New Approaches to Measuring and Assessing Regional Cooperation and Integration

Workshop Highlights

Regional cooperation and integration (RCI) is pivotal to enhancing economic growth, financial stability, and social inclusion and important for tackling poverty and enhancing institutional stability. Better RCI measures can allow researchers and policy makers to assess the costs and benefits of RCI policies in greater detail. This publication presents highlights of the sessions during the Asian Development Bank's workshop on regional cooperation and integration held on 16 and 17 April 2020. The workshop gathered academics, policy makers, and regional and international organizations to discuss relevant approaches to measuring RCI and its implications for policy assessment.

About the Asian Development Bank

ADB is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty. Established in 1966, it is owned by 68 members—49 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.
NEW APPROACHES TO MEASURING AND ASSESSING REGIONAL COOPERATION AND INTEGRATION

WORKSHOP HIGHLIGHTS

NOVEMBER 2020
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Program

New Approaches to Measuring and Assessing Regional Cooperation and Integration

Online Inception Workshop
16–17 April 2020, ADB Headquarters

DAY 1 (THURSDAY, 16 APRIL)
2:30–3:00 p.m. Connection to ADB Platform
3:00–3:10 p.m. Welcome Remarks
Joseph Ernest Zveglich, Jr., Deputy Chief Economist, Economic Research and Regional Cooperation Department (ERCD), Asian Development Bank (ADB)
3:10–3:20 p.m. Objectives, Outcomes, and Timeline
Cyn-Young Park, Director, Regional Cooperation and Integration Division, ERCD, ADB

Session 1: Methodological Approaches to Measuring Regional Integration
Moderator: Cyn-Young Park, Director, Regional Cooperation and Integration Division, ERCD, ADB
3:20–3:40 p.m. Main Presentation
Introducing an Enhanced Framework for ADB’s ARCII
Presenter: Hyeon-Seung Huh, Professor, Yonsei University
3:40–3:55 p.m. Indicator-Based Monitoring of Regional Economic Integration
Presenter: Philippe De Lombaerde, Director, United Nations University Institute on Comparative Regional Integration Studies (UNU-CRIS)
3:55–4:10 p.m. Perspectives on Regional Integration from EBRD
Presenter: Alexander Chirmiciu, Economics, Policy and Governance Department, European Bank for Reconstruction and Development
4:10–4:25 p.m.  
**Economic Integration in Eurasia Region and Macroeconomic Shocks**  
Presenter: Behrooz Gharleghi, Senior Researcher, Dialogue of Civilizations (DOC) Research Institute

4:25–4:40 p.m.  
**Developing Robust Composite Indicators**  
Presenter: Dániel Vértesy, ICT Analyst, International Telecommunication Union

4:40–5:00 p.m.  
**Open Discussion**

**Session 2: Special/New Dimensions for Measuring Regional Cooperation and Integration**

**Moderator:** Yesim Elhan-Kayalar, Advisor, Office of the Chief Economist, ERCD, ADB

5:00–5:15 p.m.  
**Measuring Digital Connectivity for Regional Integration: OECD Experience**  
Presenter: Janos Ferencz, Trade Policy Analyst, Trade and Agriculture Directorate, Organisation for Economic Co-operation and Development (OECD)

5:15–5:30 p.m.  
**ESCAP Digital and Sustainability Regional Integration Index and Indicator Framework**  
Presenter: Yann Duval, Chief, Trade Facilitation Unit, Economic and Social Commission for Asia and the Pacific (ESCAP)

5:30–5:45 p.m.  
**Energy Flows and Regional Integration in ASEAN**  
Presenter: Shigeru Kimura, Special Adviser to the President on Energy Affairs, Economic Research Institute for ASEAN and East Asia (ERIA)

5:45–6:00 p.m.  
**Discussion**  
Discussant: Thomas Abell, Advisor and Chief, Digital Technology for Development Unit, Sustainable Development and Climate Change Department (SDCC), ADB

6:00–6:30 p.m.  
**Open Discussion**

6:30 p.m.  
**End of Day 1**
DAY 2 (FRIDAY, 17 APRIL)

Session 3: Identifying the Need for Regional Integration Indicators

Moderator: Arjun Goswami, Chief, Regional Cooperation and Integration Thematic Group, SDCC, ADB

2:30–3:00 p.m. Connection to ADB Platform
3:00–3:15 p.m. Using Regional Integration Indicators in the ADB Corporate Results Framework
   Presenter: Smita Nakhoda, Senior Results Management Specialist, Results Management and Aid Effectiveness Division, Strategy, Policy, and Partnerships Department, ADB

3:15–3:30 p.m. Regional and Subregional Initiatives: Progress and Challenges in Measuring Regional Integration in CAREC
   Presenter: Syed Shakeel Shah, Director, Central Asia Regional Economic Cooperation (CAREC) Institute

3:30–3:45 p.m. Measuring RCI in Pacific Countries
   Presenter: Emma Veve, Director, Social Sectors and Public Sector Management Division, Pacific Department, ADB

3:45–4:00 p.m. Priorities for Regional Integration Indicators in SASEC
   Presenter: Ronald Antonio Butiong, Director, Regional Cooperation and Operations Coordination Division, South Asia Department, ADB

4:00–4:15 p.m. Lessons from Measuring Regional Integration in GMS
   Presenter: Alfredo Perdiguero, Director, Regional Cooperation and Operations Coordination Division, Southeast Asia Department, ADB

Discussion

4:15–4:30 p.m. Discussant: Safdar Parvez, Director, Regional Cooperation and Operations Coordination Division, Central and West Asia Department, ADB

4:30–4:45 p.m. Discussant: Behrooz Gharleghi, Senior Researcher, DOC Research Institute

4:45–5:00 p.m. Open Discussion

5:00–5:15 p.m. Next Steps and Timeline

5:15 p.m. End of Workshop

Emcee: Rolando Avendano, Economist, Regional Cooperation and Integration Division, ERCD, ADB
Abbreviations

ADB  Asian Development Bank
ARCII Asia-Pacific Regional Cooperation and Integration Index
ASEAN Association of Southeast Asian Nations
CAREC Central Asia Regional Economic Cooperation
CRII CAREC Regional Integration Index
DigiSRII Digital and Sustainable Regional Integration Index
DOC Dialogue of Civilizations
EBRD European Bank for Reconstruction and Development
ERIA Economic Research Institute for ASEAN and East Asia
ERCD Economic Research and Regional Cooperation Department, ADB
ESCAP Economic and Social Commission for Asia and the Pacific
EU European Union
GMS Greater Mekong Subregion
ICT information and communication technology
OECD Organisation for Economic Co-operation and Development
PCA principal component analysis
PRC People’s Republic of China
RCI regional cooperation and integration
SASEC South Asia Subregional Economic Cooperation
SDCC Sustainable Development and Climate Change Department, ADB
UN United Nations
UNU–CRIS United Nations University Institute on Comparative Regional Integration Studies
WTO World Trade Organization
Introduction

Regional cooperation and integration (RCI) is pivotal in enhancing economic growth, financial stability, and social inclusion, and important for tackling poverty and enhancing institutional stability. It features in national development strategies generally and is central in implementing the 2030 Agenda for Sustainable Development.

In recent decades, Asia and the Pacific has made significant progress toward regional integration, driven by trade and investment and the growing role of global production networks. Institutional arrangements for regional cooperation have followed. The region can do more to support RCI policies, however, and as such adequate metrics are therefore needed to properly monitor and assess progress in this area. A number of initiatives have thus emerged to improve measurement and capture the increasingly complex dimensions of RCI. Most approaches are aimed at capturing relevant dimensions for regional integration, including infrastructure and connectivity, trade and investment flows, regional value chains, movement of people, and institutional and social integration, among others.

At the same time, the nature of regional integration is changing. Digital technologies are defining new forms of connectivity, including e-commerce. The sharing of regional technology and collaboration in research and development are increasingly driving innovation. And environmental cooperation is evolving through the inclusion of environmental provisions in trade and investment agreements or environmental goods trade, all from the perspective of biodiversity and natural endowments as regional public goods. As the channels of regional cooperation and integration increase, its impact will need to be further assessed. Better RCI measures can allow researchers and policy makers to assess the costs and benefits of RCI policies in greater detail.

This workshop gathered together academics, policy makers, and regional and international organizations to discuss current approaches to the measurement of RCI and its implications for policy assessment. The workshop also convened representatives of different Asian Development Bank (ADB) departments (regional, knowledge sharing, strategy and policy, research) involved in RCI, to identify the needs and possible approaches to improving the measurement of RCI in the region.

Three Main Workshop Objectives

- To present progress on the Asia-Pacific Regional Cooperation and Integration Index (ARCII) methodology and database. Improvements to the current ARCII methodology, including the identification of new RCI-related indicators will be presented, to ensure that they are relevant and aligned with ADB’s strategy and Operational Plan. New approaches to measuring RCI includes areas such as digital connectivity, environmental sustainability, technology transfer and innovation, air transportation, regional health programs, and institutional stability.
• **To discuss current needs in RCI operations and agree on expected improvements.** Regional departments and subregional cooperation programs will be invited to share their perspective on RCI measurement and comment on possible improvements to the current methodology for their operations. Other regional and international organizations will present RCI indicators currently used in internal reporting.

