ASIAN ECONOMIC INTEGRATION REPORT 2023

TRADE, INVESTMENT, AND CLIMATE CHANGE IN ASIA AND THE PACIFIC

FEBRUARY 2023

ASIAN DEVELOPMENT BANK

ADB

ASIAN ECONOMIC INTEGRATION REPORT 2023

TRADE, INVESTMENT, AND CLIMATE CHANGE IN ASIA AND THE PACIFIC

FEBRUARY 2023

ASIAN DEVELOPMENT BANK

ADB

6 ADB Avenue, Mandaluyong City, 1550 Metro Manila, Philippines
Tel +63 2 8632 4444; Fax +63 2 8636 2444
www.adb.org

ISBN 978-92-9270-031-7 (print); 978-92-9270-032-4 (electronic); 978-92-9270-033-1 (ebook)
Publication Stock No. TCS230031-2
DOI: http://dx.doi.org/10.22617/TCS230031-2

Notes:
In this publication, "$" refers to United States dollars, "€" refers to euros, "B" refers to baht, "NZ$" refers to New Zealand dollars, "SLRs" refers to Sri Lanka rupees, "SUM" refers to sum, and "Tk" refers to taka.

ADB recognizes "Brunei" as Brunei Darussalam; "China" as the People's Republic of China; "Hong Kong" as Hong Kong, China; "Korea" and "South Korea" as the Republic of Korea; "Kyrgyzstan" as the Kyrgyz Republic; "Russia" as the Russian Federation; and "Vietnam" as Viet Nam.

Cover design by Erickson Mercado.

All masthead photos are from ADB.

CONTENTS

TABLES, FIGURES, AND BOXES

TABLES

FIGURES

BOXES

FOREWORD

The COVID-19 pandemic, economic consequences of the Russian invasion of Ukraine, persistent geopolitical tensions on the trade and technology fronts, and growing investor jitters over high inflation and interest rates have created a challenging environment for governments to navigate a path toward inclusive and resilient recovery. Meanwhile, climate change is one of the biggest threats to achieving sustainable development. While climate goals are ambitious, difficulties in reaching global consensus on how to achieve them only add to concerns about how to rebuild economies on a sustainable footing.

Against this backdrop, the *Asian Economic Integration Report 2023* highlights the power of regional cooperation as a force for inclusive, resilient, and sustainable economic development. Despite continued disruption to economic activities, regional trade and cross-border investment demonstrate strong resilience. The reopening of borders is slowly allowing tourism to pick up speed, even as international arrivals remain well below pre-pandemic levels. However, more can be done to strengthen international trade and investment. Regional value chains remain tilted toward low value-added, low-tech sectors, while services trade continues to face regulatory hurdles. Broadening gains from digital trade requires better coordination to build coherent and comprehensive regulatory regimes across borders. These challenges underscore the need to intensify regional cooperation, including through implementing trade and investment agreements.

The report's theme chapter highlights the structural role of trade and investment in Asia and the Pacific in the fight against climate change in the context of Asia's fast-paced industrialization contributing significantly to global carbon emissions. At the same time, the region is more vulnerable to climate risks than any other part of the world. Carbon dioxide emissions from the region have tripled since 1995 and now account for half of global emissions. That scale of carbon output and Asia's position as a net exporter of emissions to the rest of the world puts the region on the frontline of climate change. The report stresses, however, that the right mix of policies and governance systems can make trade and investment an important part of the climate solution.

Regional and international cooperation in trade and investment are essential for tackling climate change and greening the global economy. The Asia-Pacific Economic Cooperation-led environmental goods list, intended to shepherd tariff reductions among members, is a good example of how regional commitments can advance global cooperation.

Policy makers can further support climate action by facilitating trade in environmental goods and services such as solar panels, wind turbines, and wastewater management that can improve resource efficiency and technology transfer. Efforts to support green business are also crucial for building a sustainable production and trading system, and reinforcing environmental and climate change chapters in free trade agreements and investment treaties is pivotal for decarbonizing trade and investment. Fostering innovative and flexible instruments to foster international carbon markets offers unique opportunities for reducing global carbon dioxide emissions and leakages across borders, especially when establishing and linking national emission trading systems based on concerted efforts by policy makers and stakeholders are emerging as a feasible solution.

I hope this report will encourage more discussions on how the region can make concerted efforts to tackle pressing climate issues, advance green trade and investment, and support economic recovery through stronger regional cooperation and voluntary compliance.

