

CAREC CORRIDORS: PERFORMANCE MEASUREMENT AND MONITORING

I. Introduction

1. The Central Asia Regional Economic Cooperation (CAREC) Transport and Trade Facilitation Strategy (the Strategy) and its Action Plan focus on the development of the six CAREC corridors, which will facilitate transport and trade within and through the CAREC region and provide important links among the world's rapidly growing markets around the CAREC region (a corridor map is shown in Appendix 1). These corridors are:

CAREC 1: Europe–East Asia (KAZ, KGZ, XUAR)

CAREC 2: Mediterranean–East Asia (AZE, KAZ, KGZ, TAJ, UZB, XUAR)

CAREC 3: Russian Federation–Middle East and South Asia (AFG, KAZ, KGZ, TAJ, UZB)

CAREC 4: Russian Federation–East Asia (MON, IMAR, XUAR)

CAREC 5: East Asia–Middle East and South Asia- (AFG, KGZ, TAJ, XUAR)

CAREC 6: Europe–Middle East and South Asia (AFG, KAZ, TAJ, UZB)

AFG=Afghanistan, AZE=Azerbaijan, KAZ=Kazakhstan, KGZ=Kyrgyz Republic, IMAR=Inner Mongolia Autonomous Region, MON=Mongolia, TAJ=Tajikistan, UZB=Uzbekistan, XUAR=Xinjiang Uygur Autonomous Region.

2. The same strategy and action plan also mandated that performance be measured and monitored periodically to ascertain the current situation along the links and nodes of each CAREC corridor, identify bottlenecks and determine courses of action to take to address such bottlenecks. Three methods that measure and monitor performance has been considered for CAREC, each focused on a particular corridor component. The Time/Cost Distance Methodology will gather time and cost data associated with transit transport processes to identify constraints along a particular route by looking at detailed breakdown of cost and time involved along every section of such route. Based on the data gathered, further work may be sanctioned using the Time Release study to assess legal and regulatory component and/or the Logistics Performance Index to assess logistics services efficiency.

II. Performance Indicators

6 In developing performance indicators and monitoring mechanisms, it is noted that the operation or functioning of a corridor involves: (i) physical infrastructure, (ii) legal framework that governs trade and the provision of trade services as well as inter-government agreements or international treaties, and (iii) logistics services which operationalize policies and programs that manage and control the flow and storage of goods from points of origin to points of consumption.

7. Performance indicators are quantitative and periodic assessment of a process (in this case the movement of goods) that help define and measure progress toward a specific goal. They reflect the efficiency or quality of the corridor's components individually or in combination. It is important for indicators to be comparable across routes, modes of transport, and stops or border posts and links or segments between stops.

8. Performance can be measured through outcome indicators of time and cost. Time is the amount of time taken to complete movement of the good from the beginning to the end of the route, including the delays due to congestion or quality of service. Costs are those payments related to the movement of the goods and transport vehicles.

9. Logistics indicators that would be important for the corridor performance measurement and monitoring include the following:

- Total time for trade-related procedures
 - Time for customs inspection
 - Time for technical control
 - Time for trade document processing
 - Inland transportation time
- Vehicle entry time to obtain entry at border posts
- Vehicle turnaround time
- Time to resolve customs appeal
- Total cost for trade related procedures
 - Port and terminal related charges
 - Cost of trade document processing
 - Border control costs
 - Inland transport costs

10. Performance may also be measured in terms of complexity, and the following indicators may be useful in pinpointing bottlenecks or risk of delays:

- Number of documents and number of signatures per transaction
- Criteria for customs inspection
- % of containers electronically scanned and % of those physically inspected; number of times consignments are inspected; level of inspection
- Number of inspection agencies
- Damage or pilferage as % of value of container
- Number of days/year post is shutdown due to natural consequences and labor disputes
- Frequency of vehicle arrivals at post

11. In addition, the CAREC countries' being landlocked adds to the complexity that may be shown in the following:

- Waiting time at border crossings
- Inland freight cost (through transit country)
- Harmonization of documents with transit country
- Number of transit countries crossed
- Number of borders crossed
- Presence (or absence) of free transit access for vehicles across borders

12. Two additional parameters are reliability and flexibility. Reliability refers to the variation in transit time for a specific combination of services and origin-destination pair. The greater the variability, the harder it is to predict actual transit time and in turn, to coordinate sequential activities in the supply chain, which affects average order cycle time and leads to bunching of arrivals and departures. Flexibility refers to different combinations of cost, time, and reliability that allow suppliers to meet varying demands of consumers.