• **To agree on research areas based on RCI indicators that respond to ADB’s and external needs.** Researchers working in relevant, unexplored areas of RCI will be invited to present their work and link with the ARCII. Proposed areas include the impact of RCI policies on poverty and income inequality, linkages between RCI policies and competition policy, new approaches to assessing inter-subregional linkages and regional integration, and linkages between regional integration and small and medium-sized enterprises, and taxation policies.
Welcome Remarks

Joseph Ernest Zveglich, Jr.
Deputy Chief Economist, Economic Research and Regional Cooperation Department (ERCD), ADB

It is my pleasure to welcome you to the Asian Development Bank's (ADB) workshop on New Approaches to Measuring and Assessing Regional Cooperation and Integration. Let me start by thanking all the participants, both external and ADB colleagues, for your flexibility and willingness to participate in this virtual meeting. While the circumstances made our physical meeting not possible, we appreciate your support and involvement for this workshop.

Regional cooperation and integration (RCI) remains a key component for economic growth, poverty reduction, and institutional strengthening. In Asia, trade and investment channels have led this transformation. Today, the uncertain global economic environment underlines the importance of monitoring regional dynamics and interdependence. This is the main goal of ADB’s Asian Economic Integration Report, now in its fifth edition. The report monitors regional trends in economic cooperation, offering timely information and analysis on how economies connect through trade, infrastructure, migration, and other channels.

To properly monitor and evaluate the progress of RCI, quantifiable measures and indicators are needed. In 2017, ADB published the first version of the Asia-Pacific Regional Cooperation and Integration Index (ARCII). The ARCII assesses the extent of economic integration in the region by monitoring progress in six dimensions (and 26 indicators): (i) trade and investment, (ii) money and finance, (iii) regional value chains, (iv) infrastructure and connectivity, (v) movement of people, and (vi) institutional and social integration. Latest ARCII estimates show a broadly steady, yet modestly strengthening, trend of regional integration in Asia during 2006–2017. Infrastructure and connectivity appear to be the most forceful and stable foundation for Asia’s regional integration.

The index has been used for analyzing long-term trends and assessing RCI as a development strategy. It is also a leading indicator of ADB’s corporate results framework. The production and use of the indicator have stressed possible improvements in the medium term, and that is the main purpose of this initiative: to improve the availability, quality, and consistency of data, and to ensure that the indicator fully captures the role and mechanisms of RCI in the region.
The process of regional cooperation is changing rapidly. For example, digital technologies have made regional integration more complex and difficult to measure. We are starting to understand these channels and define common metrics to analyze them. We hope the ARCII can help us to understand the role of digital connectivity in the region’s interconnectedness. Our next Asian Economic Integration Report will also study the role of digital platforms in developing Asia. Through this project, we want to better capture these dimensions and their impact.

I hope this inception workshop will allow us to better understand these emerging dimensions and their relevance for the work that ADB is conducting to enhance RCI policies. Thank you again for your participation and I wish you all a productive discussion.
Let me welcome everyone to our meeting and provide some context before we start our first session.

The need for adequate regional cooperation and integration (RCI) indicators emerged from the demand of policy makers to monitor and evaluate progress in economic integration and judge it against set goals. In support of this objective, in 2017 the Asian Development Bank (ADB) embarked on the production of the first Asia-Pacific Regional Cooperation and Integration Index (ARCII), which was first published in ADB’s *Asian Economic Integration Report*. Similar efforts have been undertaken by many institutions, including United Nations (UN) agencies, think tanks, and development banks.

The ARCII entailed several innovations, in terms of both data quality and methodology. The index, for example, incorporated measures of cross-border (bilateral) flows, providing much-needed granularity for regional analysis. It also recognized the importance of linkages between key integration channels in the economic literature, for instance, between trade and foreign direct investment flows. Also, the construction of the index, as we will discuss today, allowed the capture of the most essential information to measure RCI and avoid possible biases from previous approaches.

Our workshop today aims at continuing this work, discussing possible approaches toward the enhancement of the ARCII, and establishing some priorities for the future. The objective of the workshop is threefold:

- to present progress on the ARCII to ensure that the index remains at the forefront of RCI indicators and improvements are aligned with ADB’s strategy and Operational Plan;
- to discuss current needs in ADB operations and agree on expected improvements; and
- to identify future areas for research based on RCI indicators that respond to the current environment and priorities.

We have three sessions between today and tomorrow. The first session will focus on the different methodologies for RCI measurement, including ARCII, that will allow the audience to become familiar with these indicators and get acquainted with recent developments.
The **second** session will be dedicated to exploring new or potential dimensions for RCI, including digital connectivity, energy, and environmental sustainability. The **third** session will focus on current ADB needs for RCI indicators. ADB departments and subregional programs will share their perspectives and recommendations on RCI measurement.

This workshop marks the first step of the ARCII project, which includes different products and outcomes:

- an extended database and methodology made publicly available, with a user’s manual and visualization;
- knowledge-sharing events, including conferences with regional think tanks (we recently signed an agreement with the DOC Research Institute) and other institutions (e.g., the European Bank for Reconstruction and Development) working in RCI; and
- research outputs (working papers) using the ARCII, including subregional analysis (e.g., the Eurasia Integration Index) and other products.

Much remains to be done in the development of better RCI metrics, with regard to data quality, methodology, and research. For example, assessing the extent to which regional economic integration and global economic integration are related is still pending. The distinction between intraregional and extraregional forces that propel global economic integration is particularly important today when we see the slowing pace of globalization and a broader potential role for regional integration.¹ We also need to understand better how regional public goods can be part of a measurement framework and how this framework will respond to the priorities for Asia in the next few years.

¹ At ADB, we are trying to understand this process, through a similar index, the global economic integration index, which may provide an additional layer of information to assess the effects of regional integration.
DAY 1
Session 1: Methodological Approaches to Measuring Regional Integration

Moderator:
• Cyn-Young Park, Director, Regional Cooperation and Integration Division, ERCD, ADB

Presenters:
• Philippe De Lombaerde, Director, United Nations University Institute on Comparative Regional Integration Studies (UNU–CRIS)
• Hyeon-Seung Huh, Professor, Yonsei University
• Alexander Chirmiciu, Economics, Policy and Governance Department, European Bank for Reconstruction and Development
• Behrooz Gharleghi, Senior Researcher, Dialogue of Civilizations (DOC) Research Institute
• Dániel Vértesy, ICT Analyst, International Telecommunication Union

Session Overview
The session presented the methodology currently used for the Asia-Pacific Regional Cooperation and Integration Index (ARCII) and looked into possible improvements. A proposal for an enhanced ARCII framework was followed by presentations of leading experts, who discussed the main considerations in building indicators for RCI monitoring, recent methodologies for measuring RCI employed by other agencies (development banks, think tanks), and useful guidelines for constructing robust composite indicators.

Highlights of Presentations
Introducing an Enhanced Framework for ADB’s Asia-Pacific Regional Cooperation and Integration Index

Hyeon-Seung Huh, Professor, Yonsei University

The first presentation reviewed the current framework and key features of the ARCII and directions for enhancing the index.
Overview of current ARCII framework and key features. The composite index is aimed at capturing the multidimensional nature of RCI in Asia and the Pacific. As such, it covers 26 indicators apportioned among six dimensions: trade and investment, money and finance, regional value chains, infrastructure and connectivity, movement of people, and institutional and social integration. Out of 26 indicators, 24 are bilateral data expressed as a country’s regional activity relative to its global activity. The ARCII therefore uses the most comprehensive bilateral set of indicators relative to other indicators of regional integration. The index is constructed as follows: imputation of missing data through various methods depending on the indicator, normalization via panel min–max scaling, and weighting and aggregation using a two-step panel principal component analysis (PCA) procedure.

To compare the performance of Asia and the Pacific with that of other regions, corresponding integration indexes were constructed for the European Union (EU), Latin America, and Africa. Results indicate that Asia and the Pacific comes second only to the EU, which is undoubtedly the most integrated region in the world. Meanwhile, Africa lags behind all the other regions in integration. Moreover, the dimensional weights derived for the four regions vary quantitatively. This finding lends support to the use of PCA-derived weights in lieu of equal weights in compiling the ARCII.

Proposed enhancements to the ARCII framework. To keep up with evolving regional integration and to align ARCII further with ADB’s strategic goals and operational plans, the following enhancements were proposed:

- **New dimensions.** It was suggested that two dimensions be added to the current six of the ARCII: (i) technology and digital connectivity, covering measures of technology sharing and digital connectivity; and (ii) environmental cooperation that would include indicators of trade in environmental goods and natural resources, ratification of environmental agreements, and ecological footprint of exports or imports (Figure 1).

![Figure 1: Proposed Enhanced ARCII Framework](image-url)
Other dimensions relevant to ADB’s operations are also being considered for incorporation into the framework. These include air transportation, power generation and distribution, and energy flows, and regional cooperation for natural disasters and public health/vaccination programs.

- **Proposed new indicators to existing dimensions.** To ensure that current ARCII dimensions adequately capture underlying RCI subprocesses, it was proposed that new indicators be added to existing dimensions. In particular, five of the present six dimensions would cover additional indicators:
  » Money and finance—Chinn-Ito index (de jure) as measure of capital account openness and co-movements of exchange rates relative to the US dollar
  » Regional value chains—value added contributed by regional trading partners relative to that contributed by all trading partners
  » Infrastructure and connectivity—international flight passenger capacity
  » People and social integration (formerly movement of people)—cultural goods/services trade, trademark applications
  » Institutional arrangements (formerly institutional and social integration)—number of international intergovernmental organizations

- **Customizing ARCII.** The current ARCII framework allows flexibility in the inclusion or exclusion of dimensions. Hence, the original six-dimensional ARCII could be utilized as the baseline index and the proposed eight-dimensional ARCII as an extended version. In addition, the construction of the ARCII could be adjusted according to the specific needs of regional departments and subregional initiatives, and to the availability of data in certain countries.

