CAREC CORRIDOR PERFORMANCE MEASUREMENT AND MONITORING

ANNUAL REPORT 2022

CAREC
Central Asia Regional Economic Cooperation Program

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Abbreviations

ADB	–	Asian Development Bank
APTTA	–	Afghanistan–Pakistan Transit Trade Agreement 2010
BCP	–	border-crossing point
CAREC	–	Central Asia Regional Economic Cooperation
CIS	–	Commonwealth of Independent States
CMR	–	Convention on the Contract for the International Carriage of Goods by Road
CPMM	–	Corridor Performance Measurement and Monitoring
PRC	–	People's Republic of China
RIBS	–	Regional Improvement in Border Services
SWD	–	speed with delay
SWOD	–	speed without delay
TFI	–	trade facilitation indicator
TIR	–	Transports Internationaux Routiers (International Road Transports)
TTFS	–	Transport and Trade Facilitation Strategy

Units of Measure

km	–	kilometer
km/h	–	kilometer per hour
TEU	–	twenty-foot equivalent unit

Executive Summary

The *CAREC Corridor Performance Measurement and Monitoring Annual Report 2022* provides an assessment of the overall performance and efficiency of the Central Asia Regional Economic Cooperation (CAREC) Program's transport corridors. It is based on the program's Corridor Performance Measurement and Monitoring (CPMM) trade facilitation indicator (TFI) data accumulated over the year. The TFIs include (i) time taken to clear a border-crossing point (BCP), (ii) cost incurred at a BCP, (iii) average cost incurred to travel a given corridor, and (iv) average speed to travel along CAREC corridors. These indicators enable the CAREC members to individually and collectively evaluate the impacts of the transport and trade initiatives undertaken in the CAREC region.

Road Transport

Road transport showed broad improvements on all the TFIs. From 2021 to 2022, border-crossing time dropped from 13.6 hours to 9.9 hours (–27.2%). Border-crossing cost declined from $357 to $208 (–41.7%), and total transport cost fell from $1,256 to $945 (–24.8%). Speed without delay (SWOD) and speed with delay (SWD) were both higher too, the former up 1.0% to 42.0 kilometers per hour (km/h) from 41.6 km/h, and the latter rising 8.3% from 21.5 km/h to 23.4 km/h. These material improvements should be taken in context. They occurred as the region's and the world's economies and normal trade flows recovered from the deep effects and strict pandemic control measures that greatly suppressed CPMM indicator data in 2021. Year-to-year TFI performance is now likely to resume its longer-term trends.

Rail Transport

The 2022 rail transport TFI results were also generally better than those in 2021, although there were exceptions—TFI 3 and TFI 4 (SWD). Border-crossing time dropped from 51.9 hours in 2021 to 40.6 hours (–21.7%). Border-crossing cost rose from $178 to $215 (20.9%), although total transport cost fell from $902 to $804 (–10.9%). SWOD was up 29.6% from 41.6 km/h to 53.9 km/h, and SWD down 67.3% from 38.0 km/h to 12.4 km/h.

Rail cost performance was affected by several factors. As countries shut down road and air transport early in the pandemic, rail was the only mode of transport available for moving such essentials as food and medical supplies. Rates rose as a result. Shippers were also compelled to shift cargo to rail and thus drive rates up further when ocean maritime rates hit an all-time high. As global maritime rates came down in 2022, and shipments shifted back to ocean routes, demand and freight rates for rail declined. On the other hand, the lower TFI 3 results were partially offset by the higher border-crossing fees (TFI 2), which were driven by increases at the Alashankou–Dostyk and Horgos–Altynkol BCPs on the border between the People's Republic of China (PRC) and Kazakhstan.

Country Updates

Individual CAREC countries generally reported improved TFI results in 2022 as they and their neighbors lifted pandemic border control measures imposed during 2020–2021. Shippers and transport operators were often no longer subject to epidemiological checks and waiting times in quarantine. However, the PRC continued strict zero-COVID-19 border control restrictions until the end of the year. Turkmenistan lifted these measures in June 2022.

Caspian Crossings and Impact of Russo–Ukrainian War

The February 2022 Russian invasion of Ukraine severely impacted the CAREC region and overall Eurasian supply chains. Some truck drivers participating in CPMM reported seeking cover when crossing Ukraine

soon after the invasion began. The war resulted in a sudden surge of CPMM transport times as congestion developed at BCPs on corridors used as alternatives to the Northern Route through the Russian Federation, Belarus, and Ukraine. Transport rates rose on the Northern Route due to the elevated costs and uncertainties related to international sanctions, insurance, and the security of drivers.

This report contains the results of a detailed analysis conducted on the effects this war has had on the seaports in Azerbaijan, Georgia, and Kazakhstan that function as important nodes along the Trans-Caspian International Transport Route (TITR), also known as the Middle Corridor.[a] The results, elaborated in a Chapter 4 case study, showed that the long lead times for freight crossing the Caspian on the TITR were in the main not due to issues at the ports themselves, but instead to lengthy waits for the limited number of vessels available to move cargo across the sea.

[a] The "Trans-Caspian International Transport Route (TITR)" is often used interchangeably with the term "Middle Corridor". CPMM does not discriminate them and both terms are hence used in this report.

1 Introduction

Background

The Corridor Performance Measurement and Monitoring (CPMM) mechanism is an empirical tool designed by the Central Asia Regional Economic Cooperation (CAREC) Program to assess the efficiency of its six priority transport corridors (Figure 1.1).[1] The CAREC corridors link the region's key economic hubs to one another and connect the program's landlocked members to Eurasian and global markets.[2]

The mechanism is used to (i) identify the causes of delay and unnecessary cost in moving cargo along the links and through the nodes of each CAREC corridor, including at border-crossing points and intermediate stops; (ii) help the national authorities in the CAREC countries determine how to address the bottlenecks thus identified; and (iii) assess the impact of regional cooperation initiatives implemented by the members along these corridors.[3]

Launched in 2009, the CPMM methodology and collection process captures a range of ground-level information by measuring and recording data on actual cargo shipments along CAREC corridors and at pairs of BCPs at 37 border crossings that have been identified and prioritized by the CAREC member countries. Figure 1.2 illustrates the four-phase CPMM methodology, which is explained further in Appendix 1. The data along the corridors and at the BCPs are collected by an established pool of national freight forwarders and carrier partners.[4]

The CPMM employs the aggregated data collected for four TFIs to evaluate the overall performance and efficiency of the CAREC corridors each year.[5] When measured over the years and across the corridors, the indicator results provide a comparative picture for assessing and determining the effectiveness of transport and trade improvement initiatives in the region. The four TFIs are as follows:

(i) ***TFI1: Time taken to clear a BCP.*** This indicator is the average length of time (in hours) taken to move cargo across a border from the entry to exit point of each of the two country's BCPs at that crossing. The entry and exit points are typically primary control centers where customs, immigration, and quarantine are handled. Along with the standard clearance formalities, this includes waiting time, unloading and loading time, time taken to transfer shipments when rail track gauges change at border crossings, and other factors. The intent is to capture both the complexities and inefficiencies in the border-crossing process.

(ii) ***TFI2: Cost incurred at a BCP.*** This is the average total cost in United States (US) dollars of moving cargo across a border from entry to exit at a BCP. Both official and unofficial payments are included

(iii) ***TFI3: Cost incurred to travel a corridor section.*** This is the average total cost in US dollars incurred to transport one shipment along a corridor section within a country or across borders. One shipment refers to goods carried in a truck, container, or a wagon. Since each sample can have a

[1] The CAREC program is a partnership of 11 countries—Afghanistan Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Pakistan, the People's Republic of China, Tajikistan, Turkmenistan, and Uzbekistan—working together to promote development, accelerate economic growth, and reduce poverty through cooperation. See CAREC home page www.carecprogram.org.

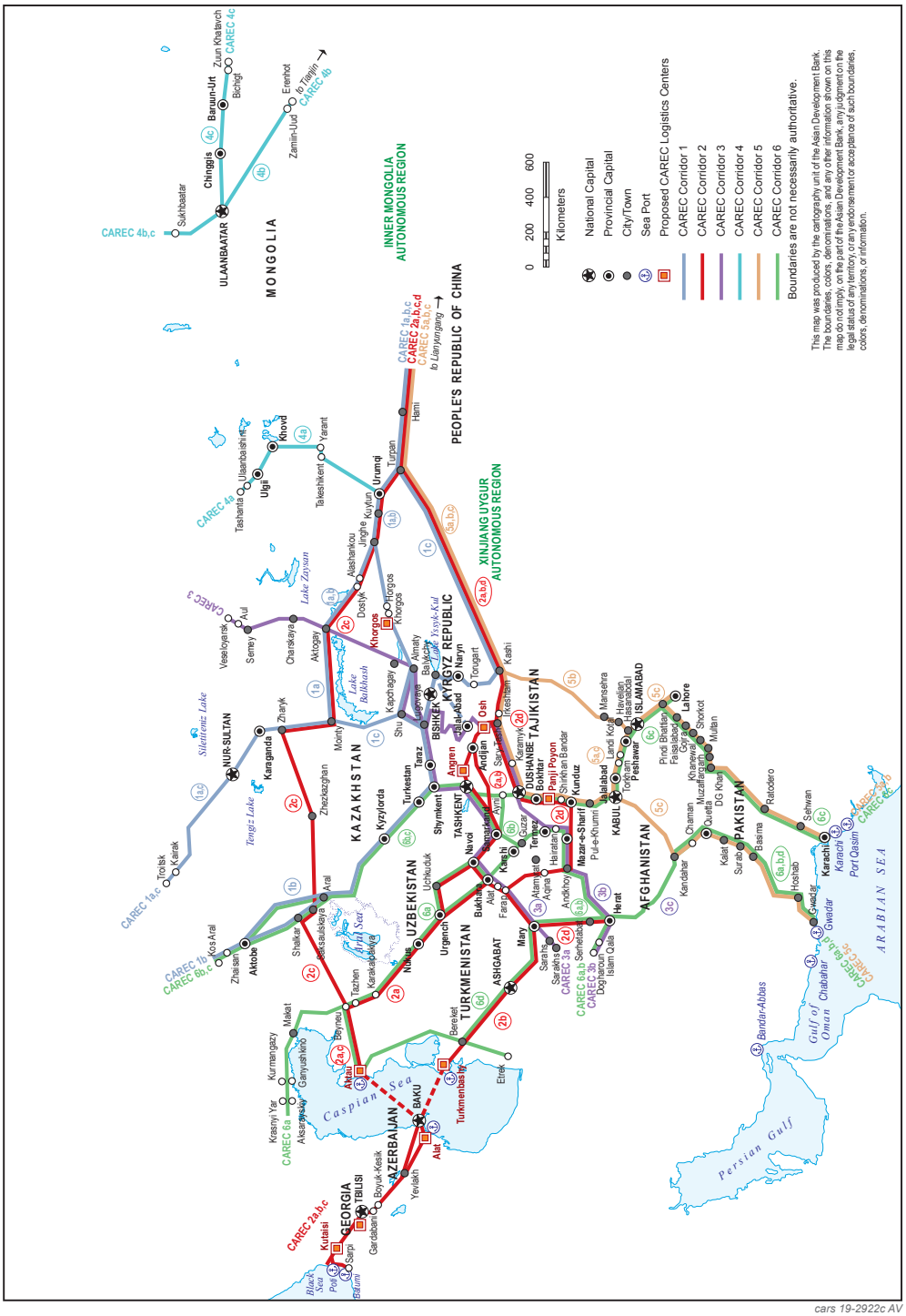
[2] The CPMM annual report is a technical document and, for the benefit of readers, includes standard explanations and definitions. Parts of the introduction contain standard and recurring descriptions of the CAREC CPMM background, methodology, names of BCPs, and appendixes and should remain consistent with previous annual reports.

[3] A detailed description of each CAREC corridor is found at www.carecprogram.org/?page_id=20.

[4] The national forwarder and carrier partners are listed in Appendix 2.

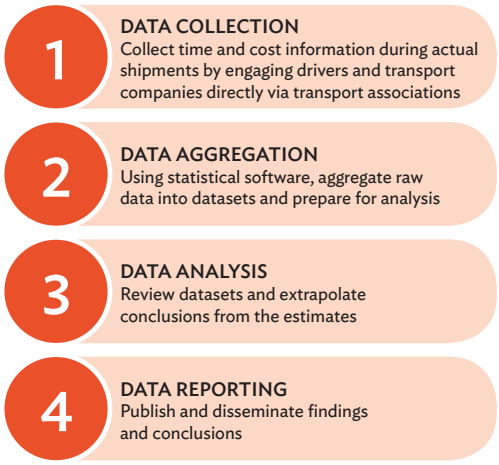
[5] The TFIs, including statistical derivations, are explained in Appendix 3.

Figure 1.1: Six Central Asia Regional Economic Cooperation Corridors



CAREC = Central Asia Regional Economic Cooperation.
Source: Asian Development Bank. *Six Central Asia Regional Economic Cooperation Corridors*. https://www.carecprogram.org/uploads/2017-carec-corridor-map-FIN.pdf

Figure 1.2: Corridor Performance Measurement and Monitoring Methodology



Source: Asian Development Bank.

different cargo weight and travel different distances, the weight of the goods is scaled to 20 tons, and the distance to 500 km. A corridor section is defined as a stretch of road or railway track 500 kilometers (km) long. Both official and unofficial payments are included. Transport cost figures reported by CPMM refer to transport rates for trucks or railway rates for trains.[6]

(iv) ***TFI4: Speed to travel along CAREC corridors.*** This is the average speed in kilometers per hour (km/h) at which a unit of cargo travels along a corridor section within a country or across borders. Speed is calculated by dividing the total distance traveled by the duration of travel. Distance and time measurements include border crossings.

CPMM uses two measures of speed: speed without delay (SWOD) and speed with delay (SWD). SWOD is the ratio of the distance travelled to the time spent by a vehicle in motion between origin and destination (actual traveling time). SWD is the ratio of distance travelled to the total time spent on the journey, including the time the vehicle was in motion and the time it was stationary. All activities that delay the vehicle (customs controls, inspections, loading and unloading, and police checkpoints, among others) are recorded by drivers. SWOD represents a measure of the condition of physical infrastructure, maximum speed regulations and congestion due to usage for roads and railways, while SWD is an indicator of the efficiency of BCPs along the corridors.

The data for TFIs 1 and 2, which respectively measure the time and cost at a BCP, have three components: (i) the time from when the shipment on a truck or train begins to queue outside the gate to the time when it enters the BCP; (ii) the time it takes for the activities inside a BCP (which typically consist of customs, immigration, and transport inspections agencies); and (iii) the time it then takes for the shipment to gain authorization to leave the BCP. It is important to note that a BCP can serve inbound traffic and outbound traffic, depending on the direction of travel. CPMM considers a shipment that is entering a BCP as an import to be inbound traffic, and outbound traffic to be a shipment that is leaving the BCP as an export. The TFIs 1 and 2 values are disaggregated at each BCP depending on these definitions and direction of travel.

[6] Transport cost is viewed from the perspective of the shipper and/or receiver. It represents the market rate paid to move the cargo, rather than the carrier's cost of providing the service.

Time and cost indicator data for each individual activities at each BCP are also collected and assessed. The same applies for other intermediate stops, such as toll booths and security inspections.[7] This helps to identify not only the locations of the delays along a corridor, but also the nature of these delays.

The sustainability, reliability, and successful use of CPMM depends on several factors:

(i) **Private sector participation.** National transport associations are formally engaged to train selected national transport operators or freight forwarders to use the CPMM tool and gather and record the necessary data. This helps ensure that each data sample reflects a bona fide cargo movement through the CAREC transport corridors.

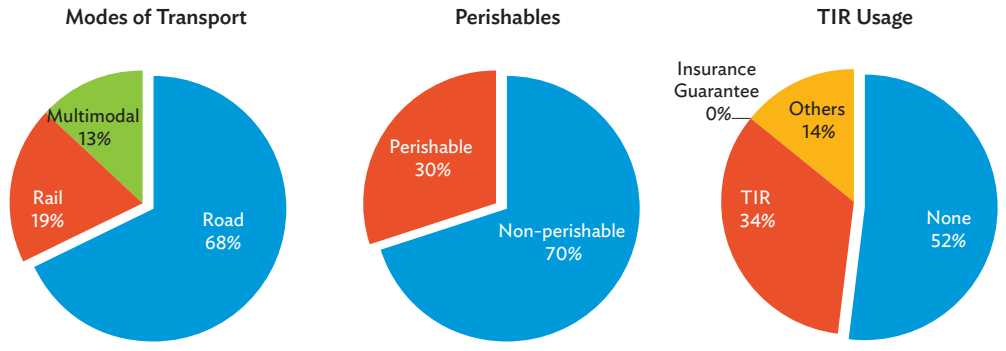
(ii) **Fact-based and data-driven conclusions.** The CPMM data thus derived from actual transport movements are submitted by the national transport association partners in each CAREC country every month. The findings are aggregated and analyzed quarterly and annually. This supports a fact-based, data-driven evaluation of whether time and cost performances are improving or deteriorating over an extended period.

(iii) **Customization for landlocked countries.** A substantial percentage of CAREC members (e.g. Uzbekistan, Tajikistan, Kyrgyzstan, Mongolia) are landlocked. Therefore, the CPMM methodology focuses on road and rail transport, the two dominant transport modes in Central Asia. Particular emphasis is put on border-crossing times and costs, which are frequently identified as the main obstacles to more efficient cross-border cargo movement in the region.

Data Profile

In 2022, 11 associations (listed in Appendix 2) collected data on 2,339 samples of cross-border shipments in the 11 CAREC countries.[8] The goods were carried by road (68%), rail (19%), and multimodal transport (13%).[9] About 30% of the shipments were perishables, virtually all transported on trucks (Figure 1.3); and 34% of the shipments sampled were accompanied and detailed by TIR Carnets of the Transports Internationaux Routiers (International Road Transport).

Figure 1.3: Data Profile of Corridor Performance Measurement and Monitoring Samples, 2022



TIR = Transports Internationaux Routiers (International Road Transport).
Note: Numbers may not sum precisely because of rounding.
Source: Asian Development Bank.

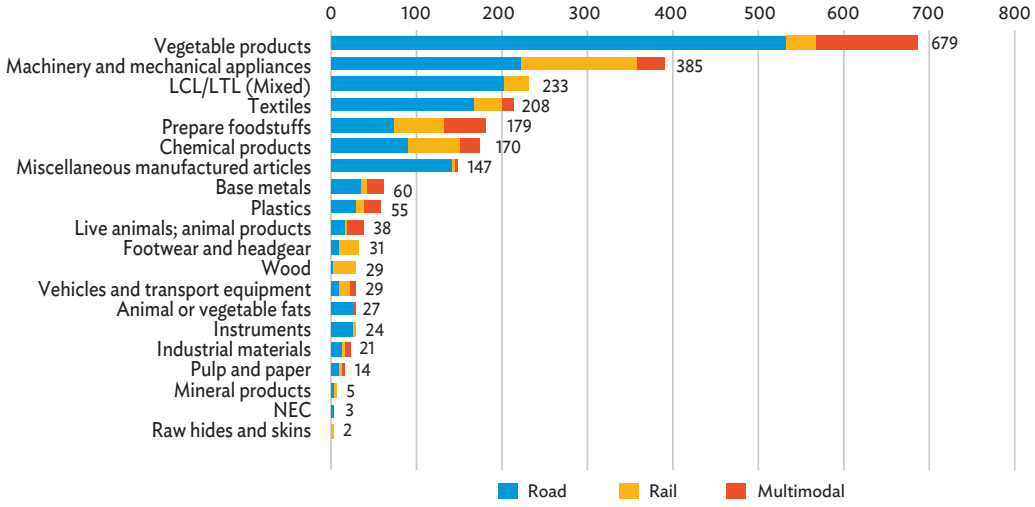
[7] Activities encompass all anticipated checks and procedures, both at BCPs and at intermediate stops along the transit corridor (see Appendix 4). A list of CAREC BCPs covered by the CPMM is in Appendix 5.

[8] Afghanistan is not covered in this CPMM due to political reasons.

[9] For purpose of this report, only shipments with a substantial movement via a different mode before or after the rail transport is classify as multimodal. Shipments pick up or deliver in the vicinity of the origin or destination rail terminal are classified as rail. CPMM covers multimodal shipments in the form of road–rail, road–water and rail–water combinations.

Figure 1.4 shows the top five categories of shipments sampled: vegetable and fruit, 29.0%; machinery and mechanical appliances, 16.5%; less than a container load or less than a truckload (mixed), 10.0%; textiles, 8.9%; and prepared foodstuff, 7.7%.

Figure 1.4: Number of Shipments by Type



LCL = less than container load, LTL = less than truckload, NEC = not elsewhere classified.
Source: Asian Development Bank.

Cargo Movements

The CPMM mechanism focuses on road, rail, and multimodal transport. It covers the six CAREC corridors and the BCPs along them. The data collected for each shipment sampled include points of origin and destination. Table 1.1 lists key BCPs crossed by shipments along the CAREC corridors. Because some corridor sections overlap, one BCP can be listed on more than one corridor.

Table 1.1: Cargo Movements by Country

Country	CAREC Corridors	Cargo Types and Movements
Azerbaijan	2	Products: fruits and nuts, processed food, cotton, vehicles, electrical equipment and machinery, and pharmaceuticals Movements: 1. Transit by road from Georgia's Black Sea seaports to Central Asia via the Caspian Sea 2. Transit by road from Central Asia via the Caspian to Georgia's Black Sea seaports 3. The Alyat seaport in Baku is the key node facilitating the water transport across the Caspian.

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Table 1.1 *continued*

Country	CAREC Corridors	Cargo Types and Movements
China, People's Republic of	1, 2, 4, and 5	Products: assortment of consumer products, apparel, iron and steel articles, electrical equipment and machinery, chemicals, electronics, passenger vehicles, auto parts, and plastic articles Movements: 1. Exports by road or rail to Central Asia via Kazakhstan and the Kyrgyz Republic 2. Exports by rail to Europe via Kazakhstan, Mongolia and the Russian Federation 3. Exports by road to Europe (TIR) 4. Transit by rail from overseas countries to Central Asia across PRC, generally via Lianyungang 5. Transit by rail from overseas countries across the PRC to Mongolia via Tianjin 6. Imports by rail from the Russian Federation across Mongolia
Georgia	2	Products: fruits and nuts, processed food, cotton, vehicles, electrical equipment and machinery, and pharmaceuticals Movements: 1. Transit by road from Georgian Black Sea ports to Central Asia via Azerbaijan and the Caspian Sea 2. Transit by road to Georgia Black Sea ports from Central Asia via the Caspian and Azerbaijan 3. The Poti and Batumi ports on the Black Sea are the key nodes facilitating cargo movements.
Kazakhstan	1, 2, 3, and 6	Products: assorted consumer products, apparel, and electrical equipment and machinery, consumer electronic appliances, textiles, and construction materials Movements: 1. Imports from the PRC, the Republic of Korea, Japan and other countries **by road** and by rail via Urumqi and Xian in the PRC 2. Imports by road to its major cities, such as Almaty and Astana, from the Kyrgyz Republic and Uzbekistan 3. Transit by road from the Kyrgyz Republic and Uzbekistan to the Russian Federation 4. Transit by rail from PRC to Turkmenistan and Uzbekistan 5. Transit of the container express trains from PRC to the Russian Federation and Europe
Kyrgyz Republic	1, 2, 3, and 5	Products: vegetables, fruits and nuts, small appliances, apparel, and electrical equipment and machinery Movements: 1. Imports and exports by road from and to Kazakhstan 2. Imports by road via Kashi from PRC 3. Transit by road from PRC to Tajikistan and Uzbekistan 4. Imports and exports by road from and to the Russian Federation across Kazakhstan
Mongolia	4	Products: consumer products, foodstuff, and diesel fuel. Most rail shipments carry chemicals, electrical equipment and machinery, and plastic articles Movements: 1. Imports and exports by road from and to Inner Mongolia or other areas in the PRC 2. Imports and exports from and to such overseas countries as Japan and the Republic of Korea by rail via the PRC's Tianjin seaport 3. Transit by rail between the Russian Federation and the PRC
Pakistan	5 and 6	Products: fresh fruits and vegetables, some electrical equipment, machinery, and ceramic products Movements 1. Transit by road of containerized goods arriving from overseas at Karachi ports to Kabul and Kandahar in Afghanistan 2. Exports by road to Central Asia

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Table 1.1 *continued*

Country	CAREC Corridors	Cargo Types and Movements
Tajikistan	2, 3, 5, and 6	Products: dried fruits and vegetables, construction and building equipment Movements: 1. Imports by road from the Russian Federation via Uzbekistan and Kazakhstan 2. Imports by road from Pakistan via Afghanistan 3. Imports by road from the PRC via the Kulma Pass 4. Imports by road from the Kyrgyz Republic
Turkmenistan	2, 3, and 6	Products: carpets and copper articles, agricultural products, electrical equipment, and machinery Movements: 1. Imports by road and rail from the PRC across Kazakhstan and Uzbekistan 2. Imports by road from Pakistan across Afghanistan
Uzbekistan	2, 3, and 6	Products: fruits and vegetables, textiles, consumer products, auto parts, electrical equipment, and machinery Routes: 1. Exports by road to Kazakhstan, the Russian Federation and Europe 2. Imports by road from Pakistan across Afghanistan 3. Imports by rail via Kazakhstan from the PRC 4. Transit by rail from PRC to Turkmenistan

BCP = border-crossing point, CAREC = Central Asia Regional Economic Cooperation, CPMM = Corridor Performance Measurement and Monitoring, PRC = People's Republic of China, TIR = Transports Internationaux Routiers (International Road Transport).
Source: Asian Development Bank.