III. Performance Monitoring Methods

A. Time/Cost – Distance Methodology

13. The “UNESCAP Time/Cost – Distance Methodology” is a graphical representation of cost and time data associated with transport processes. The purpose of the model is to identify inefficiencies and isolate bottlenecks along a particular route by looking at the cost and time characteristics of every section along a route. The methodology allows policy makers to

- analyze the factors that affect the cost and time required to transport goods using certain routes;
- compare—over a period of time—the changes in cost and/or time required to transport goods on a certain route;
- compare and evaluate competing modes of transport operating on the same route; and
- consider alternative transit routes.

14. The entire methodology is in one Excel file as described below. The methodology has two parts: Questionnaire (Parts A and B) and Analysis which consists of graphs that are automatically generated as the questionnaires are filled in.

Part A – General Questions

- *Date of questionnaire completion:* Insert actual date.
- *Route description:* If the route analyzed is not provided, fill in the detailed information starting with the place of departure over main cities en route, junctions or highway numbers to the place of final destination.
- *Goods:* Enter the type of goods transported (i.e., single type of goods vs. multiple types of goods)
- *Quantity:* Enter the quantity of goods transported. (If multiple goods then please indicate quantity by type of good.)
- *“Nationality of driver” and “Country of vehicle registration”* refer to transport by road only. In case of multimodal transports along the route, please name the nationalities of all drivers and the vehicles involved.
- *“Effective date of transport start” and “Effective delivery date of goods”* refer to the dates when the transport physically leaves its place of departure and when then goods physically arrive at their destination.
- *“Was the transport performed under an international transit system (e.g. TIR, NCTS)?”:* Reply with “yes” or “no”. Please also specify, which international transit system has been applied.
- *Overall distance of the route:* No data entry is required as it is automatically calculated as the sum of the length of the individual sections of the route (based on the data from Part B).

