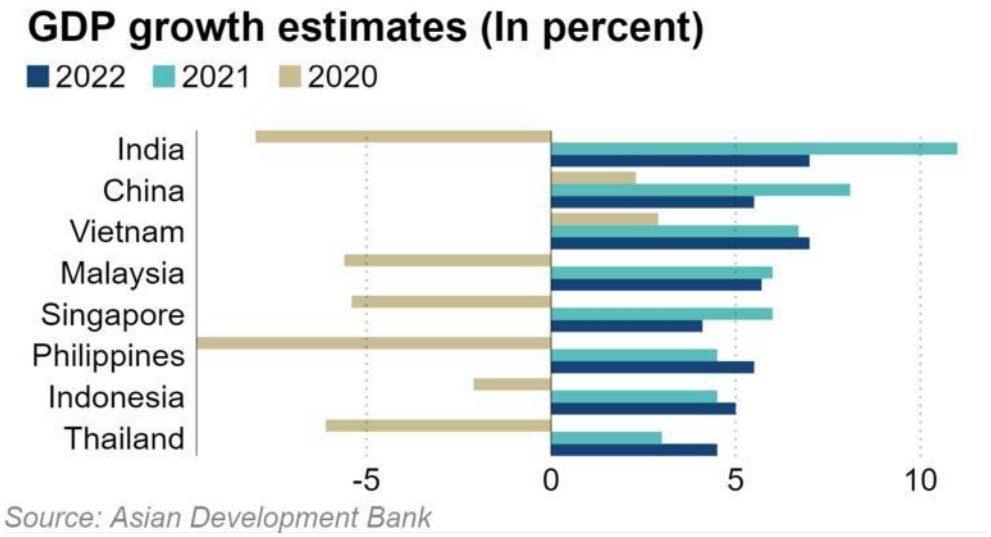


*Figure 60: the Asian Development Bank estimates for the economic growth*

According to the report of the international consulting campaign BCG "Investing in Central Asia: one region, many opportunities" from 2018, the potential of Central Asia to attract foreign direct investment over the next 10 years is estimated in the amount of up to 170 billion US dollars, including 40-70 billion US dollars in non-resource industries.

According to forecasts of domestic experts, by 2025 the volume of traffic between India, Pakistan and European countries, with even the smallest hypothetical redistribution (3%) of a part of the traffic from the existing India-Pakistan-EU sea corridor and back to the Mazar-i-Sharif-Kabul-Peshawar route, will be 5.5 million tons. Revenues from the transportation of transit goods by railways of Uzbekistan are expected to be US$595 million by 2025.

- ***Transit in 2020***

The maximum involvement of railway transport in the transportation of goods during the pandemic in 2020 led to a

significant expansion of the geography of international transport in Uzbekistan and showed a huge potential that needs to be worked on and developed on an ongoing basis, developing practical measures to increase the transit potential of the republic.

As a result of active management measures, in 2020 the volume of international traffic by rail amounted to 40 million tons (42% of the total volume of traffic by rail).

The volume of transit cargo transported by the railways of Uzbekistan over the past few years has reached the value of 2013 for the first time - up to 8.2 million tons (from 2013 to 2019 the average annual volume was 7.7 million tons) with the intensification of work on the formation of transport profitable for the republic corridors.

A special role is played by the growth in the volume of transit of oil products from Turkmenistan to Afghanistan (461%), as well as from Russia to Tajikistan (123%). In addition, the transit of milling products from Kazakhstan to Afghanistan has significantly increased (116%). Also, the growth of transit traffic was facilitated by agreements on tariff preferences concluded between the countries participating in "Kyrgyzstan - Uzbekistan - Turkmenistan - Azerbaijan - Georgia" and Turkey. This agreement was signed during the meetings of the heads of the railways of five countries - Azerbaijan, Georgia, Kyrgyzstan, Turkmenistan and Uzbekistan in Tashkent on 19-20 December 2019. Within the framework of the meeting, the participants agreed to develop the international multimodal route "Asia-Pacific countries - China - Kyrgyzstan - Uzbekistan - Turkmenistan - Azerbaijan - Georgia - Europe" and vice versa, with the development of common approaches to the accelerated passage of container trains and the use of unified, competitive tariffs.