2 Corridor Performance

CPMM data relate to commercial shipments that move through the CAREC countries. Although most of these shipments originate or end in the 11 member countries, some are destined for, start in, or transit countries beyond the program region, including Iran, the Russian Federation, and Türkiye. Others are bound for or sourced in more distant regions, mainly Europe.

This chapter uses 2022 CPMM data to profile cargo movements in each CAREC member country. As previous reports have shown, the shipping routes and the types of cargo shipped do not vary significantly from one year to the next. The products shipped are mainly staple items, and they are sent over established channels.

Shipments by Road

The TFI results for road transport all improved in 2022. The average border-crossing time and cost decreased. The total cost of transport fell. SWOD and SWD rose.

The TFI data for road transport in 2022 are summarized in Table 2.1. Results for the TFIs by corridor are provided in Appendix 6.

Table 2.1: Trade Facilitation Indicators—Road, 2021 and 2022

Indicator	Description	2021	2022	% Change
TFI1	Time taken to complete a border-crossing point (hours)	13.6	9.9	(27.2%)
TFI2	Cost incurred at border crossing ($)[a]	357.0	208.0	(41.7%)
TFI3	Cost incurred to travel a corridor section ($ per 500 km per 20 tons)	1,256.1	945	(24.8%)
TFI4	Speed to travel on CAREC corridors (km/h)	21.5	23.4	8.3%
SWOD	Speed without delay (km/h)	41.6	42.0	1.0%

() = negative value, CAREC = Central Asia Regional Economic Cooperation, km = kilometer, km/h = kilometers per hour, SWOD = speed without delay, TFI = trade facilitation indicator.
[a] Total cost estimates are derived by summing fees and payments for each border-crossing activity at the BCP. "Tea money" or "facilitation fees" beyond the official amount to be paid are included.
Source: Asian Development Bank.

Trade Facilitation Indicator 1: Average Border-Crossing Time

The average reported border-crossing time shortened across all the corridors and was down 27.2% from 2021. Most CAREC countries relaxed their strict COVID-19 epidemiological border controls during 2022, and the PRC eventually followed at the end of the year.

Despite the overall improvement, the crossing times at some BCPs indicated severe problems. The BCP pair at Alashankou–Dostyk on the PRC–Kazakhstan border, which is primarily a rail crossing, reported the longest crossing times even though it had not surfaced as a problem location prior to 2022. The crossing times averaged 81.3 hours at Alashankou on the PRC side, and 20.7 hours at Dostyk in Kazakhstan. For outbound traffic, the time-consuming BCPs were Chaman (54.0 hours) and Torugart (50.1 hours), Karasu (42.7 hours), Farap (26.7 hours) and Tsiteli Khidi (24.2 hours). Shipments took 2 days to complete customs controls at Chaman. Long waiting times and queues were issues at all these BCPs. The most

time-consuming BCPs for incoming traffic were Torkham (15.6 hours) and Yarant (11.5 hours), where vehicles faced long waits in line before undergoing customs procedures and health inspections.

Data suggest that the Russo–Ukraine war has driven up crossing times at BCPs in Azerbaijan, Georgia, and Türkiye, which rose during 2022. It took 21 hours on average to cross each BCP at Sarp and Sarpi, and 24 hours on each side at Tsiteli Khidi and Krasnyi Most. There was an influx of trucks to the Trans-Caspian International Route (TITR)—also known as the Middle Corridor—after Ukraine was invaded in February 2022. Some trans-Eurasia shippers and transport operators who normally used the CAREC routes that link with the Northern Route through the Russian Federation and/or pass through Ukraine have been compelled by the fighting and international sanctions on the Russian Federation to divert freight traffic to the TITR. This inevitably lengthened the waits and processing times at these BCPs.

Trade Facilitation Indicator 2: Average Border-Crossing Cost

The average cost to cross a border was 41.7% lower in 2022 than in 2021. Fees dropped along all six CAREC corridors.

The PRC BCPs had the highest fees. In terms of **inbound** traffic, the costliest were Horgos ($1,861), Takeshikent ($1,300), and Alashankou ($638). For the **outbound** direction, the costliest BCPs were Dostyk ($4,499), Nur Zholy ($1,326), and Yarant ($198). A BCP's fee often reflects the volume of traffic it handles and border management procedures limiting the number of participating carriers. For example, Horgos is the busiest land border crossing point in the region. It can command the highest fees because it is on the shortest route between Urumqi and Almaty, and one of the key nodes in the bilateral and transit trade between the PRC and Kazakhstan. The Urumqi–Almaty route via the Alashankou BCP is longer, lesser usage is one reason why its border-crossing fee is lower

Fee reporting at a BCP is based on the sum of the charges imposed by each of the border agencies and the service providers. The single most expensive road activity is the loading and unloading of goods required at a BCP when a foreign truck is not permitted to cross the border. The goods must then be transferred to a carrier authorized by the inbound country. Additional costs are also incurred when goods must be unloaded and placed in temporary storage at a bonded warehouse. Fees charged by customs for processing declarations and documentation are the next most expensive item, and they do not cover the additional outlay that arises if a Customs officer assigns a shipment to a red channel. This can be very costly, since the transport operator must pay for unloading and reloading the goods, as well as the physical examination itself.

Other additional costs can include those for transporting heavy machinery and bulky equipment along Corridor 2. The shippers of such items must pay for a customs escort and moving the shipment in a special convoy. These heavy and large shipments, which generally come from Europe and arrive through Georgia's port at Poti for onward transport on CAREC Corridor 2, can pose a safety hazard and require a special license and customs supervision along the way.

The fees charged at BCPs can also depend on the nature of the goods and the experience of the shipper, transport operator, and/or customs broker. In addition to official border crossing fees, -unofficial payments, sometimes referred to as "tea money" and commonly called "facilitation fees" in Central Asia, are also included in reporting CPMM border crossing costs. Such payments are often paid to border crossing officers or through customs brokers acting as intermediaries, are required to expedite the movement of cargo through truck queues, and for the clearance or release of goods.

Trade Facilitation Indicator 3: Total Transport Cost

Total transport cost stood at $945 in 2022, down about 25% from 2021. This was in line with the general falloff in global rates for shipping ocean containers from their peak in 2021.

The TFI 3 decline was not uniform. There were sizeable reductions along Corridors 1 and 4, but costs rose on Corridors 2 and 3. While it is difficult to prove, CPMM partners said that this unusual divergence might be due to a shift in traffic to the TITR along Corridor 2 from Corridor 1 along which most shipments pass to and from the Russian Federation. The longer BCP crossing times in Azerbaijan, Georgia, and Türkiye provide some support for this hypothesis.

Trade Facilitation Indicator 4: Speed to Travel on CAREC Corridors

SWOD and SWD both increased in 2022, although only slightly. Corridor 1 remained the fastest corridor, with SWOD estimated at 63.6 km/h. Its much lower SWD (23.4 km/h) was due to the long border-crossing times at Horgos–Nur Zholy and Alashankou–Dostyk. Corridor 5 was the slowest corridor in 2022, with SWOD and SWD estimated to be 25.6 km/h and 12.5 km/h, respectively.

Shipments by Rail

Times for crossing borders by rail declined in 2022, while the costs increased. Total costs dropped, however. SWOD was up, and SWD down.

Table 2.2: Trade Facilitation Indicators—Rail, 2021 and 2022

Indicator	Description	2021	2022	% Change
TFI1	Time taken to clear a border-crossing point (hours)	51.9	40.6	(21.7%)
TFI2	Cost incurred at border-crossing clearance ($)[a]	177.8	215.0	20.9%
TFI3	Cost incurred to travel a corridor section ($ per 500 km, per 20 tons)	902.3	804.0	(10.9%)
SWD	Speed to travel on CAREC corridors (km/h)	38.0	12.4	(67.3%)
SWOD	Speed without delay (km/h)	41.6	53.9	29.6%

( ) = negative value, CAREC = Central Asia Regional Economic Cooperation, km = kilometer, km/h = kilometers per hour, SWOD = speed without delay, TFI = trade facilitation indicator.
[a] Total cost estimates are derived by summing fees and payments for each border-crossing activity at the BCP. "Tea money" or "facilitation fees" beyond the official amount to be paid are included.
Source: Asian Development Bank.

Trade Facilitation Indicator 1: Average Border-Crossing Time

The TFI 1 rail average declined 21.7% from 2021, with the most time-consuming BCPs for outbound traffic located at Erenhot (44.4 Hours), Horgos (34.8 hours), and Alashankou (30.5 hours) in the PRC. All three were affected by restrictions on rail cargo movement ordered by the PRC government after rail network terminals in the receiving country could not process rail traffic fast enough to allow the entry of more incoming trains. Horgos was also affected by Sanitation and Phyto-Sanitary controls and requirements that regular CAREC corridor trains be side-tracked or give way to allow high priority Eurasian container express trains to pass. The time needed for gauge change at the border was further lengthened by the challenge in securing wagons.[10]

The three most time-consuming rail BCPs for inbound traffic were Altynkol (82.6 hours) and Dostyk (76.1 hours) in Kazakhstan and the PRC's Erenhot (54.9 hours). The wagon shortage was the main cause of delays. The gauge-change operation for incoming trains took an average of 3 hours to complete.

[10] Kazakhstan has privatized the provisioning of wagons, so the shipper needs to separately communicate and negotiate with the private wagon owners instead of dealing with one single and centralized railway authority on wagon deployment, complicating the process of organizing rail shipments.

Trade Facilitation Indicator 2: Average Border-Crossing Cost

Border-crossing costs for rail were up by 20.9% in 2022. A surge in fees on Corridors 1a (30%) and 1b (17%) were driven by higher traffic. Border-crossing costs for inbound shipments averaged $260 at Altynkol and $361 at Dostyk in Kazakhstan.

Costs can differ at BCPs depending on whether shipments move by road or by rail. A BCP with higher traffic volume generally also has higher border-crossing fees as observed from CPMM samples. Most of the road shipments go through Horgos—Nur Zholy, while most of the rail shipments go through Alashankou—Dostyk. This resulted in higher road border-crossing fees at Horgos—Nur Zholy, and higher rail border-crossing fees at Alashankou—Dostyk.

Trade Facilitation Indicator 3: Total Transport Cost

Total transport cost dropped 10.9% in 2022. The fact that TFI 2 results rose while TFI 3 (total transport cost) fell suggested that competition in rail freight rates offset higher border-crossing fees to provide shippers with net cost reductions. The overall TFI 3 decline was led by drops on Corridors 1a (19%) and 4b (30%). Costs on Corridor 1b increased slightly by 0.5%. The lower overall transport cost in 2022 aligned with the reduced global maritime rates for shipping containers. Shippers who diverted goods to rail from ocean routes in 2021 and early 2022 switched back after maritime rates peaked in late 2022.

Trade Facilitation Indicator 4: Speed to Travel on CAREC Corridors

While SWOD increased from 41.6 km/h to 53.9 km/h in 2022, SWD dropped from 38.0 km/h to 12.4 km/h due to border bottlenecks.

3 Country Updates

This chapter updates the main national developments and CPMM data country by country to help explain the trends and outcomes as of 2022 at the CAREC regional and CAREC corridor levels. Policies, regulations, infrastructure, and institutional factors that can affect corridor performance are analyzed; and pertinent barriers and issues highlighted. Key developments and progress are noted, and recommendations made.

The 2022 CPMM report reports the four TFIs at the country level, segregated by road and rail transport. Border-crossing time and cost data are further decomposed for outbound and inbound shipments (Tables 6.1–6.22). These data are supplemented by average border-crossing time and cost for BCPs along the CAREC corridors. Key CPMM findings are also provided in this chapter.

Azerbaijan

Key Findings

CPMM road transport data for 2022 showed the following year-on-year changes from 2021 in Azerbaijan:

(i) Border-crossing time fell slightly from 5.8 hours in 2021 to 4.0 hours in 2022. This followed a similar reduction in 2021 from 2020.

(ii) Border-crossing cost dropped from $106 in 2021 to $52 in 2022.

(iii) Total transport cost (per 500 km) rose from $27 to $50.

(iv) SWOD increased slightly from 52.3 km/h to 53.3 km/h, while SWD slowed to 28.9 km/h from 39.1 km/h.

(v) The average time needed to clear Krasny Most (Red Bridge) BCP jumped from 2.9 hours to 13.6 hours for outbound traffic. The time for inbound traffic fell from 3.7 to 3.1 hours.

(vi) The average inbound cost to cross Krasny Most (Red Bridge) BCP declined from $120 to $69. The outbound cost rose from $26 to $43.

Table 3.1: Trade Facilitation Indicators for Azerbaijan, 2020–2021

Trade Facilitation Indicators		Road Transport		
		2020	2021	2022
TFI1	Time taken to clear a border-crossing point (hour)	6.3	5.8	4.0
	Outbound	*2.8*	*7.5*	*5.3*
	Inbound	*10.2*	*3.6*	*2.5*
TFI2	Cost incurred at border-crossing clearance ($)	85	106	52
	Outbound	*71*	*100*	*42*
	Inbound	*97*	*112*	*63*
TFI3	Cost incurred to travel a corridor section ($, per 500 km, per 20-ton cargo)	45	27	50
SWD	Speed to travel on CAREC Corridors (km/h)	34.2	39.1	28.9
SWOD	Speed without Delay (km/h)	52.7	52.3	53.3

km = kilometer, km/h = kilometers per hour, SWOD = speed without delay, TFI = trade facilitation indicator.
Source: Asian Development Bank.

Table 3.2: Border-Crossing Performance in Azerbaijan, 2020–2022

BCP, Corridor, and Direction of Trade			Duration (hours)			Cost ($)		
			2020	2021	2022	2020	2021	2022
Road Transport								
Baku	(2)	*Outbound*	1.7	7.2	1.8	64	110	36
		Inbound	1.6	0.5	0.2	51	43	24
Krasnyi Most	(2)	*Outbound*	4.5	2.9	13.6	20	26	43
		Inbound	11.9	3.7	3.1	105	120	69

BCP = border-crossing point.
Note: The estimates for the Baku seaport BCP are for land-side operations only. The water-side delays are more significant.
Source: Asian Development Bank.

Trends and Developments

Border-crossing time and cost both declined from the 2021 levels. As economies emerged from the COVID-19 pandemic and construction and engineering resumed, total transport cost rose due to the nature of the cargo, as special permits handling is required to move heavy, oversized, and irregularly shaped machinery needed for these projects from Georgia's Poti seaport to Central Asia.

Azerbaijan is a critical transit country for CAREC Corridor 2, the TITR (also known as the Middle Corridor), and the Transport Corridor Europe Caucasus Asia (TRACECA) initiative.[11] It is a founding member of the TITR and a key participant in efforts to market the Middle Corridor to the shipping community.

The government seeks to make Azerbaijan a major hub for trade between Europe and Asia and has built the largest maritime port on the Caspian Sea to support this goal. The Baku International Sea Trade Port at Alat can currently handle 15 million tons a year and plans to add another 10 million tons of capacity in the future. Construction was completed in 2022 on an expansion of the nearby Alat Free Economic Zone (AFEZ). Modern logistics centers are being developed, and a new airport is planned. The AFEZ facilities and favorable laws should attract substantial international investments. Value-added tax and customs duties will be waived for businesses that are located in the AFEZ as long as the goods are not used for domestic consumption. The zone's private property rights protections are strong, and corporate taxes for businesses established within the AFEZ law.

Azerbaijan has taken important steps to help develop the Middle Corridor (aka the TITR) and will greatly benefit if the overall effort bears fruit. But an initial upswing in its use was reversed during **the second half of 2022** by the daunting array of challenges, complexities, and infrastructure deficiencies of the Middle Corridor.

To reach a European consignee, outbound shipments along the corridor from the PRC must pass through four ports, cross two seas, switch transport modes five times, and be handled by as many as nine separate operators. Merely to reach the western shore of the Black Sea–still a long way, for instance, from major export destinations such as Germany or the Benelux countries—these operators need to organize the pickup trucker at the shipment's origin; China Railway; Kazakhstan Temir Zholy; Azerbaijan Demir Yollari; Georgia Railway; a trans-Caspian shipping company; a Black Sea vessel operator; and handling at the ports of Aktau or Kuryk, Baku, Poti or Batumi, and one of the European seaports such as Constanta. Each of these Middle Corridor modal changes creates significant failure risks and make the supply chain more fragile and complex. Cargo visibility is quite poor. Door-to-door transport quotes come more slowly than those for shipments on the Northern Corridor through the Russian Federation due to the multiple players

[11] The TRACECA initiative aims to foster the development of transport along routes between Europe and Asia through the Caucasus and Central Asia, and to ensure that economies of the now independent republics of the former Soviet Union will be better connected to Europe instead of the Russian Federation.

Figure 3.1: Baku International Sea Trade Port

Source: https://www.carecprogram.org/?feature=the-baku-international-sea-trade-port-of-azerbaijan.
Photo by Ragas, Sammons, and Khodjaev.

involved. The logistics costs can be quite unpredictable, making it difficult for shippers to quote a firm price for delivery to destination, leading to lost sales.

These issues undermined the brief bump in the Middle Corridor use that followed the invasion of Ukraine by the Russian Federation and the ensuing international sanctions. Traffic on the Middle Corridor suddenly jumped but then quickly overwhelmed the infrastructure, management processes, and capacities of the multiple operators on each link of the logistics chain. Delays grew tremendously at the Middle Corridor ports, shippers and receivers could not locate their cargos, and a journey from the PRC to Europe that normally took 12–15 days on the Northern Corridor required additional weeks to move through the Middle Corridor. Shippers who found ways to avoid the international sanctions quickly returned to the Northern Corridor or shifted to ocean trade routes.

Recommendations

Establish a Middle Corridor operating company. Many of the Middle Corridor issues could be solved by establishing a master operating company to manage its entire length. This company should have full authority could set schedules, manage the movement of shipments from end to end, provide stable rates through long-term contracts with the corridor's rail and sea operators, organize the development of adequate transport capacity, and serve as a single point of contact for users (e.g., for cargo tracking and tracing). Ownership could be shared by the key countries along the corridor, such as Azerbaijan,

Georgia, and Kazakhstan[12] as well as the PRC, which is a key cargo source and transit country for cargo from countries like Korea and Japan.

Identify the Middle Corridor chokepoints. A thorough study of the important bottlenecks would enable policymakers to move decisively on eliminating them. The improvements should not be limited to infrastructure expansion, which is costly and can take years. They should also streamline processes through using the principles of total quality management and lean manufacturing.

Digitalize the transport and logistics process. Establishing a holistic digital ecosystem for users and stakeholders would make the corridor's logistics network seamless and the supply chain more agile, resilient, and efficient. For instance, Aktau and Baku seaports still do not exchange vessel and shipment data digitally. By using widely adopted data sharing technologies and standards such data could be shared in an automated manner.

Georgia

Key Findings

CPMM road transport data for Georgia in 2022 showed the following year-on-year changes from 2021:

(i) Border-crossing time increased from 3.6 hours to 18.0 hours. This was due to border congestion at Tsiteli Khidi and Sarpi as a result of the greater use of the TITR Middle Corridor that followed the Russian Federation's invasion of Ukraine in February 2022.

(ii) Border-crossing cost for road shipments rose from $49 to $83.

(iii) Total transport cost was up from $562 to $1,485.

(iv) SWOD increased from 32.6 km/h to 40.6 km/h, but SWD slowed from 25.0 km/h to 14.0 km/h.

Table 3.3: Trade Facilitation Indicators for Georgia, 2020–2022

Trade Facilitation Indicators		Road Transport		
		2020	2021	2022
TFI1	Time taken to clear a border-crossing point (hour)	13.0	3.6	18.0
	Outbound	*14.2*	*4.2*	*23.3*
	Inbound	*4.8*	*1.3*	*1.6*
TFI2	Cost incurred at border-crossing clearance ($)	48	49	83
	Outbound	*45*	*37*	*81*
	Inbound	*78*	*94*	*94*
TFI3	Cost incurred to travel a corridor section ($, per 500 km, per 20-ton cargo)	87	562	1,485
TFI4	Speed to travel on CAREC Corridors (km/h)	27.1	25.0	14.0
SWOD	Speed without Delay (km/h)	46.3	32.6	40.6

km = kilometer, km/h = kilometers per hour, SWOD = speed without delay, TFI = trade facilitation indicator.
Source: Asian Development Bank.

[12] Azerbaijan, Georgia and Kazakhstan have created a consortium of companies led by the national railway operators in these three companies, as well as major freight forwarders, into an association. The association reviews and sets the tariffs. However, a shipper still need to wait for two weeks to obtain a quotation from the companies in this association. This suggested that the process is complicated and the idea of a proposed operating company is to improve the efficiency. More information about the association and the consortium can be found at https://middlecorridor.com/en/about-the-association/consortium.

Table 3.4: Border-Crossing Performance in Georgia, 2020–2022

BCP, Corridor, and Direction of Trade			Duration (hours)			Cost ($)		
			2020	2021	2022	2020	2021	2022
Road Transport								
Tsiteli Khidi	(2)	*Outbound*	5.1	2.4	24.2	43	52	92
		Inbound	3.1	1.4	1.8	–	33	44
Sarpi	(2)	*Outbound*	36.2	6.2	20.8	10	10	10
		Inbound	–	–	–	–	–	–

BCP = border-crossing point.
Source: Asian Development Bank.

Trends and Developments

Although cost and the time needed to cross borders in Georgia both rose dramatically in 2022, the time results—up more than 500%—were particularly striking. Total transport cost also rose. While SWOD increased, SWD was slowed by the much longer waits at the country's BCPs.

These results were overwhelmingly due to severe effects and changes forced by the war in Ukraine. The war shifted many cargo shipments between Europe, Central Asia, and East Asia away from traditional routes through the Russian Federation, Belarus, and the now war-torn areas of Ukraine. As fighting and potential detention made Ukraine corridors risky for drivers or impassible, insurers refused coverage. International sanctions were imposed on the Russian Federation, and shippers and transport operators, especially European ones, searched for alternative routes to bypass its territory. Along with maritime shipments through Baltic seaports, one such route was the TITR, aka the Middle Corridor.

Georgia, as a TITR gateway for European and international goods moving to Central Asia through its Black Sea ports of Poti and Batumi, benefitted from the immense interest but was also challenged by the surge in trucks and cargo at its BCPs. These goods leave seaports such as Varna or Burgas in Bulgaria on vessels bound for Poti or Batumi. They then move eastward by road or rail across Georgia and Azerbaijan to the Alyat seaport in Baku for shipment across the Caspian to Aktau, Kuryk, or Turkmenbashy.

The added volumes created long truck queues at Georgia's Sarpi BCP on its border with Türkiye and at Tsiteli Khidi on its border with Azerbaijan. The lengthy average border-crossing time in 2022 was the result. Road freight rates increased accordingly. The border-crossing time for outbound shipments—i.e., leaving Georgia—were longer than from those coming in. This in part reflected the fact that more merchandize goods were moving from Türkiye and Europe to Central Asia

Recommendations

Resume sailing between Georgia and Constanta. Ship movements between Georgia's ports and Constanta in Romania was suspended at the beginning of the Ukraine crisis due to the risk of damage to the vessels. This reduces transport capacity across the Black Sea. Georgia plays a key role in connecting Black Sea seaports. If the situation permits and the risk is perceived to lower, Romania and Georgia can review and decide the end of this suspension.

Provide parking for heavy transport vehicles. The slow crossing time at the Sarpi BCP with Türkiye forces long lines of trucks to wait on the Georgia side. These queues can stretch for miles and are sometimes disorganized. The BCP lies in a narrow space between a hill and the sea, leaving little room to expand the parking area. Proper parking for heavy transport vehicles covered by TIR Carnets could be set up nearer to the outskirts of Batumi City to shorten these lineups.

Advance the development of an overall rail fare. Georgia Railways is a founding member of the Trans-Caspian International Route Association, whose members include the Kazakhstan and Azerbaijan railways and aim to develop an overall fare for rail shipments. Although this remains a work in progress, a reliable and transparent fare of this kind would simplify cost estimation by shippers who would like to use the route but currently find it difficult to obtain good information on all the fees and tariffs along the way.

Kazakhstan

Key Findings

CPMM in 2022 showed the following year-on-year changes in Kazakhstan's road and rail transport data from 2021:

(i) Road border-crossing time improved from 8.2 hours to 4.3 hours.

(ii) The cost decreased from $567 to $317.

(iii) Total road transport cost was down from $2,422 to $1,493.

(iv) Road SWOD rose from 28.6 km/h to 31.2 km/h, and SWD from 49.9 km/h to 51.1 km/h.

(v) Rail border-crossing time continued its 2021 rise and was up 15.7% from 57.2 hours to 67.4 hours.

(vi) The cost of crossing borders by rail dropped slightly from $308 to $297.

(vii) Total rail transport cost declined from $924 to $883.

(viii) Rail SWOD rose from 49.0 km/h to 57.9 km/h. SWD was up from 8.9 km/h to 10.4 km/h.

Table 3.5: Trade Facilitation Indicators for Kazakhstan, 2020–2022

Trade Facilitation Indicators		Road Transport			Rail Transport		
		2020	2021	2022	2020	2021	2022
TFI1	Time taken to clear a border-crossing point (hour)	8.6	8.2	4.3	48.6	57.2	67.4
	Outbound	*8.0*	*5.9*	*4.0*	*8.9*	*11.4*	*6.8*
	Inbound	*8.9*	*9.5*	*4.6*	*54.4*	*61.8*	*78.0*
TFI2	Cost incurred at border-crossing clearance ($)	121	567	317	341	308	297
	Outbound	*58*	*30*	*19*	*124*	*139*	*185*
	Inbound	*153*	*875*	*504*	*356*	*319*	*313*
TFI3	Cost incurred to travel a corridor section ($, per 500 km, per 20-ton cargo)	1,850	2,422	1,493	724	924	883
TFI4	Speed to travel on CAREC corridors (km/h)	29.2	28.6	31.2	15.3	8.9	10.4
SWOD	Speed without delay (km/h)	52.9	49.9	51.1	65.2	49.0	57.9

km = kilometer, km/h = kilometers per hour, SWOD = speed without delay, TFI = trade facilitation indicator.
Source: Asian Development Bank.

