

Azerbaijan

Trade Facilitation and Logistics Development Strategy Report



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AZERBAIJAN: Trade Facilitation and Logistics Development Strategy Report

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Asian Development Bank

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Abbreviations and Acronyms

ABADA	–	Azerbaijan International Road Carriers Association
ADB	–	Asian Development Bank
ADDY	–	Azerbaijan Dooviet Deniri Yolu (Rail operator and regulator)
AZAL	–	Azerbaijan Air Lines
AZPROMO	–	Azerbaijan Export & Investment Promotion Foundation
BP	–	British Petroleum
BCP	–	border-crossing point
CAREC	–	Central Asia Regional Economic Cooperation
CASPAR	–	Caspian Shipping Company
CIS	–	Commonwealth of Independent States
EU	–	European Union
EurAsEC	–	Eurasian Economic Community
FEZ	–	free economic zone
GDP	–	gross domestic product
KTB	–	Kars–Tbilisi–Baku railway
LPI	–	logistics performance index
PRC	–	People’s Republic of China
SCO	–	Shanghai Cooperation Organization
SMEs	–	small and medium-sized enterprises
TRACECA	–	Transport Corridor Europe–Caucasus–Asia
US	–	United States of America

Foreword

The Asian Development Bank (ADB) is pleased to provide this report on the state of the transportation and logistics sectors in Azerbaijan. It covers key measures needed to make these sectors more efficient and cost-competitive. This volume will be useful for government policy makers, providers and users of transport and logistics services, and other stakeholders. Efficient and cost-competitive transportation and logistics sectors will enable Azerbaijan not only to spur economic activity and engender social and political cohesion within its borders, but also to take full advantage of its geographical position and serve as a transit corridor between the dynamic and growing economies in the East and West.

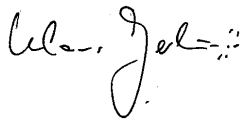
This report is part of a series of nine that cover the countries in the Central Asia Regional Economic Cooperation (CAREC) area: Afghanistan, Azerbaijan, Kazakhstan, Kyrgyz Republic, Mongolia, the People's Republic of China (specifically its Inner Mongolia and Xinjiang Uyghur autonomous regions), Tajikistan, and Uzbekistan. This series is part ADB's continuing support of CAREC and the region in an effort to further poverty alleviation and secure a better future for people. Support, provided under the ADB CAREC Program, has been focused on promoting more efficient and effective economic cooperation among CAREC countries in the areas of transport, trade policy, trade facilitation, and energy.

The reports highlight the substantial challenges CAREC countries need to overcome. Aside from being landlocked with varied terrain, these countries are challenged by inadequate infrastructure, unsupportive systems and policy environment, and lack of skills and management know-how. From the numerous measures recommended in these reports, a common theme has emerged: the compelling need for the members of CAREC to achieve unity in purpose and action. Across borders, customs procedures need to be harmonized, tariffs rationalized, and a common framework for achieving seamless movement of cargo agreed upon. Clearly, a general atmosphere of cooperation needs to be achieved if the whole region is to reap the full benefits of efficient and competitive transportation and logistics services.

ADB hopes that the publication of this report, as well as the eight others in the series, would inspire such spirit of cooperation and unity in the region.

The conduct of these trade logistics studies embodies ADB's new strategy under its Strategy 2020 and its five core areas of operation, two of which are infrastructure and regional cooperation and integration. The publication of the reports, meanwhile, is in line with ADB's new strategic direction of focusing on knowledge which is one of the five drivers of change. It is part of the efforts of the East Asia Region Department to develop knowledge products that will support ADB's mission of reducing poverty in Asia and the Pacific.

ADB staff contributions from the Financial Sector, Public Management, and Regional Cooperation Division, East Asia Department, and the Department of External Relations are greatly acknowledged. We also acknowledge the efforts of consultants who conducted primary research in the field. These combined efforts have resulted in a timely and significant contribution to trade facilitation and logistics in the CAREC region.



Klaus Gerhaeusser
Director General
East Asia Department

Executive Summary

Situated in the Caucasus region and adjacent to the Caspian Sea, Azerbaijan offers one of the most attractive transit links along the east–west trade route between Asia and Europe, as well as the north–south trade route between northern Europe and the Russian Federation on the one hand, and the Middle East and South Asia on the other.

Overcoming economic and social disruptions from the Armenian conflict, the country has bounced back strongly since its 1991 independence. Its real gross domestic product (GDP) surged 23% in 2007, driven mainly by a 37% growth in the oil sector.

Despite its enviable geographic position and increasing prosperity, Azerbaijan's logistics system has not matched the advance in its economy. Its logistics performance index (LPI) ranks 111th out of the 150 countries surveyed in the 2007 World Bank report, *Connecting to Compete – Trade Logistics in the Global Economy*. The LPI measures a country's trade logistics performance using a number of parameters. Under this system of measurement, countries with high LPI scores have lower trade costs and are better connected to the global value chain.

Of all the elements that comprise a logistics system, Azerbaijan's infrastructure and logistics competence need the most attention. Its infrastructure ranks 116th, five notches lower than its composite rank. This ranking highlights the poor condition of its road and rail infrastructure. Its logistics competence, meanwhile, ranks 128th and reflects the shortage it has of qualified logistics professionals.

Challenges

Even though Azerbaijan's air and sea transport infrastructure are modern, its roadways and railways are underdeveloped. Large sections of its roadways have disintegrated, with huge potholes and crumbled pavements dotting most routes. Its rail infrastructure is in even worse shape. Most of the rail ties have rotted away and the ballast badly contaminated. The majority of its rail locomotives are past retirement age, with 80% of the passenger wagons being over 15 years old and more than half of the freight wagons no longer usable.

Moreover, Azerbaijan's motor-carrier industry is small; only a few carriers have 50 or more trucks. With the exception of the world-class Baku Cargo Terminal adjacent to the modern Baku International Airport, large long-term logistics investments by the private sector are rare. Entrepreneurs focus on businesses that can produce a quick profit and do not require substantial capital expenditures.

Multimodal transport is at a very early stage of development. Unlike the United States' (US) railroads that run fast, scheduled, dedicated, double-stack trains carrying 100 or more containers, Azerbaijan Railway transports just a few containers in slow, mixed trains. Also, unlike a typical US intermodal terminal that handles several thousand containers and trailers a day, most Azeri rail intermodal terminals handle only a handful of containers a day.

Discounting petroleum and petroleum-based exports moving in specialized tank wagons that cannot be reloaded with other freight, inbound cargo into Azerbaijan exceeds its outbound cargo by several multiples. Azerbaijan's role as a transit country for its neighbors also contributes to this freight flow imbalance. The heavy freight flow imbalance causes poor equipment utilization, which in turn pushes up freight rates and increases the cost of trade.

Azerbaijan does not have an integrated national trade and transport facilitation strategy. No institution below the Cabinet of Ministers is dedicated to trade and transport facilitation or reform. Moreover, traders encounter many obstacles from excessive bureaucracy, lack of transparency, and uneven enforcement of laws and regulations that come into effect with no advance notice.

The Azeri government protects its banking industry and restricts foreign investments. As a consequence, the banking sector is dominated by two banks which together control over 50% of the market. Global financial institutions with strong trade finance capabilities (e.g., HSBC and Citigroup) do not have branches in Azerbaijan. There is thus very limited financing available to support efforts to modernize the country's transport and trade sectors. Whatever financing is available is too expensive for small and medium-sized enterprises (SMEs).

Opportunities

The convergence of the Asian and European production networks presents significant opportunities for Azerbaijan to bridge both networks and form a pan-Eurasian production network.

Azerbaijan's position at the boundary of Asia and Europe gives it a special advantage as a center of trade and transport. It can use its favorable position to develop strong transport and logistics capabilities as well as industries that rely on trade logistics to exploit this competitive edge. Its trucks can carry cargo between Asia and Europe, and its logistics centers can support both Asian and European production networks. Baku can become a trade hub where merchants from Europe and Asia come to make deals.

Service industries represent another area with substantial growth potential for Azerbaijan. These industries can be developed in future free trade zones to repair and assemble machinery and equipment (e.g., oil production equipment) for Asian and European producers under favorable customs regimes. Agriculture is another area that Azerbaijan can develop into a long-term economic driver. The sector, which is currently contributing only 7% of GDP, can grow substantially with improvements in marketing, production, transportation, and cold chain logistics.

Government Infrastructure Plans

Since its oil and gas production is anticipated to peak in around 2012, the Azeri government is nurturing other sectors of the economy to become future alternative engines of growth. Trade logistics is one such sector.

Recognizing the importance of trade logistics in spurring economic development, the government has set ambitious plans to advance the country's road and rail transport infrastructure. Aside from budgeting over \$0.5 billion for highway improvement, Azerbaijan will invest \$1.5 billion to upgrade its rail system and to support the Georgian government with a \$200 million concessionary loan for building the Georgia portion of the Kars–Tbilisi–Baku (KTB) railway. When completed, the KTB railway will connect Azerbaijan's rail system with that of Turkey, its key trading partner and close ally, to form a sea-to-sea intercontinental rail link that runs from the United Kingdom to the People's Republic of China. The \$1.5 billion rail restructuring program will include the acquisition of a new alternating current (AC) electrification system, a new signaling system, new locomotives, and new wagons, and the replacement of large sections of existing tracks.

To complement this road and rail upgrading program, the Azerbaijan State Shipping Company (CASPAR) plans to substantially increase its fleet size and scope of operations. In addition, a new, modern sea port will be constructed near Alat, just south of Baku, which bypasses urban congestion around Baku and offers a shorter route to the Georgian border and the Black Sea.

Key Recommendations

Several measures need to be undertaken to improve Azerbaijan's trade logistics sector, the most important of which are the following:

1. Adoption of a comprehensive transport infrastructure plan and design to
 - achieve the highest return on investment,
 - balance the amount of investment in various types of infrastructure, and
 - ensure seamless air/truck/rail/sea modal integration.
2. Reform of the transport and logistics curriculum, and the recruitment of world-class faculty to teach in Azerbaijan's universities.
3. Establishment of a pilot corridor with special economic zones, multimodal cargo facilities, logistics centers, cold storage facilities, and modern border-crossing points to showcase the improvements achieved.
4. Simplification of customs laws and regulations; improvement of transparency in rules and regulations; promotion of the harmonization of border-crossing procedures, forms and data requirements; and reduction of regulatory burden on trade.
5. Encouragement of private sector participation and the promotion of the development of SMEs.
6. Securing of foreign investments that come with technology and knowledge transfers.
7. Development and compilation of logistics performance indicators to assess the success of government policies, laws, and regulations.

Concluding Remarks

The selection of trade routes is dynamic and constantly evolving. Merchants and manufacturers continuously monitor the freight rates, service quality, and reliability of alternate trade routes to optimize their choices.

New and existing trade routes will continue to challenge the east–west and north–south trade routes crossing Azerbaijan. Azerbaijan must thus be vigilant in defending its competitive advantages and constantly strive to make itself the most trade- and transit-friendly country in the region. It should use a significant portion of its oil and gas receipts toward this end and toward developing industries that will sustain its economy in the future. Aside from trade and logistics, supply-chain services and agriculture are high-potential industries that it should nurture.

Introduction and Background

Objective and Benefits of the Study

The purpose of this study is to strengthen the links of the Central Asia Regional Economic Cooperation (CAREC) region to global value chains, leveraging the region's status as efficient and effective "landbridges" connecting Asia and Europe.

Developing trade logistics capabilities along this modern "silk road" will bring immense economic and social benefits, ultimately elevating the standards of living across the entire CAREC Region. These benefits include

- reduction in the time and cost of trade between Europe and Asia,
- increase in the capacity and diversity of trade routes,
- enhancement of intra-CAREC and global trade growth,
- increase in the global competitiveness of the CAREC region, and
- support for cluster-based economic development.

Ultimately, these improvements will strengthen the economies of the CAREC member countries and increase their prosperity.

Scope

The study is part of the CAREC Trade Facilitation Program sponsored by the Asian Development Bank (ADB) to promote intra-regional and interregional trade through regional cooperation and effective logistics practices.

The consultant traveled nearly 1,300 kilometers on Azerbaijan roads, from Baku through Ganja to the border area adjacent to Georgia. Appendix A provides a list of the organizations and sites visited during this field study in Azerbaijan.

The information collected in his field study will hopefully contribute to the existing body of knowledge on trade logistics and present another perspective toward improving Azerbaijan's trade logistics.

Approach

This study draws on the consultant's knowledge and expertise as a seasoned logistics industry executive. Unlike most previous researches, it analyzes Azerbaijan's trade logistics from the perspective of a logistics industry practitioner.

The consultant devoted a large portion of his effort toward interviewing transport and trade professionals, as well as making observations during road trips and site visits.

Country Profile

Azerbaijan is a member of the Central Asia Regional Economic Cooperation (CAREC) program. Located at the crossroad of the east–west and north–south trade routes between Asia and Europe (Figure 1), it has been the center of commerce and trade, as well as culture in the Caucasus region for many centuries. Aside from its role as an important link in the East–West Silk Road between the People’s Republic of China (PRC) and Europe, it offers one of the most effective links between key economic centers in the Russian Federation and Eastern Europe on the one hand, and Iran, the Middle East, and South Asia on the other. Its capital, Baku, is the only major international city on the Caspian Sea. The Baku International Airport is the air cargo and passenger hub for the region.

Figure 1. Map of Azerbaijan and Neighboring Countries



Source: United Nations, Department of Information.

Azerbaijan encompasses a land area of 86,600 square kilometers. In addition to the 8.63 million living within its borders, over 25 million more Azeri diaspora live and work in the Russian Federation, Iran, Georgia, and other countries. The Azeris enjoy a reputation as highly successful traders and entrepreneurs.

Azerbaijan has many climate zones, with temperatures rising in the lowlands around the Caspian Sea in the east, and dropping in the high plains and mountains in the Caucasus range. The fertile plains between its mountains produce high quality fruits, vegetables, and dairy products that enjoy a very good reputation abroad, and command premium prices in the Russian Federation. Some of its wine grapes are even exported to France.

Azerbaijan is transitioning from a Soviet-style central planning economy to a market-driven one. Following sharp declines in its gross domestic product (GDP) after independence and the Armenian conflict, it has attained stable and rapid growth in recent years. Its GDP growth rate averaged 21% per year from 2003 to 2007—an impressive achievement. Its main economic driver is the oil sector which expanded by 37% in 2007. After oil and gas, agricultural commodities are Azerbaijan's largest exports. Its other major export items are aluminum- and plastic-based construction materials.

Oil was discovered in Azerbaijan, "The Land of Fire", centuries ago. Because of its openness to foreign direct investment, huge amounts of foreign capital flowed into its oil and gas sector. The completion of the Baku–Tbilisi–Ceyhan pipeline positioned the country as a key player for the transport of the Caspian Sea region's oil to world markets. The Azerbaijan National Railway also plays an important role in shipping its neighbors' oil from Baku to the Black Sea, freeing Kazakhstan and Turkmenistan from the chokehold of the Russian pipeline monopoly.

Since its oil and gas production is anticipated to peak in around 2012, Azerbaijan must develop other sectors of its economy in anticipation of the reduced revenues from oil exports from thereon in. It has recognized trade logistics as one such sector. More specifically, it has realized that improving its trade logistics sector would enable it to spur internal economic activity while taking full advantage of both its strategic geographical position as the hub of trade and travel between Asia and Europe, and the high demand for its agricultural products.

However, despite its enviable position at the crossroads of east–west and north–south trade routes between Europe and Asia, Azerbaijan's trade logistics sector has remained substantially underdeveloped. The country scores low in the 2007 World Bank report, *Connecting to Compete – Trade Logistics in the Global Economy*, that measures a country's trade logistics performance using a number of parameters. Its logistics performance index (LPI) of 2.29 ranks 111th of the 150 countries surveyed. Its "Logistics Competence" score of 2 ranks 128th, and is the worst component of its LPI scores. Its "Infrastructure" score, also at 2, ranks 116th. These scores are substantially lower than its composite LPI, underscoring the underdeveloped state of these sectors.

Realizing the huge potential for development offered by its trade logistics sector and faced with the deficiencies and inefficiencies in it, Azerbaijan's government has set ambitious plans to advance the country's transport infrastructure. In addition to over \$0.5 billion for highway improvements, it will invest \$1.5 billion to upgrade its rail system. It is also supporting the Georgian government with a \$200 million concessionary loan to enable Georgia to build the Georgia portion of the Kars–Tbilisi–Baku (KTB) railway. The railway's scheduled completion in 2009 will facilitate Atlantic-to-Pacific intercontinental rail connection between the United Kingdom and the PRC.

