



# RAILWAY SECTOR ASSESSMENT FOR TURKMENISTAN

MARCH 2021

# RAILWAY SECTOR ASSESSMENT FOR TURKMENISTAN

---

MARCH 2021



Note:

In this publication, “\$” refers to United States dollars.

Cover design by Edith Creus.

Photo credits on the cover, from left to right. Passenger train (photo by Ko Sakamoto). Turkmenbashi railway station (photo by Ko Sakamoto). Rail-connected facilities at Turkmenbashi port (Photo by Turkmenbashi International Seaport).

Map: The boundaries, colors, denominations, and any other information shown on this map do not imply, on the part of ADB, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries, colors, denominations, or information.



# CONTENTS

<b>TABLES AND FIGURES</b>	<b>v</b>
<b>ACKNOWLEDGMENTS</b>	<b>vi</b>
<b>ABBREVIATIONS</b>	<b>vii</b>
<b>CURRENCY EQUIVALENTS</b>	<b>vii</b>
<b>1 INTRODUCTION AND BACKGROUND</b>	<b>1</b>
A. Introduction	1
B. Railway network and port facilities	1
C. Institutional responsibilities for railways	5
D. Cross-border railway routes	5
E. Relevant CAREC corridors	8
<b>2 TRENDS IN RAILWAY TRAFFIC</b>	<b>12</b>
A. Introduction	12
B. Background	12
C. Analysis of traffic	12
1. Traffic carried by different transport modes	12
2. Railway traffic	14
3. Potential sources of import and export railway traffic	15
4. Main routes used by cross-border traffic	17
D. Growth scenario	20
<b>3 MARKET COMPETITIVENESS</b>	<b>21</b>
A. Introduction	21
B. Market feedback	21
C. Issues affecting rail competitiveness	22
<b>4 RAILWAY OPERATING AND FINANCIAL PERFORMANCE</b>	<b>25</b>
A. Introduction	25
B. Commercial orientation	25
C. Financial performance	25
D. Operational benchmarking	26

<b>5</b>	<b>PROPOSALS FOR INVESTMENT, COMMERCIALIZATION AND REFORM</b>	<b>30</b>
	A. Introduction	30
	B. Policy setting	30
	C. Proposals for support from CAREC Railway Sector Development TA	30
	1. Prefeasibility studies	30
	2. Knowledge products and events	31
	<b>APPENDIX: CAREC DESIGNATED RAIL CORRIDORS</b>	<b>34</b>
	<b>REFERENCES</b>	<b>36</b>



# TABLES AND FIGURES

## TABLES

2.1	Turkmenistan Freight Volume, Turnover and Haul Distance by Mode, 2012–2016	13
2.2	Turkmenistan Passenger Transport Volume, Turnover and Trip Distance by Mode, 2012–2016	13
2.3	Turkmen Railway Agency Freight Volume, Turnover and Haul Distance, 2016–2018	14
2.4	Turkmen Railway Agency Passenger Volume, Turnover and Trip Distance, 2016–2018	15
2.5	Value and Principal Markets for Turkmenistan Exports, 2014–2018	16
2.6	Value and Principal Sources of Turkmenistan Imports, 2014–2018	16
2.7	Analysis of Turkmen Railway Agency Export Traffic, 2016–2018	17
2.8	Analysis of Turkmen Railway Agency Import Traffic, 2016–2018	18
2.9	Turkmen Railway Agency Transit Traffic, 2016–2018	19
2.10	Turkmen Railway Agency Traffic Volume Targets for 2021–2030	20
3.1	Potential Rail Competitiveness of Turkmenistan for Different Traffic Types	21
4.1	Turkmen Railway Agency's Reported Profit and Loss for 2017 and 2018	26

## FIGURES

1.1	Central Asian Railway, 1922	2
1.2	Turkmenistan's Existing Railway Network	3
1.3	Turkmenbashi International Seaport	4
1.4	Regional Rail Links and Ports Serving Cross-border and Transit Traffic	6
1.5	Sections of CAREC Corridor 2 Relevant for Turkmenistan	8
1.6	Sections of CAREC Corridor 3 Relevant for Turkmenistan	9
1.7	Sections of CAREC Corridor 6 Relevant for Turkmenistan	10
2.1	Commodity Composition Of Railway Freight Volume, 2018	14
4.1	Comparison of Railway Length and Staff Size in Turkmenistan, Other CAREC Member Countries and Other Leading Railway Countries	27
4.2	Comparison of Railway Rolling Stock Fleet in Turkmenistan, Other CAREC Member Countries and Other Leading Railway Countries	27
4.3	Comparison of Annual Railway Freight and Passenger Traffic Levels in Turkmenistan, Other CAREC Member Countries and Other Leading Railway Countries	28
4.4	Comparison of Railway Track and Staff Productivity in Turkmenistan, other CAREC Member Countries and Other Leading Railway Countries	28
4.5	Comparison of Locomotive and Wagon Productivity in Turkmenistan, other CAREC Member Countries and Other Leading Railway Countries	29



# ACKNOWLEDGMENTS

This country railway sector assessment is part of an Asian Development Bank (ADB) technical assistance (TA) project on *Railway Sector Development in Central Asia Regional Economic Cooperation (CAREC) Countries*. The project has been assisting CAREC member countries to identify promising opportunities for investment in cross-border railways and develop railway commercialization and reform measures to strengthen railway performance in accordance with the *CAREC Railway Strategy* approved by CAREC ministers in 2017.

Preparation and supervision of the project was led by Jurgen Sluijter, Senior Transport Specialist, and overseen by Dong-Soo Pyo, Director, Transport and Communication Division, Central and West Asia Department. Administrative support was provided by Krisanta Carissa Vila, Associate Project Analyst.

Project activities were guided by the members of the CAREC Railway Working Group, CAREC Railway Focal Points and national TA coordinators.

The Turkmenistan railway sector assessment was prepared by a team of TA consultants. Country-level consultations, research and report preparation were undertaken by Tyrrell Duncan, Team Leader/Railway Specialist, with support from Margarita Bashkaya, Transport Specialist.

Valuable insights and information were provided by Turkmen Railway Agency, other government departments, international development partners and representatives of the private sector. Useful comments were provided by ADB staff including Ko Sakamoto and Johan Thierry Georget.



# ABBREVIATIONS

ADB	-	Asian Development Bank
CAREC	-	Central Asia Regional Economic Cooperation
CIS	-	Commonwealth of Independent States
EU	-	European Union
FSU	-	former Soviet Union
GDP	-	gross domestic product
IFRS	-	International Financial Reporting Standards
IMF	-	International Monetary Fund
JICA	-	Japan International Cooperation Agency
JSC	-	joint stock company
km	-	kilometer
MC	-	Member Country
MOIC	-	Ministry of Industry and Communications
PRC	-	People's Republic of China
TA	-	technical assistance
TEU	-	twenty-foot equivalent
TITR	-	Trans-Caspian International Transport Route
TRA	-	Turkmen Railway Agency
UIC	-	International Union of Railways
UTY	-	O'zbekiston Temir Yo'llari (Uzbekistan Railways)

# CURRENCY EQUIVALENTS

(as of 8 April 2020)

Currency unit	-	Turkmen manats (TMT)
TMT1.00	=	\$0.2857
\$1.00	=	TMT3.50





# INTRODUCTION AND BACKGROUND

## A. Introduction

1. In 2017, the eleven Member Countries (MCs) of the Central Asia Regional Economic Cooperation (CAREC) program approved the CAREC Railway Strategy with a view to expanding the role of railway transport in the region.<sup>1</sup> The strategy aims to accelerate the identification, preparation and financing of feasible railway investment projects and, at the same time, advance the commercialization and reform of railways to improve their performance (ADB 2017a).

2. In 2018, the Asian Development Bank (ADB) approved a \$2 million regional technical assistance (TA) project for CAREC Railway Sector Development to assist MCs in implementation of the CAREC Railway Strategy (ADB 2018a).<sup>2</sup> The TA is intended to accelerate the sound development of the railway sector in CAREC countries by providing support for railway transport market research, project identification and preparation, knowledge sharing and preparation of practical actions for commercialization and reform in MCs.

3. During the first part of TA implementation, the TA consultants conducted assessments of the railway sector in each MC. The purpose of these assessments was to examine the setting, characteristics, performance

and prospects of railways, and identify promising investment opportunities, and commercialization and reform actions, that could be considered for support through the TA. This short report summarizes the findings of the railway sector assessment for Turkmenistan. The report is mainly based on data from secondary sources.

## B. Railway network and port facilities

4. Turkmenistan is an upper-middle income country situated on the east coast of the Caspian Sea. It has land borders with Afghanistan, Iran, Kazakhstan and Uzbekistan; and, through Caspian Sea shipping, has access to Azerbaijan, Iran, Kazakhstan and the Russian Federation. About 80% of the territory consists of the deserts. With a population of 5.85 million in 2018 (ADB 2019a), it is one of the most sparsely populated countries in Asia.

5. Turkmenistan is a leading producer of natural gas and also produces significant quantities of petroleum. In 2016, it had the world's sixth largest reserves of dry natural gas and was the 11th largest producer. Its crude oil reserves were 45th in the world (US Energy Information Administration 2020).

<sup>1</sup> The eleven CAREC member countries are Afghanistan, Azerbaijan, People's Republic of China (specifically the Xinjiang Uygur Autonomous Region and the Inner Mongolia Autonomous Region), Georgia, Kazakhstan, Kyrgyz Republic, Mongolia, Pakistan, Tajikistan, Turkmenistan and Uzbekistan.

<sup>2</sup> The TA is cofinanced by the People's Republic of China (PRC) Poverty Reduction and Regional Cooperation Fund and the United Kingdom Fund for Asia Regional Trade and Connectivity (under the Regional Cooperation and Integration Financing Partnership Facility).

Hydrocarbon exports, mainly comprising natural gas, account for a quarter of gross domestic product (GDP) (World Bank 2020). Apart from production of hydrocarbons, about half the population is engaged in agriculture which contributes about 8% of GDP. The main agricultural products are cotton for export and wheat for domestic consumption (Moody's 2020).

**6. Railway network.** The railway network was originally developed by the Russian Empire. Following Russian annexation of Turkmenistan in 1881, Russia sought to consolidate its military position in Central Asia by providing a rail link that could transport soldiers inland from the Caspian Sea. Between 1878 and 1888, it built the Central Asian Railway (also known as the Trans-Caspian Railway) from present-day Turkmenbashi (formerly known as Krasnovodsk) to Kokand (Uzbekistan) via Ashgabat,

Mary (both Turkmenistan), Bukhara and Samarkand (both Uzbekistan). By 1898, additional spurs were added to connect with Tashkent and Andijan (both Uzbekistan), and toward the Afghanistan border at Serhetabat via Mary in 1898. This route then became important economically as a means of transporting oil, cotton and other commodities from Central Asia to Russia. A train ferry from Turkmenbashi to Baku (Azerbaijan) was introduced in 1905. The Central Asian Railway is shown in Figure 1.1.

7. The Soviet Union later expanded the railway network further by building a more northerly east-west railway corridor between Central Asia and the Caspian Sea. This provided a direct railway connection to the former Soviet Union (FSU). It followed the Amy Darya river valley, close to today's Turkmenistan-Uzbekistan border, extending between

**Figure 1.1: Central Asian Railway, 1922**



Note: the boundaries, colors, denominations, and any other information shown on this map do not imply, on the part of ADB, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries, colors, denominations, or information.

Source: wikiwand.com.

Termez (Uzbekistan), Turkmenabat, Urgench (Uzbekistan), Dashoguz, Nukus (Uzbekistan) and Beyneu (Kazakhstan). The final section of this railway from Kungirost (near Nukus) to Beyneu was completed in 1972.

8. Following the collapse of the FSU, Turkmen Railway Agency (Türkmen demirýollary) (TRA), a state-owned railway agency, took over responsibility for railways within Turkmenistan. Some sections of the northerly east-west railway corridor (para. 7) that were now located in Uzbekistan were replaced with new track sections within Turkmenistan. New links were also built to improve connectivity with neighboring countries, notably (i) a link from Tejen to the Iran border at Sarahs, providing onward rail

connections to Iran, completed in 1996; (ii) the Ashgabat–Dashoguz Railway,<sup>3</sup> completed in 2006, connecting with the Uzbekistan railway near Nukus (Uzbekistan); (iii) the north-south railway corridor along the eastern side of the Caspian Sea from Akyayla on the Iran border via Bereket to Serhetyaka on the Kazakhstan border, completed in 2014, providing railway connectivity with Iran and Kazakhstan and onward rail connections to the Russian Federation; (iv) a link from Kerki (Atamyrat) to the Afghan border at Imamnazar and across the border to Aqina (Afghanistan), completed in 2016; and (v) a 2 kilometer (km) link within Afghanistan from the border at Serhetabat to Turghundy, completed in 2018. Turkmenistan’s present railway network is shown in Figure 1.2.