Albert Park
Chief Economist and Director General
Economic Research and Regional Cooperation Department
Asian Development Bank

ACKNOWLEDGMENTS

The Asian Economic Integration Report (AEIR) 2023 was prepared by the Regional Cooperation and Integration Division (ERCI) of the Asian Development Bank's (ADB) Economic Research and Regional Cooperation Department, under the overall supervision of ERCI Director Cyn-Young Park. Jong Woo Kang coordinated overall production assisted by Mara Tayag. ERCI consultants under Technical Assistance 6753: Asian Economic Integration: Building Knowledge for Policy Dialogue, 2021–2022 (Subproject 2) contributed data compilation, research, and analysis.

Contributing authors include Sanchita Basu-Das, Rolando Avendano, and Ryan Jacildo, with data support from Pilar Dayag and Lovely Ann Tolin (Regional Cooperation for Transformative Economic Recovery); Jong Woo Kang, Pramila Crivelli, Joshua Anthony Gapay, Kevin Daniel Quizon, Donna Faye Bajaro, and Gerald Gracius Yee Pascua (Trade and the Global Value Chains); Rolando Avendano, Clemence Fatima Cruz, Ryan Jacildo, John Lourenze Poquiz, and Lovely Ann Tolin, with data support from Kristine Anne Gloria (Cross-Border Investment); Jong Woo Kang and Ana Kristel Lapid, with data support from Carlos Cabaero (Financial Integration); and Kijin Kim, Sanchita Basu-Das, and Ma. Concepcion Latoja, with data support from Pilar Dayag and Zemma Ardaniel (Movement of People). The chapter "Updates on Subregional Cooperation Initiatives" was consolidated by Paulo Rodelio Halili, with data support from Pilar Dayag and based on contributions by regional departments in ADB: Central Asia Regional Economic Cooperation Secretariat including staff from the Regional Cooperation and Operations Coordination Division of the Central and West Asia Department and the Public Management, Financial Sector, and Regional Cooperation Division of the East Asia Department (Central Asia Regional Economic Cooperation subsection); Greater Mekong Subregion (GMS) Secretariat (GMS subsection); Regional Cooperation and Operations Coordination Division, Southeast Asia Department (Brunei Darussalam–Indonesia–Malaysia–Philippines East ASEAN Growth Area and Indonesia-Malaysia-Thailand Growth Triangle); Thiam Hee Ng, Dongxiang Li, Lani Garnace, and John Mercurio of the South Asia Department (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation); Thiam Hee Ng, Tadateru Hayashi, Pia Corrina Reyes, Esnerjames Fernandez, Jesusito Tranquilino, and Leticia de Leon of the South Asia Department (South Asia Subregional Economic Cooperation); Thiam Hee Ng, Dongxiang Li, Lani Garnace, and Subash Sharma of the South Asia Department (South Asian Association for Regional Cooperation); and Rosalind McKenzie and Cara Tinio of the Pacific Department (Pacific subsection).

Jong Woo Kang, Rolando Avendano, and Pramila Crivelli coordinated and contributed to the production of the theme chapter, "Trade, Investment, and Climate Change in Asia and the Pacific," with support from Mara Tayag. Background papers were provided by Emma Aisbett, Zemma Ardaniel, Sanchita Basu-Das, Wenting Cheng, Matthew Cole, Virender Kumar Duggal, Torsten Ehlers, Robert Elliot, Joshua Anthony Gapay, Bruce Jones, Jong Woo Kang, Kijin Kim, Jolly La Rosa, Christina Pak, John Lourenze Poquiz, Kevin Daniel Quizon, Wyatt Raynal, Prachi Srivastava, Shawn W. Tan, Mara Tayag, Lovely Ann Tolin, Lee White, Norihiko Yamano, and Liyun Zhang. Ricky Li, Joachim Monkelbaan, and Vesselina Ratcheva provided access to World Economic Forum's environmental regulations data and the Climate Trade Zero initiative. The theme chapter benefited from comments and suggestions provided by Lei Lei Song and the participants of the following workshops and events: "ADB Virtual Inception Workshop on Trade, Investment, and Climate Change in Asia" held on 2–4 March 2022; "ADB-ADBI Virtual Conference: Trade, Investment, and Climate Change in Asia" held on 20–21 July 2022; "AEIR 2023 Theme Chapter Internal Workshop: Impact of Trade and Investment on Climate

Change in Asia and the Pacific" held on 5 October 2022; and "Workshop: Asian Economic Integration Report 2023" held on 16 November 2022. The overall guidance and comments of ADB Chief Economist Albert Park on the theme chapter are gratefully acknowledged.

James Unwin and Eric van Zant edited the manuscript. Joseph Manglicmot typeset and produced the layout. Erickson Mercado created the cover design and assisted in typesetting. Tuesday Soriano proofread the report. Ana Kristel Lapid, Clemence Fatima Cruz, and Carol Ongchangco assisted in proofreading. Support for AEIR 2023 printing and publishing was provided by the Printing Services Unit of ADB's Corporate Services Department and by the Publishing and Dissemination Unit of the Department of Communications. Carol Ongchangco, Amiel Bryan Esperanza, Angel Love Roque, Marilyn Parra, Pia Asuncion Tenchavez, and Nanette Lozano provided administrative and secretarial support, and helped organize the AEIR workshops, launch events, and other AEIR-related webinars and briefings. Terje Langeland, with support from Lean Alfred Santos, of the Department of Communications coordinated the dissemination of AEIR 2023.

ABBREVIATIONS

ABEC	Almaty-Bishkek Economic Corridor
ADB	Asian Development Bank
AEIR	Asian Economic Integration Report
APEC	Asia-Pacific Economic Cooperation
ARCII	Asia Regional Cooperation and Integration Index
ASEAN	Association of Southeast Asian Nations
ASEAN+3	ASEAN plus the People's Republic of China, Japan, and the Republic of Korea
BCA	border carbon adjustment
BIMP-EAGA	Brunei Darussalam–Indonesia–Malaysia–Philippines East ASEAN Growth Area
BIMSTEC	Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
BIT	bilateral investment treaty
BOP	balance of payments
BRI	Belt and Road Initiative
CAREC	Central Asia Regional Economic Cooperation
CBAM	Carbon Border Adjustment Mechanism
CCESP	Climate Change and Environmental Sustainability Program
CDM	Clean Development Mechanism
CIT	corporate income tax
CO_2	carbon dioxide
COVID-19	coronavirus disease
CPIS	Coordinated Portfolio Investment Survey
CPTPP	Comprehensive and Progressive Trans-Pacific Partnership
CROP	Council of Regional Organisations of the Pacific
DTA	deep trade agreements
ECD	economic corridor development
ESCC	Energy Sector Coordinating Committee
ETM	Energy Transition Mechanism
ETS	emissions trading scheme
EU	European Union
FDI	foreign direct investment
FTA	free trade agreement
GCM	Global Compact for Safe, Orderly and Regular Migration
GDP	gross domestic product
GEA	green economy agreement
GHG	greenhouse gas
GloBE	Global Anti-Base Erosion
GMS	Greater Mekong Subregion
GVC	global value chain

HFTC	highly facilitated trade corridors
HS	Harmonized System
ICT	information and communication technology
IIA	international investment agreement
IMF	International Monetary Fund
IMT-GT	Indonesia–Malaysia–Thailand Growth Triangle
ISDS	investor–state dispute settlement
ISO	International Organization for Standardization
IT	information technology
JSI	joint statement of intent
km	kilometer
LAC	Latin America and the Caribbean
Lao PDR	Lao People's Democratic Republic
M&A	merger and acquisition
MC12	12th Ministerial Conference of the World Trade Organization
MNE	multinational enterprise
MOU	memorandum of understanding
MRA	mutual recognition agreement
MVNO	mobile virtual network operator
NAICS	North American Industry Classification System
NPL	nonperforming loan
NTB	nontariff barrier
OECD	Organisation for Economic Co-operation and Development
PRC	People's Republic of China
R&D	research and development
RCEP	Regional Comprehensive Economic Partnership
RED II	EU Renewable Energy Directive II
RIF	Regional Investment Framework
RTA	regional trade agreements
RVC	regional value chain
SAARC	South Asian Association for Regional Cooperation
SASEC	South Asia Subregional Economic Cooperation
SDG	Sustainable Development Goal
SEZ	special economic zone
SME	small and medium-sized enterprise
SO_2	sulfur dioxide
SRMTS	SAARC Regional Multimodal Transport Study
$TECO_2$	carbon dioxide emissions embodied in international trade
TVET	technical-vocational education and training
UK	United Kingdom
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
USP	University of the South Pacific
VCM	voluntary carbon market
WTO	World Trade Organization

HIGHLIGHTS

- **Regional integration in Asia and the Pacific is progressing steadily.** Regional integration, as measured by the Asia-Pacific Regional Cooperation and Integration Index, has progressed steadily over the past 15 years and remained stable in 2020 despite the pandemic. The Asia-Pacific Regional Cooperation and Integration Index subindexes such as trade and investment, infrastructure, and digital connectivity have been notably buoyant. Southeast Asia fares better than other subregions in the dimensions of trade and investment, money and finance, infrastructure and connectivity, institutional arrangements, and people and social dynamics. Looking ahead, it is critical to deepen regional cooperation to address pressing climate challenges and advance trade and supply chain resilience, the digital economy, and sustainable tourism recovery. With Asia's growing role in the fight against climate change, regional cooperation is vital for decarbonizing its production, and trade and investment.

Trade and Global Value Chains

- **Asia's trade growth remains strong, but headwinds are increasing.** After the strong rebound in 2021 pushed Asia's merchandise trade volume 11.3% higher than its pre-pandemic level, growth in trade has moderated in 2022. More recent high frequency data such as container freights and packing indexes as well as new export orders of global manufacturing purchasing managers point to a slowdown in the region's trade growth momentum. Tightening monetary policies to contain inflationary pressures in many advanced economies are affecting external demand and do not bode well for the region's exports. Overall, Asia's trade is more correlated with industrial production cycles inside and outside the region than with consumer confidence, reflecting the region's trade structure, which relies more heavily on intermediate goods exports (57% of Asia's total exports in 2021) and imports (70% of Asia's total imports in 2021) than on consumer goods.

- **Regional trade integration continues to deepen, although regional value chain linkages remain focused on less sophisticated sectors.** The region's intraregional trade share declined slightly to 58.2% in 2021 from 58.5% in 2020, which is higher than the average of 57.4% between 2015 and 2019. Whereas the European Union (EU) and North American intraregional trade shares have stagnated over the past 3 decades, Asia's has grown steadily, in part due to the weight of the People's Republic of China (PRC). While both Asia's global value chain and regional value chain (RVC) participation rates rose in 2021, its RVC relies more on simple networks—production involving border-crossing once—than complex ones. Likewise, its RVC displays stronger linkages in primary and low technology sectors than in high technology and business services, suggesting the possibility of cultivating closer value chain linkages in high value added, high technology sectors. Recent trade cooperation and liberalization momentum offered by the Regional Comprehensive Economic Partnership and other bilateral and regional trade agreements are expected to help deepen RVC linkages, laying the groundwork for regional production and trade to become more resilient to global shocks. The region's growing interest in establishing digital trade rules on the free flow of data across borders can also promote innovation, competitiveness, efficient value chains, and economic growth.

- **Regional cooperation is crucial to prevent harms from export bans and trade restrictions on food and energy prices.** Commodity price surges, prompted by the Russian invasion of Ukraine, have moderated lately. Export bans on food commodities such as wheat, corn, and palm oil have exacerbated food price inflation, and dozens of such restrictions are still in place. Weakening local currency values through 2022 also added to the pains of growing import bills for the major food and energy importers of the region. Food and energy price increases have varying impacts on Asian economies, depending on their status as a net importer or exporter, as well as the scale of their import bills and export revenues relative to economic size. Unlike crude oil and natural gas, major food importers are among the poorest economies in the region. To mitigate food security risks posed by supply shocks and logistical hurdles, policy makers should strengthen international cooperation to eliminate trade restrictions and streamline commodity supply chains, promote trade facilitation, and cultivate alternative transportation routes.

Cross-Border Investment

- **Global foreign direct investment (FDI) flows to Asia and the Pacific continue to recover to pre-pandemic levels.** Based on balance of payments data, inward FDI expanded by 64.3% in 2021 worldwide—nearly 7% higher than in 2019. FDI to Asia and the Pacific recovered in 2021, up 19.1% from 2020, accounting for 40% of global inward FDI in 2021, and down from 55% in 2020. The PRC remains the top destination for global FDI in Asia, followed by Hong Kong, China and Singapore. Firm-level data similarly highlight Asia's resilience in attracting FDI. Greenfield investment to the region grew a modest 0.8% in 2021 after declining 40.9% in 2020, while the value of mergers and acquisitions recovered by 10.1% after a 10.0% loss. Recent years have seen greenfield investments increase in other business activities besides manufacturing. From 2003 to 2021, the share of greenfield investment in Asia increased in activities such as electricity (from 4% to 13%), and information and communication technology and internet infrastructure (from 1% to 4%), while contracting in extraction activities (from 11% to 2%). Meanwhile, outward investment from Asia recovered by 15.2% in 2021, based on balance of payments data. Japan and the PRC remain the largest sources of FDI from Asia. Having been robust in 2021, FDI flows may subside in 2022, given the uncertain global environment. FDI to Asia is likely to remain resilient as the region attracts FDI from a more diversified pool of investors. Investment chapters in new megaregional agreements, such as the Regional Comprehensive Economic Partnership, may complement efforts to promote investment.

- **Tax incentives for foreign investment ought to be reexamined amid changes in international tax rules.** Corporate income tax (CIT) incentives are a significant component of investment packages, in the form of instruments such as tax rate reductions, tax holidays, investment tax allowances, and tax credits. In Asia, CIT incentives represented 50% of all tax-related investment measures from 2011 to 2021. While well-targeted, nonredundant tax incentives can foster new industries and support firms during downturns, they can also be costly and reduce the tax base. While CIT accounts for 21% of tax revenues in developing Asia, the estimated foregone revenue related to CIT measures in economies where information is available is about 2.2% of tax revenues—and can be as high as 5.8%. New global tax rules will limit tax competition and offset the use of tax incentives for foreign investment in the future. Economies in the region need to reassess their incentive structures accordingly and exercise caution when considering new ones. Greater premium can be placed on regulatory incentives that favor certain projects or sector characteristics. Cross-border cooperation will be critical for the region's effective adoption of global tax rules while balancing the use of tax incentives, and for designing appropriate incentives to encourage investment in key areas including green industries.

Financial Cooperation

- **Growing uncertainties in global economic growth prospects and worsening financial conditions could put pressure on capital inflows and local currencies.** Nonresident portfolio inflows of debts and equities rebounded strongly after plunging in March 2020 during the onset of the pandemic, and remained robust throughout 2021. Since the United States (US) Federal Reserve System's first interest rate hike in March 2022, however, net nonresident portfolio inflows turned negative although the scale of the net outflows are still relatively mild. Regional currencies have also seen a decline in their value relative to the US dollar. Stock market performances have been lackluster in 2022, reflecting tightening liquidity and financial conditions and a slowing economy. Debt-to-gross domestic product ratios across sovereign, corporate, and household sectors increased post-pandemic in many regional economies. Given the heightened financial uncertainties, policy makers need to remain vigilant in monitoring financial market conditions and guarding against a buildup of systemic risks and potential spillover effects. If financial uncertainty and evaporation of dollar liquidity trigger sharp exchange rate volatility, it could have negative impacts on balance sheets and debt management. Therefore, regional financial safety nets, such as the ASEAN+3's Chiang Mai Initiative Multilateralisation, need to be strengthened to provide a backstop in case of liquidity and balance of payment crunches. The ASEAN+3 Multi-Currency Bond Issuance Framework, a policy program under the Asian Bond Markets Initiative, could promote common bond issuance in the region based on a regionally standardized framework.

- **Asia's financial integration has progressed steadily.** Intraregional inward portfolio debt ratio increased to 29% in 2021, from 28% in 2017, while the inward equity ratio rose to 21% from 18%, and cross-border bank loan and deposit inflow ratio grew to 38% from 37%. Stronger regional financial integration could help recycle a greater portion of regional savings into regional investments. Growing financial interconnectedness, however, has also highlighted the risks of cross-border spillover and contagion effects, which might be triggered by regional shocks and financial distress. Economies in the region could strengthen an array of safety nets, such as their international foreign exchange reserves, bilateral swap arrangements, and regional financial arrangements such as the Chiang Mai Initiative Multilateralisation. Policy measures to help cushion impacts from global and regional shocks could include temporary capital flow management and foreign exchange measures, and macroprudential arrangements.

Movement of People

- **As more borders reopen and travel requirements ease, outbound migration from Asia and the Pacific continues to increase.** Asian migrants resumed emigration to major host economies where labor demand is improving, such as in the Middle East, North America, some European economies, and Oceania. In 2022, the aftermath of the Russian invasion of Ukraine aggravated the condition of Central Asian migrants, while the subregion experienced a sudden large jump in inflow of skilled Russian workers and businesses seeking safety. While work visa issuance in major developed host economies has yet to recover, labor shortages and demand for more high-skilled workers could open more opportunities for Asian migrants. Regional cooperation initiatives need to aim at improving international migration governance frameworks to uphold the tenets of the Global Compact for Migration, including migrant rights, cooperation and partnerships, and socioeconomic well-being. These could drive and sustain global recovery and revitalize the development impact of international migration.

- **Remittance inflows display resilience alongside rising relative economic contribution.** Inflows to the region recovered with a 3.4% growth in 2021, reaching $325.5 billion, after a 1.9% dip in 2020. Since 2019, remittance inflows also overtook tourism receipts as the second-largest type of financial inflow following net FDI inflows. Except for East Asia and Oceania, remittance inflows to Asian subregions improved in 2021, bolstered by recovery in major host economies in North America, the Middle East, and Europe. In 2022, the Russian invasion of Ukraine led to large money transfers from the Russian Federation to Central Asia, accompanied by Russian workers and companies. The average cost of sending $200 to Asia was 5% in the second quarter of 2022—still higher than the Sustainable Development Goal target of 3% by 2030. Advancing knowledge transfer on digital financial platforms, promoting greater transparency, and improving the remittance infrastructure could help lower remittance costs. An enabling legal and regulatory environment could also contribute to cross-border interoperability and further promote formal remittance channels.

- **Tourism recovery has picked up speed, but the level of international tourist arrivals remains much below the 2019 level.** International tourist arrivals in Asia and the Pacific rose 399% year-on-year for the first 8 months of 2022, but only to about 10.3% of the pre-pandemic 2019 numbers. Among the subregions, Southeast Asia reached 20% of the pre-pandemic level, while Central Asia and South Asia touched 50%. The variation is largely driven by differences in the pace of border reopening, public health protocols, and people's confidence in overseas travel. The PRC's zero-COVID policy held back the tourism recovery in East Asia. The Russian invasion of Ukraine also continued to pose a downside risk to Asian tourism—a potential loss of about one-third of the Russian Federation's outbound tourists, especially to the PRC, Thailand, and some Central Asian economies. Higher fuel prices translating to higher airfares and travel expenses, alongside weak global growth prospects, are dampening the recovery momentum. Experts foresee the global tourism sector rebounding to 2019 level by 2024. For post-pandemic recovery, economies in the region need to look at several policy options to build sustainability and resilience while addressing pre-pandemic challenges that include narrow source markets, mass tourism, lack of infrastructure, and high informality. While some policy options can be developed at the national level, greater regional cooperation is needed to deal with the prolonged challenges.

Theme Chapter: Trade, Investment, and Climate Change in Asia and the Pacific

- **Asia and the Pacific is one of the most vulnerable regions to climate change risks yet emits the largest volume of carbon dioxide.** Annual temperatures have risen faster in the last 30 years than in any other region, and are now 0.86°C above the 1981–2010 average. Asia is also increasingly facing more extreme precipitation incidences such as storms, floods, and landslides, having borne the brunt of almost 40% of disasters worldwide in the past 2 decades. Ironically, it is responsible for about a half of global annual carbon dioxide (CO_2) emissions.

- **CO_2 emissions embodied in Asia's production increased sharply, surpassing its demand.** Emissions embodied in production in the region have almost tripled since 1995, largely reflecting the unparalleled pace of economic growth and manufacturing to satisfy demand, both within the region and in export markets. Massive global demand for manufacturing goods, including carbon intensive ones, may not have been met without Asia's rapid expansion of production capacity, which also increased CO_2 emissions as a byproduct. Rapid growth has involved heavy resources consumption in the production of goods, with manufacturing's share now exceeding 20% of gross domestic product, which is higher than the 11% share in the US and 15% share in the EU. Asia's fast incorporation into the global value chain through industrialization, while helping promote economic growth and prosperity, has also contributed to this

byproduct. Asia's CO_2 emissions embodied in production have grown much faster than the consumption side, with the region exporting CO_2 emissions to the rest of the world.

- **Many Asian economies are net exporters in their CO_2 emission balances with developed economies in Europe and North America.** In 2019, Asia's production-based CO_2 emissions were 17.2 giga tonnes. After exporting 4.5 giga tonnes and importing 3.5 giga tonnes, the region consumed 16.2 giga tonnes of CO_2 emissions. This left a 1.0 giga tonne positive CO_2 emissions balance for the region. Total CO_2 emissions from gross exports have risen almost threefold over 20 years although the trajectory has moderated recently. The region's CO_2 emissions from gross exports had overtaken Europe's in 2003, led by East Asia. On the other hand, Asia's total CO_2 emissions embodied in gross imports have risen more slowly than for exports over those years.

- **Better emissions-reducing technology, stricter environmental regulation, and growing environmental consciousness have moderated the emissions intensity in Asia's production and exports over the past 2 decades.** However, Asia still records the highest CO_2 emission intensities in both production and exports. This is partly due to the region's industrial structure, with high shares of traded products coming from carbon intensive industries. The share of carbon intensive exports in Asia was 62.3% in 2018, while it was 40.2% for the EU plus the United Kingdom, and 37.3% for North America. The share of industrial inputs in Asia's total imports, at about 60%, was also higher than for other regions, reflecting a significant import share of intermediate goods for production in Asia rather than final consumption goods. The region's relatively high dependence on manufacturing compared with primary and services sectors also contributes to high CO_2 emissions. The effect of this factor is likely to diminish as more Asian economies develop and transition to more services-driven and digital economies.

- **There is room to improve Asia's low carbon competitiveness in high carbon intensive industries.** With economic size and industrial structure held constant as factors, many Asian economies demonstrate higher CO_2 emission intensity (emissions per output or export value) than the US and EU economies in such sectors as utility and basic metals. However, significant heterogeneity is apparent across economies. For example, some Asian economies would show lower emission intensity than developed economies even in some carbon intensive sectors. This is because economies can use different energy sources and production technologies.

- **Asia has attracted the largest share of global FDI in carbon intensive industries, but its share in global non-carbon intensive FDI is increasing.** Trends in Asia's greenfield investment reflect its role as a global manufacturing hub. On average, Asia hosted 33.1% of global carbon intensive FDI flows from 2008 to 2016, above industrialized regions such as North America (29.7%) and Europe (22.5%). East Asia and Southeast Asia host nearly three-quarters of the region's carbon intensive FDI, mainly in manufacturing, retail trade, mining, gas and oil extraction, and utilities. At the same time, the region lags only Europe as a destination for FDI in non-carbon intensive industries, accounting for 20% of global greenfield investment in these sectors. By source, intraregional FDI flows—investments from other Asian peers—also reflect an important shift. They make up about 45% of the carbon intensive investments in the region, followed by investments from North America (28.5%) and Europe (24%). Yet, participation from Asian investors in non-carbon intensive industries is growing rapidly, having tripled from 9.8% to 31.5% from 2008 to 2016, suggesting an encouraging shift in regional investment toward cleaner industries.

- **FDI into environmental goods and services is also growing in Asia.** The region's estimated share of greenfield FDI in environmental goods and services grew from 3.4% in 2005 to 11.4% in 2021, with a major share concentrated on renewable energies. Indeed, an average 41.6% of foreign investment in environmental goods and services was destined for solar electric power projects and 20.5% for wind electric power. This could facilitate the transfer of green technology from foreign investment and firms, which is crucial for the adoption of emissions abatement technologies.

Trade and investment policies should be part of the climate action

- **Trade and investment in environmental goods and services can help mitigate climate change.** Clean and renewable energy goods—such as solar panels and wind turbines—and resource-efficiency goods are critical to reduce greenhouse gas emissions. They encourage low-carbon production techniques and reallocate resources toward activities with low-emission intensities. Asia's trade in environmental goods is remarkable in this regard as it accounts for more than 40% of the global volume, both as exporter of renewables and importer of environmental management appliances, among other products. On the other hand, the region's environmental services trade lags far behind other regions, accounting for less than 2% of the global total, suggesting there is great room to develop and cultivate its industrial potential.

- **With better and more affordable access to green technologies, Asian businesses have a massive opportunity to improve resource efficiency while reducing their environmental footprint.** However, challenges remain in leveraging this promise. A narrow scope and lack of consensus on the definition of environmental goods, along with tariff and nontariff measures on environmental products in some Asian economies, limit the benefits. Promoting trade in environmental goods will require preferential treatment for a broader range of goods, including rapidly changing technologies in areas such as energy and resource efficiency. Further, a regional initiative to define and liberalize environmental services is imperative.

- **Interoperability of certification schemes and mutual recognition could be pathways to lower regulatory burdens and facilitate green trade.** Interoperability should be an essential component of nationally developed certification schemes. An important step toward this is the alignment of embedded emissions—emissions over the supply chain or parts thereof—accounting methodologies. Recent experience suggests that interoperability can best be supported through a modular approach to boundary definition for embedded emissions accounting. This will ensure that embedded emissions are calculated for distinct modules along the supply chain. Likewise, mutual recognition agreements (MRAs) for conformity assessment can also facilitate access to markets. MRAs can simplify the verification process by a specific conformity assessment body. Adoption of MRAs will help reduce redundant efforts and technical duplication, while ensuring much-needed convergence to encourage green trade.

- **Trade agreements can be useful for fostering climate policies, yet further progress needs to be made.** Environmental provisions in preferential trade agreements across the world have increased dramatically from 2 provisions per agreement on average in 1990 to 87 provisions in 2018. They have been important in removing barriers to climate-friendly goods, services, and technologies. Trade agreements also outline other areas for climate mitigation such as the use of alternative energy and net-zero goals. In addition, trade facilitation measures, in particular those promoting digitalization, can help reduce carbon emissions by increasing transparency, simplifying customs procedures, improving border agency coordination, and shortening delays at borders. Raising the coverage and depth of environment and climate change provisions or incorporating a separate chapter on climate change mitigation efforts into regional trade agreements can help ensure their effectiveness in achieving climate goals.

- **International investment agreements (IIAs) could also be better utilized to promote climate action.** With climate-related litigation on the rise, there is further scope to align IIAs with net-zero commitments. As it stands, the existing IIA network falls far short of effectively supporting climate goals. Less than 10% of bilateral investment treaties in Asia contain environmental and climate-related references. Most of them aim to reserve policy space for environmental regulation, prevent lowering environmental standards to attract investment, and encourage environmental cooperation. Empirical assessments show that the inclusion of environmental and climate-related references in bilateral investment treaties has a moderate but positive impact on non-carbon intensive FDI inflows.

As investment frameworks become more ambitious in their climate policy, economies could pursue introducing a model agreement or "opt in" mechanism—a multilateral agreement where economies can flexibly join to modify old agreements—which includes substantive standards on environmental protection and access to investor–state dispute mechanisms in climate-related cases. Further, Asian agreements could expand coverage to areas beyond environmental regulation to support climate mitigation, including market access for climate investment, green investment incentives, and investment facilitation in green industries.

- **New modalities of international cooperation are emerging to implement climate action in trade and investment. Novel and practical international green economy collaborations are looming.** These can help Asian economies accelerate actions on the identification, certification, and freer trade of green products, and facilitate innovation and green technology transfers. Memorandums of understanding and joint statements of intent could build the entry level framework. While being low-cost in terms of required resources with low risk involved (as they are generally not legally binding), they could be a step toward more ambitious collaboration (including legally binding agreements). Further, green economy agreement (known as GEA) offers an innovative, promising avenue for cross-border collaboration to tackle climate change by combining green industrial policy objectives with the depth, commitment, and legal standing of a formal agreement. Through GEA, economies could pursue deep regulatory collaboration and facilitate trading in environmental goods and services across borders, among other achievements.

- **Carbon pricing is crucial for curbing emissions efficiently.** Momentum is growing for the use of market-based mechanisms, either through a carbon tax or carbon pricing system. However, Asian economies have yet to seize the momentum fully. New measures such as border carbon adjustments also loom large—particularly in the EU. While the details of its implementation are yet to be finalized, the Carbon Border Adjustment Mechanism will likely have a negative impact on the welfare of developing economies. Potential controversies remain, surrounding possible conflict with the principle of voluntary mitigation efforts, inadequacy in capturing the global social costs of carbon emissions, and questions on World Trade Organization compliance. Economies with a high exposure of trade in emission-intensive industries could be affected more than others. Asian economies need to be monitoring developments closely and to take steps to mitigate risks under the changing trade environment.

- **A global approach could offer the best solution for the reduction of emissions and carbon leakages across borders.** An international framework on cross-border carbon measures or a global carbon pricing mechanism can help resolve deficiencies in unilateral approaches. While a fully functional international emissions trading system as outlined in Article 6.4 of the Paris Agreement may not be feasible in the short term, bottom-up approaches can build the foundations for a global carbon market. As an intermediate process, direct and indirect linking of existing emissions trading schemes can be more effective than fragmented approaches in reducing mitigation costs, limiting carbon leakage, and fostering convergence in carbon prices. Regional carbon market alliances can also further facilitate trade of carbon assets, increase transparency, and harmonize standards. Regional economies will need support to take full advantage of these opportunities. Technical assistance and capacity building could provide knowledge on different carbon market models and help employ the most efficient technical options for implementation.

Asian Economic Integration Report 2023

Trade, Investment, and Climate Change in Asia and the Pacific

This report shows how smart trade and investment policies, and regulatory cooperation in the Asia and Pacific region can help economies tackle climate change, recover from the pandemic, and support resilient and sustainable development. Analyzing topics including global value chains, investment, the movement of people, and regional cooperation initiatives, it outlines the economic and environmental challenges the region currently faces. It explores how trade and investment policies can support climate action and highlights why a joined-up approach is essential to help deepen the digital economy; strengthen supply chains; and foster greener businesses, markets, and trade.

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.

ADB

ASIAN DEVELOPMENT BANK
6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
www.adb.org