Azerbaijan is a member of the World Bank, the European Bank of Reconstruction and Development, ADB, and the International Monetary Fund. It is also a member of the following organizations:

- Commonwealth of Independent States (CIS),
- Organization of the Islamic Conferences,
- Central Asia Regional Economic Cooperation,
- Transport Corridor Europe–Caucasus–Asia (TRACECA),
- United Nations Special Programme for the Economies of Central Asia,
- Eurasian Economic Community (EurAsEC),
- Economic Cooperation Organization,
- Georgia Ukraine Azerbaijan Moldova,
- Organization for Security and Co-operation in Europe, and
- World Customs Organization.

In June 2008, *Forbes* magazine upgraded Azerbaijan's ranking from 110 to 82 of 121 in its "Best Countries for Business Report."

Assessment of the Transport and Logistics Sectors

Transport Networks and Traffic Patterns

The transport infrastructure of Central Asia was built mainly in the 1960s through the 1980s as part of the integrated former Soviet Union transport system to funnel goods toward the Russian Federation. It deteriorated rapidly in the early 1990s because of civil conflict, economic difficulties, and natural disasters. After the disintegration of the Soviet Union, it became segregated by national borders. Because of the lack of integrated planning and modal coordination, its road, rail, and air networks are not configured to provide the most efficient transport routes and services possible.

With strong support from the Asian Development Bank (ADB) and other multilateral organizations, the transport system of Central Asia has been gradually improving.

Azerbaijan's transport infrastructure includes 29,000 kilometers (km) of roads, over 2,100 km of railroads, 3 international airports, and several regional airports. The Baku International Airport is the largest airport in the region and the Baku Sea Port is the largest sea port on the Caspian Sea.

Situated in the South Caucasus, bordering the Russian Federation on the north, Iran on the south, the Caspian Sea on the east, and Georgia on the west, Azerbaijan encompasses the shortest transport corridors connecting Europe to Asia (east–west corridor) and northern Europe (particularly the Russian Federation) to the Middle East and South Asia (north–south corridor). Moreover, among the six landlocked countries listed below of the Central Asia Regional Economic Cooperation (CAREC) program, Azerbaijan is the closest to open sea (Table 1).

Table 1. Distance of Landlocked CAREC Members to Closest Seaport

Country	Distance (kilometer)
Azerbaijan	800
Kazakhstan	3,750
Kyrgyz Republic	3,600
Mongolia	995
Tajikistan	3,100
Uzbekistan	2,950

CAREC = Central Asia Regional Economic Cooperation.

Source: United Nations Economic Commission for Asia and the Pacific (UNESCAP) Secretariat.

Azerbaijan is the linchpin of the Europe-Caucasus-Asia (TRACECA) Transport Corridor—a key factor in choosing Baku as the location for the Permanent Secretariat of TRACECA. The TRACECA Program was launched by the European Union (EU) in 1993, and encourages the development of a transport corridor on an east–west axis from Central Asia through the Caucasus, across the Black Sea, to Europe. In 1998, 12 nations signed a multilateral agreement, known as the Baku Declaration, to develop the transport corridor through closer economic integration, rehabilitation and development of new transport infrastructure, and fostering stability and trust. The transport corridor, a branch of the “New Silk Road”, links Europe and Asia through Turkey, the Caucasus, and Central Asia. It was specifically crafted to bypass the Russian Federation and the use of its Trans-Siberian Line. The main TRACECA corridor is the east–west corridor between Baku in Azerbaijan and Poti, Batumi in Georgia (CAREC Corridor 2) (Figure 2).

Azerbaijan is also central to CAREC Corridor 2-a and Corridor 2-b (Mediterranean–East Asia). Corridor 2 connects the Mediterranean via Istanbul to Tbilisi, Baku and then, by ferry service, across the Caspian Sea to Aktau (Corridor 2-a) or Turkmenbashi (Corridor 2-b). The two branches of Corridor 2 converge again in Tashkent, continues on to Kara Suu, Osh and Irkeshtam, reaching Kashi in the Xinjiang Uygur Autonomous Region (XUAR) of the People’s Republic of China (PRC). From Kashi, the corridor continues on to Urumqi, then the Port of Lianyungang in the PRC central coast (Figure 3).

All segments of Azerbaijan’s transport industry are growing rapidly.

- The transport of oil and gas is expected to grow rapidly over the next few years as large-scale oil projects come onstream. The recently completed Baku–Tbilisi–Ceyhan pipeline,

Figure 2. Map of TRACECA Routes through the Caucasus



Source: Transport Corridor Europe–Caucasus–Asia (TRACECA).

Figure 3. Map of CAREC Corridor 2



CAREC = Central Asia Regional Economic Cooperation.

Source: TA 6347 CAREC Transport and Trade Facilitation Strategy.

with a capacity of 1 million barrels per day, is already near capacity. The government is building new pipelines and expanding the capacity of existing ones.

- Shipping has enjoyed an average annual growth rate of almost 20% since the mid-1990s. Azerbaijan will expand its shipping fleet substantially in the next 5 years, with a plan to build a new port and shipyard in Alat. It has applied for 27 more permits for its ships to travel through Russian inland waterways to reach the Black Sea (Volga–Don) and the Baltic Sea (Baltic–Volga). In July 2008, Qarabag, a new Caspian ferry with higher cargo-carrying capacity, was added to the fleet.
- Aviation has received over \$200 million in cumulative investments in recent years. The Baku International Airport is a modern airport capable of handling the largest passenger and cargo planes. Azerbaijan is one of the few countries of its size that has four homegrown airlines: Azerbaijan Airlines (AZAL), Turan, Imair, and Silk Way.
- Rail transport is also growing, largely due to the increasing volumes of oil in transit across the country.

To fulfill its ambition to be a key transit country and an important player in regional trade logistics, Azerbaijan is upgrading its existing road and rail infrastructure. Doing so would likewise drive the growth of the non-oil sector, especially agriculture which employs 41% of the population and accounts for 7% of gross domestic product (GDP).

At first glance, with the volume of imports being roughly equal to that of exports, the current traffic flow in the country appears to be balanced. In reality, however, the traffic is heavily imbalanced,

especially from the point of view of equipment usage. Excluding the export of petroleum and petroleum-based products, Azerbaijan imports a lot more than it exports. Its role as a transit country also contributes to the heavy imbalance as its traffic pattern is affected by the import–export patterns of neighbors that route their goods through its transport network.

The traffic imbalance is aggravated by the use of specialized equipment for much of the import and transit traffic, especially for rail traffic on the “Azerbaijan Dooviet Denin Yolu” (ADDY), the country’s rail operator and regulator. Most of Azerbaijan’s inbound traffic consists of equipment and parts used in oil and gas exploration and extraction, as well as machinery, construction materials, electronics, and consumer goods. These are generally shipped eastward from Turkey through Georgia or southward from the Russian Federation. The vehicles and rail wagons used in inbound transport (e.g., for carrying heavy machinery and oil equipment) are often highly specialized and not suitable for carrying outbound traffic like agricultural commodities. As an example, drilling pipes made by Sumitomo in Japan for British Petroleum (BP) are shipped to the Port of Nakhodka in Siberia, and then loaded onto specialized rail wagons and transported across the Russian Federation to Baku. These specialized wagons all return empty back to Nakhodka. Moreover, crude oil—a major export and transit cargo—is loaded into oil tank wagons on which virtually no other type of cargo can be reloaded for their return to Azerbaijan from Georgian ports.

The World Bank’s January 2007 *Consulting Services for Restructuring and Revitalizing the Railway of Azerbaijan—Marketing Report* provides examples of this severe traffic imbalance:

- In the Russian border crossing station of Yalama, five freight trains (approximately 280 wagons) move in each direction on a typical day. The ratio of loaded wagons traveling southward is approximately twice as high as those traveling northward.
- In the Georgian border crossing station of Boyuk-Kesik, 17 freight trains (around 850 wagons) move in each direction on a typical day. The ratio of loaded westbound wagons exceeds those eastbound by eight to one.

Road Transport

Azerbaijan’s 29,000 km of highways are strategically important to its neighbors in providing reliable transit routes. Azeri roads provide an efficient link between the Caspian Sea and the Black Sea, as well as between the Russian Federation and Iran.

The major highways for international traffic are the east–west highway that connects Baku via Alat, Ganja, and Gazakh to the Georgian border and the north–south highway that runs from the Russian border through Samur, Baku, and Astara to the Iranian border. Both highways are around 500 km in length.

The average annual daily traffic (AADT) map (Figure 4) demonstrates clearly the importance of Azerbaijan’s road network to transit traffic.

In recognition of its critical transit role, ADB will soon provide Azerbaijan with a loan to rehabilitate the M2 highway segment from Gazakh to Georgian border—a heavily traveled section of CAREC Corridor 2.

Figure 4. Average Annual Daily Road Traffic in CAREC Road Corridors



Source: TA 6347 CAREC Transport and Trade Facilitation Strategy Report, TERA International Group.

Except for highways near Baku, and a few sections of the motorways, most of Azerbaijan’s highways are two-lane roads. There are virtually no limited expressways. Cars, buses, and trucks have to share the road with farm tractors, farm animals, and pedestrians. Road signs are rare and not easily visible; it is not easy for out-of-town drivers to find their way.

A large part of the 1,300 km of highways the consultant traveled is in poor condition and is neither designed nor built to the standards of most developed countries. With the exception of certain sections, the road surface is generally bumpy, with large potholes that restrict vehicle speed.

The poor condition of Azerbaijan’s roads results mainly from heavy use and inadequate maintenance. Many highway sections traversed regularly by heavy trucks have crumbled road surfaces, as well as a substantial number of deep potholes and large bumps. Meanwhile, road maintenance efforts have generally been under-funded. Road maintenance costs are financed by general funds from the state, supplemented by loans from multilateral organizations. No usage fees are collected. With traffic anticipated to grow further, the government should consider instituting a unified payment system for road usage to supplement its current funding scheme to sustain the maintenance and development of Azerbaijan’s roads.

Trucks carry most of the domestic cargo and a significant amount of the international cargo in Azerbaijan. Popular international lanes include the Baku–Bandar Abbas, Baku–Poti, Baku–Moscow, and Baku–Istanbul routes. There is a high imbalance of traffic, with import traffic exceeding export traffic by a wide margin. This imbalance is reflected in the cargo rates. For

example, the rate for transporting a container from the Port of Bandar Abbas to Baku is \$2,800–\$3,000, while that for transporting a container from Baku back to Bandar Abbas is around \$1,000, about a third of the inbound charge.

The Azeri trucking industry is quite small. The total number of Azeri trucks is estimated to be fewer than 1,000. The Azerbaijan International Road Carrier Association (ABADA) has 50 carrier members that collectively operate 600 trucks. Twelve of the members are small sole proprietorships that own just one or two trucks. The top Azeri trucking companies are

- World Transport (with 53 trucks),
- Union (with 50 trucks),
- Vanderwal–Baku (with 32 trucks), and
- Caspian Transport (with 30 trucks).

Consequently, most of the cargo in Azerbaijan is transported by foreign-owned trucks. The majority is Turkish-owned trucks, followed by those of Russian, Ukrainian, Belarusian, and Iranian ownership.

The biggest challenge for the Azeri trucking industry is to upgrade old, obsolete equipment. Over half of the industry’s fleet consists of old Russian Kamaz trucks that are classified as EURO 2 or below. These trucks emit heavy black smoke everywhere they go and are banned in EU countries.

Because of a 5% customs duty, an 18% value-added tax, plus assorted facilitation fees, the price of a new European-made truck with modest specifications is around \$200,000 in Azerbaijan. This price is too high for most Azeri companies to afford, and financing is very difficult to obtain.

Truck leasing, common in most countries, is not a viable option in Azerbaijan. Unlike in many countries (e.g., the United States [US]), leasing companies do not enjoy tax benefits that can be used to reduce lease charges. High interest rates and short lease periods (mostly 3 years) lead to prohibitively high monthly lease payments. ABADA is lobbying the Azeri government to implement measures to encourage investments in the trucking industry.

Rail Transport

Azerbaijan’s rail network has over 2,100 km of track, of which 828 km are double-tracked and 1,270 km are electrified. It is controlled by ADDY, a government entity that functions both as the rail operator and the rail regulator.

Rail cargo is shipped in both wagons and containers. The railway network carries 26.5 million tons of freight and over 4.5 million passengers each year. Oil and oil products account for approximately 54% of ADDY’s freight traffic, with construction materials, metals and metal products, and grains accounting for 23%, 9%, and 5% of the tonnage moved, respectively (Table 2).

ADDY’s traffic is heavily imbalanced. Tank wagons carrying oil and oil products from the Caspian Sea coast westbound to the Georgian border are returned empty. Similarly, due to the small

Table 2. Volume of 2005 Rail Traffic in Azerbaijan (Net tons transported)

Product Group	Volume of Traffic Flow				Total	
	Transit	Domestic	Import	Export	Tonnage	%
Oil and oil products	6,149,522	3,125,882	78,403	5,050,323	14,404,130	54
Coal, coke, and related products	387	9,240	11,774	10,052	31,453	0
Metals, metal products	465,633	129,037	1,425,034	295,337	2,315,041	9
Construction materials	59,235	3,942,303	2,129,969	74,591	6,206,098	23
Chemicals and minerals	2,682	672	77,368	–	80,722	0
Grains and grain products	280,704	3,755	1,016,766	22,344	1,323,569	5
Other cargo	516,247	140,387	995,509	517,100	2,169,243	8
Total ADDY	7,474,410	7,351,276	5,734,823	5,969,747	26,530,256	–
Percentage	28%	28%	22%	23%		–

ADDY = Azerbaijan Dooviet Deniri Yolu.

Source: Interview with ADDY's finance department manager, on 28 July 2006.

amount of exports, wagons carrying assorted import goods (e.g., equipment, metal products, and grain) to Azerbaijan also return empty. Excluding oil and oil products, which are moved in specialized dedicated tank wagons to Port Batumi in Georgia, ADDY handled 5,656,420 tons of imported goods and 919,424 tons of exported goods in 2005, the former exceeding the latter by over six times.

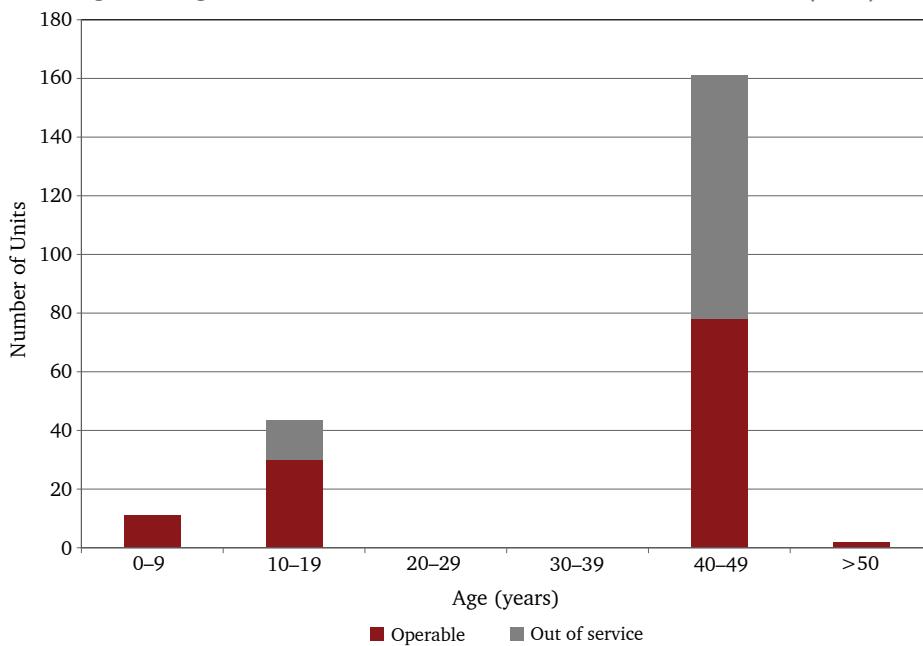
This heavy imbalance of traffic causes poor equipment utilization and severe operating inefficiency, ultimately leading to high transport costs of goods.