**Figure 1.2: Turkmenistan’s Existing Railway Network**



Sources: ADB 2011; TA Consultants.

<sup>3</sup> Also known as the Trans-Karakum Railway.

**9. Rolling stock.** In 2019, TRA had a rolling stock fleet of 119 diesel locomotives, 10,056 freight wagons, and 425 passenger cars. The majority of locomotives and all the passenger cars were purchased from the PRC (25 CKD9A-series passenger locomotives and 83 CKD9C-series freight locomotives). The freight wagon fleet included 2,849 tanker wagons, 1,738 gondola wagons, 1,637 platform wagons, 1,358 closed hopper wagons, 1,143 box wagons and 654 refrigerated wagons.

**10.** Most of the locomotive fleet is less than 15 years old, with only 6 locomotives over 30 years (5% of the fleet). Much of the wagon fleet was inherited from the FSU. In 2019, 6,607 wagons (65% of the fleet) was at least 30 years old, with many of these wagons having exceeded their normal economic life and in need of replacement. TRA has estimated that in 2019 it had a shortage of 3,997 wagons, particularly tanker wagons, box wagons and gondola wagons. When faced with wagon shortages, TRA has sought wagons from other railway administrations in the region but it is often unable to obtain its full requirement as the other railways also

have wagon shortages. TRA has also rented wagons from enterprises and organizations in Turkmenistan, Azerbaijan, Estonia and Kazakhstan. In Turkmenistan, oil refineries are the main enterprises that own wagons. These are mainly tanker wagons used for transporting gasoline, jet fuel, gas, and gas oil. In 2019, such enterprises owned 827 wagons, including 461 gas tanker wagons and 332 oil tanker wagons.

**11. Port facilities.** A major upgrading of Turkmenistan's main port of Turkmenbashi was completed in 2018 at a cost of around \$1.5 billion, with a view to improving the attractiveness of the port for trade between Europe, the Caucasus and Asia, and establishing Turkmenistan as a regional trade and transit hub (Figure 1.3). The new port is fully-rail served and includes a container terminal, a general cargo terminal, a bulk cargo terminal, a polypropylene terminal serving nearby polypropylene production facilities, and a passenger and vehicle terminal, and a ship building and repair yard. The existing terminal for railway wagon ferries was also upgraded. The new port has annual throughput capacity of 17 million tons of cargo, 3 million tons of bulk cargo,

**Figure 1.3: Turkmenbashi International Seaport**



Source: Turkmenbashi International Seaport.

4 million tons of general cargo, 75,000 trucks and 300,000 passengers (Turkmenbashi International Seaport 2018).

## C. Institutional responsibilities for railways

**12.** The 2015 Law on Railway Transport assigns the government full responsibility for the development, operation and regulation of railways in Turkmenistan. Changes in railway tariffs are subject to Cabinet approval.

**13.** Until recently, TRA was responsible, on behalf of the government, for all aspects of the operation and development of railways in Turkmenistan. In January 2020, the government introduced reforms to separate responsibility for operation of freight and passenger railway services from the provision and management of railway infrastructure. TRA is now responsible for railway regulation, infrastructure, design and research, and training. It reports directly to the Cabinet of Ministers. A newly-created open joint-stock company (OJSC), Demiryollary OJSC, is responsible for operation of freight and passenger railway services. The shareholders of Demiryollary OJSC are TRA (93% of shares), the Transport and Logistics Center of Turkmenistan (2%) and Altyn Asyr (TM Cell) mobile communication (5%) which is a closed joint stock company. Demiryollary OSJC reports to TRA. TRA has about 7,000 staff while Demiryollary OJSC has about 15,000 staff.

## D. Cross-border railway routes

**14.** As discussed in Chapter 2, most of Turkmenistan's existing railway traffic is domestic. Cross-border traffic (imports, exports and transit traffic) is relatively small and accounts for about a quarter of freight volume. However, there is potential to increase cross-border traffic in future. As shown in Figure 1.4, Turkmenistan is located close to large potential markets and has access to railway and multimodal transport links to support international trade. It has land borders and railway connections with several of the largest economies in Central Asia—Afghanistan, Kazakhstan and Uzbekistan—each of which seeks access to reliable, efficient ocean shipping connections that can be provided by its railway connections with Iran, providing access to the port of Bandar Abbas and other Persian Gulf ports. In the Caspian Sea, it has sea borders with Azerbaijan and Kazakhstan, and shipping access to the Russian Federation and Iran. Through its east-west railway corridor to Turkmenbashi Port, and ferry services between Turkmenbashi and Baku (Azerbaijan), it can provide Eurasian east-west traffic with multimodal access to the Caucasus and southern Europe. Its north-south railway corridor also provides rail access to Turkey and the Middle East via Iran, and to the Russian Federation via Kazakhstan.

**15.** Three main corridors are used for cross-border traffic: (i) the east-west corridor, (ii) the north-south corridor, and (iii) the Ashgabat-Dashoguz Railway. The east-west corridor is supported by several spurs to the borders with Iran (Sarabs), Afghanistan (Serhetabat and Imamnazar), and Uzbekistan (Kilif).<sup>4</sup>

<sup>4</sup> The railway station at Kilif is also referred to as Rz.161.

16. The majority of existing cross-border traffic uses the east-west corridor. This connects in the east with Afghanistan, Uzbekistan (with onward connections to Tajikistan) and Iran; and in the west with Turkmenbashi, and with the north-south corridor that provides onward connections to and from Kazakhstan. Much of the export traffic originates at the oil refinery at Turkmenbashi or at productive centers along the corridor. These are also a major destination for imports, many originating in Kazakhstan. Transit traffic on the east-west corridor is mainly between Kazakhstan and Afghanistan, between both Kazakhstan and Uzbekistan and Iran,

between Turkmenbashi Port and both Afghanistan and Uzbekistan.

17. The north-south corridor carries significant cross-border traffic between the east-west corridor and the Kazakhstan border, but has so far not attracted much traffic southwards to the Iran border near Akyayla. The new Ashgabat-Dashoguz Railway, offers a more direct route for some traffic to and from western Uzbekistan, and Kazakhstan and Russian Federation, but cross-border traffic on this route is still quite small.

**Figure 1.4: Regional Rail Links and Ports Serving Cross-border and Transit Traffic**



Notes: (1) within the PRC the map covers principal railway trunk routes used for trade between the PRC and CAREC member countries and regional railway links relevant for Inner Mongolia and Xinjiang, the two PRC regions that participate in CAREC; (2) the boundaries, colors, denominations, and any other information shown on this map do not imply, on the part of ADB, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries, colors, denominations, or information.

Source: TA consultants.

18. Taking this into account, the likely segments of the international freight market relevant for Turkmenistan over the medium and long term are summarized below. These routes will also be relevant for Turkmenistan exports and imports as they expand in future:

(i) **Regional north-south traffic.**

Turkmenistan's railway can provide the only reasonably direct route to connect Central Asian countries (including western PRC) and Russian Federation with Iran and its deep-water ports. Afghanistan and Pakistan have plans to develop alternative corridors to provide access to the Pakistan ports of Karachi and Gwadar but there are many missing links so the time frame for such developments is long term. In future, traffic from Central Asia is expected to grow rapidly, particularly as a result of recent reforms in Uzbekistan which has been prioritizing the expansion of trade with other countries in the region. For regional north-south traffic to and from the Russian Federation and western Kazakhstan, Turkmenistan would face some competition from the parallel north-south corridor along the western side of the Caspian Sea which extends between Russian Federation, Azerbaijan and Iran (Figure 1.4). Another important aspect of regional north-south traffic is the potential to serve trade between both Central Asia and Russian Federation to and from India using shipping services between the ports of Bandar Abbas or Chabahar and Mumbai.

(ii) **Regional east-west traffic.** Turkmenistan has potential to serve traffic between central and southern parts of Central Asia (including western PRC) and the Caucasus, the Middle East and Southern Europe. Turkmenistan recently reached agreement with Afghanistan, Azerbaijan, Georgia and Turkey to develop the Lapis-Lazuli Corridor as a multimodal corridor across the Caspian Sea (Figure 1.4).<sup>5</sup> Within Turkmenistan, this route is similar to the original Central Asian Railway and the present day east-west corridor. This corridor can potentially be competitive for some segments of Trans-Caspian traffic. For traffic to or from more southerly origins or destinations, it may be able to offer the shortest distance route. In addition, for traffic to Turkey and the Middle East, Turkmenistan may be able to offer southerly routes through Iran that avoid the need to cross the Caspian Sea. However, the Lapis-Lazuli Corridor will face competition from the Trans-Caspian International Transport Route (TITR)<sup>6</sup> and potentially from Uzbekistan's northwestern corridor along the Uzbekistan-Turkmenistan border although that route has been mainly used for domestic traffic in recent years and requires some investments to expand capacity. There is little prospect of Turkmenistan serving regional traffic to northern Europe which is served more directly by the TITR and, for northerly traffic, the Russian Federation's Trans-Siberian Railway.

19. Turkmenistan's prospects for attracting regional transit traffic would depend on it working closely with the other countries on its transit routes to establish, promote and manage reliable, efficient,

<sup>5</sup> The Lapis-Lazuli Route Transport and Transit Agreement was signed in Ashgabat in 2017. The member countries are Afghanistan, Azerbaijan, Georgia, Turkey and Turkmenistan.

<sup>6</sup> The members of the TITR Association comprise Azerbaijan Caspian Shipping, Azerbaijan Railways, Aktau Port, Baku Port, Georgian Railways, Kazakh Railways, Turkish Railways and Ukraine Railways. Associate members include the Polish Broad-Gauge Railway, Batumi Port, Kaskor-Transservice (Kazakhstan), Port Kuryk (Kazakhstan), Anaklia Development Consortium, Lianyungang Port Holdings Group (PRC), Grampet Group (Romania), Astyk Trans (Kazakhstan), Kazakh National Maritime Shipping Company, and Eastcomtrans (Kazakhstan).



competitive door-to-door multimodal services from points of origin to final destinations. As part of these effort, it would need to work with other railways to ensure timely availability of rolling stock, and work with shipping companies and other railways to develop improved scheduled Trans-Caspian ferry services, increase containerization of cargo, and develop regular container block train services. Another task would be to further streamline border clearance (ADB 2019b).

## E. Relevant CAREC corridors

- 20. The CAREC corridors relevant for railway development in Turkmenistan are Corridors 2, 3 and 6.
- 21. **CAREC Corridor 2: Mediterranean–East Asia—Subcorridors 203 and 204 (Figure 1.5).** This corridor connects the PRC with Turkey and southern Europe via Central Asia. The central part of

Corridor 2 (Subcorridor 203) includes Turkmenistan’s existing east–west corridor between Turkmenabat, Mary and Turkmenbashi (Lapis–Lazuli Corridor) that connects across the Caspian Sea with the Caucasus countries and across the Black Sea to the Mediterranean or to Turkey using the Baku–Tbilisi–Kars Railway. In the past, when this was part of the Central Asian Railway, it was one of the region’s busiest freight routes. After the collapse of the FSU, much of the traffic transferred to Subcorridor 102 through Kazakhstan (the TITR). In future, this subcorridor could offer the shortest route for significant volumes of trans-Caspian traffic to and from western PRC, Uzbekistan, Kyrgyz Republic, Tajikistan and northern and western Afghanistan. It could also offer railway connections to Turkey via Iran on Subcorridor 204, although a gauge change from Russian broad gauge (1,520 mm) to standard gauge (1,435 mm) is required at the border.