Trends and Developments

Road and rail transport performed very differently in terms of border-crossing times. The 2022 road time was 36.5% shorter than in 2021, while the average rail time rose 3.4%. The reduction in road time was due primarily to a change in 2022 in how "seaside" and "landside" activities were classified at Kuryk port on the Caspian Sea. The net effect was that some road (or "landside) activities were recategorized as seaside operations, and the time needed to complete them was no longer included in the 2022 calculations.

Table 3.6: Border-Crossing Performance in Kazakhstan, 2020–2022

BCP, Corridor, and Direction of Trade			Duration (hours)			Cost ($)		
			2020	2021	2022	2020	2021	2022
Road Transport								
Aul	(3)	*Outbound*	2.4	–	–	26	–	–
		Inbound	–	–	–	–	–	–
Kairak	(1)	*Outbound*	–	3.1	4.0	–	18	15
		Inbound	4.0	–	–	30	–	–
Zhaisan	(1, 6)	*Outbound*	3.3	3.2	3.1	11	6	7
		Inbound	2.0	1.5	0.8	23	19	26
Tazhen	(2, 6)	*Outbound*	10.7	10.0	5.3	94	62	41
		Inbound	7.3	4.7	4.4	85	60	48
Kurmangazy	(6)	*Outbound*	3.3	3.1	2.9	7	7	7
		Inbound	2.2	2.3	1.7	9	7	6
Konysbayeva	(3, 6)	*Outbound*	12.0	5.9	5.0	79	41	33
		Inbound	10.9	5.1	1.4	106	52	60
Taskala	(1, 6)	*Outbound*	2.8	2.9	2.7	9	7	5
		Inbound	2.4	2.0	2.0	18	5	5
Pogodaevo	(0)	*Outbound*	3.1	–	–	10	–	–
		Inbound	2.0	2.5	2.1	10	6	4
Dostyk	(1, 2)	*Outbound*	–	–	–	–	–	–
		Inbound	17.0	46.8	20.7	602	4,840	4,499
Merke	(1, 3)	*Outbound*	2.5	0.6	2.8	8	20	18
		Inbound	–	–	–	–	–	–
Karasu	(1)	*Outbound*	4.0	1.3	0.6	32	14	13
		Inbound	15.5	1.5	5.7	29	18	12
Kuryk	(2)	*Outbound*	69.7	61.6	8.5	177	263	44
		Inbound	23.5	17.7	0.5	308	312	64
Nur Zholy	(1)	*Outbound*	6.7	–	–	290	–	–
		Inbound	5.1	19.6	10.7	315	3,918	1,326
Rail Transport								
Saryagash	(3, 6)	*Outbound*	8.9	11.3	9.9	124	132	129
		Inbound	1.7	4.0	–	14	7	–
Aktau	(2)	*Outbound*	–	–	3.6	–	–	220
		Inbound	–	–	–	–	–	–
Dostyk	(1, 2)	*Outbound*	–	6.7	–	–	–	–
		Inbound	72.7	70.0	76.1	524	398	361
Altynkol	(1)	*Outbound*	9.4	13.3	–	–	–	–
		Inbound	51.4	65.9	82.6	271	276	260
Saryagash	(3, 6)	*Outbound*	8.9	11.3	9.9	124	132	129
		Inbound	1.7	4.0	–	14	7	–
Bolashak	(5)	*Outbound*	–	30.2	–	–	–	–
		Inbound	–	–	–	–	–	–
Turksib	(1,3)	*Outbound*	6.0	4.4	7.5	–	175	–

BCP = border-crossing point.
Source: Asian Development Bank.

Relaxation of the PRC's COVID-19-related border controls also helped reduce the time average. Starting in March 2022, the cumbersome requirement that PRC export bound for Kazakhstan and beyond be placed on pallets, shrink-wrapped, loaded into special trucks on the PRC side of border crossings, and shuttled to a neutral zone for piece-by-piece transloading onto Kazakhstan trucks was eliminated.

Under the new system, PRC trucks picked up an empty trailer left by a Kazakhstan truck in a neutral zone, brought it to the PRC customs-supervised warehouse for loading, and returned it to the neutral zone, where it was picked up by a Kazakhstan truck to complete the border crossing at Nur Zholy and continue toward its destination.

Rail crossings were slower primarily due to the longer time averages at Altynkol (82.6 hours in 2022, up from 65.9 hours in 2021). The Dostyk average also rose to 76.0 hours from 70.1 hours. In both cases, the longer delays involved the gauge transfers of shipments on trains leaving the PRC and entering Kazakhstan. Wagon shortages were a common issue at this and all other rail BCPs. Despite these difficulties, however, the total transport costs for both road and rail in Kazakhstan dropped in 2022, reflecting the decline of global freight and ocean shipping rates from peak levels in 2021.[13]

Kazakhstan plays a special transit role in the CAREC region. It is the only Central Asian republic (CAR) that borders the Russian Federation, a key CAR market. The CARs' agricultural produce exports are transported to the Russian Federation by truck or train, and Russian manufactured imports move in the opposite direction. Kazakhstan is also the PRC's principal CAREC corridor transit route through the Russian Federation (the Northern Route) for its trade with Europe. ADB has sought to help boost CAREC regional trade by providing technical assistance to develop two economic corridors that traverse the country. These are the Almaty–Bishkek Economic Corridor, which involves Kazakhstan and the Kyrgyz Republic;[14] and the Shymkent–Tashkent–Khujand Economic Corridor across Kazakhstan, Uzbekistan, and Tajikistan.[15] These projects aim to improve CPMM trade facilitation performance at high-traffic BCPs such as Akzhol–Ak Tilek, Yallama–Konysbaeva, and Sarygash–Keles.

Kazakhstan also plays an important maritime transit role through its operation of key Caspian Sea ports at Aktau and Kuryk and collaboration with Azerbaijan and Georgia on the TITR, part of the so-called Middle Corridor across Eurasia.[16] The heightened interest in the TITR brought on by the war in Ukraine and avoidance by some shippers of the Northern Corridor through the Russian Federation led to a rise in throughput along this route and through these two ports in 2022. Aktau handled slightly more than 3.8 million tons of dry bulk and oil cargo, up 9% from 2021. Container throughput rose 11% to 30,700 TEUs.[17] Kuryk, a smaller port located south of Aktau, is being rapidly modernized and will house a universal cargo terminal able to handle 1.65 million tons of goods and 150,000 TEUs each year, as well as a grain terminal, a bulk cargo terminal, and a transport and logistics center.[18]

This surge in traffic combined with infrastructure deficits created major shipment delays at Aktau seaport in 2022 lasting 5–7 days. The waits eased in the third quarter, but CPMM identified a fundamental cause to be time spent in the ports waiting for vessels to make the Caspian Sea crossing. Azerbaijan Caspian Shipping Company and Kazmortransflot are the two operators on the route. Their three ferries have a total capacity of 600 TEUs and make enough crossings in one week to transport 3,000 TEUs. According to the TITR, three container ships were to be added to the route in late 2022, doubling this capacity.[19]

Overall cargo transit time through Kazakhstan was halved in 2022 from 12 days to 6 days, according to the country's prime minister, and the cooperative efforts of the TITR members had cut shipment time from the PRC to Georgia's Black Sea ports from 38–53 days to 19–23 days. The prime minister projected a further reduction to 14–18 days by the end of 2023.

[13] Readers can refer to CPMM annual reports for 2020 and 2021 for discussions of how the global COVID-19 pandemic impacted freight rates globally.
[14] ADB, www.adb.org/projects/56111-001/main
[15] ADB, www.adb.org/projects/52188-001/main
[16] Although Turkmenistan also has a seaport at Turkmenbashy on the Caspian Sea, it is not a member of the TITR.
[17] The statistics were reported in PortNews (https://en.portnews.ru/news/341411/). The official websites of Aktau and Kuryk had not reported the official numbers by the time the report was prepared.
[18] This is reported in Kuryk Port Development https://kuryk.kz/en/projects.html.
[19] https://www.portseurope.com/three-more-container-ships-to-double-the-cargo-capacity-of-the-middle-corridor-between-aktau-and-baku/.

Recommendations

Review the shuttle truck procedure at Dostyk. The average cost for a road crossing at the Dostyk BCP with the PRC was $4,499 in 2022, which continued the trend from 2021 and was abnormally high compared with fees at other road BCPs. This was due to Kazakhstan's imposition in August 2021 of a shuttle truck operation that prevented foreign trucks from entering Dostyk directly. Shipments from the PRC were carried on PRC trucks to the PRC's Alashankou BCP, where they were transloaded on to Kazakhstan shuttle trucks. The Kazakhstan transport company operating the shuttle completed the crossing formalities on both sides of the border, and the shipment reentered Kazakhstan through Dostyk where it was transferred to foreign trucks using a TIR Carnet to move to the final destination. The costs of this shuttle operation were generally $1,500 but, in some cases, rose to $12,000. An entire shipment moving from the PRC to Europe under a TIR Carnet costs $30,000 to $40,000 one-way. The border authorities should review this shuttle operation as it adds time and cost to transit shipments.

Increase the rail throughput capacity at Dostyk and Altynkol. Kazakhstan's two rail BCPs reported inbound border-crossing times in 2022 that were longer than in 2021 and exceeded those of all other rail BCPs. Given that the Dostyk and Altynkol BCPs are gateways for the bilateral trade between the PRC and Kazakhstan and other CARs, as well as for the PRC–European Northern Route and the alternative Middle Corridor, it is imperative that the throughput capacity be expanded at both. The delays at these BCPs were due to the increased traffic during the year and to inadequate infrastructure, aging locomotives, and a shortage of wagons. Kazakhstan should consider enlarging and/or constructing new transshipment terminals, streamlining the rail operations, and encouraging private sector lessors to expand the supply of rail wagons.

Expand hard and soft infrastructure for Caspian ports and crossings. Aktau has limited handling capacity, one reason that many containers were left waiting for the Caspian Sea crossing in the first half of 2022. The seaport needs expansion and upgraded cranes. More ships are required to meet the trans-Caspian shipment demand in a timely fashion. Information on shipment status needs to be improved. In addition to the slow pace and high costs of moving freight along the Middle Corridor, private sector shippers find it hard to track the status of their cargo. Kazakhstan and its fellow TITR members Azerbaijan and Georgia need to work individually and collaborate on adopting digital systems to provide better access to shipment information and status.

Kyrgyz Republic

Key Findings

CPMM road and rail transport data for the Kyrgyz Republic in 2022 showed the following year-on-year changes from 2021:

(i) The time needed to cross the border by road dropped 24% from 3.7 hours in 2021 to 2.8 hours in 2022. The reduction of outbound road crossing time from 4.7 hours to 2.1 hours was a major factor.

(ii) Road crossing cost rose to $31 from $23, reflecting the costs of trailer swapping at neutral zones mandated by the PRC government.

(iii) Total road transport costs were down from $2,194 to $1,888 as road freight rates returned to the lower long-term pattern, COVID-19 controls eased, and more drivers resumed work as the pandemic health threats diminished.

(iv) Road SWOD and SWD stayed about the same, but rail SWOD and SWD both increased.

(v) The most notable border delay occurred at the Torugart BCP, where outbound road crossings took an average of 50.1 hours, a jump from 25.8 hours in 2021 and only 2.4 hours in 2020.

Table 3.7: Trade Facilitation Indicators in the Kyrgyz Republic, 2020–2022

Trade Facilitation Indicators		Road Transport 2020	Road Transport 2021	Road Transport 2022	Rail Transport 2020	Rail Transport 2021	Rail Transport 2022
TFI1	Time taken to clear a border-crossing point (hour)	2.1	3.7	2.8	1.7	1.6	1.0
	Outbound	*1.8*	*4.7*	*2.1*	–	–	–
	Inbound	*2.4*	*2.8*	*3.2*	*1.7*	*1.6*	*1.0*
TFI2	Cost incurred at border-crossing clearance ($)	27	23	31	–	175	–
	Outbound	*24*	*22*	*26*	–	–	–
	Inbound	*30*	*25*	*34*	–	*175*	–
TFI3	Cost incurred to travel a corridor section ($, per 500 km, per 20-ton cargo)	1,346	2,194	1,888	–	413	556
TFI4	Speed to travel on CAREC corridors (km/h)	26.9	27.0	26.5	16.2	19.4	24.5
SWOD	Speed without delay (km/h)	49.4	52.5	51.8	20.0	21.2	30.1

km = kilometer, km/h = kilometers per hour, SWOD = speed without delay, TFI = trade facilitation indicator.
Source: Asian Development Bank.

Table 3.8: Border-Crossing Performance in the Kyrgyz Republic, 2020–2022

BCP, Corridor, and Direction of Trade			Duration (hours) 2020	Duration (hours) 2021	Duration (hours) 2022	Cost ($) 2020	Cost ($) 2021	Cost ($) 2022
Road Transport								
Dostuk	(2)	*Outbound*	2.2	1.6	0.6	25	10	10
		Inbound	1.9	2.5	0.4	18	11	4
Chaldovar	(1, 3)	*Outbound*	–	–	–	–	–	–
		Inbound	6.8	0.7	0.9	8	33	44
Karamyk	(2, 3, 5)	*Outbound*	2.2	2.2	2.3	42	45	48
		Inbound	2.1	2.4	–	25	12	–
Kyzyl-Bel	(0)	*Outbound*	1.7	0.7	0.7	22	12	14
		Inbound	1.7	–	–	24	–	–
Torugart	(1)	*Outbound*	2.4	25.8	50.1	–	2	4
		Inbound	2.3	4.1	5.1	30	40	44
Irkeshtam	(2, 5)	*Outbound*	3.7	11.5	–	6	1	–
		Inbound	1.8	1.2	0.3	106	12	3
Ak-Tilek	(1)	*Outbound*	1.1	0.8	0.2	6	7	4
		Inbound	1.6	1.0	0.2	7	7	2
Rail Transport								
Turksib	(1,3)	*Outbound*	–	–	–	–	–	–
		Inbound	1.7	1.6	1.0	–	175	–

BCP = border-crossing point.
Source: Asian Development Bank.

Trends and Developments

Much of the increase in border crossing time and cost can be attributed to stringent PRC pandemic control processes at its international borders. While truck drivers from the Kyrgyz Republic who had negative COVID-19 test results could enter neighboring Kazakhstan and Uzbekistan, the PRC required trailer swaps at border neutral zones to eliminate close contact between its drivers and those from other countries. The time and cost to orchestrate and execute these swaps were considerable. Fortunately, the PRC announced the reopening of its border and the end to its highly restrictive border management practices at the end of 2022. Goods flow between the Kyrgyz Republic and the PRC returned to the pre-pandemic normal as 2023 began.

After more than 2 decades of negotiating the construction of a rail link between the PRC and Uzbekistan via Kyrgyz Republic, the governments of Kyrgyz Republic, PRC and Uzbekistan signed an agreement on 14 September 2022 at the Tashkent Shanghai Cooperation Organization (SCO) Summit that authorizes China Railway's First Survey and Design Institute to study the feasibility of developing the China–Kyrgyzstan–Uzbekistan Railway. This study was scheduled for completion by mid-2023, with the goal of starting construction later in that year. However, as this report is being written, there appears to be a delay in the approval process for constructing this railroad.

Plans were also made to initiate a multimodal service via the Kyrgyz Republic between Kashi in the PRC and Tashkent in Uzbekistan, passing through the Irkeshtam and Dostuk BCPs. This new service was successfully launched in 2023.

Recommendations

Fully develop the country's transit potential. The Kyrgyz Republic can secure substantial economic gains by connecting the PRC with other CAREC countries, especially Uzbekistan, Turkmenistan, and Tajikistan. There are encouraging signs that the country is starting to exploit its transit potential.

Develop cold chain infrastructure. Creating a network of cold chain logistics facilities for perishable products would enable the Kyrgyz Republic to stabilize supplies and fetch the best price for agricultural production that is so important to its economy. This would involve the development of temperature-controlled facilities, a modern refrigerated vehicle fleet, certified testing laboratories, and repair and maintenance centers for refrigerated trucks and containers. A training program in cold chain logistics would also be essential. Temperature-controlled facilities and refrigerated trucks are highly capital-intensive, and operators must learn how to manage them efficiently if they are to deliver adequate returns.

Mongolia

Key Findings

CPMM in 2022 showed the following year-on-year changes in Mongolia's road and rail transport data from 2021:

(i) Border-crossing time for road transport shortened from 6.3 hours to 4.0 hours.

(ii) The cost of crossing borders by road decreased from $37 to $22.

(iii) Total road transport cost was down from $1,632 to $1,455.

(iv) SWOD increased from 35.4 km/h to 52.2 km/h, and SWD rose from 20.8 km/h to 31.4 km/h.

(v) Rail crossing time increased from 11.8 hours to 12.2 hours.

(vi) The rail crossing cost dropped from $32 to $20.

(vii) Total transport cost by rail increased from $360 to $440.

(viii) Rail SWOD rose from 21.9 km/h to 21.2 km/h, and SWD from 13.0 km/h to 12.6 km/h.

Trends and Developments

Road performance indicators improved on all Mongolia's corridors in 2022. The time needed to cross the border by road shortened overall, aided by faster times at Yarant and Altanbulag BCPs. Yarant is on CAREC Corridor 4a, which moves coal from Mongolia to the PRC and PRC-manufactured goods in the other direction. Altanbulag BCP is used for bilateral trade between Mongolia and the Russian Federation

Table 3.9: Trade Facilitation Indicators for Mongolia, 2020–2022

Trade Facilitation Indicators		Road Transport 2020	Road Transport 2021	Road Transport 2022	Rail Transport 2020	Rail Transport 2021	Rail Transport 2022
TFI1	Time taken to clear a border-crossing point (hour)	4.8	6.3	4.0	8.9	11.8	12.2
	Outbound	*1.5*	*2.7*	–	*2.1*	*9.8*	*20.1*
	Inbound	*5.0*	*6.6*	*4.0*	*10.6*	*12.9*	*9.3*
TFI2	Cost incurred at border-crossing clearance ($)	87	37	22	39	32	20
	Outbound	*27*	*12*	–	*6*	*5*	*5*
	Inbound	*90*	*37*	*22*	*51*	*42*	*25*
TFI3	Cost incurred to travel a corridor section ($, per 500 km, per 20-ton cargo)	1,463	1,632	1,455	852	360	440
TFI4	Speed to travel on CAREC corridors (km/h)	24.4	20.8	31.4	17.1	13.0	12.6
SWOD	Speed without delay (km/h)	33.5	35.4	52.2	21.5	21.9	21.2

km = kilometer, km/h = kilometers per hour, SWOD = speed without delay, TFI = trade facilitation indicator.
Source: Asian Development Bank.

Table 3.10: Border-Crossing Performance in Mongolia, 2020–2022

BCP, Corridor, and Direction of Trade			Duration (hours) 2020	Duration (hours) 2021	Duration (hours) 2022	Cost ($) 2020	Cost ($) 2021	Cost ($) 2022
Road Transport								
Yarant	(4)	*Outbound*	1.8	2.7	–	24	2	–
		Inbound	2.7	25.9	11.5	202	205	198
Zamiin-Uud	(4)	*Outbound*	–	–	–	–	–	–
		Inbound	5.2	5.0	–	110	38	–
Altanbulag	(4)	*Outbound*	–	–	–	–	–	–
		Inbound	4.7	5.4	2.1	7	8	8
Bichigt	(4)	*Outbound*	–	–	–	–	–	–
		Inbound	1.6	–	–	7	–	–
Rail Transport								
Sukhbaatar	(4)	*Outbound*	–	–	–	–	–	–
		Inbound	4.8	12.2	12.2	5	5	5
Zamiin-Uud	(4)	*Outbound*	2.1	9.8	20.1	4	4	5
		Inbound	11.5	13.1	7.9	32	55	36

BCP = border-crossing point.
Source: Asian Development Bank.

and the transit for shipments between the PRC and the Russian Federation. The average road border-crossing cost dropped 40% from $37 to $22, although changes in the foreign exchange rates were a significant factor. While the US dollar–togrog rate was relatively stable in 2021, the togrog depreciated by about 21% against the dollar in 2022.[20]

Rail transport indicator performances were mixed. Lengthier outbound train processing drove up border-crossing time. Border-crossing costs declined, but the total rail transport cost was up, reflecting a rail freight tariff increase during the year. Rail SWOD and SWD showed a small dip. CPMM focused on the CAREC Corridor 4b rail crossings at Sukhbaatar with the Russian Federation and Zamiin-Uud with the PRC in the south. Border-crossing time and cost at Sukhbaatar were unchanged in 2022, while the Zamiin-Uud results were better on both indicators.

[20] Based on official foreign exchange rates from Mongol Bank, the country's central bank. (www.mongolbank.mn)

ADB has supported trade facilitation in Mongolia through its Regional Improvement of Border Services by upgrading the BCP facilities and equipment at Altanbulag and Sukhbaatar.[21] ADB approved an additional $27 million in 2019 to cover new BCPs at Bichight on the PRC border and Borshoo on Mongolia's frontier with the Russian Federation. Under another ADB initiative, Mongolia's automated customs information system will be modernized, and preparatory work done for a single-window solution connecting different information systems in multiple ministries to Mongolia's BCPs.[22] CPMM previously covered the Bichight BCP, but the crossing point was closed during 2021 and 2022 due to upgrade work at the adjacent PRC BCP.

Recommendations

Coordinate border infrastructure and management upgrades with the PRC. Erenhot was the most time-consuming of the PRC's rail BCPs for outbound traffic in 2022 (44.4 hours). Trains moving through Erenhot from the PRC into Mongolia at its Zamiin-Uud BCP were being held up due to a restriction on rail movements ordered to address congestion in the other rail adjacent stations. This suggested some limitations in the handling capacity between the Erenhot and Zamiin-Uud BCPs. The problem could be addressed through greater coordination between the two countries on infrastructure upgrades, more effective border movements, and other trade facilitation measures.

Streamline border controls at Zamiin-Uud. Zamiin-Uud BCP reported a marked increase in outbound rail border-crossing time in 2022. The delays were due to several factors, including restriction upon entry at this station to receive shipments from other Mongolian stations or from Erenhot, marshalling, and waiting for high priority container express trains to pass. Streamlining border controls can possibly reduce these crossing times.

Pakistan

Key Findings

CPMM in 2022 showed the following year-on-year changes in Pakistan's road transport data from 2021:

(i) Border-crossing time dropped from 35.3 hours to 28.2 hours.

(ii) Border-crossing cost decreased from $274 to $238.

(iii) Total transport cost declined from $620 to $546.

(iv) SWOD dipped from 27.3 km/h to 25.2 km/h, but SWD was up from 11.8 km/h to 13.3 km/h.

Trends and Developments

Pakistan's border-crossing time and cost results showed broad improvement in 2022. Total transport cost improved as well. Although SWOD was slower, SWD rose because less time was needed to cross the border. However, crossing the border in Pakistan was still more time-consuming than it is in other CAREC members. The 2022 average was 24.2 hours at Torkham, a major BCP gateway for bilateral and transit trade, and an even longer 54.0 hours at the high-traffic Chaman's station. Along with the heavy throughput, Pakistan's strict and complicated anti-smuggling inspection procedures were mostly to blame.

[21] ADB, www.adb.org/projects/47174-001/main

[22] ADB, www.adb.org/news/adb-upgrade-two-new-border-crossing-points-mongolia-ease-trade

Table 3.11: Trade Facilitation Indicators for Pakistan, 2020–2022

Trade Facilitation Indicators		Road Transport 2020	2021	2022
TFI1	Time taken to clear a border-crossing point (hour)	55.7	35.3	28.2
	Outbound	*53.3*	*35.2*	*28.2*
	Inbound	*85.8*	*120.0*	–
TFI2	Cost incurred at border-crossing clearance ($)	280	274	238
	Outbound	*275*	*274*	*238*
	Inbound	*340*	*525*	–
TFI3	Cost incurred to travel a corridor section ($, per 500 km, per 20-ton cargo)	704	620	546
TFI4	Speed to travel on CAREC Corridors (km/h)	8.0	11.8	13.3
SWOD	Speed without Delay (km/h)	28.1	27.3	25.2

km = kilometer, km/h = kilometers per hour, SWOD = speed without delay, TFI = trade facilitation indicator.
Source: Asian Development Bank.

Table 3.12 Border-Crossing Performance in Pakistan, 2020–2022

BCP, Corridor, and Direction of Trade			Duration (hours) 2020	2021	2022	Cost ($) 2020	2021	2022
Road Transport								
Chaman	(5, 6)	*Outbound*	70.7	57.5	54.0	109	54	50
		Inbound	–	–	–	–	–	–
Peshawar	(5, 6)	*Outbound*	50.0	31.6	24.2	311	309	267
		Inbound	–	120.0	–	–	525	–
Khunjerab	(5)	*Outbound*	–	–	–	–	–	–
		Inbound	2.3	–	–	–	–	–

BCP = border-crossing point.
Source: Asian Development Bank.

Recommendations

Coordinate border management with Afghanistan. Pakistan uses the Web Based One Customs system to process goods declaration and clearance, while Afghanistan employs ASYCUDA World. The systems and their data are not yet fully integrated electronically. The need to complete multiple forms and permits at the border is a major contributor to the long crossing times.