It will be difficult for Azerbaijan's railway system to meet future traffic growth with its existing infrastructure being what it is. Since the country's independence from the Soviet Union, its infrastructure has been inadequately maintained. The rail tracks are in terrible condition, with significant sections due for replacement. Most of the rail ties and ballasts have badly deteriorated. On the main east–west line, 24% of the track requires immediate repair. Poor track condition causes derailments and restricts train speed. Even though ADDY's lines were built originally for handling train speeds of up to 80 km/hour for freight services and 100 km/hour for passenger services, current track conditions have forced the imposition of many speed restrictions, thus limiting average train speed to 30 km/hr. This leads to the less efficient use of rolling stock and creates significant safety risks.

Moreover, ADDY's wagons are old and inadequately maintained. Their condition is probably the worst among Commonwealth of Independent States (CIS) railways. Over half of the wagon fleet is unusable and should be scrapped. In addition, most of the locomotives are past their ordinary operating life (Figure 5). This has forced ADDY to pair specific crews with specific locomotives which are to be operated only within a short distance from assigned repair shops. This way, in case a locomotive malfunctions, its crew can jury-rig it to its assigned repair shop nearby.

Inefficiencies also plague cargo handling within the Azeri rail system. Table 3, which is sourced from the World Bank's January 2007 *Consulting Services for Restructuring and Revitalizing the Railway of Azerbaijan – Marketing Report*, clearly indicates that an excessive amount of time

Figure 5. Age and Status Profile of ADDY's Electric Locomotive Fleet (2007)



ADDY = Azerbaijan Dooviet Deniri Yolu.

Source: World Bank. 2007. Consulting Services for Restructuring and Revitalizing the Railway of Azerbaijan – Marketing Report. January.

is spent on collection and distribution as well as border crossing and dwell. Since wagons are usually connected to locomotives, the factors that reduce wagon usage efficiency also reduce locomotive usage efficiency.

Despite the poor condition of the infrastructure and inefficiencies in cargo handling, the rail traffic density map below (Figure 6) clearly shows significant rail usage. Since most of ADDY's traffic is transit and export oil traffic from the Baku area to the Georgia ports of Poti and Batumi, escalating oil production is expected to drive rail usage even higher in the future.

To meet this projected traffic growth, the Azeri government is planning a \$1.5 billion rail restructuring project to be launched in 2008. The project will involve mainly the

- rehabilitation of rail tracks of ADDY's east–west and north–south main lines,
- acquisition of track laying equipment,
- conversion of the electric current used in the railway system from direct current (DC) to alternating current (AC),
- replacement of old locomotives and wagons, and
- installation of new signaling equipment.

In addition to this rail restructuring project, construction work at the Kars–Tbilisi–Baku (KTB) railway to link the railroads of Azerbaijan, Georgia, and Turkey was started in November last year. It involves building 105 km of track consisting of 76 km in Turkey and 29 km in Georgia, as well as upgrading 190 km of old, worn-out tracks in Georgia. The KTB railway, when completed in 2010, will extend eastward to link up with Kazakhstan Railway through the Trans-Caspian ferry

**Table 3. Wagon Cycle Analysis for the Baku–Batumi Route, Azerbaijan,
Oil/Oil Products Services (July 2006)**

Activity	Good cycle		Typical cycle		Poor cycle	
	Hours	Percent (%)	Hours	Percent (%)	Hours	Percent (%)
Loaded portion of cycle						
Loading at origin	10	9	16	10	18	8
Waiting to be picked up	6	5	12	7	32	15
Baku terminal area	4	4	6	4	8	4
En route – ADDY train	17	15	20	12	22	10
Border crossing/interchange	3	3	4	2	8	4
En-route – Georgian Ry train	15	13	18	11	20	9
	55	49	76	46	108	49
Empty portion of cycle						
Unloading at destination	10	19	16	10	18	8
Waiting to be picked up	4	4	6	4	12	5
En-route – Georgian Ry train	17	15	19	12	24	11
Border crossing/interchange	3	3	4	2	5	2
En-route – ADDY train	17	15	19	12	22	10
Baku terminal/distribution	6	5	24	15	30	14
	57	51	88	54	111	51
Total hours in cycle	112	100	164	100	219	100
Equivalent days	4.7	–	6.8	–	9.1	–
ADDY responsibility:						
Wagon pick up/distribution/ Baku area	16	14	42	26	70	32
Loaded and empty train movement	34	30	39	24	44	20
Boarder crossing/interchange delays	6	5	8	5	13	6
Description of Categories						
Loaded portion of cycle						
Loading at origin	from arrival at client's terminal until wagons are loaded and ready to pull					
Waiting to be picked up	from time that wagons are ready until wagons are pulled from terminal					
Baku terminal area	from time leaving client's terminal to the time train leaves Baku					
En-route – ADDY train	from Baku train departure until arrival of train at Georgian border					
Border crossing/interchange	time spent at Georgian border/interchange point					
En-route – Georgian Ry train	departure from Georgian border to arrival at destination terminal					
Empty portion of cycle						
Unloading at destination	from arrival at client's terminal until wagons are empty and ready to pull					
Waiting to be picked up	from time that wagons are ready until wagons are pulled from terminal					
En-route – Georgian Ry train	from departure from client's terminal to arrival at Azerbaijan border					
Border crossing/interchange	time spent at Azerbaijan border/interchange point					
En-route – ADDY train	from train departure from border until arrival of train in Baku area					
Baku terminal/distribution	time from arrival in Baku area until wagons reach client's terminal					

ADDY = Azerbaijan Dooviet Deniri Yolu.

Source: World Bank. 2007. *Consulting Services for Restructuring and Revitalizing the Railway of Azerbaijan – Marketing Report*. January.

Figure 6. Rail Traffic Density in CAREC Transport Corridors



CAREC = Central Asia Regional Economic Cooperation.

Source: TA 6347 CAREC Transport and Trade Facilitation Strategy, TERA International Group.

and extend westward through the Mamara rail tunnel near Istanbul to connect with the European rail network.

Furthermore, the Russian government is working with Azerbaijan and Iran to create a north-south rail link between the Russian Federation and Iran. This will require

- Iran to construct a new 300 km track from Tabriz to the border on the Iranian side or a rail link from Tehran via Bandar Anzali to the border on the Iranian side, and
- Azerbaijan to construct a 7 km track from Astara to the border on the Azerbaijan side.

Russian Railways is providing technical and engineering support to Iran and Azerbaijan in this project.

Once completed, the \$1.5 billion rail restructuring project, the new KTB railway, and the new Russian Federation–Azerbaijan–Iran rail link will solidify ADDY’s critical role in rail transit traffic in Central Asia.

Air Transport

Since Azerbaijan is landlocked, aviation plays an important role in its passenger and cargo transport systems. Its aviation sector is among the strongest in the CAREC region. It has

three modern international airports—Baku, Ganja, and Nakchivan—as well as four homegrown airlines—AZAL, Silk Way, Imair, and Turan.

The Baku International Airport is the busiest in the Caucasus, with the capacity to handle 1,600 passengers per hour. Equipped with a 2,700-meter (m) asphalt runway and a 3,200 m concrete runway, it is capable of serving very large planes. Meanwhile, the Ganja International Airport and Nakchivan International Airport were both renovated and upgraded in 2004 and 2006, respectively, thus adding to the international air cargo handling capacity of the country.

Formed from Aeroflot operations in Azerbaijan after the collapse of the Soviet Union, Azerbaijan's flag carrier, AZAL, operates scheduled passenger and cargo services between Baku and major domestic cities, as well as in 18 international locations.¹ It also controls most the aviation activities in Azerbaijan, including air traffic control, airport management, and regulation. In addition to passenger services, AZAL also provides cargo services via Azal Avia Cargo. Its equipment includes helicopters, Boeing, Airbus and Tupolev jets, and ATR planes. AZAL is a forward-looking organization, with a better-than-average safety record in the region.

Azerbaijan has two privately owned passenger airlines based in Baku. Imair Airlines operates international scheduled and chartered passenger services. Turan Air operates both domestic and international scheduled passenger services. Imair runs two Tupolev Tu-154M jets and serves Almaty, Tashkent, Surgat, and Bodrum from Baku. Turan Air operates one Boeing 727-200 and one Tupolev Tu-154M, and serves Ganja, Istanbul, Moscow, and Ekaterinaburg from Baku.

Azerbaijan's Silk Way Airlines is an all-cargo airline based in the Baku International Airport. It operates three Antonov An-12, one Ilyushin Il-76 MD, and seven Ilyushin Il-76 TD planes. From its Baku base, it serves Baghdad, Kabul, Kandahar, Dubai, Bishkek, Aktau, Atyrau, Tbilisi, Urumqi, Shanghai, Istanbul, Moscow, Cologne, Chateauroux, Neubrandenburg, and Luxembourg.

A number of large international carriers, including Lufthansa and British Airways, also provide cargo service to Baku. The giant, all-cargo international airline, Cargolux, which has a close relationship with Silkway, covers Baku on its Luxembourg–Baku–Shanghai route.

The Baku Cargo Terminal, adjacent to the Baku International Airport, is one of the biggest cargo terminals in the CIS. It is a class A multimodal logistics center completed in 2005. Its building houses Silk Way Airlines, Imair Air Company, Eurasian Air Services, Lufthansa Cargo, and Panalpina. With an apron area of 163,000 square meters, it can serve nine Boeing, 747/Antonov An-124s, or 15 Ilyushin Il-76s simultaneously. Its terminal has cooling rooms, a dangerous-goods storage section, and state-of-the-art detection systems and security.

Azerbaijan is also well served by a significant number of foreign carriers. Table 4 lists selected carriers that currently serve Azerbaijan.

With Dubai and Kuwait becoming more and more congested with transit traffic, the Baku International Airport provides an unencumbered transit point to Iraq and Afghanistan. The US military and Cargolux utilize Baku regularly for cargo destined to those two countries.

¹ AZAL operates scheduled international flights to London, Paris, Milan, Moscow, Kiev, Istanbul, Ankara, Trabzon, Tehran, Dubai, Tel Aviv, Aktau, Tbilisi, and Urumqi.

Table 4. Selected Foreign Carriers Serving Azerbaijan

Passenger Carrier	Cargo Carrier
Aeroflot	Cargolux
Air France	
Air Pulkovo	
Air Ukraina	
Alban-Avia	
Austrian Airlines	
British Airways	
China Southern	
Coyne Airways	
Domodedova Airlines	
Georgian Airways	
Emirates	
Iran Air	
Lufthansa	
Pakistan International Airlines	
Turkish Airlines	
Uzbekistan Air	

Source: Author.

In addition, Baku is used by air carriers to serve Azerbaijan’s neighbors Uzbekistan, the Kyrgyz Republic, Kazakhstan, Turkmenistan, and Tajikistan, e.g., delivering critical oil industry parts to western Kazakhstan.

Water Transport

Azerbaijan is a Caspian Sea littoral state.² Water transport is thus important for its economy and security. It has direct maritime connections to other Caspian littoral states: the Russian Federation, Kazakhstan, Turkmenistan and Iran. The Volga–Don Canal provides it maritime access to the Black Sea while the Baltic–Don Canal gives it maritime access to the Baltic Sea.

On 4 June 2004, the Ministry of Transport established the Maritime Administration to serve as the regulatory authority in maritime transport. Its functions include formulating state policy, regulating the carriage of goods and passengers, and implementing state programs and projects.

Caspian Sea

The Baku International Sea Port is the largest port on the Caspian Sea. Its ferry terminal will be undergoing a major reconstruction which is supported by a \$16.2 million loan from the European Bank of Reconstruction and Development. Once modernized, it will be able to handle 30 million tons of freight a year. Because of the lack of depth of the Caspian Sea (especially near shore), ships that sail on its waters are relatively small, averaging around 6,000 tons.

² Littoral state: state with a coast.

Azerbaijan's state-owned water carrier, Caspian Shipping Company (CASPAR), is the largest carrier on the Caspian Sea, transporting principally petroleum and petroleum-related products. It operates 86 vessels, of which 41 are tankers, with total deadweight totaling 443,782 tons. Its ships operate in the Caspian, Black, and Mediterranean seas, and the Sea of Marmara.

CASPAR has announced its plan to purchase five new ferries and four container vessels. This \$69 million project is slated for implementation in 2010–2013. The new ferries will be capable of carrying 52 rail wagons, as compared to the 28-wagon capacity of CASPAR's seven existing ferries.

The absence of a definite delineation of national boundaries on the Caspian Sea complicates the construction of undersea pipelines for carrying Kazakh and Turkmen oil and gas to markets in the west. Therefore, in the foreseeable future, a large amount of crude oil and gas condensates from west Kazakhstan and Turkmenistan will continue to move by tankers to Baku for rail transit to Batumi.

This trend benefits CASPAR, which operates the largest fleet on the Caspian Sea. CASPAR has recently added both oil tankers and ferries to its fleet, with the aim of increasing its fleet size substantially in the next 5 years.

CASPAR also operates ferries that carry passengers and cargo between Baku, on the one hand, and Aktau and Turkmenbashi, on the other. These ferries are supposed to be running on a scheduled basis, but forwarders advised that in practice, these ferry ships sail only when full.

The ferry transit time between Baku and Aktau is supposed to be 40 hours and between Baku and Turkmenbashi, 18 hours. But actual transit times are often substantially longer because of rough seas and frequent delays.

Black Sea

The ports of Poti and Batumi on the Black Sea coast are the closest access points for Azerbaijan to reach the open sea. A large amount of rail and truck traffic on the east–west corridor is shuttle traffic between Baku, on the one hand, and Poti and Batumi, on the other.

Currently, Azerbaijan has permission to operate only one ship through the Russian Federation internal waterways to reach the Black Sea. Even though the cost of passage permit for foreign vessels in the internal waters of the Russian Federation is quite high, (\$20,000–\$25,000/ship as compared to \$5,000–\$6,000/ship for Russian vessels), the Azeri government has requested permission from the Russian government to add 27 more permits for CASPAR's ships.

Persian Gulf

Bandar Abbas in Iran is the best sea port for Azerbaijan to connect with the Indian subcontinent, Southeast Asia, the Republic of Korea, Japan, and the PRC. The Bandar Abbas–Shanghai and Bandar Abbas–Pushan routes are busy sea routes with good service and competitive rates.

Inland Russian Waterways

Ships on the Caspian Sea can be connected to the Black Sea via the Volga–Don Canal and the Baltic Sea via the Baltic–Volga Canal. However, the inland waterways are closed from November to April because of ice.

The Volga–Don and the Baltic–Volga canals are frequently used to move oversized and overweight cargo that cannot be moved easily by highway and railway, such as oil rigs, large cranes, and storage tanks.

Multimodal Container Transport

Multimodal transport, also commonly called intermodal transport in North America, is the movement of cargo and people using more than one mode of transport in a single, seamless journey. An example is the movement of goods in a cargo container across multiple transport modes (motor, rail, water, and air) without any handling of the goods inside after the container is loaded at the beginning of the journey.

The concept of intermodal transport has been honed by the freight industry for many years. Today, intermodal transport is the fastest growing transport sector worldwide. A typical intermodal transport move comprises of the following steps:

- Freight is first collected from the shipper and consolidated at a terminal into an appropriate piece of linehaul intermodal equipment. This can be a trailer or a container. The quantity and dimension of cargo (20 feet [ft], 40 ft, 45 ft, 48 ft, and 53 ft) determine the exact size of the equipment that would be used. Because of the versatility of trucking in providing door-to-door services, the dominant mode for the consolidation of freight is road transport. Value-added activities, such as packaging, crating, and warehousing, are also included in the consolidation process.
- The equipment containing the cargo is then delivered to an intermodal hub (rail intermodal facility, seaport or airport) operated by the linehaul carrier and placed on the transport equipment (on a rail wagon, the deck of a ship, or the belly of a plane). The linehaul carrier will then take the linehaul equipment to a terminal close to the cargo's final destination, where the intermodal equipment is unloaded and trucked to a deconsolidation terminal.
- At the deconsolidation terminal, the cargo is unloaded and delivered by truck to the door of the receiver.

North America is generally recognized as most advanced in perfecting intermodal transport. On average, a third of Canadian and US railroad cargo revenue is derived from intermodal transport. BNSF, the leading US intermodal railroad, derives over 40% of its revenue from intermodal traffic.

