

## Corridor Performance Measurement and Monitoring Methodology Gaps and Proposed Enhancements

The Corridor Performance Measurement and Monitoring Methodology (CPMM) aims to (i) identify the causes of delay and unnecessary cost to cargo moving along the links and nodes of each CAREC (Central Asia Regional Economic Cooperation) corridor; (ii) help national CAREC authorities determine how to address identified bottlenecks; and (iii) assess the impact of regional cooperation initiatives implemented along the CAREC corridors by member countries. Its primary target audience are policymakers who need to have empirical data to make educated decisions on infrastructure and trade facilitation initiatives.

The CAREC Program initiated a review of the CPMM with a view to enhancing its effectiveness in fostering the development of the CAREC Corridors. This note summarizes the findings and recommendations of the first phase of the CPMM review. As part of the second phase of the review, the findings and recommendations will be discussed with participants of the CAREC event that will be held at the sidelines of the 11th Asia-Pacific Trade Facilitation Forum in Samarkand, Uzbekistan on 4 April 2024. The findings and recommendations will then be revised, as appropriate, considering the comments provided by event participants.

A variety of factors contribute to the CPMM data issues. In addition to the shortcomings of the TFIs, inadequacies in the CPMM template, sampling, data collection, data entry and data aggregation cause inconsistencies in CPMM data. The gaps in CPMM data are due mostly to the sampling method used in the CPMM. The lack of complementary data in data collection partly explains the underutilization of CPMM.

### A. Indicators

| A1. Indicators measuring the performance of BCPs and ports.   |  |  |  |
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| <p>The border-crossing entry and exit points are typically primary control centers where customs, immigration, and quarantine are handled. Along with the standard clearance formalities, this measurement includes waiting time, unloading, and loading time, time taken to change rail gauges, and other indicators. The intent is to capture both the complexity and the inefficiencies inherent in the border-crossing process.</p> |  |  |  |
| Gaps and limitations  | Current indicators   | Proposed Indicators  |  |
| <p>Coverage of a wide range of operation activities in a single indicator limits identification of the nature of delay and cost drivers at the borders.</p> <p>Waiting time persist to be the primary contributor of delay which warrants a dedicated indicator which could reveal the border</p>   | <p><b>TFI1: Time taken to clear a BCP.</b> This TFI refers to the average length of time (in hours) taken to move cargo across a border from the entry to exit point of a BCP.</p>         | <p><b>TTFI1:</b> Waiting time to enter a BCP/port (in hours).</p>                        | <p><b>TTFI3:</b> Duration of border controls (in hours).</p>                                       |
|   | <p><b>TFI2: Cost incurred at a BCP.</b> This is the average total cost, in United States dollars, of moving cargo across a border. Both official and unofficial payments are included.</p> | <p><b>TTFI2:</b> Payments related to waiting in queue to enter a BCP/port (in US\$).</p> | <p><b>TTFI2a:</b> Official payments related to waiting in queue to enter a BCP/port (in US\$).</p> |

• <sup>1</sup> Refers to unofficial payments for shortening the waiting time to enter a BCP.

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| <p>traffic management at the BCPs.</p> <p>The indicators do not differentiate shipments assigned to different channels under risk management in border controls.</p>  |   | <b>TTFI4:</b> Payments related to border controls (in US\$).   |  |
|   |   | <b>TTFI4a:</b> Official payments related to border controls (in US\$).                                       | <b>TTFI4b:</b> Unofficial payments for border controls (in US\$).  |
|   |   | <b>TTFI6:</b> Payments related to operational transport activities (in US\$).                                |  |
|   |   | <b>TTFI6a:</b> Official payments related to operational transport activities (in US\$).                      | <b>TTFI6b:</b> Unofficial payments related to operational transport activities (in US\$).                      |
| <b>A2. Indicators measuring the performance of corridor sections.</b>   |   |  |  |
| <b>Gaps and limitations</b>   | <b>Current indicators</b>   | <b>Proposed Indicators</b>   |  |
| <p>Transport rates comprise most of the indicators, limiting analysis of performance of corridor sections. They also vary considerably across corridor sections and fluctuate over time for reasons unrelated to corridor performance.</p> <p>TFI3 is also normalized by 20 tons when cost of transporting cargo does not in general increase proportionally with its weight.</p> | <p><b>TFI3: Cost incurred to travel a corridor section.</b> This comprises average total costs, in United States dollars, incurred for one unit of cargo traveling along a corridor section. One unit of cargo refers to 20 tons. A corridor section is defined as a stretch of road or railway that is 500 kilometers (km) long. Both official and unofficial payments are included. The official payments include the transport rates (for shipments by road) or the railway tariffs (for shipments by rail).</p> | <b>TTFI11:</b> Payments related to checks and controls at intermediate stops (in US\$ per 100 km).           |  |
|   |   | <b>TTFI11a:</b> Official payments related to checks and controls at intermediate stops (in US\$ per 100 km). | <b>TTFI11b:</b> Unofficial payments related to checks and controls at intermediate stops (in US\$ per 100 km). |
|   | <p><b>TFI4: Speed to travel along CAREC corridors.</b> This is the average speed, in kilometers per hour (km/h), at which a unit of cargo travels along a corridor section. Speed is calculated by dividing the total distance traveled by the duration of travel. The distance and time measurements include border crossings. TFI4 is also referred to as speed with delay (SWD).</p>   | <b>TTFI12:</b> Speed with intermediate stops (in km/hour).   |  |
|   |   | <b>TTFI8:</b> Number of stops for emergency repair (per 100 km).   |  |
|   |   | <b>TTFI9:</b> Number of intermediate stops for checks and controls (per 100 km).                             |  |
|   |   | <b>TTFI10:</b> Duration of intermediate stops for checks and controls (in hours per 100 km).                 |  |
|   | <p><b>Speed without delay (SWOD).</b> This is the ratio of the distance traveled to the time spent by a vehicle in motion between origin and destination (actual traveling time). While SWD is intended to serve as an indicator of the</p>   | <b>TTFI7:</b> Speed without delays (in km/hour).   |  |