Improve queue management and gate control. Pakistan's two BCPs lack proper parking space, and long disorganized queues are another common cause of delays. The problem is especially serious at Torkham where the terrain does not favor additional parking. The situation could be improved through the construction, where this is physically possible, of proper parking spaces for heavy transport vehicles. The BCP could adopt smart gate controls similar to those used at Georgia's Sarpi BCP with Türkiye. The International Road Transport Union promotes the concept of TIR parks and is developing the use of the TIR system in Pakistan. It would be possible to engage this organization to work out a solution.

Solutions needed for traffic congestion around Karachi seaport. Karachi's year-round seaport can serve as an important transshipment point for CAREC countries moving goods to and from international maritime trade lanes. Truck movement in and out of the port is, however, greatly slowed by the heavy traffic congestion in the urban area, a situation that requires both short-term and long-term solutions.

People's Republic of China

Key Findings

CPMM road and rail transport data for 2022 showed the following year-on-year changes from 2021 in the PRC:

(i) Both border-crossing duration and costs decreased substantially due to the easing of additional inspection and sanitation control measures.

(ii) Road border-crossing time dropped from 23.3 hours in 2021 to 20.7 hours in 2022, and the cost was down to $638 from $1,219.

(iii) Total road transport cost fell from $3,979 to $3,445.

(iv) SWOD rose from 78.8 km/h to 83.5 km/h, and SWD from 22.3 km/h to 26.1 km/h.

(v) The time taken to cross borders by rail dropped significantly from 83.8 hours to 35.9 hours. The cost was down from $137 to $120.

(vi) Total rail transport cost decreased from $896 to $771.

(vii) Rail SWOD increased from 64.5 km/h to 82.3 km/h, but SWD slipped from 14.6 km/h to 13.4 km/h.

(viii) For road transport, the Alashankou and Horgos BCPs showed a divergent pattern of border-crossing times. At Alashankou, it increased from 61.7 hours in 2021 to 81.3 hours in 2022; at Horgos, it dropped to 23.5 hours from 77.5 hours. Border-crossing cost at Horgos, the largest BCP in CAREC by truck crossings, fell from $5,809 in 2021 to $1,861.

(ix) Both PRC BCPs registered a significant drop in rail border-crossing time. It was down from 80.2 hours to 30.5 hours at Alashankou, and from 58.7 hours to 34.8 hours at Horgos.

Trends and Developments

Strict COVID-19 Controls Eased in 2022

The PRC had stricter COVID-19 border controls than its neighbors throughout 2020 and 2021. During 2022, as the lethality and spread of the virus diminished and the economic impact of stringent border control measures became apparent, the government gradually eased these control. This culminated in

Table 3.13: Trade Facilitation Indicators for the People's Republic of China, 2020–2022

Trade Facilitation Indicators		Road Transport			Rail Transport		
		2020	2021	2022	2020	2021	2022
TFI1	Time taken to clear a border-crossing point (hour)	7.1	23.3	20.7	18.3	83.8	35.4
	Outbound	*9.5*	*27.8*	*20.8*	*18.7*	*64.7*	*33.9*
	Inbound	*1.5*	*2.3*	*0.3*	*17.5*	*149.6*	*53.7*
TFI2	Cost incurred at border-crossing clearance ($)	424	1,219	638	115	137	120
	Outbound	*544*	*1,413*	*638*	*24*	*28*	*53*
	Inbound	*157*	*170*	-	*150*	*266*	*130*
TFI3	Cost incurred to travel a corridor section ($, per 500 km, per 20-ton cargo)	1,710	3,979	3,445	678	896	763
TFI4	Speed to travel on CAREC corridors (km/h)	47.2	22.3	26.1	16.8	14.6	13.5
SWOD	Speed without delay (km/h)	82.0	78.8	83.5	62.5	64.5	82.4

km = kilometer, km/h = kilometers per hour, SWOD = speed without delay, TFI = trade facilitation indicator.
Source: Asian Development Bank.

Table 3.14: Border-Crossing Performance in the People's Republic of China 2020–2022

BCP, Corridor, and Direction of Trade			Duration (hours)			Cost ($)		
			2020	2021	2022	2020	2021	2022
Road Transport								
Alashankou	(1, 2)	*Outbound*	18.6	61.7	81.3	590	610	638
		Inbound	–	–	–	–	–	–
Takeshikent	(4)	*Outbound*	31.8	9.9	21.4	671	842	1,300
		Inbound	4.9	5.4	–	221	221	–
Erenhot	(4)	*Outbound*	6.4	6.0	2.9	117	54	17
		Inbound	–	–	–	–	–	–
Horgos	(1)	*Outbound*	16.4	77.5	23.5	1,658	5,809	1,861
		Inbound	4.3	–	–	174	–	–
Torugart	(1)	*Outbound*	2.1	4.2	8.3	–	6	218
		Inbound	–	–	–	–	–	–
Karasu	(0)	*Outbound*	2.8	10.5	42.7	51	156	171
		Inbound	–	–	–	–	–	–
Rail Transport								
Alashankou	(1, 2)	*Outbound*	26.9	80.2	30.5	6	8	0
		Inbound	–	–	–	–	–	–
Erenhot	(4)	*Outbound*	15.0	36.2	44.4	–	18	–
		Inbound	7.4	184.5	54.9	125	288	124
Horgos	(1)	*Outbound*	12.7	58.7	34.8	13	15	2

BCP = border-crossing point.
Source: Asian Development Bank.

a full reopening of its borders in early January 2023. The general improvements in the PRC's TFI data resulted from this series of relaxation measures.

The PRC's control processes on its border with Kazakhstan were simplified through several steps over the year:

(i) Starting in March 2022, the cumbersome PRC requirement that its export goods bound for Kazakhstan and beyond be placed on pallets, shrink-wrapped, loaded into special trucks on the PRC side of border crossings, and shuttled to a neutral zone for piece-by-piece transloading onto Kazakhstan trucks was eliminated. Under the new system, PRC trucks picked up an empty trailer left by a Kazakhstan truck in a neutral zone, brought it to the PRC customs-supervised warehouse for loading, and returned it to the neutral zone, where it was picked up by a Kazakhstan truck to complete the border crossing at Nur Zholy and continue toward its destination. This reduced both border-crossing times and costs.

(ii) The Dulata border crossing south of the Horgos was reopened in the second half of 2022, which diverted some cross-border traffic from the Horgos BCP and lightened congestion there.

(iii) From July onward, Kazakhstan trucks were permitted to go directly to the PRC's customs-supervised warehouse in Horgos to pick up cargo. This eliminated the previous costly requirement that shuttle trucks be used to ferry outbound truck loads between Horgos and Nur Zholy.

The PRC's Takeshikent BCP across from Yarant on its border with Mongolia, which opened only occasionally for special situations in 2021, was operational on most days in 2022. Beginning in March 2022, the PRC allowed Mongolia's carriers to spot an empty trailer in the neutral zone for pick-up by a PRC truck and delivery to the border industrial park for disinfection. After a 24-hour quarantine, the trailer

would be moved to the PRC customs warehouse for loading and its return to the neutral zone. Mongolia's carriers would then take the loaded trailer to Yarant for inspection and clearance.

The sharp upward trend in the number of PRC express container trains and container units destined for Europe (including those terminating in Moscow) moderated somewhat in 2022 after 11 years of rapid growth. This followed a year-on-year high of 22% in train numbers and 29% twenty-foot equivalent units (TEUs) in 2021. According to figures released by the China National Railway Group Work Conference on 1 March 2023, there were 16,000 trips during 2022 (up 9% from 2021)[23] and 1.6 million TEUs delivered (a 10% increase).

The slowdown in growth can be attributed to two main factors: the cargo diversion to alternative routes as a result of international sanctions brought on by the Russian Federation's invasion of Ukraine, and a precipitous drop in r ocean shipment rates from the PRC to Europe.

The volume statistics below illustrate the effects of these major factors. They compare the 2022 data with the 2021 figures on the container volumes carried by Joint Stock Company United Transport and Logistics Company—Eurasian Rail Alliance (JSC UTLC ERA),[24] a transit container service operator for block trains running between the PRC and European Union (EU) countries along the sanctioned Northern Corridor across Kazakhstan, the Russian Federation, and Belarus:

- 64,404 TEUs from the PRC to Germany, down 55.16% from 2021;
- 107,300 TEUs from Germany to the PRC, down 21.82%;
- 178,520 TEUs from the PRC to Poland, down 13.41%;
- 17,216 TEUs from Poland to the PRC, down 61.19%;
- 7,896 TEUs from the PRC to the Netherlands, a sharp 70.88% drop; and
- 6,788 TEUs from the Netherlands to the PRC, down 41.54%.

Recommendations

Review the deteriorating performance at Takeshikent BCP. Border-crossing time and cost increased at the Takeshikent in 2022, while they generally declined at other PRC BCPs. Further simplifying the processes there in 2023 would improve this crossing's CPMM performance.

Address congestion issues at Erenhot. Erenhot was the most time-consuming of the PRC's BCPs for outbound rail traffic. It took an average of 44.4 hours in 2022 for trains to cross through Erenhot from the PRC into Mongolia at Zamiin-Uud. This was due to restrictions on rail movements created by congestion at Erenhot and Zamiin Uud due to its handling capacity of **the BCP pair**. Upgrade of physical infrastructure and more effective cross-border coordination on freight movement will enhance cargo throughput.

Ensure wagon availability. Inbound rail crossing times also remained high at Erenhot, averaging 54.9 hours in 2022. A wagon shortage was among the main reasons. Gauge change transfer took only 3 hours on average, but long waits for available PRC wagons account for most of the cross border delays.

[23] The 1.6 million TEUs reported by China National Railway represents the PRC's outbound cargo alone and thus does not encompass all Europe–PRC traffic. The numbers include trains handled by China Railways via the PRC's BCPs with Mongolia at Erenhot, with the Russian Federation at Manzhouli, and with Kazakhstan at Alashankou and Horgos. Source: 2022年中欧班列开行 1.6 万列 (gmw.cn) Guangming Daily News.

[24] JSC UTLC ERA is owned by Kazakhstan Temir Joly , Russian Railway, and Belarussian Railway. Each has a one third interest.

Tajikistan

Key Findings

CPMM in 2022 showed the following year-on-year changes in Tajikistan's road transport data from 2021:

(i) Border-crossing time dropped from 4.7 hours to 4.1 hours.

(ii) Border-crossing cost was down $1 to $85.

(iii) Total transport cost declined from $609 to $579.

(iv) SWOD slowed from 35.8% to 34.6%. SWD barely changed and was up from 20.0 in 2021 to 20.1 in 2022.

Table 3.15: Trade Facilitation Indicators for Tajikistan, 2020–2022

		Road Transport		
Trade Facilitation Indicators		2020	2021	2022
TFI1	Time taken to clear a border-crossing point (hour)	4.7	4.7	4.1
	Outbound	*4.1*	*3.3*	*3.0*
	Inbound	*5.0*	*5.3*	*4.7*
TFI2	Cost incurred at border-crossing clearance ($)	99	86	85
	Outbound	*36*	*27*	*23*
	Inbound	*133*	*114*	*116*
TFI3	Cost incurred to travel a corridor section ($, per 500 km, per 20-ton cargo)	660	609	579
TFI4	Speed to travel on CAREC Corridors (km/h)	21.0	20.0	20.1
SWOD	Speed without Delay (km/h)	37.8	35.8	34.6

km = kilometer, km/h = kilometers per hour, SWOD = speed without delay, TFI = trade facilitation indicator.
Source: Asian Development Bank.

Table 3.16: Border-Crossing Performance in Tajikistan, 2020–2022

			Duration (hours)			Cost ($)		
BCP, Corridor, and Direction of Trade			2020	2021	2022	2020	2021	2022
Road Transport								
Dusti	(3)	*Outbound*	13.8	10.1	3.8	102	66	37
		Inbound	4.0	2.8	2.2	91	82	79
Fotehobod	(2, 3, 6)	*Outbound*	4.8	2.4	–	60	57	–
		Inbound	2.5	4.7	–	200	160	–
Panji Poyon	(2, 5, 6)	*Outbound*	2.1	2.1	2.1	20	20	20
		Inbound	7.5	7.8	7.4	188	188	185
Karamyk	(2, 3, 5)	*Outbound*	2.4	2.7	–	32	21	–
		Inbound	2.7	2.2	–	31	22	–
Guliston	(0)	*Outbound*	3.0	–	–	43	–	–
		Inbound	2.5	1.2	0.7	33	24	22
Kulma	(0)	*Outbound*	–	–	–	–	–	–
		Inbound	2.3	7.6	10.4	32	10	8
Jalgan	(2, 3, 5)	*Outbound*	–	–	–	–	–	–
		Inbound	0.8	0.6	0.7	153	69	69

BCP = border-crossing point.
Source: Asian Development Bank.

Trends and Developments

Tajikistan's corridor performance has provided no major surprises or sharp changes over the 3-year 2020–2022 period. Its average border-crossing time by road continued a steady improvement in 2022 with a 12.8% decline from 2021. Times were down at the Dusti, Panji Poyon, and Guliston BCPs but up at Kulma on the PRC border. The Kulma BCP is in a mountainous region and generally impassable and closed from December to April due to heavy snowfall. PRC exports to Tajikistan can pass through this route or transit through the Kyrgyz Republic. The latter is more conducive in terms of terrain, but transit can be affected by the current state of bilateral relations between the Kyrgyz Republic and Tajikistan.

Border-crossing and total transport costs were both lower in 2022 than those of Kazakhstan, the Kyrgyz Republic, Turkmenistan, and Uzbekistan. Tajikistan's transport sector has a large fleet of trucks and is highly competitive. This makes its road freight rates attractive to shippers. On the other hand, 2022 SWOD and SWD were the slowest in the CARs—for example, a SWOD of about 35 km/h compared with more than 50 km/h in Kazakhstan, the Kyrgyz Republic, and Turkmenistan, and 45 km/h in Uzbekistan. This is due to the country's mountainous terrain and many winding roads. ADB supported the rehabilitation of the highway connecting Dushanbe and Khujand, but this trunk road involves more twists and turns and remains slower to navigate than the national highways in neighboring countries.

Tajikistan's policymakers recognize that the logistics sector needs modernization. They have developed a national masterplan to guide the sector's development, with the transport ministry tasked to lead implementation. The total budget amounts to $319 million and is to come from the government, development partners, and the private sector.[25] Container cargo, multimodal logistics, agro-logistic, transport, and logistics centers are all to be developed.

Tajikistan lacks the strong multimodal capacity needed to handle the containers that constitute most of the freight moving through its routes to and from the PRC. Inadequate temperature-controlled logistics is an obstacle to the further development of the agricultural sector. Spring comes earlier to the country's Khatlon Province than it does in other parts of Central Asia, which should allow comparatively early ripening produce such as onions and lettuce to be exported to markets with different growing seasons. Modern infrastructure and temperature-control logistics would also enable Tajikistan's agrobusinesses to store part of the produce and release it at later dates when market supplies become low. This would help to stabilize food prices in the country and benefit the transport sector, because the simultaneous harvesting and exporting of agricultural produce can generate volatility in trucking rates.

Tajikistan has made notable progress in trade facilitation. The country operates an online trade portal (https://tajtrade.tj) that provides information on importing, exporting, and transiting. It has launched a single window system that connects 11 agencies and covers 24 permits and documents (www.swcustoms.tj), as well as a system of national authorized economic operators (AEOs). The Tajikistan customs authority says registration and approvals under the AEO scheme have been limited to only one company so far due to the effects on many potential operators of the COVID-19 pandemic.

Recommendations

Promote regional digitalization efforts. Pursuing joint TIR-Electronic Pre Declaration (EPD) and electronic Convention on the Contract for the International Carriage of Goods by Road (eCMR) efforts with Kazakhstan, the Kyrgyz Republic, Turkmenistan, Uzbekistan, and other CAREC members will be strategically beneficial for Tajikistan and the region overall. TIR-EPD and eCMR systems can reduce border-crossing times by enabling customs services to implement risk-based solutions by receiving shipment data electronically in advance. This would require capital expenditure for computers and communication

[25] ADB, www.adb.org/news/adb-help-improve-infrastructure-investment-climate-food-security-tajikistan.

hardware upgrades at key BCPs. Tajikistan should also discuss a deeper partnership on TIR-EPD with PRC customs authorities in Kashgar Prefecture since the PRC is also implementing the TIR systems.

Become a new South–Central Asia transit corridor. Trade between these two adjacent subregions remains unnecessarily low, and Tajikistan can serve as a transit corridor for expanding it. It could, for example, become a hub for Pakistan to distribute goods for onward transport to other parts of Central Asia. Tajikistan could also offer capacity-building programs on TIR and CMR to Pakistan.

Turkmenistan

Key Findings

CPMM road and rail transport data for Turkmenistan in 2022 showed the following year-on-year changes from 2021:

(i) Road border crossing took an average of 10.1 hours in 2022, up from 6.9 hours.

(ii) Only limited border-crossing cost data was available. The Turkmenistan carrier responsible for transporting cargo beyond the border does not participate in the CPMM reporting.

(iii) SWOD was about the same, but SWD rose to 26.4 km/h from 21.9 km/h.

(iv) The rail border-crossing time was unchanged at 3.7 hours.

(v) Rail crossing cost was steady at $81.

(vi) Total rail transport costs dropped from $1,349 to $1,308.

(vii) Rail SWOD rose slightly to 29.3 km/h from 29.0 km/h. At 13.9 km/h, SWD was unchanged.

Trends and Developments

Turkmenistan has yet to make full use of its natural potential as an important transit country. It shares borders with Afghanistan, Kazakhstan, Uzbekistan, and Iran. Tajikistan and the Kyrgyz Republic are nearby, and Azerbaijan lies just across the Caspian Sea. It provides a direct route between Central Asia and Iran's Bandar Abbas Port. Turkmenistan also boasts the new Turkmenbashy International Sea Port on the Caspian. Constructed in 2018 at a cost of $1.5 billion, Turkmenbashy can accommodate passenger, general cargo, bulk, Ro-Ro (roll-on/roll-off), and container vessels and is connected by newly built

Table 3.17: Trade Facilitation Indicators for Turkmenistan, 2020–2022

Trade Facilitation Indicators		Road Transport			Rail Transport		
		2020	2021	2022	2020	2021	2022
TFI1	Time taken to clear a border-crossing point (hour)	7.3	6.9	10.1	5.7	3.7	3.7
	Outbound	*8.9*	*3.6*	*34.6*	*3.6*	–	–
	Inbound	*6.9*	*7.1*	*5.0*	*5.9*	*3.7*	*3.7*
TFI2	Cost incurred at border-crossing clearance ($)	229	–	62	87	81	81
	Outbound	*65*	–	*52*	*108*	–	–
	Inbound	*311*	–	*70*	*86*	*81*	*81*
TFI3	Cost incurred to travel a corridor section ($, per 500 km, per 20-ton cargo)	1,029	564	604	1,319	1,349	1,308
TFI4	Speed to travel on CAREC corridors (km/h)	19.0	21.9	26.4	13.7	14.0	13.9
SWOD	Speed without delay (km/h)	53.8	53.9	53.5	28.2	29.0	29.3

km = kilometer, km/h = kilometers per hour, SWOD = speed without delay, TFI = trade facilitation indicator.
Source: Asian Development Bank.

Table 3.18: Border-Crossing Performance in Turkmenistan, 2020–2022

BCP, Corridor, and Direction of Trade			Duration (hours)			Cost ($)		
			2020	2021	2022	2020	2021	2022
Road Transport								
Sarahs	(3)	*Outbound*	7.3	6.2	–	60	–	–
		Inbound	–	–	–	–	–	–
Farap	(2, 3)	*Outbound*	9.4	7.4	26.7	67	–	50
		Inbound	10.9	9.4	6.5	311	–	70
Serkhet Abad	(2, 6)	*Outbound*	–	–	–	–	–	–
		Inbound	0.9	0.7	0.7	–	–	–
Rail Transport								
Farap	(2, 3)	*Outbound*	–	–	–	–	–	–
		Inbound	21.4	–	–	120	–	–
Serkhet Abad	(2, 6)	*Outbound*	–	–	–	–	–	–
		Inbound	3.7	3.7	3.7	82	81	81

BCP = border-crossing point.
Source: Asian Development Bank.

Figure 3.2: Turkmenbashy Seaport

Source: BUSINESS TURKMENISTAN, 19 July 2022.

infrastructure that includes a rail line and an expressway. Yet the port remains underutilized. Its throughput capacity is 25 million tons, is not fully utilized as it handled less than a million tons of transit cargo.[26]

[26] Source: NEBIT-GAZ, 19 July 2022 www.oilgas.gov.tm/en/posts/news/5105/the-seaport-of-turkmenbashi-in-2021-increased-the-volume-of-cargo-transportation-by-28. Nonetheless, transit cargo is increasing rapidly from a small base. During 2022, the amount of transit cargo through the port increased by a factor of 2.5, compared to the same period in 2021.

Although the shift in trans-Eurasian shipments from the Northern Route to the Middle Corridor after the Russian invasion of Ukraine created massive congestion at Kazakhstan's Caspian ports, Turkmenbashy did not fulfil its potential role as a relief valve. This was due to the difficulty truck drivers faced in obtaining visas and to the intermittent closures[27] of Turkmenistan's border to rail and truck traffic.

Three factors contributed to slower road crossings at Turkmenistan's borders in 2022:

(i) Turkmenistan continued to bar Uzbekistan's trucks from entering its territory. These vehicles were required to leave their cargo trailers in a neutral zone at the border for Turkmenistan carriers to pick up and deliver. Swaps took considerable time and effort. Waits could be long if Turkmenistan's trucks were late in arriving or coordination between the two countries' carriers was less than ideal. Equipment checks were required before the tasks of unhitching and hitching could proceed.

(ii) Truck crossings were also slowed by Uzbekistan's reconstruction of its Alat BCP. Table 6.20 reflects the impact of this work on Turkmenistan's adjoining Farap BCP, where outbound crossing time soared to 26.7 hours from 7.4 hours in 2021. The Alat reconstruction should reduce border crossing time considerably when it is completed in 2023.

(iii) An increase in road transit traffic through the country, notably by Türkiye's carriers, also slowed crossings.

Border crossing issues appear to have an effect on trade between Turkmenistan and its Uzbekistan neighbor. Uzbekistan reports that its trade with Turkmenistan grew by only 2.7% in 2022, far below the 18.6% it recorded with all its trading partners during this recovery year. Uzbekistan's trade with Turkmenistan in 2022 was valued at only $926.3 million, a tiny fraction of its more than $50.0 billion in overall foreign trade.[28]

Recommendations

Relax the transit regime for foreign trucks. CPMM partner associations and truck operators in other CAREC member countries regularly name Turkmenistan the most difficult country to travel through. Driver visas are valid for only short periods and getting them takes a long time. Turkmenistan should consider issuing long-term visas to pre-screened drivers employed by responsible, trustworthy road carriers.

End pandemic-era foreign truck ban. As this report was being written, all CAREC countries had eliminated such pandemic-induced border restrictions like barring the entry of foreign trucks. This included the PRC, which imposed the longest and most stringent border-crossing regime. It seems time for Turkmenistan to follow suit and permit foreign trucks to enter the country to deliver goods or transit through its territory.

Enhance logistics capacity development. ADB has provided logistics training to Turkmenistan government officials and the staff of the Turkmen Association of International Road Carriers (THADA). This training indicated both a strong desire to learn more and a wide knowledge gap. The government should consider partnering with multilateral organizations to develop logistics capacity development, as well as invite universities with strong logistics management programs to set up branches in the country.

[27] CPMM partners in Uzbekistan frequently mention the difficulty of running trucks across Turkmenistan. Tajikistan's carriers and shippers complain that Turkmenistan imposes sudden unexplained embargos on rail traffic.

[28] Uzbekistan's main trading partners are the PRC, (more than $8.90 billion), Kazakhstan (nearly $4.60 billion), Türkiye (more than $3.20 billion), the Republic of Korea (more than $2.30 billion), and the Kyrgyz Republic ($1.26 billion).

Participate in CPMM. Turkmenistan can benefit substantially by taking part in the CPMM program, and we hope the government will encourage THADA to begin participating. Movement data captured and aggregated can be shared with the government to improve the country's transport and logistics efficiency.

Uzbekistan

Key Findings

CPMM road and rail transport data for Uzbekistan in 2022 showed the following year-on-year changes from 2021:

(i) Road transport border-crossing time fell from 7.6 hours to 4.2 hours.

(ii) Road border-crossing cost was down to $74 from $92.

(iii) Total road transport cost increased from $674 to $687.

(iv) Road SWOD dipped from 46.9 km/h to 45.6 km/h, and SWD increased from 27.9 km/h to 29.6 km/h.

(v) Rail inbound border-crossing time rose slightly to 6.8 hours from 6.2 hours.

(vi) The cost of border-crossings by rail was unchanged at $133.

(vii) Total rail transport cost dipped from $665 to $635.

(viii) Rail SWOD dropped slightly from 13.3 km/h to 13.1 km/h. SWD was up from 11.2 km/h to 11.9 km/h.

Trends and Developments

Despite significant challenges, Uzbekistan has made use of CAREC corridors to transport its goods by road and rail through Turkmenistan's ports on the Caspian Sea, and via Turkmenistan's overland links with Iran's maritime gateways on the Persian Gulf. Other CAREC corridors connect it with the PRC through Kazakhstan's rail and road transit routes, and it aims to make more use of the Kyrgyz Republic's road corridors to strengthen its transport connections with the southern parts of the PRC's Xinjiang Uygur Autonomous Region.