Cargo containerization is an excellent way to resolve both nonphysical transit obstacles and physical transport problems in the CAREC region. More specifically, it overcomes nonphysical transit barriers in the following manner:

- When cargo is moved in containers transported by rail, there are no problems with driver visas, transit permits, usage fees, customs escorts, police checkpoints, and unofficial payments.
- Moving containerized cargo by rail overcomes cross-border vehicle weight regulation and technical standard problems.
- Rail containers encounter fewer delays at borders. Few border officials want to hold up a whole train.
- Containerization facilitates customs-risk management and post-entry audit.

Containerization overcomes physical transport problems in the following manner:

- It unites air, road, rail, and water transport networks and provides a way to weave these together into a connected and coherent network. As an example, rail–truck–rail container transport is an excellent method of connecting the disjointed rail networks in the CAREC region to form a unified integrated rail system. The efficiency of using trucks as a link between rail networks has already been well-proven in the US. For decades, thousands of containers and trailers are shuttled between US railroads to speed up interchange, even when their rail tracks are connected.
- It overcomes the problem of transloading freight from wagons of one gauge to wagons of another gauge, which is very labor- and time-intensive, and increases the risk of loss and damage to goods. Containerization speeds up cargo transfer at “break of gauge” locations (such as Sarakhs and Alashankou in Azerbaijan) since these can be efficiently transferred from one system to another simply by lifting the containers from one flat wagon of a given gauge to a parallel flat wagon of another gauge.
- It is effective and efficient in connecting the local economy to global markets via the sea. With containerization, goods are ready to be placed onboard ships, with no extra handling being required at port.
- It reduces cargo handling, hides the cargo from view, and secures the cargo inside a locked box. Fewer handling and stronger locking mechanisms as well as stealth mean fewer losses and damages.
- Multimodal transport is more energy efficient and lessens adverse environmental impact.

Despite obvious benefits, multimodal transport is not well developed in Azerbaijan and elsewhere in the CAREC region.

Compared to North America and Western Europe, Azerbaijan is at an early stage in the development of multimodal transport. US railroads run scheduled, dedicated, double-stack container trains generally over 1,500 m long, with some measuring over 2,000 m long. In contrast, there are no dedicated container trains in Azerbaijan, with containerized traffic being mixed with general wagon traffic. This leads to a lower level of service and higher costs to the shipper.

ADDY carries containers in open-top wagons or whichever wagons accommodate containers. The inappropriate placement of containers in rail equipment not designed for container carriage can damage the container and its cargo, as well as the rail wagon itself.

In addition, the intermodal rail terminals in Azerbaijan are small and inefficient, and handle a very light amount of traffic. Unlike a typical US intermodal terminal that handles hundreds of containers and trailers a day, a typical Azeri intermodal terminal handles only a few containers a day. When the consultant visited the Ganja multimodal terminal in July 2008, there was no activity. There was also little discernable container activity at the Baku Sea Port. Currently, the amount of Trans-Caspian container traffic is very small. Ferry boats serving the Baku–Aktau, Baku–Turkmenbashi route carry basically rail wagon traffic. None of them have on-deck container stacking capabilities.

At present, the amount of land bridge traffic between Europe and the PRC is small. This situation results mainly from the advantages offered by sea transport over multimodal container transport through Azerbaijan. Sea transport is preferred, because it

- is more reliable and cheaper;
- has a well-developed and complex web of services associated with it;
- has a legal framework that is clear, court-tested, and enforceable; and
- is capable of transporting large volumes of freight.

In contrast, landbridge transport through the CAREC region

- involves too many parties, each seeking to maximize its own self-interest;
- involves travel through too many borders, with each crossing representing potential delays and additional costs;
- has not been able to effectively address empty container management (e.g., repositioning, storage, and return and chassis management); and
- involves traffic that is more difficult to balance (ships can circle the world in seeking load balance while trucks and trains do not have this flexibility).

The advantages offered by sea transport over multimodal container landbridge transport are quite apparent in the movement of goods from the PRC to Azerbaijan. The PRC government promotes the use of Lianyungang port for cargo travelling by rail to Central Asia. Therefore, all Azerbaijan-bound rail cargo must first be shipped to the Port of Lianyungang. This is generally done by short sea, even if the originating point is a major port within the PRC. The transit time to Lianyungang is shown in Table 5.

Table 5. Transit Time to Lianyungang from Various Points

From	Transit Time to Lianyungang
Singapore	2 weeks
South China; Hong Kong, China	5 days to 1 week
Shanghai	3 days
Pushan	5 days

Source: Various interviews with stakeholders.

Sinotrans runs a weekly container block train from Lianyungang to Central Asia via Alashankou/Dostik. The transit time from Lianyungang to Alashankou is only 7 days. However, because of heavy congestion at Dostik, the total transit time from Lianyungang to Aktau averages from 14 to 18 days, although it could be substantially more (up to 30 days). Then it takes another 3 to 5 days by ferry to reach Baku. The total journey time from the PRC to Baku can be a month or more on CAREC Corridor 2. Therefore, almost all containers originating from eastern PRC are moved by sea to Bandar Abbas, and then trucked to Baku.

Few general cargo transport companies interviewed by the consultant utilize the Caspian Sea service. They cited high rates, unreliable schedule, and weather-related issues as key reasons. Despite the apparent lack of demand, the Azeri government is contemplating the acquisition of container ships.

Forecasts of Future Traffic Growth

Domestic Traffic

Road traffic growth is expected to increase substantially in the next 10 years. It will be driven by the following trends:

- Increase in automobile usage as the population becomes more affluent,
- Migration to the new suburban towns, and
- New road construction and road upgrades.

As Azeris become more affluent, automobile usage will increase, leading to growth in domestic traffic. There is a wide variety of cars owned by the populace, from decades-old Russian models to brand new European luxury models like Mercedes-Benzes and gas guzzling American Hummers. Likewise, a wide range of trucks can be found on Azerbaijan's roads, from old Kamaz trucks spewing thick black smoke to new European trucks operated by Turkish carriers.

New and better roads promote trade and travel while resulting in increased migration to new suburban towns surrounding Baku and other major cities, thus increasing traffic on roads. The government is considering policies favorable to the domestic trucking industry. This will make more truck capacity available to facilitate domestic trade.

The government is increasing the resources earmarked for new road construction and upgrading and for maintaining existing road networks. New and better roads reduce traffic congestion and increase the speed of travel—leading to higher road usage.

Rail traffic is also expected to grow, after the \$1.5 billion restructuring program to bring up the quality standards of the locomotive and wagon fleet and the tracks.

Domestic air traffic is considerably higher than those of the other CAREC members. The Baku–Nakchivan and Baku–Ganja routes are major domestic air corridors. As per capita personal income increases, demand for domestic air travel will rise.

Transit Traffic

The future trend in transit traffic will be determined by the following factors:

1. **Construction of Caspian undersea pipelines for shipping Kazakh and Turkmen oil.**

A large amount of Azerbaijan's rail transit traffic consists of Kazakh oil shipped across the Caspian and exported through Batumi. In the future, these oil shipments will be joined by those from Turkmenistan as the relationship between the two countries improves. However, the construction of Caspian undersea pipelines will divert much of that traffic, as pipelines remain the most efficient mode for oil and gas transport.

Last year, the Russian Federation beat Azerbaijan in winning the tender for the construction of a gas pipeline from Turkmenistan and Kazakhstan with a capacity of 10 billion cubic meters per year. This pipeline will hug the eastern shore of the Caspian Sea to link with the Russian Transneft pipeline system. The Russian Federation's success denies Azerbaijan the opportunity to transit Turkmenistan and Kazakhstan gas and to process Turkmenistan and Kazakhstan gas into petrochemicals for export.

2. **Increase in CASPAR's tanker fleet.** To support the anticipated surge in Kazakh oil exports, increasing CASPAR's tanker capacity is critical for Azerbaijan to compete with other alternatives.

3. **Rehabilitation and reform of ADDY.** ADDY's tracks and rolling stocks are very old and in really poor condition. The rail infrastructure should be rehabilitated and management structure reformed to sustain traffic growth.

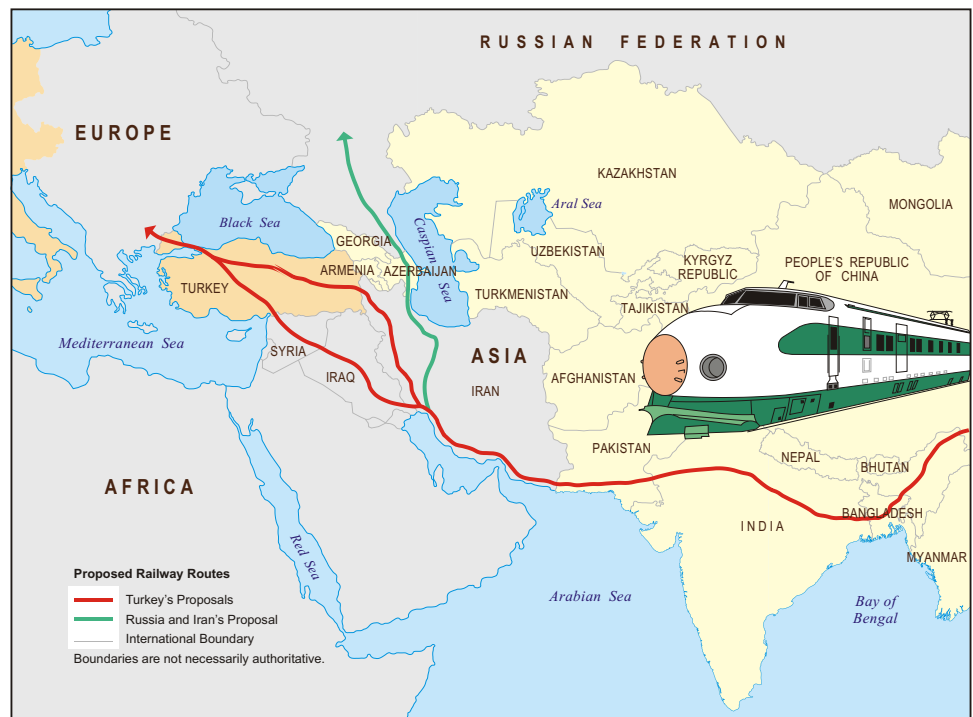
4. **Completion of the KTB railway.** The KTB railway will provide Azerbaijan a link to Europe, adding to Azerbaijan's transit potential. However, the infrastructure of ADDY must be rehabilitated and its management structure reformed to exploit this potential. Otherwise, the traffic potential on the KTB will remain capped by ADDY's capability to move them.

5. **Upgrading of the east–west and north–south highway corridors.** The upgrading of the east–west and north–south highway corridors will support transit growth. Azerbaijan's east–west highway, a heavily-traveled trans-Caucasus truck route, is a TRACECA Corridor and constitutes the western section of CAREC Corridor 2. Its north–south highway is an important link between the Russian Federation and Iran. Upgrading both highways is essential to support future growth in transit traffic.

6. **The level of competition in cost, service, and reliability among competing transit routes.** The choice of trade routes is dynamic. Merchants and manufacturers are constantly monitoring the freight rates, service quality, and reliability as well as the transit risks associated with different routes. Azerbaijan must pay attention to the development of competing transit routes and never stop making itself the most compelling choice.

- Kazakhstan will soon have two rail links with the PRC—Alashankou and Horgas—that dramatically increase the capacity of the PRC–Kazakhstan–Russian Federation route. This Asia–Europe route is much less complicated than CAREC Corridor 2 which goes through Azerbaijan. It has fewer borders to cross and fewer railroads to deal with in moving cargo. With fewer delay risks, a simpler route structure, and stronger potential for lower rates, it can absorb much of the transit traffic Azerbaijan wants to attract.
- In January 2008, China United International Rail Containers Corporation and the Port of Dalian established a new Eurasian container block train from Dalian port, which connects with the Trans-Siberian Railway at Manzhouli. This train will handle traffic not just from the northeastern PRC provinces, but also from the PRC provinces south of the Yangtze River (e.g., Zhejiang), creating another competing route. China United International Rail Containers is a joint-venture company between China Rail Container Transport Corporation, on the one hand, and Deutsche Bahn, CMA-CGM, Zim Lines, NWS, CIMC, and Promisky, on the other.
- Azerbaijan’s ally, Turkey, has a large, vibrant trucking industry already hauling a large percentage of cargo between Central Asia and Europe. It aims to be a major transit country influencing the direction of the New Silk Road linking Asia and Europe.
- Turkey has launched an international sales drive to attract more freight from the PRC and East Asia to its own rail network (Figure 7). Turkish officials are lobbying members of the International Union of Railways to use Turkey as a major hub for

Figure 7. Eurasian Rail Transit Route Advocated by Turkey



Source: *Today's Zaman* (English Newspaper). 2008, 22 May. Turkey's sale pitch to become railway freight hub.

rail freight between Asia and Europe. The route Turkey advocates does not pass through Azerbaijan.

With so many potential transit routes and so many countries aspiring to be key transit countries, the competition for transit traffic will be intense. To assure its success as a transit country, Azerbaijan must add reliability, as well as efficiency and transparency to its geographical advantage. Both Singapore and Hong Kong, China, are excellent candidates for Azerbaijan to benchmark itself against and emulate.

- 7. Political stability, government objectives and policies of Azerbaijan's transit partners.** A transit route is a fragile chain; the breakdown of just one link will disrupt the entire chain. This is the key reason why there are so many routes that form various branches of the ancient Silk Road. Azerbaijan's transit traffic can be interrupted by political turmoil in any of the countries that constitute the transit route to which it belongs. As an example, transit oil traffic fell substantially in 2004 because of the political turmoil in Georgia that forced the Batumi port, the main loading point on the Black Sea, to close twice. Consequently, oil traders redirected the crude to transit through Russian and Iranian ports.

The Azeri government is adept at diplomacy and promoting cooperation and development with its transit partners. It should capitalize on this ability and take the initiative in maintaining political stability in the region. Doing so would better solidify the position of Azerbaijan as a leading transit country.

Freight Forwarding and Logistics Services

Azerbaijan has a diverse group of freight forwarders and logistics companies. In addition to local enterprises, this group also includes companies from the Russian Federation, Kazakhstan, Iran, the United Arab Emirates, the United Kingdom, Germany, Switzerland, Denmark, and the Republic of Korea. Appendix B lists and characterizes the freight forwarders and logistics companies in the country.

In addition to traditional forwarding and warehousing, some freight forwarders offer sophisticated value-added services. Because of the requirements of large global oil companies, 3PL, supply-chain management services are more advanced in Azerbaijan than other CAREC member countries.

It is important to note that with the exception of the Baku Cargo Terminal, large, long-term investments in logistics centers are rare. Entrepreneurs focus on transport and logistics businesses that can produce a quick profit and do not require large capital expenditures.

Challenges and Opportunities

Challenges

Azerbaijan's potential as a major trade transit point that bridges Europe and Asia, as well as northern Europe and the Middle East and South Asia, is hampered by significant factors in the areas of trade and finance, customs administration and border control, and transport and logistics.

Trade and Finance Factors

The following factors in the area of trade and finance hinder the full development of Azerbaijan's trade facilitation and logistics sectors:

1. **Lack of an integrated national trade facilitation strategy.** Despite implementing trade facilitation policy reforms in recent years, such as drafting new trade laws and regulations, streamlining trade procedures, and modernizing customs, Azerbaijan does not have an integrated trade facilitation strategy. This lack of a trade facilitation strategy results mainly from the fact that it is solely the Cabinet of Ministers, consisting of the Prime Minister, his deputies, and the heads of various ministries, that is mandated to develop trade facilitation strategies. There is no institution below the Cabinet of Ministers dedicated to formulating trade facilitation policies. Considering the wide scope of concerns that it needs to consider and address, the Cabinet of Ministers cannot be expected to develop a comprehensive trade facilitation strategy without the technical inputs from a unit below its level.
2. **Complex trade control systems and regulations.** Trade is subjected to a wide variety of government controls and regulations from different ministries and agencies. These include the Ministry of Economic Development, State Customs Committee, Ministry of Transportation, Ministry of Agriculture, Ministry of Health, Statistical Committee, Ministry of Taxes, and Ministry of Ecology and Natural Resources. The complex web of government controls and regulations and the lack of transparency in the trade regulatory regime increase the difficulty in conducting trade in Azerbaijan.

The United States Agency for International Development is actively assisting the Azerbaijan government in liberalizing its trade regime to gain entry to the World Trade Organization by the end of 2009. It is widely hoped that Azerbaijan's accession to this international trade organization will remove most of its current trade impediments.

