

# IMPROVING FREIGHT TRANSIT AND LOGISTICS PERFORMANCE OF THE TRANS-CAUCASUS TRANSIT CORRIDOR

## STRATEGY AND ACTION PLAN



# TABLE OF CONTENTS

<b>Acronyms and Abbreviations .....</b>	<b>3</b>
<b>Acknowledgments .....</b>	<b>4</b>
<b>Key Messages .....</b>	<b>1</b>
<b>Introduction.....</b>	<b>3</b>
Background and Context.....	4
<b>A Vision for the Trans-Caucasus Transit Corridor .....</b>	<b>8</b>
Strategic Targets .....	9
<b>Action Plan .....</b>	<b>26</b>
<b>Concluding Remarks.....</b>	<b>28</b>
<b>Appendix A. Detailed Action Plan: Priority, Costs, and Timeline.....</b>	<b>29</b>
<b>Appendix B. Underlying Research.....</b>	<b>35</b>
Activity 1: Desk Review of Previous Studies and Policy Framework .....	35
Activity 2: CTC Performance Assessment and Commodity Flow Analysis.....	35
<b>Appendix C. A Summary of Findings on the Corridor’s Performance .....</b>	<b>37</b>
Activity 1. Desk Review and Initial Study Assessments .....	37
Activity 2. Results of the Performance Assessment and the Commodity Flow Analysis .....	38

## **Acronyms and Abbreviations**

<b>ACSC</b>	Azerbaijan Caspian Shipping Company
<b>ADY</b>	Azerbaijan Railways
<b>CIWG</b>	Corridor Improvement Working Group
<b>CMIS</b>	Corridor Management and Information System
<b>CTC</b>	Trans-Caucasus Transit Corridor
<b>EU</b>	European Union
<b>GR</b>	Georgian Railways
<b>HR</b>	human resources
<b>SRDLT</b>	Strategic Road Map for the Development of Logistics and Trade
<b>TEU</b>	twenty-foot equivalent unit
<b>TITR</b>	Trans-Caspian International Transport Route

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Georgia:

Ministry of Economy and Sustainable Development  
Revenue Service of the Ministry of Finance  
Georgian Railways  
Port of Poti  
LTD Anaklia Development Consortium  
Georgia Logistics Association

Azerbaijan:

Coordinating Council on Transit Freight  
State Customs Committee  
Azerbaijan Railways  
Port of Baku  
Azerbaijan Caspian Shipping Company

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## Key Messages

This proposed Strategy and Action Plan put forward a guiding vision for the Trans-Caucasus Transit Corridor (CTC), with a focus on the part to be played by Georgia and Azerbaijan *to develop the CTC into a competitive alternative to other regional routes for the transport of goods, especially for containerized goods between China and Europe, and to promote a solid and professional transport system in the two countries, in association with neighboring economies (Kazakhstan, Turkey, and others)*. The World Bank proposes that this Strategy and Action Plan be adopted by the Ministry of Economy (MOE) in Azerbaijan and by the Ministry of Economy and Sustainable Development (MOESD) in Georgia, as the entities that can bring key regional stakeholders together and help them move in one direction for the improvement of the corridor. The World Bank will carry out additional consultations with MOE and MOESD to ensure Strategy and Action Plan continues to be relevant.

It is important to mention that the implementation of this proposed Strategy and Action Plan would ensure that the corridor is operated in an efficient way that augments the economic benefits of proposed infrastructure works, attracting traffic and reducing operating costs. This would in turn support the region's aspiration of becoming a transit hub. As the CTC embraces this vision in the coming years, it is expected it will benefit from the following three elements of the proposed Action Plan:

- **A harmonized institutional framework** for the technical and commercial links along the transport chain, starting with Azerbaijan and Georgia and expanding to Turkey and Kazakhstan, and meeting the standards and parameters of both the European Union and of China. This would include streamlining customs processes, strengthening relevant regulatory bodies, and applying common standards for transport operators.
- **A reliable and efficient transmodal transport system** that integrates the different components and modes of the transport chain. One way to accomplish this is to establish a transnational joint venture that provides shippers with integrated transport solutions.
- **A transport chain characterized by competitive, fair, and transparent access.** This would involve opening up opportunities for the participation of third-party operators and private investors (using the example of European Union regulations on open access), and optimizing the use of infrastructure.

The proposed Strategy outlines 5 strategic targets that define a path to successfully navigate the institutional and functional changes proposed by the Action Plan:

1. **Reduce major nonphysical barriers** to the efficiency of the CTC.
2. **Remove physical barriers**, by, for example, interconnecting infrastructure more efficiently, and installing intermodal facilities.
3. **Improve institutional frameworks**, including the establishment of a coordinating body to streamline and strengthen governance transport along the CTC and promote and support its development.
4. **Develop a transnational regulatory framework.**
5. **Build capacity in the logistics sector.**

Each strategic target is to be achieved by the completion of specific actions outlined in the proposed Action Plan, which also presents estimated costs and sketched priorities. Priorities were set based on the expected impact of the actions, and also on their cost, complexity, and readiness

for implementation. Preliminary cost estimates are in the range of \$83 million to \$123 million for both countries. This investment would be well justified, given that Azerbaijan and Georgia have already invested significant amounts in improving their port, road, and rail systems. Meeting the five strategic targets would allow the CTC to take full advantage of these important infrastructure assets.

## Introduction

The Trans-Caucasus Transit Corridor (CTC) connects Azerbaijan and Georgia with Europe, China, and other nearby regional partners. The corridor is comprised of roads, railways, the Caspian Sea port of Alat, and the Black Sea ports of Poti and Batumi in Georgia. The length of the corridor in Azerbaijan is about 503 kilometers (km) from Baku to the Georgian border. In Georgia, it extends for about 384 km eastward. Significant infrastructure investments in both Azerbaijan and Georgia are expected to have a noticeable effect on transit times to and from the seaports in the Black and Caspian seas.

Despite these investments, at the present time the CTC is not meeting its potential capacity to facilitate the movement of container cargo between China, Central Asia, and Europe, due in part to physical and nonphysical barriers along the corridor in Azerbaijan and Georgia. As the governments of Azerbaijan and Georgia have made significant efforts to develop transport infrastructure along this corridor over the past decade, their focus has shifted toward addressing nonphysical barriers and improving connectivity between the major infrastructure assets. Improving transport logistics is a priority in both Georgia and Azerbaijan, whose governments seem to understand the need to cooperate to seamlessly improve transport service throughout the Southern Caucasus.

The Government of Azerbaijan recently approved a Strategic Road Map for the Development of Logistics and Trade (SRDLT), which recognizes logistics and freight transit as priorities in the country's attempts to diversify the economy beyond oil. SRDLT sets several high-level objectives: to strengthen the competitiveness of the country's transit corridors, modernize logistics and trade infrastructure, promote a favorable business environment, and encourage private sector participation in the transport sector. In accordance with this road map, Azerbaijan established a new Freight Transit Council to improve transparency and simplify freight transit procedures. Meanwhile, the Government of Georgia has developed a National Logistics Strategy. An active Georgia Logistics Association and a chapter of the Supply Chain Council have been set up to help close operational gaps in the management of the transport supply chain.

Beyond the specific efforts embraced at the national level by Georgia and Azerbaijan, the complexities and challenges of the CTC demand a closer look at its performance and the crafting of a development strategy at the corridor level, addressing the challenges of investors and of transport and logistic operators. Consistent with the national logistics strategies, this proposed Strategy focuses on improving the functioning of the corridor across the international border and its connection with China, Central Asia, and Europe. Therefore, it is more specific and focused on particular issues intrinsic to the CTC that are not currently addressed by national strategies, but that are a national priority for both Azerbaijan and Georgia.

The objectives and scope of the Strategy presented here include identifying physical and nonphysical barriers to the efficiency of the CTC and developing a detailed set of actions to overcome them. The proposed CTC Strategy and Action Plan is available for policy makers in Azerbaijan and Georgia, to support their goal of improving transport logistics in the region.

### **Box 1. Corridor Development around the World**

Corridors have **multiple impacts** on socioeconomic outcomes beyond travel time and vehicle operating costs. These impacts are felt through changes in trade, migration, agglomeration, and local economic structure, among others, that support Wider Economic Benefits (WEBs) such as income growth, new jobs, as well as greater equality and resilience.

Experience shows that in order to have transport corridors turn into economic corridors, there has to be linkage between the infrastructure development of the trunk corridor, trade and transport facilitation measures, and other soft complementary interventions. Some of these soft complementary efforts involve coordinated spatial planning and physical connectivity, an enhanced private sector environment, and capacity and skills development to support business growth.

Some examples of Bank-supported corridor activities include:

- **India Dedicated Freight Corridors**, which involved \$4.5 billion in infrastructure investment and are now being supported by technical assistance to enhance the investment opportunities and options along the corridors.
- **The Maputo Development Corridor**, which includes port, road, rail, pipeline, border post, and logistics services connecting northern Swaziland and the industrial core region of South Africa with the Port of Maputo in Mozambique. The initiative has catalyzed more than \$5 billion worth of investments, and 15,000 direct jobs in transport, logistics, agriculture, and mining ventures along the corridor.

Other international well-known corridor initiatives include:

- **The Trans-European Transport Network (TEN-T)**. The European Union saw the need to improve multimodal connectivity between Southeast Europe and Central/Northern Europe and interoperability at borders for some modes. As a result, the EU developed a corridor strategy to promote rail and waterway interoperability and maintenance for a total investment of €68 billion. This was expected to generate socioeconomic benefits of €517 billion, and 1.49 million jobs between 2016 and 2030. Other expected benefits are a modal shift to rail and water, energy savings, and environmental benefits.
- **The CSX National Gateway Corridor** is an initiative led by the private sector in North America to promote intermodal rail on the U.S. east coast through a public-private investment of \$850 million. It is estimated that this initiative is generating 50,000 jobs in the next 30 years and \$10 billion in public benefits (at a ratio of \$1 in public investment to \$36 in public benefits). Some of the public benefits are related to transportation, energy, greenhouse gas reduction, and safety.

## **Background and Context**

The Silk Road was an historically important link between East and West. It not only served as a transit route but also created an entire economy that depended on a multicultural and diverse market.

In 2020, the redevelopment of a reliable and high-density land corridor between China and Europe is a regional priority for the Southern Caucasus. This reflects the importance of the trade relationship between China and Europe, and also of the economic development that can be achieved by countries along this corridor. While the required network of routes is complex and would take significant efforts to implement, its economic basis is well justified. For example, China's external trade amounts to 20 percent of its gross domestic product, totalling over US\$2.2 trillion annually. Over 94 percent of Chinese exports are manufactured products, and the European Union is the second-largest destination of Chinese exports (at just over 16 percent of China's total exports by value). A recent World Bank report concluded that the implementation of such an



initiative would increase gross domestic product by 3.4 percent for participating countries. This proposed Strategy includes a number of actions that do not involve infrastructure work but that are required so that the corridor’s infrastructure is able to provide the level of service sought by customers. Therefore, it can be expected that the implementation of the regulatory and operational actions in this proposal would enhance the quantified economic benefits.

