

RAIL TRANSPORT CORRIDORS IN THE CAREC REGION

Long-term supply chain resilience and short-term shocks

Richard Pomfret

Adjunct Professor of International Economics,
The Johns Hopkins University SAIS Europe, Bologna, Italy

and

Professor of Economics Emeritus, University of Adelaide, Australia



Themes

International supply chains are dependent on ease of crossing borders and efficient connectivity in terms of price, speed, and reliability.

- responding to demand from automobile and electronics firms to connect their European and Chinese supply chains, the Eurasian rail transport corridor was established in the 2010s.
- the rail Landbridge was resilient through deteriorating EU-Russia relations after 2014 and the 2020-21 COVID-19 epidemic.
- However, following the Russian invasion of Ukraine in February 2022, traffic growth along the main Landbridge routes stalled.

This paper analyzes the response of supply chain managers in 2022-3 to the war & sanctions, and the role of public policy in creating reliable alternative routes

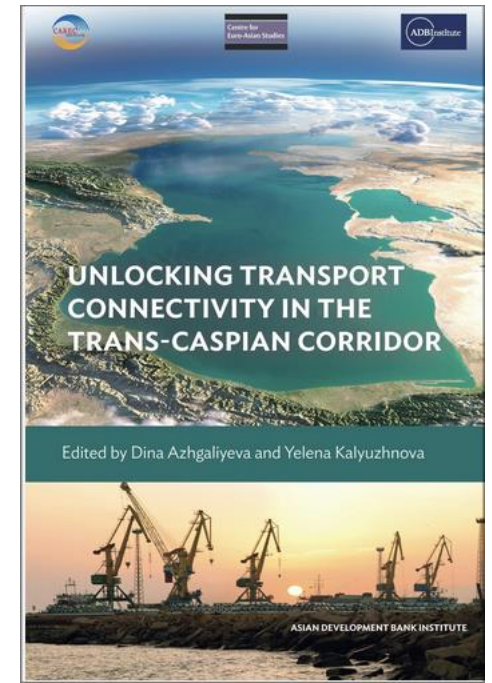
- diversification and strengthening of Eurasian rail corridors benefit CAREC member countries through increased revenues from transit fees.
- more important is the reduction in transport costs for trade among CAREC member countries and other countries, which can support economic strategies aimed at economic diversification.



Outline

Section 1 describes expansion of trade along the rail Landbridge, updating material in a previous ADBI volume (Azhgaliyeva and Kalyuzhnova eds., 2021).

- hard infrastructure was already in place. Success depended on agreeing transit rules and on rail companies collaborating over schedules & rates. Beyond that, development of the Landbridge was market driven.
- as services and routes expanded, the number of customers increased and the Landbridge flourished, **despite** deteriorating EU-Russia relations after 2014, shifting EU-China political relations after 2017, and the COVID-19 epidemic in 2020-21.



The main lines all transited Russia. **Section 2** analyzes efforts by China and the EU to develop alternative routes, despite disadvantages relative to the main lines.

Section 3 analyzes the intensified search for alternative routes after Russia's invasion of Ukraine was followed by sanctions that included Russian Railways. The intensive search indicated the Landbridge's value and the resilience of supply chains.

Section 4 relates these developments to the economic prospects of CAREC member

- ↑ revenues from export of transport services
- trade facilitation supporting export diversification

Section 5 draws conclusions.

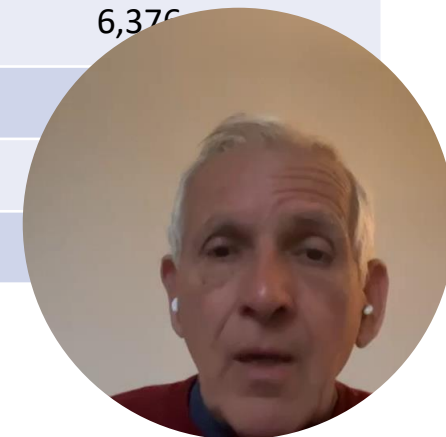


1. Establishing the Landbridge – connecting European and Chinese value chains

- Demand from German car companies sending components to China and from electronics companies wishing to link their production facilities in China to marketing centers in Europe → regular train services were established in 2011 between Chongqing and Duisburg and between Chengdu and Łódź
- Traffic along the rail Landbridge grew rapidly in the decade after 2011

[for discussion of the data sources, see the background paper]

Year	Number of twenty-foot equivalent containers (TEUs)	Number of Trains to and from China
2011		17
2012		42
2013		80
2014		308
2015	46,000	815
2016	100,500	1,702
2017	175,800.	3,673
2018	280,500	6,376
2019	333,000	
2020	546,900	
2021	692,500	



The Growth in Landbridge Traffic, 2011-2021

The growth in Landbridge traffic was sustained by a virtuous circle of more services (part container loads, refrigerated containers, multimodal connections) and new routes
→ further demand and increased number of trips.