3. **An underdeveloped banking system.** The banking system in Azerbaijan is not well developed and is therefore hard-put to provide financing in the magnitude and reach needed by a dynamic and fast-growing trade sector. It is dominated by two banks, International Bank of Azerbaijan and Kapital Bank, which together control over 50% of the market. Even after a period of consolidation, Azeri banks are mostly undercapitalized and hard to find outside major cities. What makes the situation worse is that the Azeri government protects the local banking industry by limiting foreign investment in that sector. Therefore, only a few foreign banks are allowed to open in Azerbaijan, e.g., the Pakistan National Bank and Iran's Melliran Bank. Global financial institutions like HSBC, Citigroup, and Deutsche Bank cannot be found in Azerbaijan.

Customs Administration and Border Control Factors

Stakeholders in Azerbaijan's trade sector have identified the following factors in the country's customs administration and border control regime as hindrances to a more efficient and effective flow of goods:

1. **Lack of transparency and uniformity in the interpretation of customs laws and regulations.** Traders and forwarders reported the non-uniform interpretation of customs laws and regulations and the placing of too much discretion on customs officers in the assessment of duties. This situation, which is perhaps caused by the complexity of such laws and regulations, results in the securing of customs clearances being problematic, time-consuming, and costly.
2. **High brokerage fees.** The customs officer in charge has wide latitude in selecting cargo for physical examination. Therefore, appointing a qualified customs broker who understands the clearance process and has good relations with the customs post is important. However, the brokerage fees charged by qualified customs brokers are very high, generally ranging from \$100 to \$150 for the first page of declaration and an additional \$80 to \$100 for each additional page.
3. **Absence of bonded warehouses.** Forwarders pointed out that there are no bonded warehouses where imported goods can be stored for an extended length of time. Uncleared goods can only be stored at bonded terminals for a few days at very high rates.

Transport and Logistics Factors

The flow or trade in Azerbaijan is likewise hampered by the following problems in its transport and logistics system:

1. **Poor road design and conditions.** Most of Azerbaijan's highways are two-lane roads with no passing or turning lanes. Aside from the newly upgraded section of the M2 Highway between Ganja and Shemkir, the roads that the consultant traveled in are poorly designed and poorly constructed.

The following are some of the consultant's observations from his Baku-Georgian Border trip:

- There are very few directional signs, even when entering or leaving a highway.
- There are no signs marking the route number of the highway.
- With the exception of road construction zones, there are no speed limit signs.
- There are no provisions for making safe U-turns.
- There are no passing lanes.
- There are very few left- or right-turn lanes.
- Sections of the M2 Highway suddenly narrow with no advance warning. One section narrows to a width of 6.5 meters, putting trucks moving in opposite lanes dangerously close to colliding with one another.
- Outside Baku, traffic lights are insufficient and poorly designed.

The lack of turning lanes and passing lanes, and inadequate signage create significant safety problems. On numerous occasions, the consultant observed near collisions as vehicles pass slow-moving trucks or cars dangerously close to oncoming traffic.

2. **Limited availability of quality fuel.** Getting quality diesel and gasoline in Azerbaijan is not always easy. Many stations sell substandard fuel that can severely damage vehicle engines. Most drivers will only purchase fuel from reputable stations like Azpetrol even if they have to drive extra distances to find one. Aside from wasting fuel, this adds to transport costs and causes the unnecessary and unproductive use of roadways.
3. **Rent-seeking along roads and highways.** Traffic police are ubiquitous in Azerbaijan. They are constantly looking for all possible reasons for stopping a driver. Unjustified traffic stops slow down traffic and create safety hazard when stopped vehicles are parked along narrow and congested roads and highways.
4. **High logistics costs.** There are no official calculations of Azerbaijan's logistics costs but these are considered to be fairly high. The high logistics costs can be attributed to Azerbaijan's landlocked status, administrative impediments, obsolete supply-chain practices, and the high cost of capital.

Opportunities

Special Strengths and Geographic Advantages of the CAREC Region

The convergence of the Asian and European production networks presents significant opportunities to Central Asia Regional Economic Cooperation (CAREC) countries in bridging the two regional production networks to form a Eurasian production network. The potential opportunities the creation of a Eurasian production network brings include

- growing a strong transport industry to carry goods from one regional production network to another (like what Turkey has accomplished),
- developing a strong logistics industry to meet the needs of both regional production networks,
- providing transit services for people and goods traveling from one region to another, and
- supplying the inputs required by both regional production networks.

As the westernmost country in the CAREC region, Azerbaijan can play an important role as Central Asia's gateway to Europe and as Europe's gateway to Central Asia. This is already happening, with Kazakhstan shipping its oil through Azerbaijan to European markets and Cargolux using Baku as a transshipment point for cargo destined for Kazakhstan, Uzbekistan, Tajikistan, the Kyrgyz Republic, Afghanistan, and Iraq.

The Azeri government and private enterprises should target carefully chosen niches in the global value chain that are suitable for the country. For example, Azerbaijan should exploit Baku's location on the path of long-distance air routes and the availability of competitively priced aviation fuel from nearby refineries to develop Baku as a major air hub.

Azerbaijan should also consider the construction of new refineries, polymer manufacturing plants, and fertilizer plants to take advantage of the region's ample supply of crude oil and natural gas.

Azerbaijan as the Center of East–West and North–South Transport and Trade

Azerbaijan is at the center of the east–west corridor (CAREC Corridor 2 and the Transport Corridor Europe–Caucasus–Asia Corridor) and the north–south corridor, the shortest route between North Europe and the Russian Federation on the one hand, and Iran, Iraq, Pakistan, and India on the other. The two corridors intersect at Baku, the largest sea port on the Caspian Sea and the largest airport in the region.

From North Europe and the Russian Federation, the north–south corridor is shorter, cheaper, and faster than all the competing routes, including

- by sea through the Suez to Iranian Gulf ports;
- by rail via the Russian Federation to the Caspian Sea port of Astrakhan and then by conventional shipping to the Iranian port of Bandar Anzali;
- by boat via the Volga River to the Caspian Sea port of Astrakhan and then by conventional shipping to the Iranian port of Bandar Anzali (May to October only); and
- by rail from the Russian Federation to Kazakhstan, Uzbekistan, and Turkmenistan to Sarakhs, Iran where the cargo is transhipped from Russian broad gauge wagons to Iranian standard gauge wagons.

Azerbaijan has both rail and highway systems running from its border with the Russian Federation to its border with Iran at Astara. The benefits of the north–south corridor have already attracted growing transit traffic. The Astara Transit Terminal near the Iranian border has just appointed Moscow-based Prodvijeniye as general agent for freight and project cargo moving between the Russian Federation and Iran and Iraq via the Astara border crossing.

Goods shipped by Prodvijeniye will arrive at the Astara Transit Terminal by rail and be transhipped to highway trailers for onward delivery. Cargo brought by road from Iran and Iraq will also be transloaded into rail wagons for shipment to destinations throughout North Europe, the Russian Federation, and the Commonwealth of Independent States.

In the meeting with the consultant, the Russian Embassy's commerce consul in Baku has stated the Russian government's strong interest in developing the north–south corridor. He revealed that Russian Railway is helping Azerbaijan's railway operator Azerbaijan Dooviet Deniri Yolu and Iranian Railway study the best linkage between the two rail systems.

Trade Facilitation Initiatives in the CAREC Region

Azerbaijan has signed bilateral free trade agreements with seven states of the former Soviet Union, although most of the trade-liberalizing provisions embodied in these agreements have not yet been implemented. For instance, Azerbaijan is currently working with Georgia to simplify border control and transit requirements. One of the key goals of this initiative is to facilitate the movement of goods between the Black Sea and the Caspian Sea, including the use of a common transit document. Trade agreements such as this represent opportunities for Azerbaijan to facilitate intra-regional trade and, as a consequence, increase the volume of trade coursing through it.

Multilateral initiatives to facilitate trade across borders in the region have also arisen in recent years. TRACECA has a project to harmonize the border-crossing procedures of CAREC members and to align them with the European Union's practices. Among the areas targeted for such harmonization are the following:

- customs procedures;
- vehicle standards (dimension, weight, emissions, etc.);
- security;
- border control and immigration;
- sanitary;
- phytosanitary;
- veterinary; and
- documents and data sets.

Because of the potential benefits improved trade flows bring to its economy, Azerbaijan should actively and proactively participate in, and take full advantage of, these initiatives.

Free Economic Zones

Azeri law on free economic areas provides for the creation of free economic zones (FEZs) where government income, property, and consumption taxes are light and where goods can be stored, packaged, processed, and transformed duty free. These areas represent an opportunity to stimulate intra-country and interregional economic activities which, among other results, would generate higher demand for transport and trade facilitation services. In many countries (e.g., Mexico, the United Arab Emirates, and the People's Republic of China), FEZs have generated impressive results in employment generation, trade growth, and economic development.

Azerbaijan can develop an oil-equipment manufacturing industry and an oil-equipment service and repair industry quickly by creating free economic zones on the Caspian Sea. Rolls Royce, which supplies electricity generation turbines for offshore drilling rigs and oil platforms, has expressed strong interest in building a regional service hub and parts distribution center in

Azerbaijan. An FEZ will facilitate the importation of Rolls Royce turbines from neighboring countries for repair and subsequent reexport.

A huge free trade zone development straddling the People's Republic of China–Kazakhstan border at Horgas is currently underway. Similar developments in Azerbaijan's border should be encouraged. Potential locations for such zones include

- Baku International Airport,
- Khachmaz,
- Bina,
- Sumgait,
- Sangachal,
- Alat, and
- Astara.

Recommendations

This section contains recommendations to address the constraints to the development of the transport and trade sectors of Azerbaijan. Several infrastructure development projects are suggested; so are measures to synchronize trade logistics development with infrastructure development. Other initiatives to ensure that an efficient and effective trade facilitation sector is established and sustained in Azerbaijan are also recommended.

Infrastructure Development

General Measures

In general, Azerbaijan would boost its transport and trade sectors if it:

1. Designated, as strategic traffic corridors, a limited number of high traffic and high potential rail and highway routes, and then concentrated investment and maintenance funds and management attention on those key rail and road routes.
2. Conducted a comprehensive transport infrastructure needs assessment and transport infrastructure development planning to
 - achieve the highest return on investment,
 - balance the amount of investment in various types of infrastructure, and
 - ensure seamless air/truck/rail/sea modal integration.
3. Instituted additional road use payment systems to supplement the current funding regime and thus sustain adequate maintenance and development of its roads.
4. Gave incentives to encourage private sector investment in public projects.
5. Developed free economic zones (FEZs), multimodal cargo hubs, logistics centers, and cold storage facilities.
6. Conducted a detailed analysis of Azerbaijan Dooviet Deniri Yolu's (ADDY) equipment and track needs; sold off old, surplus equipment to generate cash; and focused on supporting a smaller number of modern, well-maintained rail tracks along with associated equipment.
7. Established a pilot corridor with FEZs, multimodal cargo facilities, logistics centers, cold storage facilities, and modern border-crossing points as a demonstration corridor to showcase achievable improvements.

On Planned Projects

The ADDY's \$1.2 billion Rail Improvement Project

Before making this huge capital expenditure that equals almost 5% of Azerbaijan's gross domestic product (GDP), the Azeri government and multilateral organizations should consider the following alternatives and/or efficiency-enhancing measures.

1. **Construct a standard gauge line from Baku to the Georgian border and make the KTB railway standard gauge.** Azerbaijan has a one-time, unprecedented opportunity to build a standard gauge railway connecting the country to the Turkish Railway and to almost all of the European Union's (EU) railways (except Spain and Portugal) and non-former Soviet Union's Eastern European railways (Bulgaria, Romania, Poland, Hungary, Czech Republic, etc.). Since so much of the existing infrastructure and rolling stock needs to be replaced anyway, Azerbaijan might as well take the bold step of replacing the existing broad gauge rail network that simply perpetuates its past Russian ties, with a standard gauge rail network that connects seamlessly with Europe, Asia, Middle East, and most of the world.

Concurrent with building the standard gauge railway, the Azeri government should persuade the Georgian government to build a standard gauge line linking ADDY to the Turkish Railway. Azerbaijan is furnishing a \$200 million, low-interest soft loan to Georgia for the new Kars–Tbilisi–Baku (KTB) railway construction. It should use its considerable influence from this concessionary loan, among other factors, to convince Georgia to follow its bold step of building a standard gauge railway linking the Caucasus to most of Europe.

The construction of this standard gauge railroad will cement Azerbaijan not only as the gateway to Europe, but ultimately as the linchpin of an all-standard gauge railroad running from the People's Republic of China (PRC) to the United Kingdom (UK). Since Kazakhstan is planning to build an east–west standard gauge railroad from the PRC border to Aktau, by constructing this standard gauge line from Baku to the Georgian Border, trains can run uninterrupted between the eastern edges of Asia to the western edges of Europe.

In constructing the standard gauge railroad, ADDY can start by applying part of the \$1.5 billion budget for its Rail Improvement Project toward building a standard gauge line on the same right of way, parallel to the existing broad gauge line. In the meantime, it should invest just enough to keep the broad gauge line functional until the standard gauge line is completed. Then, over a short time, it should switch the traffic from the broad gauge line to the standard gauge line.

After Iran completes the construction of a rail link to the Azerbaijan border, ADDY can extend a standard gauge line from Alat through Astara to connect with Iran. This will create a fast, efficient link to the Iranian rail network and to Bandar Abbas. In addition, Azerbaijan can link up with the standard gauge networks in Turkey and the EU via Iran, creating an alternative to the rail link through Georgia.

This new standard gauge line will make the Trans-Caucasian Route the best Silk Road route and Baku the most important transit hub in the region. Once cargo is brought to Baku, it will enjoy the fastest, cheapest, and most effective connection by air, water, road, or rail.

2. **Eliminate electrification.** On an average day, only 17 trains run in each direction in the east–west main line and five trains in each direction in the north–south main line. Even with local traffic included in the computations, total traffic amounts to fewer than two trains per hour on the east–west line, and fewer than one train per hour on the north–south line.

The number of trains will further decrease as ADDY puts in scheduled, dedicated express trains (e.g., for carrying crude oil to Batumi) and institute more efficient operating practices.

ADDY should study whether this low-density traffic will justify the high expense of building and maintaining a new 25 kilovolt (kv), alternating-current (AC) electrification network for running its trains. The United States' (US) railroads are not electrified, but carry a huge amount of cargo, with density many times higher than that of ADDY.

3. **Rationalize the network, abandon low density lines.** As stated earlier, the density on ADDY's main lines is fairly low. The traffic density in most of its branch lines is likely to be much lower. Therefore, rather than spending more money to keep low-density branch lines alive, ADDY should consider selling them off to the businesses that these branch lines serve. This will enable ADDY to pass on maintenance expenses to those that benefit from the use of the lines.
4. **Promote private equipment ownership.** Information from ADDY indicates that approximately 35% of the total oil and oil products tonnage moves in private wagons.

ADDY should actively promote more private wagon usage. This will reduce capital requirements, lower maintenance expenditures, and assure good equipment utilization and upkeep. US railroads started actively promoting private equipment ownership about 15 years ago and found that to be highly successful for both railroads and shippers.

5. **Rationalize the fleet size, sell off excess equipment.** By promoting private equipment ownership, ADDY can operate with a smaller number of wagons. All the rehabilitations planned—renewing locomotive and wagon fleet, installing new signaling equipment, repairing tracks, and instituting more efficient operating practices—will enable it to reduce its fleet size and sell off surplus equipment.

Cash from the sale of surplus equipment will provide cash for ADDY to invest in other areas or to pay off debts.

6. **Institutionalize organizational reform.** The Azeri government should separate the function of operating the rail enterprise from its planning, oversight, policy, and regulatory functions. Under this scheme, the new railroad would own the rail assets and provide rail transport. Comprehensive national rail transport planning, safety oversight,

transport policy, tariff, and service regulation functions should be passed on to the Ministry of Transport.

The new ADDY should be transformed into a for-profit, market-oriented, joint stock-holding company that would maintain separate business units, but would continue to own and maintain the track infrastructure. Each business unit should be a separate profit center whose success depended on serving the shippers well. Examples of business units are

- passenger,
- multimodal transport,
- crude oil and petroleum products,
- agricultural products,
- mineral and bulk chemicals, and
- merchandise.

Down the road, after the railroad achieved a consistent profit history, it could be privatized by the government.