- 22. While Subcorridor 203 has significant potential to attract additional traffic, Turkmenistan would face strong competition from the existing TITR (Subcorridor 202) and also from the Uzbekistan’s

**Figure 1.5: Sections of CAREC Corridor 2 Relevant for Turkmenistan**

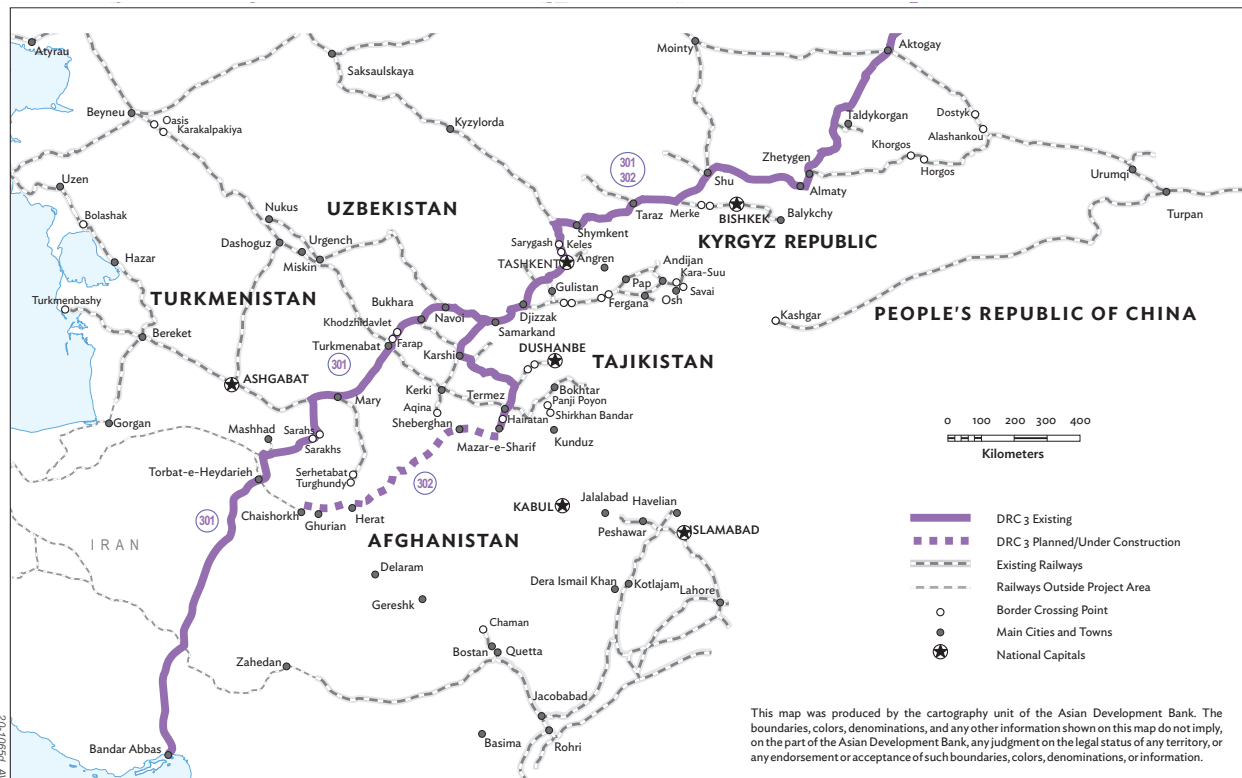


northwestern corridor to the Caspian Sea (Subcorridor 202) once present capacity constraints are overcome. At least in the short to medium term, prospects would depend on adopting a commercial approach to attracting customers—including offering competitive tariffs and improving service quality, reliability and traceability. Border crossings for transit traffic would need to be streamlined and Turkmenbashi–Baku ferry services upgraded. Since the subcorridor crosses numerous countries, Turkmenistan would need to work closely with other countries to offer customers an improved service along the entire route from origin to destination, and to promote and manage the subcorridor.

**23. CAREC Corridor 3: Russian Federation–Middle East and South Asia—Subcorridor 301 (Figure 1.6).** This corridor extends from eastern parts

of the Russian Federation to Iran’s deep-water port of Bandar Abbas. Subcorridor 301 is the established existing rail route. It extends through Russian Federation, Kazakhstan, Uzbekistan, Turkmenistan and Iran, and has spurs to serve traffic of Kyrgyz Republic and Tajikistan. The Turkmenistan portion of the corridor is between the border with Uzbekistan at Farap and the Iran border at Sarahs. A gauge change from Russian broad gauge to standard gauge is required at the Iran border. While throughputs at Bandar Abbas are currently reduced due to economic sanctions, this port was of strategic importance for landlocked Central Asia countries in the past and is likely to resume this role in future. There could eventually be competition from routes to Iran via Afghanistan, and from deep-water ports in Pakistan, but Afghanistan and Pakistan need to make massive investments in missing links so the time frame may be considered long term.

**Figure 1.6: Sections of CAREC Corridor 3 Relevant for Turkmenistan**



Source: CAREC Secretariat.

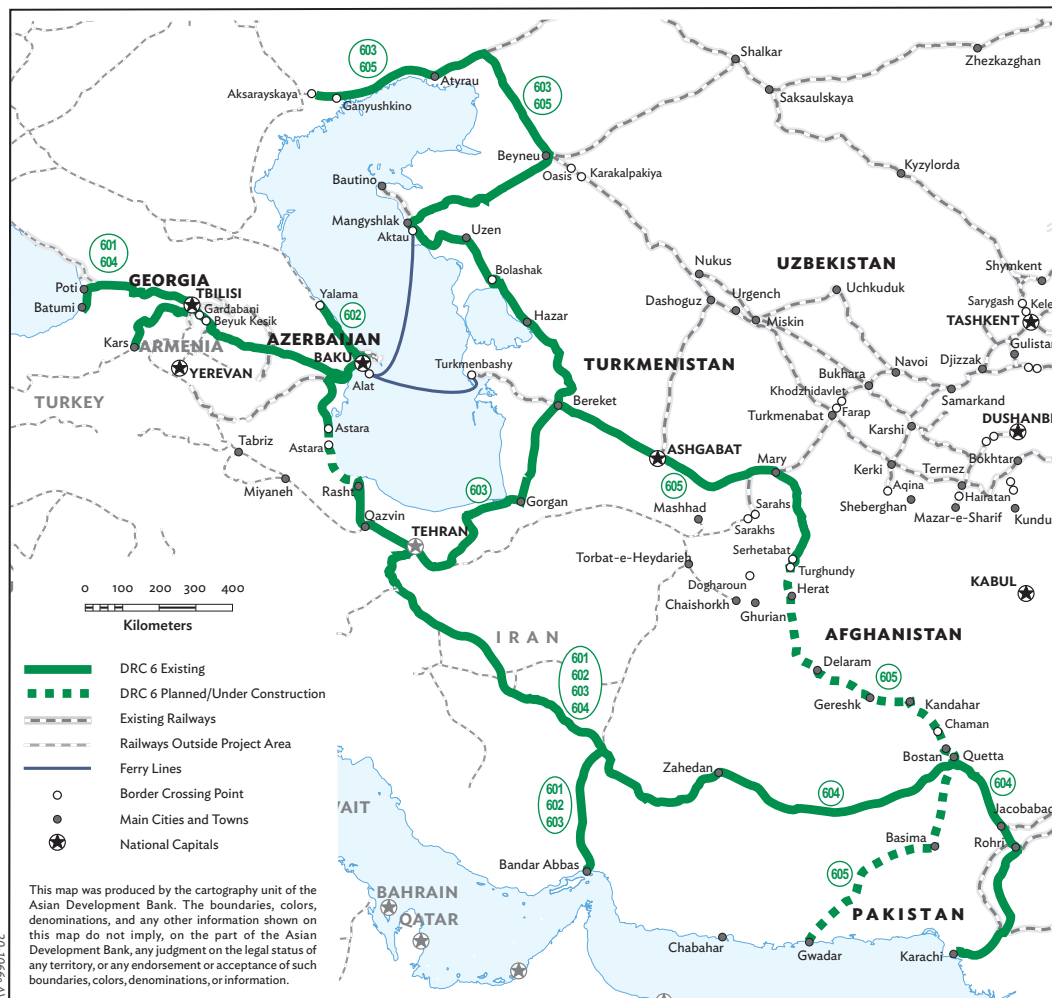
24. Since Subcorridor 301 is already in place, the main challenges for Turkmenistan in the short-to-medium term would be to develop commercial approaches that would make the route attractive to customers, streamline border crossing, and establish close coordination with the other railways along the route.

25. Another likely role of this corridor in future is to enable western PRC and Central Asia to trade with India via Iran’s ports. For many years, these countries have had difficulty accessing India’s large market because of missing links and restricted border crossing

between Pakistan and India. Once Subcorridor 301 is working efficiently, it is likely there will be growth in short-sea services between Bandar Abbas and Mumbai and other Indian ports. It is also expected that similar services will be established at port, which is closer to India. India is currently assisting Iran to upgrade Chabahar port (Hindu Business Line 2019), and Iran plans to build a rail link to Chabahar (Figure 1.4).

26. **CAREC Corridor 6: Europe–Middle East and South Asia—Subcorridors 603 and 605 (Figure 1.7).** This corridor connects Europe, the

**Figure 1.7: Sections of CAREC Corridor 6 Relevant for Turkmenistan**



Source: CAREC Secretariat.

Caucasus countries and southern Russian Federation with the Iran and Pakistan, providing access to deep-water ports of Bandar Abbas and potentially Chabahar in Iran, as well as to Karachi and Gwadar port in Pakistan. Subcorridor 605 extends in the north-south direction along on the eastern side of the Caspian Sea, and includes Turkmenistan's north-south railway between Serhetyaka and Akyayla. A gauge change from Russian broad gauge to standard gauge is required near Akyayla. This subcorridor has

potential to attract transit traffic between Iran's ports and the Russian Federation and Kazakhstan.

**27.** Similar to Corridor 5, this corridor is strategically important for Afghanistan as it would provide rail access to Pakistan and its ports, and make it possible to serve transit traffic from Turkmenistan, Uzbekistan and other Central Asian countries. However, investment costs would be high and Afghanistan and Pakistan have not prioritized these links for early investment.

# TRENDS IN RAILWAY TRAFFIC

## A. Introduction

28. This chapter provides an overview of trends in Turkmenistan railway traffic. Since the present TA is primarily intended to support the development of cross-border transport, the chapter focuses mainly on freight.

## B. Background

29. During the time of the Russian Empire and the FSU, the Central Asian Railway through Turkmenistan played an important role in transport between Central Asia and Russia. Railway traffic declined after the collapse of the FSU, with many of the industries of the centrally-planned economy unable to survive in the market economy. Since then, domestic railway traffic has grown but export, import and transit traffic, which were a major part of traffic in the past, have remained quite low.

## C. Analysis of traffic

### 1. Traffic carried by different transport modes

30. Railways, road transport and pipelines are the leading transport modes for freight in Turkmenistan. According to national transport statistics, between 2012 and 2016, railways accounted for 31% of total freight turnover while road transport and pipelines accounted for 28% and 39% respectively. Each transport mode serves a distinct market segment. Railways mainly serves long distance freight, with an average haul of 597 km in 2016. Road transport,

which has by far the largest freight volume (measured in tons) is used mainly for short distance freight, with an average haul of 30 km in 2016. Pipelines are primarily for transport of natural gas. Freight volume, turnover and haul distances are shown in Table 2.1.

31. Freight turnover of railway and road transport rose fairly steadily during 2012–2016, at average annual rates of 3.1% and 7.3% respectively. This was mainly attributable to rising freight volumes; in the case of railways, there was also an increase in average haul distance for railways. Freight turnover of pipelines rose sharply from 2012–2014, but then reversed in 2015–2016.

32. Road transport is the dominant mode for passenger transport in Turkmenistan, accounting for 83% of passenger turnover compared with about 8% for railway and 9% for civil aviation. Road transport accounted for 99% of passenger volume but mainly served short distance trips, with an average trip distance of 25 km. Railways were mainly used for medium-to-long distance trips, with an average trip distance of 421 km in 2016. Civil aviation was mainly used for long distance trips, with an average trip distance of 1,238 km in 2016. Passenger volume, turnover and trip distances are shown in Table 2.2.

33. Total passenger turnover grew steadily at 3.5% per annum during 2012–2016. Railway passenger transport increased at an average annual rate of 6.2%, while road transport grew at 3.6% and civil aviation at 0.9%. About half the growth in railway passenger turnover was attributable to growth in passenger volumes and about half due to increases in trip distances.

**Table 2.1: Turkmenistan Freight Volume, Turnover and Haul Distance by Mode, 2012-2016**

	2012	2013	2014	2015	2016
<b>Freight volume (million tons)</b>					
Rail	19.2	22.0	23.9	21.5	20.8
Road	339.9	267.9	390.0	411.1	420.1
Water	8.5	8.5	8.6	9.0	9.0
Pipeline	53.2	53.4	58.1	52.3	50.0
Air	0.0	0.0	0.0	0.0	0.0
Total	420.8	351.8	480.6	493.9	499.9
<b>Freight turnover (million ton-km)</b>					
Rail	10,677	12,421	13,327	12,696	12,044
Road	9,394	10,643	11,070	11,760	12,430
Water	479	458	477	477	397
Pipeline	14,790	16,068	19,565	14,053	12,098
Air	32	34	45	40	34
Total	35,372	39,624	44,484	39,026	37,003
<b>Average haul distance (km)</b>					
Rail	556	565	558	591	579
Road	28	40	28	29	30
Pipeline	278	301	337	269	242

km = kilometer

Source: Transport Statistics of Turkmenistan.