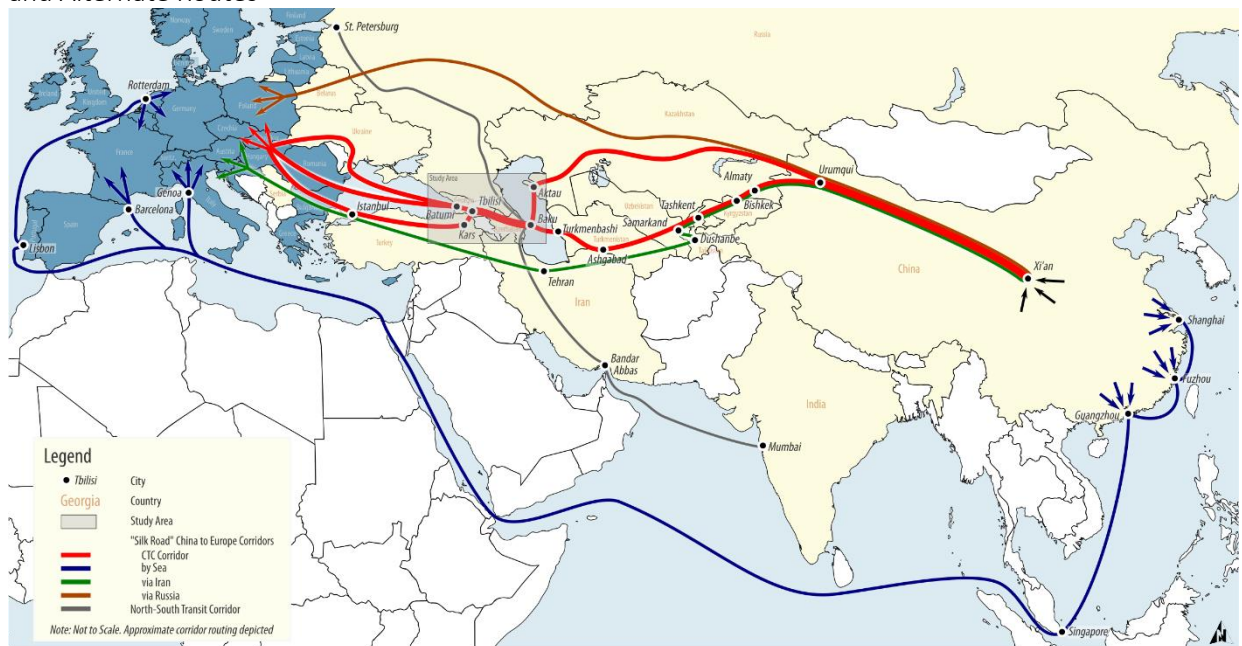
The CTC is one of the important traditional east-west trade and transit routes. The CTC links Azerbaijan and Georgia with Europe, China, Kazakhstan, and other regional partners. The corridor has the potential to play a larger role in connecting China with Europe, and Central Asia with the global economy. The strategic importance of the corridor is shaped by geopolitical, economic, transport-related, and other factors. And this is particularly important since the corridor faces many challenges (compared to other alternatives) as it goes through several borders, crosses the Caspian and Black seas, and involves major economic blocs with sometimes competing interests, such as the EU, China, and Russia. Nevertheless, the CTC offers the EU and China a connection that can access Europe through multiple points, increasing the resilience of the entire continental network. This benefit is reflected in the EU’s interest in extending the Trans-European Transport Network to Azerbaijan and Georgia, and similar Chinese efforts to include the region in the Belt and Road Initiative. In continental network terms, improving the CTC would add another land connection, increasing capacity, resilience, and market competition for movements of containerized freight. This is important because, in practical terms, adding the Caucasus route would ensure that the Eurasian continental railway network has enough capacity to continue growing the rail container market. Studies indicate that while, on average, the CTC may be at a comparative disadvantage in terms of cost and travel times (see table 1), it remains a viable option for some markets and shippers seeking to increase their resiliency and diversify their shipment routes.

Table 1. Cost and Time Estimates for Main EU-China Corridors (per 40-foot container)

Corridor	Cost Range	Overall Average Time (days)	Northern Europe Time (days)	Central Europe Time (days)	Balkans Time (days)
<b>From Chengdu, China</b>					
<b>Northern</b>	\$ 2,800 to \$ 3,200	14–18	16	15-16	20
<b>Trans-Caucasus Transit Corridor</b>	\$ 3,500 to \$ 4,500	16–20	18	17	14
<b>Marine</b>	\$ 1,500 to \$ 2,000	28–40	28–40	28–40	28–40

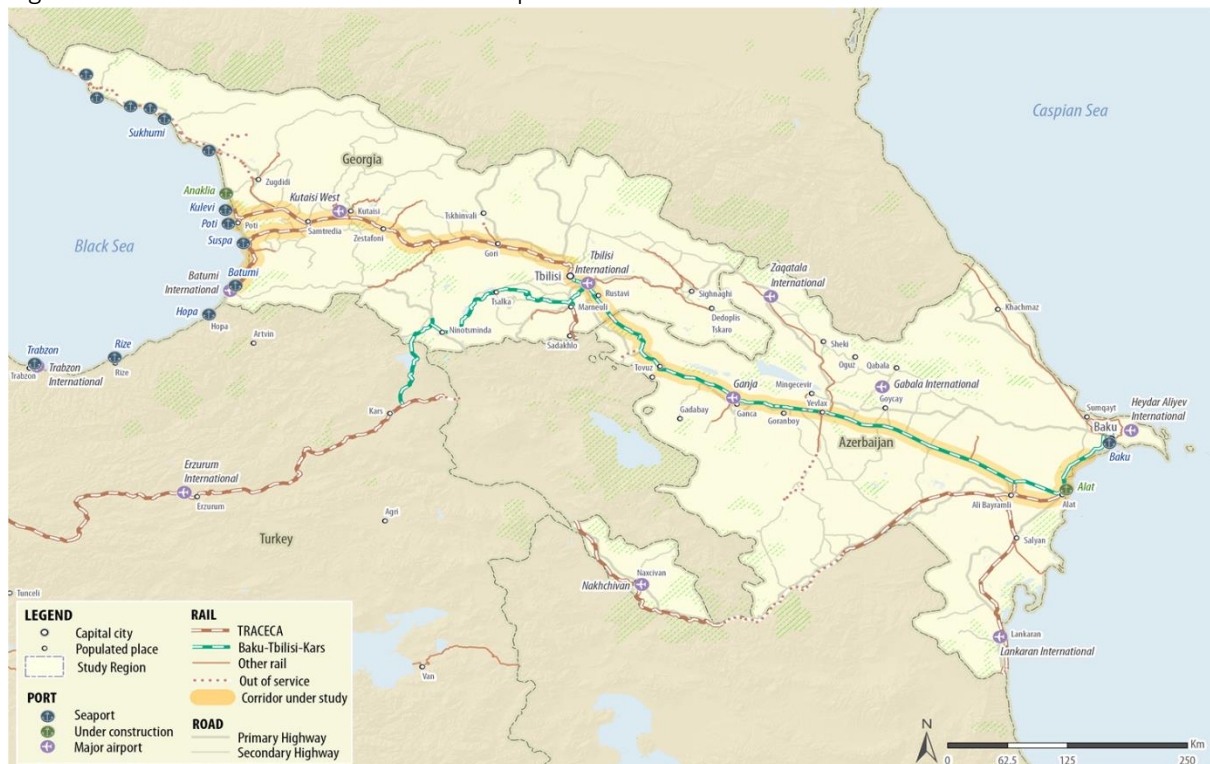
Its enhancement would allow countries such as China, Turkmenistan, Kazakhstan, and others in Asia to have easier land access to Europe. A significant share of goods would be moved by road and rail and then ferry to Azerbaijan, then by rail through Azerbaijan and Georgia to Black Sea ports. There they would be transferred again to Ukraine, Bulgaria, and Romania, where rail, ferry, or road would once again take over and connect the goods to their final destinations in Europe, or ports in the Baltic States. Alternatively, goods would use the new Baku-Tbilisi-Kars line and would continue traveling through Turkey on to Europe. The CTC is in competition with other corridors for transit traffic, as shown in figure 1.

Figure 1. Moving Exports from China to Europe: The Proposed Trans-Caucasus Transit Corridor and Alternate Routes



The CTC is a multimodal corridor comprised of ports, railways, and roads (figure 2). The corridor begins with a ferry operation in the Caspian Sea, continues at the new ports of Baku (in Alat), then travels 511 km from Baku to the Georgian border, where it continues for 315 km to Samtredia. In Samtredia the corridor splits into two branches, continuing to the ports of Batumi and Poti. The corridor is very dynamic, and new pieces continue to be added for improved connectivity. In 2017, the CTC added a new connector with Turkey when the Baku-Tbilisi-Kars railway became operational.

Figure 2. The Multimodal Nature of the Proposed Corridor



Both Georgia and Azerbaijan are looking to expand their freight flows to include eastbound and westbound traffic to and from Asia, including traffic to and from the EU and China. As part of this process, both countries have invested and continue investing in developing and modernizing their freight infrastructure, and have made efforts to address nonphysical barriers to corridor performance.

Goods transported along the CTC primarily consist of oil and petroleum products as well as products consumed locally. Petroleum products are transported mainly from Azerbaijan and Kazakhstan to Georgian Black Sea ports, from where tankers take them farther on to European countries, while many imports come in from Turkey or via Georgian Black Sea ports for the regional market. Until recently, few if any containerized goods travel eastbound from Azerbaijan to Central Asia.

Meanwhile, most European-Chinese trade is currently transported in containers (which are of significant importance to the global economy). Because these are standardized, they offer a harmonized way to transport all varieties of goods and cargo, including pallets, bags, bulk, and liquids. They can be switched easily from one mode to the other and offer a flexibility that conventional transport options (trailers, wagons, tankers) do not offer. The share of containers in the global transport industry (particularly international transport) has increased dramatically in the last 50 years: 66 percent of intercontinental trade in 2011 was containerized. Seaborne containerized cargo amounted to around 1.7 billion tons loaded in 2016.

At the moment, the preferred route for containerized goods between China and Europe is by sea. Less moves over land, through Russia. The CTC has thus far not played a big role in this transport opportunity due to physical limitations, complex logistics, and a lack of competitive container transport operators. It is therefore key for the CTC to increase its commercial, technical, and physical capacity to handle container traffic in a competitive manner.

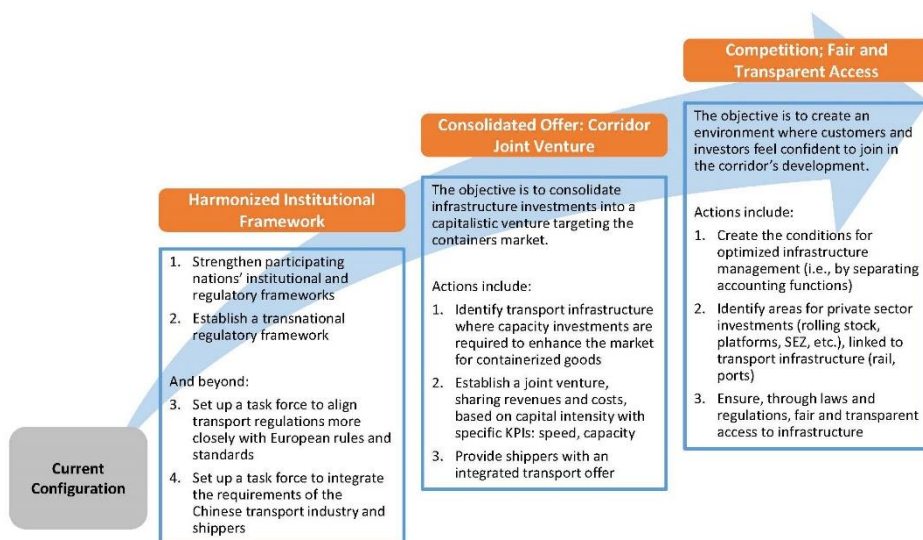
## A Vision for the Trans-Caucasus Transit Corridor

Until now, most of the cargo handled by the CTC has been oil and petroleum products. The movement of containerized cargo has been constrained to a small share of flows by the lack of a transmodal platform and supporting logistics services. A well-organized transport corridor across this region, with capabilities and options to handle containerized cargo, could further the development of Central Asian countries, among other benefits, offering them an alternative route to global markets.

The relevance of setting in place a modern, seamless, and reliable transport service between Georgia and Azerbaijan is salient. This service would efficiently and reliably link the region to European (beyond the Black Sea) and Asian (beyond the Caspian Sea) markets, becoming a driver of economic growth in the South Caucasus. Therefore, this proposed Strategy puts forward the following guiding vision for the CTC, with a focus on the part to be played by Georgia and Azerbaijan *to develop the CTC into a competitive alternative to other regional routes for the transport of goods, especially for containerized goods between China and Europe, and to promote a solid and professional transport system in the two countries, in association with neighboring economies (Kazakhstan, Turkey, and others).*

The strategic targets proposed in what follows serve as milestones toward the realization of an efficient, streamlined CTC with a development path aligned with the sequential stages identified for a successful corridor process (figure 3). The strategic targets are (i) comprehensive to address both nonphysical and physical barriers, and (ii) accompanied by a detailed action plan that outlines estimated costs, sequence, and timeline (appendix A). The recommended targets and actions are based on extensive analysis, freight modelling exercises, surveys, interviews, stakeholder workshops, and field visits carried out during August 2018.