CASPAR's Fleet Expansion

As Caspian Shipping Company (CASPAR) embarks on a major expansion of its fleet, it should carefully synchronize its new ship delivery dates with ADDY's restructuring schedule and the construction plan of the new Caspian Seaport in Alat. It would be detrimental if ADDY cannot move the cargo CASPAR relies on to fill its ships or the port capacity is insufficient for servicing the expanded fleet.

CASPAR should also incorporate anticipated market demand and port capacity expansion (especially the construction of new Caspian Seaport) in its expansion plans.

On Transport Corridor Europe–Caucasus–Asia

Being central to the Transport Corridor Europe–Caucasus–Asia (TRACECA) organization and a primary beneficiary of the corridor the organization is endeavoring to develop, Azerbaijan should exert optimal effort to encourage it to address the following problems that face the organization and its corridor:

1. **Stagnant traffic growth.** Traffic on the TRACECA corridor has been stagnant, with a minimal amount of truck or multimodal traffic. Its traffic volume has amounted to 50 million, 55 million, and 53 million tons in 2005, 2006, and 2007, respectively. The vast majority of the overall volume is crude oil and grain traffic moving by sea to Baku:

After excluding oil and bulk commodities traffic, the consultant suspects that the volume of merchandise traffic is probably quite small, perhaps 2%–3% of the overall volume.

The stagnant traffic can be attributed to poor ferry service across the Caspian Sea and unrealistic rates. Uzbek and Kazakh transport organizations complained that the CASPAR ferry tariff is too high and the schedule too unreliable for them to favor TRACECA corridor over the transit route through Iran.

The TRACECA Secretariat should consider initiating a close dialogue with all the stakeholders (especially truckers, freight forwarders, transport associations, trade associations, shippers, and receivers) to determine how to boost traffic on this route. In any case, building a standard gauge line from Baku to Kars will immediately create a major advantage for the TRACECA route that will be difficult for its competitors to replicate. This will boost traffic tremendously.

2. **Route structure-related problems.** The TRACECA corridor passes through more borders and involves more carriers and more transport modes than the traditional Trans-Siberian route or the Trans-Manchurian, Trans-Mongolian, and Trans-Kazakhstan routes. More border crossings and more carriers represent more delays, higher cost, and less reliability. The TRACECA organization must find ways to resolve the following challenges created by this complicated route structure:

- Short sea transport (through the Black Sea and Caspian Sea) adds cost and transit time uncertainty to the TRACECA route. Rough weather often prevents ships from operating on both seas.
- Trucks do not have easy road access to Aktau. Ferry charges are high and not transparent. Sailing schedules are not always observed.
- The difficulty in track and trace will increase as the number of interline carriers increases.
- The instability of joint rates increases exponentially as the number of carriers increases.
- The Trans-Siberian route will likely cut its rates to protect traffic from diversion to the TRACECA route.
- The complexities in maintaining service schedules will increase as the number of interline carriers increases.
- Each border crossing, gauge, and modal change (e.g., from land to sea at Aktau and from sea to land at Baku) adds to costs and delays.
- Each interchange and border crossing increases the probability of cargo loss and damage.
- Equipment balance is harder to attain and maintain.
- It is difficult to have equipment adequately maintained and repaired across all transit partners.
- Each transit partner tries to maximize its self-interest over that of the group.
- There is a higher risk of through routes falling apart as all it takes is one country or one railway to spoil the partnership.
- The geopolitics of the region is complex and impinges on the efficient and effective operation of the organization and its route.

3. **The need to upgrade the TRACECA Bridge at Krasny-Most.** The TRACECA bridge over the Khrami River at the Georgia–Azerbaijan border is a key link of the TRACECA corridor. This girder bridge was completed at a cost of ₼2 million in 1998.

The Azerbaijan International Road Carriers Association (ABADA) reported that flood damage at the beginning of 2008 forced the diversion of automobile traffic to the old “Red Bridge” built in the 12th century. Since the TRACECA Bridge is vital to Azerbaijan’s east–west corridor, the governments of Azerbaijan and Georgia should work with

TRACECA to upgrade the existing bridge and examine the possibility of constructing a second one.

Trade Logistics

To develop its trade logistics system further, Azerbaijan should endeavor to advocate the development of efficient and effective transport and trade corridors in the region, create a network of trade logistics centers, and establish a more efficient and dynamic multimodal transport system.

On the Development of Efficient and Effective Transport and Trade Corridors

It is critical that regional organizations with overlapping memberships and mandates find effective ways to cooperate in developing transport and trade corridors. Since traffic density is the key to success in developing corridors, regional organizations should focus on developing fewer but denser corridors that will ultimately become major transport and trade corridors. Overlapping regional organizations must work together to narrow the transport corridors to a selected few and concentrate their resources to make these successful.

For instance, the sixth annual Ministerial Conference on Central Asia Regional Economic Cooperation (CAREC) held on 3 November 2007 in Dushanbe approved a joint strategy to improve transport and trade facilitation along six corridors linking countries within the CAREC region and with Europe and Asia. Along these corridors, the conference identified more than 100 investment and technical assistance projects totaling about \$18 billion over the next 10 years. The ministers also supported increased cooperation with other regional organizations (especially the Eurasian Economic Cooperation [EurAsEC] and Shanghai Cooperation Organization [SCO]) and with other development partners.

The six corridors, listed below (Figure 8), represent major trade origin and destination areas around the CAREC region, with some overlapping with TRACECA and EurAsEC corridors.

- Corridor 1: Europe–East Asia
- Corridor 2: Mediterranean–East Asia
- Corridor 3: Russian Federation–Middle East and South Asia
- Corridor 4: Russian Federation–Xinjiang Uygur Autonomous Region
- Corridor 5: East Asia–Middle East and South Asia
- Corridor 6: Europe–Middle East and South Asia

On 4 October 2007, in the first meeting of the Secretariats of EurAsEC, SCO, CAREC, and the United Nations Special Programme for the Economies of Central Asia, an agreement was reached to exchange information and to develop relations at the technical level to avoid duplication of effort and to ensure consistency of programs.

Azerbaijan should be a strong and proactive participant to these and other efforts at minimizing, if not eradicating, inefficiencies in the establishment and maintenance of trade and transport corridors in the region.

Figure 8. CAREC Corridors



CAREC = Central Asia Regional Economic Cooperation.
 Source: CAREC Transport and Trade Facilitation Strategy.

On the Creation of a Network of Trade Logistics Centers

Logistics Centers

A well-placed network of logistics centers is critical for advancing trade and the economic development of Azerbaijan. The logistics centers should be capable of facilitating the following functions:

- export/import,
- consolidation/distribution/cross dock,
- value added processing,
- cold chain logistics, and
- agricultural production.

The proper selection of where logistics centers are to be located is very important. The decision maker should carefully review long-term traffic pattern projections. Ideally, logistics centers should be situated in or near

- network nodes,
- border ports of entry,
- major industrial or agricultural centers,
- major consumption centers, and
- points with easy access to multiple transport modes.

Table 6 lists potential logistics center locations in Azerbaijan and the reasons for their selection.

Table 6. Potential Logistics Center Locations

Location	Reasons for Selection
Alat	<ul style="list-style-type: none"> • Likely site of future Caspian seaport • Near Baku, but far enough for large tracts of land to be available at cheaper prices • On shortest path from the Caspian Sea to the Georgian border • Potential site for shipyard development
Astara	<ul style="list-style-type: none"> • Trade with Iran • Main vegetable-growing region of Lenkoran–Astara
Baku	<ul style="list-style-type: none"> • Capital and largest city in Azerbaijan • Trade and transport center of the region • Home to the largest Caspian seaport • Intersection of CAREC Corridor 2 and north–south corridor
Bina	<ul style="list-style-type: none"> • Baku International Airport • High potential for special economic zone development • Air cargo hub • Excellent location for serving the Apseron Peninsula
Ganja	<ul style="list-style-type: none"> • Second largest city • Commercial hub for supporting surrounding agriculture and industry • On M2 Highway to the Krasny-Most border crossing point
Khachmaz	<ul style="list-style-type: none"> • Trade with the Russian Federation • Center of the major agricultural region of Guba–Khachmaz • In between the north–south railway and north–south highway
Krasny-Most	<ul style="list-style-type: none"> • Trade with Europe and Georgia • On busy east–west corridor • At the border with Georgia
Sangachal	<ul style="list-style-type: none"> • Center for serving the oil and gas industry • Near Baku, but far enough for large tracts of land to be available at cheaper prices

CAREC = Central Asia Regional Economic Cooperation.

Source: Author.

Demand for logistics centers is increasing as more multinationals (e.g., BP) come to Azerbaijan, and as Azerbaijan assumes a bigger role as a regional transport hub. However, the initial investment in starting a logistics center is very high. To attract logistics center investment, the Azeri government must mitigate risk and provide adequate incentives to encourage private sector investments.

Cold Storage

Cold storage and temperature-controlled storage facilities are important for a large number of products, including fruits and vegetables, flowers, frozen or chilled food, candy (especially chocolate), pharmaceutical products, wine, and chemicals. The initial investment in starting this kind of facility is even higher than a conventional logistics center. In addition, its fixed and operating costs are higher.

Baku has a number of modern cold storage facilities, including the Baku Customs Warehouse and Baku Cargo Terminal. Outside Baku, public cold storage facilities are not readily available,

but some farmers and produce exporters have pooled their resources to build some. More needs to be done to foster investments in cold storage and temperature-controlled storage facilities. Appendix C contains a case study on the export of Azeri fruits and vegetables that makes a point of the need for Azerbaijan to invest in a cold chain logistics system that is vital for the development of the fruit and vegetable export markets.

On the Establishment of a Better Multimodal Transport System

For Azerbaijan to establish a more efficient and dynamic multimodal transport system, ADDY must take the following steps:

- Invest in better intermodal facilities, better container-handling equipment, and higher quality wagons;
- Introduce best practices in empty container management and container chassis management;
- Adopt standardized interchange agreements with non-Commonwealth of Independent States (CIS) international railways (e.g., Turkish Railway);
- Build up a system of sharing information, such as the electronic data interchange or web XML schemes;
- Promote common standards and communication protocols with interchange partners;
- Create electronic portals for rate quotation, booking, and track and trace;
- Consider privatizing state-owned enterprises; and
- Foster competition and market discipline to forge an effective and efficient transportation system.

Obviously, the challenges in developing multimodal transport in Azerbaijan are immense. However, China Railway's recent success in attracting Deutsche Bahn (German National Railways), Zim Lines (Israeli ocean carrier), CMA-CGM (French ocean carrier), NWS (Hong Kong, China-based port and infrastructure developer), Promisky, and China Intermodal Container Company (CIMC, the largest container manufacturer in the world) to form a \$1.6 billion joint venture with China Rail Container Transport Corporation demonstrates that difficult challenges can be overcome.

Other Measures

On Developing the Industry and Commerce Sectors

To develop Azerbaijan's industry and commerce sectors, thus ensuring, among other results, increased demand for trade facilitation services, the Azeri government should:

1. Improve the competitiveness of Azeri businesses by
 - incorporating inputs from the business community in the planning, execution, and monitoring of initiatives;
 - making rules and regulations more transparent;
 - enforcing laws, rules, and regulations fairly and uniformly; and
 - developing a strong finance sector;

2. Secure foreign investments that come with technology transfers;
3. Promote the development of small and medium-sized enterprises (SMEs) by setting aside a portion of the government procurement expenditure for them. This is particularly important in transport infrastructure development. Through the use of local SMEs, the Azeri government not only wins local support, but most likely obtains better quality work at lower prices from local companies that know the area well and have to live with the results of their work;
4. Support the growth of Azerbaijan's road transport industry by
 - providing tax incentives to encourage investments,
 - negotiating favorable bilateral or multilateral agreements for Azeri trucks, and
 - fostering logistics and transportation management training;
5. Assist Azerbaijan Railway in securing attractive through-rate and through-route agreements with interline railways along the New Silk Road;
6. Diversify agricultural production and assist farmers in selling perishable products; and
7. Strengthen public–private dialogue and cooperation through trade associations and chambers of commerce.

On Ensuring the Sustainability of Efforts to Facilitate Transport and Trade

Initiatives to facilitate the country's transport and trade must be sustained. Otherwise, the resources poured into these initiatives would be wasted and the country would, in the long run, be faced with the same problems as those that plague it now. Among the measures that the Azeri government ought to focus on, the more important are the following:

1. **Solicit and ensure private and foreign direct investments.** Government efforts to develop the transport and trade facilitation sectors in Azerbaijan cannot and should not be sustained by continuous massive infusion of public funds in the face of other demands for support from other sectors. Private sector investments must be brought into play to ensure that the development of the sector is sustained and enhanced, while freeing up government to attend to other pressing social problems. More specifically, the government should:
 - ***Solicit foreign direct investments.*** Foreign investors with both capital and know-how can help Azerbaijan greatly in developing its trade logistics sector. However, perceived high investment risks and a business environment that favors local firms with close relations with the government discourage foreign direct investments. These problems need to be addressed by the Azeri government.
 - ***Encourage private investments.*** Entrepreneurs in Azerbaijan prefer to stay small and invisible. They are afraid that large, high-profile businesses will ultimately be seized without proper compensation. They also prefer businesses that offer a quick profit and do not require large capital commitments.

To develop strong transport and logistics companies, the Azeri government must create an environment conducive to private investments by being transparent, having a stable policy regime, and vigorously protecting property rights.

2. **Develop the capacity to implement and sustain development efforts.** Azerbaijan must ensure that a cadre of managers, in both the public and private sectors, are given the appropriate training to ensure that the transport and trade facilitation sectors are run effectively and efficiently. The government must therefore:

- **Provide education and training.** Azerbaijan suffers from a shortage of qualified logistics professionals, with multinational corporations needing to import trained logistics managers from abroad to manage their supply chains. To meet this shortage of qualified logistics professionals, Azeri universities must add qualified logistics professors to their faculty and offer logistics and supply chain management courses.

Government officials and logistics industry management staffs should also be trained in modern supply chain management and encouraged to go to logistically advanced countries like Singapore; Hong Kong, China; the Republic of Korea; and the Netherlands for training and exposure.

Through its CAREC Institute initiative, the Asian Development Bank can support the training of these government officials.

- **Establish a center for transport and logistics research.** Azerbaijan does not have a peer-recognized center for transport and logistics research. In addition to the critical role this center can play in logistics performance measurement and monitoring, it can bring new approaches to trade logistics challenges based on international best practices, empirical research, and policy analysis.
- **Institute a professional certification program.** Azerbaijan does not also have a logistics professional certification program to support logistics competency. It should work with internationally recognized professional organizations like the American Society of Transport and Logistics to start such a certification program.

On Lessening the Adverse Impact on the Environment

The vast majority of Azeri trucks are old, poorly maintained, and underpowered, emitting large quantities of black, polluting smoke as they accelerate from a stop or climb uphill. Over time, they must be replaced by trucks meeting at least EURO 3 standards.

Despite the high cost of fuel, only a small number of Azeri trucks have cab fairings and roof-mounted air deflectors to reduce aerodynamic drag and increase fuel efficiency. These fuel-saving devices are common in most developed countries like Germany, Australia, and the US. They should be specified in new trucks and retrofitted to existing ones. The Azeri government should consider offering incentives to truckers for installing these devices.

On Establishing a Performance Management and Monitoring System

An appropriate performance management and monitoring system is vital to Azeri efforts to ascertain the state of its transport and trade sectors, as well as the appropriateness and responsiveness of the measures it had adopted to improve and develop these sectors. Inputs from this monitoring system would enable it to initiate other measures and redefine and refine existent ones so that its efforts become more responsive to demands. It is therefore vital for the Azeri government to

- establish key performance measures³ and appoint monitoring entities; and
- measure performance on a regular basis, publicize results, review with stakeholders, and act to improve performance.

³ Appendix D contains a logistics performance management and monitoring system for Azerbaijan.

Conclusion

Azerbaijan faces two vital challenges. First, its geographically strategic location as the linchpin of the trade routes between Asia and Europe is insufficient to ensure that it would continue to capture the largest portion of the trade that flows through these corridors. The People's Republic of China (PRC)–Kazakhstan–the Russian Federation route connecting Asia and Europe is much simpler than that running through Azerbaijan, and Kazakhstan will soon have two rail connections with the PRC (Alashankou and Horgas), thereby increasing the competitiveness of this route. Furthermore, Turkey is advocating a new rail route that connects with the PRC through Iran, thereby bypassing it. In the years to come, the trade routes crossing it will face even more intense competition from other trade routes.