**Table 2.2: Turkmenistan Passenger Transport Volume, Turnover and Trip Distance by Mode, 2012-2016**

	2012	2013	2014	2015	2016
<b>Number of passengers (million)</b>					
Rail	5.0	5.1	5.6	5.6	5.7
Road	872.0	913.8	943.1	976.1	986.8
Air	1.9	2.0	2.2	2.1	2.1
Total	878.9	920.9	950.9	983.8	994.6
<b>Turnover (million passenger-km)</b>					
Rail	1,897	2,007	2,325	2,356	2,411
Road	21,398	22,776	23,447	24,221	24,608
Air	2,576	2,542	2,766	2,599	2,668
Total	25,871	27,325	28,538	29,176	29,687
<b>Average trip distance (km)</b>					
Rail	371	379	394	415	421
Road	25	25	25	25	25
Air	1,508	1,356	1,271	1,257	1,238

km = kilometer

Source: Transport Statistics of Turkmenistan.

## 2. Railway traffic

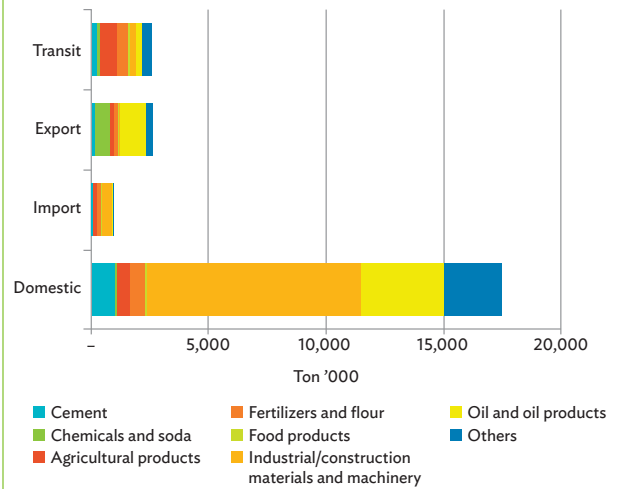
34. At present, freight operations in Turkmenistan mainly serve domestic traffic (Table 2.3). As In 2018, domestic traffic accounted for 67% of freight turnover and 74% of freight volume compared with 33% and 26% respectively for cross-border traffic. While domestic and import traffic have a similar average haul distances, export traffic and, in particular, transit traffic has significantly longer averages hauls and are therefore attractive for revenue generation.

35. Since 2016, freight turnover increased at an average rate of 2.4% per annum. This growth was attributable to higher volumes of transit traffic and exports. Although domestic freight volumes rose this did not increase freight turnover due to lower average haul distances. Import volumes and turnover declined.

36. The commodity composition of railway freight volume in 2018 is summarized in Figure 2.1. In overall terms, railway freight largely consists of bulk and semi-bulk commodities. For domestic traffic, slightly over half the total in 2018 was industrial/construction materials and machinery (over 900,000 tons); about 20% was oil and oil products (about 350,000 tons); and about 13% was

cement, agricultural products, fertilizers and flour. For exports, the largest items were oil and oil products, and chemicals and soda; with smaller quantities of fertilizers and flour, agricultural products and cement. For imports, the largest items were cement and agricultural products, with smaller quantities of cement, and fertilizers and flour. For transit traffic, the largest items were agricultural products, and fertilizers and flour; with smaller quantities of oil and oil products, industrial/construction materials and machinery, and cement.

**Figure 2.1: Commodity Composition Of Railway Freight Volume, 2018**



Source: Oriental Consultants Global 2020.

**Table 2.3: Turkmen Railway Agency Freight Volume, Turnover and Haul Distance, 2016–2018**

	Freight volume (million tons)			Freight turnover (million ton-km)			Average haul (km)
	2016	2017	2018	2016	2017	2018	2018
Domestic	15.8	17.3	17.5	8,620	8,202	8,490	485
Import	1.4	1.0	1.0	490	319	459	481
Export	1.8	2.3	2.6	1,370	1,532	1,513	574
Transit	1.8	1.8	2.6	1,565	1,535	2,168	835
Total	20.8	22.3	23.7	12,044	11,588	12,631	533

km = kilometer

Source: Turkmen Railway Agency.

37. As shown in Table 2.4, from 2016 to 2018, railway passenger turnover declined by 5%. This was due to an 8% fall in passenger volumes, partly offset by higher average trip distances in 2018.

### 3. Potential sources of import and export railway traffic

38. Turkmenistan's exports are dominated by hydrocarbons. In 2017, natural gas accounted for 83% of the value of exports, and petroleum and crude oil exports together contributed a further 7%. The remainder of exports were cotton and wool products.

39. For some years, nearly all of Turkmenistan's natural gas exports have been to the PRC (Observatory of Economic Complexity 2020). These are transported by gas pipeline,<sup>7</sup> so there is little prospect of railway transporting these exports. Natural gas exports to the Russian Federation are expected to increase in coming years following an agreement between the two governments, but these will be transported by pipeline.<sup>8</sup> In the medium term, Turkmenistan also

hopes to export natural gas to India but this would use a planned pipeline via Afghanistan and Pakistan.<sup>9</sup>

40. In some recent years, about 5% exports have been to neighboring Afghanistan. These mainly comprise refined oil and oil products, and peat; and also wheat. Exports to other neighboring countries remain low and the European Union (EU).<sup>10</sup> The destinations of exports are summarized in Table 2.5.

41. About two-thirds of Turkmenistan's imports are from the Euro area, Turkey, the PRC and the Russian Federation. These include a wide range of manufactured products, food products, vehicles, equipment, industrial inputs and timber. Neighboring Kazakhstan and Uzbekistan together account for about 6% of Turkmenistan imports. Imports from Kazakhstan include industrial chemicals, flour and machinery which generally suitable for railway transport (Observatory of Economic Complexity 2020). Imports from other neighboring countries remain low. The sources of Turkmenistan's imports are summarized in Table 2.6.

**Table 2.4: Turkmen Railway Agency Passenger Volume, Turnover and Trip Distance, 2016–2018**

	2016	2017	2018
Passenger volume (million passengers)	5.7	5.2	5.3
Passenger turnover (million passenger-km)	2,411	2,198	2,289
Average trip length (km)	423	423	432

km = kilometer

Source: Turkmen Railway Agency.

<sup>7</sup> These comprise Lines A-C of the Trans-Asia Gas Pipeline proceed from Turkmenistan's Galkynysh gas field (near Mary), via southern Uzbekistan and Kazakhstan, and crosses into the PRC near Khorgos where it connects with the PRC's domestic gas pipeline network. Construction of Line D between Galkynysh, Uzbekistan, Tajikistan, Kyrgyz Republic and Kashgar (PRC) is underway.

<sup>8</sup> The Central Asian–Center Pipeline proceeds northwest from Galkynysh to the Russian Federation via Uzbekistan and Kazakhstan. Other existing natural gas pipelines include the East-West Connector between Galkynysh and Turkmenbashi; and the Korpjeje–Kurt Kui Pipeline and the Döwleabat–Sarakhs Khangiran Pipeline to Iran.

<sup>9</sup> This is known as the Turkmenistan–Afghanistan–Pakistan–India Pipeline.

<sup>10</sup> Turkmenistan's exports to Turkey mainly comprise cotton and cotton products, while its exports to the EU are mainly refined petroleum together with fairly small quantities of cotton. Its main imports from Turkey and the EU are industrial materials, manufactured products and food products (Observatory of Economic Complexity 2020).



**Table 2.5: Value and Principal Markets for Turkmenistan Exports, 2014–2018**

	2014	2015	2016	2017	2018
Total exports (\$ million)	11,303	9,582	7,933	7,606	9,573
Share of total exports (%)					
Euro Area	7	3	7	2	2
PRC	79	77	66	82	80
Turkey	5	5	5	5	3
Azerbaijan	0	0	0	1	1
Georgia	1	1	1	1	2
Kazakhstan	1	1	3	1	0
Russian Federation	1	1	4	1	2
Ukraine	0	0	0	1	1
Uzbekistan	-	-	2	1	2
Afghanistan	-	6	7	-	4
Other	6	5	5	4	3
Total	100	100	100	100	100

Source: IMF 2020.

**Table 2.6: Value and Principal Sources of Turkmenistan Imports, 2014–2018**

	2014	2015	2016	2017	2018
Total imports (\$ million)	1,358	813	1,373	886	428
Share of total imports (%)					
Euro Area	16	17	21	23	21
PRC	12	14	7	10	14
Turkey	28	32	25	28	21
Azerbaijan	0	1	2	1	1
Belarus	2	2	2	2	1
Georgia	0	0	0	1	2
Kazakhstan	4	2	1	1	4
Russian Federation	15	16	11	9	13
Ukraine	5	3	2	2	3
Uzbekistan	-	-	1	1	2
Other	16	13	26	22	18
Total	100	100	100	100	100

Source: IMF 2020.

## 4. Main routes used by cross-border traffic

42. An analysis of railway export traffic during 2016–2018 by exit border and main type of goods is shown in Table 2.7. The largest export traffic flows are summarized as follows:

(i) **Eastbound on the east-west corridor to Afghanistan, Uzbekistan and Tajikistan.**

The leading commodity is oil and oil products, much of which travels the length of the corridor from the country's main refinery at Turkmenbashi. Other important commodities are fertilizers, grain and cement. The exit borders are at Imamnazar, Serhetabat, Kilif,

Farap and Talimardjan. These traffic flows accounted for more than half of export turnover in 2016 and 2018, but very little in 2017.

(ii) **Southbound using the east-west corridor to Iran.** The leading commodities are fertilizers, and chemicals and soda. Traffic uses the east-west corridor to Parahat, then routes south to the border at Sarahs. This is one of the main export traffic flows.

(iii) **Northbound on the north-south corridor to Kazakhstan.** The leading commodities are other goods. Traffic uses the east-west corridor to Bereket then proceeds north to the border at Serhetyaka.

**Table 2.7: Analysis of Turkmen Railway Agency Export Traffic, 2016–2018**

Entry station	Country	Ton '000			Ton-km million			Average haul, 2018 (km) <sup>a</sup>	Main types of goods
		2016	2017	2018	2016	2017	2018		
Imamnazar	Afghanistan	15	2	235	20	0	315	1,340	Oil and oil products
Serhetabat	Afghanistan	538	-	55	498	0	61	1,109	Oil and oil products, fertilizers, grain
Kilif	Afghanistan, Tajikistan and Uzbekistan <sup>b</sup>	333	2	355	426	2	236	665	Oil and oil products, cement
Farap	Uzbekistan	273	195	425	88	24	277	652	Oil & oil products
Talimardjan	Uzbekistan	-	3	111	-	1	20	180	Cement
Sarahs	Iran	455	140	1,017	216	36	307	302	Fertilizers, chemicals and soda
Serhetyaka	Kazakhstan	61	237	202	43	191	163	807	Other goods
Turkmenbashi-1	Caspian Sea	124	179	145	71	25	86	593	Oil and oil products, fertilizers
Tahiatash	Uzbekistan	11	213	71	8	37	30	423	Oil and oil products, containerized goods
Other	Various	-	-	19	-	2	18	947	Other
Total		1,809	984	2,635	1,370	319	1,513	574	

km = kilometer

<sup>a</sup> Additional data would be needed to determine the distribution of KILIF export traffic between these three countries.

<sup>b</sup> Between 2016 and 2018 there were some significant year-on-year changes in average haul distance on some routes.

Sources: Turkmen Railway Agency; Observatory of Economic Complexity 2020; TA consultants.

- (iv) **Westbound on the east-west corridor to Turkmenbashi for onward transport by Caspian Sea shipping.** The leading commodities are oil and oil products, and fertilizers. Traffic on this route is relatively small.
- (v) **Northbound on the Ashgabat-Dashoguz Railway to Uzbekistan.** This mainly carries oil products and containerized goods. Traffic levels are still quite low.

43. Analysis of railway import traffic during 2016–2018 by entry border and main type of goods is provided in Table 2.8. The largest import traffic flows are summarized as follows:

- (i) **Southbound on the north-south corridor from Kazakhstan.** The leading commodities are wheat and flour. This is generally among the leading import flows, depending on the extent that domestic production needs to be supplemented by imports. Traffic proceeds from Serhetyaka to Bereket, then along the east-west corridor to centers of population.
- (ii) **Other imports.** This includes imports from Uzbekistan via Farap and Tahiatash, from countries that connect via Caspian Sea shipping, and from Iran via Sarahs. Due to the

shorter average haul, these have relatively low freight turnover.