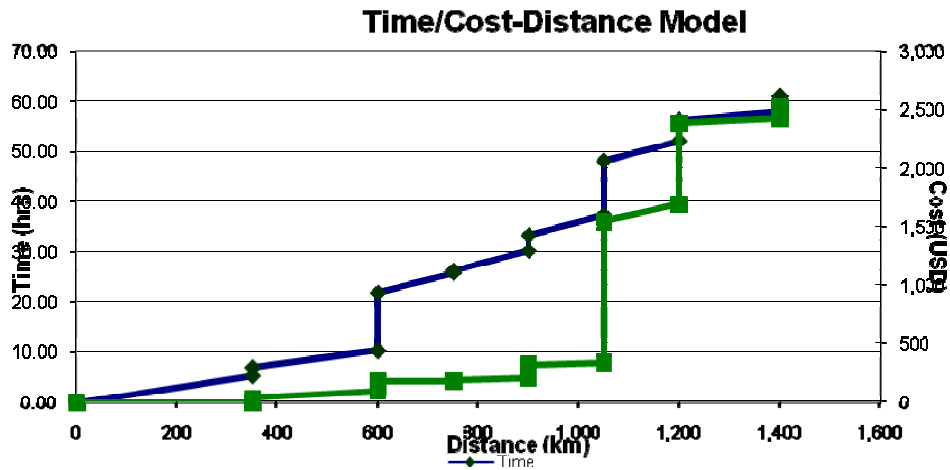
Part B – Route

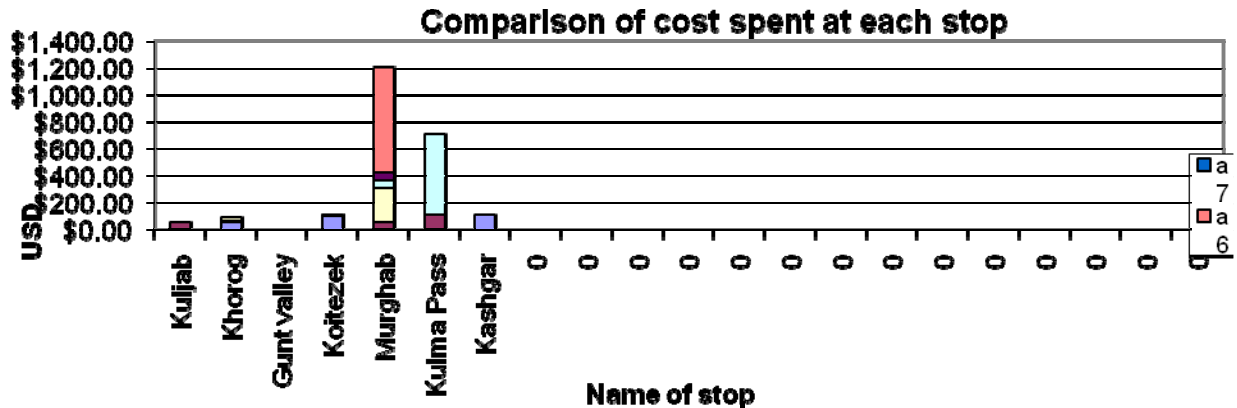
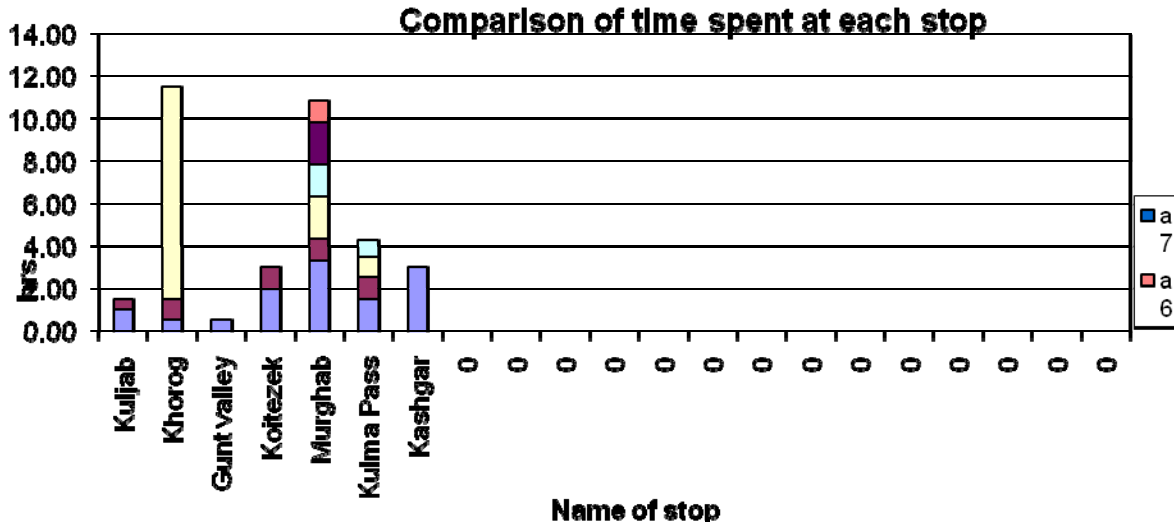
- *Place of departure:* Identify the name of city and the name of country.
- *Mode of transport:* Choose from the drop-down menu, if the mode of transport used is “road”, “rail” or “ship”.

- *Distance to next stop:* This is the distance (in kilometers) from the place of departure to the first stop on the route
- *Duration of travel:* This refers to the duration of the journey—the time it takes to travel from the place of departure to the first stop. Please specify hours and minutes.
- *Costs per leg:* The costs per leg (or for each section of the overall journey) refer to the variable costs on that particular leg. Please insert all costs related to the transport en route on that particular section, but exclude costs at stops.
- Repeat the steps for as many times as necessary to provide information on the whole route including all stops.
- *Place of next stop:* Input the name of the place (e.g., city or village, junction or highway km) and of the country.
- *Reason for stop:* Choose the most suitable reason from the drop-down menu. (“Intermediate stop” refers to all stops except place of departure, border crossings, and final destination.)
- *Description of stop:* Provide a short description of the individual activities undertaken at the stop, including their duration and the costs associated.
- *Description of actions:* Provide additional relevant information.