**Indicator-Based Monitoring of Regional Economic Integration**

*Philippe De Lombaerde, Director, UNU–CRIS*

This presentation offered general guidelines and advice on building and enhancing indicator systems. It also included specific comments on how the current ARCII version and the proposed strategies for upgrading the ARCII framework conform with those guidelines.

**General guidelines for building and enhancing regional indicator systems.** The following points related to building and enhancing indicator systems were emphasized:

- Every step in the process of building indicator systems, from formulating the objective(s) to interpreting the results, is important.
- The purpose of constructing the regional indicator system must be looked into very closely to ensure coherence in the strategic choices to be made in the construction process and in the further development of the indicator system.
- Whether the objective of building a regional integration index is to monitor regionalization or to monitor regionalism, or both, should be ascertained. In case of the latter, it must be decided whether two separate sub-composite indicators or one composite index should be constructed.
- The purpose of making a comparative analysis and the definition of the geographic units to be compared (subregions or regions across the world) also needs to be clarified at the start of the process of constructing the regional integration index.
• The initiatives to build indicator systems and the efforts to maintain and improve them should be sustained over time.
• Inter-institutional collaboration in constructing indicator systems would be of paramount importance as it provides opportunities for data sharing (e.g., global bilateral matrices) and enhances the policy relevance of indicator systems.

Specific comments on the ARCII relative to the prescribed guidelines. Relative to the guidelines outlined above, several issues pertaining to the current ARCII version and to the proposed ARCII framework enhancements were raised. These issues were as follows:

• **On the PCA as the basis of weights for the dimensions and the indicators for each dimension:** Users must be aware of the pros and cons of the PCA procedure, particularly of its implications for the comparability of index results over time and across countries. It may be worthwhile to consider alternatives for obtaining weights for the dimensions and for the indicators within dimensions.

• **On the choice of indicators:** The following observations and suggestions on some ARCII indicators merit careful consideration:
  » It may be useful to separate policy and outcome indicators, and possibly to construct distinct sub-composite indexes that distinguish between policy and outcome indicators.
  » The choice of indicators should be limited to those that inform the regional integration process. For instance, it is not evident how some country-level indicators, such as the Logistics Performance Index and the Ease of Doing Business Index, gauge regional integration.
  » The interpretation of some indicators, particularly regarding whether they affect regional integration positively or negatively, needs to be determined. Examples include the ratios of trade complementarity indexes and trade concentration indexes.
  » The incorporation of structural indicators (e.g., cultural proximity), which are time-invariant, should be revisited. These indicators may not be helpful in tracking the progress of regional integration.
  » Systematic treatment of intraregional flow variables across dimensions (for instance, adjusting for the size of regions, as in the case of intraregional trade intensity index) is necessary to ensure robustness of index results.

• **On the interpretation of ARCII results:** Results need to be interpreted cautiously as this depends on country coverage (in the case of inter-regional comparisons) and the methodology for constructing intra-subregional integration indexes (in the case of intraregional comparisons).

• **On the proposed enhancements to the ARCII framework:** The two new dimensions in the ARCII—namely technology and digital connectivity, and environmental cooperation—are indeed important and relevant (Figure 2). Nevertheless, incorporating additional variables resulting from the introduction of new dimensions engenders several issues, as follows:
  » The possibility of double counting arises, for instance in the case of digital trade. In this regard, the allocation of new indicators across dimensions should be carefully considered.
  » Adding new indicators could face data availability issues (e.g., services trade).
The conceptual link between the new indicators and the regional integration process need to be ensured. This requires putting new indicators through transformation procedures to render them relevant in monitoring regional integration.

**Figure 2: Recommendations for an Enhanced ARCII Framework**

- Address data availability issues, particularly services trade
- Describe conceptual connections between new indicators and regional integration
  - capital account openness
  - membership in inter-governmental organizations
  - proportion of persons using the internet
  - international internet bandwidth
  - ecological footprint
  - carbon dioxide emissions per capita
- Check double counting, particularly in the technology goods trade and the environmental goods trade
- Review classification of indicators in ARCII dimensions

ARCII = Asia-Pacific Regional Cooperation and Integration Index.

**Perspectives on Regional Integration from the European Bank for Reconstruction and Development**

Alexander Chirmiciu, Economics, Policy and Governance Department, European Bank for Reconstruction and Development (EBRD)

This presentation reviewed the measurement of integration within the EBRD mandate, as well as existing methodology, latest results, current issues, and future directions.

**Background:** The EBRD regional integration monitoring system is lodged within the assessment of transition qualities framework. Assessment of transition qualities are a set of composite indexes introduced in 2017 to track and monitor progress of EBRD countries on cooperation operation along six qualities or characteristics of a sustainable market economy: competitive, inclusive, resilient, well-grounded, integrated, and green. The assessment of transition qualities covers 37 EBRD member countries and utilizes more than 130 indicators obtained from a wide range of data sources, including national statistics, international financial institutions, surveys, and internal EBRD assessments.

**Methodology for monitoring regional integration:** The “integrated” quality of assessment of transition quality measures how EBRD countries are integrated globally and domestically. Accordingly, the measure consists of two dimensions: external integration and internal
integration. External integration covers trade in goods and services and investment flows and internal integration focuses mainly on infrastructure such as domestic and cross-border transport, and energy and information and communication technology (ICT).

As a subset of the assessment of transition qualities, the “integrated” quality assessment employs 30 indicators derived from external data sources with global coverage (such as the World Trade Organization, World Bank, International Monetary Fund, United Nations Conference on Trade and Development, World Economic Forum, International Telecommunication Union, and International Energy Agency). The indicators are normalized on a scale of 1 to 10 (with 10 as the most integrated) based on the performance of comparator countries. The “integrated” quality measure is updated on an annual basis.

![Figure 3: Regional Integration Indicators (Assessment of Transition Qualities) in the EBRD Region](image)


**Latest results:** For 2019, results indicate that European Union (EU) members belonging to the EBRD appear to be the most integrated (externally and internally) and Central Asia and Southern Eastern Mediterranean countries the least (Figure 3). Meanwhile, western Balkan and former Soviet Union countries appear to exhibit intermediate levels of overall integration. In addition, the EU members scored lower in internal integration than advanced Organisation for Economic Co-operation and Development (OECD) countries. However, the reverse holds for external integration, as the small, open EU members outperformed comparator OECD countries.
North African and Central Asian countries lagged behind in external integration because of geographic factors (landlocked and far from major trading centers), lack of commodities to trade, and country size. Central Asia likewise scored low on internal integration.

**Current issues and future direction:** The EBRD’s integration monitoring system faces issues including the use of survey data which yields high yearly variation in results and potential conflict in the objectives of the dimensions (e.g., trade openness, in light of the ongoing COVID-19 pandemic, could jeopardize other sectors). The EBRD intends to employ big data to assess transport connectivity as an improvement in measuring infrastructure for the internal integration dimension.

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**Economic Integration in Eurasia and Macroeconomic Shocks**

Behrooz Gharleghi, Senior Researcher, DOC Research Institute

The presentation empirically explored the presence of symmetrical shocks—one of the prerequisites of regional integration—in Eurasia. It laid out the methodology employed, presented the results obtained, and discussed implications for the potential of cooperation and integration in the region.

**Background:** The emergence of economic integration in various regions has encouraged closer economic cooperation in Eurasia. Considered a bridge between the East and the West, this region has gained increasing attention.

To evaluate Eurasia’s potential for regional cooperation and integration, a study was conducted to check for the presence of underlying symmetrical macroeconomic shocks in the region. The presence of such shocks, it was assumed, would indicate that further economic cooperation and collaboration within the region would be feasible.

**Methodology:** To empirically test for the presence of underlying symmetrical macroeconomic shocks, a structural vector autoregression model was estimated for the region for the period 1991–2017. The variables included in the model were global and domestic macroeconomic shocks.

**Results:** Global macroeconomic shocks in the Eurasian economies were found to be positively correlated (and hence symmetrical); domestic macroeconomic shocks in the region, on the other hand, were negatively correlated (and therefore asymmetrical). The impulse response functions derived from the structural vector autoregression estimation indicated that the majority of the region’s economies respond positively to both global and domestic shocks (Figure 4).

However, variance decomposition analysis showed that variations in domestic macroeconomic variables are explained more by domestic than by global shocks.

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2 While Eurasia is not an official ADB subregion, for the purposes of this project it includes 13 states: Afghanistan, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan (OECD classification).

3 According to optimum currency area theory, the other prerequisites for regional integration are factor mobility, price and wage flexibility, product diversification, and degree of openness.
Conclusion: The presence of a precondition for regional integration—symmetry of underlying macroeconomic shocks—in Eurasia implies that the region can benefit from further regional cooperation. Moreover, as Eurasian economies respond similarly to global shocks (albeit different from domestic shocks), regional institutions are needed to foster regulatory harmonization in monetary and financial affairs.