44. Analysis of railway transit traffic during 2016–2018 by entry and exit border and main type of goods is provided in Table 2.9. The largest import traffic flows are summarized as follows:

- (i) **Eastbound on the east-west corridor from Kazakhstan to Afghanistan.** This is Turkmen railways largest transit traffic flow. It mainly comprises grain and flour and is transported from Serhetyaka to the Afghanistan border at Serhetabat (crossing to Turghundy in Afghanistan). It initially travels south on the north-south corridor, then east on the east-west corridor, then south from Mary to the Afghanistan border. There is little westbound transit traffic.
- (ii) **Mainly eastbound on the east-west corridor from Kazakhstan to Iran.** Eastbound traffic is mainly grain and mill cake. This is transported from Serhetyaka to the Iran border at Sarahs. It initially travels south on the north-south corridor, then east on the east-west corridor, then south from Parahat to the Iran border. There is some traffic in food commodities in the westbound direction.

**Table 2.8: Analysis of Turkmen Railway Agency Import Traffic, 2016–2018**

Entry station	Country	Ton '000			Ton-km million			Average haul, 2018 (km) <sup>a</sup>	Main types of goods
		2016	2017	2018	2016	2017	2018		
Serhetyaka	Kazakhstan	281	237	464	217	191	354	763	Grain, flour
Farap	Uzbekistan	267	195	185	39	24	22	119	Fertilizers
Tahiatash	Uzbekistan	391	213	133	132	37	27	203	Timber
Turkmenbashi-1	Caspian Sea	174	179	115	26	25	40	348	Sugar
Sarahs	Iran	271	140	48	72	36	12	250	Cement, construction materials
Other	Various	20	21	10	3	6	4	400	Other
Total		1,404	984	954	490	319	459	481	

km = kilometer

<sup>a</sup> Between 2016 and 2018 there were some significant year-on-year changes in average haul distance on some routes.

Sources: Turkmen Railway Agency; Observatory of Economic Complexity 2020; TA consultants.

**Table 2.9: Turkmen Railway Agency Transit Traffic, 2016–2018**

Entry border	Exit border	Ton '000			Ton-km million			Av. haul, 2018 (km) <sup>a</sup>	Main types of goods
		2016	2017	2018	2016	2017	2018		
Serhetabat	Serhetyaka	2	3	33	3	5	47	1,424	Other goods
Serhetyaka	Serhetabat	154	235	384	220	334	548	1,427	Grain, flour
Sarahs	Serhetyaka	36	-	49	42	-	57	1,163	Food commodities
Serhetyaka	Sarahs	109	127	126	126	147	146	1,159	Grain, mill cake
Rzd.161 <sup>b</sup>	Turkmenbashy	71	12	56	103	18	85	1,518	Other goods, scrap metal
Turkmenbashy	Rzd.161 <sup>b</sup>	233	122	163	354	185	248	1,521	Oil & oil products
Turkmenbashy	Farap	46	47	41	55	56	49	1,195	Various
Farap	Turkmenbashy	58	61	31	69	73	37	1,194	Cotton, chemicals and soda
Sarahs	Farap	103	131	456	49	63	214	469	Cement
Farap	Sarahs	579	539	481	271	253	225	468	Cotton, chemicals and soda, fertilizer
Sarahs	Rzd.161	94	91	84	74	73	66	786	Chemicals and soda, building material
Serhetabat	Farap	20	58	87	12	35	51	586	Veg. and fruits, industrial raw material
Rzd.161 <sup>b</sup>	Talimardjan	3	17	50	0	3	10	200	Other goods, industrial raw material
Talimardjan	Rzd.161 <sup>b</sup>	130	83	246	25	16	48	195	Oil and oil products
Serhetyaka	Akyayla	33	28	78	23	20	55	705	Grain, flour
Serhetyaka	Imamnazar	-	29	53	-	47	87	1,642	Grain, flour
Turkmenbashy-1	Imamnazar	3	30	32	4	44	46	1,438	Grain, flour, oil and oil products
Tahiatash	Serhetabat	24	11	8	30	14	10	1,250	Oil & oil products
Tahiatash	Turkmenbashy	31	6	-	35	7	-		Chemicals & soda, fluxing material
Turkmenbashy	Serhetabat	23	18	26	28	22	32	1,231	Oil & oil products, flour
Other transit	Various	50	121	114	40	121	110	965	Other
Total		1,801	1,769	2,597	1,565	1,535	2,168	835	

km = kilometer

<sup>a</sup> Between 2016 and 2018 there were no significant year-on-year changes in average haul distance on transit routes.

<sup>b</sup> Additional data would be needed to determine the distribution of KILIF export traffic between these three countries.

Sources: Turkmen Railway Agency; Observatory of Economic Complexity 2020; TA consultants.

(iii) **Mainly eastbound on the east-west corridor between Turkmenbashy Port and Afghanistan, Uzbekistan and Tajikistan.**

Eastbound flows are mainly oil & oil products. These are transported the entire length of the east-west corridor to Turkmenabat, then

southeast to KILIF. There is some westbound traffic in scrap metal and other goods.

(iv) **Both directions on the east-west corridor between Turkmenbashy Port and Uzbekistan.** Eastbound flows include

various products, while westbound traffic is Uzbekistan exports of cotton, chemicals and soda. Traffic travels the length of the east–west corridor between Turkmenabat and the Uzbekistan border near Farap.

- (v) **Both directions on the east–west corridor between Uzbekistan and Iran.** Traffic to Iran is mainly Uzbekistan exports of cotton, chemicals and soda, and fertilizer. Traffic to Uzbekistan is mainly Iran exports of cement. Traffic uses the east–west corridor between the Uzbekistan border near Farap and Parahat, where it connects to the Iran border at Sarahs.

45. As discussed in para. 35, in overall terms Turkmenistan’s cross-border railway traffic is underdeveloped both as a share of total traffic and taking into account the country’s favorable geographical location for attracting transit traffic.<sup>11</sup> The majority of cross-border traffic—including exports, imports and transit traffic—travels along part of all of the east–west corridor in the eastbound direction, to connect with the country’s eastern borders with Afghanistan, Uzbekistan and Iran. The north–south railway plays an important role connecting between the east–west corridor and the border with Kazakhstan but currently carries little traffic to southwards to the Iran border near Akyayla. Export

and transit traffic to Afghanistan is a significant part of cross-border traffic. Traffic to and from Uzbekistan is also substantial but remains much below potential when the large size of the Uzbekistan’s economy and its need for access to Iran’s ports are taken into consideration. In 2018 the new Ashgabat–Dashoguz Railway saw some growth in import traffic (mainly timber) but cross-border traffic on this remains underdeveloped.

46. One further observation is that little of Turkmenistan’s cross-border traffic is currently containerized. In 2018, containerized traffic amounted to 26,717 tons of imports, 23,311 tons of transit traffic and only 1,703 tons of exports. To develop the full potential of cross-border traffic and attract larger volumes of transit traffic—particularly for multimodal transport crossing the Caspian Sea—Demiryollary OJSC will need to expand the role of containerized traffic and develop high quality container transport services.

## D. Growth scenario

47. The TRA plan for 2021–2030 sets overall targets for growth in traffic volume. Table 2.10 compares the plan targets for traffic volume with actual traffic in 2018.

**Table 2.10: Turkmen Railway Agency Traffic Volume Targets for 2021–2030**

Traffic type	Unit	Plan targets				Average annual growth		
		2018	2020	2025	2030	2018–2020	2020–2025	2025–2030
Passengers	Million persons	5.3	7.695	7.972	8.700	20.5%	0.7%	1.8%
Freight	Million tons	23.7	32.600	34.133	37.476	17%	0.9%	1.9%

Source: Turkmen Railway Agency.

<sup>11</sup> For example, cross-border traffic accounted for 37% of railway traffic volume in Kazakhstan in 2017 and 42% in Uzbekistan in 2018 (ADB 2020a; ADB 2020b).

# MARKET COMPETITIVENESS

## A. Introduction

48. As discussed in Chapter 2, in recent years TRA has mainly been serving domestic traffic, as well as limited volumes of export and import traffic. Transit traffic is currently quite small. TRA faces competition from road transport and also from regional transport corridors outside of Turkmenistan. This chapter examines the market competitiveness of TRA's freight railway services, including multimodal services using Turkmenbashi port, and identifies issues that need to be addressed to improve rail competitiveness.

## B. Market feedback

49. Interviews with shippers, transport companies and other market participants in Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Tajikistan and Uzbekistan were used to obtain market feedback on the potential competitiveness of international railway routes via Turkmenistan. The findings are summarized in Table 3.1.

**Table 3.1: Potential Rail Competitiveness of Turkmenistan for Different Traffic Types**

If competitive	Traffic type	Examples	Explanation of rail competitiveness
Rail is competitive	Project cargo, out-of-gauge cargo	Electricity generation and mining equipment	Rail has advantages for moving extra heavy, over-dimension cargo
	Bulk commodities	Exports of oil products, imports of grain and flour, and iron and steel	For reasons of cost, safety and security, rail is likely to be the preferred mode
	Minerals	Proposed iron ore and copper ore mines	Rail is efficient in handling bulk cargo, which often requires specialized equipment
	Chemicals	Poisonous, flammable, corrosive cargo; fertilizers, chemicals and soda	Rail has advantages for safety and security which are prime considerations
	Long-distance containerized traffic	Higher value imports, exports and transit traffic to and from Central Asia, the PRC, and Europe	Existing PRC–Central Asia services have demonstrated the potential for container block trains to offer fast, reliable and secure transport if sufficient volumes can be attracted
Rail is not competitive	Time sensitive and high value cargo	Electronics	Driver teams are better at protecting cargo from theft
	Consumer products	Small to medium sized shipments requiring door-to-door service	Road is generally less costly, faster and simpler to organize, especially for shorter distance trips (eg. 100–300 km) and for origins and destinations far from the railway line
	Perishables	Imports of fresh produce	Road is faster, more reliable (including real time tracking and tracing), and better at handling problems such as mechanical failure of refrigerated units

km = kilometer, PRC = People's Republic of China.

Source: TA consultants.

## C. Issues affecting rail competitiveness

50. Taking into account the experience of railways in neighboring countries, Turkmenistan will need to develop effective solutions to various issues that limit the competitiveness of railway transport. These are discussed below.

51. **Railway faces strong competition from road transport.** Road transport competes with railway on some cross-border routes, especially shorter distance routes. The operations of Turkish road transport companies are well established in Turkmenistan and offer very competitive rates in both directions between Turkey and Turkmenistan. There is less competition from truck operations from Central Asian countries as they are often subject to restrictions and high costs for obtaining visas and road transport permits. In future, as Turkmenistan builds its role as a regional trade and transit hub, it may need to relax some of these restrictions which will lead to railways facing additional competition from road transport.

52. **Need for railway to be customer-oriented in order to attract and retain traffic.** One of the competitive advantages of road transport is that trucking companies are easy to contact, provide price quotations without delay, and are generally prepared to tailor their offering to address customer requirements. In contrast, most CAREC railways are difficult to contact, take a long time to provide price quotations, and are generally quite inflexible about customer requirements. It is also common for customers to face lengthy bureaucratic procedures and repeated requirements to be physically present to make small official or unofficial payments when obtaining a railway slot, clearing customs and collecting goods upon arrival. Very large customers can afford to devote resources to these tasks, but other customers cannot and therefore prefer to use road transport. This lack of customer-orientation is an important reason why other CAREC

railways have lost most of their non-bulk traffic and been unable to attract new sources of traffic. One of the main lessons is that all freight railways require a modern commercial department responsible for sales, marketing and customer support. This department should play a leading role in developing, implementing and monitoring the business strategy if the railway.

53. **Legacy of past obstacles for cross-border railway movements to and from neighboring countries.** In the recent past, cross-border railway movements to and from some neighboring countries were disrupted by border closures and limitations in cooperation between TRA and the other countries' railways. As a result, some shippers and freight forwarders in other countries were unwilling to use railway routes through Turkmenistan even when these could potentially offer time and cost savings (e.g. between Uzbekistan and Georgia).

54. **Need to streamline procedures for obtaining visas and permits.** For Turkmenistan to develop as a regional trade and transit hub, it will need to build cooperation with transport and logistics companies and transport operators from other Central Asian countries. At present, many companies are deferred from conducting business in Turkmenistan by the difficulty, waiting time and high cost for obtaining visas and permits. If Demiryollary OJSC is to expand its role in cross-border railway freight, the government will need take steps to streamline such requirements.

55. **Restrictions on transit routes through Iran.** For much of Central Asia—including Uzbekistan, Tajikistan, southern Kazakhstan and western Afghanistan—the most efficient trade routes to many parts of the world (e.g. East Asia, northern Europe, Africa) are via railway through Turkmenistan to Iran's Persian Gulf ports. While use of these ports has been reduced by the prevailing economic sanctions on Iran, many shippers and freight forwarders expect to use these routes in future when sanctions eventually come to an end.