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|  | efficiency of BCPs, SWOD is a measure of the condition of physical infrastructure, such as roads and railways. |  |
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Note: Where applicable, the direction of the cargo movement will be reported along with the indicators. This affects the border processing time and transport rates, as backhaul traffic can be a small fraction of front haul traffic.

## B. Sampling

| <p>CPMM partner associations randomly select drivers transporting cargoes passing through the six CAREC priority corridors to fill up the drivers' CPMM forms. The coordinators enter data from the drivers' forms into TCD spreadsheets. Each partner association completes about 10–30 TCD forms a month, which are submitted to the field consultants and screened for consistency, accuracy, and completeness.</p> <p>The shipment record must follow these criteria: (i) the shipment is commercial, (ii) the shipment follows a CAREC corridor or passes through a section or sections of a CAREC corridor or corridors, and (iii) the shipment passes through at least one BCP along a CAREC corridor.</p>                             |  |
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| Gaps and limitations  | Recommendations  |
| <ul style="list-style-type: none"> <li>i. The CPMM partners have too much discretion in selecting shipments that meet the broad criteria mentioned above.</li> <li>ii. Consequently, the size and composition of the CPMM samples vary substantially across BCPs, CAREC corridors and CAREC countries for a particular year, as well as across years.</li> <li>iii. There are imbalances in the CPMM samples in terms of the CAREC corridor covered and the direction of shipments.</li> <li>iv. With non-weighted averages mostly used in the aggregation, the cross-sectional and the intertemporal differences in the samples cause significant variations in the TFIs across BCPs, CAREC corridors, CAREC countries and years.</li> </ul> | <p>Impose more structure on the CPMM samples by:</p> <ul style="list-style-type: none"> <li>i. compiling—in consultation with key stakeholders—lists of BCPs, ports and corridor sections that are to be covered by the CPMM.</li> <li>ii. fixing the types of shipments (export/import/transit shipments, perishable/nonperishable goods, etc.) and the number of shipments of each type for which data are to be collected for each BCP, port and corridor section every year.</li> <li>iii. ensuring, as much as possible, that the target samples for various BCPs, ports and corridor sections serving the same mode of transport are comparable in terms of the types of the shipments; and</li> <li>iv. allocating the resulting target samples to the CPMM partners in such a way that, if practicable, 2-4 CPMM partners will collect data on each BCP, port and corridor section.</li> </ul> |

## C. Data collection

The CPMM partners gather data on international shipments through transport and logistics companies. They record this data in an Excel template and send it to the CPMM team for checking, cleaning, and analysis. Truck drivers fill out paper forms with the data, which are based on the same template. The CPMM team then cleans the data using SAS software and calculates the TFIs.