Developing Robust Composite Indicators

Dániel Vértesy, ICT Analyst, International Telecommunication Union

This presentation focused on methodological issues in the development of composite indicators. In particular, it set out the qualities of good indicators, explained the rationale for auditing composite indicators, and commented on the proposed upgrading of the ARCII framework.

Qualities of good indicators: Composite indicators carry analytical and advocacy power. To achieve a careful balance between these two, a good indicator should possess the following qualities (Figure 5). It should:

- Fit its purpose.
- Embrace rather than fight uncertainty. For instance, index score rankings are not deemed absolute but instead fall within uncertainty bands.
- Carefully consider every step in the composite indicator construction process (e.g., definition, operationalization, data coverage, replicability, sensitivity, and robustness to methodological choices).
Rationale for composite indicators: Independent evaluation of composite indicators confers the following benefits:

- It increases transparency.
- It provides tests for statistical coherence which pertains to the alignment of conceptual and statistical frameworks, statistical soundness of the composite indicator structure, and the extent to which the underlying indicators drive the composite index scores.
- It allows robustness and sensitivity tests.

Suggestions on proposed enhancements to ARCII framework: The presentation offered current and proposed enhancements to the ARCII framework, as follows:

- On the current framework
  » One of the main strengths of ARCII is its wealthy set of measurement indicators.
  » PCA should be considered as an explorative tool to identify latent dimensions rather than as a source of weights, as PCA tends to reinforce correlations.
  » The defined indicators in the ARCII (e.g., measures of intraregional activity relative to global activity) should be able to identify which dimensions contribute the least or the most to overall integration.
  » Consider showing uncertainty intervals in presenting the results, rather absolute scores or rankings (e.g., through model averaging).
  » When possible, introduce ways to distinguish input (policy) and output (outcome) mechanisms within the ARCII framework.
On the proposed extensions
  » Mobile broadband access as well as internet capacity and speed would be good indicators in the proposed digital connectivity dimension as they are considered enablers of integration.
  » Account for using ICT skills as a basis for weights for digital connectivity indicators.
  » Test for overlaps/trade-offs and correlation patterns among ARCII indicators.
  » Possibly consider some indicators in the ASEM Sustainability Connectivity Index for inclusion in the proposed new and existing ARCII dimensions.

Open Discussion

Several issues were raised regarding the ARCII framework in the second and fifth presentations. The following points of clarification were made during the open discussion:

On the definition of regional grouping: It was clarified that ADB’s 48 regional members compose the coverage of ARCII. However, the proposed upgrading of the ARCII framework would cover other economies with a significant impact on the Asian region, such as the Russian Federation and Turkey.

On the pros and cons of PCA: The advantages and disadvantages of PCA are recognized. However, there seems to be no better alternative to this procedure, as other weighting schemes have their own positive and negative features. For now, ARCII will undergo robustness checks employing different weighting methods.

On separating policy and outcome indicators: In practice, it would be difficult to distinguish between policy and outcome indicators, especially when using bilateral data, which are not that many.

On indicators that do not directly inform about the RCI process: While the Logistics Performance Index and Ease of Doing Business Index pertain to country-level data, they underline opportunities for countries to trade regionally.

On double counting in trade in intermediate goods: While it is recognized that this practice exists, it should also be made known that currently no data exists that would correct for the double counting.
Session 2: Special/New Dimensions for Measuring Regional Cooperation and Integration

Moderator:
- Yesim Elhan-Kayalar, Advisor, Office of the Chief Economist, ERCD, ADB

Presenters:
- Janos Ferencz, Trade Policy Analyst, Trade and Agriculture Directorate, OECD
- Yann Duval, Chief, Trade Facilitation Unit, Economic and Social Commission for Asia and the Pacific (ESCAP)
- Shigeru Kimura, Special Adviser to the President on Energy Affairs, Economic Research Institute for ASEAN and East Asia (ERIA)

Discussant:
- Thomas Abell, Advisor and Chief, Digital Technology for Development Unit, Sustainable Development and Climate Change Department (SDCC), ADB

Session Overview

This session focused on new dimensions that could be part of the RCI measurement framework. It explored factors linking RCI with emerging policy areas, including digital connectivity, environmental sustainability, and the sustainable development agenda. The session discussed approaches to measure these dimensions and how they impact or are determined by regional integration policy.

Measuring Digital Connectivity for Regional Integration: OECD Experience

Janos Ferencz, Trade Policy Analyst, Trade and Agriculture Directorate, OECD

The presentation centered on different approaches to assessing digital integration from the perspective of OECD countries. Trends in digital connectivity can be understood through the lens of digital services trade and changes in the regulatory framework. Asian economies have been at the forefront of digital transformation in recent years. It is thus natural that the digital dimension should be considered for the RCI measurement framework.
From a regional perspective, digital connectivity and trade are linked dimensions. Even though digitalization removes geographic barriers, economies close to each other (e.g., neighboring countries, regional partners) tend to trade more through digital technology and platforms. This suggests that RCI helps create an environment that fosters economic integration.

**A proper environment for increasing connectivity:** Relevant policies to consider include more favorable trade environments, such as lower trade barriers, incentives for investment, and a proper competition framework. The digital services sector is increasingly changing the way services operate by deepening integration between services and goods (i.e., more tradability of goods that were previously not easily traded across borders and emergence of new technologies such as 3D printing and artificial intelligence). A number of services sectors dominate digital trade. Telecommunications, financial services, transport, and logistics are essential in enabling consumers to benefit from digital connectivity. In the current context, digital trade and services tend to be more resilient to external shocks, particularly because more opportunity exists to trade across borders. Digital trade can therefore mitigate the negative impact of COVID-19 and help speed up recovery efforts.

**Improving digital regulatory framework:** One key challenge when incorporating digital connectivity in the index is the complexity of the regulations and policies affecting digital services. To address this issue, the OECD’s Digital Services Trade Restrictiveness Index was designed to help governments understand bottlenecks and constraints affecting digital services and to monitor progress (Figure 6). The index builds on the OECD Services Trade Restrictiveness Index and scores countries’ regulatory openness to trade in digital services.

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**Figure 6: Relevant Policy Areas for Digital Trade Integration**

<table>
<thead>
<tr>
<th>Infrastructure and connectivity</th>
<th>Payment systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interconnection is regulated</td>
<td>Discriminatory access to payment settlement methods</td>
</tr>
<tr>
<td>Vertical separation is required</td>
<td>National payment security standards deviate from international standards</td>
</tr>
<tr>
<td>Memo: Nondiscriminatory internet traffic management</td>
<td>Restrictions on internet banking or insurance</td>
</tr>
<tr>
<td>Restrictions on the use of communication services</td>
<td></td>
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<tr>
<td>Cross-border data flows</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Electronic transactions</th>
<th>Intellectual property rights</th>
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</thead>
<tbody>
<tr>
<td>Discriminatory conditions for e-commerce licenses</td>
<td>Foreign firms are discriminated against on trademark protection</td>
</tr>
<tr>
<td>Online tax registration and declaration</td>
<td>Discriminatory treatment on copyrights and related rights</td>
</tr>
<tr>
<td>National contract rule deviate from international rules</td>
<td>Memo: Exceptions to copyright protection</td>
</tr>
<tr>
<td>Laws or regulations explicitly protect confidential information</td>
<td>Enforcement of intellectual property rights</td>
</tr>
<tr>
<td>Legal validity of e-signatures</td>
<td></td>
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<tr>
<td>Dispute settlement mechanism</td>
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</tbody>
</table>

<table>
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<tr>
<th>Other barriers affecting trade in digitally enabled services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance requirements</td>
</tr>
<tr>
<td>Limitations on downloading and streaming</td>
</tr>
<tr>
<td>Restrictions on online advertising</td>
</tr>
<tr>
<td>Commercial or local presence requirements</td>
</tr>
<tr>
<td>Firms have redress when business practices restrict competition in a given market</td>
</tr>
</tbody>
</table>

RCI = regional cooperation and integration.

The index shows that digital infrastructure and connectivity barriers can be lowered through regional cooperation.

The Digital Services Trade Restrictiveness Index also shows that regional regulatory heterogeneity for digital services is high in Asia and Latin America, and low in the EU and North America. It also emphasizes different policy areas for RCI in digital trade, including (i) infrastructure and connectivity, (ii) electronic transactions, (iii) payment systems, (iv) intellectual property rights, and (v) other barriers affecting trade in digitally enabled services.

**Future directions:** The OECD has been working closely with regional partners, including the Association of Southeast Asian Nations (ASEAN) and the Asia-Pacific Economic Cooperation (APEC), to adapt its framework to specific regional factors. The OECD is looking forward to collaborating with ADB and gleaning insights into how the ARCII was developed. As part of this collaboration, the ADB could benefit from OECD’s work in measuring digital transformation, including ICT use, broadband, and other digital connectivity indicators for use in enhancing the ARCII framework. The OECD also emphasizes the importance of a long-term perspective to develop indicators that can stand the test of time.

**ESCAP Digital and Sustainability Regional Integration Index and Indicator Framework**

Yann Duval, Chief, Trade Facilitation Unit, ESCAP

Together with other UN agencies (the Economic Commission for Africa and the Economic and Social Commission for Western Asia), ESCAP is developing a methodology for improving the measurement of RCI in the region through the Digital and Sustainable Regional Integration Index. The project aims to provide new and improved tools for policy makers to evaluate the performance of economies in regional integration, while encompassing different dimensions of sustainable development. The index accounts for the diversity of national economies while refraining from defining “optimal” levels of regional integration. It uses aggregation techniques to allow policy makers to easily use and modify the index as they see fit.

**Definition of the Digital and Sustainable Regional Integration Index and regional performance:** The “DigISRII 1.0” index has seven dimensions, each incorporating sustainability indicators (42 indicators, simplified; 53, comprehensive), covering 24 countries, and defining two modalities of integration: “conventional” integration and “sustainable” integration. On performance, the index suggests that Asia and the Pacific varies widely across the seven dimensions, in both the conventional and sustainable versions of the index (Figure 7). On average, infrastructure and regulatory cooperation are considered the two most important factors driving conventional regional integration. The same dimensions are the ones where more progress has been made. In contrast to ARCII results, performance in movement of people is more modest. The region is doing best in sustainable finance and sustainable infrastructure, the two main contributors to sustainable regional integration. The index trends show that, between 2010 and 2017, improvements in infrastructure and participation in the digital economy are driving sustainable regional integration, while trade and investment and regional value chains have remained stable.
Measuring digital integration in Asia: Digital economy integration is measured through a number of indicators, including trade intensity in ICT products and use of the internet to make purchases. It also encompasses government policies on ICT products and regulations on digital goods and services. The corresponding sustainable component focuses on the security and inclusiveness of digital infrastructure. Results reveal a large variance between developing and developed economies in this dimension, with Singapore being the most digitally integrated country in the region. In general, advanced economies are the most regionally integrated in the digital economy, although digital integration varies across the indicators. ICT tariffs have a large impact on digital integration, while the region shows room for improvement in regulatory harmonization.

A digital regulatory framework indicator: A novel indicator, digital trade regulatory similarity, was collected through a survey for evaluating the similarity of digital policies across countries. The indicator is based on 11 relevant dimensions for digital integration, including trade defense, public procurement, investment, intellectual and property rights, infrastructure and competition regulations, cross-border data policies, data policies, intermediary liability and content access, quantitative access restrictions, standards, and online sales and transactions. The regional digital trade regulatory similarity shows that advanced economies tend to be regionally integrated, while other economies in the region are more restrictive.

Future direction: ESCAP will collaborate with regional partners including ADB for building and disseminating regional integration indicators tailored to their respective organizational mandates.
Energy Flows and Regional Integration in ASEAN

Shigeru Kimura, Special Adviser to the President on Energy Affairs, ERIA

The presentation focused on the current energy outlook in ASEAN and opportunities for improving energy trade and connectivity across the region. The outlook, prepared for the East Asia Summit and including 18 countries, has been used for discussing energy policy and forecasting energy saving potential in East Asia Summit countries.

The approach estimates energy consumption across industry, transport, commercial, and residential sectors. Estimates are collected from ASEAN countries to construct a measure of energy saving potential, based on a number of long-term forecasts (e.g., economic growth, population growth, oil prices). The model predicts that energy consumption (oil, electricity, coal) will grow by a factor of 2.5 between 2015 and 2040, underlining the importance of regional cooperation in meeting this future demand.

While the demand for oil and gas will be met through higher imports, electricity demand can be met through domestic production and regional trade. Electricity trade transactions are currently based on bilateral transmission lines in the Ayeyawady–Chao Phraya–Mekong Economic Cooperation Strategy (AMECS) region (encompassing Cambodia, the Lao People’s Democratic Republic, Myanmar, Thailand, and Viet Nam). The ASEAN Power Grid consists of seven program areas (Figure 8). The program could benefit ASEAN through a regional power development plan, improving electricity supply security and introducing renewables such as solar or photovoltaic and wind.

Regional trade in energy is a relevant dimension or indicator that could be included in the customized version of the ARCII. In particular, it was suggested that the energy components of the trade and investment, and infrastructure and connectivity dimensions of the ARCII be extracted to form part of the set of indicators under the proposed energy dimension of ARCII.

Figure 8: ASEAN Final Energy Consumption, by Energy and Sector

ASEAN = Association of Southeast Asian Nations.
Discussion

Discussant: Thomas Abell, Advisor and Chief, Digital Technology for Development Unit, Sustainable Development and Climate Change Department, ADB

On the importance of regulation: RCI requires a harmonized regulatory framework for economies to work together. This harmonization should include the free flow of data across borders, similar standards of privacy and security across countries, and the capacity of countries to open up digital channels. Privacy and security issues have been at the forefront of the EU discussion, in particular through the General Data Protection Regulation, and Asia should be positioned to do something similar. There is as yet no similar spirit of cooperation to leverage that in ways that make sense for Asian countries.

On the nature of data: The importance of data must be understood. Where data is flowing and mapping out the data connection—how much data is flowing and originating from one country to another. They could inform a measure for digital integration in the region. The following questions should be answered: What kind of data is being exchanged and how much? Who is controlling that data? Technologies are moving ahead because of increasing demand for bandwidth. Undersea cables and satellites will continue. Increasing connectivity through satellites will likely continue.

On the use of digital platforms for measurement: The use of specific digital interactions and digital platforms—social networking, online jobs, digital advertising, consumption of movies and videos—can be explored. These flows can probably be measured and included in the index. One application could be tailored for job search and business process outsourcing (BPO) platforms. An indicator of remote jobs could be built, for example, looking at searches (Google searches, etc.).

Measuring data consumption: Finally, new measures for data consumption and attention could be useful. For example, the distribution of time allocation of data users (e.g., the Philippines, where average mobile use is 10 hours a day) across different services. The question of language and how people are becoming increasingly connected (e.g., real-time translation) is difficult to measure, but could be a promising area for consideration.
Session 3: Identifying the Need for Regional Integration Indicators

Session Overview

This session sought to better understand internal demand for RCI indicators among ADB’s regional departments and subregional initiatives. It gave a regional and subregional perspective on the current needs for RCI indicators, emerging sectoral or thematic priorities, and ongoing work in measuring the impact of RCI projects. The session also provided the ADB regional departments’ perspective on the proposed improvements to the ARCII framework.
Using Regional Integration Indicators in the ADB Corporate Results Framework

Smita Nakhooda, Senior Results Management Specialist, Strategy, Policy and Partnerships Department, ADB

This presentation focused on the use of the ARCII in ADB’s corporate results framework, as shown in Figure 9. The ARCII is one of the 10 Results Framework Indicators and monitors progress in the region across different dimensions, including regional cooperation and integration (operational priority 7). For this priority, none of the official Sustainable Development Goal indicators could entirely capture what the operational priority sought to achieve (a similar challenge was faced with operational priority 6 on governance and institutional capacity).

An adapted version of the ARCII (excluding the money and finance dimension) is reported every year. The financial dimension is reported separately as a stand-alone tracking indicator.

Some suggestions for future improvements are to focus less on traditional RCI dimensions (e.g., trade and investment) and more on new ones (e.g., regional public goods, social goods). Manageability is also important, so introducing too many dimensions could be counterproductive. Streamlining indicators in existing dimensions might be considered. It would also be important to explore in greater detail the links between dimensions and how the components of the index interact with each other.

Putting what the data means into context and more effort on interpretation could improve the usefulness of the index in the long term.
Regional and Subregional Initiatives: Progress and Challenges in Measuring Regional Integration in the Central Asia Regional Economic Cooperation (CAREC)

Syed Shakeel Shah, Director, CAREC Institute

The presentation centered on the CAREC Regional Integration Index (CRII), which builds on the structure of the ARCII and contributes to monitoring progress on the CAREC 2030 Strategy. Index results show that integration for this subregion are low (confirmed by ARCII results), in comparison with other parts of Asia. Kazakhstan and the People’s Republic of China (PRC) are doing relatively well compared to the other CAREC members (Figure 10).

Several challenges identified for the current CRII indicator could be relevant for ARCII. First, country size asymmetries due to the large share of the PRC in the region are important, which explains why the index is computed including and excluding the PRC. Second, CAREC countries differ in stages of development and economic structure. Third, geography is an important determinant of RCI dynamics, with 8 of 11 countries landlocked. Fourth, the region is not fully integrated into the global rule-based system, and 3 CAREC countries are not World Trade Organization (WTO) members. A fragmented regionalism, with multiple and disjointed economic and trade arrangements live together in the region.

Proposed areas of study include exploring formal regional trading arrangements, studying trade-offs between nondiscriminatory regional integration and domestic development challenges, and instruments to balancing regional integration through special and differential treatment.

Figure 10: Country Performance in the CAREC Regional Integration Index

CAREC = Central Asian Regional Economic Cooperation, CRII = CAREC Regional Integration Index, PRC = People’s Republic of China.

The CRII results suggest that more openness in trade, full implementation of WTO’s trade facilitation agreements, elimination of nontariff measures to trade, freedom of transit, and regulatory reforms to formalize informal trade will be important to improving RCI. For monetary integration, possible measures include introduction of sequential financial reforms, liberalization of financial services (General Agreement on Trade in Services Plus), regional arrangements for exchange rate volatilities and balance of payments crises, and the development of CAREC bond markets. On cross-border logistics, well-coordinated platforms for regional value chains, multimodal transport facilities, and reducing time border and cost should be a priority.

Suggestions for improving the ARCII included revisiting the separation between dimension 1 (trade and investment) and 2 (regional value chains), including exchange rates in the money and finance dimension (an important parameter for capital flows and global trade), exploring new approaches to bridging the data gaps, and incorporating climate-related aspects of RCI.

The scope of the CRII will be revisited, including an extension in the line of the Global Economic Integration Index developed by ADB’s Regional Cooperation and Integration Division. A new index based on CAREC’s network (diagrammatic representation) is being explored to analyze CAREC’s integration with the rest of the world. CAREC is also discussing the refinement of the index with four dimensions (trade, finance, connectivity, and migration) and a switch to factor analysis from PCA.

**Measuring RCI in Pacific Countries**

*Emma Veve,* Director, Social Sectors and Public Sector Management Division, Pacific Department, ADB

The presentation focused on trends in regional cooperation in the Pacific region and challenges in measurement. The region of 14 countries and 12 million inhabitants of the Pacific have a strong RCI history and a complex institutional architecture. Common RCI issues involve fisheries, environment, trade, and tourism, and there are proposals for a common trade area and a common currency.

However, RCI progress within the region has been quite limited. About 4% of trade is intraregional. Countries’ basket products are similar and complementarity in exports is limited. Efforts to remove restrictions in trade and people’s movement have been made (e.g., Pacific Island Countries Trade Agreement (PICTA), Melanesian Spearhead Group (MSG)). The Pacific has focused on collaborating further with industrialized economies (Australia, New Zealand, the United States) in specific markets. Recent developments include the movement of teachers and nurses within the region, as well as investment in tourism, the retail trade, and telecommunications by regional companies.

Meanwhile, several issues inherent in the Pacific need to be addressed in the course of enhancing the ARCII framework (Figure 11). These include the current data gaps in regional indicators in the money and finance dimension that do not reflect the level of financial development in the subregion, the need to emphasize institutional and regulator cooperation (for instance, in the field of education), and the exclusion of non-ADB members from the index, which could understate the extent of RCI in the Pacific.
Priorities for Regional Integration Indicators in SASEC

Ronald Antonio Butiong, Director, Regional Cooperation and Operations Coordination Division, South Asia Department, ADB

This presentation focused on the improved measurement of RCI in South Asia. Key elements of an economic union considered in the region are trade agreements, a common market, efficient regional institutions, and funding mechanisms. The South Asia Subregional Economic Cooperation (SASEC), established in 2001, pays particular attention to transport (catering to road traffic increase); trade facilitation (reducing time for trade documentation); energy (enhancing electricity access rates); and, more recently, economic corridor development, as described in the SASEC Operational Plan 2016–2025.

Output and outcome indicators, as well as contract awards and disbursements, are used in SASEC to measure RCI progress. National indicators with cross-border implications have been used (Figure 12). For example, for trade facilitation projects, indicators include improvements in cargo clearance time. Improvements in these indicators have cross-border implications. Transport, energy, and economic corridor development indicators focus on national improvements (e.g., increases in traffic of project roads and electricity access rates). Regional indicators include intraregional trade share, customs revenues in the subregion, and growth of cross-border power flows.
Priority indicators for SASEC are related to the four priority areas. In transport, in addition to cross-country connectivity, indicators measure seamless movement across inter-modal systems along key trade routes. For trade facilitation, SASEC priorities include making trade more efficient, including the time taken for cross-border flow and cargo, adopting international standards, and improving compliance. In energy, the objective is to improve energy trade infrastructure, to ease supply constraints, and to diversify the energy mix. In economic corridor development, it is to pursue synergies between national economic corridors to maximize benefits for cross-border linkages.

SASEC is also taking a sectoral approach to RCI indicators. In transport, examples include connectivity measures (quantitative and qualitative), such as the length in kilometers of the SASEC Corridor roads meeting AH1 standards, use of regional ports to handle the cargo of regional members (SASEC has two landlocked countries, Bhutan and Nepal), and the number of passengers flying between regional airports. In trade facilitation, the aim is to measure trade efficiency. Novel indicators include regional trade agreements (e.g., negative list of products) and mutual recognition indicators.

Lessons from Measuring Regional Integration in the Greater Mekong Subregion

Alfredo Perdiguero, Director, Regional Cooperation and Operations Coordination Division, Southeast Asia Department, ADB

In 2017, the Greater Mekong Subregion (GMS) established a statistical database that includes economic and sectoral indicators to monitor RCI. The Brunei Darussalam–Indonesia–Malaysia–Philippines East ASEAN Growth Area and the Indonesia–Malaysia–Thailand Growth Triangle have also developed statistical working groups to institutionalize the process together with national statistics offices. The GMS is developing a new statistical framework with sector groups to improve the availability of RCI indicators. Statistics in the Greater Mekong Subregion, an annual report prepared by the GMS Secretariat, is now in its fourth edition. The secretariat is starting to cover sector indicators (e.g., education, energy) to improve available indicators.
Some of the indicators the GMS Secretariat is developing cover intraregional trade, participation in global value chains, intra-GMS migration, cross-border trade in energy, international internet bandwidth, and volume of intraregional investment. Some of these indicators are inspired by ADB’s monitoring framework and the ARCII to strengthen the GMS’ own results framework and indicators. One recommendation is that, as the ADB results framework has several levels, it would be worthwhile to incorporate some indicators of ARCII’s enhanced framework discussed during the workshop.

**Figure 13: Measuring RCI in the Greater Mekong Subregion**

Ensure Data Quality

Establish Data Consistency and Comparability

Strengthen Database Management

Institutionalize Mechanisms

RCI = regional cooperation and integration.


Much of the work of the GMS group has involved improving data quality for RCI indicators (Figure 13). Working with national statistical offices, the GMS worked on the definition and consistency of indicators, intending also to strengthen database management and institutionalizing mechanisms for data production and dissemination. Data comparability has improved significantly as a result. In addition, subnational data are also incorporated in this framework to have consistent indicators and is an avenue for ADB’s future work. The GMS is also shifting toward making data more accessible.

Some important lessons from the GMS experience can be drawn for the ARCII project. First, the costs of measuring indicators should be balanced against the value of the additional information they provide. Second, how indicators can be used to identify areas for improved policy guidance should be understood. Third, it should be emphasized that indicators do not capture causal effects of specific dimensions. Interpretation of the indicators are important. Fourth, while not the focus of the current project, provincial data are a general trend for indicators in many sectors, so these will need to be considered in the future. Finally, while composite indicators are useful, they may not reflect the specific issues in a given country and only reflect aggregate changes. It is therefore important to complement the analysis with a national-level perspective.
Discussion and Concluding Remarks

Discussants: Safdar Parvez, Director, Regional Cooperation and Operations Coordination Division, Central and West Asia Department, ADB; Behrooz Gharleghi, Senior Researcher, DOC Research Institute

After the presentation of ADB regional departments, some points were raised during the discussion to be considered in future improvements of the ARCII. A first consideration is tracking how the data are being used to make policy decisions and factoring in the trade-offs between the complexity of the index and the attention it can receive for policy making. Second, many sectors could be considered for inclusion in the ARCII in the future (e.g., water, education, health). A more systematic approach to prioritizing these dimensions would be beneficial. Third, for comparability, new metrics should account for different initial conditions, economic systems, or production structures across Asian economies. Fourth, while the ARCII reflects intraregional integration, capturing extraregional and global linkages can provide a more complete assessment and account for some relevant economies (i.e., the Russian Federation, Iran) that are not part of the intraregional perspective. Fifth, it is important to look further at the inter-dimensional linkages of the index, particularly when trying to look at economic corridor development, which essentially is an aggregate of different dimensions. Finally, a reflection on analyzing regional integration versus regionalism, considering the geopolitical role and asymmetries of some economies, will be important.

The session concluded with an update from ADB’s ARCII team on next steps for the project. First, there is broad consensus on the utility of incorporating the two new dimensions and enriching existing dimensions for the work of ADB’s ARCII. A closer look at non-member countries will give a more comprehensive and better picture of where RCI is headed. Second, while doing this, assessing trade-offs between the complexity of the index and the ability to provide policy advice is important. The index is specifically designed to balance these two aspects, having an overall index score to provide information to the policy maker and dimensional indexes to complement and tailor this information. Third, the team will continue aligning the enhanced framework to ADB’s RCI Strategy, in particular through a dimension of regional public goods. Finally, the team will publish a user’s manual to access the new ARCII methodology and explore its different features.
Speaker Profiles

Opening Session

Welcome Remarks

Joseph E. Zveglich Jr. is the deputy chief economist of the Asian Development Bank (ADB). He supports the chief economist to set research directions for the Economic Research and Regional Cooperation Department, ensure research quality, and brief the ADB Board and Management on emerging economic issues.

Previously, as director for macroeconomic research, Mr. Zveglich oversaw the preparation of the annual Asian Development Outlook and the Asian Development Outlook Update, ADB’s flagship publications forecasting economic trends in the region. He has also served as principal planning and policy economist at ADB’s Strategy and Policy Department, senior advisor to the President, and deputy country director at ADB’s Sri Lanka Resident Mission. Mr. Zveglich joined ADB in 1998.

Before ADB, Mr. Zveglich worked as a researcher and instructor at the Harvard Institute for International Development as part of the team providing capacity building to government officials in macroeconomic policy and management. He was also a visiting instructor at the College of William & Mary.

Mr. Zveglich earned his PhD and Master of Arts degree at Harvard University. He graduated summa cum laude in economics, with an emphasis on Asian studies, from Arizona State University.
Introduction

Cyn-Young Park is the director of the Regional Cooperation and Integration Division in the Economic Research and Regional Cooperation Department of the Asian Development Bank (ADB). In her current capacity, she manages a team of economists to examine economic and policy issues related to regional cooperation and integration (RCI) and develop strategies and approaches to support RCI. During her progressive career within ADB, she has been a main author and contributor to ADB’s major publications, including the Asian Development Outlook (ADB’s flagship publication), the Asia Capital Markets Monitor, the Asia Economic Monitor, the Asia Bond Monitor, and the ADB Country Diagnostic Study Series. She has also participated in various global and regional forums, including the G20 Development Working Group, the Association of Southeast Asian Nations (ASEAN), ASEAN+3, the Asia-Pacific Economic Cooperation, and the Asia-Europe Meeting (ASEM), and has written and lectured extensively about the Asian economy and financial markets. Her work has been published in peer-reviewed academic journals, including the Journal of Banking & Finance, the Journal of Futures Markets, the Review of Income and Wealth, and The World Economy.

Prior to joining ADB, Ms. Park worked as an economist (1999–2002) at the Organisation for Economic Co-operation and Development (OECD), where she contributed to the OECD Economic Outlook. She received her PhD in Economics from Columbia University. She holds a Bachelor in International Economics from Seoul National University.

Session 1: Methodological Approaches to Measuring Regional Integration

Hyeon-Seung Huh is a professor of economics at Yonsei University, Republic of Korea. Prior to his tenure at Yonsei, he held positions at Hallym University and the University of Melbourne. He was also a Fulbright scholar at the University of Washington. His main research interest includes macroeconomics, applied econometrics, and time series analysis. He has published over 50 papers in international refereed journals. He was a member of the board of directors of the Korean Economic Association and an editor of The Korean Journal of Economic Studies.
Philippe De Lombaerde is the director ad interim at the United Nations University Institute on Comparative Regional Integration Studies (UNU–CRIS). He is also an associate professor of international economics at NEOMA Business School (Rouen). Previously, he worked for UNU–CRIS, Universidad Nacional de Colombia (Bogotá), University of Antwerp, and the National Institute of Development Administration (Bangkok). Mr. De Lombaerde (PhD, from RWTH Aachen University in Germany) studied economics, econometrics, and political science at the universities of Ghent, Brussels, Antwerp, and Aachen. His research interests include regional economic integration, international trade and investment, monitoring tools and indicators, Latin American and Southeast Asian regionalism, comparative regionalism, globalization, and regionalization indicators.

His recent co-edited volumes include *Regionalism* (London: SAGE, 2013; four volumes); *Migration, Free Movement and Regional Integration* (Paris: UNESCO Publishing and UNU Institute on Comparative Regional Integration Studies, 2015); *Indicator-Based Monitoring of Regional Economic Integration* (Dordrecht: Springer, 2017); and *The Political Economy of New Regionalisms in the Pacific Rim* (London: Routledge, 2019).

Alexander Chirmiciu is associate director and lead infrastructure economist in the Economics, Policy and Governance Department of the EBRD. He is responsible for project and policy assessments for infrastructure—the transport, municipal, and environmental sectors. He has more than 15 years of experience in policy analysis and project design and implementation across the entire range of infrastructure sectors. His research interests include infrastructure, energy, and climate change, as well as development and transition economics. Mr. Chirmiciu is an alumnus of King’s College and holds a PhD in Economics from Cambridge University.
Behrooz Gharleghi is a senior researcher at the DOC Research Institute in Berlin, Germany. Previously, he was an affiliate professor at the Pontificia Universidad Católica del Perú. His main areas of research are economic development, and monetary and financial integration. He has published several articles in his field and is currently working on a joint project on the Eurasia Integration Index.

Dániel Vértesy is an expert in measuring and managing innovation, information and communication technology (ICT), and development. He works as an ICT analyst at the International Telecommunication Union Telecommunication Development Bureau in Geneva. He was a Research Fellow from 2011 to 2019 at the Competence Centre on Composite Indicators and Scoreboards at the Joint Research Centre of the European Commission in Ispra, Italy, coordinating econometric and applied statistical research projects. Between 2006 and 2011, Mr. Vértesy was Research Fellow at the United Nations University in Maastricht.

He has supported numerous international organizations (including European Union institutions, the Organisation for Economic Co-operation and Development, and several United Nations organizations) in developing indicator frameworks. His research has been published in peer-reviewed journals, including Research Policy, Science and Public Policy or Economics of Innovation and New Technology and book chapters and technical reports of international organizations. Mr. Vértesy holds a PhD in Innovation Studies and Development from Maastricht University and UNU-MERIT, and a PhD in Economics, and an MA in International Relations from the Corvinus University of Budapest.
Session 2: Special/New Dimensions for Measuring Regional Cooperation and Integration

Yesim Elhan-Kayalar has 30 years of work experience in development agencies, the private sector, and the academe in 27 countries. She has worked at the regional, national, and local levels to create long-term development solutions in the energy, finance, public management, transport, and water sectors, with private sector and beneficiary participation. As country director, Ms. Elhan-Kayalar led ADB’s country partnership strategy and program in Georgia, and innovative regional development initiatives for the Caucasus. She develops policy and knowledge solutions for high-impact development assistance in Asia and the Pacific in her current role. Ms. Elhan-Kayalar has a PhD in Economics from the University of California. She has published and taught in the fields of economics and finance, and led research on behavioral finance and competitiveness policy.

Janos Ferencz is a trade policy analyst at the Trade in Services Division of the OECD. He analyzes policy trends affecting services trade globally using OECD’s Services Trade Restrictiveness Index (STRI) and manages the annual update of the STRI regulatory database and indices. Additionally, his work covers digital trade, focusing on lowering trade barriers for digitally enabled services. He developed the OECD Digital STRI tool and contributed to an analysis of digital trade and market openness, cross-border data flows, and the trade implications of new digital technologies such as artificial intelligence. He also engages with various international and regional partners, including the Asia-Pacific Economic Cooperation (APEC) and ASEAN, to assist interested economies in benefiting from the STRI tools. He is a jurist with a background in international trade law.
Yann Duval is chief of trade policy and facilitation in the Trade, Investment and Innovation Division of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). Since joining the United Nations Secretariat in 2002, he has designed and delivered capacity-building programs and advisory services in trade policy and facilitation throughout the ESCAP region, including the trade facilitation segment of the Regional World Trade Organization (WTO) Trade Policy Course at the National University of Singapore. He has been instrumental in the development of the United Nations Network of Experts for Paperless Trade and Transport in Asia and the Pacific, a community of experts dedicated to making trade more transparent and efficient through the digitalization of trade procedures. He and his team serve as the secretariat for the Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific, a United Nations treaty adopted in 2016 to accelerate the electronic exchange and legal recognition of trade data and documents across borders.

Mr. Duval has also been instrumental in the creation and development of the Asia-Pacific Research and Training Network on Trade, a network of leading research and academic institutions in developing countries in the region aimed at building capacity in trade and investment policy and facilitating research for evidence-based policy making. His contributions to policy research includes a global bilateral trade cost database developed in collaboration with the World Bank, and the UN Global Survey on Digital and Sustainable Trade Facilitation conducted biennially in collaboration with other United Nations regional commissions.

Prior to joining the United Nations, Mr. Duval was assistant professor of international business at the Asian Institute of Technology in Bangkok, and assistant professor of agricultural economics at Washington State University, respectively. His work has been published in various academic journals, including International Tax and Public Finance, the World Trade Review and the American Journal of Agricultural Economics. He holds a PhD in Agricultural Economics from Kansas State University as well as an engineering degree from the École supérieure d’Agriculture (ESA) Purpan in France.
Shigeru Kimura, special adviser to the president on energy affairs, Economic Research Institute for ASEAN and East Asia (ERIA), graduated from the Faculty of Computer and Information Sciences, Hosei University in 1973. After graduation, he worked for Century Research Center Co. (CRC), a Japanese think tank, and became manager of the Economic Group, Research Institute of CRC, in 1988. He joined the Energy Data and Modelling Center, Institute of Energy Economics, Japan as head of its Statistics Information Office in 1993 and became senior research fellow in 2005. He has long been engaged in the preparation of energy statistics for the Asia-Pacific Economic Cooperation region as coordinator and energy modeling expert, applying econometrics and input–output approaches. Using this expertise, he has been developing capacity for energy statistics and energy outlook modeling in the Association of South East Asian Nations (ASEAN) region for more than 10 years. Since 2007, he has also headed the ERIA Working Group for the Preparation of Energy Outlook and Analysis of Energy Saving Potential in East Asia. He assumed his current position in August 2013.
Thomas Abell heads ADB’s Digital Technology for Development Unit, which is tasked with facilitating the use of digital technology in ADB programs to improve development impact.

He has over 20 years of professional experience in digital technology, including software development, systems architecture, and technology strategy. During his 10 plus years of experience in international development, he has worked extensively across Asia, Africa, and Latin America, working with governments, development organizations, NGOs and corporations. He has authored several publications on the use of technology in development and leading organizations, including the Consultative Group to Assist the Poor, the UN High Commissioner for Refugees, the Cash Learning Partnership, and Mastercard.