Figure 3. Expected Progression in the Improvement of the Transit Corridor



Note: KPI = key performance indicator; SEZ = special economic zone.

## Strategic Targets

The strategic targets range from policy and regulatory changes in customs processes and the organizational structure of the corridor to direct investment in transport infrastructure, technology, equipment, and human capital development. Specifically, they are to: (i) address nonphysical barriers, (ii) address physical barriers, (iii) improve the institutional framework, (iv) develop a transnational regulatory framework, and (v) build capacity in the logistics sector.

### Strategic Target 1. Address Nonphysical Barriers

Strategic target 1 is to reduce major nonphysical barriers to the efficiency of the CTC by realizing *seven objectives*, outlined below.

#### (1.i) Ensure transparent access to infrastructure and competitive transport tariffs

There is a perceived lack of fair and transparent access to ports, railways, and ferry services along the corridor.<sup>1</sup> First of all, potential users complained that transport operators give some companies unfair advantage, in terms of both access to services and tariff levels. Survey respondents indicated that personal connections and influential partners are of decisive importance in gaining market entry. Furthermore, the current tariff structure is opaque. Tariffs for freight segments have been linked to subjective factors not driven by market- or customer-oriented commercial policies. While tariffs may be public, there is limited information on how they are set and what factors affect them. And the coordination that would be required to establish a unified tariff for the entire length of the route seems to be lacking. According to survey respondents, simplifying tariffs and aligning corridor participants' interests would greatly reduce the cost of transportation. This lack of coordination was underscored as the weakest point affecting the corridor. Importantly, this finding is for the entire corridor, from the Port of Poti all the way to the ferry operations in the Caspian Sea.

While corridor users complain about opaque tariffs, service providers continue to make progress toward a more transparent and competitive corridor. For example, railways, ports, and shipping companies are cooperating through the Trans-Caspian International Transport Route (TTTR), a consolidating organization representing the interests of corridor countries, and trying to provide better and more transparent access to tariffs. However, while the TTTR is a step in the right direction, it seems to be insufficient to grant the level of service that shippers desire. Until now, TTTR has mostly served as a meeting point for the national railway operators of member countries, including Kazakhstan, Turkey, and Ukraine—and also their port authorities, all of which have a monopoly. TTTR has succeeded in providing these operators with a platform to share, discuss, and coordinate their activities. However, it has no mandate to foster competition or supervise regulatory compliance, and is not applying a standard for competitive access, transparent tariffs for users, or nondiscrimination safeguards.

Arguably, there is competition between the Northern Corridor, the CTC, and the maritime route, but this competition exists only for the end-to-end points from China to Europe, not for shipping goods in the intermediate parts of the corridor.

#### ***Related actions***

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<sup>1</sup> Based on surveys and structured interviews undertaken as an input for the formulation of this proposed Strategy. For details, refer to Improving Freight Transit and Logistics Performance of the Trans-Caucasus Transit Corridor (CTC): Activity 2 Report – CTC Performance Assessment and Freight and Commodity Flow Forecast, January (2019).

**Create a regulatory framework to increase transparency and access to monopolistic operators and TITR activities.** This would set new rules to promote the principles outlined above and would facilitate the handling of complaints or claims from users and customers, increasing the attractiveness of the corridor for international logistics and transport companies. The framework should contain:

- *Provision for an independent economic regulator in each country.* The economic regulator would ensure that the prices set for end-users or customers are fair, transparent, and nondiscriminatory; and act as the ombudsman for operators and/or customers in resolving conflicts. The regulator should be independently funded to ensure impartiality. For example, the European Commission mandates that all member states establish independent regulatory bodies that are tasked with ensuring fair and nondiscriminatory access to the rail network and services. These regulatory bodies also ensure that charges set by the owner/operator are nondiscriminatory, and monitors competition in the rail services market.
- *Clear guidance for public access to tariffs.* In line with the above point, a requirement for infrastructure managers is to be set to publish access tariffs, in order to ensure transparency and equal access to transport services. This is especially important for monopolistic transport structures (e.g., railways).
- *Clear principles for setting rates.* It is necessary to create simple, understandable tariffs for as many origin-destination pairs as possible. Ideally, tariff setting will be guided by market principles embedded in the framework for the protection of shippers against the abuse of market power by transport providers.

**Develop policy measures and cross-border harmonization processes, and make them compliant, as much as possible, with the European regulatory framework.** This, inter alia, includes harmonizing and simplifying customs procedures and tariffs, conducting a study on the vertical separation of railways, and evaluating the viability of port privatization. Additionally, the governments of Azerbaijan and Georgia might form a committee under a proposed Corridor Improvement Working Group (CIWG) that includes logistics companies and investigates how to best promote competition in logistics and trucking services.<sup>2</sup>

**Establish a regulated commercial joint venture among different infrastructure managers (and relevant operators).** (This action ties directly into action 1.vi, outlined below.) The first step is to carry out a business plan for the ideal corporate structure that would foster closer collaboration among operators and ensure seamless transport services (particularly for container movement and for repositioning empty containers<sup>3</sup>), including what type of regulation would be required. This would consolidate the services offered and provide shippers with an integrated transport solution, and thus improve the competitiveness of the CTC and attract freight. Part of the mandate of the joint venture could be to create a unit responsible for identifying markets,

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<sup>2</sup> For more information about the CIWG, see Strategic Target 1.vi.

<sup>3</sup> A potential solution to the challenge of repositioning empty containers is to foster collaboration among carriers and logistics providers to streamline container operations and reduce costs. For example, third- or fourth-party logistics services might help facilitate the sharing of containers among shippers and forwarders (Song and Dong-Ping, 2015). Using an “Uber-like” model, these might set up an online market of empty containers that can be used to match loads and third-party equipment for one-way container movements. An example of such a service is the BCG Container xChange, <https://www.bcg.com/en-ca/industries/transportation-travel-tourism/container-xchange.aspx>.

marketing the corridor, and intermodal services. Establishment of this joint venture opens the opportunity to work with the private sector and bring international know-how in the field.

### **Box 2. Imperfect Collaboration between Operators**

A joint venture between public and private transport organizations across the Azerbaijan-Georgia border might take several forms:

- A joint investment in a new “consolidating” project (i.e., container vessels, container terminal in Akhalkalaki);
- A pooling of existing assets (container wagons, traction, and/or network slots) to deliver a specific service; or
- A pooling of commercial services (similar to the Trans-Caspian International Transport Route, but with broader commercial and information sharing remits).

The fundamental objective is to deliver an assemblage, as large and as integrated as possible, of container services across the corridor, involving train, port, ferry and container operations. Related aims would be to reduce the number of visible players, to present a single window to potential customers (shipping lines, freight forwarders), identify or create efficiencies, and deliver an integrated, cost-effective container route.

Any related collaboration would need to be properly regulated to ensure that it does not result in a monopoly over service provision.

### **Implementing an “open access” policy in Azerbaijan and Georgia might improve the use of existing infrastructure while making the corridor more attractive to private operators.**

Open access is a way to ensure that all possible clients feel they have fair, transparent, and nondiscriminatory access to infrastructure and services, and at the best available tariffs. Open access brings benefits in terms of rail integration and interoperability, as it would potentially allow train operators to move across different networks more efficiently. The aim of this action is to identify what goals can be achieved in the specific context of the CTC, what steps are needed to implement open access, what type and extent of institutional capacity need to be developed, and how success will be evaluated. One option is to enact regulation that requires companies (both public and private) to provide open access to shippers and traders (as is currently in place in the European Union, EU).

#### ***Expected outcomes***

1. Increased competition and competitiveness of the corridor;
2. Increased transparency in order to facilitate access and increase the corridor’s appeal to key shippers; and
3. Harmonization with European regulation, and increased visibility of the route among international forwarders.

#### **(1.ii) Strengthen information flows and access to transport-related data**

The lack of a single, comprehensive source of information regarding various transport providers and multiple regulations for transportation, customs, and tariff structures create barriers for both existing players and new entrants.

Georgia's and Azerbaijan's customs have undertaken a number of notable initiatives to improve information sharing, including through electronic declarations. Yet a lack of collaboration between operators and customs authorities remains a barrier and impacts transit time. For example, railways are unable to predict the arrival of ferries and provide adequate rolling stock and locomotives to deal with the arrived goods, slowing down the process. Also, ferries fail to utilize weather information to anticipate downtimes, and reposition resources accordingly.

Finally, there is a strong need to promote the corridor and increase awareness of it among global players. The implementation of a Corridor Management Information System (CMIS) could present a good opportunity to advertise the efficiency of the CTC.

The port authority of Baku and Alat envisions an information-sharing system that would interface with multiple players, including the Azerbaijan Caspian Shipping Company, the Azerbaijan Railways (ADY), the Customs Committee, and others. Such a platform, but on a corridor basis, would go far toward streamlining information flows.

Availability of real-time information and its online access are key. The information technology development planned by the Port Authority should be broadened and extended to major transport operators in Georgia, and possibly Turkey and Kazakhstan.

### ***Related actions***

**Create a CMIS to offer a single window for commercial, operational, and financial purposes.** The CMIS should be designed to provide web-based access (with relevant vetting and authorization procedures) to clients and customers (e.g., shippers, freight forwarders), transport operators (e.g., ports, shipping lines, train operators, container terminal operators), and regulatory bodies.

Also, the CMIS should be designed to consolidate information and carry out transactions related to tariffs and transit times, available capacity and booking, orders and invoicing; real-time operations (e.g., including information on the locations of vessels, trains, containers, etc.); online information on operational issues, incidents, or alerts (weather, accidents, etc.); and statistics and data processing.

The system could also eventually incorporate the processing of payments and other advanced features. It may be integrated into other similar international logistics systems in China and Europe.

It is important to promote the CTC among global players and signal that the corridor is emerging as a technologically advanced and efficient alternative to competing routes.

**The governments of Azerbaijan and Georgia would do well to form a joint working group that includes the main stakeholders in the corridor.** This would provide a platform for key players to communicate and resolve issues along the corridor. Committees and subcommittees could be set up to deal with specialized issues and adopt measures to improve information and freight flows, and also to increase corridor integration.

### ***Expected outcomes***

1. Better identification of shipments throughout the corridor and increased reliability of the transport chain, thanks to the provision of real-time information on positions, incidents, checks, and controls;



2. Increased transparency in pricing practices, thus increasing the corridor's appeal to key shippers;
3. More harmonized costing practices;
4. A CMIS, which would provide a tangible, value-added benefit that could then be advertised globally and in turn enhance awareness of the CTC; and
5. Improved communication and collaboration between all members of the CIWG to support decision-making bodies.

**(1.iii) Facilitate the commercial and operational consolidation of transport modes**

The corridor's supply chain is suffering from a lack of coordination in governance and decision making. There are no effective bodies or mechanisms in place to harmonize and simplify freight transportation, there is a lack of common tariff principles, and there is no effective body providing a one-stop shop for customers. Instead, multiple players have minimal coordination in decision-making, and there is no central bi-national organization or agency focusing on customer needs and market demand.

Stakeholders interviewed for the studies that inform this proposed Strategy emphasized the lack of coordination along the CTC as a significant problem, especially compared to competing routes. The CTC involves many players: ports on the Black Sea and the Caspian Sea, Georgian and Azerbaijani national railways, a ferry operator on the Caspian Sea, and border crossing points of the two countries. This is followed by the railways and ports of origin and destination countries in Central Asia and beyond.

Despite the fact that there are alternative routes, survey participants indicated that the CTC presents a viable, attractive option. Many companies use multimodal transport along the corridor and would be willing to increase their use if there were certain improvements. Accordingly, infrastructure improvement and action plans should also focus on logistics integration across modes (road, rail, port, and ferry), rather than focusing on individual modes.

***Related actions***

**Develop and agree on a joint transnational multimodal strategy for the CTC to consolidate operations and processes throughout the corridor.** This could be formed from existing national operators or any combination with private participation. Related steps might include (but are not limited to):

- Consolidating the CTC's commercial offer, based on a competitive benchmark;
- Promoting joint railway operations, based on scheduled block container services;
- Developing ferry operations, with a baseline capacity to target identified market potential (of +15,000 containers/year in the first year);
- Setting up common regulatory policies; and
- Creating a CMIS.