| <b>Gaps and limitations</b>   | <b>Recommendations</b>   |
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| <ul style="list-style-type: none"> <li>i. As national associations of transport and/or logistics companies, most CPMM partners have a conflict of interest in collecting CPMM data, which could result in underreporting negative information.</li> <li>ii. While the CPMM cannot produce all the data needed to assess the performance of the CAREC corridors, it is currently not fully utilized to gather such data (e.g., data on key characteristics of BCPs along the corridors) can be collected through the CPMM at relatively low cost.</li> <li>iii. Complementary data. The CPMM can be a platform to collect data on the volumes of freight transport flows along the corridor sections, and through the BCPs; infrastructure and traffic management along the corridor sections; and infrastructure and business processes at the BCPs.</li> <li>iv. The CPMM data template is not fully utilized to collect data needed to assess the adequacy of transport infrastructure and on bottlenecks along CAREC corridors.</li> </ul> | <ul style="list-style-type: none"> <li>i. In addition, local transport associations engage local survey companies and/or more local think tanks as CPMM partners who might provide more analytical insight into the data.</li> <li>ii. When allocating the target CPMM sample to the CPMM partners, ensure that at least one CPMM partner that is not a transport association collects data on each BCP, port and corridor section.</li> <li>iii. Collect—through CPMM partners—information on key characteristics of the BCPs covered by CPMM (including the number of lanes, availability of express lanes and use of electronic queue management), make the information available in the online CPMM database, and keep the information up-to-date by asking CPMM partners to report changes in the BCP characteristics.</li> <li>iv. Explore the possibility of collaborating with the customs of the CAREC countries in monitoring and assessing the performance of BCPs along CAREC corridors, whereby the customs would share data on trade/traffic flows via the BCPs with the CPMM team and the CPMM team would make a comparative assessment of the performance of the BCPs using the CPMM data and the data provided by the customs.</li> </ul> |

#### D. Data aggregation

The average values of TFIs are computed separately for road and rail transport for individual BCPs, CAREC corridors, corridor sections and CAREC countries as well as for the entire CAREC region as follows:

| Aggregation level                     | TFI1  | TFI2 | TFI3                            | TFI4 | SWOD |
|---------------------------------------|---|------|---------------------------------|------|------|
| BCPs                                  | For the inbound, outbound and all shipments in the sample |      | Not applicable                  |      |      |
| CAREC corridors and corridor sections | For all shipments in the sample                           |      |                                 |      |      |
| CAREC countries                       | For the inbound, outbound and all shipments in the sample |      | For all shipments in the sample |      |      |
| CAREC region                          | For all shipments in the sample                           |      |                                 |      |      |

| Gaps and limitations   | Recommendations   |
|--|---|
| Simple averages are used at all stages of aggregation of CPMM data due to lack of data needed for using weighted averages. This causes considerable measurement errors and fluctuations in the TFIs due to (i) the significant differences in the duration and the cost of many border crossing procedures for shipments of diverse types and (ii) the cross-sectional differences and the intertemporal changes in the size and the composition of the sample of shipments for individual BCPs and corridor sections. | In the absence of sufficiently comprehensive data and proper weights, compute and report the TTFIs at low levels of aggregation (e.g., various categories of shipments, BCPs and ports) and avoid using the TTFIs at prominent levels of aggregation (i.e., corridors, CAREC countries and the CAREC region). |

## E. Dissemination of CPMM data and findings

| At present, CPMM data and findings are disseminated through multiple channels, including presentations at various CAREC events, annual reports, policy briefs, blog posts, an online database and provision of data upon request. However, some of these channels are ineffective and/or inefficient, while others are underutilized. |  |
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| Gaps and limitations  | Recommendations  |
| i. The CPMM annual reports are published with a long lag. Policy briefs and blog posts are more efficient tools for dissemination of CPMM data and findings due to their focused, concise, and policy-oriented delivery.  | i. Improve the online CPMM database so that users will be able to make online comparisons of the performance of BCPs/ports and corridor sections using various TTFIs, visualize CPMM data online, download all or subsets of the CPMM data using online queries, and |

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| <p>ii. The online CPMM database is rudimentary. It only includes data on the CPMM TFIs and not the primary CPMM data. Users cannot make online comparisons of the performance of various BCPs or corridor sections. They can only get the primary data from the CPMM team, which limits its use in policymaking and research.</p> | <p>review and download the CPMM metadata.</p> <p>ii. Publish posts presenting CPMM findings in blogs and knowledge sharing platforms shortly after new CPMM data become available.</p> <p>iii. Regularly prepare policy briefs based on CPMM data and, as appropriate, complementary data obtained from other sources.</p> <p>iv. Discontinue publishing CPMM annual reports.</p> <p>v. Establish a cooperation arrangement between ADB and CI whereby the two institutions will closely collaborate in disseminating CPMM data and findings, with ADB remaining in charge of CPMM data collection and processing and CI having the primary responsibility for the preparation of policy briefs based on CPMM data.</p> |
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