Prior to ADB, he worked for Accenture Development Partnership (ADP), leading its programs in digital technology for development and financial inclusion. He has development expertise in financial inclusion, education, and agriculture. Even earlier, he served various management and technical roles in information technology and strategy at large multinationals, including Hewlett Packard, Motorola, and Ford Motor Company.

He is an American national and holds an MSc degree from the Sloan School of Management, Massachusetts Institute of Technology (MIT); an MSc degree from the Department of Materials Science and Engineering, MIT; and MSc and BSc degrees from the Department of Mechanical Engineering, MIT.
**Session 3: Identifying the Need for Regional Integration Indicators**

**Arjun Goswami**  
Chief, Regional Cooperation and Integration Thematic Group  
Sustainable Development and Climate Change Department  
ADB  
(Moderator)

Arjun Goswami holds a law degree (Juris Doctor) from the American University; a Master of Law degree in Public International Law from Cambridge University; an MA in Modern History from Oxford University; and an MSc Certificate in Financial Management from the School of Oriental and African Studies, London University. With 21 years in Asian Development Bank (ADB) in both operations and knowledge and a decade of regional cooperation and integration (RCI) experience, he brings strategic direction and a focus on innovation and quality for future RCI work by ADB.

**Smita Nakhooda** is a senior results management specialist in the Results Management and Aid Effectiveness Division of the Strategy and Policy Department of ADB. The division is ADB’s focal point on the Sustainable Development Goals, where she leads this area of work. Prior to joining ADB, Ms. Nakhooda was a senior research fellow at the Overseas Development Institute in London, where she led the team working on climate change and finance. Her work focused on strengthening the effectiveness of finance for environmentally sustainable development. From 2003 to 2011, she was a senior associate at the World Resources Institute in Washington, DC, where she led work on energy governance and environmental finance. Ms. Nakhooda is an Indian national. She holds an MSc in Environmental Policy and Regulation from the London School of Economics, and a BA in Government and Environmental Studies from Dartmouth College.
Syed Shakeel Shah is the director of CAREC Institute since November 2019. He also worked as Chief Reforms, Automation and Preferential Trade at Pakistan Customs, Federal Board of Revenue, Government of Pakistan from May 2018 to November 2019, and as Joint Secretary, Economic Affairs at Prime Minister’s Office, Government of Pakistan from July 2012 to May 2018. He was Vice Consul at Consulate General of Pakistan, Barcelona, Spain in May 2009–June 2012 and Customs Officer, at Pakistan Customs, Federal Board of Revenue, Government of Pakistan in December 1996–May 2009.

He obtained his Master of Advanced Studies degree in International Trade Law and Economics from the World Trade Institute in Bern, Switzerland; his MSc in International Relations from Quaid-i-Azam University, Islamabad, Pakistan; and his BA in International Relations and Political Science from the University of Peshawar, Pakistan.

His areas of expertise are World Trade Organization law; international, regional, and preferential trade; economic corridors, customs laws, reforms, and automation, including single windows for trade; and ease of doing business in trading across borders indicator.

Emma Veve is the director of the Social Sectors and Public Management Division in the Pacific Department of ADB. The division is responsible for the following sectors and topics: (i) social development, (ii) public management and economics, and (iii) fragile and conflict-affected situations.

Previously, she was a principal economist in the Pacific Department responsible for macroeconomic monitoring, research, and regional programming for the Pacific. She also worked with ADB’s Pacific Subregional Office in Suva, Fiji.

She joined ADB in 2005 following a stint as economic adviser with the Pacific Islands Forum Secretariat in Suva, Fiji. Prior to this, she held various positions in the Australian commonwealth public service, predominantly in economic research. She completed a double degree in agricultural science and economics at the University of Queensland, Brisbane, Australia, and holds a master’s degree in economics from the University of New England, Armidale, Australia.
Ronald Antonio Butiong holds a master’s degree in Mathematics from Louisiana State University, United States and Bachelor’s degree in Applied Mathematics from De La Salle University, Philippines, where he graduated magna cum laude. He also holds a Certification in FEBTC – Executive Development Program from the Asian Institute of Management, Philippines. Prior to joining ADB, he was a long-term consultant responsible for various technical assistance projects promoting subregional cooperation in ADB’s developing member countries. He also coordinated the activities of ADB-assisted economic cooperation program for the Greater Mekong Subregion (GMS). He joined ADB in February 2004 as Programs Specialist–GMS in the former Mekong Department. He was promoted to programs economist in June 2005 and, following a reorganization in 2006, was re-designated as economist (regional cooperation) in the Southeast Asia Department. He led the organization of the Third GMS Summit in Vientiane in 2008—the only summit where the GMS leaders signed a joint declaration and adopted the Vientiane Action Plan. He progressed to senior regional cooperation specialist in June 2008 and transferred to the former Central and West Asia Country Coordination and Regional Cooperation Division as Head, Central Asia Regional Economic Cooperation Unit in February 2010. Mr. Butiong has extensive background in regional cooperation and integration and solid experience in country programming and operations.
Alfredo Perdiguero is the director of the Regional Cooperation and Operations Coordination Division in the Southeast Asia Department of ADB. He has worked in Southeast Asia for the last 20 years, and has broad exposure, deep knowledge, and extensive work with ADB on regional cooperation and integration issues in the Association of Southeast Asian Nations (ASEAN), the Brunei Darussalam–Indonesia–Malaysia–Philippines East ASEAN Growth Area, and the Indonesia–Malaysia–Thailand Growth Triangle, and the Greater Mekong Subregion. Mr. Perdiguero also acts as the administrator of the ASEAN Infrastructure Fund, the largest initiative of the ASEAN in its history based on the member countries’ funding contributions.

Prior to joining ADB, Mr. Perdiguero was an economist in the Delegation of the European Union to South Africa. He also worked as a trade specialist in the Spanish Embassy in Egypt and in several nongovernment organizations in Latin America. He has been a lecturer in universities in Madrid, Spain; and at the Graduate School of European Studies of the Ateneo de Manila University. His career spans the private sector, government, and the academia.

Safdar Parvez has 25 years of experience, including 17 years at ADB. He holds master’s degrees in Economics from Cambridge University, and Quaid-i-Azam University, Pakistan and a Bachelor of Economics from Government College, Pakistan. Prior to joining ADB, he was a program manager/economist at Aga Khan Rural Support Programme, Pakistan where he conducted policy research and analysis, and led overall direction for strategic planning, particularly in areas of growth, equity, and sustainability. He joined ADB in June 2002 as programs officer in the Pakistan Resident Mission. He was appointed as an economist in mission in July 2007 and was later assigned to the ADB Headquarters in the Central and West Asia Department’s Operations Coordination Division in July 2010. In October 2012, he transferred to the Strategy and Policy Department on a promotion as senior planning and policy economist and was promoted to principal planning and policy economist in April 2015. He was appointed director for Central and Asia Department’s Regional Cooperation and Operations Coordination Division in November 2016.
Mr. Parvez has been the team leader for a number of strategy reforms and initiatives, such as the midterm review of ADB’s Strategy 2020, ADB’s approach to engagement with upper-middle-income countries, and reform of ADB’s country partnership strategy business process, and was a lead member of the team that prepared the Strategy 2030. He has also headed the preparation of country partnership strategies for Kazakhstan, Pakistan, and Uzbekistan. Since assuming his current position, he has steered the formulation of the CAREC 2030 Strategy, the new long-term strategic framework for the CAREC Program leading up to 2030 and supervised and taken charge of economic and sector work and the preparation of country partnership strategies. His extensive knowledge and experience in the Central and West Asia region and his operational and research background serve ADB’s knowledge and regional cooperation work in the region.

Behrooz Gharleghi is a senior researcher at the DOC Research Institute in Berlin, Germany. Previously, he was an affiliate professor at the Pontificia Universidad Católica del Perú. His main areas of research are economic development, and monetary and financial integration. He has published several articles in his field and is currently working on a joint project on the Eurasia Integration Index.
Rolando Avendano is an economist at the Economic Research and Cooperation Department of ADB. His research focuses on financial and international economics, with emphasis on regional integration, competitiveness, and Asia’s impact on emerging economies. Prior to joining ADB, he worked for the Organisation for Economic Co-operation and Development (OECD) in Paris, France. He was partnership coordinator of PARIS21 (OECD Statistics and Data Directorate), economist with the Director’s Office and the Americas Desk (OECD Development Centre), and research associate with the OECD Trade Directorate and Economics Department. Previously, he was a lecturer at the Engineering Faculty of the University of Los Andes (Colombia), and research associate at University College London (UK). A French and Colombian national, he holds a BSc in Industrial Engineering from the University of Los Andes and a master’s degree and a PhD in Economics from the Paris School of Economics.
New Approaches to Measuring and Assessing Regional Cooperation and Integration

Workshop Highlights

Regional cooperation and integration (RCI) is pivotal to enhancing economic growth, financial stability, and social inclusion and important for tackling poverty and enhancing institutional stability. Better RCI measures can allow researchers and policy makers to assess the costs and benefits of RCI policies in greater detail. This publication presents highlights of the sessions during the Asian Development Bank's workshop on regional cooperation and integration held on 16 and 17 April 2020. The workshop gathered academics, policy makers, and regional and international organizations to discuss relevant approaches to measuring RCI and its implications for policy assessment.

About the Asian Development Bank

ADB is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty. Established in 1966, it is owned by 68 members—49 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.