### ***Expected outcomes***

A single multimodal window consolidating ferry, port, rail, and logistics operations would provide commercial and operational support to shippers, with direct access to transport professionals. The window could offer transport services on the CTC, either partially or on a port-to-port basis. It could also integrate the transport and logistics facilities and services of neighboring countries, including Turkey (through the Baku-Tbilisi-Kars rail line) and Kazakhstan. The single window could be online, and accessible worldwide to registered professionals and institutions.

#### **(1.iv) Increase the reliability of maritime routes**

Maritime routes' reliability has increased since 2018, especially their resilience to inclement weather. Georgian and Azerbaijani ports used to halt operations during stormy weather and strong winds, but new infrastructure and equipment are having a positive impact. However, interface between land transport and ferry crossings over the Caspian Sea still pose an obstacle to predictable travel times. Wait times and slow asset rotation (of rolling stock and ferries) increase capital and operating costs and create uncertainty in the logistics chain. The corridor's reliability depends on the viability of all components. Ensuring that all maritime components of the corridor can provide the level of service expected by global supply chains is key for the CTC to become a competitor in global trade.

#### ***Related actions***

**Approve Poti's development plan.** As noted above, both the port of Poti and the port of Baku have indicated that recent investments should significantly improve access during bad weather spells. Alat port offers better protection, and Poti port has acquired two powerful tug boats with a target of lowering down time to less than 20 days a year. If the relevant government ministries approve, the Poti port plans to build new jetties, which should offer additional protection during bad weather.

**Create a CIWG to exchange experiences and communicate about route reliability.** The ports of Georgia and Azerbaijan should form a committee to exchange experience and ensure that the corridor functions well on both ends. The committee would also exchange information and coordinate operational improvements with ports on the eastern shore of the Caspian Sea. The ultimate goal is to create a continuous improvement process to reduce down times at ports (in addition to the measures already taken), develop contingency plans, and assess fees for bad performance.

#### ***Expected outcomes***

A continuous improvement process and mechanisms would reduce down times at ports.

#### **(1.v) Develop and implement advanced logistics services**

Corridor users have indicated in surveys that a lack of logistics services, centers, and terminals are preventing the corridor from becoming a logistics hub in the region.

#### ***Related actions***

**Implement existing plans for logistics centers in Azerbaijan and Georgia,** projects that should streamline a future intermodal system, improving the logistics performance of the region.

As a next step, based on current plans, governments may develop well-structured requests for proposals to procure strong private sector operators to improve logistics services. Private companies should be encouraged to run more and/or larger 3PL warehousing areas, including bonded warehouses, which are needed at the new port in Alat, the Port of Poti, Akhalkalaki Intermodal Station, and elsewhere in both countries.

**Develop a CIWG to initiate dialogue between logistics and trucking service providers and the governments of Georgia and Azerbaijan.** The goal of the committee would be to facilitate an open dialogue on industry performance and propose measures for improving logistics in the region.

### *Expected outcomes*

Facilitate an open dialogue on industry performance and propose measures for improving logistics in the region, as well as implementing existing plans.

### **(1.vi) Customs process improvements**

Customs in Azerbaijan and Georgia have improved in recent years. Based on survey results, there are no major issues in Georgia. In Azerbaijan, users noted that customs have made a number of positive changes in recent years, including the simplification of procedures and electronic customs declarations. Stakeholders also noted that despite improvements there are still a few areas that can be modified to make some processes, such as clearance, more user friendly. The State Customs Committee of Azerbaijan has explicitly recognized the following short-, medium-, and long-term goals:

- Expand the cooperation of customs services with other states, including the capacity building of officials.
- Construct new customs border crossing points, and establish logistics centers and custom warehouses to improve efficiency and increase transit capacity.
- Supply customs authorities with modern technical means to improve efficiency in customs control.

While strategies to address physical elements of border crossings are detailed in Strategic Target 2.vi, actions to address the remaining nonphysical barriers are discussed below.

### *Related actions*

**Improve customs procedures.** It is important that Azerbaijan’s customs should continue their work in improving customs procedures in line with the State Customs Committee’s strategic plans, making all procedures customer-focused. This includes many aspects—from providing their customers (i.e., shippers and hauliers) with all the information needed to submit customs declarations and any other paperwork electronically in any language the customer desires, to notifying customers how long the queues are for customs clearance.

Notably, in June 2018 the President of Azerbaijan issued a decree that outlines a plan for improving customs import and export operations, such as the introduction of a “one-stop shop” to simplify procedures and improve document exchange among various state actors. The action plan lists a number of key initiatives aimed at improving the customs administration, developing a risk

management system, and improving international cooperation. Implementation of the various actions is already underway in line with the approved action plan.

**Work toward eliminating delays at the border.** Establishing a binational committee could improve harmonization and reciprocity in the regulations that affect traffic. This should aim at harmonization between customs processes, but also other rules that affect movement of vehicles or freight. Streamlining procedures would also increase visibility for users across the corridor.

In the medium term, this work should lead to developing a single customs area, streamlining customs procedures, and minimizing delays at the border.

### ***Expected outcomes***

Improved customs procedures would make the CTC more customer-focused and transparent while eliminating delays and improving transit times.

### **(1.vii) Facilitate closer collaboration between customs authorities**

The customs agencies of Georgia and Azerbaijan would benefit from the increased harmonization of rules and enforcement. It is important to note that there seems to be a good level of communication between the two entities and this can be used to build further cooperation and improve the level of service in the corridor.

### ***Related actions***

**Customs agencies should review staff training programs** to ensure that agents receive training necessary for improved communication and coordination between Georgian and Azerbaijani customs operations.

**A system or protocol should be established to improve information exchange between Georgian and Azerbaijani customs.** This action is expected to contribute to collaboration between the two countries' agencies.

**Also, a single customs area at the border between Georgia and Azerbaijan should be established** once the required customs procedure improvements are in place and harmonized.

**A green corridor for transit freight should be developed that would allow transit freight to bypass customs checkpoints, thus reducing delays.** The green corridor concept was pioneered by the European Commission in 2007 to enable the efficient and environmentally friendly movement of goods across borders of countries within the economic area. This concept promotes a corridor network characterized by fair and transparent access, high integration of transport modes, regulatory harmonization, development of transshipment facilities at strategic locations, and use of intelligent transport systems. In terms of customs, in a green corridor, specific goods and/or shippers would be pre-approved for clearance across borders, thus eliminating the need for inspection and halting at specific customs points. In addition to reducing transit time, through this action the risk of corruption would also be minimized through limited interaction between operators and officials.

### ***Expected outcomes***

1. Improved information exchange between authorities in Azerbaijan and Georgia; and

## 2. Reduction in delays at borders.

### **Strategic Target 2. Remove Physical Barriers**

While the largest components of the corridor's infrastructure are mostly in place, they still need to be interconnected more efficiently, and intermodal facilities need to be installed. Lack of these connectors is creating bottlenecks and prevents the corridor from developing to its full potential.

#### **(2.i) Ports along the CTC**

##### *Port of Baku (New Port in Alat)*

The existing container traffic is carried either on trucks (ro-ro) or on railway flat-beds that are loaded on train ferries.<sup>4</sup> Rail is generally more efficient than trucks for carrying large container volumes over long distances over land, while container carriers are more efficient than rail ferries due to a faster loading and unloading process as well as tighter spacing of containers (rail flat-beds do not need to be carried in the vessel as they impose costs in terms of space and weight). Besides, the rotation of a fleet of wagons across three national railway networks (Georgia, Azerbaijan, and Kazakhstan) is lengthy and costly. Consequently, the current operations cannot be considered as optimal, and they lack the proper transshipment facilities to handle containers from trucks to container vessels. In order to build up a sustainable container flow over the CTC, robust container handling infrastructure is needed in each part of the corridor, including the New Port in Alat. The required infrastructure includes ship-to-shore cranes, reach stackers, and gantry cranes. The quantity of each depends on expected traffic and port layout. As the corridor must be competitive in terms of both time and cost, each step in the supply chain must support efficient container movements, including rapid unloading, sorting, and loading for the container's onward journey.

A dedicated container terminal is planned. In the meantime, general cargo berths will be used to handle container traffic. General cargo cranes are capable of handling containers, albeit at a lower capacity and slower pace than a dedicated container crane.

##### *Port of Poti*

On the Black Sea, the Port of Poti has addressed reliability problems by putting in operation two heavier tug boats that can now operate in bad weather. The Port of Poti has also advertised a plan for additional seashore protection (new jetties, as part of the future container terminal development planned for completion in 2025), which would be privately financed, and whose feasibility is being studied. Their realization depends on further governmental authorization (in particular, an environmental appraisal).

##### *Port of Anaklia*

From public sources, it is understood that the intention to develop the Port of Anaklia is to provide additional transport capacity. The Indicative TEN-T Investment Action Plan estimates the total Anaklia port would amount to €333 million.

*The main conclusions regarding ports in the Black and Caspian seas is:*

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<sup>4</sup> Train ferries allow wagons to be rolled over through a ramp from the port. In this case, flat-beds with containers are loaded on the ferry. This is a different method than stacking containers using a crane.

- The Black Sea and Caspian Sea access points are the critical gateways for regional economies as well as for the effective development of the corridor.
- Capacity is not an issue, as the three existing ports have a capacity to handle more than 500,000 TEUs per year.
- The ports need to install or improve intermodal facilities to connect maritime routes with the railways and roads more efficiently.

### ***Related actions***

**Poti port.** Clarify and address as soon as possible the readiness of Poti port's planned development. Ensure there is a coordinated effort between the Government of Georgia and the Port of Poti in determining what documents and requests are pending for the port to be able to implement improvements.

**New Port of Baku.** Key steps would be to:

- Assess the port's future container terminal design and timeline;
- Implement the second phase of the port's development plan in order to address pending issues related to logistics facilities, connections to rail and road networks, and the handling of equipment and storage space for containers to ensure optimal intermodal operation; and
- Assess further developments for an intermodal platform (bounded site, exchange facilities, and the management of empty containers, among others).

**The Black Sea and Caspian Sea gateways are critical for the interlinked Georgian and Azerbaijan economies.** The two countries would mutually benefit from developing a joint port master plan that would consolidate market studies, address commercial and technical issues, and build a path for the development of CTC corridor. This would enable the governments to take into account each other's needs and coordinate measures and investments to improve performance. This becomes even more relevant as the ports on both coasts gather sufficient resources to expand and improve their operations.

The Government of Georgia would benefit from developing a **feasibility study of a maritime operation between the Georgian ports (Poti and Batumi) and Eastern European ports (Bulgaria and Romania).** Focus should be on investment identification, intermodal market potential, and extension of the joint CTC service into Europe. This would determine how intermodal services on the Black Sea connecting to the CTC would efficiently transfer from Bulgarian and Romanian ports to European railways and waterways, and vice versa.

### ***Expected outcomes***

1. Improved port infrastructure would reduce transit times and costs.
2. A joint port master plan would enable the two countries to cooperate in the strategic development of their ports.

## **(2.ii) Azerbaijan Railways (ADY)**

The Government of Azerbaijan is conducting a comprehensive program of refurbishing railway infrastructure and rolling stock. Once this is completed, ADY's operational status will be far better; thus, the program needs to be completed as proposed. Some parts of the infrastructure might need minor reconfiguration to accommodate 750-meter and longer container trains and better serve the economics of intermodal rail. This requires updating operating practices and making marginal cost upgrades to sidings and signalling systems to allow for longer trains—steps that can be incorporated in existing maintenance projects.

### ***Related actions***

**Implement an investment project** focused on the rehabilitation of the east-west railway corridor and related infrastructure. Key steps would include infrastructure and rolling stock upgrades, conversion from direct current (DC) to alternating current (AC) power, and upgrades to the signalling system. The track upgrade program is expected to increase average train speeds from 25 to 50 kilometers per hour (km/h) by 2020/21, while the signalling and electrification upgrades are expected to increase capacity, improve reliability, and reduce operating and maintenance costs. Full completion of the signalling and electrification upgrades might take up to two years. The Indicative TEN-T Investment Action Plan estimates total ADY investment in the corridor would amount to €328 million.