As a result of agreements on the sections of the multimodal route, more than a thousand containers have been transported since the beginning of 2020.

- ***Prospects for interaction with Southeast Asia***

Currently, 93% of all cargoes from / to China to / from Europe, from / to India to / from Europe, 96% are transported by sea. The mutual trade turnover of the two most economically advanced countries of Southeast Asia - India and Pakistan with the EU countries shows stable growth, which leads to the emergence of demand for alternative modes of transport: air, road and rail. The accession of these countries in 2017 to full members of the SCO contributes to the search for solutions aimed at developing international trade.

In his message to the Oliy Majlis, the President of the Republic of Uzbekistan Sh. Mirziyoyev set the task to bring "the transit potential of Uzbekistan from the current 7 million tons to 16 million tons per year."

Thus, the search for other alternative land routes by which it is possible to deliver goods to Europe and in the opposite direction is an urgent task.

The project for the construction of the Mazar-i-Sharif-Kabul-Peshawar railway line is a logical continuation of the constructed railway Hairaton-Mazari Sharif, which will form a new and shortest transit corridor with access to the Pakistani and Indian railways, as well as to the ports of the Arabian Sea (Gwadar, Karachi, Mumbai, etc.).

By creating a unified railway infrastructure of the CIS countries with the countries of South Asia (Afghanistan, Pakistan, India, Bangladesh), this project allows, without additional costs, to ensure the fastest transportation of goods along the North-

South corridor, connecting the largest markets of South Asia with the markets of the CIS countries and Europe.

- ***Chronology of the development of the "Kabul Corridor"***

Let’s list the main events related to the results achieved in the formation of the "Kabul Corridor".

On 20 September 2018, at the International Conference "Central Asia in the System of International Transport Corridors: Strategic Prospects and Unrealized Opportunities", for the first time, scientifically substantiated research results and the advantages of forming the "Kabul Corridor" were presented.

On 3-4 December 2018, a multilateral meeting of the heads of the railway administrations of Russia, Kazakhstan, Uzbekistan, Afghanistan, Pakistan was held in Tashkent. As a result of the meeting, a Protocol was signed on the establishment of a joint working group and financial consortium between the railway administrations of Uzbekistan, Russia, Kazakhstan, Afghanistan and Pakistan. The chairmanship was delegated to the Uzbek side.

In March and September 2019, the first and second meetings of the multilateral Working Group on the construction of transit railway lines through Afghanistan were held in Tashkent.

In February 2020, with the support of the World Bank, the First Meeting of the Central Asia-South Asia Transport Platform was held in Tashkent, with the participation of the delegation of Afghanistan, Tajikistan, Pakistan, Uzbekistan, etc. At the same time, the World Bank noted that the route "Peshawar - Kabul - Mazar-i-Sharif” is the crossroads of Pakistan’s promising routes connecting the Indian Ocean with the countries of Central Asia, China, Russia, the Caucasus and the European Union.

In February 2021, the Uzbek-Afghan-Pakistani summit talks were held with the participation of the heads of key international financial institutions. As a result of the negotiations, the Road Map was approved for the construction of the Mazar-i-Sharif-Kabul-Peshawar railway with a length of about 600 km.

On 13-17 March 2021, the delegation of the Republic of Uzbekistan visited the Islamic Republic of Pakistan in order to study the infrastructure of the Pakistani ports "Qasim", "Karachi" and "Gwadar" and organize bilateral negotiations.

An agreement was reached to intensify work on the effective use of the Uzbekistan-Afghanistan-Pakistan route using the ports of Pakistan.

In May 2021, the World Bank expressed its readiness to support the project for the construction of the Mazar-i-Sharif - Kabul - Peshawar railway, in particular, to provide funding for field research and to assist in the development of design estimates. The Mazar-i-Sharif-Kabul-Peshawar railway project is estimated at $ 5 billion. It involves the construction of a highway with a length of 573 km and a transit potential of up to 20 million tons of cargo per year.