International trade was negatively impacted by the COVID-19 epidemic, but the impact on different modes of transport varied

- In Russia, Central Asia and the Caucasus, **air freight** essentially stopped and **road transport** was disrupted by requirements for drivers to be tested for COVID at border crossing points and by other regulations
- **Sea freight** was disrupted by quarantine & other restrictions.
 - even as lockdowns were eased and factories started up again, containers and ships were out of location
- **Rail transport** was less affected by anti-COVID measures, and acceleration of digitalization and paperless trade may even have improved the efficiency of international rail transport.
 - manufacturers, distributors, and logistics agents, who had previously relied upon maritime transport between East Asia and Europe, turned to overland freight routes that often turned out to be more profitable than anticipated - and users experienced reliable delivery schedules.



2. Searching for Alternative Routes 2016-21

- The EU had promoted the TRACECA route in the 1990s but not popular due to changes in mode – rail-sea-rail-sea-rail
 - After 2016 China developed links to Iran and also the Middle Corridor across the Caspian Sea – improvements in 2010s included
 - completion of the Zhezkazgan-Beyneu railroad in 2014 → shorter east-west rail journey across Kazakhstan,
 - the Baku-Tbilisi-Kars (BTK) railroad in 2017 → an overland link from Azerbaijan to Türkiye.
 - opening of a Kazakhstan-Turkmenistan-Iran line in 2013,
 - the Marmaray Tunnel under the Bosphorus,
 - improvements of port facilities at Aktau, Turkmenbashi, and the new Alyat port in Azerbaijan
- but slow take-up as routes through Russia continued to dominate route
involved change of mode.



3. The Economic Case for Route Diversification

A key transit country can hold out for higher fees

- The *Tragedy of the Anti-commons* arises when transit countries ↑ fees until the route is no longer profitable

However, route diversification was difficult because routes north of the Caspian Sea were geographically simplest.

Extra cost of rail-sea-rail > benefits of avoiding exposure to threat of ↑ transit fees along the main lines

Russia's invasion of Ukraine changed the calculation

- as payments in Russia were subject to sanctions by EU and others
- exacerbated by inclusion of Russian Rail in sanctioned companies
- fear of loss of insurance due to Act of War provisions



The Search for Alternative Routes in 2022-3

Alternatives to transiting Russia were sought immediately.

- in late February 2022, a train went from China to Istanbul and then the containers went by sea to Trieste.
 - the Istanbul-Trieste segment avoided delays in S.E. Europe at non-EU borders & due to rail works in Slovenia.

This example highlights that, after traversing the Caspian Sea, the Middle Corridor typically involves a further sea crossing (Figure 1).

- Destinations in the EU can be reached
 - either by crossing the Black Sea from Georgia to enter the EU through Romania or Bulgaria
 - or by crossing the Adriatic Sea from Istanbul or the Mediterranean Sea from Mersin to avoid passing through non-EU members in southeast Europe.
- Mersin can also be a gateway to the Middle East and North Africa

Alternative routes involved “scaling up” + long-term concerns whether sea-rail routes could ever compete with the main lines through Russia



Figure 1: Middle Corridor Routes, March 2022



Source: reprinted with permission of the Middle Corridor Association (www.middlecorridor.com)



Scaling Up Middle Corridor Traffic

The TITR (Trans-Caspian International Transport Route Association) reported 33,700 TEUs shipped along the Middle Corridor In 2022,

- a 34% ↑ over 2021,
- but only 5% of UTLC reported traffic along the main Landbridge lines in 2022.