**56. Wagon shortages.** Some shippers and freight forwarders refer to past difficulties and delays in arranging transit through Turkmenistan due to shortages of TRA wagons, such as platform wagons used for carrying containers. Some neighboring railways, private wagon owners, and shipping companies, express concerns about use of their wagons in Turkmenistan as they have had issues of delay in wagons being returned and settlement of wagon rental fees. Similarly, TRA also experiences difficulties in obtaining timely return of its wagons from neighboring countries. Finding solutions to the problem of wagon shortages will be an important issue for the newly formed Demiryollary OJSC.

**57. Limitations in Caspian shipping services to and from Turkmenbashi.** Shippers and freight forwarders in other countries refer to uncertainties and delays because of limitations in the existing shipping services between Turkmenbashi and Baku. Lack of scheduled services results in delays waiting for the arrival and departure of vessels. Most of the rail ferries and container vessels are quite small, with insufficient capacity to carry a full trainload of wagons or containers, which leads to delays while waiting the next vessel. While port charges at Turkmenbashi are said to be competitive, the rates charged by Caspian Sea shipping are high.

**58. Need for improved cargo security.** Some shippers and freight forwarders have referred to problems of pilferage of goods for railway freight transiting Turkmenistan which, in turn, deters them from using railway. Stricter security and improved control measures of transit freight would assist in improving customer's confidence and increasing the usage of railway services.

**59. Lack of tracking and tracing services.** Shippers and freight forwarders have reported that TRA does not provide tracking and tracing services; and also that previously attached tracking devices are removed from wagons and containers after entry into Turkmenistan. This means that customers cannot

determine the location of their goods, wagons and containers.

**60. Need for e-declaration customs documentation.** While some Central Asian countries such as Kazakhstan have legislation permitting the use of e-declarations to simplify customs documentation, Turkmenistan is still using paper-based documentation which is inefficient.

**61. Turkmenistan needs to be flexible in railway freight pricing.** To compete with road transport and other regional corridors, Demiryollary OJSC needs to be able to adjust freight rates to match market conditions. Future railway regulatory arrangements should avoid the outdated practice of requiring the railway to obtain government approval for a fixed tariff schedule, and should instead focus economic regulation on the avoidance of monopoly practices.

**62. Turkmenistan has only limited control over the door-to-door prices for long distance international traffic including transit traffic.** Much of the journey distance may be within other countries on route, so the freight rates charged by TRA in the past—and now Demiryollary OJSC—may have less influence on door-to-door prices than the freight rates of the other railways. This points to the need for caution about Demiryollary OJSC's ability to attract transit traffic, and also underscores the need for it to develop close coordination and partnership with the other railways on principal transit traffic routes, including mechanisms for offering customers all-inclusive door-to-door freight rates.

**63. Potential to leverage upon major recent investment projects.** Turkmenistan can use its recent investments in large export production facilities for fertilizers and polypropylene as a basis for building up the throughputs of the new Turkmenbashi International Seaport, establishing high standards of port efficiency, and attracting improved Caspian shipping services to the port.



**64. Turkmenistan can make early progress in cross-border railway transport by expanding cooperation with Uzbekistan.** Uzbekistan is Central Asia's most populous country and has recently adopted policies to promote trade and regional cooperation. For Uzbekistan trade requiring ocean shipping, the shortest distance route is through Turkmenistan to Iran's Persian Gulf Ports. For Trans-

Caspian trade with the Caucasus and Europe, railway to Turkmenbashi and shipping from there to Baku is the shortest distance route from many parts of Uzbekistan. Since Uzbekistan's trade is expanding rapidly, there could be significant advantages for both countries expand cooperation with a view to providing efficient rail transit routes through Turkmenistan.<sup>12</sup>

---

<sup>12</sup> According to freight forwarders, the most efficient route for Uzbekistan cotton exports to Europe is by rail on Turkmenistan's east-west corridor and then by Caspian Sea shipping from Turkmenbashi to Baku. For some Uzbekistan cotton exports to other countries, the most efficient route is by rail along the east-west corridor to the Iran border at Sarahs (where a gauge change is required) and then by rail south to Bandar Abbas.

# RAILWAY OPERATING AND FINANCIAL PERFORMANCE

## A. Introduction

65. This chapter provides a short discussion of the commercial orientation and operating and financial performance of railways in Turkmenistan, and presents the findings of benchmarking TRA's past operational performance against comparator railways.

## B. Commercial orientation

66. After the collapse of the FSU, the government played a historic role taking over the railway and ensuring the continuation of railway services in Turkmenistan. The railway remained important for domestic freight and passenger transport although cross-border traffic declined compared with the Soviet era. Until 2020, all railway responsibilities were undertaken by TRA which is a government agency.

67. The railway institutional reform approved in January 2020 that assigned Demiryollary OJSC with responsibility for operation of freight and passenger railway services could potentially play a significant role in improving the commercial orientation of railways. With a commercial entity responsible for railway service provision, it is to be expected that increased attention will be given to customer orientation, market development, profitability and financial sustainability. Adoption of the OJSC legal form could provide a mechanism to attract private investment in railway operations. It could also potentially serve

as a first step toward eventual privatization of railway service provision or introduction of multiple railway operators competing within the market.

68. To realize such potential, both Demiryollary OJSC and TRA will need to adopt modern methods of railway sector management. Demiryollary OJSC will need to establish separate profit centers to drive each of its main lines of business, supported by an accounting system that can track the performance of each business line. It should also establish a sales and marketing function capable of attracting additional customers, identifying the costs and revenues for each main customer and traffic type, and increasing revenues through optimized use of tariffs. Management information will need to include the types of commercial metrics used by high performance railways (e.g. terminal dwell time, asset turn velocity, train speed and service reliability). TRA will need to develop capacity to perform its new regulatory functions, establish efficient approaches to provision and management of railway infrastructure, and develop railway infrastructure tariffs to recover infrastructure costs and support efficient development of railway service operations.

## C. Financial performance

69. It is difficult to assess TRA's past financial performance as has not followed International Financial Reporting Standards. According to its annual financial statement (Table 4.1), TRA achieved a pretax operating profit of TMT286 million in 2017 and TMT280 in 2018 (TRA 2019). Since TRA carries

**Table 4.1: Turkmen Railway Agency's Reported Profit and Loss for 2017 and 2018 (TMT million)**

	2017	2018
Operating revenues	1,304	1,626
Operating expenses	(995)	(1,417)
Operating profit	309	208
Non-operating income	44	92
Non-operating expenses	(66)	(20)
Total profit (loss)	286	280
Corporate income tax	(93)	(93)
Total profit (loss) after tax	193	187

TMT = Turkmen manats.

Source: TRA 2019.

substantial traffic in both volume and turnover terms, it has the potential to operate profitably. However, its present approach to calculating profit and loss appears to overstate profitability since it does not deduct depreciation and interest expenses, which are generally substantial for railways.

**70.** A detailed assessment of TRA's financial statements would be needed in order to obtain a reliable understanding of its financial performance.

## D. Operational benchmarking

**71.** Drawing upon railway operational data obtained from the International Union of Railways (UIC),<sup>13</sup> aspects of the past operational performance of TRA have been benchmarked in relation to other CAREC railways (except Afghanistan)<sup>14</sup> and leading railways from other regions (Germany, India, Russian Federation and North America).<sup>15</sup> In most cases the

data refers to operational activities in 2017. In other cases, it refers to the most recent year for which data is available.

**72.** Based on the UIC data, TRA has the fifth largest railway network in the CAREC region (the PRC's network is the largest) and the sixth largest staffing. The railway network and staffing are a number of times smaller than those of the PRC and Kazakhstan, but also considerably larger than the smaller CAREC railways. This is shown in Figure 4.1.

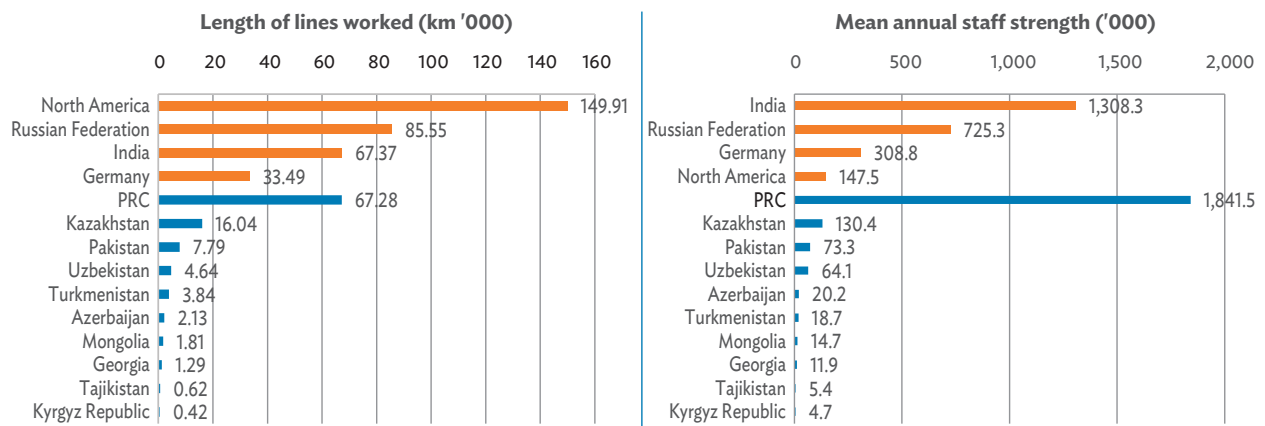
**73.** Among the comparator countries, TRA also has the fifth largest number of owned wagons. This overstates fleet strength since much of the wagon fleet is obsolete or inoperable (para. 9). While recent Turkmenistan data on diesel locomotives is not available in the UIC database, based on the fleet of 108 locomotives referred to in para. 9, TRA has the seventh largest number of diesel locomotives. This is generally consistent with the size of the railway network and the traffic level. This is shown in Figure 4.2.

<sup>13</sup> The UIC database consists of data self-reported by individual railway organizations.

<sup>14</sup> The UIC database does not yet include data for Afghanistan so it is not included in the benchmarking analysis.

<sup>15</sup> In addition to the national railways of CAREC countries, the sample includes Indian Railways (India), Deutsche Bahn AG (Germany), Russian Railways and the Association of American Railroads (North America) which represents the major freight railways of Canada, Mexico and the US.

**Figure 4.1: Comparison of Railway Length and Staff Size in Turkmenistan, other CAREC Member Countries and other Leading Railway Countries**

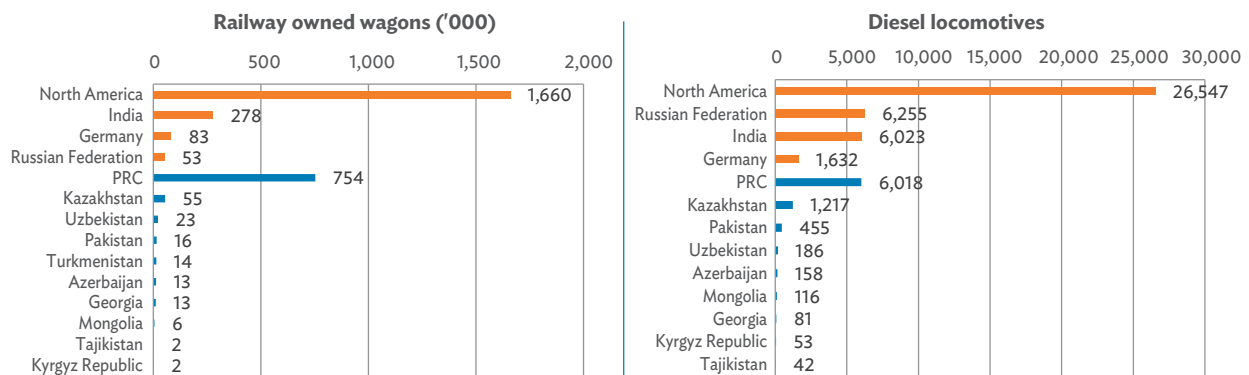


CAREC = Central Asia Regional Economic Cooperation, km = kilometer, PRC = People's Republic of China.

Note: CAREC Member Countries shown in blue, comparators from other regions shown in red.

Source: UIC 2019.

**Figure 4.2: Comparison of Railway Rolling Stock Fleet in Turkmenistan, other CAREC Member Countries and other Leading Railway Countries**



CAREC = Central Asia Regional Economic Cooperation, PRC = People's Republic of China.

Note: CAREC Member Countries shown in blue, comparators from other regions shown in red.