The expansion of the **New Port in Alat needs to include a rail connection** to a planned container terminal to ensure smooth transshipment. The railway needs to work with the port to ensure that such a connection is built when the container terminal is funded and constructed. Lack of a direct rail connection to the planned container storage area at Alat would make container transshipment to rail difficult. The Indicative TEN-T Investment Action Plan estimates that the cost of an Alat trade zone and logistics center would amount to €410 million.

**Existing infrastructure** should be assessed in terms of the need for **reconfiguration** (of block length, passing sidings, and other intermodal relevant infrastructure) to allow operation of trains 750 meters and longer.

### ***Expected outcomes***

1. Increased train speeds and capacity and reduced bottlenecks in the Azerbaijani section of the CTC; and
2. Improved transit times and competitiveness across the CTC.

## **(2.iii) Georgian Railways (GR)**

The Government of Georgia is conducting a comprehensive program to refurbish infrastructure and rolling stock that includes the elimination of bottlenecks in the network.<sup>5</sup> The rehabilitation

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<sup>5</sup> Two main sections of the Georgian railway network are creating bottlenecks. The Georgian Railways Modernisation Project involves reconstruction and construction of infrastructure in the mountainous Gorge section of the line, costing \$280 million in public funds. The Tbilisi Bypass Project involves restructuring the railway to bypass the Tbilisi urban area, costing \$500 million financed with public funds, the European Bank for Reconstruction and Development, and the European Investment Bank. Seventy percent of related infrastructure is completed, but the project has stalled due to operational constraints.

and expansion work is already well funded; therefore, it is recommended that the government complete this program as proposed. The current infrastructure configuration does not allow the operation of trains 750 meters and longer. To change this would require updating operating practices, as well as some siding and signalling systems that could be updated at little cost as part of routine maintenance.

### ***Related actions***

**Assess and confirm investment plans for final rehabilitation of the network.** In particular, it is important to finish the Gorge section project in order to remove this bottleneck from the corridor.

**Assess in detail the network's actual capacity to handle scheduled block trains (in terms of both infrastructure and operations),** and prepare a business plan to correct, adjust, or develop such operations. Georgian Railways should have the capacity to develop these plans internally.

**Reconfigure existing infrastructure (block length, passing sidings, etc.) to allow the operation of container trains that are 750 meters and longer.**

**In liaison with Turkish Railways, reconfigure Akhalkalaki Intermodal Station to allow for easier container transshipment** from the Russian broad gauge (1,520 millimeters [mm]) used in Georgia and Azerbaijan to the standard gauge (1,435 mm) used in Turkey. This reconfiguration would require moving the container transshipment facility from the northwestern end of the station to the eastern end in order to allow two 750-meter-long trains to park side by side for container transshipment.

### ***Expected outcomes***

1. Increased train speeds and capacity and reduced bottlenecks in the Georgian section of the CTC; and
2. Improved transit times and competitiveness.

## **(2.iv) The East-West Highway**

There is a need to complete ongoing and planned highway projects in Azerbaijan and Georgia. Two highways projects are ongoing in Azerbaijan, at a total cost of US\$695 million. In Georgia, work to complete the corridor connection is well financed and is expected to be completed by 2023.

### ***Related actions***

Complete ongoing and planned highway projects in Azerbaijan and Georgia.

## **(2.v) Joint efforts and coordination between Azerbaijan and Georgia Railways**

There is a need for the railways of Azerbaijan and Georgia to develop a strategic partnership and improve coordination.

### ***Related actions***



**Develop block container train schedules to allow seamless container shipments with predictable capacity.** Block trains—also known as unit trains—are freight trains that haul a single commodity bound for the same destination, without switching cars or stopping for storage purposes en route. Establishing block train services can increase the competitiveness of corridors for certain commodities by offering savings in shipping time and cost.

### **Box 3. The Advantages of Block Trains**

Block trains were initially introduced in the United States in the mid-20th century and used to haul bulk cargo such as coal, grain, and cement. They are particularly economical and efficient for transporting high-volume cargo. To fully harness the benefits of block trains, railroads in the United States redesigned their equipment, including the construction of larger freight cars, which were often developed for hauling specific commodities.

More recently, in early 2017, the first container block train from China arrived in London, operated by the InterRail Group of Switzerland. The 12,000-kilometer journey crossed Kazakhstan, Russia, and then Eastern Europe with containers carrying textile goods. Since then, Maersk delivered a container block train from China to northern France on behalf of a major sporting goods retailer. The travel time was twenty days less than the company's maritime route.

**Develop a strategic partnership with the new Port of Baku related to container ferry operations on the Caspian Sea.** The partnership would involve improving coordination and information flows between the port and ADY to ensure that train arrivals are timed to meet container ships. Having scheduled train services that depart immediately once the containers have been unloaded would maximize the corridor's attractiveness. This partnership would provide legal backing to a tactical team for corridor transport.

**Create a tactical operating team, responsible for ensuring on-time delivery of container block trains.**

**Develop a strategic partnership with Turkish railways to develop joint operations, including container platform and transshipment in Akhalkalaki.**

**Develop partnerships with third-party logistics providers in the region, as is part of the railway strategies throughout Europe and North America.** This enables railways to attract container traffic that is secured through service level agreements, "integrated logistics" contracts, and other binding agreements. As a result, railways gain better-integrated industry logistics chains, and become more efficient in delivering transport solutions.

#### ***Related outcomes***

1. Partnerships resulting in operational and performance improvements; and
2. Improved transit times and competitiveness.

#### **(2.v) Ferry operations on the Caspian Sea**

The Azerbaijan Caspian Shipping Company (ACSC) started an intermodal weekly feeder service using the vessel Mahmud Ragimov in early April 2018. Loading and unloading the vessel can take up to 24 hours on either end, and end-to-end transport can take 36 hours. The vessel can make

two round trips per week. The theoretical capacity of the vessel is 7,280 TEUs per year per direction, under ideal weather conditions, while the real capacity is 5,000 TEUs.

According to the ACSC's assessment of the service, in April-June 2018, less than 20 percent of the capacity of the Mahmud Ragimov vessel was utilized, and there had been no increase in container volumes, at a cost of US\$230 per TEU (US\$460 for a 40-foot container). Traffic was around 350 containers in 2017 but increased to 450 containers in the first quarter of 2018. It is recommended that the company find opportunities to maintain service and address the remaining issues that prevent wider use of the CTC by intermodal traffic.

### ***Related actions***

**Ensure that the planned capacity is sufficient for the expected traffic from China and Central Asia** (considering the need for new intermodal vessels). Identify funding to expand capacity (if necessary).

**Optimize operations to minimize delays in ports and en route.** Create a predictive model to deal with weather events in a coordinated manner between port, land, and maritime transportation.

**Explore the establishment of incentives for on-time delivery and penalties for delayed delivery.** As with other transport practices globally, contractual reward/penalty mechanisms could be developed to ensure that, when scheduling the corridor integrated services, ferry operations (but also rail operations and ports) operate on time and according to schedule. Usually, penalties and rewards are settled on a quarterly/yearly basis.

**Develop an intermodal transport unit that would work on a strategic level to develop intermodal freight and on a tactical level to ensure that containers are not delayed on vessels and in port.** An ideal port processing time should be two hours from the time containers arrive by train to the time they are loaded onto the ship. The intermodal transport unit would be responsible for monitoring delays, working to ensure that the container processing at the new Port of Alat is fully optimized and working in coordination with ADY to meet a preestablished processing time target.

**Activate potential partnerships between interested parties (railways and shipping lines) to develop the required capacity.** This could be in the form of advanced booking (prepaid) capacity on a ferry, to ensure a minimum revenue cover for ferry operations. Conversely, it could be prebooked (prepaid) capacity on train services, to guarantee the timely meeting with vessels at the port.

### ***Expected outcomes***

1. Capacity sufficient to meet demand; and
2. Reduced delays and improved reliability.

## **(2.vi) Red Bridge Checkpoint**

The existing Red Bridge border crossing facility lacks capacity and needs to be expanded. A new port of entry at the border would expedite traffic flows and streamline processes using the latest technology.

### ***Related actions***

Develop an investment plan and establish a new Red Bridge checkpoint between Georgia and Azerbaijan. As it is physically impossible to expand it in its current location, the facility should be relocated to the nearby rail border crossing. The two countries' customs should consider co-locating their inspection facilities to improve efficiency. The facility would require state-of-the-art equipment, including truck scanners.

This facility can potentially be developed as a public-private partnership by adding a logistics facility at the border crossing. A study should be conducted to ensure that this type of project delivery is feasible.

### ***Expected outcomes***

1. Increased capacity at the border crossing, leading to decreased wait times and improvement in transit times and cost.

## **Strategic Target 3. Improve the Institutional Framework**

### **(3.i) Strengthen national institutional and regulatory frameworks**

It is well known that a balanced and simple regulatory framework benefits the logistics/transport sector. It is proposed that a single coordinating body govern transport along the CTC to promote and support the development of a transport network and oversee both infrastructure (fixed infrastructure and rolling stock) and commercial operations.<sup>6</sup> A balanced and simplified institutional framework, supported by a functioning legal framework, would bring confidence to operators by offering some guarantees related to access and tariffs.

### ***Related actions***

**Define an institutional and legal framework to provide common rules and standards for operators on the corridor.** This would include the evaluation of existing regulatory frameworks, international standards, and examples of international or regional integration. Necessary steps include building consensus within existing organizations and stakeholders, and disseminating information. It is worth mentioning that the framework should ensure that the regulator is independently funded to ensure impartiality.

Once the definition is completed, **set up the required regulatory bodies** in Azerbaijan and Georgia. (For details, see Strategic Target 1 above.)

**Undertake a human resources (HR) assessment of existing institutions and regulatory bodies,** to evaluate possible gaps in capacity, and develop specific plans for training, recruitment, and career development.

**Evaluate costs and provide funding for critical HR programs** (for details, see Strategic Target 5 below.)

### ***Expected outcomes***

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<sup>6</sup> There are multiple actions that require more communication between organizations in Azerbaijan and Georgia. It is recommended that this be facilitated by the proposed CIWG, including through topic-specific task forces.

Improved transparency and greater confidence in the corridor's management and in protocols related to access and tariffs.

### **Box 3. The Benefits of Open Access**

During discussions with stakeholders at workshops conducted to inform this proposed Strategy, there was debate around open access and a devoted regulatory body, particularly in the context of two national railways and train operators. It is important to outline the benefits expected from these approaches:

- **Open access** ensures that all possible clients of the corridor feel they have fair, transparent, and nondiscriminatory access to both available capacity and the best available tariffs. Open access also brings benefits in terms of rail integration and interoperability, as it would potentially allow train operators to move across different networks more efficiently.
- **A harmonized regulatory framework** would help ensure that there is fair and transparent access to transport infrastructure.
- For the rail sector, **it is critical to separate the accounting for infrastructure management and train operations** to ensure that there is transparency in cost structures, and that both capacity (through slot allocation and costing) and train operations (through efficiency enhancements and careful budget allocation) are optimized to meet the corridor's objectives for performance, capacity, and price. International precedents include that of Turkish Railways, which has separated its accounting and attracted more private operators. Also, this separation is compliant with European regulations, with which Georgia is already making a strong move to comply. Azerbaijan Railways is progressing toward this separation as part of its transition to international financial reporting standards. Kazakhstan Railways is also considering it.

## **Strategic Target 4. Develop a Transnational Regulatory Framework**

One of the main difficulties in the CTC is the number of parties involved in the transportation of freight. Establishing a transnational regulatory framework would provide clarity for customers and operators, while maintaining the control of a particular jurisdiction. A common legal framework would help all stakeholders comply with regional rules and would result in improved transit time and more opportunities for the logistics sector.

### **(4.i) Establish a transnational regulatory framework**

A specific action plan should be developed in order to coordinate efforts in Azerbaijan and Georgia, and to some extent in Turkey and Central Asian countries (notably Kazakhstan) and to deliver a transnational framework for the sector.<sup>7</sup>

#### ***Related actions***

**Identify and propose specific regulatory actions to make cross-border operations more seamless.** This may include the establishment of new umbrella regulations that are enforced by the relevant national agencies. Some examples include policy measures to harmonize cross-border processes and transnational agreements for cross-border operations, allowing non-national

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<sup>7</sup> This action is also related to the strategic target of removing nonphysical barriers, which calls for regulatory harmonization of the sector.

operators to operate on several networks, and ensuring that the corridor's regulatory framework is in agreement with the existing EU regulatory framework.