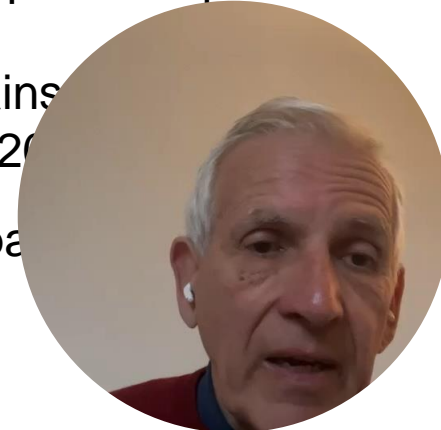
Scaling up the Middle Corridor faced capacity constraints (1) associated with the Caspian Sea crossing and (2) congestion at Constanta port & on the Turkish rail network.

- the two boats operating between Azerbaijan and Kazakhstan at the start of 2022 had a combined capacity of 250 containers, i.e. freight from five or six trains.
- a third ship with capacity of 350 containers was operating in April 2022.

With a transit time of 3-4 days per roundtrip, the three vessels could provide five departures per week and a maximum capacity of 1,450 containers, which is equivalent to 30-40 trains.

- With the addition of three new ships in September, this capacity doubled to 60-80 trains – a substantial increase, but still less than a quarter of the northern corridor traffic in 2021.

Constanta (Romania) faced congestion because freight previously intended to pass through Odessa to Ukraine or to Moldova shifted to Constanta.



Use by Central Asian Exporters in 2022-3

Kazakhstan has used the TransCaspian route for grain, oil, minerals and uranium for many years:

- the route's popularity was increased by the Russia-Ukraine war
- *in January 2023* Kazakhstan sent new export products through the Middle Corridor -- 20 containers of lentils to Türkiye.

Uzbekistan used the Middle Corridor for new exports:

- in *September 2022*, twenty-four 40-foot containers mainly filled with fertilizers travelled via Turkmenistan, Azerbaijan and Georgia across the Black Sea to Constanta in Romania.
- in *December 2022*, a train with 46 containers of copper concentrate left Tashkent for Burgas (Bulgaria), a train of fertilizers went from Uzbekistan via Turkmenistan-Azerbaijan-Georgia to Lithuania, and a train from Izmir (Türkiye) brought household appliances to Tashkent



4. The Landbridge & CAREC Members' Economic Prospects

Interest in Middle Corridor countries is driven by the substantial transit fees earned by Kazakhstan, while being aware of the costs of being bypassed.

- Georgia, Azerbaijan, Türkiye, and Kazakhstan agreed on 31 March 2022, to create a joint venture that would provide high-quality intermodal transport and logistics services, harmonize cross-border rates, and introduce a unified IT platform to fully automate cargo transport services from China to Türkiye, and the Black Sea ports.
 - The statement emphasized the importance of cooperation between the countries along the route and of investment in infrastructure development to integrate the Trans-Caspian transport corridor into the international transport system. A priority is to accelerate works to increase the capacity of the Baku-Tbilisi-Kars (BTK) rail line.
- Türkiye's goal is to capture 30% of Landbridge traffic.
- There are potential gainers and losers
 - the 2020 Azerbaijan-Armenia war → prospect of a rail link through Armenia's Zangezur Corridor linking Azerbaijan's Nakhichevan exclave; linking Nakhichevan to Türkiye's Kars rail hub would create an all-Turkic route from the Caspian to the Black Sea, bypassing Russia and Iran. However, such plans are contested by Armenia, and by Iran which fears disruption of its rail link to the Persian Gulf. The plan would cut out Georgia and Russia if Armenian sovereignty is sacrificed – and would cut out Georgia from some Middle Corridor routes.



The New Southern Route through the Kyrgyz Republic

Agreement on the route and financing of a rail link between Kashgar (Kashi), and Uzbekistan via the Kyrgyz Republic was announced at the Shanghai Cooperation Organization summit in September 2022;

two months later, the Kyrgyz government announced that construction would start in fall 2023.

Construction of the line between Uzbekistan and Kashi will strengthen the CAREC rail network, especially if supplemented by links to a wider domestic rail network in the Kyrgyz Republic and Tajikistan.

- the line will provide an alternative east-west route to the Caspian, avoiding Russia and Kazakhstan and reducing journey times from China (and KRG, TAJ & UZB) to southern Europe and to the Middle East and North Africa.
- Kashi is the furthest west point in China's rail network; China is making Kashi into a rail hub for western China, & several new rail lines to the east link Kashgar to China's large cities
 - The Kashi-Hotan line opened in 2010 and the 825km Hotan-Ruoqiang line that opened in 2022 completed the connection to Golmud, a major junction on the Xining-Lhasa line and with lines to Dunhuang and Chengdu.
 - Kashi is the northern terminus of the China Pakistan Economic Corridor linking Central Asia to the Indian Ocean.



Figure 2: Northern and Southern Variants of the Middle Corridor

Source: Map used with permission from middlecorridor.com

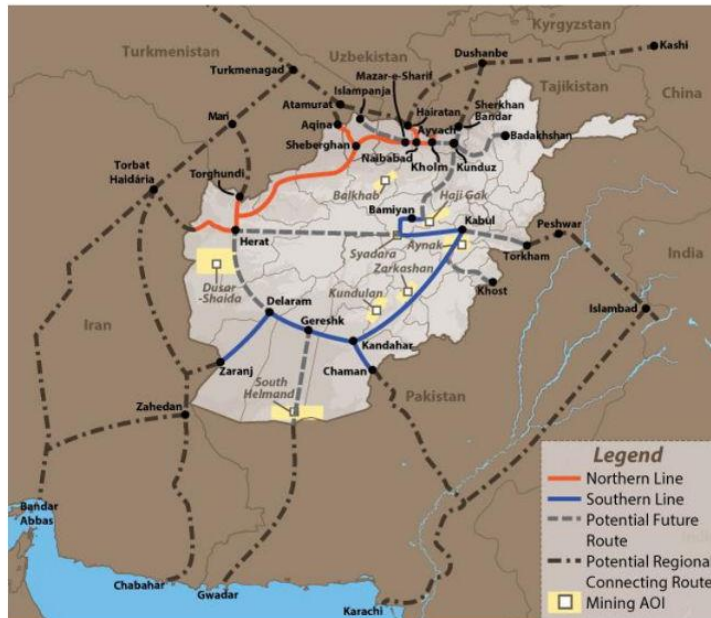


A Long View

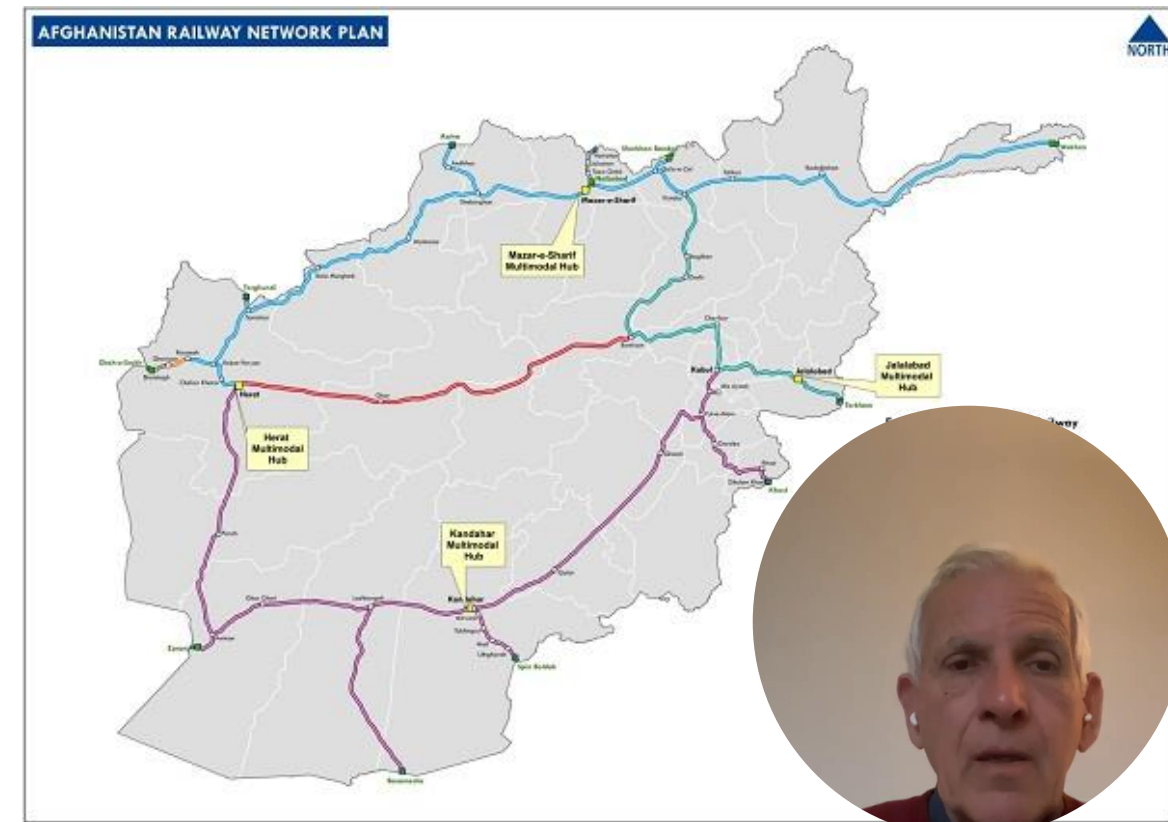
In the longer term, currently difficult routes south of the Caspian Sea could be feasible. A route through Uzbekistan and Turkmenistan to Iran could connect to the Turkish rail network or to Iran's ocean ports, although US sanctions on Iran may be an obstacle for some potential customers.

Several proposals aim to create an Afghan rail network or construct lines connecting Central Asia to Iran or Pakistan via Afghanistan.

AFGHANISTAN NATIONAL RAILWAY PLAN (ANRP)



- Developed by Afghanistan Railway Authority
- Total route length- 5500 km
- Main line in a ring shape
- Southern Mainline: mineral freight focussed line of Standard Gauge
- Northern Mainline: commercial freight focussed line of dual (Russian and Standard Gauge)



Overall Benefits -- but potential winners and losers

If the post-war settlement is appropriate, the main lines of the Landbridge could revive.

What would be the impact on alternative routes?

- The Middle Corridor and services to Iran are already in use.
 - The attractiveness of the alternative routes will be increased if the countries involved can reduce delays by simplifying customs procedures for trains in transit and prioritizing the through trains, by setting reasonable but not excessive freight rates, and by investing to improve choke points such as change of gauge.
- The new Kashi-Uzbekistan line will strengthen the appeal of a southern route for some customers.

Improved long-distance Eurasian rail services along the Middle Corridor or south of the Caspian Sea could benefit CAREC member countries seeking to diversify their exports.

- diversifying exports and becoming attractive supply chain partners will require domestic reforms to reduce the costs of doing business in general and of international trade in particular.

However, the various proposals will create winners and losers.

- increased use of the Middle Corridor will divert traffic from the northern corridor, especially after the Baku-Tbilisi-Kars link is operational.
- a “Turkic” route via Nakhichevan would undermine Georgia’s position.
- a no-modal-change route via Turkmenistan and Iran to Türkiye would threaten Azerbaijan’s key position.



5. Conclusions

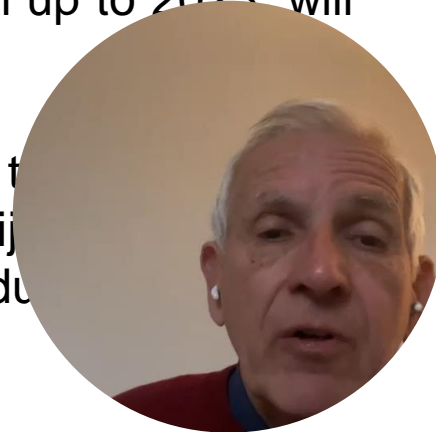
The rapid evolution of the Landbridge highlighted the importance of appropriate connectivity for international supply chains.

The Landbridge remained robust in 2014 and 2020, but the Russia-Ukraine war in 2022 highlighted the dangers of relying on a system with a key chokepoint (i.e. transiting Russia).

- Rapid response to war-driven disruption reflected the demand for transit services and the potential win-win gains for service providers as well as customers.
- Moreover, the long-term prospects for rail freight are positive
 - electric trains along well-maintained track are a more environmentally friendly mode of international transport than ships or planes.

The CAREC region will continue to benefit from improved rail infrastructure:

- revenue from exporting transport services, that have been substantial for Kazakhstan up to 2023, will be shared more widely as alternative corridors prosper
 - although beneficiaries will change as routes' popularity changes.
- Potentially more important: improved infrastructure facilitates intra- and extra-regional trade
 - providing an opportunity - especially for the Central Asian countries and Azerbaijan - to diversify beyond their limited export bundles by exporting manufactured or agri-food products into international supply chains.



Thank You!

Comments, suggestions or questions welcomed

email richard.pomfret@adelaide.edu.au