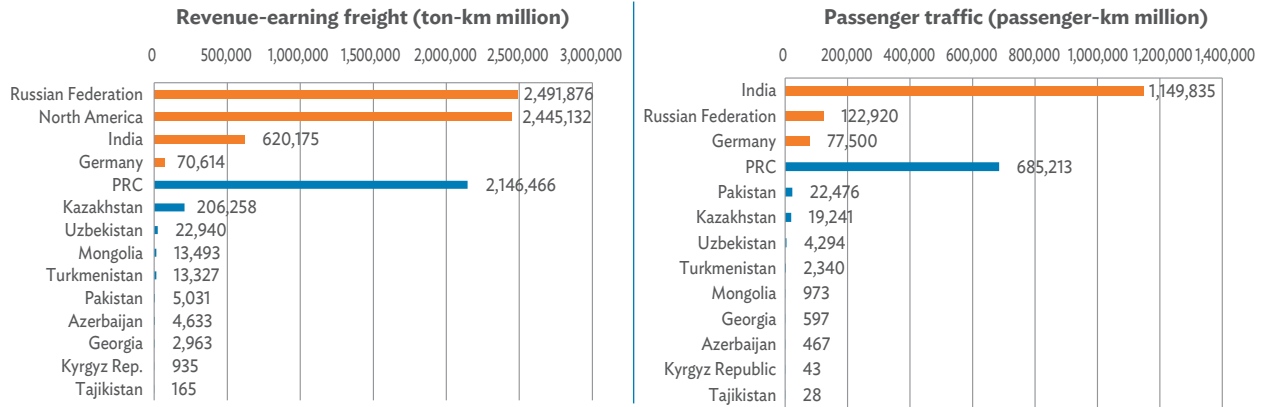
Source: UIC 2019.

74. TRA has the fifth largest annual freight turnover among the comparator countries (the PRC and Kazakhstan have the largest turnover). This is similar in magnitude to the combined freight turnover of the five lowest CAREC countries, but also only 6% of the second highest country, Kazakhstan. In the case of passenger traffic, TRA has the fifth largest passenger turnover (after PRC,

Kazakhstan, Pakistan and Uzbekistan). This is shown in Figure 4.3.

75. Track density measures the intensity of track utilization in terms of traffic turnover per km of rail. The track density of TRA is fifth highest among the comparator countries but considerably less than the top performing comparator countries (the PRC

**Figure 4.3: Comparison of Annual Railway Freight and Passenger Traffic Levels in Turkmenistan, other CAREC Member Countries and other Leading Railway Countries**



CAREC = Central Asia Regional Economic Cooperation, km = kilometer, PRC = People's Republic of China.

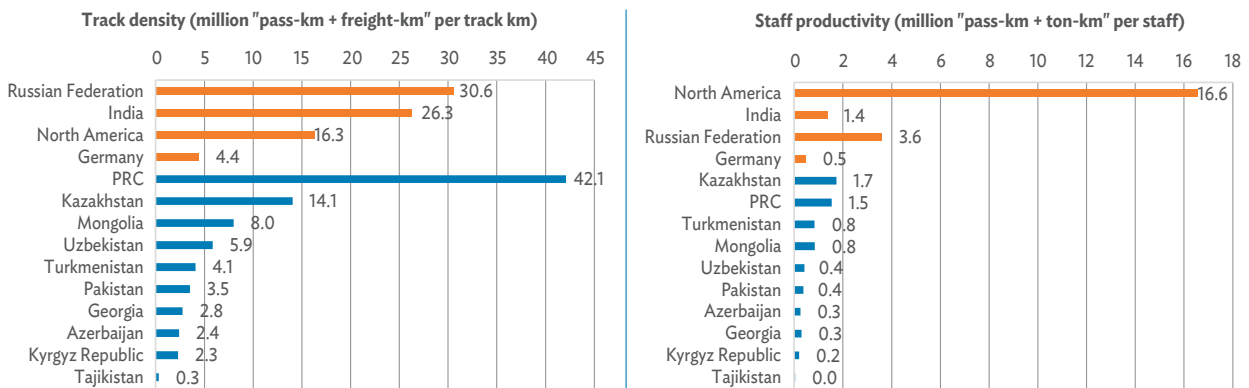
Note: CAREC Member Countries shown in blue, comparators from other regions shown in red.

Source: UIC 2019.

has highest track density). Staff productivity can be measured as traffic turnover per staff member. The staff productivity of TRA is third highest among the comparator countries, indicating that it has been more successful in limiting the problem of overstaffing that has undermined the performance of some of the other CAREC railways. This is shown in Figure 4.4.

76. A further set of productivity measures concerns rolling stock asset utilization. Locomotive productivity measures annual traffic turnover per locomotive. While recent Turkmenistan data on diesel locomotives is not available in the UIC database, based on the fleet of 108 locomotives referred to in para. 9, the locomotive productivity of TRA is about

**Figure 4.4: Comparison of Railway Track and Staff Productivity in Turkmenistan, other CAREC Member Countries and other Leading Railway Countries**



CAREC = Central Asia Regional Economic Cooperation, km = kilometer, PRC = People's Republic of China.

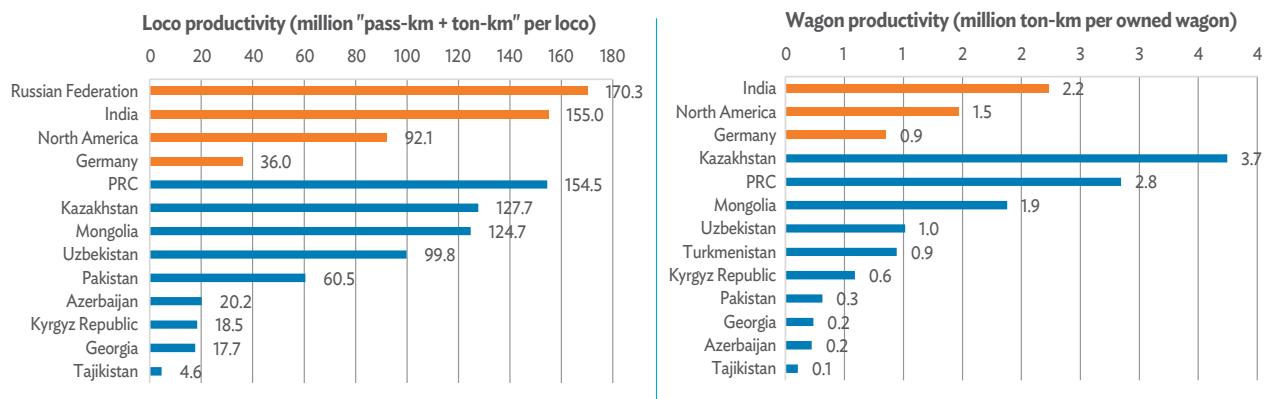
Note: CAREC Member Countries shown in blue, comparators from other regions shown in red.

Source: UIC 2019.

145 million ton-km per locomotive, which is second highest among CAREC countries. This reflects the limited size of the locomotive fleet and the relatively large average trip distances on Turkmenistan's network. Wagon productivity measures annual traffic turnover per owned wagon. The wagon productivity of TRA is the third highest among the CAREC MCs,

again due to limited fleet size and large average trip distances. This measure understates productivity since much of the existing wagon fleet is obsolete or unserviceable. TRA may therefore need to invest in replacement and expansion of the wagon fleet. This is shown in Figure 4.5.

**Figure 4.5: Comparison of Locomotive and Wagon Productivity in Turkmenistan, other CAREC Member Countries and other Leading Railway Countries**



CAREC = Central Asia Regional Economic Cooperation, km = kilometer, PRC = People's Republic of China.

Notes: (1) CAREC Member Countries shown in blue, comparators from other regions shown in red; (2) productivity calculations are less accurate for countries with higher use of leased locomotives or wagons, such as Kazakhstan.

Source: UIC 2019.

# PROPOSALS FOR INVESTMENT, COMMERCIALIZATION AND REFORM

## A. Introduction

77. Drawing on the previous chapters, this final chapter discusses opportunities for Turkmenistan to obtain prefeasibility study support, and capacity development and knowledge-related assistance, through the present CAREC Railway Sector Development TA.

## B. Policy setting

78. The government's medium-term priorities for railways are outlined in Turkmenistan's Seven Year Development Program, 2019–2025 (Government of Turkmenistan 2019). These are to invest in further upgrading of railway infrastructure and equipment while pursuing initiatives to attract increased international freight traffic, improve railway competitiveness and operational performance, and improve the legislation for railway transport. The priority of investment will be modernization and expanding capacity of the east–west line between Turkmenbashi and Turkmenabat. Efforts to attract international freight traffic will focus on international transit flows that Turkmenistan could serve competitively, including north–south, west–east, PRC–Afghanistan, PRC–Iran, Asia–Europe, Uzbekistan–Turkey, and Turkey–Afghanistan. To support this initiative, the international relations function for railways will be strengthened and railway tariff policy will be updated. It is also planned to develop an automated cargo management system to streamline cargo handling and documentation

and introduce real time consignment tracking and expanding its service offering to freight customers.

79. In support of these policy directions, ADB has provided Turkmenistan with TA to prepare investments to modernize and increase the capacity of its east–west railway corridor between Turkmenabat, Mary, Ashgabat and Turkmenbashi (ADB 2018b). It has also included possible financing for such investments in its forward lending pipeline (ADB 2020c). The Japan International Cooperation Agency (JICA) is also conducting a study of railway modernization requirements, with a view to financing priority railway investment needs (Oriental Consultants Global 2020).

## C. Proposals for support from CAREC Railway Sector Development TA

### 1. Prefeasibility studies

80. **Uzbekistan–Turkmenbashi container block trains and connecting ferry services.** During the Soviet era, the Central Asian Railway between Tashkent (Uzbekistan) with Turkmenbashi port via Turkmenabat, Mary and Ashgabat was one of the region's main transport corridors. At that time, the route served traffic between Central Asia and both Europe and the Middle East via Baku (Azerbaijan). Today, it is also shortest route from the PRC and parts of Central Asia to Azerbaijan, Georgia and Iran.

The route remains intact and Turkmenistan has recently invested in expansion of Turkmenbashi port. However, traffic to and from Uzbekistan remains low and there are no scheduled container ferry services between Turkmenbashi and Baku. As a first step toward revival of this route, there is potential for TRA and UTY to jointly establish regular container block train services between Uzbekistan and Turkmenbashi. By creating an assured basis of container traffic, there would be prospects for attracting scheduled container ferry services to operate between Turkmenbashi and Baku. A prefeasibility study is needed to confirm the viability of this proposal. The study would include examining the market to be served, identifying the level of service required by potential users (including for border crossing, block train operations, and port and ferry operations), identifying investments needed to achieve the required level of service, proposing joint arrangements for corridor management and monitoring, and preparing outline protocols on key technical aspects that would need to be agreed between the two governments before proceeding to implementation.<sup>16</sup>

## 2. Knowledge products and events

**81. Joint dialogue with shipping companies to promote rail containerization.** Central Asia lags behind advanced countries in the level of containerization of freight. For railways this makes multimodal freight less efficient as wagons either have to be transported from origin to destination or unloaded and reloaded at each mode change. Among the main reasons for low containerization are low trade volumes, and imbalances due to inbound volumes exceeding outbound volumes leading to accumulation of empty containers.

However, in recent years trade has been growing rapidly in Central Asia. The adoption of export-oriented policies by Uzbekistan, the region's largest economy, is potentially an important milestone. In the last year, there was a 40% rise in container throughput at UTY's largest container terminal in Tashkent. Some of the leading international container shipping companies are now allowing their containers to be used more widely in Central Asia in the expectation that the coming decade will see rapid growth in containerization. This is an encouraging development for Turkmenistan as it seeks to expand its role in cross-border railway transport. Increased containerization of freight would improve the competitiveness of long-distance railway traffic including by simplifying gauge changes and intermodal transfers, providing improved security and traceability, and enabling the operation of regular container block trains once volumes become sufficient.

**82.** To realize the full potential of containerization, TRA, Demiryollary OJSC, UTY and other CAREC railway entities need to work closely with shipping companies, for example to introduce complementary approaches to promoting containerized services to customers, plan for the expansion of container terminal coverage, introduce modern container tracking methods, establish systems for positioning containers and container wagon platforms at locations where they are needed, and adopt modern practices for refrigerated container management. The proposed knowledge support would initiate a joint dialogue between TRA, Demiryollary OJSC, UTY, other interested CAREC railways and several international container shipping companies. This could be arranged on a corridor or multi-corridor basis. The support would examine

<sup>16</sup> At a meeting in Tashkent on 19–20 December 2019, the railway heads of Azerbaijan, Georgia, Kyrgyz Republic, Turkmenistan and Uzbekistan agreed on the importance of developing the international multimodal route between “Asia-Pacific countries, the PRC, the Kyrgyz Republic, Uzbekistan, Turkmenistan, Azerbaijan, Georgia and Europe,” and to develop common approaches for accelerating the passage of container trains and applying standardized tariffs (UZ Daily 2020). TRA and Azerbaijan Railways also agreed to work together to organize Caspian Sea container feeder services between Turkmenbashi and Baku.



the causes of existing low container penetration, identify opportunities for increasing containerization (e.g. types of goods), and prepare a containerization strategy to be pursued in collaboration with shipping lines drawing upon international best practices (e.g. on promoting corridor management arrangements, containerized services to customers, container terminal planning, container tracking methods, positioning systems for containers and wagon platforms, and refrigerated container management).