The second vital challenge facing Azerbaijan is the need to ensure economic growth once its oil and gas production reaches its peak in 2012 and thereafter starts declining. Reduced oil and gas revenues would imperil its development efforts and hamper economic growth. It therefore needs to develop industries and sectors that would take up the slack that reduced oil and gas revenues would bring about.

Both challenges can be met sufficiently if Azerbaijan develops its trade, transport, logistics, and supply chain services sectors.

The selection of trade routes is dynamic and constantly evolving. Merchants and manufacturers continuously monitor the freight rates, service quality, and reliability of alternate trade routes to optimize their choices.

Azerbaijan must then be vigilant in defending its competitive advantages and constantly strive to make it the most trade- and transit-friendly country. Reinvesting in infrastructure is a good start, but the government must also reform its laws and regulations, improve its transparency, and increase the competitiveness of Azerbaijan's transport and logistics industry.

It is the consultant's hope that the Azeri government will consider the recommendations in this study with due attention, and act accordingly with speed and resolve to fully develop the country's excellent potential.

Appendixes

Appendix A

Organizations Met and Sites Visited During the Field Visit

- Customs Committee
- Ministry of Transport
- Ministry of Economic Development
- Azerbaijani Export & Investment Promotion Foundation (AZPROMO)
- Transport Corridor Europe–Caucasus–Asia (TRACECA)
- United Nations Development Programme (UNDP)
- United States Agency for International Development
- Embassy of the United States of America
- Embassy of the People’s Republic of China
- Kazakhstan Embassy
- Embassy of the Russian Federation
- World Bank
- European Bank for Reconstruction and Development
- Islamic Development Bank
- American Chamber of Commerce
- Azerbaijan Turkish Business Association
- Azerbaijan International Road Carriers Association (ABADA)
- Over 20 private organizations, including BP; freight forwarders (large and small, global and local companies); logistics companies; expeditors; traders; farmers; investors; and nongovernment organizations for assisting small farmers
- Baku Port
- Ganja rail multimodal terminal and Ganja rail transload station
- Baku Cargo Terminal
- Shemkir cold storage facility

Appendix B

Freight Forwarders and Logistics Companies

Type	Name	Comments
Global Logistics Company	Bertling Caspian Limited	Bertling Caspian Limited is a subsidiary of Bertling Global Project Logistics, with offices in major energy centers around the world. It specializes in moving overweight, oversize, difficult-to-handle project cargo, like the delivery of an 820-ton propane storage bullet to Kazakhstan. It and Panalpina are the only two logistics companies BP uses in Azerbaijan.
	CEVA Logistics	CEVA was formed through the combination of TNT Logistics and EGL Eagle Global Logistics in August 2007. It employs more than 54,000 people, with a global network comprised of more than 1,000 locations in over 100 countries.
		Globalink manages CEVA Logistics' Baku station.
	DHL	Deutsche Post World Net, owners of DHL, placed all the worldwide express and logistics services it offers under the DHL brand. This saw Danzas, Excel Logistics, and Deutsche Post Euro Express join forces with DHL to form DHL Global Forwarding brand.
		DHL Global Forwarding combines air, ocean, and ground transport, as well as customs brokerage services with dedicated warehousing and distribution centers. It manages the flow of goods and information across a customer's global supply chain, connecting suppliers, carriers, customs brokers, and end-users through a seamless supply of distribution services.
	Kuehne + Nagel (Ibrakom)	Kuehne + Nagel delivers integrated solutions across the supply chain that turn companies' logistics challenges into real competitive advantages. A global leader in international forwarding, it also ranks among the top three worldwide contract logistics players following its 2006 acquisition of ACR Logistics. It was founded in 1890 and has more than 52,000 employees in 830 locations in more than 100 countries. It entered the Azerbaijan market through its acquisition of Ibrakom.
	Panalpina	Panalpina is one of the world leaders in forwarding and logistics services, specializing in intercontinental air and sea freight and supply chain solutions. It provides globally integrated, door-to-door forwarding solutions tailored to its customers' individual needs. It operates a network of 500 branches in 90 countries, and closely cooperates with selected partners in 60 more countries.

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Freight Forwarders and Logistics Companies (cont.)

Type	Name	Comments
	Pentagon Freight Services	<p>Pentagon Freight Services was established in London in 1974, with the objective of providing the oil, gas, and petrochemical industries with first-class freight contracting services. Since then, it has grown to become an international freight forwarding organization with offices around the world.</p> <p>Pentagon Freight Services is one of the first international freight forwarders to embrace the potential of the Caspian region. In 1995, it established its Baku office and since then has become an integral part of the logistics industry in Azerbaijan.</p>
	Schenker (Delta Bar)	Schenker is one of the world's leading transport and logistic companies. It is part of Delta Bar, which also runs the German National Railway. It serves Azerbaijan through Delta Bar, an Iranian transport and logistics services company.
Regional Logistics Company	Ace Forwarding Caspian	Established in 1996, Ace Forwarding Caspian is one of the leading transport companies in the Caucasus region. Staffed with over 70 multinational personnel in Azerbaijan alone, it provides a wide range of transport services (including pet transport) and international removal and relocation services.
	Besttrans	Besttrans was established in 1993. It organizes door-to-door truck, rail, air, and sea cargo transports in Europe, Central Asia, Middle East, the United States, and CIS.
	Blue Water Shipping Caspian Ltd.	Denmark-based Blue Water Shipping offers worldwide door-to-door freight transport solutions by road, rail, sea, and air to importers and exporters. It has a network of company-owned and agent offices in several continents, being particularly strong in northern Europe.
	Deugro	Founded in 1924, Deugro is a German freight forwarder that provides wide geographic coverage. In addition to the usual forwarding services, it also provides automotive logistics and participates in Iraqi reconstruction.
	Euroasian Cargo	<p>Euroasian Cargo entered the air freight forwarding market in 1996 by establishing an office in Sharjah (United Arab Emirates) and starting Baku–Dubai–Baku charter and scheduled flights. It also provides ground handling, fuel supply, diplomatic over flight, landing clearances, catering, airport shuttle, and hotel booking services.</p> <p>Euroasian Cargo is the official sales agents and representatives for Silk Way Airlines worldwide. It has representative offices in Baku, Houston, New York, London, Luxembourg, Dortmund, Moscow, Bishkek, Kiev, Aktau, and many other</p>

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Freight Forwarders and Logistics Companies (cont.)

Type	Name	Comments
		cities. It also has hubs in Houston, Luxembourg, Baku, Dubai, Istanbul, Shanghai, and Urumqi.
	Formag Forwarding	Formag Forwarding has offices in the Russian Federation, the CIS countries, Germany, Spain, and the PRC. It provides customers with a full range of freight services, including multimodal, sea, air, and rail truck transport; customs brokerage; less than container load (LCL); and project cargo handling.
	Globalink	Globalink is a full service international freight forwarder that manages the movement of cargo via air, land, and sea to destinations worldwide. Since its creation in 1992, it has come to be recognized as one of the most successful independent relocations, projects and freight management company operating in the CIS. In the domestic transport market, it ranks among the top three.
	Gosselin Caucasus & Central Asia	Gosselin Caucasus & Central Asia was born as Nomad Express in Tbilisi in the mid-1990s. It is now part of the Gosselin Group, a multinational organization with 47 branch offices in 32 countries, more than 600 employees, 1 million square feet of warehousing, and 200 vehicles. One of the leading moving and relocation companies in the Caucasus, it also provides freight forwarding, customs clearance, and warehousing services.
	Ikra	Ikra is a Turkish trucking company that also provides sea and rail freight forwarding and less-than-a-truck-load (LTL) groupage services. With Turkey as the center of its operations, its service network covers Central Asia, Middle East, and Europe. Ikra holds "The Iraq Manifest" authority which is compulsory for vehicles carrying cargo to Iraq, except those hauling United Nations loads.
	M & M Militzer & Munch	M & M Militzer & Munch is an experienced forwarding and logistics company providing all types of integrated logistics services worldwide. Its core competence is cargo forwarding to and from central and eastern Europe, southeastern Europe, the Russian Federation, the Near and Middle East as well as Mongolia and the PRC. It is a licensee of FedEx in Azerbaijan. All its outbound express packages are flown to Frankfurt, then Paris or Memphis. All its inbound express packages from Memphis are flown in via London.
	Murphy Shipping and Commercial Services	Murphy Shipping and Commercial Services, with focus on the oil and oil services industry, is one of the top-tier full services forwarding company in Azerbaijan. It was originally established in Lagos to serve Nigeria's oil industry. Today, it has operations in Lagos, Warri, Port Harcourt, Istanbul, Moscow,

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List of Freight Forwarders and Logistics Companies (*cont.*)

Type	Name	Comments
		<p>Poti, Tbilisi, Bishkek, Ashgabat, Aktau, Almaty, Houston, Aberdeen, and London.</p> <p>In 1996, Murphy obtained a Government Customs Declaration License (Customs Brokerage License), the only freight forwarding company in Azerbaijan to have such a license. In 2004, it opened Azerbaijan's very first international bonded warehouse terminal situated at Garadagh alongside the area being developed by the oil and gas companies and their major suppliers.</p>
	STS Logistics Solutions	STS provides rail, truck, and sea cargo services. Its coverage includes the Russian Federation, Central Asia, the PRC, Japan, and the Netherlands. It is one of the few companies that offer door-to-door delivery of LCL shipments except the PRC and other Asian countries (Hong Kong, China; Taipei, China; Malaysia; and Singapore) to any place in the Russian Federation via Port of Vladivostok.
	TransRail Holding	TransRail Holding AG is an accredited freight agency of Russian Railways and organizes the international transports of goods to be shipped on CIS railways and the railway networks of the Baltic states and Iran. Its services include international documentation; transporting of containers and conventional cargos, liquids, bulk goods, and goods needing temperature-controlled storage; and the handling of blocks of wagons and entire trains. It has two representative offices in Baku—Azerrail and Azersped.
Local Logistics and Forwarding Company	A-TRANS	Established in 2003, A-TRANS provides air, sea, road, and rail transport and customs clearance services.
	Baku Cargo	Baku Cargo is a small freight forwarding company formed by a transport veteran that has worked for Murphy and other Baku freight companies. It is one of the few independent freight forwarding companies started by local entrepreneurs.
	Baku Cargo Terminal	<p>Baku Cargo Terminal, one of the biggest and most technically advanced cargo terminals in the CIS, started operation on March 2005. It offers the entire range of cargo services in a state-of-the-art 12,000-square meter terminal building at the Baku International Airport.</p> <p>The terminal's 163,000-square meter apron area is capable of handling nine Boeing 747/AN124 aircrafts or 15 IL76-s. Its 3,500-meter CAT-3 certified runway can land aircrafts in close to zero visibility.</p> <p>Baku Cargo Terminal can handle and store a wide range of cargo with facilities such as cooling</p>

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Freight Forwarders and Logistics Companies (cont.)

Type	Name	Comments
		facilities for perishable goods, a high-valuable cargo storage room equipped with surveillance systems, and storage for different categories of dangerous goods. All cargo movement in and out of the terminal is tracked by "ANTWORK", a computer program it designed and developed.
	Caspian Freight Forwarding	Caspian Freight Forwarding provides international freight forwarding services by road, air, sea, and railway as well as freight consulting services.
	DGT Logistics	DGT Logistics specializes in providing transport services to the oil, gas, petrochemical, and construction industries in the Caucasus, Central Asia, and Middle East. It has offices in Azerbaijan, Kazakhstan, Turkmenistan, the United Arab Emirates, and France. It also provides oil industry supplies and services, as well as equipment rental.
	Granit AS	Granit AS is engaged in both freight forwarding and tourism services. In addition to handling cargo transport by all modes, it also arranges for excursions, car and hotel bookings, and organizes meeting.
	Lider Logistics	Lider Logistics is a leading freight forwarding company in the Caspian Region. In addition to offering a comprehensive range of forwarding services, it also provides removal and relocation services, customs brokerage services, and handling of diplomatic cargo. It is one of the few firms that also represent foreign manufacturers in Azerbaijan.
	Overtime Logistics Service	Overtime Logistics Service was established in 2003. It offers the typical range of freight forwarding services to local businesses.
	Safe Logistics & Courier Services	Safe Logistics & Courier Services is one of the leading logistic companies in Azerbaijan. It offers a comprehensive range of logistic services—including transport of over-sized cargos, dangerous goods, crating, customs clearance, and warehousing.
	Trans Caspian Alliance	Trans Caspian Alliance is a freight forwarding company that renders door-to-door transportation, warehousing and customs brokerage. Through its agent network, it links Azerbaijan with Europe, Asia, Near East, and North and South America.
Freight Forwarder with Intermodal Terminal	Prodvijeniye	On July 2008, Astara Transit Terminal has appointed by Moscow-based Prodviyeniye as general agent for transporting general freight and project cargo to and from the Russian Federation, Iran, and Iraq via the Astara border crossing.

CIS = Commonwealth of Independent States, PRC = People's Republic of China.

Source: Author.

Appendix C

Case Study: Export of Fruits and Vegetables from Azerbaijan

Azerbaijan is one of the world's oldest agricultural centers. The country's climatic diversity allows the cultivation of a very broad range of crops. Of its 8.6-million-hectare (ha) land area, more than half (52%) or 4.5 million ha is agricultural land, of which 40% or 1.8 million ha is farm land. Two thirds or 1.2 million ha of all farmland is irrigated.

Agriculture is an important sector of the Azeri economy, its outputs being the second largest export–revenue earner next to oil and oil products. Some 40% of the country's population is involved in agriculture, including 2.6 million farmers. In rural areas, agriculture is frequently the only form of employment available.

Azerbaijan was a leading agricultural producer under the former Soviet Union (FSU), exporting its products to many destinations throughout the Union's republics. Azeri fruits, vegetables, and nuts are of excellent quality and enjoy a very high reputation abroad. However, the collapse of the Soviet Union caused its traditional markets to dry up, leading to a period of stagnation in agriculture. In recent years, however, agricultural production has been recovering, growing by an average of 9.7% every year since 2000. And, despite the economic dislocation caused by the collapse of the Soviet Union, Azeri agricultural products continue to be exported to the FSU. Roughly 80% of these exports go to the Russian Federation, while the rest go to the Commonwealth of Independent States (CIS).

The structure of Azerbaijan's agriculture has been transformed from collective farming to private ownership during the transition years. Today, more than 95% of the nation's agricultural land is in private hands. With private ownership incentives, fertile soil, and a wide range of crop growing climate, the potential for agricultural development is great.

The following are commodities that are suitable for growing in Azerbaijan:

- Fruits—apple, pear, cherry, persimmon, plum, peach, apricot, quince, pomegranate, raspberry, currant, lemon, strawberry, grape, melon, watermelon, and olive;
- Vegetables—potato, tomato, cucumber, onion, lettuce, field greens, carrot, beet, and cabbage;
- Grains—corn, wheat, and barley; and
- Nuts—hazel nut and pistachio nut.

Even though the rural population has benefited from privatization, limited cash flow and access to affordable credit remain obstacles to growth. Azerbaijan's farms tend to be small and family-owned, and lack the funds to purchase modern machinery. Despite employing 41% of the population, the agriculture currently makes up only 7% of the country's gross domestic product (GDP).

Unfortunately, some worrying signs are emerging. Output of staples like cotton, rice, and potatoes actually contracted. In Baku, locally-grown fruits are beginning to lose ground to those from Latin America despite their transport cost advantage. Products from Iran, like pomegranate concentrate, dry fruit, and potatoes, are eating into Azerbaijan's share in the important Russian market. Cheaper fruits and vegetables from Uzbekistan are also taking away Azerbaijan's market share in Kazakhstan.

Recognizing the importance of helping the sector, the government is providing support through Azerbaijan Export & Investment Promotion Foundation (AZPROMO). Multilateral institutions and foreign government are also helping out by supporting nongovernment organizations (NGOs) that assist farmers.

However, more needs to be done to nurture this important sector. The following are productive areas that the consultant believes the government should focus on.

Marketing

According to farmers the consultant met in the Ganja area, many farmers sell their crops to large trading companies through middlemen. These trading companies, which have powerful connections to authorities, control most the country's exports.

This marketing system prevents farmers from getting full value for their crops as their margins and sales are controlled by the middlemen, and as they are given neither the incentive nor the capacity to know prevailing prices and the changing tastes of the market. Moreover, farmers are exposed to great risk in that any delay in the middlemen's payment may mean their being unable to fully implement prescribed planting techniques that must be followed if optimal yields are to be achieved.