The government has taken significant steps to support export growth by strengthening the transport sector. It has lowered tariffs on imported used trucks and provided finance to help domestic carriers

Table 3.19: Trade Facilitation Indicators for Uzbekistan, 2020–2022

Trade Facilitation Indicators		Road Transport			Rail Transport		
		2020	2021	2022	2020	2021	2022
TFI1	Time taken to clear a border-crossing point (hour)	10.1	7.6	4.2	6.4	6.2	6.8
	Outbound	*7.6*	*6.6*	*3.5*	*14.0*	*6.0*	–
	Inbound	*14.0*	*9.1*	*5.5*	*5.2*	*6.2*	*6.8*
TFI2	Cost incurred at border-crossing clearance ($)	102	*92*	74	125	133	133
	Outbound	*124*	*114*	*87*	*100*	–	–
	Inbound	*83*	*74*	*63*	*129*	*133*	*133*
TFI3	Cost incurred to travel a corridor section ($, per 500 km, per 20-ton cargo)	648	674	687	671	665	635
TFI4	Speed to travel on CAREC corridors (km/h)	26.6	27.9	29.6	9.7	11.2	11.8
SWOD	Speed without delay (km/h)	46.9	46.9	45.6	21.9	13.3	13.1

km = kilometer, km/h = kilometers per hour, SWOD = speed without delay, TFI = trade facilitation indicator.
Source: Asian Development Bank.

Table 3.20: Border-Crossing Performance in Uzbekistan, 2020–2022

BCP, Corridor, and Direction of Trade			Duration (hours)			Cost ($)		
			2020	2021	2022	2020	2021	2022
Road Transport								
Alat	(2, 3)	*Outbound*	9.6	9.7	3.9	–	–	–
		Inbound	6.8	3.5	1.7	–	–	18
Termez	(3, 6)	*Outbound*	–	–	2.1	–	–	50
		Inbound	–	–	–	–	–	–
Dustlik	(2)	*Outbound*	2.1	2.7	0.5	25	15	11
		Inbound	2.4	1.9	0.9	33	12	19
Dautota	(2, 6)	*Outbound*	8.1	7.3	5.1	5	–	13
		Inbound	14.3	9.3	4.6	73	86	79
Saryasia	(3)	*Outbound*	5.3	4.8	3.8	127	131	122
		Inbound	25.7	11.0	2.3	10	–	3
Yallama	(3, 6)	*Outbound*	9.6	6.8	1.9	–	21	6
		Inbound	30.0	3.4	0.9	–	15	18
Oibek	(2, 3, 6)	*Outbound*	2.8	5.3	–	–	–	–
		Inbound	1.4	3.0	–	50	15	–
Rail Transport								
Termez	(3, 6)	*Outbound*	–	–	–	–	–	–
		Inbound	9.1	8.7	8.5	120	117	116
Keles	(3, 6)	*Outbound*	72.0	6.0	–	–	–	–
		Inbound	3.5	4.5	5.9	139	155	154
Bekabad	(2)	*Outbound*	3.5	6.0	–	–	–	–
		Inbound	–	–	–	–	–	–

BCP = border-crossing point.
Source: Asian Development Bank.

purchase them. The national road carrier association, namely AIRCUZ, charges the lowest TIR Carnet fee of any TIR member. The trucking industry has expanded rapidly as a result and is providing better services to producers aiming to export their goods, particularly fresh fruits and vegetables. Notable progress has also been made in rail connectivity. A multimodal truck and rail service links Tashkent with Lanzhou, a major China Railway hub in the PRC's Gansu Province, via the Kyrgyz Republic. This has led to further cooperation between the two cities, including the creation of a multimodal e-commerce logistics center in each.

Recommendations

Install modern inspection equipment at BCPs to expedite cargo throughput. Many border delays are due to a shortage of inspection equipment. Automated weight machines, high-speed scanners, and video surveillance systems can speed up border inspections and reduce vehicle waiting time.

Build additional access roads at BCPs. BCPs lack enough access roads, and this slows the flow of vehicles both in and out. It also makes it difficult to speed up processing and throughput by separating car and truck traffic. The access road to the six inspection lanes at the Yallama BCP has only two lanes. At least three are needed in each direction to make full use of the BCP's capacity and further reduce crossing time.

Apply lessons learned from the Yallama improvements to other BCPs. CPMM data show that infrastructure improvements and streamlined border management procedures have had a positive effect at Yallama. Lessons learned from this pilot endeavor should be applied at the country's other BCPs.

Give freight and passenger rail traffic equal priority. Passenger traffic now has priority when train paths are assigned on Uzbekistan's rail lines. This is meant to support tourism, but moving cargo is far more profitable for Uzbekistan Temir Yollari than transporting passengers. The government should gradually establish equal treatment in path assignments for freight and passenger traffic to provide the railway with the greater income it needs to expand its network.

4 Case Study: The Trans-Caspian International Transport Route and the Impact of the Ukraine War

Corridor 2 is a key passageway across both the CAREC region and Eurasia. It connects the PRC, Central Asia, the Caucasus, and Europe and is part of the Middle Corridor alternative to the currently dominant Northern Route through the Russian Federation and Belarus for overland trade and transport between East Asia, the CARs, and the EU. What makes Corridor 2 unique are its maritime links across the Caspian Sea. Three CAREC members—Azerbaijan and Kazakhstan, both with important Caspian seaports, and Georgia, which serves as a transit country for trans-Caspian shipments to and from Europe—are promoting the use of this maritime link through the TITR. CAREC member Turkmenistan has not joined the TITR group, and its new Caspian port does not yet handle much CAREC corridor transit traffic.

The Russian Federation's February 2022 invasion of Ukraine attracted sudden attention and a significant surge in traffic to Corridor 2, the TITR, and the Middle Corridor overall. Large parts of Ukraine, once an optional leg of the Northern Route, became a combat zone and impassable or highly risky after the invasion. Freight insurance was often unavailable, or shippers feared that insurers would evade liability for claims by invoking the act of war clause should drivers be detained or harmed, or cargo damaged or stolen. International sanctions imposed on the Russian Federation for the invasion made exporters and consignees hesitant to use the Northern Route due to potential repercussions. The resulting surge of shipments along the Middle Corridor tested and overburdened the capacity of the port and shipping infrastructure and border-crossing points on the TITR trans-Caspian route and drove up costs and times.

This case study describes the TITR and the direction of trade and typical goods transported along Corridor 2. It profiles the corridor's critical Caspian seaports, focusing on Aktau and Kuryk in Kazakhstan and Baku in Azerbaijan.[29] It outlines the issues and constraints that resulted in the significant delays and CPMM performance issues on the TITR maritime link in 2022. It also uses CPMM data and analysis to examine the impact on the corridor ports and BCPs of the international sanctions imposed on the Russian Federation.

The Routes

The TITR is a key connection between the PRC, the rest of East Asia, and Southeast Asia with Kazakhstan and via the Caspian, Azerbaijan, Georgia with Türkiye and Europe. The TITR consortium[30] is composed of national transport companies in Azerbaijan, Georgia, and Kazakhstan. Train shipments from the PRC and truck shipments from the CARs enter Kazakhstan and move along CAREC Corridor 2a or 2c to the country's main Caspian port at Aktau and a new smaller port to the south at Kuryk. Westbound shipments are then transported by sea to Azerbaijan's new seaport of Baku at Alyat,[31] and then by trains or trucks across the Caucasus to Poti or Batumi in Georgia. Shipments can move on from there either across the Black Sea to Varna in Bulgaria, Constanta in Romania or Chernomorsk in Ukraine, or by land into Türkiye at Georgia's Sarpi border-crossing point (BCP).

The TITR does not include CAREC member Turkmenistan, even though the country and its newly expanded Turkmenbashy seaport provide a potentially important transit corridor for shipments to and from Tajikistan, Uzbekistan, and possibly South Asia via the existing trans-Caspian route with Baku.

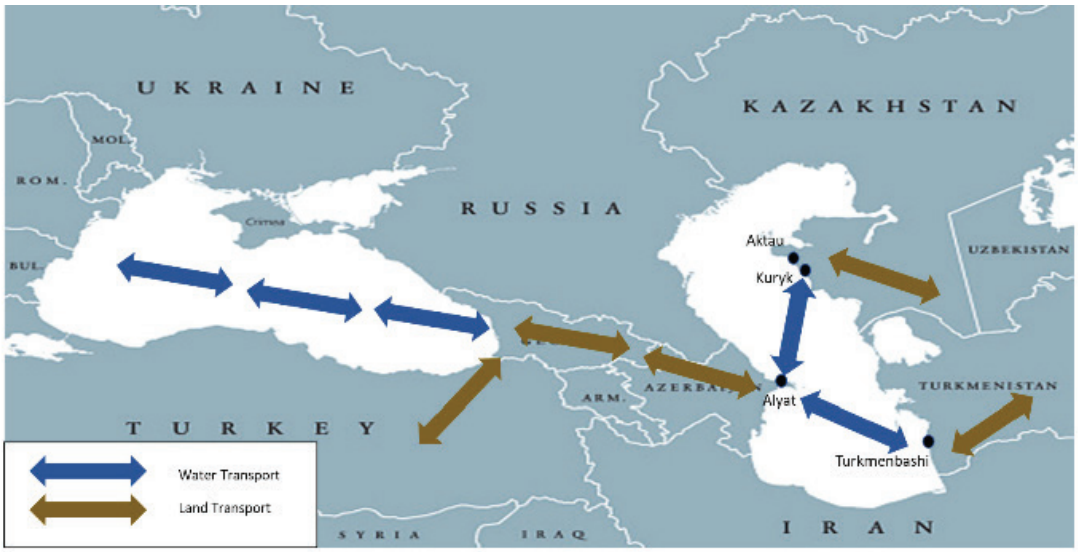
[29] Although Turkmenistan is a CAREC member, CPMM does not have a partner in Turkmenistan and does not collect shipment data through Turkmenbashy, the country's Caspian seaport.

[30] The consortium includes three national railways operators: Azerbaijan Demir Zholy, Georgian Railways, and Kazakhstan Temir Zholy. Port organizations such as the Aktau Sea Commercial Port joint stock company and Baku International Sea Trade Port are also represented.

[31] Azerbaijan policymakers located the new seaport south of Baku in the Alyat settlement. This allows Baku city to expand without interfering with the port's physical expansion. In this report, Baku refers to the new seaport at Alyat.

Other alternatives to the TITR's maritime crossings include truck and train routes via the Russian Federation around the Caspian's northern tip. Once popular with Central Asian shippers wanting to avoid the issues presented by a Caspian Sea crossing, this option has been affected by international sanctions on the Russian Federation since its invasion of Ukraine. The other alternative, via Iran to the south, has also been complicated by the international sanctions against that country.

Figure 4.1: Routes Crossing the Caspian Sea



Source: Consultants.

CPMM collects data on commercial shipments moving in both directions over land between Baku in Azerbaijan and Poti on the Georgia Black Sea coast and across the Caspian between Baku and the Kazakhstan ports of Aktau and Kuryk on the other side. Eastbound shipments enter Georgia at Poti on the Black Sea and are trucked across the Caucasus to the Baku port to be loaded onto vessels for the Caspian crossing. Once they arrive at Aktau or Kuryk, they move overland onto their destinations. These can include Astana, Almaty, Karaganda, Pavlodar, and Kostanai in Kazakhstan itself or Bishkek, Dushanbe, and Tashkent. The most common cargos are frozen meat, heavy machinery, and equipment. Eastbound shipments from the CARs tend to be smaller in volume.

The Seaports

Aktau. Aktau on the Caspian's eastern coast is Kazakhstan's maritime gateway and a major transshipment point on the TITR. It has been favored over the years by transport operators from Georgia and Türkiye since their countries do not have bilateral agreements for road transit through the Russian Federation. The port can process general, dry bulk, liquid bulk, and break bulk cargo, as well as containerized goods and RoRo (roll-on/roll-off) shipments. Annual handling capacity is 17.7 million tons, and Aktau can process up to nine vessels at one time.[32]

Kuryk. Kazakhstan's new Caspian Sea port at Kuryk is about 52 km south of Aktau. It has a draft of 7 meters and is now accessible by road and rail. Kuryk aims to become a key transshipment point on

[32] Aktau Sea Commercial Port (2022). Infrastructure. https://www.portaktau.kz/en/.

the TITR. Besides a ferry terminal, the port will eventually have a grain terminal, a multipurpose logistics center, and a steel fabrication plant. As of May 2022, it could handle an estimated 6.0 million tons of cargo a year. This is expected to reach 13.9 million tons per annum once the port is fully operational.

Aktau and Kuryk compared. Aktau port is nearer to Aktau City. Kuryk is 1 hour's drive away. The train line at Aktau extends onto the wharf, although Kuryk completed this last-mile rail connection to its ferry terminal only in November 2022. Shippers moving such cargo as wheat grain, seeds, fertilizers, and metals tend to use Aktau because it is better equipped with the storage silos and heavy cranes needed for bulk commodity lift-off/lift-on operations between berths and vessels. These capacities are coming but not yet available at Kuryk. However, Ro-Ro shipments can move through either port. Although the differences are not very significant, Kuryk is closer to Baku (482 km versus 511 km for Aktau), and the sailing time is slightly shorter (22 hours versus 24 hours).

Baku. Azerbaijan's new Baku International Sea Trade Port (BISTP) at Alyat, 70 km south of Baku City, began operating in 2018. It was built at the intersection of the country's main rail and highway networks, and its 13 berths can handle up to 15 million tons of cargo per year. This includes a container throughput capacity of 100,000 TEUs. BISTP will add another 500,000 TEUs in capacity in a planned future 25-million-ton expansion of the port.

Poti. The 15 berths at Poti seaport on the Black Sea about 85 km north of Georgia's Batumi City have a total yearly throughput capacity of 9 million tons. The port handles liquids, dry bulk, passenger ferries, and 80% of Georgia's container traffic.[33] It is the gateway for international trade between Europe and Georgia, along with Armenia and Azerbaijan.

Table 4.1 Handling Capacity at Selected Seaports

Seaports	Annual Total Capacity (tons)	Container Capacity (TEUs)
Aktau	17,700,000	100,000
Kuryk	6,000,000	30,000
Baku	15,000,000	100,000
Poti	9,000,000	550,000

TEU = twenty-foot equivalent unit.
Source(s): Consultants, from the various official websites of the seaports.

The TITR Caspian crossings are handled entirely by the national shipping companies of Azerbaijan and Kazakhstan. Azerbaijan Caspian Shipping Company and Kazakhstan's Kazmortransflot own and operate different vessels to transport different types of cargo. Shipments include dry bulk commodities such as wheat, bulk liquids such as oil, and containers.

These ships have no fixed schedule. The two companies deploy them only when a full cargo accumulates for a crossing. Both factors can result in long waits. In addition, weather in the Caspian region is unpredictable, and sudden storms can force vessels to remain in harbor and postpone departures. The vessels of both national shipping fleets have been reconfigured in the past to adjust to changes in the cargo types moving through the TITR. The shift after the February 2022 invasion of Ukraine of some trans-Eurasia traffic from the main Northern Route to Corridor 2 created a 1,050-TEU container backup at Aktau port. KMFT, which was operating only two container ships on the TITR maritime route before the war, converted some of its vessels to help ease the backlog.

[33] APM Terminals. www.apmterminals.com/en/poti.

Analysis of Trans-Caspian Crossings

The case study compared the unit costs, SWOD, and SWD of truck and train cargo shipments between **Kazakhstan** and **Georgia** that crossed the Caspian Sea on Corridor 2 in 2022 with the unit costs and speeds of those that moved overland **from Uzbekistan to the Russian Federation**. The comparison was made in terms of costs per ton and ton-per-kilometer in each direction. Speeds are **measured in km/h**.

Table 4.2: Performance of Routes Across and Around Caspian Sea, 2022

Direction	Indicator	Unit of Measure	Road and Trans-Caspian[a]	Overland Around Caspian[b]	Rail and Trans-Caspian[c]
West to East	Unit Cost of Transport	Cost $ per ton	734.85	357.21	N/A
		Cost $ per km	2.21	1.19	N/A
		Cost $ per ton-km	0.21	0.07	N/A
	Speed	SWOD, km/h	42.88	25.76	N/A
		SWD, km/h	10.52	15.53	N/A
East to West	Unit Cost of Transport	Cost $ per ton	184.78	162.28	273.25
		Cost $ per km	1.10	0.98	1.27
		Cost $ per ton-km	0.06	0.05	0.03
	Speed	SWOD, km/h	42.10	24.09	43.34
		SWD, km/h	12.12	12.72	5.89

Define the abbreviations alphabetically.
[a] Shipments that moved by road to the Caspian Sea and crossed it by ferry.
[b] Shipments that moved by road around the Caspian Sea via the Russian Federation.
[c] Shipments that moved by rail to the Caspian Sea and crossed it by ferry.
Source: Asian Development Bank.

Crossing the Caspian was costlier by each of the three units of measurement than circumventing it overland through the Russian Federation. This was particularly true of eastward shipments where the road and Caspian crossing cost per ton-km was precisely three times that of trucking shipments around the sea ($0.21 vs. $0.07). The westward cost per ton-km between these two options was almost the same ($0.06 vs. $0.05). The study found this to be due to the fact that truck drivers from Georgia and Türkiye were willing to offer a much-reduced rate to carry shipments east in order to pick up return cargos heading toward Europe. In terms of cost-per-ton and cost-per-km, train shipments that crossed the Caspian were shown to be more expensive than those that took the Russian Federation land route. They were, however, cheaper in terms of cost per ton-km. This was because absolute freight rates were higher for rail than for road, but as distance and payload increased, rail became more economical.

SWOD in both directions was two-thirds to almost twice faster on the trans-Caspian route than by the overland diversion, but roughly a third slower going East and about the same going West when stops enroute (e.g., waiting at the Caspian ports) were factored in for SWD. The waits for ships to arrive and take on their cargo were longer at BISTP for eastbound shipments than those for westbound freight at Aktau and Kuryk ports. Rail SWOD was faster than road, but SWD slower due to waits at train stations and the seaports. CPMM analysis has always shown trains to have longer border-crossing times than trucks.

The case study estimated the average border-crossing time and cost at the land BCPs involved in circumventing the Caspian through the Russian Federation and those for the BCPs at the three CAREC ports through which TITR shipments pass. The average crossing time at the seaport BCPs was found to be 2.7 times that of the BCPs on the road around the sea (21.0 hours vs. 7.8 hours). Costs were 3.8 times higher—$236.80, compared with $62.60). The border-crossing time was also unpredictable partly due to the unpredictable weather conditions at Caspian, where storms can erupt suddenly. This compels the vessels to stay at the harbor, delaying departure time. Another reason was the unscheduled nature of the vessel services. The vessels are only deployed when enough cargo accumulates at the seaport. This makes

it difficult for shippers to predict when the shipments can leave the seaport. In the next section, the issue at the seaport is examined.

Table 4.3 Border-Crossing Point Costs—Across and Around Caspian Sea, 2022

Category		
Land	7.8	*62.60*
Seaports	21.0	*236.80*

Source: Asian Development Bank.

Analysis of Individual Seaport Performances

The case study examined the delays and estimated the time performance at each of the three Caspian seaports—Aktau, Kuryk, and Baku—using data collected since Georgia joined the CPMM program in 2018. The time spent was calculated as the sum of operations time and waiting time. The port operations included customs and immigration controls and inspections, the physical movements of shipments (e.g., moving containers on to a port dock or on or off a ship). Waiting time refers here to the period a shipment waits to be officially cleared, for a vessel to arrive, and/or for equipment to be become available for onloading or offloading. Type 1 shipments were those that moved eastward from Poti to Baku and across the Caspian to either Aktau or Kuryk. Type 2 moved west on the same two routes. These were all transit shipments. It generally takes a little less than a day for the Caspian crossing itself.—an average of 22 hours between Kuryk and Baku, and 24 hours between Aktau and Baku.

The case study found the following:

(i) Waiting time was longer on average than operations time.

(ii) Wait times were longer at Baku than at Aktau or Kuryk.

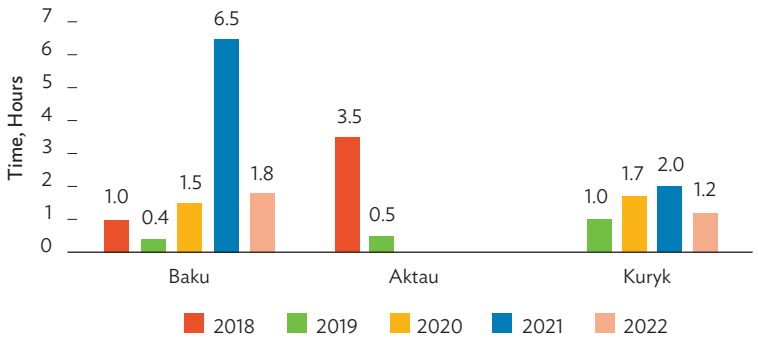
(iii) Baku waiting time jumped to 134.1 hours in 2022 from 60.9 hours in 2021. This surpassed the previous peak of 109.7 hours estimated in 2020 after the outbreak of the COVID-19 pandemic. A new high was due to increased transit traffic attributed to diversions from the Northern Route following the imposition of sanctions on the Russian Federation after the invasion of Ukraine.

Operations times ranged from 1–2 hours at the three ports, but shipments could wait several days, especially when ship departures were delayed by sudden storms. When the direction of travel was Poti–Baku–Aktau or Poti–Baku–Kuryk, the waiting time was longest at Baku. Waiting times surged in 2020 at both Baku and Kuryk due to strict COVID-19 controls and inspections. Nonetheless, the lack of sufficient vessels to transport diverted Northern Route shipments across the Caspian significantly lengthened the wait times at all three ports. The case study also looked at the overall processing times in both directions at Baku and Kuryk seaports in months following the February 2022 Ukraine invasion (Figures 4.4–4.7).

Impact of the Russo–Ukrainian Crisis

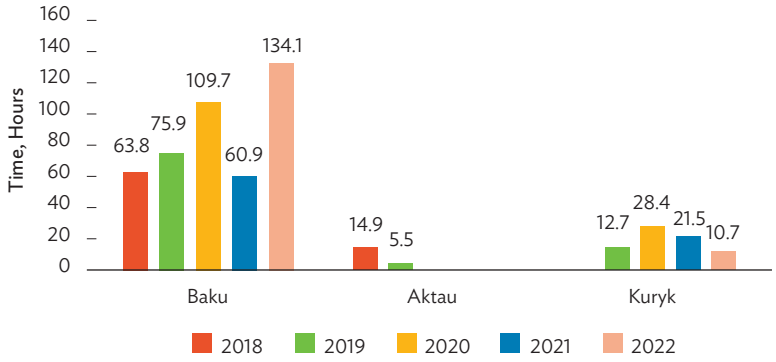
On 24 February 2022, Russia invaded Ukraine. The armed conflict resulted in significant disruptions to international supply chains. As a result of international sanctions recently imposed on Russia, shippers have become hesitant to trade with the Russia Federation, and transport operators are wary of transiting through Russian territories. Ukraine and the surrounding area in Russia have become a conflict zone, prompting companies to seek alternative routes. Broadly speaking the trading community now faces challenges in 1) cargo security; 2) extensive delays at border crossings; and 3) uncertainty about insurance coverage. Uzbek carriers reported that in March 2022 their trucks were stopped in the conflict zone, cargoes were looted, and drivers were detained. As drivers attempted to re-route, the traffic diversion

Figure 4.2: Operations Time Eastbound at Three Caspian Seaports, 2018–2022



Note: CPMM data were collected at Aktau in 2018 and 2019 only. Coverage switched to Kuryk during 2019–2022.
Source: Asian Development Bank.

Figure 4.3: Waiting Time Eastbound at Three Caspian Seaports, 2018–2022



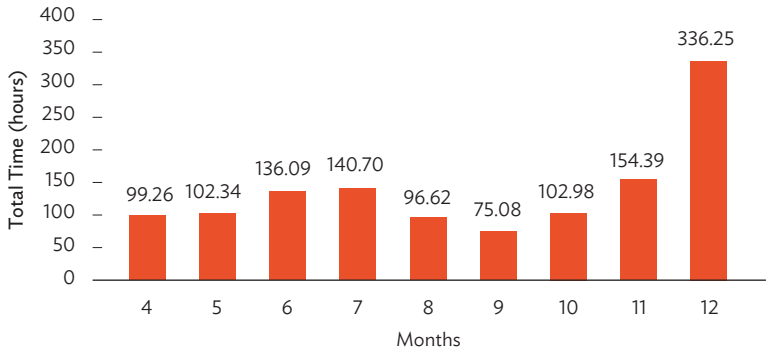
Note: CPMM data were collected at Aktau in 2018 and 2019 only. Coverage switched to Kuryk during 2019–2022.
Source: Asian Development Bank.

increased the time required to cross borders, particularly in the Black Sea region. Compounding this problem is the uncertainty of whether cargo insurance would still be effective, as insurers typically add a clause that can waive their liability due to "act of war".

Processing times spiked at both Baku and Kuryk as freight traffic swelled with diverted shipments. Wait times shortened for a while before rising again at the end of the year, indicating that the pressure on Caspian port and shipping capacity was likely to remain strong as long as the war in Ukraine and the related international sanctions continued. Overall, the 2022 processing times at both Baku and Kuryk were double the pre-war averages recorded in 2021.

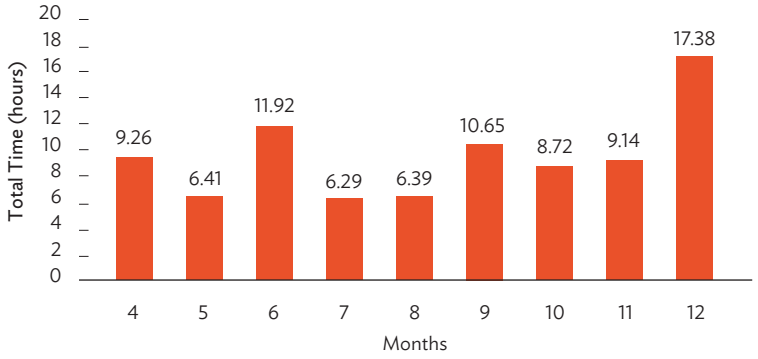
Processing times varied greatly at both Baku and Kuryk. They ranged from 3 to 14 hours for eastbound shipments leaving Baku for Kuryk, where inbound shipments could be processed within 24 hours. Processing took longer for outbound shipments at both ports and was lengthiest for westbound traffic leaving Kuryk for Baku. Outbound processing performance was slowed in both cases due to the long waits for Caspian vessels to pick up cargos waiting to load. Outbound times spiked at Kuryk in June when

Figure 4.4: Processing Time for Eastbound Shipments at Baku Seaport, April–December 2022



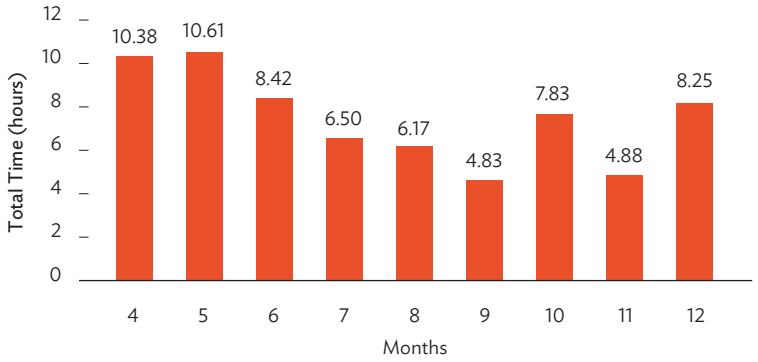
Source: Asian Development Bank.

Figure 4.5: Processing Time for Eastbound Shipments at Kuryk Seaport, April–December 2022



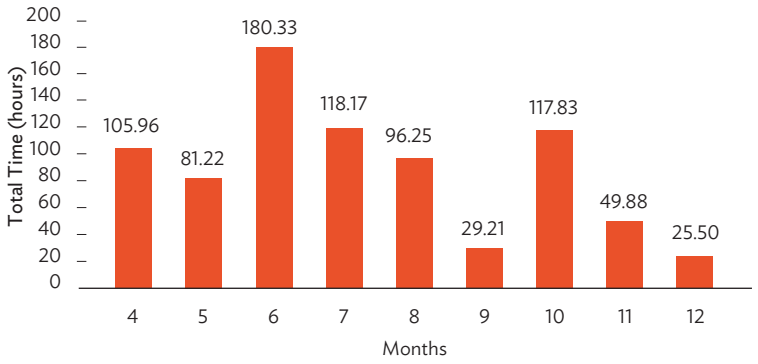
Source: Asian Development Bank.

Figure 4.6: Processing Time for Westbound Shipments at Baku Seaport, April–December 2022



Source: Asian Development Bank.

Figure 4.7: Processing Time for Westbound Shipments at Kuryk Seaport, April–December 2022



Source: Asian Development Bank.

the port was forced to handle some of the 1,050-container backup at the larger port of Aktau, but traffic eased gradually after that.

In summary, a major constraint on the speed and cost of the maritime leg of the TITR are the long outbound wait times at the Aktau, Baku, and Kuryk ports. These long waits are largely due to the insufficient number of sea vessels available and needed to provide dependable, regular, prompt transport across the Caspian Sea. TITR shipping is also more expensive than truck transport routes that circumvent the sea via the Russian Federation. This and the avoidance of more complicated multimodal trans-Caspian shipping can affect the mode and route choices of shippers in countries such as Uzbekistan that have large truck fleets. Train shipments across the Caspian Sea are useful for transporting bulky commodities for long distances but not for moving perishables, given the long processing times at seaports and rail BCPs.

This is the first time a CPMM annual report has examined water transport in detail. The seaports are important nodes in the CAREC Corridor 2—just as Corridor 2 is important to the CARs and the TITR overall—but cost and times need to be improved to attract and retain more shippers and deal efficiently with the pressures expected to continue into 2023 as shipments are diverted from the Northern Route.

5 Conclusion

Overall CPMM TFI performance improved in the CAREC countries during 2022. The restrictive border controls brought on by the COVID-19 pandemic were gradually removed. Border-crossing times and costs both declined. As global ocean freight rates returned to more normal levels, shippers had less reason to move goods across the Eurasian continent by train or truck. This helped reduce total transport cost.

This report has provided a detailed analysis of the precise routes and the traffic, speed, and cost performances of the maritime leg of Corridor 2 (the TITR) through the seaports of Aktau and Kuryk in Kazakhstan and Baku in Azerbaijan. It found that the high costs and long wait times of the trans-Caspian option when compared with overland alternatives are mainly due to insufficient shipping capacity.

High traffic pressure on this route is expected to extend into 2023 with the continuation of the war in Ukraine and the diversion of shipments from the Northern Route through the Russian Federation. Upward trends in global inflation could have a serious impact on the region overall and CAREC corridor costs in particular, especially if oil prices surge. CPMM will continue to monitor these situations through 2023.

Table 5.1: Road and Rail Transport Trade Facilitation Indicators, 2022

TFI	Description	2019	2020
TFI 1	Time to clear a BCP (hours)	9.9	40.6
TFI 2	Cost incurred at a BCP ($)	208	215
TFI 3	Cost incurred to travel a corridor section ($)	945	804
TFI 4	Speed with delay (km/h)	23.4	11.9
	Speed without delay (km/h)	42.0	53.9

BCP = border-crossing point, km/h = kilometers per hour, TFI = trade facilitation indicators.
Source: Asian Development Bank.

APPENDIX 1

Corridor Performance Measurement and Monitoring Methodology

The Corridor Performance Measurement and Monitoring (CPMM) methodology is based on a time/cost–distance (TCD) framework and involves four major stakeholders: (i) drivers, (ii) CPMM partners and coordinators, (iii) field consultants, and (iv) the Central Asia Regional Economic Cooperation (CAREC) Program trade facilitation unit.

The TCD methodology, developed by the United Nations Economic and Social Commission for Asia and the Pacific, focuses on the time and costs involved in transportation and analyzes transport inefficiency and bottlenecks. It lays out the cost and time components of door-to-door movements of a vehicle along a transport corridor, and tracks delays at borders and other inspection points along the corridor.

Under the CAREC CPMM, coordinators of each CPMM partner every month, randomly select drivers transporting cargoes passing through the six CAREC priority corridors to fill up the drivers' CPMM forms. The coordinators enter data from the drivers' forms into TCD spreadsheets. Each partner association completes about 10–30 TCD forms a month, which are submitted to the field consultants and screened for consistency, accuracy, and completeness.

The TCD data submitted by partner associations is normalized so each TCD sheet can be summed up and analyzed at the subcorridor, corridor, and aggregate level of reporting.

Normalization is done in terms of a 20-ton truck in the case of road transport, or a twenty-foot equivalent unit (TEU) in the case of rail traveling 500 kilometers (km). The number of border-crossing points (BCPs) for subcorridors is also normalized for each 500-km segment.

Normalization of each TCD sheet comprises the following steps:

(i) Each TCD is split between the non-BCP portion and BCP portion in case the shipment crossed borders.

(ii) The time and cost figures for the non-BCP portion are normalized to 500 km by multiplying the ratio of 500 km by the actual distance traveled.

(iii) The time and cost figures for the BCP portion are normalized based on the ratio of a predetermined number of BCPs for each 500-km segment over the actual number of BCPs crossed.

(iv) The TCD is reconstituted by combining the normalized non-BCP portion and the normalized BCP portion.

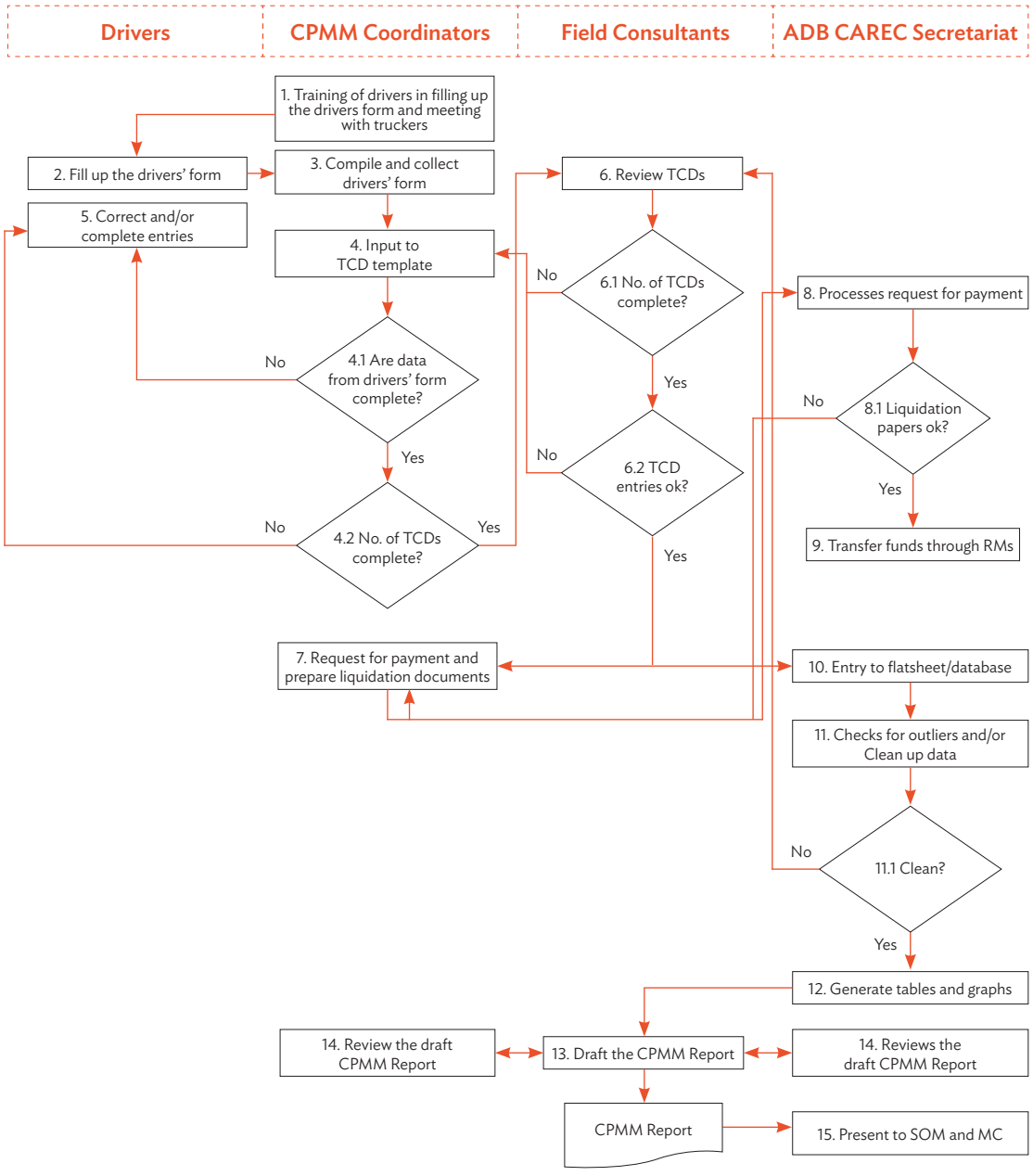
To measure the average speed and cost of transport for trade, the cargo tonnage or number of TEU containers is used as weights (normalized at 20 tons) in calculating the weighted averages of speed and cost for subcorridors, corridors, and for the overall data, based on normalized TCD samples.

The detailed CPMM flowchart is in Figure A1.

CPMM Partners

CPMM partners are national transport carriers and forwarders selected to work with the CAREC Trade Facilitation Unit in implementing the CPMM. A specific person is assigned by each partner to receive training on the CPMM mechanism, train the drivers, customize the drivers' form, and enter the data into a customized spreadsheet. ADB pays the CPMM partners based on a pre-determined unit rate per survey.

Figure A1: Corridor Performance Measurement and Monitoring Flowchart



ADB = Asian Development Bank, CAREC = Central Asia Regional Economic Cooperation, CPMM = Corridor Performance Measurement and Monitoring, MC = ministerial conference, RM = resident mission, SOM = Senior Officials' Meeting, TCD = time/cost–distance.
Source: Asian Development Bank.

National Association Drivers

To ensure accuracy of CPMM data analysis, raw data should be collected as close to the source as possible. Drivers are asked to record how long (time) or how much (cost) it takes them to move from origin to destination. The drivers use a country-specific driver's form to record and submit data to the CPMM partners.

Field Consultants

Two international field consultants work with the CAREC trade facilitation team to develop the CPMM methodology, and travel to the CAREC countries to standardize implementation. They also analyze the aggregated data and draft CPMM quarterly and annual reports.

CAREC Trade Facilitation Unit

Based in the headquarters of the Asian Development Bank, Manila, the CAREC Trade Facilitation Unit is responsible for collecting and aggregating all completed CPMM spreadsheets. Using specialized statistical software, the team constructs the charts and tables for analysis by the field consultants and assists in CPMM report preparation.

APPENDIX 2

2022 Partner Associations

The Central Asia Regional Economic Cooperation (CAREC) Corridor Performance Measurement and Monitoring (CPMM) partners are national carrier and forwarder associations already established in CAREC member countries and are essential to the success of the CPMM mechanism. Trained to gather CPMM raw data, their key responsibilities include the following:

(i) act as the local focal point to collaborate with the Asian Development Bank (ADB) CAREC trade facilitation team in conducting the CPMM annual exercise;

(ii) organize and train drivers to use customized drivers' forms for data collection;

(iii) review completed drivers' forms to ensure data completeness and correctness;

(iv) input raw data from drivers' forms into the CPMM spreadsheets; and

(v) submit completed CPMM files to CAREC.

Table A2: 2020 Corridor Performance Measurement and Monitoring Partner Associations

	Country	Association	Abbreviation	Data Collected in 2022
1	Afghanistan	Association of Afghanistan Freight Forwarding Companies	AAFFCO	330
2		Xinjiang Uygur Autonomous Region Logistics Association	XULA	530
3	Georgia	Georgia International Road Carriers Association	GIRCA	90
4	Kazakhstan	Association of National Freight Forwarders of the Republic of Kazakhstan	KFFA	118
5	Kyrgyz Republic	Freight Operators Association	FOA	60
6	Mongolia	Mongolia Chamber of Commerce and Industry	MNCCI	101
7		National Road Transport Association of Mongolia	NARTAM	240
8	Pakistan	Pakistan International Freight Forwarders Association	PIFFA	240
9	Tajikistan	Association of Road Transport Operators of Republic of Tajikistan	ABBAT	120
10	Uzbekistan	Association for Development of Business Logistics	ADBL	270
11		Association of International Road Carriers of Uzbekistan	AIRCUZ	240
			TOTAL	**2,339**

Source: Asian Development Bank.

APPENDIX 3

Trade Facilitation Indicators

Recognizing the pivotal roles of trade facilitation and transport connectivity in the economic growth of the Central Asia Regional Economic Cooperation (CAREC) region, member countries jointly developed and endorsed the CAREC Transport and Trade Facilitation Strategy (TTFS) in 2007. The TTFS had an integrated approach that centered on the development of six priority CAREC corridors through transport infrastructure investments and trade facilitation initiatives. It also mandated the monitoring and periodic measurement of the performance of the six transport corridors to

(i) identify the causes of delays and unnecessary costs along the links and nodes of each CAREC corridor, including border-crossing points (BCPs) and intermediate stops;

(ii) help authorities determine how to address the identified bottlenecks; and

(iii) assess the impact of regional cooperation initiatives.

In 2008, the Asian Development Bank (ADB) developed the CAREC Corridors Performance Measurement and Monitoring (CPMM) methodology that offers an accurate and evidence-based foundation for policies aimed at addressing these objectives. The current CPMM methodology is a result of modifications to the original time/cost-distance (TCD) methodology of the United Nations Economic and Social Commission for Asia and the Pacific, which optimized its ability to measure and monitor effectively the border crossing and corridor performance of CAREC corridors over time. The TCD methodology offers an extensive picture of the time and cost dimensions of transport and trade facilitation, particularly with regard to border crossings and other impediments along a transit corridor. Aside from time and cost, derived measures such as speed can be used to assess traffic density and road quality. With these factors, several measures and indicators can be developed for the monitoring of border-crossing and customs service efficiency, as well as road and rail infrastructure performance along corridors. When the corridors are monitored regularly, policy makers can easily pinpoint areas that need improvement and financial investment.

With data from TCD-format questionnaires, four trade facilitation indicators (TFIs) are monitored regularly to enable assessment of improvements made in the CAREC corridors. However, unlike other indicators, TFIs are less easy to quantify as they depend on a variety of factors such as (i) the quality and availability of physical infrastructure, (ii) national policies and regulations for transit and trade, (iii) border-crossing procedures, and (iv) the degree of harmonization among countries. Figure A3 illustrates the scope and extent measured in each indicator.

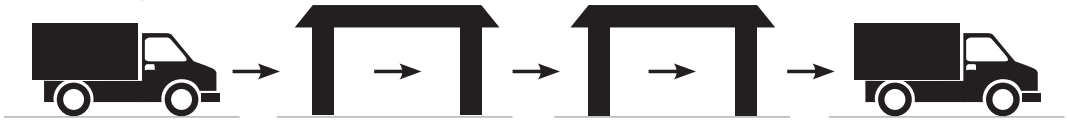
(i) ***TFI1: Time taken to clear a BCP.*** This TFI refers to the average length of time (hours) it takes to move cargo across a border from entry to exit of a BCP. The entry and exit points are typically primary control centers where customs, immigration, and quarantine are handled. Along with the standard clearance formalities, this measurement includes waiting time, unloading or loading time, and time taken to change rail gauges, among other indicators. The intent is to capture both the complexity and the inefficiencies inherent in the border-crossing process.

(ii) ***TFI2: Costs incurred at a BCP.*** This is the average total cost, in United States dollars ($), of moving cargo across a border from entry to exit of a BCP. Both official and unofficial payments are included. This indicator assumes 20 tons of cargo, so that the average costs across various samples are comparable

The CPMM mechanism also analyzes unofficial payments: these are defined as a sum paid on top of that officially recognized by law, with the aim of gaining favored, preferential treatment in return. No official receipt is given. Tracking an unofficial payment is inherently difficult due to the opaque nature of the transaction.

Figure A3: Measuring the Trade Facilitation Indicators

For Road Transport

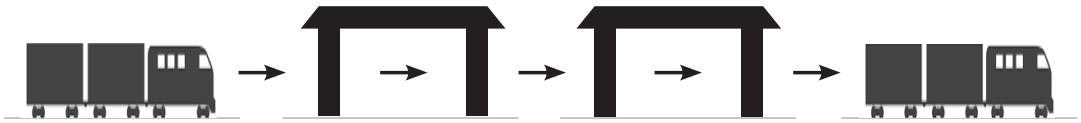


1 Origin	2 Outbound Border-Crossing Point	3 Inbound Border-Crossing Point	4 At Destination
CPMM starts measurement when goods are loaded at the origin. Often, a truck must stop at intermediate nodes (for example, traffic police checkpoints) before reaching the outbound BCP of the country of departure.	The truck driver then waits in line for his turn to enter the BCP. When the truck is admitted into the BCP, the driver must undergo a series of border activities. For BCPs that offer single-window services, the process can be faster. Any transloading (transfer of goods between trucks)is also done here under customs' supervision. Upon completion of border-crossing procedures, the truck exits the BCP and proceeds through "no man's land" until it arrives at the inbound BCP of the adjacent country.	The truck driver again waits in line for his turn to enter the BCP. Inside the inbound BCP, the driver completes another series of border activities. Upon completion, the truck exits the BCP and proceeds with its journey. **TFI1 and TFI2 measure the duration and cost, respectively, of the activities upon reaching a BCP, waiting in line, and exiting the BCP.**	The process of exiting a country and entering another is repeated until the shipment reaches the final destination. At the final destination, goods or containers are offloaded, and this will end the scope of CPMM data collection. In general, CPMM does not include the customs clearance and cargo collection time and cost by the consignee.

TFI3 measures the total transport rate from origin to destination, including cost of activities at BCPs and intermediate stops, per 500 km and per payload of 20 tons.

SWOD is derived from the speed of the truck while it is in transit.
TFI4 is derived by adding the time spent on BCPs and intermediate stops.

For Rail Transport



1 Origin	2 Outbound Border-Crossing Point	3 Inbound Border-Crossing Point	4 At Destination
CPMM tracks the movement of a specific wagon or container, and not the entire train, as reported by its partner international freight forwarders. CPMM starts measurement when goods are loaded at the origin. Often, a train stops at intermediate nodes (for activities such as classification and marshalling) before reaching the outbound BCP of the country of departure.	At the outbound BCP, the shipment undergoes customs formalities, as well as other rail operations, to ensure the safety of the train and goods. After completion, the train is released to the inbound BCP of the adjacent country. At times, trains are withheld up if the inbound BCP is congested.	At the inbound BCP, the shipment undergoes another set of customs formalities and necessary rail operations. **TFI1 and TFI2 measure the duration and cost, respectively, of the activities upon reaching a BCP, waiting in line, and exiting each BCP.**	The process of exiting a country and entering another is repeated until the shipment reaches the final destination. At the final destination, the wagons or containers are offloaded, and this end the scope of CPMM data collection. In general, CPMM does not include the customs clearance and cargo collection time and cost by the consignee.

TFI3 measures the total transport rate from origin to destination, including cost of activities at BCPs and intermediate stops, per 500 km and per payload of 20 tons.

SWOD is derived from the speed of the truck while it is in transit.
TFI4 is derived by adding the time spent on BCPs and intermediate stops.

BCP = border-crossing point, CPMM = Corridor Performance Measurement and Monitoring, TFI = trade facilitation indicator.
Source: Asian Development Bank.

(iii) ***TFI3: Costs incurred while traveling along a corridor section.*** This is the average total costs, in $, incurred for a unit of cargo traveling along a corridor section within a country or across borders. A "unit of cargo" refers to a cargo truck or train with 20 tons of goods. A "corridor section" is defined as a stretch of road 500 kilometers (km) long. Both official and unofficial payments are included.

TFI3 is the sum of border-crossing cost and vehicle transport cost. Vehicle transport cost is defined as the variable cost component for a shipment: including remuneration for the driver during the shipment; sustenance cost (food and drink, accommodation); fuel cost; parking fees; and minor repairs.

The cost components must be specific to the shipment. Nonspecific cost items that are overheads or annual fees such as vehicle tax, insurance, depreciation, and one-time vehicle overhaul are not included in the calculation of vehicle transport cost. In general, the main drivers for this cost are driver remuneration and fuel cost.

Many factors can affect vehicle transport cost and, thus, influence the total transport cost. Factors such as distance, weight of cargo, quality of transport infrastructure, number of BCPs, oil price, foreign currency exchange rate, time of year of travel, empty backhaul, market competition, and new legislation can exert a sizable influence on it. All things being equal, vehicle transport cost will be primarily affected by the distance and cargo weight, as this is the basis for the carrier's quote of the shipment price. In practice due to data collection constraints, transport cost figures reported in CPMM refer to transport rates for trucks, or railway tariffs for trains. "Transport cost" is viewed from the perspective of the shipper and/or receiver. It represents the market rate paid to move the cargo—not the carrier's cost of providing the service.

To standardize transport cost, the CPMM adopts 500 km as a unit of distance, and 20 tons as a unit of weight. This standardized unit enables comparisons to be made between road shipments across different corridors with varying distance and weight.

(iv) ***TFI4: Speed of travel along a corridor section.*** This is the average speed, in kilometers per hour (km/h), at which a unit of cargo travels along a corridor section within a country or across borders. Again, a "unit of cargo" refers to a cargo truck or train with 20 tons of goods, and a "corridor section" refers to a stretch of road 500 km long. Speed is calculated by dividing the total distance traveled by the duration of travel. Distance and time measurements include border crossings.

The CPMM uses two measures of speed: speed without delay (SWOD) and speed with delay (SWD). SWOD is the ratio of the distance traveled to the time spent by a vehicle in motion between origin and destination (actual traveling time). SWD is the ratio of distance traveled to the total time spent on the journey, including the time the vehicle was in motion and the time it was stationary. Under the CPMM, all activities that cause delays (customs controls, inspections, loading and unloading, and police checkpoints, among others) are recorded by drivers. SWOD represents a measure of the condition of physical infrastructure (such as roads and railways), while SWD is an indicator of the efficiency of BCPs along the corridors.

Statistical Derivation of the Trade Facilitation Indicators

TFI1: Time Taken to Clear a Border-Crossing Point (hour)

This indicator highlights bottlenecks at BCPs, which typically involve lengthy border-crossing procedures and serious delays. Each component activity can be further examined to pinpoint the principal cause of delays (Table A3.1).

Table A3.1: Statistical Derivation of the Trade Facilitation Indicator 1

	Formula	Remarks
Formula, per TCD calculation	$TFI1_i = \sum_{j=1}^{a} t_j$ t_j = time spent on each activity j j = 1, 2, .., a = number of activities in each border crossing i = 1, 2, .., n = number of TCDs	The sum is taken from all of the activities carried out in each border crossing. However, for comparison, activities recorded under "others" are not included.
Aggregation, average value per corridor and per mode of transport	$\sum_{i=1}^{n} TFI1_i$ n = number of TCDs qualifying a given filter (per mode/per corridor) i = 1, 2, .., n = number of TCDs	The computation of the average is straightforward; no weights are necessary.

TFI2: Costs Incurred at a BCP ($)

This indicator highlights BCPs that have relatively expensive border-crossing procedures, including unofficial payments. Each component activity can be further examined to pinpoint the drivers of cost (Table A3.2).

Table A3.2: Statistical Derivation of the Trade Facilitation Indicator 2

	Formula	Remarks
Formula, per TCD calculation	$TFI2_i = \sum_{j=1}^{a} c_j$ c_j = cost incurred on each activity j j = 1, 2, .., a = number of activities in each border crossing i = 1, 2, .., n = number of TCDs	The sum is taken from all of the activities carried out in each border crossing. However, for comparison, activities recorded under "others" are not included.
Aggregation, average value per corridor and per mode of transport	$\sum_{i=1}^{n} TFI2_i$ n = number of TCDs qualifying a given filter (per mode/per corridor) i = 1, 2, .., n = number of TCDs	The computation of the average is straightforward; no weights are necessary.

TCD = time/cost–distance.

TFI3: Costs Incurred Traveling Along a Corridor Section ($)

This indicator provides an insight into the cost structure of a corridor and how it compares with those of other corridors. By examining each component, measures can be developed to minimize transit cost (Table A3.3).

Table A3.3: Statistical Derivation of the Trade Facilitation Indicator 3

	Formula	Remarks
Formula, per TCD calculation	$TFI3_i = v_i + b_i + s_i$ v_i = cost incurred during transit, per 500 km b_i = cost incurred during border crossing, per 500 km s_i = cost incurred during intermediate stops, per 500 km i = 1, 2, .., n = number of TCDs	The normalized cost incurred, per 500 km and per 20 tons of cargo (road) or one 20-foot equivalent unit (rail), in traveling a corridor section is the sum of normalized vehicle-operating or rail wagon-operating cost during transit and normalized cost during intermediate stops and border crossings
Aggregation, average value per corridor and per mode of transport	$\sum_{i=1}^{n} TFI3_i$ n = number of TCDs qualifying a given filter (per mode/per corridor) i = 1, 2, .., n = number of TCDs	The computation of the average is straightforward; no weights are necessary.

km = kilometer, TCD = time/cost–distance.
Source: Asian Development Bank.

TFI4: Speed of Travel Along a Corridor Section (km/h)

Speed indicators provide insights into the level of infrastructure development of CAREC corridors by providing information on the speeds that cargo trucks and trains can attain while traversing specific corridor sections. Under the CPMM, speed is measured by two indicators: SWOD and SWD.

Another factor to consider is the weighting of the observations in the aggregation. As the computed speed represents the transport of the truck or train, speed should be weighted by the tonnage of cargo to represent the weighted average speed of the cargo itself.

The **SWOD** (in km/h) is a metric that considers travelling speed only, i.e., when the delivery truck is moving on the road, or when the train is moving on the tracks. When the vehicle or train is stationary, the time is not counted (Table A3.4).

Table A3.4: Statistical Derivation of the Speed Without delay

	Formula	Remarks
Formula, per TCD calculation	$SWOD_i = \frac{D_i}{T_i}$ D = distance traveled from previous stop T = duration of travel i = 1, 2, .., n = number of TCDs	
Aggregation, average value per corridor and per mode of transport	$\sum_{i=1}^{n} (w_i) SWOD_i$ n = number of TCDs qualifying a given filter (per mode/per corridor) $w_i = \frac{c_i}{\sum_{i=1}^{n} c_i}$ i = 1, 2, .., n = number of TCDs	Since computation is per TCD calculation, each TCD is normalized and treated independently. Also, speed average is not weighted by duration of travel (a mathematical computation), and equal weights are given to each record. This method does not give more importance to longer trips than to shorter ones. However, records should be weighted by tonnage to measure the average speed of a unit of cargo, and not of the trips.

km = kilometer, SWOD = speed without delay, TCD = time/cost–distance.
Source: Asian Development Bank.

The **SWD** (in km/h) considers the total time taken for the entire journey, including stoppage time for various reasons (Table A3.5).

Table A3.5: Statistical Derivation of the Trade Facilitation Indicator 4

	Formula	Remarks
Formula, per TCD leg	$SWD_i = \frac{D_i}{T_i + A_i}$ D = distance traveled from previous stop T = duration of travel A = duration of activities (BCP and non-BCP) i = 1, 2, .., n = number of TCDs	
Aggregation, average value per corridor and per mode of transport	$\sum_{i=1}^{n}(w_i)SWD_i$ n = number of TCDs qualifying a given filter (per mode/per corridor) $w_i = \frac{c_i}{\sum_{i=1}^{n} c_i}$ i = 1, 2, .., n = number of TCDs	Since computation is per TCD calculation, each TCD is normalized and treated independently. Also, speed average is not weighted by duration of travel (a mathematical computation), and equal weights are given to each record. This method does not give more importance to longer trips than to shorter ones. But records should be weighted by tonnage to measure the average speed of a unit of cargo, and not of the trips.

km = kilometer, SWD = speed with delay, TCD = time/cost–distance.
Source: Asian Development Bank.

APPENDIX 4

Border-Crossing Activities

Under the Corridor Performance Measuring and Monitoring (CPMM) mechanism, time spent and payments made (official and unofficial) at each stop are recorded by activity. The list of activities encompasses all anticipated checks and procedures, both at border-crossing points (BCPs) and at intermediate stops along the transit corridor. However, as the CPMM focuses on BCPs, the list comprises mainly customs procedures and inspections during border crossings.

Road Transport

(i) ***Border security and control.*** Security personnel (i.e., the police or military) inspecting goods and checking documents at BCPs. Also includes payment of fees that may be official or unofficial.

(ii) ***Customs controls.*** Customs personnel inspecting documents and goods entering or exiting a country. Similar activities are compiling customs forms and paying fees.

(iii) ***Health or quarantine inspection.*** Health authorities checking a person for the presence of malignant or contagious disease. Also includes filling out health or quarantine forms, paying fees, and others.

(iv) ***Phytosanitary inspection.*** Agriculture authorities inspecting cargo for possible presence of harmful pests and plant diseases. Similar activities include filling out phytosanitary forms and paying fees.

(v) ***Veterinary inspection.*** Veterinary authorities inspecting cargo for the possible presence of infectious animal diseases and regulating the flow of animals and animal products to a location. Similar activities are filling out veterinary forms and paying fees.

(vi) ***Visa or immigration.*** Immigration authorities checking visas, and other required activities to apply for a visa to enter and exit the country when the driver has no valid visa. Also includes filling out immigration or visa forms and paying fees.

(vii) ***Traffic inspection.*** Inspection by the Traffic Inspectorate or State Traffic Safety Inspectorate. GAI means *Gosudarstvennya Avtomobilnaya Inspektsyya*.

(viii) ***Police checkpoint or stop.*** Traffic police covering roadblocks or checkpoints along a road that also requires payment to proceed.

(ix) ***Transport inspection.*** Checking the Certificate of Approval or Conformity for the Vehicles. Road passes are also checked.

(x) ***Weight and standard inspection.*** Checking the dimensions and weight of the vehicle with cargo, including queueing, payment of fees, and others.

(xi) ***Vehicle registration.*** Registration of vehicle, and/or payment of applicable road use taxes, and/or transit fees.

(xii) ***Emergency repair.*** Ad hoc repairs on vehicles that may be due to a tire blow-out, broken axle, and other reasons, generally because of bad road conditions. This is different from planned maintenance.

(xiii) ***Escort or convoy.*** A convoy is a row of vehicles that moves together. The vehicles are accompanied by escorts, who can be customs officials or traffic police to ensure that the cargoes reach their destination.

(xiv) ***Loading and/or unloading.*** Loading goods at the point of origin or loading and unloading at intermediate stops to deconsolidate cargo (i.e., transfer goods to another vehicle), or unloading upon delivery at the destination.

(xv) ***Road toll.*** Fees payable when drivers use a special section of roads or highways that are intended to shorten the travel time.

(xvi) ***Waiting and/or queueing.*** Waiting in lines at BCPs. Note that this activity does not include other activities, such as waiting in line to fill out or submit customs documents, which is recorded as part of customs controls.

Rail Transport

(i) ***Load cargoes.*** The movement of goods from storage or warehouse to the train. If the goods are moved to a temporary storage, such as the staging area or loading docks before relocating to the train, then only the time from the staging area or loading docks to the train is considered.

(ii) ***Unload cargoes.*** The movement of goods from the train to storage or warehouse. If the goods are moved to a temporary storage, such as the staging area or loading docks before relocating to the warehouse, then consider only the time from the train to the staging area or loading docks.

(iii) ***Fix cargo shift.*** This refers to the securing of cargoes inside the container or wagon. When items are stuffed into containers, workers may "choke" or secure the cargoes to ensure they stay in position during transit. For instance, automobiles also need additional securing. This is to ensure cargoes stay in position during transit. Normally, this is a problem related to manufactured products transported on pallets or in cartons and may not apply to bulk commodities.

(iv) ***Remove excess cargo.*** The movement of excess goods to comply with the weight requirement. This does not include inspection time. This activity only starts when the officer declares an "overweight" and orders a removal, and ends when the excess goods are relocated from the train.

(v) ***Transload at gauge change point.*** This only happens at the People's Republic of China (PRC) border or Polish border with a Commonwealth of Independent Nations (CIS) country. As the CIS uses 1,520-millimeter gauge, while non-CIS countries use 1,435 mm gauge, the cargoes need to be transloaded. This is done by changing the wheel sets or relocating the goods using forklifts.

(vi) ***Pickup and deliver wagons.*** The movement of loaded containers and wagons between terminals to the consignee's premises.

(vii) ***Replace or repair inoperable wagon.*** This applies only if one or more train wagons is found to need service because it is significantly damaged and cannot be addressed by emergency repair. The action includes the movement from the tracks to the servicing centers, as well as the actual repair of the wagon in the servicing center.

(viii) ***Emergency repair.*** Servicing wagons on the tracks in the marshaling yard, without removing the wagon from the train. In this case the wagon is salvageable, in contrast to the more severe problem under the previous activity.

(ix) ***Trains classification.*** The internal regroup of goods, platform, wagons, and containers to form a new train. This is needed as goods are bound for different destinations and leave at different schedules. Normally this happens at major rail terminals.

(x) ***Fix document errors.*** This applies to a special situation when there are errors on the documents (freight bill, cargo manifest, packing list, and others). It does not include normal processing time and starts only when an error is found, and action is taken to correct the error. This activity ends when the authorities confirm the error is corrected. At borders, this correction may require substantial effort and many days to complete.

(xi) ***Reissue transit documents.*** This typically applies to the PRC rail shipments to CIS countries. Not all the PRC railways stations can handle international shipments, but there are occasions when loading and/or unloading is necessary in such domestic stations. Thus, a domestic document is used for movement of cargo from this station to the international terminal (such as Urumqi in the Xinjiang Uygur Autonomous Region), where another set of international documents is used. This is when the data is manually rewritten or translated.

(xii) ***Customs inspection.*** The customs officer assessing compliance with the customs code. The customs officer also checks for any dutiable goods, forbidden items, or dangerous goods.

(xiii) ***Technical inspection.*** Engineers or technicians inspecting to ascertain cargo security and safety, as well as the condition of the train and its equipment.

(xiv) ***Commercial inspection.*** An activity undertaken by a regulatory agency to affirm the quality of the shipment or to ensure that certain restricted material (dual use) is not exported.

(xv) ***Sanitary and phytosanitary control.*** The phytosanitary team regularly checking the train's sanitation standards, as well as the acceptability of goods, such as agriculture, food, meat, and consumable products. This action also covers health issues, such as health certificates of the staff onboard the train.

(xvi) ***Waiting due to various reasons.*** An activity undertaken by a regulatory agency to affirm the quality of the shipment or to ensure certain restricted material (dual use) is not exported.

APPENDIX 5

Central Asia Regional Economic Cooperation Border-Crossing Points

The endorsement and implementation of the Central Asia Regional Economic Cooperation (CAREC) Transport and Trade Facilitation Strategy in 2007 included the identification of six priority CAREC corridors where transport infrastructure investments and trade facilitation initiatives would be focused. The CAREC Corridor Performance Measuring and Monitoring (CPMM) mandate to identify causes of delays and unnecessary costs along the links and nodes of each CAREC corridor, including border-crossing points (BCPs) and intermediate stops, emphasizes monitoring BCPs where shipments undergo several transactions and procedures related to transborder trade.

Table A5 lists key BCP pairs for each side of the border.

Table A5: CAREC Corridor Border-Crossing Points

	Corridor	BCP1		BCP2	
1	1a, 2c	PRC	Alashankou	KAZ	Dostyk
2	1a, 1c	KAZ	Kairak	RUS	Troitsk
3	1b	PRC	Horgos	KAZ	Khorgos
4	1b, 6b, 6c	KAZ	Zhaisan	RUS	Kos Aral/Novomarkovka (Sagarchin)
5	1c	PRC	Torugart	KGZ	Torugart
6	1c, 3b	KAZ	Merke	KGZ	Chaldovar
7	2a, 2b, 2d, 5a, 5c	PRC	Yierkeshitan	KGZ	Irkeshtam
8	2a, 2b	KGZ	Kara-Suu (Dostuk)	UZB	Kara-Suu/Savay (Dustlik)
9	2a, 2b	TAJ	Patar	UZB	Andarkhon
10	2a, 2b	TAJ	Nau	UZB	Bekabad
11	2a, 6a	KAZ	Beyneu (rail)/ Tazhen (road)	UZB	Karakalpakstan (Daut-Ata)
12	2a, 2c	AZE	Baku	KAZ	Aktau
13	2a, 2b, 2c	AZE	Red Bridge (road)–Beyuk Kesik (rail)	GEO	Red Bridge (road)– Gabdabani (rail)
14	2b, 3a	UZB	Alat	TKM	Farap
15	2b	AZE	Baku	TKM	Turkmenbashi
16	2d, 3b, 5a, 5c	KGZ	Karamyk	TAJ	Karamyk
17	2d, 5a, 5c, 6c	AFG	Shirkhan Bandar	TAJ	Panji Poyon/Nizhni Pianj
18	3a, 3b	KAZ	Aul	RUS	Veseloyarsk
19	3a, 6b, 6c	KAZ	Zhibek Zholy–Saryagash/ Yallama	UZB	Gisht Kuprik–Keles
20	3a	TKM	Sarahs	IRN	Sarakhs
21	3b	TAJ	Pakhtaabad	UZB	Saryasia
22	3a, 6a, 6b	AFG	Hairatan	UZB	Termez/Airatom
23	3b, 6b, 6d	AFG	Islam Qala	IRN	Dogharoun
24	4a	MON	Ulaanbaishint/ Tsagaanur	RUS	Tashanta
25	4a	PRC	Takeshiken	MON	Yarant
26	4b, 4c	MON	Sukhbaatar	RUS	Naushki
27	4b	PRC	Erenhot	MON	Zamiin-Uud
28	6a, 6d	KAZ	Kurmangazy (road)/Ganyushking (rail)	RUS	Krasnyi Yar (road)/Aksaraskaya (rail)
29	6c	TAJ	Istaravshan	UZB	Khavast

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Table A5 *continued*

	Corridor	BCP1		BCP2	
30	6d	KAZ	Bolashak	TKM	Serkhetyaka
31	2d	AFG	Aqina	TKM	Imam Nazar
32	2d, 6d	AFG	Torghondi	TKM	Serkhet Abad
33	5b	PRC	Khunjerab	PAK	Sost
34	5c, 6a, 6b, 6d	AFG	Chaman	PAK	Spin Buldak
35	5a, 6c	AFG	Torkham	PAK	Peshawar
36	4c	PRC	Zuun Khatavch	MON	Bichigt
37	2a, 2b, 2c	AZE	Qirmizi Korpu	GEO	Tsiteli Khidi

AFG = Afghanistan, AZE = Azerbaijan, BCP = border-crossing point, GEO = Georgia, IRN = Iran, KAZ = Kazakhstan, KGZ = Kyrgyz Republic, MON = Mongolia, PAK = Pakistan, PRC = The People's Republic of China, RUS = Russian Federation, TAJ = Tajikistan, TKM = Turkmenistan, UZB = Uzbekistan.
Source: Asian Development Bank.

APPENDIX 6

Trade Facilitation Indicators: Summary Statistics

Table A6 provides a brief comparison of Corridor Performance Measurement and Monitoring road and rail trade facilitation indicators in 2018 and 2019. Mean, median, and margin (or the 95% confidence interval band around the mean) estimates are provided to describe the distribution of the sample collected.

Table A6: Trade Facilitation Indicators—Summary Statistics

Trade Facilitation Indicators		Overall						Road						Rail					
		2019			2020			2019			2020			2019			2020		
	Corridor	Mean	Median	Margin	Mean	Median	Margin	Mean	Median	Margin	Mean	Median	Margin	Mean	Median	Margin	Mean	Median	Margin
TFI1	Time taken to clear a border-crossing point, hr																		
	Overall	**15.8**	**8.1**	**± 0.5**	**18.9**	**8.6**	**± 1.0**	**12.2**	**6.0**	**± 0.4**	**15.1**	**7.1**	**± 0.7**	**20.6**	**10.5**	**± 1.1**	**23.0**	**7.2**	**± 2.9**
	1	22.5	15.0	± 1.3	27.9	18.3	± 3.7	6.9	2.3	± 1.7	9.5	5.5	± 1.1	27.6	20.0	± 1.6	37.3	35.2	± 5.5
	2	15.0	8.3	± 2.4	22.4	7.5	± 3.8	7.6	7.3	± 0.7	10.6	5.4	± 2.1	12.0	12.0	± 0.0	61.2	61.2	± 747.0
	3	4.6	2.7	± 0.3	6.8	3.9	± 0.6	5.2	3.4	± 0.4	7.1	3.9	± 0.6	1.7	1.3	± 0.3	5.3	2.8	± 2.2
	4	8.2	3.3	± 0.7	8.1	4.4	± 1.2	3.9	2.5	± 0.3	6.3	2.8	± 1.6	15.7	10.0	± 1.6	9.1	5.5	± 1.0
	5	28.0	24.0	± 1.3	40.2	26.8	± 2.8	28.0	24.0	± 1.3	40.2	26.8	± 2.8	–	–	–	–	–	–
	6	14.6	9.8	± 0.8	14.0	9.9	± 0.6	14.0	9.5	± 0.8	13.5	9.7	± 0.6	4.6	3.9	± 0.3	4.6	3.9	± 0.3
TFI2	Cost incurred at border-crossing clearance, $																		
	Overall	**174**	**136**	**± 4**	**202**	**135**	**± 10**	**162**	**142**	**± 4**	**199**	**138**	**± 12**	**198**	**120**	**± 10**	**193**	**125**	**± 10**
	1	235	160	± 11	422	295	± 48	174	37	± 23	639	290	± 117	256	190	± 13	279	300	± 15
	2	135	65	± 14	116	70	± 12	128	64	± 13	115	70	± 12	–	–	–	–	–	–
	3	85	75	± 4	91	92	± 4	85	71	± 4	92	96	± 4	85	85	± 25	14	14	± 0
	4	106	86	± 5	97	89	± 5	116	130	± 5	109	130	± 6	57	24	± 9	64	31	± 7
	5	296	310	± 5	300	320	± 4	296	310	± 5	300	320	± 4	–	–	–	–	–	–
	6	151	122	± 7	136	96	± 6	137	126	± 5	124	102	± 5	147	119	± 9	147	121	± 9

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Table A6 *continued*

Trade Facilitation Indicators		Overall						Road						Rail					
		2019			2020			2019			2020			2019			2020		
	Corridor	Mean	Median	Margin	Mean	Median	Margin	Mean	Median	Margin	Mean	Median	Margin	Mean	Median	Margin	Mean	Median	Margin
TFI3	Cost incurred to travel a corridor, $ per 500 km, per 20-ton cargo																		
	Overall	**876**	**731**	**± 23**	**895**	**696**	**± 30**	**901**	**762**	**± 28**	**918**	**703**	**± 38**	**820**	**646**	**± 42**	**836**	**651**	**± 41**
	1	781	637	± 41	1,105	715	± 89	1,092	998	± 64	1,788	1,075	± 195	629	527	± 47	655	532	± 43
	2	662	637	± 38	563	573	± 48	662	637	± 38	563	573	± 48	–	–	–	–	–	–
	3	544	582	± 59	719	737	± 73	606	676	± 66	728	741	± 78	136	57	± 50	36	36	± 4
	4	1,308	1,078	± 62	1,224	1,012	± 66	1,491	1,368	± 82	1,510	1,227	± 88	1,084	918	± 91	1,018	788	± 89
	5	706	298	± 62	650	249	± 79	706	298	± 62	650	249	± 79	–	–	–	–	–	–
	6	876	706	± 45	758	673	± 34	823	673	± 50	717	644	± 36	1,243	1,236	± 76	1,100	1,053	± 80
TFI4	Speed to travel on CAREC corridors, km/h																		
	Overall	**21.4**	**20.4**	**± 1.8**	**20.7**	**16.9**	**± 1.9**	**22.6**	**22.7**	**± 2.0**	**22.7**	**21.8**	**± 2.2**	**19.0**	**13.8**	**± 3.6**	**16.8**	**13.3**	**± 3.4**
	1	24.6	22.2	± 4.9	27.6	24.0	± 5.6	31.4	27.7	± 6.2	41.1	41.8	± 7.0	21.6	11.6	± 6.3	20.2	9.1	± 6.3
	2	25.6	23.3	± 4.3	24.4	23.8	± 4.6	25.7	23.3	± 4.3	24.7	23.9	± 4.5	7.4	7.4	–	5.4	6.2	± 91.0
	3	26.3	25.1	± 5.6	20.8	20.6	± 4.6	25.9	25.1	± 6.0	21.4	21.4	± 4.8	28.1	23.3	± 15.4	17.5	15.2	± 13.5
	4	19.5	15.4	± 3.3	16.4	15.1	± 2.9	24.2	29.2	± 5.0	22.2	24.6	± 5.8	15.1	15.2	± 3.1	13.5	15.0	± 1.7
	5	10.5	9.2	± 1.4	8.6	7.8	± 1.3	10.5	9.2	± 1.4	8.6	7.8	± 1.3	–	–	–	–	–	–
	6	20.9	22.2	± 2.9	20.3	21.5	± 2.5	21.9	23.0	± 3.2	21.1	22.3	± 2.8	13.4	13.7	± 1.1	13.4	13.6	± 1.1
SWOD	Speed without delay, km/h																		
	Overall	**44.1**	**43.9**	**± 2.9**	**42.7**	**37.1**	**± 3.1**	**43.6**	**44.5**	**± 2.5**	**42.9**	**39.4**	**± 2.7**	**45.0**	**30.0**	**± 7.4**	**42.2**	**27.2**	**± 8.1**
	1	62.3	61.1	± 6.0	68.1	75.3	± 6.0	57.4	57.3	± 4.5	69.5	75.7	± 7.1	64.4	75.4	± 8.4	67.3	75.3	± 8.7
	2	51.9	53.4	± 3.4	46.1	50.4	± 5.4	52.0	53.4	± 3.3	46.6	50.4	± 5.0	8.4	8.4	–	7.9	6.4	± 190.1
	3	41.9	45.4	± 5.8	37.7	36.6	± 6.3	43.7	46.7	± 5.4	41.2	43.2	± 5.7	33.8	32.6	± 18.6	19.6	17.4	± 15.1
	4	30.4	24.0	± 6.5	23.5	17.8	± 5.4	41.1	44.3	± 9.8	33.8	36.8	± 9.6	20.6	17.4	± 4.8	18.4	15.6	± 4.6
	5	30.3	26.9	± 3.4	28.4	26.9	± 2.2	30.3	26.9	± 3.4	28.4	26.9	± 2.2	–	–	–	–	–	–
	6	40.2	36.8	± 2.8	38.9	35.9	± 2.6	42.4	39.6	± 2.6	40.6	37.2	± 2.4	24.3	27.8	–	24.4	28.3	± 5.9

– = no data, CAREC = Central Asia Regional Economic Cooperation, hr = hour, km = kilometer, km/h = kilometer per hour, TFI = trade facilitation indicator.
Source: Asian Development Bank.

APPENDIX 7

Activities at Road Border-Crossing Points

Table A7.1 shows the time and cost spent on activities of **outbound** road shipments from the indicated country at selected border-crossing points.

Table A7.1: Time and Cost Spent at Road Border-Crossing Points, Outbound

				Duration (hours)																					
				Total		Activities																			
BCP	Country	Corridor	Count	Average	Median	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv	xv	xvi	xvii	xviii	1	2
Alashankou	PRC	1,2	36	81.3	68.4	0.1	1.1	0.9	2.6			0.1									3.6		72.8		
Chaman	PAK	5,6	77	54.0	53.7	0.7	43.3					0.6			0.6		0.7						8.0		
Torugart	KGZ	1	1	50.1	50.1	0.1			2.0														48.0		
Karasu	PRC	0	16	42.7	5.6	0.2	0.6		2.4			0.2					0.5				3.3		94.9		
Farap	TKM	2,3	4	26.7	26.7		1.0		0.2												1.5		24.0		
Tsiteli Khidi	GEO	2	66	24.2	14.6	0.0	0.0		0.0	0.0	0.0											0.1	24.1	0.2	1.7
Peshawar	PAK	5,6	493	24.2	26.0		18.7		2.8								0.6				4.3		5.6		
Khorgos	PRC	1	72	23.5	10.7	0.2	1.1	0.8	2.5			0.2					0.6				7.5	0.5	76.7		
Takeshikent	PRC	4	20	21.4	20.8	0.2	1.2	0.8	2.5			0.2									3.7		13.0		
Sarp	OTH	2	8	20.9	11.0	0.2	0.4		0.1			0.2	0.1			0.1	0.1						19.9		
Sarpi	GEO	2	23	20.8	11.9	0.2	0.3		0.1	0.1		0.1	0.1			0.1	0.1						19.9		
Shirkhan Bandar	AFG	2,5,6	110	13.8	13.8	0.8	1.0		0.8	0.5		0.6			0.6						4.5		4.9		
Krasnyi Most	AZE	2	18	13.6	5.8	0.1	0.1									0.1	0.1					0.1	14.1	0.1	0.2
Torghondi	AFG	2,6	77	11.1	11.0	0.6	0.8								0.6		0.7				3.8		4.6		
Kuryk	KAZ	2	20	8.5	0.2	0.1	0.2	7.0	7.3							0.1	0.1					0.1	65.1	0.1	0.2
Torugart	PRC	1	46	8.3	3.5	0.2			2.5			0.2									0.8		72.7		
Tazhen	KAZ	2,6	88	5.3	4.5	0.1	0.2	0.1	0.1	0.1		0.2	0.1			0.2	0.1	0.2					4.6	7.3	8.0
Dautota	UZB	2,6	140	5.1	4.4	0.2	0.3	0.0	0.1	0.1		0.2	0.1			0.1	0.1	0.1					4.4	10.7	5.0
Konysbayeva	KAZ	3,6	6	5.0	4.9	0.2	0.3		0.1			0.2				0.1	0.1						6.3	0.1	
Hairatan	AFG	3,6	143	4.9	4.5	0.6	0.8								0.6						2.8	0.6			
Kairak	KAZ	1	10	4.0	3.8	0.3			0.1	0.1		0.2				0.2	0.1						3.1		
Alat	UZB	2,3	32	3.9	3.7	0.1	0.2		0.1							0.1	0.2	0.2					3.3		
Pakhtaabad (Dusti)	TAJ	3	25	3.8	3.5	0.1	0.2		0.1	0.1						0.2	0.2				12.0		2.6		
Saryasia	UZB	3	130	3.8	3.7	0.2	1.5		0.2	0.3	0.3	0.2				0.3	0.1			0.3			3.4		
Krasnyi Yar	RUS	6	8	3.2	2.8	0.2			0.1	0.1		0.2	0.1			0.1	0.1						2.5		
Zhaisan	KAZ	1,6	92	3.1	2.9	0.2			0.1	0.1		0.2	0.1			0.1	0.1						2.5		
Mashtakovo	RUS	0	1	3.0	3.0	0.3			0.2			0.2				0.3	0.1						2.0		
Erenhot	PRC	4	120	2.9	2.8	0.1	2.4					0.2						0.2					0.2		
Kurmangazy	KAZ	6	104	2.9	2.8	0.3			0.1	0.1		0.2	0.1			0.1	0.1					2.5	2.2		
Merke	KAZ	1,3	6	2.8	2.8	0.2	0.3		0.1			0.2				0.2	0.1						2.4		
Taskala	KAZ	1, 6	13	2.7	2.8	0.5			0.1	0.1		0.2				0.2	0.1				1.5		2.0		
Karamyk	KGZ	2,3,5	24	2.3	2.3	0.3	0.3		0.4	0.3	0.3	0.3				0.3		0.3							

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Table A7.1 *continued*

				Duration (hours)																					
				Total		Activities																			
BCP	Country	Corridor	Count	Average	Median	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv	xv	xvi	xvii	xviii	1	2
Termez	UZB	3,6	3	2.1	1.1	0.4	0.4		0.1			0.2					0.1					0.1	3.0		
Panji Poyon	TAJ	2,5,6	120	2.1	2.3	0.2	0.3		0.2	0.2	0.2	0.2				0.2		0.3			0.5				
Novomarkovka	RUS	1,6	8	1.9	1.9	0.2			0.1			0.1	0.1			0.1	0.1						3.0		
Khiyagt	RUS	4	120	1.9	1.8	0.2	1.2					0.2						0.2					0.2		
Yallama	UZB	3,6	170	1.9	0.8	0.2	0.2		0.1	0.1	0.2	0.1				0.1	0.1	0.1					3.1		
Baku	AZE	2	70	1.8	0.3	0.1			7.3													0.1		0.1	0.7
Kyzyl-Bel	KGZ	0	1	0.7	0.7	0.1	0.4		0.2																
Karasu	KAZ	1	16	0.6	0.5	0.5			0.2																
Dostuk	KGZ	2	8	0.6	0.5	0.1	0.3		0.1	0.1	0.3														
Dustlik	UZB	2	7	0.5	0.5	0.1	0.3		0.1	0.1															
Troitsk	RUS	1	1	0.3	0.3	0.2			0.1																
Ak-Tilek	KGZ	1	23	0.2	0.3	0.2			0.1																

				Cost (US$)																					
				Total		Activities																			
BCP	Country	Corridor	Count	Average	Median	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv	xv	xvi	xvii	xviii	1	2
Alashankou	PRC	1,2	36	638	653	0	151	88	0			0									400		0		
Chaman	PAK	5,6	77	50	50	10	10					10			11		10								
Torugart	KGZ	1	1	4	4	0			4																
Karasu	PRC	0	16	171	83	0	0		4			0					0				166		0		
Farap	TKM	2,3	4	50	50		50																		
Tsiteli Khidi	GEO	2	66	92	120	0	0		0	0	0											111	0	23	43
Peshawar	PAK	5,6	493	267	292		236		5								10				50				
Khorgos	PRC	1	72	1861	1141	0	86	46	0			0					2				1,728		0		
Takeshikent	PRC	4	20	1300	1470	0	87	49	3			0									1,161		0		
Sarp	OTH	2	8	27	30		27																		
Sarpi	GEO	2	23	10	10		10																		
Shirkhan Bandar	AFG	2,5,6	110	297	298	3	17		3	20		100			2						153				
Krasnyi Most	AZE	2	18	43	36	0	28									75						25	0	6	3
Torghondi	AFG	2,6	77	269	269	3	26								2		16				223				
Kuryk	KAZ	2	20	44	40	0	125	50	50							6	40					40	5	21	33
Torugart	PRC	1	46	218	214	0			4			0									214		0		
Tazhen	KAZ	2,6	88	41	40	2	17	5	11	5			5			10	10	10					0	3	0
Dautota	UZB	2,6	140	13	5	0	18	0	7				2										0	0	10
Konysbayeva	KAZ	3,6	6	33	34	1	14		8							10	11						0	8	
Hairatan	AFG	3,6	143	141	142	2	10								2						128	2			
Kairak	KAZ	1	10	15	15				5	10						9	5								
Alat	UZB	2,3	32																						
Pakhtaabad (Dusti)	TAJ	3	25	37	40	2	7		12	4						10	10				0		0		
Saryasia	UZB	3	130	122	135	14	23		8	5	10	5				8		5		54			0		
Krasnyi Yar	RUS	6	8																						

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Table A7.1 *continued*

				Cost (US$)																					
				Total		Activities																			
BCP	Country	Corridor	Count	Average	Median	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv	xv	xvi	xvii	xviii	1	2
Zhaisan	KAZ	1,6	92	7	5	6			5							9									
Mashtakovo	RUS	0	1																						
Erenhot	PRC	4	120	17	17		17															8			
Kurmangazy	KAZ	6	104	7	5	3			5							9	10								
Merke	KAZ	1,3	6	18	5		20		5							10									
Taskala	KAZ	1, 6	13	5	5	3			5							8									
Karamyk	KGZ	2,3,5	24	48	48	3	25		3	3	5	3				3		3							
Termez	UZB	3,6	3	50	50																	50			
Panji Poyon	TAJ	2,5,6	120	20	16	2	5		2	2	2	5				3		2							
Novomarkovka	RUS	1,6	8	1	0	1			0																
Khiyagt	RUS	4	120	9	9		16															9			
Yallama	UZB	3,6	170	6	5				6	5															
Baku	AZE	2	70	36	40	0			50													44		11	
Kyzyl-Bel	KGZ	0	1	14	14	0	11		3																
Karasu	KAZ	1	16	13	13	10			3																
Dostuk	KGZ	2	8	10	10	1	6		0	4	7														
Dustlik	UZB	2	7	11	10	2	8		1	2															
Troitsk	RUS	1	1	0	0	0			0																
Ak-Tilek	KGZ	1	23	4	3	3			1																

AFG = Afghanistan, AZE = Azerbaijan, BCP = border-crossing point, GEO = Georgia, IRN = Iran, KAZ = Kazakhstan, KGZ = Kyrgyz Republic, MON = Mongolia, PAK = Pakistan, PRC = The People's Republic of China, RUS = Russian Federation, TAJ = Tajikistan, TKM = Turkmenistan, UZB = Uzbekistan.
Notes:
(i) Border security and control; (ii) Customs controls; (iii) Commercial inspection; (iv) Health and quarantine; (v) Phytosanitary inspection; (vi) Veterinary inspection; (vii) Visa or immigration; (viii) Transit conformity, (ix) GAI or traffic inspection; (x) Police checkpoint or stop; (xi) Transport inspection; (xii) Weight or standard inspection; (xiii) Vehicle registration; (xiv) Emergency repair; (xv) Escort or convoy; (xvi) Loading and/or unloading; (xvii) Road or bridge toll; and (xviii) Waiting or queue, 1. Others 1, 2. Others 2.
Source: Asian Development Bank.

Table A7.2 shows the time and cost spent on activities of **inbound** road shipments to the indicated country at selected border-crossing points

Table A7.2: Time and Cost Spent at Road Border-Crossing Points, Inbound

				Duration (hours)																					
				Total		Activities																			
BCP	Country	Corridor	Count	Average	Median	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv	xv	xvi	xvii	xviii	1	2
Dostyk	KAZ	1,2	36	20.7	15.9	0.2	4.4		2.6			0.2									6.0		7.4		
Torkham	AFG	5,6	493	15.6	12.4	0.6	8.5					0.6		0.6	0.6	0.6						0.6	5.2		
Yarant	MON	4	20	11.5	10.3	0.2	1.2		2.6			0.4											7.1		
Nur Zholy	KAZ	1	72	10.7	5.7	0.2	2.7		2.6			0.1									15.3		18.3		
Kulma	TAJ	0	16	10.4	6.0	0.1	1.7		2.6			0.2											5.8		
Spin Buldak	AFG	5,6	77	7.6	7.5	0.6	0.7					0.6				0.7					0.5		5.0		
Panji Poyon	TAJ	2,5,6	110	7.4	6.7	0.9	0.6		1.7	0.5		0.6			0.6				4.9						
Farap	TKM	2,3	32	6.5	6.5	0.1	0.2		0.1	0.1						0.2	0.2	0.2			2.0	0.3	3.3		
Karasu	KAZ	1	24	5.7	0.5	0.5			0.3														24.4		

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Table A7.2 *continued*

				Duration (hours)																					
				Total		Activities																			
BCP	Country	Corridor	Count	Average	Median	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv	xv	xvi	xvii	xviii	1	2
Torugart	KGZ	1	47	5.1	5.2	0.2	0.7		2.4			0.4				1.3							4.0		
Dautota	UZB	2,6	185	4.6	6.5	0.2	2.2		0.3	0.3	0.3	0.2	0.1		0.1	0.4	0.1	0.5					2.1	0.6	4.0
Tazhen	KAZ	2,6	140	4.4	1.5	0.2	0.3	0.2	0.1	0.1	0.1	0.2	0.1	0.1		0.2	0.1	0.1					8.1	0.2	0.1
Krasnyi Most	AZE	2	69	3.1	2.2	0.1	0.1	0.1	0.1	0.1	0.1					0.1	0.1				8.0	0.1	2.4	0.8	0.1
Saryasia	UZB	3	24	2.3	2.2	0.1	0.2		0.1	0.1			0.1			0.1	0.1						1.7	8.0	
Pakhtaabad (Dusti)	TAJ	3	129	2.2	1.7	0.3	0.2		0.2	0.3	0.3	0.4				0.2	0.2						2.7	0.1	
Altanbulag	MON	4	120	2.1	2.0	0.2	1.3		0.2			0.1						0.2					0.2		
Pogodaevo	KAZ	0	14	2.1	1.9	0.5																	1.5		
Taskala	KAZ	1, 6	1	2.0	2.0	0.8																	1.3		
Tsiteli Khidi	GEO	2	18	1.8	1.1	0.0	0.0															0.1	1.8		
Alat	UZB	2,3	9	1.7	1.3	0.3	0.3		0.8	0.1		0.2	0.1				0.1								
Kurmangazy	KAZ	6	42	1.7	1.8	0.4			0.1	0.2		0.2	0.1			0.1	0.1						1.4		
Konysbayeva	KAZ	3,6	170	1.4	1.2	0.2	0.3		0.1	0.1		0.1	0.1			0.1	0.1	0.1			0.1	0.1	2.2		
Sarp	OTH	2	23	1.3	1.3	0.2	0.4		0.1	0.1		0.2	0.2			0.1	0.1	0.1							
Sarpi	GEO	2	10	1.3	1.2	0.2	0.2	0.0	0.1	0.1		0.1	0.1			0.1	0.1	0.1				0.1	2.0		
Ozinki	RUS	1, 6	5	1.0	1.0	0.2			0.1	0.2		0.2			0.2	0.1	0.1					0.1			
Novomarkovka	RUS	1,6	92	1.0	1.0	0.2			0.1	0.2		0.2	0.1			0.1	0.1					0.1			
Krasnyi Yar	RUS	6	77	0.9	0.9	0.2			0.1	0.2		0.2	0.1			0.2	0.1					0.1			
Troitsk	RUS	1	12	0.9	1.0	0.2			0.1	0.2		0.2	0.1			0.2	0.1					0.1			
Chaldovar	KGZ	1,3	6	0.9	0.9	0.2	0.3		0.1	0.1		0.2	0.1			0.2	0.1								
Yallama	UZB	3,6	6	0.9	0.9	0.2	0.2		0.1			0.1	0.1			0.1	0.1						0.6		
Dustlik	UZB	2	8	0.9	0.8	0.1	0.4		0.1	0.3	0.6														
Mashtakovo	RUS	0	4	0.9	0.8	0.2			0.1			0.2	0.1			0.2	0.1					0.1			
Zhaisan	KAZ	1,6	9	0.8	0.7	0.4			0.1			0.2	0.1			0.2	0.1					0.1			
Serkhet Abad	TKM	2,6	11	0.7	0.7				0.7																
Guliston	TAJ	0	1	0.7	0.7	0.1	0.3		0.3																
Jalgan	TAJ	2,3,5	24	0.7	0.6											0.2		0.2		0.3					
Kuryk	KAZ	2	67	0.5	0.3	0.1	0.5	0.1	0.3		0.1					0.1	0.1			1.4		0.2	5.0	1.6	0.2
Dostuk	KGZ	2	7	0.4	0.3	0.1	0.2		0.1	0.1															
Irkeshtam	KGZ	2,5	1	0.3	0.3	0.2			0.1																
Baku	AZE	2	20	0.2	0.2	0.1										0.1	0.1					0.1	0.4		0.3
Ak-Tilek	KGZ	1	16	0.2	0.2	0.1			0.1																

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Table A7.2 *continued*

				Cost (US$)																					
				Total		Activities																			
BCP	Country	Corridor	Count	Average	Median	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv	xv	xvi	xvii	xviii	1	2
Dostyk	KAZ	1,2	36	4499	2537	0	578		12			0									3,908		0		
Torkham	AFG	5,6	493	179	175	30	143					20		1	2	15						2	30		
Yarant	MON	4	20	198	198	0	123		75			0											0		
Nur Zholy	KAZ	1	72	1326	336	0	318		8												6,000		0		
Kulma	TAJ	0	16	8	5	0	0		8			0											0		
Spin Buldak	AFG	5,6	77	9	8	2	2					2				2									
Panji Poyon	TAJ	2,5,6	110	185	166	10	50		10	50		10			10				90						
Farap	TKM	2,3	32	70	70																	70			
Karasu	KAZ	1	24	12	11	10			3																
Torugart	KGZ	1	47	44	42	0	0		8			16				21							0		
Dautota	UZB	2,6	185	79	96	16	32	0	8	5	10	5	5		0	8		5					0	10	12
Tazhen	KAZ	2,6	140	48	45	1	21	5	8	8	5		7			10	10	10					0	23	
Krasnyi Most	AZE	2	69	69	68	1	37	0	0	0	0					8	10				0		0	43	56
Saryasia	UZB	3	24	3	0	0	0		10														0	0	
Pakhtaabad (Dusti)	TAJ	3	129	79	71	9	33		5	4	3	14				6	11	3			8		0	15	
Altanbulag	MON	4	120	8	9		4		4																
Pogodaevo	KAZ	0	14	4	3	4																			
Taskala	KAZ	1, 6	1	5	5	5																			
Tsiteli Khidi	GEO	2	18	44	30	0	0															89	0		
Alat	UZB	2,3	9	18	20				14				6												
Kurmangazy	KAZ	6	42	6	4	4			5	10						9									
Konysbayeva	KAZ	3,6	170	60	61		9		8	6			5			10	10	10			25	28			
Sarp	OTH	2	23	96	90		30		16				50												
Sarpi	GEO	2	10	80	100	0	8	0					20									70	0		
Ozinki	RUS	1, 6	5	29	35																				
Novomarkovka	RUS	1,6	92	45	40	0			0				66									40			
Krasnyi Yar	RUS	6	77	42	30								67									38			
Troitsk	RUS	1	12	15	10	0			0				65									10			
Chaldovar	KGZ	1,3	6	44	45				5	8			25			12									
Yallama	UZB	3,6	6	18	10	5	35		5				5										0		
Dustlik	UZB	2	8	19	20	1	10		2	7	13														
Mashtakovo	RUS	0	4	42	50																	42			
Zhaisan	KAZ	1,6	9	26	35	8			5							10						30			
Serkhet Abad	TKM	2,6	11																						
Guliston	TAJ	0	1	22	22	4	14		5																
Jalgan	TAJ	2,3,5	24	69	69	3	20		2	3	2	4				3		5		27					
Kuryk	KAZ	2	67	64	12	0	280	0	0		0					4	52			233		51	0	50	48

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Table A7.2 *continued*

				Cost (US$)																					
				Total		Activities																			
BCP	Country	Corridor	Count	Average	Median	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv	xv	xvi	xvii	xviii	1	2
Dostuk	KGZ	2	7	4	3	1	4		0	0															
Irkeshtam	KGZ	2,5	1	3	3	3			0																
Baku	AZE	2	20	24	25	0										0	0					35		47	50
Ak-Tilek	KGZ	1	16	2	2	2			0																

AFG = Afghanistan, AZE = Azerbaijan, BCP = border-crossing point, GAI = Gosudarstvennya Avtomobilnaya Inspektsyya, GEO = Georgia, IRN = Iran, KAZ = Kazakhstan, KGZ = Kyrgyz Republic, MON = Mongolia, PAK = Pakistan, PRC = The People's Republic of China, RUS = Russian Federation, TAJ = Tajikistan, TKM = Turkmenistan, UZB = Uzbekistan.
Notes:
(i) Border security and control; (ii) Customs controls; (iii) Commercial inspection; (iv) Health and quarantine; (v) Phytosanitary inspection; (vi) Veterinary inspection; (vii) Visa or immigration; (viii) Transit conformity, (ix) GAI or traffic inspection; (x) Police checkpoint or stop; (xi) Transport inspection; (xii) Weight or standard inspection; (xiii) Vehicle registration; (xiv) Emergency repair; (xv) Escort or convoy; (xvi) Loading and/or unloading; (xvii) Road or bridge toll; and (xviii) Waiting or queue, 1. Others 1, 2. Others 2.
Source: Asian Development Bank.

APPENDIX 8

Activities at Rail Border-Crossing Points

Table A8 shows the time and cost spent on activities of inbound and outbound rail shipments to and from the indicated country at selected border-crossing points.

Table A8: Time and Cost Spent at Rail Border-Crossing Points, Outbound and Inbound

Rail (Outbound Traffic)

Duration (hours)

BCP	Country	Corridor	Count	Total		Activities																							
				Average	Median	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv	xv	xvi	xvii	xviii	xix	xx	xxi	xxii	1	2
Erenhot	PRC	4	60	44.4	43.7																			44.4					
Khorgos	PRC	1	217	34.8	21.9												1.6	0.6	0.6	17.3	2.4		24.0	18.1	12.0	47.8	456.0		
Alashankou	PRC	1,2	238	30.5	23.4												2.1	0.5	0.6	11.3	1.6			16.7		49.3			
Zamiin-Uud	MON	4	41	20.1	10.4											2.1	2.2			1.1				29.6	21.8	39.6			
Saryagash	KAZ	3,6	42	9.9	13.8		1.5				0.3						1.6	0.4	0.3					12.1	2.8				
Turksib	KAZ	1,3	8	7.5	8.0												0.3	0.3	0.4						7.4				
Torghondi	AFG	2,6	77	4.0	3.9	1.7	1.6										0.7												
Aktau	KAZ	2	40	3.6	3.7		3.6																						
Naushki	RUS	4	30																										
Irkeshtam	KGZ	2,5	1																										

Cost (US$)

BCP	Country	Corridor	Count	Total		Activities																							
				Average	Median	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv	xv	xvi	xvii	xviii	xix	xx	xxi	xxii	1	2
Erenhot	PRC	4	60																										
Khorgos	PRC	1	217	2	0												2			0	0			0			0		
Alashankou	PRC	1,2	238	0	0												0			0	0			0			0		
Zamiin-Uud	MON	4	41	5	5											2	3			5				0	0	0			
Saryagash	KAZ	3,6	42	129	125		150				75						125							0					
Turksib	KAZ	1,3	8																										
Torghondi	AFG	2,6	77	224	234	108	105										11												
Aktau	KAZ	2	40	220	220		220																						
Naushki	RUS	4	30																										
Irskeshtam	KGZ	2,5	1																										

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Table A8 *continued*

Rail (Inbound Traffic)

				Duration (hours)																									
				Total		Activities																							
BCP	Country	Corridor	Count	Average	Median	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv	xv	xvi	xvii	xviii	xix	xx	xxi	xxii	1	2
Altynkol	KAZ	1	218	82.6	73.5					2.1							1.3	0.4	0.4	6.9	1.3		74.2		10.0				
Dostyk	KAZ	1,2	238	76.1	70.4					3.3				3.0			2.1	0.4	0.4	6.7	1.5	98.8	51.7		9.9				
Erenhot	PRC	4	41	54.9	53.1		4.5			3.1	2.5					8.9							67.4	45.3	24.6	21.2			
Sukhbaatar	MON	4	30	12.2	7.7						2.7					2.0	1.9								9.2	13.9			
Termez	UZB	3,6	22	8.5	8.5	8.0											0.5												
Zamiin-Uud	MON	4	60	7.9	7.9					2.9						1.9	2.0			1.1									
Keles	UZB	3,6	42	5.9	3.7												3.3								11.1				
Serkhet Abad	TKM	2,6	77	3.7	3.8			0.8									2.4	0.8											
Turksib	KGZ	1,3	8	1.0	1.0													0.3							0.9				

				Cost (US$)																									
				Total		Activities																							
BCP	Country	Corridor	Count	Average	Median	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv	xv	xvi	xvii	xviii	xix	xx	xxi	xxii	1	2
Altynkol	KAZ	1	218	260	320					212							59			0	0		0		0		0		
Dostyk	KAZ	1,2	238	361	425					288				0			127			0	0	0	0		0		0		
Erenhot	PRC	4	41	124	119		680			65	0					1							63	48	13	7			
Sukhbaatar	MON	4	30	5	5						0					2	3								0	0			
Termez	UZB	3,6	22	116	116	105											11												
Zamiin-Uud	MON	4	60	36	35					25						2	3			5									
Keles	UZB	3,6	42	154	150												154												
Serkhet Abad	TKM	2,6	77	81	80			20									50	11											
Turksib	KGZ	1,3	8	1.0	1.0																								

AFG = Afghanistan, AZE = Azerbaijan, BCP = border-crossing point, GAI = Gosudarstvennya Avtomobilnaya Inspektsyya, GEO = Georgia, IRN = Iran, KAZ = Kazakhstan, KGZ = Kyrgyz Republic, MON = Mongolia, PAK = Pakistan, PRC = The People's Republic of China, RUS = Russian Federation, TAJ = Tajikistan, TKM = Turkmenistan, UZB = Uzbekistan.
Notes:
(i) Load cargoes, (ii) Unload cargoes, (iii) Fix cargo shift, (iv) Remove excess cargo, (v) Transload at gauge change point, (vi) Pickup and delivery, (vii) Replace or repair inoperable wagon, (viii) Emergency repair, (ix) Train classification, (x) Document errors, (xi) Reissue transit documents, (xii) Customs inspection, (xiii) Technical inspection, (xiv) Commercial inspection, (xv) Sanitary and phytosanitary control, (xvi) Materials transfer, (xvii) Faulty handling equipment, (xviii) No wagons available, (xix) Restriction on entry, (xx) Marshalling, (xxi) Waiting for priority trains to pass, (xxii) For other reasons, 1. Others 1, 2. Others 2.
Source: Asian Development Bank.

CAREC Corridor Performance Measurement and Monitoring Annual Report 2022

Using data from real-time road and rail cargo shipments, the Corridor Performance Measurement and Monitoring (CPMM) mechanism assesses the efficiency of the six Central Asia Regional Economic Cooperation (CAREC) transport corridors that link CAREC member countries. It considers travel time and costs and the ease of crossing borders. Analysis of 2022 CPMM data show that the restrictive border controls brought on by the COVID-19 pandemic were gradually removed. Delays at the border decreased but remain a major hindrance to efficient trade. This report informs policy makers about transport and trade blockages and aims to help guide infrastructure investment and trade facilitation reform and modernization.

About the Central Asia Regional Economic Cooperation Program

The Central Asia Regional Economic Cooperation (CAREC) Program is a partnership of 11 member countries and development partners working together to promote development through cooperation, leading to accelerated economic growth and poverty reduction. It is guided by the overarching vision of "Good Neighbors, Good Partners, and Good Prospects." The CAREC countries are Afghanistan, Azerbaijan, the People's Republic of China, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan.

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