***Expected outcomes***

1. Greater coordination among key players along the CTC; and
2. Improved performance, transit times, and costs.

**Strategic Target 5. Build capacity in the logistics sector**

Logistics services typically include platform management services (storage, temperature-controlled logistics, custom-bonded areas, information technologies, innovation, intermodal facility management), as well as general integrated transport services (just-in-time delivery, factory-related movements, customs clearance, etc.) to industrial customers.

It is important that the two countries be less dependent on external resources (for instance, international shippers or freight forwarders), and not continue to miss key business opportunities.

***Related actions***

The capacity of the logistics sector can be increased by developing specific **training programs** on technical issues, developing **collaboration with the academic world** in transport and logistics studies, and **establishing partnerships** with external (foreign) academic or professional institutions.

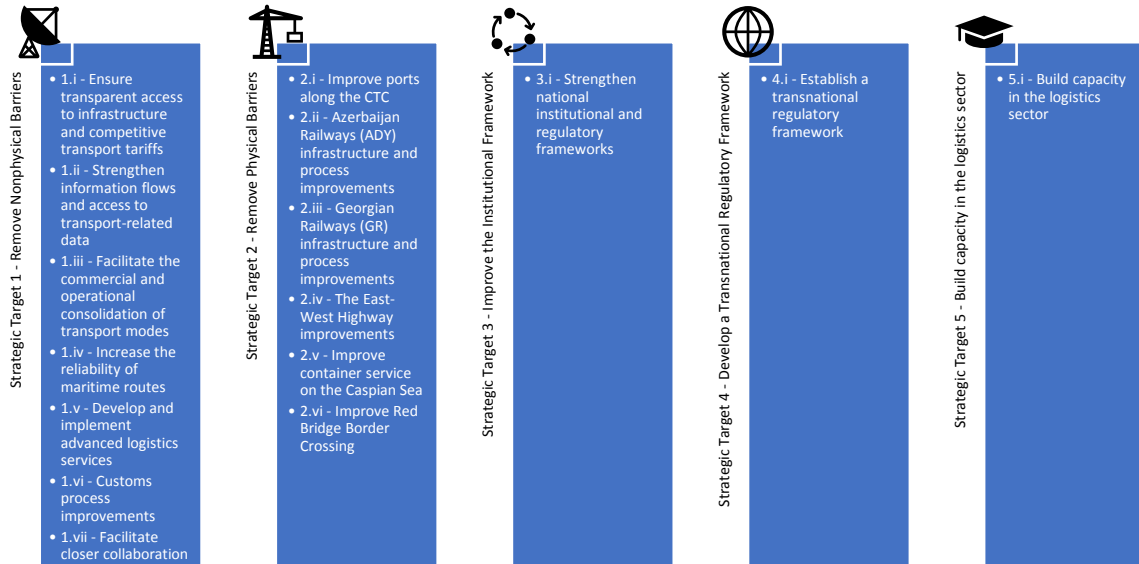
***Expected outcomes***

1. Reduced dependence on external resources to provide logistics services; and
2. New business opportunities for domestic industry.

# Action Plan

As shown in figure 4 and presented throughout this document, each strategic target has a set of objectives that need to be accomplished in order to achieve the vision.

Figure 4. Strategic Targets and Respective Objectives



In turn, objectives will be met by successfully completing the assigned series of actions. The list below is of prioritized short- and medium-term actions that are key. These actions are not only likely to be achievable in the short to medium term, but also have the potential to energize the region to work together by establishing concrete institutional, operational, and financial initiatives to turn the CTC into a competitive option. These actions are important and will pave the way and gain traction for the rest of the proposed Action Plan.<sup>8</sup> However, it is important to keep in mind that these actions will have to be followed by the completion of the full proposed Action Plan (included in appendix A) in order for the vision for the CTC to be accomplished.

### Short- and Medium-Term Priority Actions

1. Create a Corridor Management Information System (CMIS) that will offer a single window for commercial, operational, and financial purposes.
2. Study the ideal business structure for a commercial joint venture between the main infrastructure providers and operators; this should allow for closer collaboration between operators in the provision of seamless transport services.
3. Implement existing plans for logistics centers in Azerbaijan and Georgia, and develop a Corridor Improvement Working Group to initiate dialogue between logistics providers and governments.
4. Improve intermodal connectivity in the South Caucasus:
  - a. Improve port intermodal infrastructure in the Caspian and Black Seas.

<sup>8</sup> The detailed action list presented in appendix A outlines priorities, costs, and a tentative implementation timeline.

- b. Reconfigure existing infrastructure to meet container block train operations (block length, passing sidings, speeds).
  - c. Confirm investment plans for rehabilitation of the East-West rail line in Azerbaijan and Georgia.
  - d. Reconfigure the Akhalkalaki Intermodal Station to allow two 750-meter-long trains to park side by side for rapid container transshipment.
5. Customs improvements:
- a. Improve customs procedures including information flow and move to a one-stop-shop procedure.
  - b. Customs employees should receive more training and increase coordination with counterparts in other country.
6. Improve maritime connections in the Black and Caspian seas:
- a. Ensure planned maritime capacity is sufficient for the expected transit container freight along the CTC.
  - b. Optimize operations to minimize delays in ports and en-route.
  - c. Explore the establishment of incentives for on-time delivery and penalties for delayed delivery.
  - d. Complete a feasibility study for maritime operations between the Georgian ports (Poti and Batumi) and East European ports (Bulgaria and Romania).
7. Establish logistics-focused educational and training programs. Develop technical logistics programs and collaborative efforts with international academic or professional institutions in transport and logistics studies.

The long-term priority actions listed below are likely to require significant regional cooperation and extensive legal changes which may require more time for implementation. While these actions will be prioritized, it is important to be aware that they may be accomplished in the longer term due to political and legal status in the region. However, the Governments of Azerbaijan and Georgia should endeavor to take concrete steps toward the accomplishment of these regional long-term goals. Furthermore, due to its association agreement with the EU, Georgia is already working on the adoption of EU Directives relevant to the corridor and will likely be well positioned to work with counterparts in Azerbaijan to ensure that the entire corridor mirrors relevant EU directives.

### ***Long-Term Priority Actions***

1. Establish an “open access” policy in the corridor.
2. Harmonize regulations, including of:
  - a. Policy measures and cross-border processes;
  - b. Transnational agreements for cross-border operations, allowing nonnational operators to operate on several networks; and
  - c. Compliance with the European regulatory framework.
3. Customs improvements:
  - a. Develop a single customs area, streamlining customs procedures and minimizing delays at the border.
  - b. Develop a “green corridor” for transit freight that would allow transit freight to bypass customs checkpoints at borders.

## Concluding Remarks

The proposed Strategy and Action Plan provides a structured and systematic framework for the CTC to become an efficient and competitive corridor for container transport between China and Europe. This proposal is grounded on extensive research and analysis that identifies the existing challenges and barriers for intermodal container shippers to use the corridor in a broader manner. These barriers would be removed from the CTC if the following five strategic targets were to be achieved; (1) reduce major nonphysical barriers to the efficiency of the CTC; (2) remove remaining infrastructure-related and other physical barriers; (3) improve institutional frameworks; (4) develop a transnational regulatory framework; and (5) build capacity in the logistics sector.

The proposed Action Plan delineates and prioritizes the objectives and actions needed to meet these objectives. Prioritization was done based on the expected impact of the actions, but also on their cost, complexity, and readiness for implementation. Preliminary cost estimates are in the range of \$83 million to \$123 million for both countries. This investment would be well justified given that Azerbaijan and Georgia have already invested significant amounts in improving their port, road, and rail systems. Achieving the five strategic targets would ensure that the CTC takes full advantage of these important infrastructure assets.



## Appendix A. Detailed Action Plan: Priority, Costs, and Timeline

Table A.1 Proposed Action Plan, by Priority, Cost, and Time

Priority	Strategic Target	Actions by Priority	Cost (U.S. dollars)	Timeline
1	Strategic Target 1 vi. Customs process improvements	<ul style="list-style-type: none"> <li>→ Improve customs procedures, including information flow, and move to a one-stop-shop procedure.</li> <li>→ Develop a single customs area, streamlining customs procedures and minimizing delays at the border.</li> </ul>	\$1 million	1–2 years
2	Strategic Target 1 iv. Increase maritime route reliability	<ul style="list-style-type: none"> <li>→ Approve Poti’s development plan: Poti has a plan to build new jetties that should offer additional protection during bad weather. A recommended action is to approve and support Poti’s development plan.</li> <li>→ Create a shared information platform comprising the main ports of Georgia and Azerbaijan to exchange experience and ensure that the corridor functions well on both ends.</li> </ul>	Funding for ports identified (Poti, private; Alat, public).  Explore other sources (international financial institutions, private, public)	2 years
3	Strategic Target 2 ii. Azerbaijan Railways infrastructure and process improvements	<ul style="list-style-type: none"> <li>→ Investments in the rehabilitation of the east-west railway corridor and related infrastructure should be finalized.</li> <li>→ Existing infrastructure should be assessed in terms of its need for reconfiguration (block length, passing sidings, and other intermodal infrastructure) to allow the operation of container trains 750 meters and longer.</li> </ul>	\$370 million <sup>9</sup>  \$1–2 million	2–3 years

<sup>9</sup> EaP Indicative TEN-T Investment Action Plan, 2019.

Priority	Strategic Target	Actions by Priority	Cost (U.S. dollars)	Timeline
4	<p>Strategic Target 2</p> <p>iii. Georgian Railways infrastructure and process improvements</p> <p>iv. The East-West Highway</p>	<ul style="list-style-type: none"> <li>→ Assess and confirm investment plans for the final rehabilitation of the network, in particular the Gorge section.</li> <li>→ Develop a business plan to handle scheduled block trains.</li> <li>→ Reconfigure existing infrastructure (block length, passing sidings, etc.) to allow the operation of container trains 750 meters and longer.</li> <li>→ Reconfigure the Akhalkalaki Intermodal Station to allow two 750-meter-long trains to park side by side for rapid container transshipment.</li> <li>→ Improve the inland container terminal in Tbilisi or establish a new intermodal facility at the Kumisi Logistics Center.</li> <li>→ Develop a strategy for the development of intermodal business for Georgian Railways.</li> <li>→ Complete ongoing highway projects along the corridor.</li> </ul>	<p>\$250,000 for new sidings;</p> <p>\$350,000 for new terminal equipment</p> <p>Akhalkalaki station can be reconfigured at a cost of \$250,000</p> <p>\$2 million (improvement)</p> <p>\$7 million (in case of establishment of new one)</p> <p>\$500,000</p> <p>Funding/financing for highway projects has been committed and identified.</p>	<p>2–3 years</p> <p>2–3 years</p> <p>12 months</p> <p>By year 2023</p>
5	<p>Strategic Target 1</p> <p>v. Implement and develop advanced logistics services</p>	<ul style="list-style-type: none"> <li>→ Implement existing plans for logistics centers in Azerbaijan and Georgia, and develop a Corridor Improvement Working Group to initiate dialogue between logistics providers and governments.</li> <li>→ Promote Georgia as a regional logistics and processing hub by establishing a related initiative and attracting investment to logistics centers.</li> <li>→ Define a value proposition to attract global producers and suppliers.</li> <li>→ Prepare a market analysis to explore the viability of Georgia’s and Azerbaijan’s preferred logistics locations and define a value proposition to attract global producers and suppliers.</li> <li>→ Support industry associations and logistics service providers in self-regulating to increase the quality and competitiveness of logistics services.</li> </ul>	<p>\$20 million in Georgia for transport infrastructure to connect logistics centers. Similar amount in Azerbaijan.</p> <p>\$500,000</p> <p>\$1 million</p>	<p>2–3 years</p> <p>12 months</p> <p>12–24 months</p>