The government should support farmer's cooperatives in developing new channels and new markets for Azerbaijan's produce. Cooperative marketing is an effective marketing mechanism used successfully in many countries. The cooperatives can help farmers learn how their products can be sold for the highest profit and tailor their produce (e.g., size, color, taste, and ripening time) to meet consumer expectations.

Instead of selling to traditional markets developed during Soviet era (e.g., the Russian Federation and Kazakhstan), the farmers should sell to new markets (e.g., the Gulf States and the European Union [EU]) where their produce are likely to fetch higher prices. It would be very beneficial for the government to sponsor a market research study to identify the best markets for Azeri produce.

The government should assist farmers' cooperatives to develop a grading system and standards for fruits and vegetables. These cooperatives can learn from the success of California farmers in setting up a grading system for the size, quality, and look of oranges and in developing brands like the well-known Sunkist brand.

To conquer new markets, Azerbaijan's farmers must grow products that are desired and that meet the standards of targeted markets. Toward this end, large supermarkets from targeted countries should be invited to set up buying offices in Azerbaijan. These buying offices can serve many functions, including

- replacing the middleman as a market channel,
- assisting farmers in meeting phytosanitary standards,
- assisting farmers understand consuming trends to grow and ship the right produce, and
- serving as an export consolidator to aggregate small lots into container loads.

Product Development

Today, the People's Republic of China (PRC) is the largest producer of cut flowers in the world, accounting for one-third of the world's total production. By 2010, it will produce 4 billion cut flower stems, up from 2 billion in 2000, according to available studies.

Azerbaijan was a major fresh flower producer during the Soviet era. Unfortunately, its flower industry withered after its independence.

The Azeri government should study how the PRC developed its rose industry in Kunming, the capital of Yunnan Province. To exploit Kunming's "eternal spring" weather, the PRC government searched for an agricultural product that can be grown there and readily exported despite the area's inaccessibility (Like Azerbaijan, Yunnan Province is landlocked and surrounded by mountains).

Settling on aviation as the best transport option, the PRC government began the search for an agricultural product that

- is suited to Kunming's climate and soil;
- has a very high value-to-weight ratio, so air shipping cost is a tolerable proportion of the price of goods;
- requires fast air transport to preserve shelf life;
- has a large, receptive global market; and
- requires processing before shipping, so low Kunming wages create a competitive edge.

After an exhaustive study, the PRC government determined cut roses as the perfect agricultural commodity to be grown in, and exported from, Kunming. Cut roses enjoy a large global market. They are perishable, with a very high value-to-weight ratio. Furthermore, rose thorns can be removed by low cost labor in Kunming prior to air shipping. Today, Kunming-grown roses are regularly auctioned at Amsterdam and are sold even in Thailand—itself a large flower producer.

The Azeri government should undertake a similar study to determine the best agricultural products to grow in Azerbaijan. Among the products it should consider is strawberries, which have a high value-to-weight ratio and a large global market. Because strawberries can be easily bruised by handling and shipping, they have a limited distribution range. Air shipping minimizes handling and gets the product to destination markets fast, assuring freshness. Once an appropriate trade logistics system is designed and developed, strawberries can be an excellent export crop.

In addition, the Azeri government might benchmark the PRC's rise to become the largest producer of apples in the world. The PRC's apple boom was initiated in the mid-1980s as the

country started to free up its agriculture sector. The PRC government worked with the farmers to improve the productivity and quality of apples over the last two decades. Now, the PRC is producing about half of the world's apples.

Promotion of Alternative Crop Uses

Because of existing deficiencies and inefficiencies, the transport infrastructure in Azerbaijan cannot move agricultural produce from farms to markets with the speed and efficiency needed to achieve optimal prices for these commodities. An option for government in the meantime is to give Azeri farmers the opportunity and capability to process their produce. Processing adds value to their produce, thereby allowing them to receive better prices than what they would have otherwise received had they sold their produce raw. Processing also lengthens the shelf life of their produce. A longer shelf life for their produce allows farmers to wait and sell their produce at a later time than during peak harvest season, when prices are generally at their lowest levels. A longer shelf life also extends the range of markets where farmers can sell their produce, thus allowing them to choose where best to market.

The Azeri government should encourage investments in juice concentration, jam production, and dry fruit manufacturing. It should also encourage the development of facilities to pickle fruits and vegetables. These products should find receptive markets in the Russian Federation and many CIS countries.

Improving the Availability of Microcredit

To change their farming practices, farmers frequently require additional capital. The scarcity of banks outside the major cities of Azerbaijan means loans are hard to get and come with high interest rates and difficult terms.

It would be beneficial for the Azeri government to solicit assistance from multilateral organizations that support microcredit lending. This type of lending has achieved much success in developing countries all over the world, including Central Asia.

Multilateral organizations can work with farmers' cooperatives in setting up credit unions. They can also contract with local banks to perform loan origination and services.

Establishment of a Cold Chain Logistics System

Cold storage and temperature-controlled warehouses, as well as good quality refrigerated trucks, are required to support the export of produce to world markets. However, as noted in this report, there are only a few modern temperature-controlled warehouses in Azerbaijan. Most of the cold storage facilities are small, private facilities that serve only the farmers who own them. Moreover, good quality refrigerated trucks are in short supply and charge very high rates. Most of the produce-hauling trucks are not refrigerated. The few that are refrigerated generally use refrigeration machines that are several generations behind current technology.

Assistance is needed to build a cold-chain logistics system to support the export of Azerbaijan's produce to world markets.

Expediting of Customs Clearance

Their perishable nature makes the speedy release of fruits and vegetables from border crossing points imperative. Each day of customs clearance delay subtracts 1 day out of the shelf life of these commodities.

Azeri Customs should thus work with Georgian and Russian Customs to design a “green corridor” where fruits and vegetables will receive expedited clearance at the border.

Appendix D

Logistics Performance Measurement and Monitoring

Logistics performance indicators are essential for the government to assess the success of its policies, laws, and regulations, and for the private sector to develop an efficient and effective logistics system.

These indicators should be developed in such a way that they can be deployed across the entire Central Asia Regional Economic Cooperation (CAREC) region, so the performance of CAREC members can be compared with one another and with more developed countries. This will facilitate benchmarking and the learning of best practices from high logistics performance countries.

Ideally, the data should be collected by competent, independent entities not subject to the influence of government agencies or trade groups. Careful thought must be given to ensure the use of an appropriate data definition and collection methodology. In addition, the entity charged with performance measurement and monitoring must have adequate funds to ensure the sustainability of the measurement and monitoring effort.

The Asian Development Bank (ADB) as a trusted party with deep knowledge of the CAREC region should play a significant role in fostering logistics performance measurement and monitoring, including the creation of an ADB trade logistics index for member countries and for the entire region.

Azerbaijan's Scores in the World Bank's Logistics Performance Index

With the advent of global value chains, the ability to move goods economically, rapidly, and reliably is critical for developing countries to improve their competitiveness and reap the benefits of globalization. Countries able to connect to the global value chain have access to vast new markets, while those with weak links are left behind in an increasingly integrated world.

The World Bank's logistics performance index (LPI) is a comprehensive benchmarking tool that measures a country's logistics performance along its supply chain. It is based on a worldwide survey of global freight forwarders and express carriers in 150 countries on the logistics "friendliness" of the countries in which they operate and trade. The aim is to help all countries to improve their linkage to the global value chain.

Feedback from operators is supplemented with objective data on the performance of key components of the logistics chain. The LPI therefore consists of both perception and objective measures that profile the trade logistics of the countries covered. It identifies the factors and policies that explain the wide differences in logistics performance among countries. Countries with higher LPI scores generally have lower logistics costs and are better connected to the global value chain.

All CAREC members except the People’s Republic of China (PRC) scored low in the World Bank 2007 LPI report, *Connecting to Compete – Trade Logistics in the Global Economy*. Azerbaijan’s LPI score of 2.29 ranks it 111th out of 150 countries surveyed. The country is ranked third among the eight CAREC member countries, lower than the PRC, the Kyrgyz Republic, but higher than Uzbekistan, Kazakhstan, Mongolia, Tajikistan, and Afghanistan.

Table D.1: Logistics Performance Index of CAREC Countries

Country	Rank	Score
People’s Republic of China	30	3.32
Kyrgyz Republic	103	2.35
Azerbaijan	111	2.29
Uzbekistan	129	2.16
Kazakhstan	133	2.12
Mongolia	136	2.08
Tajikistan	146	1.93
Afghanistan	150	1.21

CAREC = Central Asia Regional Economic Cooperation.

Source: The World Bank. 2007. *Connecting to Compete: Trade Logistics in the Global Economy*. Washington, DC.

Integration to global value chains start with the capability of firms to move goods across borders rapidly, reliably, and cheaply. A strong logistics sector, good transport and communication infrastructure, as well as clean, transparent, “business friendly”, and competent government are essential for countries to excel in trade logistics and become an integral part of the global value chain. In contrast, a weak logistics sector, poor infrastructure, and shaky institutions not only increase costs and time in producing and marketing goods, but also decrease the predictability and reliability of the supply chain, ultimately rendering the country noncompetitive in a just-in-time world. All CAREC members should strive to improve their trade logistics system and use that as a cornerstone for their economic development.

Approaches in Measuring and Monitoring Azerbaijan’s Logistics Performance

The choice of performance indicators in transport and logistics can be overwhelming. In view of the embryonic stage of efforts to develop a sustainable system to track Azerbaijan’s logistics performance, the consultant recommends only a limited number of simple measures that address the most important areas and are easy to implement (especially when measures can be derived from reliable data available from trade or trade association sources). As CAREC members gain expertise in performance measurement and collection, more can be added.

These indicators should be measured throughout the CAREC region, with the hope of initiating a virtuous cycle of improvement in member countries.

Using Simple Measures

Simple measures are more likely to be collected consistently and accurately over time and can be measured not just in Azerbaijan, but across the entire CAREC region as well. These measures

are also less costly to ascertain, raising the likelihood that logistics operators, shippers, trade associations, and government agencies will support their use.

Addressing Diverse Stakeholder Needs

The performance measures are selected to address the needs of three major groups of stakeholders, each with its own special interests:

- Government, which wants to use the measures to gauge the results of its policies and the health of the logistics industry;
- Transport and logistics service providers, who want to use the measures to improve their efficiency and the quality of their services; and,
- Transport and logistics service users who want to reduce costs and make sound decisions on carriers and transport modes.

Taking into Account Measurement Issues

The indicators are also chosen to address the following issues that impact on the quality of the data and the sustainability of the collection effort:

- collection fatigue,
- definitional difference,
- confidentiality,
- jurisdictional constraints, and
- budget limitations.

Recommendations on Actionable Performance Indicators

Measures for Guiding Government Decisions

In the World Bank 2007 report, *Connecting to Compete – Trade Logistics in the Global Economy*, Azerbaijan's LPI score of 2.29 ranks it 111 out of 150 countries surveyed. Azerbaijan's Logistics Competence score at 2 ranks it 128th out of 150, and is the worst component of its LPI scores. Its Infrastructure score of 2 ranks it 116th out of 150, also lower than its composite score. Meanwhile, the 2006 Business Environment and Enterprise Performance Survey, a joint initiative of the European Bank for Reconstruction and Development and the World Bank, reported that over 35% of the firms surveyed in Azerbaijan reported customs regulation as a problem of doing business.

Measures that track performance improvements in these areas are particularly important. In addition to these measures, the Azeri government should also track the sustainability, safety, and quality of its transport network, the growth of its transport industry, as well as the development of major transportation corridors.

Taking all these into account, Table D.2 suggests performance indicators to be monitored.

Table D.2: Measures to Track Custom Performance

Type of Measure	Performance Indicators
Customs Improvement	Import customs clearance time (mean and variance) Export customs clearance time (mean and variance) Percentage of electronic declarations Percentage of single window processing Percentage of physical inspections
Sustainability of Transport Network	Road infrastructure outlay as a percentage of GDP Rail infrastructure outlay as a percentage of GDP Air infrastructure outlay as a percentage of GDP
Quality of Transport Network	Number of potholes per km of roadway (reported by drivers calling into a hotline and verified by the highway construction department) Number of slow train orders per km of railway
Safety of Transport Network	Number of fatalities caused by trucks per highway ton-km Number of fatalities caused by rail, per rail ton-km
Logistics Competitiveness	Logistics cost as a percentage of GDP
CAREC Corridor Development	Annual average daily traffic (AADT) on CAREC corridors Average flow speed on CAREC corridors Growth in transit traffic Cargo volume passing through CAREC corridor BCPs Delay time at CAREC corridor BCP (mean and variance) Number of new businesses started along the corridor Total revenue of new businesses started along the corridor Total value of new investments along the corridor (especially foreign direct investments)
Promote Intermodal Transport	Ton and ton-km transport by each mode Number and tonnage of intermodal shipments Number and total square meter of ICD
Develop Transport Industry	Size of Azerbaijan-based road fleet Size of Azerbaijan-based rail fleet Size of Azerbaijan-based air fleet Revenue of Azerbaijan-based road carriers Revenue of Azerbaijan-based rail carriers Revenue of Azerbaijan-based air carriers Revenue of Azerbaijan-based logistics companies Operating Ratio of Azerbaijan-based road carriers Operating Ratio of Azerbaijan-based rail carriers Operating Ratio of Azerbaijan-based air carriers Operating Ratio of Azerbaijan-based logistics companies
Harmonization and Regional Cooperation	Number of international convention accessions Number of bilateral and multilateral agreements Degree of harmonization of standards, regulations, and operations

BCP = border-crossing point, CAREC = Central Asia Regional Economic Cooperation, GDP = gross domestic product, ICD = inland container depot, km = kilometer.

Source: Author.

Measures for Transport and Logistics Providers

A strong transport and logistics industry is essential for supporting a robust growth of Azerbaijan's economy. Performance indicators for transport and logistics providers should be designed to track costs and revenues at the micro-business level. The measures should give these service providers the opportunity to make adjustments, operate more efficiently, and provide more reliable services to their customers.

The performance indicators that should thus likewise be monitored are given in Table D.3.

Table D.3: Measures to Track Operation and Service Provision

Type of Measure	Performance Indicators
Financial	Operating Ratio (operating cost/operating revenue) Return on assets
Operating Efficiency	Percentage of empty miles Average payload weight per vehicle Average revenue per vehicle Fuel consumption per ton-km
Service Quality	Door-to-door transit time of key traffic lanes (mean and variance) Percentage of on-time arrivals (mean and variance) Percentage of on-time pick ups (mean and variance) Equipment availability Loss and damage cost as a percentage of operating revenue
Safety of Transport Network	Number of injuries per ton-km
Freight Characteristics	Average size of shipment Average length of haul Average revenue per ton-km

km = kilometer.

Source: Author.

Measures for Users of Transport and Logistics Service

Performance indicators for transport and logistics users should provide a micro-level measurement of the costs and performance of specific transport and logistics providers, as well as transport modes or modal combinations. Table D.4 lists measures should enable users to make intelligent choices in the design and management of their supply chains.

Table D.4: Measures for Transport and Logistics Service Users

Type of Measure	Performance Indicators
Financial	Return on asset
Cost	Inventory carrying cost as a percentage of sales Transport cost as a percentage of cost of goods
Asset Efficiency	Inventory turnover ratio
Service Quality	Perfect order fulfillment rate Cycle time from order to delivery Percentage of on-time delivery of products (mean and variance)

Source: Author.

Performance Monitoring

Performance monitoring of macro-indicators should best be conducted by competent, independent entities that are not subject to government or trade influence. Appropriate data definition and collection methodology should also be used.

The monitoring process should start with a base-case study, i.e., a detailed snapshot of the situation as it currently exists. This study can then be followed by other studies over time as changes are implemented.

The Azerbaijan Export & Investment Promotion Foundation (AZPROMO), a government entity supervised by the Cabinet of Ministers, has expressed an interest in performance monitoring. It conducts surveys on business climate, assists its members on government regulation and government inspections, facilitates access to information, and serves as a conduit for the view of its members. However, while it is likely to have good access to government data, it might not be the best watch dog on Azeri government performance.

The other candidates as service providers for the conduct of the performance monitoring include the Azerbaijan International Road Carriers Association (ABADA), State Statistical Committee, top Azeri universities and research institutes, the Chamber of Commerce, as well as the CAREC Transport and Trade Facilitation Committee.

With support from ADB and CAREC region governments, the CAREC Transport and Trade Facilitation Committee can be a leading force in applying information from performance measurement and monitoring toward removing trade and transport impediments.