The construction of a new railway line is of interest to Russia, the EU and other countries, to move the Eurasian Economic Space to the south and increase transit traffic. So, in May 2021, at a meeting with the head of Russian Railways, the issue of joint promotion of the project for the construction of the Mazar-i-Sharif - Kabul - Peshawar railway with the involvement of international financial institutions was separately considered. An agreement was reached on the participation of Russian Railways in carrying out work on the comprehensive preparation of the project, including the development of technical documentation, and the early start of construction.

## Conclusions

The mutual trade turnover of the two most economically advanced countries of Southeast Asia - India and Pakistan with the EU countries (trade turnover between India and the EU in 2019 - 37 million tons, in 2020 - 24.5 million tons; Pakistan-EU - for 2019 - 6.3 million tons, 2020 - 5.9 million tons) shows stable growth, which leads to the emergence of demand for alternative modes of transport: air, road and rail. For comparison, in 2019, the trade turnover between Uzbekistan - India and Pakistan amounted to 72 thousand tons, which indicates a great potential for regional development.

Along with this, it should be noted that in 2017 India and Pakistan became full members of the SCO.

The development of transport corridors across the territory of Central Asia leading to the formation of a unified transport system serves as an impetus for the search for additional exits to the international markets of Southeast Asia.

China and India have long been interested in reaching Europe along the shortest land routes. In addition, today these two great countries are not connected with each other by rail, in China it is the western part near the city of Kashgar that is developing economically and industrially, and Indian railways do not have access to the railways of Central Asia and other regions.

The favorable geographic location of Uzbekistan allows for the smooth implementation of foreign trade transportation along alternative routes. In these conditions, it becomes necessary to use alternative transport corridors to Southeast and East Asia: the "Kabul corridor" (Uzbekistan - Afghanistan - Pakistan) and China - Kyrgyzstan - Uzbekistan.

In order to increase the competitiveness of domestic corridors and reorient transit cargo from alternative to domestic

railways, experts propose the earliest possible formation of corridors:

Uzbekistan - Afghanistan - Pakistan and China - Kyrgyzstan - Uzbekistan with the organization of road transport of goods on the existing international highways from Kashgar (China) to Andijan (Uzbekistan) and Peshawar (Pakistan) to Galaba (Uzbekistan) with charging a tariff as for rail transportation.

The new land transport corridor will connect the European Union, Russia, China, Uzbekistan, Afghanistan, Pakistan, India and further the states of Southeast Asia. The development of these routes will lead to an increase in the transit potential of the countries of the Central Asian region, including Uzbekistan, and the formation of new transit corridors: "India - Pakistan - Afghanistan - Uzbekistan - Kazakhstan - Russia - Belarus - European Union", "China - Kyrgyzstan - Uzbekistan - Afghanistan - Pakistan - India ".

Based on the foregoing, the International Conference being held is a logical continuation of the measures being implemented in the republic to develop the transport and communication industry and foreign trade of the regions, strengthen interregional interconnection, as well as restore the economy and establish peace in Afghanistan. This event will facilitate a detailed discussion of issues to attract the business community to the implementation of projects.

The modern geographic location of Uzbekistan sets the task of forming promising transit transport corridors. Thus, in the future, Uzbekistan can become a crossroads between North - South and West - East, where the entire territory of the republic and the whole of Central Asia will be considered as a single large logistics hub - a market of global importance.

And already in the short term, with a properly built strategy for the development of the transport industry, its integration with the global network of railways and highways, the main indicators in the field of transport will be achieved, such as a potential increase in freight turnover, speed of delivery of goods, volume of transit goods; passenger turnover and, along with this, the flow of transit tourists. And this, in turn, will lead to an increase in the attractiveness to the Central Asian region and the competitiveness of transport routes in the region due to the further growth and development of multimodal transportation.

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