Analysis – Graphs

The following graphs are generated from the answers to the above questionnaires (Part A and Part B).





B. Time Release Method

15. At border crossing stops, the World Customs Organization (WCO) Time Release Method will be used. The method measures the average time taken between the arrival of goods at the border post and their release to the importer/broker. The aim is to determine where problems exist in the process, the reasons for these problems, and possible solutions. It recognizes that the international movement of goods involves customs and other national authorities such as port, health, veterinary, agriculture, standards as well as trading community of importers, exporters, brokers, forwarders, carriers, banks, and others.

16. Using a survey form, each respondent is asked to provide information on various matters. The order of questions below follows a logical sequence of the clearance process.

- (1) Region (use codes)
- (2) Customs office (use codes)
- (3) Name of transporter
- (4) Mode of transport (use codes)
- (5) Type of transport document (use codes)

- (Airway bill, Seaway bill, Consignment note, Dispatch note, Manifest, Multi-modal document, Combined documents)
- (6) Transport document number
 - (7) Declaration number
 - (8) Declarant code (Broker, Clearing Agent, or Self)
 - (9) Name and identification number of declarant
 - (10) Type of declaration
 - (11) (Prescribed forms, Others (invoice, transport document, administrative document, etc.))
 - (12) Form of declaration (Manual or Electronic)
 - (13) Type of cargo
(Containerized, FCL/Full Container Load, LCL/Less than Container Load, Non-containerized)
 - (14) Goods regimes
(Dutiable, Non-dutiable, Suspension/exemption/relief, Preferential status (bilateral, multilateral, GSP, etc.), Inward processing, Free Zones, Transit, Others (Perishable goods, Express Consignments, Relief consignments))
 - (15) Classification of goods
(Tariff heading, Value, Origin of goods, Gross weight)
 - (16) Date and time of arrival of the goods at port/airport/land border
 - (17) Date and time of unloading – start
 - (18) Date and time of unloading – end
 - (19) Date and time of delivery to temporary storage
 - (20) Date and time of the lodgement of the Goods declaration
 - (21) Complete declaration: Yes/No
If No, reasons:
Insufficient information in the Goods declaration
Incomplete documentation (invoice, certificate of origin, certificate of duty/tax exemption/relief, import licence, health certificate, veterinary certificate, others)
 - (22) Customs request for the presentation of complete Goods declaration: Yes/No
If Yes: Date and time of Customs request, Date and time of re-presentation
 - (23) Date and time of acceptance of the Goods declaration
 - (24) Documentary control : Yes/No
 - (25) Date and time of the start of documentary control
 - (26) Date and time of the end of documentary control
 - (27) Physical inspection of the goods: Yes/No
If Yes:
Selection (based on random selection, targeted by risk analysis)
Type of inspection (random/cursory inspection, detailed inspection)
 - (28) Date and time of the start of the inspection
 - (29) Date and time of the end of the inspection
 - (30) Laboratory analysis: Yes/No
If Yes: Date and time of start of laboratory analysis, end of laboratory analysis, laboratory analysis received
 - (31) Intervention by agencies other than Customs: Yes/No
If Yes, name of agency (use codes):
(Veterinary services, Agriculture services, Health services, Others (specify))
 - (32) Date and time of the start of intervention by other agencies
 - (33) Date and time of end of intervention by other agencies
 - (34) Date and time of assessment of duty – start
 - (35) Date and time of assessment of duty – end

- (36) Method of Payment of Duty and taxes (use codes)
(Cash, Cheque, Banker's Draft/Order, Electronic Funds Transfer, Others (specify))
- (37) Date and time of payment of duty (if required before release of goods) – start
- (38) Date and time of payment of duty – end
- (39) Date and time of the release of the goods
- (40) Date and time of removal of the goods

C. Logistics Performance Index (LPI)

17. The World Bank's Logistics Performance Index uses a comprehensive approach in measuring critical factors of trade logistics performance such as the quality of infrastructure and logistics services, security of property from theft and looting, transparency of government procedures, macroeconomic conditions, and the underlying strength of institutions. The LPI is based on a web-based questionnaire completed by logistics professionals, i.e. operators or agents of the world's largest logistics services providers. Respondents rate country performance using a 5-point scale on the following 7 areas:

- Efficiency of clearance by customs and border agencies
- Quality of transport and information technology infrastructure for logistics
- Ease and affordability of arranging international shipments
- Competence of the local logistics industry
- Ability to trace and track international shipments
- Domestic logistics cost
- Timeliness of shipments in reaching destination

18. Each respondent also provides time and cost data, including the following:

- Rate of physical inspection (%)
- Customs clearance (days)
- Lead time for export and import (days)
- Number of border agencies for exports, for imports
- Possibility of a review procedure
- Typical charge for a 40-foot container (export and import US\$)

19. The data gathered through the surveys are synthesized or aggregated as weighted average on the 7 areas in a composite index to allow for comparisons across about 150 countries.

IV. Institutional Arrangements in Implementing Corridor Performance Measurement and Monitoring

20. National joint transport and trade facilitation coordinating committees (NJC) or a similar organization in each CAREC country will be established consisting of representatives of national level trade facilitation coordination mechanisms. The NJC will include representatives of (i) all government agencies in charge of transport, trade, and border-crossing activities (e.g., Ministry of Transport, Ministry of Trade, Ministry of Economy, Customs, and agencies in charge of quarantines, sanitary and phyto-sanitary, product standard, security, and immigration); and (ii) freight forwarders associations and logistics service providers.

21. An association of freight forwarders or trade logistics service providers in each CAREC country will be engaged to collect the data required for the time/cost-distance analysis of sub-corridors on a quarterly basis. Using the collected data required for the time/cost-distance analysis of these subcorridors on a quarterly basis. Using the collected data and with ADB assistance, the NJC will undertake the time/cost-distance analysis, review the results, evaluate the constraints, and take corrective actions. Based on the results of the time/cost-distance analysis, the NJC will periodically authorize time-release assessments and/or logistics performance assessments. ADB will finance performance monitoring activities and will help strengthen the capacity of the NJC (or a similar organization) in each CAREC country.

22. With ADB support, a regional joint transport and trade facilitation committee (RJC) will be established to manage the implementation of the Action Plan, in coordination with NJCs or similar organizations. The Transport Sector Coordinating Committee (TSCC) will be responsible for transport activities of the Action Plan, and the Customs Cooperation Committee (CCC) will focus on customs cooperation activities. The NJCs will report the results of the performance monitoring analysis to RJC, TSCC, and CCC at least annually. Until the RJC and NJCs or similar organizations start to function, ADB will directly administer the integrated trade facilitation activities of the Action Plan. Such implementation arrangements will be reviewed regularly and will be adjusted, as necessary, to ensure the successful execution of the Action Plan.

23. With support of development partners, RJC, TSCC, and CCC will annually review the progress of the Action Plan, and will report the results to the Senior Officials' Meetings and Ministerial Conferences. A midterm review of the Action Plan will be conducted during 2013–2014. The midterm review will refine the Action Plan, as necessary, for its effective implementation in the remaining period.

V. Considerations in Developing Performance Indicators for CAREC

24. Performance measurement and the choice of indicators must be relevant to the requirements of CAREC. To ensure this, objectives must be clearly identified, the strategy for using the results agreed upon, and the entire process understood and accepted by those involved. Performance indicators must include information on the quality of service and reliability, efficiency, assets utilization, financing, and regulatory practices.

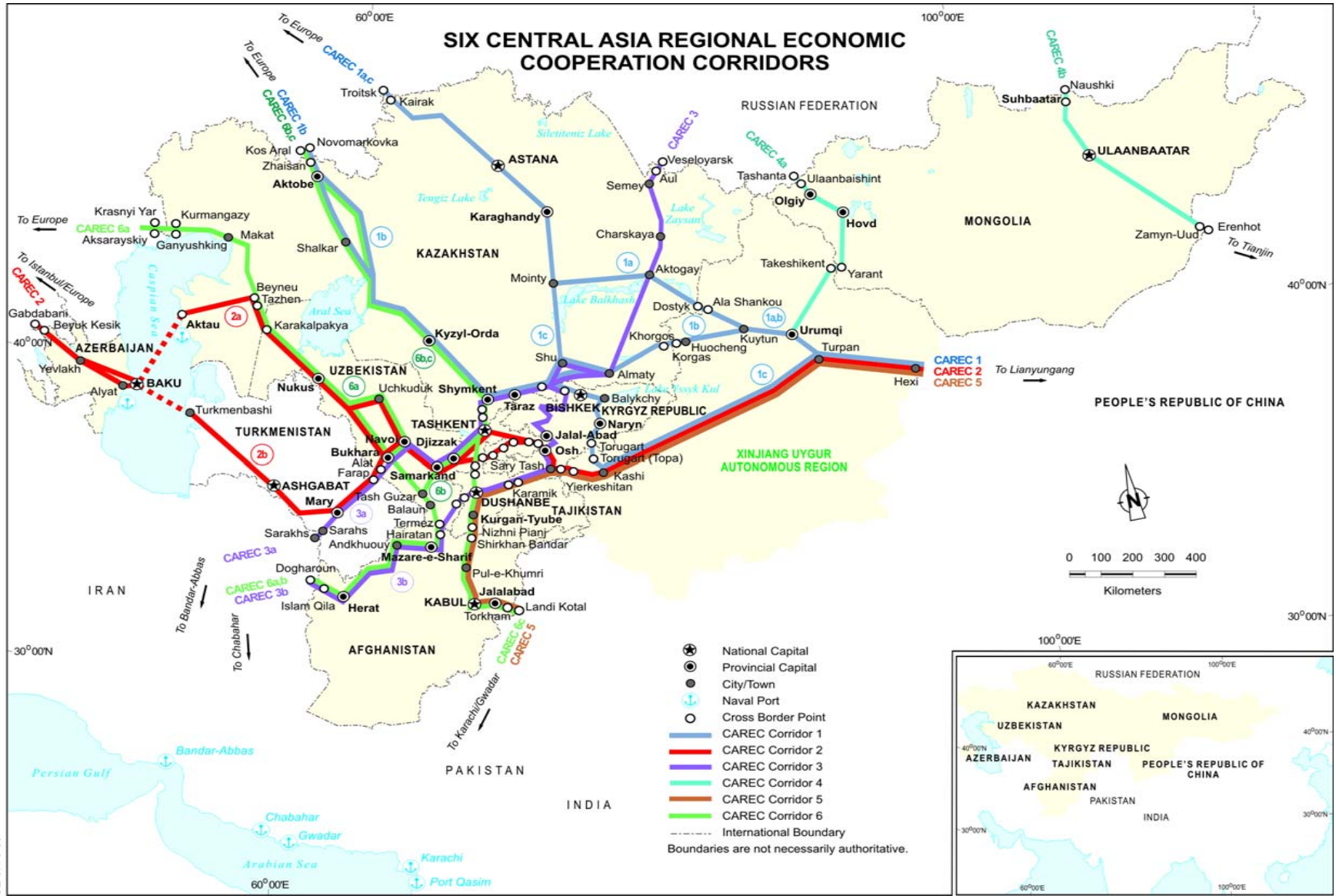
25. A more comprehensive performance measure would take into account—in addition to the steps under the time/cost distance methodology, time release method, and the logistics performance index—those requirements and procedures that are undertaken even before the goods or transport vehicles are en route, e.g. drivers' visas, import licenses, vehicle registration, technical standards certification, etc.

26. Performance targets may use either benchmarks or baseline indicators. A benchmark is usually obtained from ideal conditions where the movement of goods is smooth, i.e. the quality of infrastructure is high, there are no regulatory bottlenecks or arbitrary procedures, and logistics services are efficient. The target in this case is to move towards the benchmark. In contrast, baseline indicators reflect current conditions and therefore existing inefficiencies, low capacities, or poor quality of services, in which case the target is to move away from the baseline. Since benchmarks are difficult to set, baseline indicators are used for practical purposes.

27. Furthermore, in order to pinpoint bottlenecks in the movement of goods, the reasons for any perceived delay must be described in the survey form, e.g. procedure, practice, systems, infrastructure and equipment, organization or human resources.

28. It may also be worthwhile examining performance at the level of each border post in order to compare efficiencies across nodes.

Appendix 1: CAREC Corridors



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APPENDIX 2: Summary of the CAREC Six Corridors

No.	Direction	Route
1	Europe – East Asia	1a Troitsk (RUS)/Kairak (KAZ)–Astana (KAZ)–Dostyk (KAZ)/Ala Shankou (PRC)–Urumqi (PRC)–Hexi (PRC)
		1b Kos Aral (RUS)/Zhaisan (KAZ)–Shymkent(KAZ)–Almaty (KAZ)–Korgas(KAZ)/Khorgos (PRC)–Urumqi (PRC)–Hexi (PRC)
		1c Troitsk (RUS)/Kairak (KAZ)–Astana (KAZ)–Merke (KAZ)/Chaldovar (KGZ)–Bishkek (KGZ)–Torugart (KGZ/PRC)–Kashi (PRC)–Hexi (PRC)
2	Mediterranean – East Asia	2a Gabdabani (GEO)/Beyuk Kesik (AZE)–Baku (AZE)/Aktau (KAZ)–Beyneu(KAZ)/Karakalpakya (UZB)–Bekabad (UZB)/Nau (TAJ)–Kanibadam (TAJ)/Suvanobad (UZB)–Savay (UZB)/ Kara Suu (KGZ)–Irkeshtan (KGZ)/Yierkeshitan (PRC)–Kashi (PRC)–Hexi (PRC)
		2b Gabdabani (GEO)/Beyuk Kesik (AZE)–Baku (AZE)–Turkmenbashi (TKM)–Farap (TKM)/Alyat (UZB)–Bekabad (UZB)/Nau (TAJ)–Kanibadam(TAJ)/Suvanobad (UZB)–Savay (UZB)/ Kara Suu (KGZ)–Irkeshtan (KGZ)/Yierkeshitan (PRC)–Kashi (PRC)–Hexi (PRC)
3	Russian Federation – Middle East and South Asia	3a Veseloyarsk (RUS)/Aul (KAZ)– Saryagash (KAZ)/ Keles (UZB)–Alyat (UZB)/Farap (TKM)
		3b Veseloyarsk (RUS)/Aul (KAZ)–Merke (KAZ)/Chaldovar (KGZ)–Karamik (KGZ/TAJ)– Pakhtaabad (TAJ)/Saryasia (UZB)– Airatom (UZB)/Hairatan (AFG)–Islam Qila (AFG)/Dogharoun (Iran)
4	Russian Federation – East Asia	4a Tashanta (RUS)/Ulaanbaishint (MON)–Hovd (MON)–Yarant (MON)/ Takeshiken (PRC)–Urumqi (PRC)
		4b Naushki (RUS)/Sukbaatar (MON)–Ulaanbaatar (MON)–Zamyn-Uud (MON)/Erenhot (PRC)
5	East Asia – Middle East and South Asia	Hexi (PRC)–Kashi (PRC)–Yierkeshitan (PRC)/Irkeshtan (KGZ)–Sary Tash (KGZ)–Karamik (KGZ/TAJ)–Dushanbe (TAJ)–Nizhini Pianji (TAJ)/Shirkhan Bandar (AFG)–Kabul (AFG)–Torkham (AFG)/Landi Kotal (PAK)
6	Europe – Middle East and South Asia	6a Aksarayaskaya (RUS)/Ganyushking (KAZ)–Beyneu (KAZ)/ Karakalpakya (UZB)–Airatom (UZB)/Hairatan (AFG)–Islam Qila (AFG)/Dogharoun (Iran)
		6b Kos Aral (RUS)/Zhaisan (KAZ)–Saryagash (KAZ)/Keles (UZB)–Airatom (UZB)/Hairatan (AFG)–Islam Qila (AFG)/Dogharoun (Iran)
		6c Kos Aral (RUS)/Zhaisan (KAZ)–Saryagash (KAZ)/Keles (UZB)–Tashkent (UZB)–Khavast (UZB)/Istaravshan (TAJ)–Dushanbe (TAJ)–Nizhini Pianji (TAJ)–Shirkhan Bandar (TAJ)/Kunduz (AFG)–Kabul (AFG)–Landi Kotal (PAK)