Priority	Strategic Target	Actions by Priority	Cost (U.S. dollars)	Timeline
6	Strategic Target 1 vii. Closer collaboration between customs authorities	<ul style="list-style-type: none"> <li>→ Customs employees should receive more training and increase coordination with counterparts in collaborating countries.</li> <li>→ Initiate better information exchange to improve collaboration.</li> <li>→ A single customs area at the border between Georgia and Azerbaijan may be established once improvements are in place and procedures harmonized.</li> <li>→ Develop a “green corridor” that would allow transit freight to bypass customs checkpoints at borders.</li> </ul>	Government budget	3 years
7	Strategic Target 2 i. Improve ports along the CTC	<ul style="list-style-type: none"> <li>→ Clarify and address the readiness of Poti’s planned developments, including ensuring a coordinated effort between governments and the Port in order to implement improvements.</li> <li>→ Implement the second phase of the development plan for the New Port in Alat, including a container terminal to address issues related to logistics facilities, intermodal connections, and equipment.</li> <li>→ Develop a joint port master plan for critical Trans-Caucasus Transit Corridor ports in both countries.</li> <li>→ Develop a feasibility study for maritime operations between the Georgian (Poti, Batumi) and East European ports (Bulgaria, Romania).</li> </ul>	<p>Master plan, \$1 million (potentially financed by international financial institutions)</p> <p>Cost of port expansions and improvements, \$500,000</p>	<p>12–24 months (master plan)</p> <p>12 months</p>

Priority	Strategic Target	Actions by Priority	Cost (U.S. dollars)	Timeline
8	Strategic Target 1 i. Fair and transparent access to infrastructure; transport tariffs	<ul style="list-style-type: none"> <li>→ Create an effective regulatory framework to increase transparency and access to infrastructure for transport operators: <ul style="list-style-type: none"> <li>○ For ports, determine the appropriate regulatory framework to ensure a transparent and accessible sector.</li> <li>○ For railways, establish legislation to comply with Directive 2012/34 and regulation No 913/2010 of the European Parliament, as specified in the Association Agreement between the European Union (EU) and Georgia.</li> </ul> </li> <li>→ Develop policy measures and cross-border harmonization processes, including customs procedures and tariffs (aligned with EU standards).</li> <li>→ Study the ideal business structure for a joint venture between key infrastructure providers and operators; this should allow for closer collaboration between operators in the provision of seamless transport services.</li> <li>→ Establish an “open access” policy in the corridor.</li> </ul>	This strategic element is further developed under the “institutional framework”	2–3 years
9	Strategic Target 3 i. Strengthen national institutional and regulatory frameworks	<ul style="list-style-type: none"> <li>→ Provide support for the definition of an institutional and legal framework.</li> <li>→ Set up the required regulatory bodies.</li> <li>→ Provide support for capacity evaluation and planning for existing and/or future regulatory institutions.</li> <li>→ Evaluate costs and provide funding for critical human resource programs.</li> </ul>	At least \$3 million	2–3 years of research, preparation, consensus building, and set-up
10	Strategic Target 1 ii. Strengthen information flows and access to data	<ul style="list-style-type: none"> <li>→ Create a Corridor Management Information System (CMIS) that would offer a single window for commercial, operational, and financial purposes.</li> <li>→ Create a binational advisory working group for the continuous improvement of the CTC.</li> </ul>	First stage of CMIS, an estimated \$1–5 million for IT development	2–3 years  1 year

Priority	Strategic Target	Actions by Priority	Cost (U.S. dollars)	Timeline
11	Strategic Target 2 vi. Red Bridge Border Crossing improvements	<ul style="list-style-type: none"> <li>→ Develop an investment plan and implement the new Red Bridge checkpoint between Georgia and Azerbaijan.</li> </ul>	<p>Planning, at least \$250,000</p> <p>Construction, at least \$20 million (to be studied as part of planning)</p>	2–3 years to plan, build, test and open facility
12	Strategic Target 1 iii. Facilitate the commercial and operating consolidation of transport modes	<ul style="list-style-type: none"> <li>→ Develop and agree on a joint transnational multimodal strategy to consolidate operations and processes throughout the corridor (can be implemented as part of the development of the CMIS).</li> </ul>	Government budget	1–2 years
13	Strategic Target 2 v. Ferry operations on the Caspian Sea	<ul style="list-style-type: none"> <li>→ Ensure that the planned capacity is sufficient for the expected traffic from China and Central Asia; identify funding to expand capacity (if necessary).</li> <li>→ Optimize operations to minimize delays in ports and en route.</li> <li>→ Explore the establishment of incentives for on-time delivery and penalties for delayed delivery.</li> <li>→ Develop an intermodal transport unit to develop intermodal freight.</li> <li>→ Activate potential partnerships between interested parties (railways and shipping lines) to develop the required capacity.</li> </ul>	<p>New vessel costs, \$10–15 million</p> <p>Optimization of operations, \$500,000</p>	<p>Optimization of operations</p> <p>12 months</p>
14	Strategic Target 4 i. Establish a transnational regulatory framework	<ul style="list-style-type: none"> <li>→ Regulatory harmonization, including: <ul style="list-style-type: none"> <li>○ Policy measures and harmonization of cross-border processes;</li> <li>○ Transnational agreements for cross-border operations, allowing nonnational operators to operate on several networks; and</li> <li>○ Compliance with the European regulatory framework.</li> </ul> </li> </ul>	At least \$500,000 to \$1 million	2–5 years

Priority	Strategic Target	Actions by Priority	Cost (U.S. dollars)	Timeline
15	Strategic Target 2 v. Railways' strategic partnerships and cooperation	<ul style="list-style-type: none"> <li>→ Develop block container train schedules to allow seamless container shipments with predictable capacity.</li> <li>→ Develop strategic partnership with New Port in Alat related to container ferry operations on the Caspian Sea.</li> <li>→ Create a tactical operating team, responsible for ensuring on-time delivery of container block trains.</li> <li>→ Develop strategic partnerships with Turkish railways to develop joint operations.</li> <li>→ Develop partnerships with third-party logistics providers.</li> </ul>	Reallocation of existing resources; potential additional investment of \$10-15 million	2-5 years
16	Strategic Target 5 i. Capacity building in the logistics sector	<ul style="list-style-type: none"> <li>→ Developing specific training program on technical issues.</li> <li>→ Collaborate with foreign and domestic academic or professional institutions to further transport and logistics studies.</li> <li>→ Support local educational institutions and industry associations in the CTC to use European Logistics Association (or similar) qualifications for logistics professionals.</li> </ul>	\$1-5 million (depending on target population number) \$1 million \$1 million	5-10 years 24 months 12 months

## Appendix B. Underlying Research

The research that underlies this proposed Strategy and Action Plan was divided into three main activities. Activity 1 was a desk review of existing studies about the performance of the corridor and the existing policy and regulatory framework in the CTC, activity 2 was the main performance analysis of physical and nonphysical bottlenecks, and activity 3 crafted recommendations based on the findings of activities 1 and 2. Below is a detailed description of each activity.

### **Activity 1: Desk Review of Previous Studies and Policy Framework**

The purpose of this activity was to outline current conditions along the CTC through a review of previous studies, reports, and other analytical work that had been done about the CTC as well as information uncovered during a field mission conducted in November 2017. Activity 1 also provided an assessment of existing government strategies related to trade logistics and freight transit that are being used by Georgia and Azerbaijan to manage the CTC.

A resulting working paper outlines the basic market characteristics and the business rationale of the CTC, and the main freight forwarders, cargo owners, shippers, and logistics service providers. It also provides basic information about existing business activities (e.g., markets, freight volumes and value, commodities).

### **Activity 2: CTC Performance Assessment and Commodity Flow Analysis**

Activity 2 was the main analytical component of the World Bank's technical assistance. There were four main tasks under this activity; (i) freight demand and commodity flow analysis, (ii) identification of existing physical barriers, (iii) identification of existing nonphysical barriers, and (iv) benchmarking of corridor performance.

#### **Task 2.1**

A freight modelling exercise looked at three scenarios, considering planned infrastructure improvements as well as potential new infrastructure and logistics coordination improvements. These scenarios helped estimate travel time and costs along an “improved” CTC, to assess how competitive the corridor is in attracting freight today, compared with both existing alternatives and possible future conditions of the CTC itself.

The modelling approach and its rationale accounted for the key variables impacted in these scenarios and were flexible enough to generate estimates for different variations of an “improved” CTC. Under the corridor improvement scenarios, the model assumes that the specified improvements are already in place—that is, there is no lag in delivering investments or improvements over time. Therefore, *ceteris paribus*, the results provide a good estimate of how many containers would be moving at present if these measures were already in place.

The general modelling approach has three main steps: (i) demand estimation (i.e., overall demand for containerized freight between China and Europe); (ii) cost estimation (travel times and costs associated with each trip and each possible route/corridor, including mode effects); and (iii) a choice model (based on a generalized cost equation using inputs from step ii; this step also accounts for the trade-off between time and cost depending on the value of the goods).

The analysis of current demand for container cargo from China to the European Union utilizes 2016 data from the United Nations International Trade Statistics Database. Country-level commodity

flows were aggregated at the HS6 commodity level, with associated trade values and volumes in TEUs.

The total travel times and costs differ by scenario, based on a literature review and working knowledge of the most efficient travel times possible using similar infrastructure. The Russia corridor, the three CTC corridors, as well as the Sea corridor are all included in this analysis.

The final step ultimately predicts which commodities and trips will move over the CTC, or the alternative routes, based on value-of-time and cost assumptions.

### **Task 2.2**

Nonphysical barriers along the CTC were identified through surveys and structured interviews with both private and public sector stakeholders such as freight forwarding companies, shipping lines, railways, ports, and truck operators.

The survey was focused on identifying the main bottlenecks faced by companies using the CTC. Interviews with high-level management provided an opportunity to understand their vision of the CTC, and the challenges and opportunities and strategic issues faced by the corridor. The survey aimed at pinpointing the most crucial operational problems experienced by companies using the CTC at present. Representatives of companies that use the corridor were asked to provide their experience regarding import/export processes, border, and clearance issues in order to identify barriers during each step. The questionnaire facilitated detailed discussion regarding various transportation modes—road, railway, ports, and ferries—to understand capacity issues, time constraints, tariffs, logistical and infrastructure issues, process transparency, access to information, and service quality.

The survey also included interviews with low- and mid-level personnel and logistics managers of large and small companies conducting operations on the CTC. This was done to gain a view of routine, day-to-day operational issues.

### **Task 2.3**

The process of identifying physical barriers provided a detailed overview of existing infrastructure, including projects in the CTC that have been recently implemented in Georgia and Azerbaijan and an analysis of the intermodal integration of potential freight flows. Finally, existing infrastructure was assessed with an eye to predicted freight flows, to see if any additional changes are needed.

The analysis was based on site visits, expert interviews, and also the survey results from task 2.2.



## Appendix C. A Summary of Findings on the Corridor's Performance

This performance assessment is presented by activity.<sup>10</sup>

### Activity 1. Desk Review and Initial Study Assessments

Countries along the CTC have invested heavily in physical infrastructure, and now that many physical projects in Azerbaijan and Georgia are nearing completion, the two governments are shifting focus toward increasing efficiency in the corridor. Both the Government of Georgia and the Government of Azerbaijan have made it a priority to strengthen logistics and trade.

The first step to improve performance is to identify remaining infrastructure and operational issues along the CTC. The goal is to uncover what needs to be done to increase the competitiveness of the corridor in the international freight and logistics market. A desk review of current conditions considered market, geographical, logistical, and institutional factors.

The existing market is limited to oil and conventional cargo, using both rail and trucks. This is the traditional business for regional freight service providers. The level of service, facilities, equipment, and most components that make up the freight system reflect this market reality. However, in order for the CTC to become a global logistics corridor, freight services will need to evolve to attract freight. As containerized cargo is the future of global trade, investment is needed in dedicated container vessels, logistics platforms, information technology tools linking operators or transport systems, building capacity, and facilitating trade. Overall, the sector is dominated by a supply-driven mentality not adapted to the challenges of modern integrated logistics, where client requirements and satisfaction are key elements of success.

In order for the corridor's development to be effective, the scope of the effort must include adjacent portions in Europe, Turkey, and Central Asia. The reality is that the CTC reaches far beyond Azerbaijan and Georgia, and its development and future management should integrate Turkey, as the Baku-Tbilisi-Kars rail line represents a clear opportunity for the transport sector. This would offer a direct gateway to the Mediterranean and Continental Europe, the Black Sea rim countries (which provide multiple entry points to Europe), and Kazakhstan, where the performance of rail, ferry, and intermodal operations is critical to the performance of the CTC.

Logistics performance along the CTC goes beyond infrastructure and transport operations. Azerbaijan and Georgia are relatively well ranked in three dimensions: customs, infrastructure, and international shipments. Meanwhile, other dimensions offer opportunities for improvement: timeliness, logistics performance, and tracking and tracing.

The CTC is shaped by the current institutional framework. The public sector plays an important role in the rail, ferry, and port sectors through state-owned or state-controlled players that extend to intermodal services (ADY Containers, GR Express) and beyond Georgia and Azerbaijan to Turkey, Kazakhstan, and Turkmenistan. There are two notable exceptions—the Port of Poti (Georgia) and the Port of Aktau (Kazakhstan), which are privately controlled.

Improving logistics performance would require additional efforts to modernize institutions in the sector. As transit freight increases and more logistics activities are performed along the CTC, there will be a need to increase access for the private sector. This liberalization would be particularly

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<sup>10</sup> See appendix B for a more detailed description of the three research activities that underline this proposed Strategy and Action Plan.

important for international services in the wake of the new container market. The operation of the CTC may also increase efficiency through some regulatory actions, to include: fair and transparent transport tariffs, separation of accounts between infrastructure management and operations, and, potentially, a regulatory framework with an independent, multimodal regulator.

## Activity 2. Results of the Performance Assessment and the Commodity Flow Analysis

The study was able to identify several infrastructure and physical barriers to the efficient operation of the CTC. What is important to note is that the main infrastructure components are in place (or in the process of being implemented), and most issues are related to small improvements that would tailor the corridor to an intermodal market.

Table C.1. Identified Physical and Nonphysical Barriers along the Trans-Caucasus Transit Corridor

### A. Physical Barriers

Location	Issue	Proposed Solution	Status
<b>Maritime</b>			
Traffic over the Caspian Sea	Intermodal operation is not carried out in the most efficient manner. There are no dedicated container vessels. Ferry services are infrequent. Priority has been given to rail wagons, as the wait times and costs for trucks increase. Container traffic is carried on trucks (ro-ro) or rail platforms (rail ferries).	Improve regularity and reliability of ferry services. Expand container transport across the Caspian by implementing a dedicated container service. Consider acquisition of modern intermodal equipment and modification of operations to meet intermodal traffic needs.	Dedicated transport has commenced operations. Expansion of capacity will be needed as traffic develops.
New Port of Baku (in Alat)	No dedicated container equipment or terminal. Containers are handled at general cargo berths.	<ul style="list-style-type: none"> <li>→ Proceed with the second phase of the port's expansion. Ensure that there is a rail connection to the new container terminal.</li> <li>→ Ensure that there are enough container cranes and reach stackers.</li> <li>→ Ensure that a bonded warehouse and other logistics facilities are developed.</li> </ul>	Expected to be complete within 5–7 years.
Port of Poti	Expansion needed to allow Bosphorus-sized ships to serve the port.	The port has proposed an expansion plan that has not been approved yet.	Approve expansion plan.
Port of Batumi	<ul style="list-style-type: none"> <li>→ Use of rail access track blocks road.</li> <li>→ Road access needs to be improved.</li> </ul>	<ul style="list-style-type: none"> <li>→ Complete construction of grade separation.</li> <li>→ Complete road projects near Batumi.</li> </ul>	Batumi road bypass is complete.

## Border Crossings

Red Bridge Border Crossing	Facility requires expansion to cope with increased demand.	Build a new border crossing facility. The facility should be co-located with the existing rail facility, east of the current border crossing point.	Planned.
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## Railways

Akhalkalaki Intermodal Station	The facility is not configured for optimal interchange of containers between 1,520 millimeter (mm) gauge platforms and 1,435 mm gauge platforms.	Reconfigure the facility, building two parallel tracks to allow 750-meter-long trains to park side by side with a container gantry crane overhead.	Can be implemented within 6–12 months.
Georgian Railways (GR)	Improve operations.	Need to change operating procedures to allow a single locomotive to operate container trains from one end of the line to the other, and allow 750-meter-long trains to operate on the network.  Some changes needed in the Gorge section.	Can be changed within 3 months.
	Network improvement projects are ongoing.	Need to complete network improvement projects.  GR should consider changing network electrification to 25 kilovolt alternating current (AC) to match that of Azerbaijan.	In progress.
Azerbaijan Railways (ADY)	Improve operations.	Need to change operating procedures to allow a single locomotive to operate container trains from end to end of the line.	Can be changed within 3 months.
	Network improvement projects are ongoing.	Need to complete network improvement projects.	In progress.

## Roads

Georgia	A number of road improvement projects are under construction or in their planning phases. Once these projects are completed, the corridor will be able to take full advantage of the highway.	Complete projects as scheduled.	As scheduled.
Azerbaijan	A number of road improvement projects are being implemented or planned. Once these projects are completed, the corridor will be able to take full advantage of the highway.	Complete projects as scheduled.	As scheduled.

## Logistics Infrastructure

Throughout Georgia and Azerbaijan	New logistics centers are needed.	Build logistics centers.	Some are planned or in operation; more are needed.
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## B. Nonphysical Barriers

Issue	Possible Solution
Lack of fair and transparent access to infrastructure and tariffs.	A clear and transparent fair-play principle needs to be applied to all players in the market, without discrimination.  Tariff policy that is simplified, specific and transparent needs to be developed and implemented. Tariffs should be unified for the length of the corridor.
Need for a single integrated corridor.	Approach the corridor as a single entity with a day-to-day corridor operations manager.
Barriers to information flows.	Implement an information technology system to breaks down information barriers. Establish an institutional/organizational structure to allow efficient information flows.
Port reliability issues.	Improve infrastructure and operations.
Need to further develop the logistics sector.	Develop and implement a logistics development program to increase technical capacity and competence.
Customs barriers.	Implement a “single window” customs principle in Azerbaijan. Improve information availability.

## Results of the Freight Model and Commodity Flow Analysis

Analysis of the freight model produced quantitative estimates of containerized freight volumes and types along the different corridors available for moving freight from China to the European Union. These estimates suggest how freight would move at 2016’s demand levels if CTC infrastructure and operating improvements were to be realized. They thus offer insight into the CTC’s overall potential under ideal conditions, as well as competitiveness under different scenarios.

As context, in 2016 the volume of freight moved from China to the European Union was estimated at about 7 million TEUs across transport modes. About 98 percent of this traveled by water, and about 1 percent by air. The remainder was attributed to rail routes through Kazakhstan, Russia, Iran, and the CTC. This trend is confirmed by data showing that only about 300 TEUs actually moved through the CTC in 2017. Given this backdrop, results suggest that:

- Under ideal conditions, the volume of containerized cargo that the CTC could potentially capture amounts to 15,595 TEUs, or 0.2 percent of total current Chinese exports to the European Union. This freight would be attracted to the CTC, away from other routes and modes currently in use. Most of it (about 95 percent) would be machinery, equipment, and non-food consumer goods.
- The volume of containerized cargo that the CTC is likely to capture under the two other improvement scenarios are about 12,000 TEUs and 13,800 TEUs, respectively. The difference arises because of additional infrastructure improvements to ports and border crossings in the second scenario. These estimates represent between 78 to 83 percent of the freight captured

under ideal conditions. The commodity types are essentially the same as in the ideal scenario (i.e., mainly machinery and equipment and non-food consumer goods).

The additional freight attracted to the CTC would be captured mainly from the marine mode. Based on this analysis, the CTC can also potentially capture some freight but only under the most ideal conditions. The volume of freight travelling by air was not high enough to justify including it in the model. The implication of excluding the air mode from the model is that high-value commodities currently travelling by air are likely to be captured by rail in the modelling results. While there is a significant increase in containerized freight through the CTC across all scenarios, the freight analysis indicates that, ceteris paribus, the CTC will continue to have the lowest share by volume compared to the other routes and mode alternatives.

#### *Analysis of Additional Markets*

Additional traffic would be captured from Central Asian countries and from Iran. Based on estimates, the CTC would be able to capture a significant percentage of the nearly 0.5 annual million TEUs two-way traffic that travels between Europe (including Turkey) in the west and Central Asia and Iran in the east.

Table C.2. A Comparison of Transport Corridors and Scenarios

Corridor	Scenario	Average Travel Time (TT) Compared	Average TT, Actual	Max. TT, Actual	Average Cost Compared	Average Cost, Actual	Max. Cost, Actual	Volume (TEU)	%
<b>CTC</b>	Ideal	15.3	12.4	13.3	\$6,223	\$5,437	\$6,049	15,595	0.22
	Planned	16.1	13.1	13.7	\$5,940	\$5,333	\$5,927	12,185	0.17
	Optimistic	15.8	12.8	13.4	\$6,025	\$5,335	\$5,926	13,773	0.19
<b>Russia</b>	Ideal					\$5,160		230,444	3.22
	Planned	15	13.1	16.5	\$5,650	\$5,166	\$6,083	232,597	3.25
	Optimistic					\$5,166		232,597	3.25
<b>Marine</b>	Ideal							6,903,550	96.56
	Planned	36	36	43	\$3,042	\$2,925	\$3,976	6,904,808	96.58
	Optimistic							6,903,220	96.55

## Benchmarked Results

The CTC's performance can improve with certain important measures that do not require a high level of investment. Proposed improvements in the action plan would move transport times and costs into a reasonable range, making the CTC more competitive (see table C.3).

Table C.3. Average Transport Times between China and the European Union for a 40-foot Container (days)

Corridor	Overall Average	Northern Europe	Central Europe	Eastern Europe	Balkans
	<b>From Chengdu, China</b>				
<b>Northern</b>	14-18	16	15-16	14	20
<b>CTC (with improvements)</b>	16-20	18	17	15	14
<b>Marine</b>	28-40	28-40	28-40	30-42	28-40
	<b>From Shanghai, China</b> (compared to numbers from Chengdu)				
<b>Northern</b>	+2 days				
<b>CTC (with improvements)</b>	+2 days				
<b>Marine</b>	-1.5 days				
	<b>From Shenzhen or Guangzhou, China</b> (compared to numbers from Chengdu)				
<b>Northern</b>	+2 days				
<b>CTC (with improvements)</b>	+2 days				
<b>Marine</b>	-1.5 days				

The Northern corridor provides the fastest transport times in all cases except for containers destined for the Balkans, for which the CTC is fastest. In terms of time, the Northern corridor is most competitive for Northern Europe. The CTC and the Northern corridor are competitive for both Eastern European and Central European destinations in terms of time.

Shipping by sea is slower in both cases and takes nearly twice as long as shipping by rail. Some freight forwarders offer a combination of shipping by sea and rail or sea and road, and the transport times vary accordingly.

While the Northern corridor has an edge over the CTC on paper for most routes, freight forwarders tend to present shippers with a range of days for how long a container shipment will take. This makes the CTC competitive with the Northern corridor in transporting freight from China to Central and Eastern Europe when taking only time into account.

## Comparing Shipping Costs between the Three Routes from China to Europe

The cheapest but slowest option is the maritime route, with prices ranging anywhere from \$1,500 to \$2,000, taking 28 to 40 days from the origin to the destination. The CTC provides the highest rates (\$3,500 to \$4,500) and the second-slowest time (16 to 20 days). Finally, the Northern corridor provides the fastest delivery time of the three corridors (14 to 18 days) and costs that are between that of the CTC and the marine corridor.

Table C.4. Transport Costs and Times from Chengdu, China, to the EU for a 40-foot Container

Corridor	Cost Range	Time Range
<b>Russia</b>	\$ 2,800 to \$ 3,200	14–18 days
<b>CTC</b>	\$ 3,500 to \$ 4,500	16–20 days
<b>Marine</b>	\$ 1,500 to \$ 2,000	28–40 days

*Source:* Compiled by CPCS based on consultation with shippers.

*Note:* Includes only port-to-port or station-to-station cost comparison; does not include insurance costs.

The CTC corridor is less competitive than the Northern corridor for freight to be moved between China and Europe. However, shipping to the Balkan countries, Turkey, Romania, and Bulgaria is more competitive timewise via the CTC than via the Northern corridor.

The CTC may be more competitive timewise when shipping into and out of the Central Asian countries of the Kyrgyz Republic, Uzbekistan, Tajikistan, and Turkmenistan, as well as southern parts of Kazakhstan, depending on the destination of the goods.