**83. Best practices in private sector participation in operation of terminals and stations.** Efficient freight terminals and freight railway stations play a vital role in freight consolidation, distribution, intermodal transfers and gauge changes. Experience in other countries indicates that successful operation of these facilities requires strong commercial skills and customer orientation, and these are found mainly in the private sector. Some countries have therefore engaged private companies, often on a concession basis, to build and operate improved terminals and freight stations. If Turkmenistan is to realize its cross-border freight potential, it will also need to expand its terminals and stations, and improve their performance. It may therefore be useful to examine best practices in private sector participation in Turkmenistan's railway freight terminals and stations, and explore organizational models and structures to transform these into JSCs in line with the policy directions of the Seven Year Development Program (para. 78). The proposed knowledge support would provide TRA, Demiryollary OJSC and other interested CAREC railway entities with advice on best practice approaches applicable to their current situation and future plans, and provide access to international experts to assist in applying such approaches in practice.

**84. CAREC rolling stock needs and financing facility.** In many CAREC MCs, including Turkmenistan, the railway wagon fleets are aged and require substantial investment to replace expired items. Railways often have to supplement their

wagon fleets by renting wagons from other countries. Shortages of particular types of wagons and seasonal shortages are common. These lead to delays in customers being allocated a wagon, and additional charges being passed on to customers. With the expected rise in export volumes and reduction in imbalances between imports and exports, this situation could in future lead to wagon shortages becoming a bottleneck for railway traffic growth. The proposed study will examine the condition, availability, utilization and competitiveness of rolling stock fleets serving CAREC countries, estimate future needs, and identify options for future rolling stock financing. This would include (i) obtaining data on the age, condition, availability and utilization of existing fleets; (ii) identifying the main approaches and management systems used by CAREC railways to support wagon availability and utilization (including wagon positioning, utilization and tracking), (iii) confirming the financial returns to wagon owners and long term lessors (including wagons owners in Russian Federation, Latvia, Belarus and Ukraine), (iv) obtaining opinions from customers about the adequacy of wagons and wagon supply arrangements and the competitiveness of associated charges, (v) benchmarking rolling stock charges against comparator railways, (vi) preparing scenarios for freight traffic including exports, imports and transit traffic, (vii) estimating future wagon needs, and (viii) identifying options for ensuring efficient, cost-effective and financially sustainable wagon provision in future including possible private wagon ownership and setting up a joint regional wagon supply company. This would lead to formulation of a proposed ADB-financed CAREC Rolling Stock Financing Facility with a view to assisting both public and private railway operators in CAREC MCs.

**85. Accounting standards and systems to enable railway commercialization.** Among the first steps needed to be capable of operating on a commercial basis, is to adopt International Accounting Standards and International Financial Reporting Standards, and introduce a modern railway

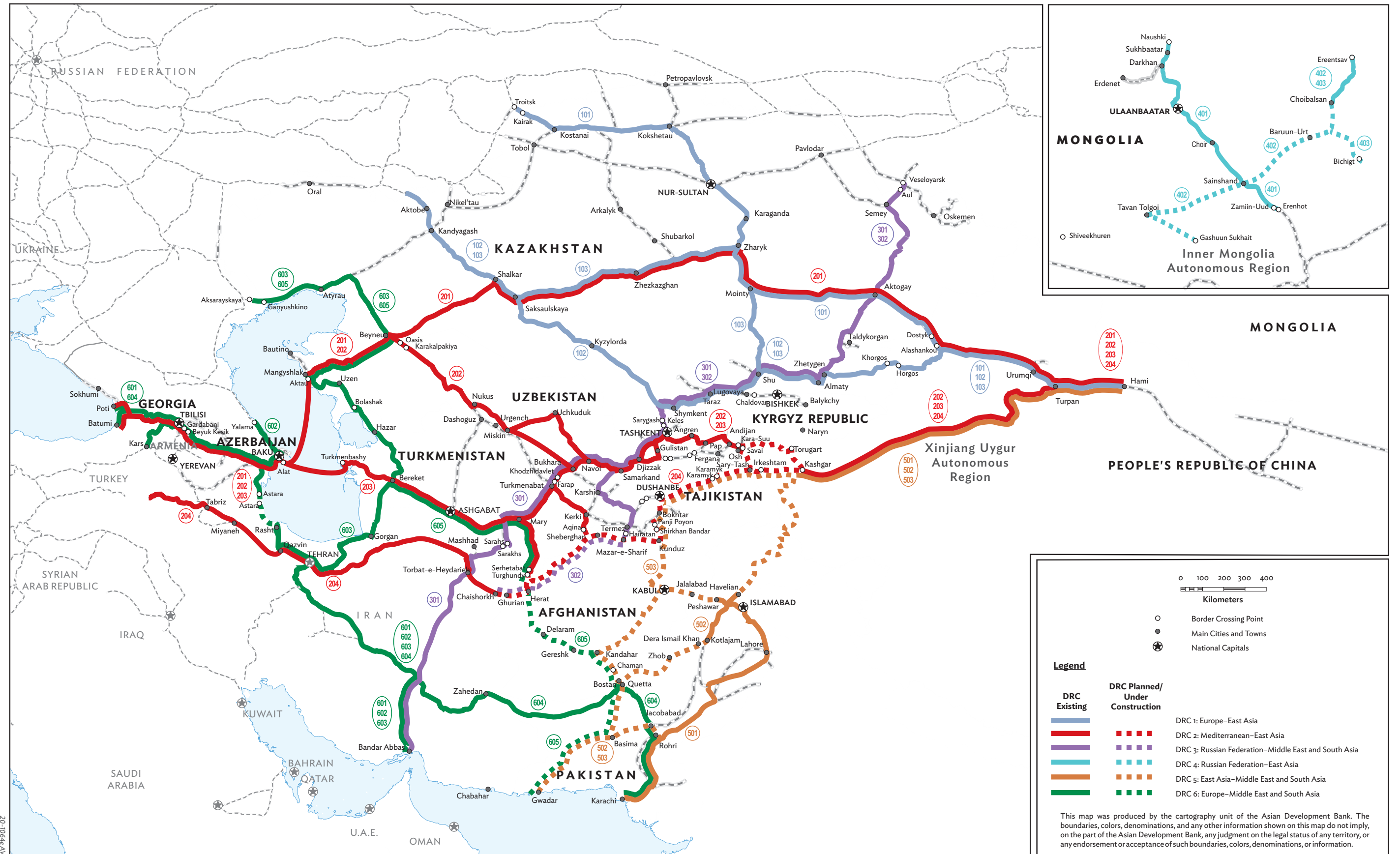
accounting system that separately reports, in real time, on the costs and profitability of each of the main lines of business. The proposed knowledge support would compile best practices on the introduction of such railway accounting standards and systems, identify the main tasks for their introduction by TRA, Demiryollary OJSC and other interested CAREC railway entities, and prepare options for sequencing the transition from the existing accounting standards and systems to the new ones.

**86. Best practices in improving railway customer service orientation.** According to freight forwarders in other Central Asian countries, in the past it was not very easy to interface with TRA to obtain railway transport services. With the domestic and regional freight markets becoming increasingly competitive, customer service orientation will need to be improved if railway is to retain its existing traffic sources and attract new customers in future. The recent institutional reform establishing Demiryollary OJSC to be responsible for railway service operations has provided an important opportunity to overcome the past problems with customer service orientation. The proposed knowledge support would mobilize international experts with leading experience of improving the customer orientation of railways. They would conduct short studies in Turkmenistan and other interested MCs to benchmark railway customer

orientation against selected international and regional railway organizations. The experts would then identify international best practices that the respective countries could utilize to improve their customer orientation. Country seminars would be held to share the results of the benchmarking studies and proposals for adoption of best practice approaches. Depending on country interest, this could be followed by the experts providing hands-on support to assist in introducing the best practice approaches.

**87. Best practices in establishing and operating a railway sales and marketing function.** A critical obstacle to commercialization of CAREC railways is that many of the railways lack a competent sales and marketing function (in some cases there is no separate unit or department for sales and marketing). Establishing a capable sales and marketing function will also be important for the success of Demiryollary OJSC. The proposed knowledge product would prepare a paper documenting best practices in the setting up and operation of a railway sales and marketing function, conduct management training workshops to increase awareness among CAREC railways, and work with interested railways to prepare proposals for establishing a new or improved sales and marketing function.

# APPENDIX | CAREC DESIGNATED RAIL CORRIDORS



DRC = designated rail corridors.  
Source: CAREC Secretariat.



# REFERENCES

Asian Development Bank (ADB). 2011. *Report and Recommendation of the President to the Board of Directors: Proposed Loan Republic of Turkmenistan: North–South Railway Project*. ADB: Manila.

———. 2017a. *Unlocking the Potential of Railways: A Railway Strategy for CAREC, 2017–2030*. ADB: Manila.

———. 2017b. *Country Partnership Strategy: Turkmenistan, 2017–2021—Catalyzing Regional Cooperation and Integration, and Economic Diversification*. ADB: Manila.

———. 2018a. *Railway Sector Development in Central Asia Regional Economic Cooperation Countries*. Technical Assistance Report. ADB: Manila.

———. 2018b. *Technical Assistance Report. Turkmenistan: Preparing the Central Asia Regional Economic Cooperation Corridors 2, 3 and 6 (Turkmenabat–Mary–Ashgabat–Turkmenbashi) Railway Modernization Projects*. ADB: Manila.

———. 2019a. *Basic Statistics, 2019*. ADB: Manila.

———. 2019b. *CAREC Corridor Performance Measurement and Monitoring. Annual Report 2018*. ADB: Manila.

———. 2020a. *Country Railway Sector Assessment: Kazakhstan*. ADB: Manila.

———. 2020b. *Country Railway Sector Assessment: Uzbekistan*. ADB: Manila.

———. 2020c. *Country Operations Business Plan: Turkmenistan 2020–2022*. ADB: Manila.

Central Intelligence Agency (CIA). 2020. *The World Factbook. Central Asia: Turkmenistan*. <https://www.cia.gov/library/publications/the-world-factbook/geos/tx.html>

European Bank for Reconstruction and Development (EBRD). 2014. *Strategy for Turkmenistan*. EBRD: London. <https://www.ebrd.com/downloads/country/strategy/turkmenistan.pdf>

Government of Turkmenistan. 2019. *Turkmenistan Seven Year Development Program: 2019–2025: Industrial, Transport and Communications Sector*. Ashgabat.

Hindu Business Line. 2019. *US Gives Written Assurances to India in a Big Push to Chabahar Port Plan*. 25 December 2019. <https://www.thehindubusinessline.com/economy/logistics/us-gives-written-assurances-to-india-in-a-big-push-to-chabahar-port-plan/article30393995.ece>

International Monetary Fund (IMF). 2020. *Direction of Trade Statistics*. <https://data.imf.org/regular.aspx?key=61013712>

International Union of Railways (UIC). 2019. *UIC Statistics*. <https://uic.org/support-activities/statistics/>

Moody's. 2020. *Turkmenistan—Economic Indicators*. <https://www.economy.com/turkmenistan/indicators>

Observatory for Economic Complexity. 2020. *Afghanistan Country Profile*. <https://oec.world/en/profile/country/tkm/>

Oriental Consultants Global. 2020. *Study on Railway Modernization in Turkmenistan: Proposals for Modernization*. Presentation.

Turkmen Railway Agency. 2019. *TRA Financial Report, 2018*.

Turkmenbashi International Seaport. 2018. *Brochure*. Ashgabat.

US Energy Information Administration. 2020. *Database on Reserves and Production of Natural Gas and Petroleum and Other Liquids*. <https://www.eia.gov/international/data/world>

UZ Daily. 2020. *The first train with cargo arrived in Georgia through Uzbekistan*. 27 January 2020. <http://www.uzdaily.com/en/post/54414>.

World Bank. 2020. *The World Bank in Turkmenistan: Overview*. <https://www.worldbank.org/en/country/turkmenistan/overview#3>

## **Railway Sector Assessment for Turkmenistan**

Through a technical assistance project on railway sector development, the Asian Development Bank is helping member countries of the Central Asian Regional Economic Cooperation (CAREC) region to strengthen the role and performance of railways. This report summarizes the findings of an assessment of the railway sector in Turkmenistan. It examines the context, characteristics, performance and potential of railways, and identifies opportunities for future investment, commercialization, and reform.

### **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.” CAREC countries include: Afghanistan, Azerbaijan, the People’s Republic of China, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan.