

SUMMARY OF ERIA RESEARCH PROJECTS 2020-2021

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Deepening Economic Integration

Setting International Rules on E-Commerce and Digital Trade

Lurong Chen

SUMMARY

Digitalisation is transforming the global economy, with Asian countries becoming more deeply involved. Policy restrictions on international trade and investment, such as non-tariff measures imposed on trade in goods and services, lack of effective competition laws, and restrictions on foreign direct investment, could reduce or even cancel out the potential benefits from adopting new technology and pose new challenges to global digital trade. Digitalisation has drawn attention to issues that need to be further addressed in global trade governance, such as data and privacy, consumer protection, competition policy, taxation, and so on. Trade agreements, ranging from bilateral treaties to multilateral trade agreements, increasingly play a critical role in promoting digital growth.

This project has two objectives. First, it examines the main viewpoints and arguments on digital trade governance, such as international trade and investment facilitation, cross-border data flow and storage, the use of artificial intelligence, privacy protection, consumer protection, intellectual property rights protection, competition, taxation, and cybersecurity, and their implications for East Asia and ASEAN.

Second, the study explores the (i) feasibility of setting new global norms that could narrow or fill the gaps existing amongst stakeholders and be widely accepted and implemented, and (ii) whether or how ASEAN and East Asian countries can find regional solutions based on common interests and collaborate on region-wide rule setting.

POLICY IMPLICATIONS

Policy insights and suggestions will be concerned with the following:

1. How can digital trade support Asia's long-term development interests? What priority issues, trends, and challenges should policymakers consider in facilitating digital trade, from national and regional perspectives?
2. Globally, what digital trade issues should the World Trade Organization cover? What are the possible rationales behind initiatives and arguments? How might the process affect

digitalisation and development in Asia in the long and short term? How should countries in ASEAN and East Asia defend their interests and contribute to global rule-setting on digital trade?

3. Data governance is fundamental to international governance of the digital economy. To facilitate digital trade, how can regional integration help Asian countries realise free data flow with trust, taking into account privacy, consumer protection, competition policy, taxation, cyber-security, and artificial intelligence?

GEOGRAPHIC SCOPE

ASEAN plus six countries

02 | Economic Integration

East Asian Integration: Goods, Services, and Investment

Lili Yan Ing, Shujiro Urata, Bernard Hoekman, Ken Itakura, Martin Richardson, and Shujiro Urata

SUMMARY

The growth of world trade has recently been stagnant; trade liberalisation is being challenged. The recent rise of anti-globalisation calls for better integration in East Asia. How should East Asia manage its openness? This book provides profound analyses on rules of origins, non-tariff measures, restrictiveness in services, and investment. The book gives insight into how East Asian countries should shape their trade, investment, and industrial policies. This book helps to answer what kind of a better integration it should be, and how East Asia can realise it.

POLICY IMPLICATIONS

1. Insights on integration in East Asia in goods, services, and investment.
2. Policy recommendations on successful negotiations and implementation of the Regional Comprehensive Economic Partnership.

GEOGRAPHIC SCOPE

East Asia and World

ASEAN Seamless Trade Facilitation Indicators and Trade Transaction Costs Follow Up Study Report

Dionisius A. Narjoko, Jaysa Prana, Firman Bunyamin, and Wee Chian Koh

PARTNER ORGANISATIONS

University of Illinois at Urbana-Champaign, Ministry of Finance of the Republic of Indonesia, Centre for Strategies and Policy Studies

SUMMARY

During the 23rd ASEAN Economic Ministers Retreat, the ministers set a goal of reducing by 10% trade transaction costs in the region by 2020. To implement this goal, the ASEAN Trade Facilitation Joint Consultative Committee (ATF-JCC) set an objective of developing a more effective tool for measuring trade facilitation in the ASEAN region. The primary aim of the tool was to give an indication of the overall trading environment, particularly ease of doing business at the regional and national levels.

Upon request from the ATF-JCC, the Economic Research Institute for ASEAN and East Asia (ERIA) developed an ASEAN-specific trade facilitation indicator called the ASEAN Seamless Trade Facilitation Indicators (ASTFI). The indicator is based on a questionnaire administered to trade-related government agencies in each ASEAN Member State (AMS). ERIA was also requested to develop an ASEAN-specific measure of trade transactions cost (TTC), with the intention of helping AMSs set quantifiable goals and monitor progress based on the results of the ASTFI. To calculate the TTC, ERIA proposed to measure the time it takes to complete border formalities and issue trade-related permits and licences, which was accepted by the ATF-JCC. Per the decision of the 10th ATF-JCC in January 2018 to calculate border formalities time, each AMS conducted a time release study (TRS) based on World Customs Organization methodology and adhering to the minimum scope agreed during the 28th Meeting of the Coordinating Committee on Customs in April 2018. The summary results of the TRS were shared with ERIA. Likewise, a time to permit approval survey developed by ERIA is used to collect information on the time it takes for government agencies to process requests for permits and licences.

The baseline ASTFI report was submitted to the ATF-JCC in July 2018 with recommendations for further improvement in the trading environment and reduction in TTC in the region. The TTC collected the data of the AMS time release study and surveyed major permit-issuing government agencies in AMSs to approximate the regional TTC and the bottlenecks in clearance processes. The baseline TTC report is being prepared for submission to ATF-JCC by the end of 2020.

OBJECTIVES

The objective of the ASTFI and TTC follow-up study report (ASTFI-TTC II) is to understand the trade facilitation environment and trade transactions cost in ASEAN in 2020. The results of ASTFI-TTC II, along with the results from the baseline ASTFI-TTC, will be used to keep track of progress in trade facilitation environment in the ASEAN region and measure the change in trade transactions cost in the region. ERIA will prepare a final report on ASEAN trade cost reduction to be submitted to ATF-JCC by July 2021.

POLICY IMPLICATIONS

The study was assigned by the ASEAN Economic Ministers to achieve the ASEAN's objective of reduction in trade facilitation cost. Policy implications therefore are the identified obstacles/challenges for the AMSs to reduce trade facilitation costs.

GEOGRAPHIC SCOPE

Brunei Darussalam and Malaysia

Economic Integration and Policy Priorities in a Strategic Policymaking Environment

Shiro Armstrong, Adam Triggs, Gordon de Brouwer, Peter Drysdale, Rebecca Sta Maria, Shujiro Urata, Yose Rizal Damuri, Danny Quah, Shankaran Nambiar, Vo Tri Thanh, Nguyen Anh Duong, Wisarn Pupphavesa, Amy King, and Dionisius Narjoko

PARTNER ORGANISATIONS

Australia–Japan Research Centre and Australia National University

SUMMARY

The United States and China, the two largest economies, are locked in a trade war and strategic rivalry that complicate international policy choices for the rest of the world. The multilateral rules-based economic order that East Asian economic integration and cooperation is built on is under threat. How can ASEAN and East Asian countries balance their security interests against their economic interests and avoid seeing them as a trade-off? And how can the countries individually and collectively broaden their policy options and deepen economic integration?

Economic policy was never separate from security considerations. The recipe for a secure country – a strong economy that is globally integrated through trade and investment and cooperation – has not changed. But economics and security are increasingly entangled in a way that is damaging to both, creating a dangerous trade-off and a negative feedback loop.

Economic exchange always involves risks, including national security risks and, sometimes, the possibility of coercion. Those risks have been managed and minimised under a US-led, multilateral, rules-based system that allowed decades of deepening economic ties, including between China and the rest of the world. The risks of international exchange rather than its benefits are beginning to dominate the calculus for some policymakers as global uncertainties have grown. There are three main reasons for this: the rise of China, the rise in protectionism in the US, and new technologies for which international rules do not exist.

This project takes up the issues raised in Research Institute Network (RIN) Statement No. 7, specifically to build an evidence base for understanding the new challenges to individual countries and the region as a whole. The idea of geo-economics has become widespread and can be defined as 'the use of economic instruments to promote and defend national

interests and to produce geopolitical results; and the effects of another nation's economic actions on a country's geopolitical goals'. The US–China strategic competition has led to the deployment of economic tools for geopolitical or security purposes by both the US and China. Other countries are following. But there is a lack of understanding of the implications for economic and security outcomes.

Policymakers are faced with increasingly difficult decisions around capturing the benefits of foreign investment, new technologies, and trade whilst balancing national security risks. Trade restrictions, banning exports of dual-use technologies, and restricting foreign investment and ownership have been typical responses that often do not have clear or transparent frameworks for assessing trade-offs. This research will be guided by developing a framework that helps understand the trade-offs between economics and national security. The project will be undertaken by economists who are in research institutions that are close to policymaking and have to be aware of security interests. The project will involve analysis of cooperative and regional strategies. This is a new research area and is of major significance for the economies of ASEAN and East Asia.

POLICY IMPLICATIONS

The conceptual models developed in the project and the country case studies will inform and lead to direct policy recommendations for countries pursuing national and regional strategies.

The project will develop policy recommendations that will answer the following questions:

1. How should countries think about the trade-off in economic and security policies? How can governments increase policy options and policy space to avoid binary choices of either economics vs. security; or China vs. the US?
2. What are some risk-mitigation strategies that countries can deploy to maximise the benefits of economic integration?
3. Can regional cooperation or institutions assist countries with better decision making?

GEOGRAPHIC SCOPE

ASEAN, Australia, China, India, Japan, New Zealand, South Korea

ERIA Study on the Feasibility of FTAs between Kingdom of Cambodia and its Trade Partners India and Mongolia

Dionisius A. Narjoko, Sothea Oum, Archanun Kohpaiboon, Ramonette B. Serafica, and Myrna Austria

PARTNER ORGANISATIONS

Centre for Strategy and Innovation Policy, Thammasat University, Philippine Institute for Development Studies, De La Salle University.

SUMMARY

In August 2020, the Kingdom of Cambodia requested the Economic Research Institute for ASEAN and East Asia (ERIA) to conduct a study on the feasibility of a free trade agreement (FTA) with India and Mongolia. ERIA agreed to support Cambodia by preparing a joint report on the potential impacts of FTAs between Cambodia and its FTA partners. The objective of the FTA feasibility study is to generate insight into the costs and benefits of the prospective FTAs, considering the current economic situation in Cambodia and its FTA partners.

The FTA feasibility study will utilise rigorous analytical techniques and available data to shed light on relevant issues such as current status of bilateral trading environment, including tariffs and non-tariff barriers to trade; the consequences of the reduction and/or elimination of tariffs on trade with FTA partners; structural adjustments in production and consumption; the potential to form new supply chains; and areas for mutual gain.

The FTA feasibility study will cover issues pertaining to trade in goods and selected services, and identify important sectors based on recent trends as well as input from the Cambodian government. The study will discuss how the FTAs may direct investment towards certain sectors. Supportive policies and reforms necessary to maximise the benefits from the FTAs will also be discussed.

POLICY IMPLICATIONS

Policy direction to maximise the benefits for Cambodia and its FTA partners whilst also discussing potential challenges to negotiation with the FTA partners.

GEOGRAPHIC SCOPE

Cambodia, India, Mongolia

13th ASEM Summit: Multilateral Cooperation for a Resilient, Sustainable, and Rules-based Future for Asia–Europe Meeting

Anita Prakash

PARTNER ORGANISATIONS

Ministry of Foreign Affairs, The Royal Government of Cambodia; New Zealand Institute of Economic Research, Wellington; International Trade Centre, Geneva; Clingendael Institute, The Hague; Friburg University, Friburg; University of Lausanne, Switzerland; National University of Singapore, Singapore; Ideacorp, Philippines; Asian Vision Institute, Cambodia

SUMMARY

The Asia–Europe Meeting (ASEM) is a unique cooperation initiative, with scope for transnational cooperation between member countries through regional and sub-regional activities. Since its inception in 1996, ASEM has played a key role as a forum for dialogue and cooperation in connecting Asia and Europe. ASEM is wide enough to accommodate global and intercontinental development priorities. And yet, it localises connectivity amongst member countries for partnerships for economic growth, trade and investment, quality infrastructure, skills development, education, sustainable development, and climate change. As the shadow of the COVID-19 pandemic holds sway in Europe and Asia, the hosting of the 13th ASEM in Cambodia assumes greater significance. This plenary study for Cambodia – the chair and host of the 13th ASEM Summit meeting – envisages an inclusive and prosperous growth pathway for the Asia–Europe region through multilateral cooperation and sustainable development.

Section 1 describes the concept, features, and plans with respect to Asia–Europe connectivity. Section 2 describes the most important links between Asia and Europe: trade, investment, and economy, highlighting the Asia–Europe region's preparedness for the digital economy from institutional, infrastructure, and regulatory policy perspectives. Section 3 is devoted to human development issues of gender, youth, and labour mobility. Section 4 covers the sustainable development experiences in Asia and Europe, with particular attention to energy, water management, and sustainability in connectivity plans. Section 5 concludes the study

and underlines the role of ASEM in supporting a multilateral order, and moving towards a sustainable, inclusive, and prosperous Asia–Europe region.

The study brings together scholars and practitioners from Asia and Europe who have shared their academic and practical wisdom in their chapters. The Deputy Prime Minister of Cambodia has acknowledged and approved the book. On his request, the book is being translated into the Khmer language, and both versions will be presented to leaders in the ASEM Summit in Cambodia in June 2021.

POLICY IMPLICATIONS

The study captures the unique role and vision of Cambodia as the host of the 13th ASEM, and the need to carry them into the 14th ASEM in Europe. The study promotes Asia's integration with Europe through physical, institutional, and social connectivity, in which multilateralism and support for global governance play an important role. The different sections of the book offer pathways for ASEM's vision of inclusive and prosperous Asia–Europe relations. Regional and sub-regional plans for physical connectivity, trade and investment, institutional and regulatory connectivity, enhanced capacities and skills, a common approach towards sustainable development goals, and participation in the digital economy are important pillars in this pathway. The theoretical basis for all the chapters is grounded strongly in actual country and/or regional experiences in the respective fields.

GEOGRAPHIC SCOPE

Asia, Europe

RELATED PUBLICATIONS

- Prakash, A (ed) (2018), *Brussels Report on Strengthening Asia Europe Connectivity : Drawing Synergy from Global Development and Governance Programmes*. Jakarta: ERIA. Downloadable from: <https://www.eria.org/research/brussels-report-on-strengthening-asia-europe-connectivity-drawing-synergy-from-global-development-and-governance-programmes/>
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- Prakash, A., M.O. Heijmans, W. Zweers, et al (2018), *ASEM Connectivity Inventory*. Jakarta: ERIA. Downloadable from: <https://www.eria.org/research/asem-connectivity-inventory/>

Regional Integration in Indo-Pacific: Connectivity, Cooperation, and New Economic Linkages

Anita Prakash

SUMMARY

In 2017, when the Economic Research Institute for ASEAN and East Asia (ERIA) was writing ASEAN Vision 2040, it was agreed that Asia-Pacific could not sufficiently represent current economic linkages in East Asia. Still, Indo-Pacific was not acceptable to many writers, as they believed it to represent security connotations, primarily led by the United States (US). The ASEAN 2040 settled for the Indo-Asia Pacific construct instead. However, in 2018, Japan's Prime Minister Shinzo Abe's speech at the UN's General Assembly changed the focus of economic linkages and cooperation in the region. Free and Open Indo-Pacific (FOIP) was emphasised as the platform of all economic cooperation and connectivity in the region, and between Asia–Africa and Asia–Europe. The Quadrilateral Security Dialogue or Quad was revived, bringing in the US as a major economic partner whilst underplaying its security focus, and actively engaging Australia and India, with ASEAN in the centre for greater economic linkages amongst the partners.

ASEAN too has brought out its ASEAN Outlook on Indo-Pacific, which was endorsed by the East Asia Summit in 2019. The ASEAN Outlook on Indo-Pacific recognises ASEAN's centrality in the new architecture of Indo-Pacific. The reality, however, is that the Indo-Pacific region is an economic construct along the Indian Ocean, in which several alternate plans and groups of countries are working on their mutual relations and combined strengths. The new plans aim to create new or alternative supply chains or strengthen the existing ones to address changing political and economic realities in Asia, and to accommodate the partners' interests from outside Asia.

Thus, the Indo-Pacific region requires greater connectivity – both in infrastructure and institution – and investments to realise several connectivity plans and supply-chain linkages proposed by member countries. The region is preparing for greater participation in the digital economy and must rapidly undertake digital transformation to remain engaged in the value chain of a more digitalised global economy. The study will cover the economic interlinkages in the Indo-Pacific region, especially covering the active promotion by governments of the infrastructure connectivity plans, trade, and investment facilitation frameworks in the region (AIJ, TLH, AAGC, MPAC, and the ASEAN ACRF). The study will map the diverse connectivity

plans and evolving supply chains in the region and with regions in Africa and the European Union, which contribute to the economic architecture in Indo-Pacific. The mapping exercise will bring out the interlinkages between apparently different plans and initiatives and draw out the underlying synergy in Indo-Pacific architecture. The facilitating and leadership role of governments in realising trade and investments, development of capacities, and promoting new supply chain linkages will be especially examined as this approach is different from the organic evolution of connectivity, capacity, and supply chain linkages in Asia-Pacific since the 1970s. This mapping and taxonomy of the policy-led economic architecture in Indo-Pacific will be helpful in understanding the cooperation amongst governments for new developing economic linkages through infrastructure development, investments, governance of the new value chains, and participation in digital economy in the region.

Existing literature and data on connectivity, digital economy, and supply-chain integration in the region will be used to map the infrastructure plans and projects and economic integration in the region. Trade and investment data sourced from ASEAN, Asian Infrastructure Investment Bank, United Nations Economic and Social Commission for Asia and the Pacific, etc. will be analysed to project the changing dynamics in investments, infrastructure, and supply chains.

POLICY IMPLICATIONS

Governments are taking more proactive role in the economic and strategic aspects of the regional architecture. New alignments are taking place in the form of physical, institutional, and strategic cooperation and connectivity plans. Trade and investment patterns are undergoing change, especially with the arrival of the digital economy. ASEAN and its dialogue partners need to make new inroads into regional value chains and production networks to benefit from changing patterns of investment and manufacturing, especially when participating in the global digital economy. To accomplish this, the study will cover the emerging economic architecture and supply-chain linkages amongst countries and regions in Indo-Pacific. It will especially bring out policy certainty from governments, especially for joint partnerships and bilateral and trilateral cooperation for connectivity and supply chains, investments and infrastructure development, the blue economy, and governance of and participation in the new digital economy. The study will delineate the international cooperation aspects of trade and investment and new pathways for development in Indo-Pacific.

GEOGRAPHIC SCOPE

Asia, Oceania, Pacific, Indo-Pacific

RELATED PUBLICATIONS

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SME Trade Finance

Rashesh Shrestha, Tony Cavoli, and David Christian

SUMMARY

Small and medium-sized enterprises (SMEs) in developing countries are excluded from international trade due to their inability to obtain trade finance, which governs 80% of international trade transactions. Access to finance deteriorates for a long time after large shocks such as the global financial crisis and the COVID-19 pandemic. While innovative financial products that leverage digital technology provide potential solutions to the trade finance gap, the same issues that excluded SMEs from traditional finance are a concern that will continue to hamper their access to trade finance in a more digitalised world, exacerbating digital inequality and fostering uneven economic growth. Furthermore, the barriers to trade finance could vary across countries, depending upon the existence (or lack) of relationships between key actors in the trade finance ecosystem comprising exporting firms, importing firms, government, large national banks, small local banks, and multilateral development banks. There is a need to gain a deeper understanding of the sources of the trade finance gap in each country, which will lead to fruitful international cooperation in devising country-specific solutions.

The specific solutions to the trade finance gap in developing countries depend on the source of the gap. In some countries, regulatory solutions may be required, as regulations that govern relationships between financial institutions domestically and across the border directly impact SMEs' ability to obtain trade finance. In other cases, greater funding from multilateral development banks to provide trade finance facilities may be needed to alleviate liquidity constraints of domestic banks. Likewise, finance providers in many developing countries may need capacity building to adhere to global financial rules such as anti-money-laundering measures. Only through a systematic assessment and quantification of various sources of the trade finance gap can we provide effective tailored solutions to developing countries.

POLICY IMPLICATIONS

Using an organising framework that focuses on relationships across these actors and using data to assess the strengths of these relationships, this research will shed light on the nature of the trade finance market for SMEs as well as major impediments to SMEs securing trade finance in emerging and developing economies of Asia. The research will focus on the types

of trade finance instruments required by SMEs, identification of factors that restrict access to those instruments, and policy options available to regulators to impact the trade finance landscape for those firms.

GEOGRAPHIC SCOPE

ASEAN, East Asia

03 | Globalisation

Services, Economic Liberalisation, and Global Production Value-Chain: Managing the Second and Third Stage Unbundling in East Asia

Fukunari Kimura, Christopher Findlay, Shandre Thangavelu, and Lurong Chen

PARTNER ORGANISATIONS

University of Adelaide

SUMMARY

The unbundling of production and economic activities in the global production value chain is critical for the development of East Asia and ASEAN countries. Recent evidence indicates that more developed ASEAN countries are moving from second to third stage of unbundling, where people-to-people linkages and activities will be the next stage of growth for manufacturing, services, and global production value chains (Baldwin, 2011; Kimura, 2018).

With the emergence of third-stage unbundling, in addition to the step-by-step unbundling currently observed in the regional global value chain, this project aims to observe 'leapfrogging' and 'feedback' effects in the global production value chain. With the development of stronger economic fundamentals, certain countries will enhance their unbundling effects and 'leapfrog' to higher stages of unbundling relative to other countries in the global production value chain. The study will observe 'feedback' effects from third-stage unbundling to second-stage unbundling, enhancing and improving competitiveness of lower-level countries in the global production value chain.

The main research themes include the following:

1. Extending the methodological framework developed from the Second Phase Services Supply Chain project in terms of identifying and mapping the international supply chain in services activities, in all the modes of supply. The study will develop and analyse the effects of second- and third-stage unbundling based on analysis of countries, sectors, and firms.
2. Understanding the economic structure and implications of second- and third-stage

unbundling on manufacturing and services for Regional Comprehensive Economic Partnership (RCEP) countries.

3. Examining the impact of emerging new services from second- and third-stage unbundling on (a) manufacturing, (b) value chains in services, and (c) the servicification of the ASEAN economies.
4. Identifying the industrial dynamism of countries to second- and third-stage unbundling in global production value chains as well as the industrial and development gaps of RCEP countries.
5. Identifying the key factors that contribute to the competitiveness of ASEAN members as participants in these supply chains and the drivers of the scope for 'upgrading', for productivity gains, and for labour markets.

POLICY IMPLICATIONS

The project will contribute to the key policy discussions on the development of services liberalisation and development of services supply chain.

1. The 'unbundling' effects in the global production value chain will be critical for developing forward-looking economic and industrial development strategies for ASEAN. Key recommendations from the study will be circulated as policy briefs for ASEAN government officials.
2. The research is expected to contribute to the understanding of the relationship of new technologies and global production value chains on competitiveness of the ASEAN countries.
3. The research will draw out the implications for supply chain activities and the implications of their development for regional multilateral trade agreements such as RCEP.
4. Services liberalisation will be crucial for regional integration and for a well-developed supply chain in goods and in services, which will allow countries at various development stages to participate effectively.
5. Because of the nature of international business in services, the project is expected to include treatment of investment and movement of people in cases where these factor flows are linked to transactions in other modes.

GEOGRAPHIC SCOPE

Australia, Japan, Republic of Korea, China, India, Indonesia, Malaysia, Thailand, Philippines, Cambodia, Myanmar, Lao People's Democratic Republic, Viet Nam

Global Market Entry, Survival, and Exit of Firms: Understanding the Process and the Effects

Chin Hee Hahn, Shujiro Urata, Dionisius Narjoko, Doan Thi Thanh Ha

SUMMARY

Firms play a central role in an economy's globalisation process. They make constant decisions on whether they will start being engaged in global activities by way of trade (exporting and importing, including participation in global value chains), foreign investment, research and development, and whether they will continue or cease these activities in case they are already globally engaged. It is of utmost importance, therefore, to have in-depth knowledge of this process not only to understand better the causes and consequences of globalisation, but also to devise appropriate policies in a broader strategy of globalisation.

A large number of studies have been conducted on this issue but much more remains to be learnt about this process. First, although standard monopolistic competition models of trade (possibly with heterogeneous firms) have clarified new channels of gains from trade (increased product varieties at lower price and reallocation of resources amongst firms), these models may be too simplistic to explain the global market entry of firms because they exclusively focus on firm productivity or marginal cost as a determinant of global market entry.

However, many other important factors may be determining firms' global market entry decision. More importantly, the process of global market entry may be much longer and more varied. (For example, the Republic of Korea military aircraft industry had taken steps – such as maintenance of imported aircraft, domestic production of some parts and components, licenced production of existing models, international collaborative development of new aircraft models – before it began exporting made-in-Republic of Korea military aircraft.) Second, understanding the process and determinants of survival in the global market or continuation of global activities is at least as important as a global market entry. Although there is a small but growing literature on this issue, there is room for further studies, particularly if the various pre-entry determinants and paths are related to post-entry survival and exit of firms.

This project aims to (i) clarify empirically the process and determinants of global market entry, survival, and exit of firms; and (ii) empirically evaluate the effects of globalisation on firm behaviour which go beyond the effects predicted by standard trade models.

POLICY IMPLICATIONS

Studies from this project could provide useful policy recommendations to support internationalisation activities of firms.

GEOGRAPHIC SCOPE

China, India, Indonesia, Japan, Republic of Korea, Malaysia, Viet Nam



Dynamics of Global Value Chains in Asia

Anita Prakash, Ben Sheperd

SUMMARY

The COVID-19 pandemic has tested the endurance of global value chains (GVCs) in Asia and other parts of the world. In many places, the production crisis and the health crisis became conflated. Putting the saving of lives over economic output has become the policy choice, resulting in severe shocks to production and demand.

The shocks and disruptions in GVCs have led businesses to consider diversification of investments and restructuring of supply chains. In the medium- and longer-terms, investments in manufacturing, and even research and technical cooperation, will encounter structural and geographical changes, in which new centres of production and consolidation and integration of supply chains in Asia, Africa, and Europe are likely to emerge. Geographically and industry-wise, change in investment patterns and GVCs has started to emerge in the past few years as shown by declining GVC integration since the global financial crisis, vertical integration in China resulting in companies in Asia moving supply chains to Southeast Asia, overall decline of value chain participation of Asian countries with China, and plateauing of China's trade with the United States (US), etc.

Several trade and investment policy announcements will affect production during the pandemic and incentivise investments in new centres of production and shortening of supply chains (distance and number or consolidation). This study asks the following: What have been the trends in investments in new centres of production in Asia? Are there noticeable variations in investment destinations in Asia and changes in value chains? What are important investment policies announced by important economies within Asia? What are policy announcements amongst external investors such as the European Union and the US that would signify changes in value chain linkages and integration with Asia? Is there an incentive for shifting investments in new GVCs and restructuring GVCs in the post-pandemic period? How are GVCs integrating within Asia and with outside partners? What are the factors that will influence GVC performance in post-pandemic recovery? What are the investment and capacity development strategies required for Asia's participation in digital economy value chains?

The policy recommendations will be presented to ASEAN and other dialogue partners through the research network.

POLICY IMPLICATIONS

The study will discuss the importance of investment linkages in the context of GVCs, links between relationship-specific investments by lead firms, and the resilience to shocks of a GVC. The study will plot recent trends in foreign direct investment (FDI) in Asia, using data from United Nations Conference on Trade and Development and Organisation for Economic Co-operation and Development. The study will discuss the role of micro, small, and medium-sized enterprises as second- or third-tier suppliers in GVCs, issues of domestic linkages, and the ability of firms to make local supplier linkages. The study will examine the impact of the COVID-19 pandemic on FDI and GVC development, underlining the initial tensions in key GVC sectors such as medical products, pharmaceuticals, and, potentially, food products. The study will also analyse subsequent supply responses, and investment patterns in manufacturing activities in selected economies highlighting the vertical integration in the value chains in Southeast Asia, South Asia, and China. Policy areas framing investment flows in major partner economies, particularly the EU, the US, and Japan, will be highlighted. Trade policy response to the COVID-19 pandemic will be reviewed using data from the Global Trade Alert. In digital economy value chains, the study will demonstrate if service GVCs or manufacturing GVCs with strong service components can promote growth in the same way as traditional manufacturing GVCs.

GEOGRAPHIC SCOPE

ASEAN, Asia, Europe, US



UK–ASEAN Trade: Strengthening the Supply-Chain Linkages

Anita Prakash, Alicia Garcia-Herrero, David Martinez Terragano

PARTNER ORGANISATIONS

ERIA; UK Mission to ASEAN; Department of International Trade, UK; Foreign Commonwealth and Development Office, UK; ASEAN Secretariat

SUMMARY

The UK's Department of International Trade and the UK Mission to ASEAN have requested the Economic Research Institute for ASEAN and East Asia (ERIA) to deliver this project. Its scope and objectives are developed jointly with ERIA.

This study will assess the resilience of trade before and during COVID-19 and its future pathways. Results will be analysed to draw lessons and recommendations for strengthening supply chains in ASEAN and between ASEAN and the UK. As the UK has applied for dialogue partner status with ASEAN, it will be important from a partnership perspective to assess the current strengths as well as the gaps in the supply-chain linkages and make suitable recommendations to both sides. The study will build on existing ERIA research projects on supply chains and those of partner research organisations. Authors from Asia-Pacific and Europe who specialise in the study of supply chains in East Asia and between Asia and Europe will contribute to the study. The ERIA survey on supply chains in ASEAN will complement the study by covering operations of UK firms in ASEAN and bring in survey results to complete the study.

Overall, research will cover the ASEAN and UK–ASEAN trade scenario and key ASEAN supply chains industries, including, but not limited to, healthcare, agriculture and agritech, digital trade, and green development and manufacturing to facilitate policy and roundtable discussions. The study will examine levels of trade in value added and assess the levels of integration in supply chains.

The UK Mission to ASEAN will seek to engage a UK partner, such as the UK–ASEAN Business Council, in supporting the research. This study will also be supported by the ASEAN Secretariat.

POLICY IMPLICATIONS

The research will analyse current UK–ASEAN supply chains (UK–ASEAN and UK firms operating intra-ASEAN) and trade flows, looking for areas and sectors of strength and areas for improvement. The research will utilise ERIA's survey results obtained from firms in the ASEAN region and in the UK.

The research results will be reported to the UK–ASEAN Economic Ministers meeting in 2021, the Brunei chair of ASEAN, and other ASEAN Member States to analyse trade within ASEAN and between ASEAN and the UK to establish where supply chains have been resilient, areas which require policy and resource support, and how to build supply networks in the post-COVID-19 economic recovery. The results will help strengthen and expand UK–ASEAN trade relations.

GEOGRAPHIC SCOPE

ASEAN, United Kingdom, East Asia, Indo-Pacific

RELATED PUBLICATIONS

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COVID-19 in Indonesia

Lili Yan Ing, Chatib Basri, Sudarno, Diny Ghuzini, Gunther Schulze, and others

SUMMARY

COVID-19's main long-term effect in developing and least-developed countries is rising poverty and unemployment. Governments around the world have launched major fiscal and monetary stimulus to overcome the pandemic. Still, implementation needs to be improved. The most important issue is how to revive trade and investment to maintain levels of employment. The Economic Research Institute for ASEAN and East Asia initiated a study on COVID-19 in Indonesia. The study will address the impacts of COVID-19 on the economy, how to mitigate the economic impacts of the pandemic, and the kind of fiscal and monetary stimulus that can revive trade and investment and maintain pre-pandemic levels of employment.

POLICY IMPLICATIONS

Insights for the Government of Indonesia in mitigating the economic impacts of COVID-19.

GEOGRAPHIC SCOPE

Indonesia



ERIA Research Project FY2020 on COVID-19

Dionisius A Narjoko, Anirudh Shingal, Ayako Obashi, Ben Shepherd, Charan Singh, Farhad Taghizadeh, Hai Anh La, Irlan Rum, Wasim Ahmad, Derek Gill, Esther N.S. Tamara, T. Yudo Wicaksono, Tri Mulyaningsih, Dandy Rafitrandi, Efsthios Polyzos, Marianna Sigala, and Chan Kim Lian

PARTNER ORGANISATIONS

Indian Council for Research on International Economic Relations, Aoyama Gakuin University, Developing Trade Consultants Ltd, Foundation for Economic Growth and Welfare, Tokai University, University of Canberra, Padjadjaran University, Indian Institute of Technology Kanpur, Foreign Policy Community of Indonesia, Mandiri Institute, Sebelas Maret University, Centre for Strategic and International Studies, Zayed University, University of South Australia, and Malaysia Sabah University.

SUMMARY

This project examines the impact of the COVID-19 pandemic from various points of view, covering many topics in economics and development for all ASEAN Plus Six countries. The project aims to produce academic papers and policy papers on the subject.

POLICY IMPLICATIONS

Various policy implications, most addressing the implications of the responses of countries to the pandemic for the post-COVID-19 scenario.

GEOGRAPHIC SCOPE

ASEAN Plus Six countries.

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Impact of COVID-19 Pandemic on ASEAN Member States: A Global Trade Analysis Project Simulation

Dionisius A. Narjoko and Ken Itakura

PARTNER ORGANISATIONS

Nagoya City University

SUMMARY

Originating in an outbreak in Wuhan, China, in early January 2020, COVID-19 quickly spread to other cities across the world in less than 3 months. The number of infected people soared from just under 50 cases in mid-January to 1.5 million cases by the second week of April. The epicentre of the disease has shifted to multiple countries, and the outbreak was finally labelled a global pandemic by the World Health Organization in mid-March 2020. Public health systems around the world are struggling to contain the extremely contagious disease, leading to a series of lockdowns and severe restrictions on public activities lasting several weeks.

One reason for the uncertainty is that there is no clear picture of how the disease will transform the global economy, which is characterised by production networks and interdependence, or whether it will alter the way the economy is run.

The study is motivated by this context, and aims to understand better how the pandemic affects the economies of ASEAN Member States. Understanding what is likely to happen is important to give insight on the kind of policy needed in the future, especially during the recovery from the pandemic.

POLICY IMPLICATIONS

The study provides insights on the direction of policy in the short and medium term.

GEOGRAPHIC SCOPE

ASEAN Member States

Manufacturing and Supply Chains after COVID-19 Pandemic

Dionisius A. Narjoko, Chandra Tri Putra, Widdi Mugijayani, P. Agung Pambudhi, Carlos Mangunsong, and Ainul Huda

PARTNER ORGANISATIONS

Australia National University, Presisi Indonesia, APINDO Research Institute, Daya Teknologi Strategi, Indonesia

SUMMARY

The COVID-19 pandemic has shrunk the Indonesian economy, which recorded growth of -5.2% year-on-year (y-o-y) in the second quarter of 2020. The manufacturing sector of the country contracted even more at -6.2% y-o-y growth in the same quarter. Still, some opportunity can be tapped by manufacturing. One lesson learnt from the pandemic is that multinational enterprises (MNEs) may wish to reduce their over-reliance on China by widening their value chains to countries other than China. This is an expansion of the China Plus One strategy to China Plus Two or Three.

The strategy seems to be one that Indonesia would like to pursue, as stated by Minister of Industry Republic of Indonesia H.E. Agus Gumiwang Kartasasmita, who indicated that Indonesia would like to prepare to welcome the reallocation of MNEs, especially Japanese MNEs operating in China, to Indonesia.

The objective of this project is to provide knowledge and input for the reforms and/or investments needed to prepare Indonesia's manufacturing sector for the reallocation of MNEs, especially Japanese MNEs operating in China, to Indonesia. This is to ensure that production networks in ASEAN countries are intact and will survive the economic shocks caused by the COVID-19 pandemic.

POLICY IMPLICATIONS

Recommendations on which factors of reallocation the government needs to pay attention to and what reforms need to be done to resolve the issues that affect the decision to reallocate MNEs from China to Indonesia:

1. Analyse how the Indonesian manufacturing sector can build its machinery and parts-and-components industries to increase its capability to conduct the second unbundling of industry and trade. In the analysis, it is important to identify the industries that should be unbundled.
2. Recommend the specific industries that need to be further developed to strengthen the basis for the second unbundling of industry.
3. The recommendations need to be based on analysis that considers both production and imports to identify industries needed to be further developed.
4. Provide additional analysis to deepen the other objectives, as requested by the Ministry of Industry of the Republic of Indonesia.

GEOGRAPHIC SCOPE

Indonesia

Survey of the Impact of COVID-19 on Business Activities and Supply Chains in East Asia and the ASEAN Region

Keita Oikawa

SUMMARY

COVID-19 has seriously affected the economies of East Asia and Southeast Asia through disruptions in the movement of goods and services in the global value chains of the region and a fall in demand resulting from social distancing and lockdown measures. Moreover, the uncertainty of when the pandemic will end puts pressure on economic activities. The economic shock caused by the COVID-19 crisis is likely to significantly impact the real economy than the recent financial crisis. In particular, in East Asia and Southeast Asia, which have established themselves as the 'factory of the world', concerns about the impact of the pandemic on their corporate activities and production networks are prevalent.

In November 2020–February 2021, the Economic Research Institute for ASEAN and East Asia (ERIA) surveyed local and foreign companies in ASEAN and India to understand the impact of COVID-19 on business activities and supply chains.

Key findings of the survey include the following:

1. The COVID-19 impact promotes changes in the supply chain, whose effects are larger than the trade frictions between China and the US.
2. Many of the respondents have already implemented changes in the customer-side supply chains. Changes in the supplier-side and the production location are still considerable.
3. About 40% of the manufacturing respondents answered 'already implemented' or 'planned to change' the production location in response to the COVID-19 pandemic.
4. Many respondents have taken cost reduction and optimisation as supply chain measures in response to COVID-19, but not many have adopted digitisation.

GEOGRAPHIC SCOPE

ASEAN Member States and India

A photograph of two farmers, likely in Southeast Asia, walking away from the camera on a dirt path. They are wearing traditional conical hats and carrying large woven baskets on their backs, suspended by ropes. The path is flanked by green vegetation on the left and a reddish-brown earth on the right. The overall tone is warm and natural.

Narrowing Development Gaps

04 | Agriculture

Enhancing Food Supply Chain Resilience and Food Security in ASEAN with Utilisation of Digital Technologies

Masanori Kozono, Venkatachalam Anbumozhi, Deepayan Debnath, Meinhard Breiling, Eiji Yamaji, Sundaram Gunasekara, Paul P.S. Teng

PARTNER ORGANISATIONS

University of Missouri, University of Technology, Wien, University of Tokyo, University of Wisconsin, Nanyang Technological University, Southeast Asian Regional Center for Graduate Study and Research in Agriculture, ASEAN Secretariat

SUMMARY

COVID-19 has irrevocably changed the global supply chains. Food, medical, automotive, textile, and electronics sectors are hard hit by the pandemic, but they are also likely to see the quickest rebound. Continued focus on supply chain optimisation – to minimise costs, reduce inventories, and drive asset utilization – has removed flexibility to absorb shocks such as COVID-19 and other natural disasters. The full extent of the COVID-19 outbreak is still not known, but agri-businesses along the food value chains have already begun to modify their business models. They have identified an urgent need to implement deviations to their business-as-usual approach, for instance, through business scenario planning, alternative input sourcing channels, increased focus on inventory management, staggered investment plans, reviews of staff occupational health and safety practices, and human resource planning in the face of increased demand or absenteeism.

However, to date, the Association of Southeast Asian Nations (ASEAN) has no consolidated information on the status of digital technologies that have the potential to increase farm productivity and improve supply chain resilience at the scale required. Next and linked to the agri-food supply chain resilience challenges are the new trends and best practice models for integration of digital technologies, especially in the domain of risk management, collaboration for vulnerability reduction, cold chain management, and governance of logistics for sustainable agri-food value chains. Moreover, ASEAN has yet to develop a vision statement and/or common guidelines or strategic papers on the utilisation of digital

technology in the agriculture sector including the food value chain. The COVID-19 pandemic has disrupted ASEAN food and agriculture sector, most notably major food importing and exporting countries, with profound impact on regional food security, food safety, and food distribution system.

OBJECTIVES

1. To oversee the impact of COVID-19 on food and agriculture sector in ASEAN through developing macro-data scenario analysis with various trajectories, including the application of digital technologies for food value chains in the region
2. To assess the actual status of utilisation of digital technologies in the food and agriculture sector in ASEAN through analysis of the potentials as well as best practices of application of digital technologies in increasing agricultural productivity at the farm level and resilience along selected food value chains
3. To formulate regional guidelines on the utilisation of digital technologies in food and agriculture sector, based on evidence-based information and regional consultations

POLICY IMPLICATIONS

- Critical reflection on the digital technology needs of ASEAN Member States and associated policy recommendation towards enhanced food security.
- A digital technology road map for the region and enabling public-private partnerships models for enhanced food value chain resilience.
- ASEAN guidelines - government policy and strategy and best practice reference book - for utilisation of digital technologies in food and agriculture sector

GEOGRAPHIC SCOPE

Europe, Japan, Southeast Asia, the United States

RELATED PUBLICATIONS

- Anbumozhi, V., F. Kimura, and S. M. Thangavelu (2020), *Supply Chain Resilience: Reducing Vulnerability to Economic Shocks, Financial Crises, and Natural Disasters*. Singapore: Springer.

Realisation of Higher Value Added of Agricultural Products in ASEAN Countries Through Development of Effective Cold Chain

Masanori Kozono, Raden Dikky Indrawan, Parthana Parthanadee, Kong Thong, Phanxay Ingxay, Than Than Soe, Do Huy Thiep, et al.

PARTNER ORGANISATIONS

IPB University, Indonesia; Kasetsart University, Thailand; Royal University of Agriculture, Cambodia; Ministry of Agriculture and Forestry, Lao PDR; Yezin University, Myanmar; Vietnam National University of Agriculture, Viet Nam; ASEAN Secretariat

SUMMARY

The cold chain or low-temperature storage and transportation system is an important element for the improvement of food value chain (FVC) and the realisation of higher value-added of food and agricultural products, especially in the ASEAN region as it mostly has a tropical climate. Recently, various factors, including income increase brought about by economic growth, increase in the number of middle-income households, change in lifestyles, and increase in the number of modern supermarkets, have contributed to the rapid expansion of demand for cold chains in the region. Especially during the COVID-19 pandemic, when food in cold chains can be stored for a long time, demand from consumers is increasing.

In addition, cold chains have an environmental protection aspect because they reduce post-harvest and food losses. However, in most ASEAN countries, especially in CLM (Cambodia, Lao PDR, Myanmar), the cold chain system is undeveloped or does not function well due to various causes. The current status of cold chains is one of the bottlenecks in FVC development and realisation of higher value-added of food and agricultural products. This study aims to contribute to realisation of higher value-added of food and agricultural products through the facilitation of cold chain development with the engagement of upstream stakeholders such as farmers.

OBJECTIVES

1. Understand the current status of cold chains, including demand for cold chains, related policies, engagement of smallholders at the chain upstream.
2. Identify obstacles, challenges, and opportunities for the development of cold chains and engagement of smallholders, and the required action by policymakers and cold-chain stakeholders.
3. Find successful cases of engagement of smallholders in the cold chain system and analyse the merits and/or advantages of their engagement.

POLICY IMPLICATIONS

- Actions to be taken by governments, farmers, and other stakeholders for improvement and further development of cold chain recommended
- Real status of cold chain development confirmed through field surveys

GEOGRAPHIC SCOPE

Cambodia, Indonesia, Lao PDR, Myanmar, Thailand, Viet Nam

RELATED PUBLICATIONS

- Kusano, E. (ed) (2019), *The Cold Chain for Agri-food Products in ASEAN*. ERIA Research Project Report 2018-11. Jakarta: ERIA. Downloadable from: <https://www.eria.org/publications/the-cold-chain-for-agri-food-products-in-asean/>
- Kusano, E. (ed) (2019), *Food Value Chain in ASEAN: Case Studies Focusing on Local Producers*. ERIA Research Project Report 2018-05. Jakarta: ERIA. Downloadable from: <https://www.eria.org/publications/food-value-chain-in-asean-case-studies-focusing-on-local-producers/>
- Kusano, E. (2019), *Overview of Agri-food Industries in ASEAN: Basic Information on the Food Value Chain*. ERIA Research Project Report 2018-12. Jakarta: ERIA. Downloadable from: <https://www.eria.org/publications/overview-of-agri-food-industries-in-asean-basic-information-on-the-food-value-chain/>

05 | Competitiveness

Accelerating Digital Transformation in ASEAN and East Asia

Lurong Chen, Archanun Kohpaiboon, Kalamullah Ramli, Hasyim Gautama, Muhammad Suryanegara, Fithra Faisal Hastiadi, Reth Soeng, Sanjay Singh Mangla

SUMMARY

The study will follow two main tracks: a tech track that focuses on technology adoption, and a policy track that focuses on digital strategy and policy adopted by Asian countries. The tech track focuses on new information and communication technology and new business models, such as (i) artificial intelligence and machine learning, (ii) big data and cloud computing, (iii) Internet of Things, (iv) financial technology or fintech, (v) blockchains, (vi) social media, and (vii) servicification. Studies on each subject will include consideration of data flow, technology transfer, privacy protection, consumer protection, cybersecurity and intellectual property rights, and other related issues, particularly human skills development. The policy track monitors and accesses the policy effort to promote digital transformation in the region. The track will build a framework of policy analysis based on the policy checklists developed by the Organisation for Economic Co-operation and Development and the United Nations Conference on Trade and Development and the monitoring system used by the European Union, and then apply the framework to examine the digital strategies and policy plans of Asian countries.

POLICY IMPLICATIONS

The study will provide the following:

1. Policy instruments to overcome the barriers to and unlock the potential of using new technology, either nationally, regionally, or both.
2. Actions to solve problems that may occur in digital transformation, and risk management to avoid failure that may come from directionality, demand articulation, policy coordination, or reflexivity.
3. A preliminary framework or a prototype of a monitoring system on digital transformation in ASEAN and East Asia.
4. Market demands and policy response regarding human skills development for digitalisation, especially for developing economies in the region.

GEOGRAPHIC SCOPE

ASEAN

Artificial Intelligent: Trade, Growth, and Employment

Lili Yan Ing, Gene Grossman, Richard Baldwin, Aghion Philippe, and others

SUMMARY

Artificial intelligence (AI) has changed not only the working environment but also daily life. AI will change economic theories, world trade, and, soon, economic systems. The interface amongst AI and factors of production will result in a shared language of utility, probability, revealed preferences, predictable objectives, and identified budget constraints. Things never experienced in human societies will soon emerge in combined human–AI societies. There are at least two reasons why the use of AI will be significant: first, AI can reduce costs significantly; and second, AI can help markets work more efficiently. The use of AI as predictors has changed economic theories and world trade. The faster diffusion of information and communication technology and related developments in the Internet of Things could strengthen the current structure of global value chains. But greater digitalisation in smart factories and advanced robotics might reduce the importance of low labour costs in determining comparative advantage, laying greater emphasis on skills, complementary services, and other aspects of firm ecosystems.

The Economic Research Institute for ASEAN and East Asia will conduct a study on AI/Robots: Labour, Trade, Growth and Welfare, which will be contained in a book of 10 chapters.

POLICY IMPLICATIONS

1. A better understanding on how the invention of AI and robots will affect demand for labour, trade, growth, and welfare.
2. Evidence-based policy directions on how AI and robots eventually affect resource allocation.

GEOGRAPHIC SCOPE

World

The India–Myanmar–Thailand Trilateral Highway and its Possible Extension to Cambodia, Lao PDR, and Viet Nam: Challenges and Opportunities

Fukunari Kimura, So Umezaki, Anita Prakash

PARTNER ORGANISATIONS

Research and Information System for Developing Countries New Delhi; Indian Mission to ASEAN; ASEAN Secretariat

SUMMARY

The Trilateral Highway (TLH) exemplifies the letter and spirit of connectivity between India and ASEAN. It connects India, Myanmar, and Thailand, and is linked with ASEAN's connectivity plans. Still a project under construction, its potential contribution to the economic growth and development of the region is indubitable. This study examines the maximising of these objectives through a proposed extension of TLH to the Lao People's Democratic Republic (Lao PDR), Cambodia, and Viet Nam.

Based on a mandate from the ASEAN–India Summit Meeting of 2018 and commissioned by the Government of India, the Economic Research Institute for ASEAN and East Asia (ERIA) has studied the feasibility of establishing a seamless, efficient, and end-to-end transport corridor along the existing TLH and its extension towards Cambodia, Lao PDR, and Viet Nam. This study offers physical, institutional, and economic pathways, along with policy recommendations for the development of TLH and its eastwards extension. The need for seamless physical connectivity and resilient supply chains has been underlined in the COVID-19 crisis. The study on TLH and its eastward extension fulfils this current need and lays down pathways for medium- and longer-terms integrated connectivity solutions between India and ASEAN.

POLICY IMPLICATIONS

The study was presented to the Senior Economic Officials meeting and to the ASEAN–India ministerial meeting. The study is being used to develop plans for new supply-chain linkages between India and ASEAN, and in other regional and inter-regional architecture such as the Asia–Africa Growth Corridor, Australia–Japan–India, and the Indo-Pacific.

GEOGRAPHIC SCOPE

India, ASEAN (Thailand, Myanmar, Lao PDR, Cambodia, Viet Nam), Indo-Pacific

RELATED PUBLICATIONS

- Kimura, F. and S. Umezaki (ed.) (2018), *ASEAN - India Connectivity: The Comprehensive Asia Development Plan, Phase II*. ERIA Research Project Report 2010-07. Jakarta: ERIA. Downloadable from: <https://www.eria.org/publications/asean---india-connectivity-the-comprehensive-asia-development-plan-phase-ii/>



A New Challenge of Urban Structural Change in the Post COVID-19 Era

Ikumo Isono

SUMMARY

COVID-19 has led many people, companies, and governments to recognise that it is becoming increasingly difficult to continue living and working the way we used to. The widespread use of teleworking and various measures to avoid crowding are giving people room to reconsider where they live and where their companies operate. This trend could continue even if vaccines are widely available and the impact of COVID-19 is reduced.

The widespread use of teleworking adds to the debate on the concentration of cities. Will these changes in the economic environment lead to a reduction in urban concentration? Or, conversely, will they accelerate it? If policymakers do not like the concentration of cities, especially the largest economic centres, what policies can be adopted to make them less concentrated?

The dramatic changes in the economic environment brought about by COVID-19 may also change the tone of the long-running debate on the economy of agglomeration and the development of information and communication technologies (ICTs). Indeed, in parallel with the development of ICTs, a debate has ensued about whether urban agglomeration will proceed or be moderated.

In Asia, the problem of concentration in the largest economic centres is common and part of the vulnerability of large cities, as evidenced in COVID-19, where infections were spread by the movement of people. This is why sharing best practices and developing appropriate policies in response to changes in the economic environment are essential for economic development and the improvement of people's lives in the medium to long term. As COVID-19 will semi-compulsorily promote telework in many countries and have a major impact on industrial structures, it makes sense to study and analyse the changes and the latest policies at this time. This project will summarise the economics and diseconomies of agglomeration, as well as analyse the policies of remote working, industrial policy, and the new capital initiative to ease the concentration of power in different countries. Specifically, the study combines a review of theories with case studies of specific cities. Using available data, we will analyse data on post-2020 changes in specific cities.

POLICY IMPLICATIONS

The study will give policymakers an insight into COVID-19 and the spread of telework

and changes in the urban structure and share best practices. The changes in the economic environment due to COVID-19 could be significant, and the idea of continuing with the measures taken so far needs to be changed. Depending on future changes in the urban structure, the competitiveness of not only each city but also each ASEAN Member State may change significantly.

GEOGRAPHIC SCOPE

Asia, Oceania, Pacific, Indo-Pacific

RELATED PUBLICATIONS

- Prakash, A. (2018), *Asia Africa Growth Corridor: Development Cooperation and Connectivity in the Indo-Pacific*. ERIA Policy Brief 2018-03. Jakarta: ERIA. Downloadable from: <https://www.eria.org/research/asia-africa-growth-corridor-development-cooperation-and-connectivity-in-the-indo-pacific/>
- Tay, S., S. Armstrong, P. Drysdale, and P. Intal Jr. (eds) (2019), *ASEAN Vision 2040 Volume II: Collective Leadership, ASEAN Centrality, and Strengthening the ASEAN Institutional Ecosystem*. Jakarta: ERIA. Downloadable from: <https://www.eria.org/research/asean-vision-2040-volume-ii-collective-leadership-asean-centrality-and-strengthening-the-asean-institutional-ecosystem/>

A Framework for Internet Health Metrics in ASEAN and East Asia

Lurong Chen, Yurie Ito

PARTNER ORGANISATIONS

CyberGreen

SUMMARY

This project aims to develop a framework for internet health similar to that in the medical community. The potential for global collaboration stemming from cross-comparable statistics in internet health is enormous. Policymakers, budget and investment decision-makers, and nations trying to deploy internet norms across the world will be able to use current data, but also see trends over time such as activity patterns and vulnerability life cycles.

The framework will be useful in understanding key symptoms of unhealthiness, risk indicators that cause poor health, and the right data to collect. Furthermore, by providing index-informed recommendations, the framework will not only quantify the risks but also offer guidance on how to mitigate them.

POLICY IMPLICATIONS

The framework can be used to determine the baseline of internet health and to create benchmarks for countries that would most benefit from enhanced access to capacity-building programmes. These analyses will facilitate the rapid expansion of capacity, build expertise, and provide data to assess the effectiveness of mitigation approaches. It will also be useful for prioritising limited resources to focus on critical risk factors.

GEOGRAPHIC SCOPE

ASEAN

Longitudinal Study of Ageing and Health in the Philippines and Viet Nam

Yasuhiko Saito, Grace T. Cruz, Vu Cong Nguyen, and Osuke Komazawa

PARTNER ORGANISATIONS

Demographic Research and Development Foundation, the Philippines
Institute of Population, Health and Development, Viet Nam
Nihon University, Japan

SUMMARY

At the 20th ASEAN Plus Three Commemorative Summit, leaders reaffirmed their commitment to promote active ageing – whereby people remain physically active as they age – and the empowerment of older persons. In particular, leaders sought to advance regional cooperation on ageing-related challenges among ASEAN member states and the development of a regional plan of action to implement the 2015 Kuala Lumpur Declaration on Ageing: Empowering Older Persons in the ASEAN.

The first step towards sound and sustainable policies is to collect evidence on the health status of older persons in the region. Being active in old age is closely linked to health and social security systems, including healthcare and long-term care systems. Health is also one of the most important factors for overall well-being.

The concept of health expectancy is a useful indicator of healthy and active ageing. It can be computed as the number of years of expected good health. In an extreme example, if health expectancy is equivalent to total life expectancy – an outcome is known as ‘rectangularisation of the survival curve’ – all people will live in good health until the exact time of death.

This longitudinal study tracks individuals aged 60 or over for multiple years, and analyses the factors contributing to longer, healthy lives. In ASEAN member states, only a few such studies have been undertaken, and the factors for healthy ageing have not been well investigated. In this study, about six thousand people aged 60 or over are selected randomly from each of the Philippines and Viet Nam. The reports of the baseline survey have already been published, and the second wave of surveys will take place from late 2021 to early 2022.



The survey was developed in line with the Health and Retirement Survey (HRS) promoted by the National Institute on Aging in the US. The survey has been used in many countries, meaning that the results of this study can be easily compared with others. In the second round, we will introduce an exit survey aiming for collecting death and related information, adding to the questionnaires also used in the baseline survey: (1) household questionnaire, (2) main questionnaire for sample older person, (3) anthropometric measures questionnaire, (4) main or potential caregiver questionnaire, (5) questionnaire for the adult child of sample older person. The second-round survey will bring the real longitudinal data of older persons. It will enable us to analyse the direct factors associated with health expectancy and life expectancy.

POLICY IMPLICATIONS

The study is expected to uncover the factors associated with longer health expectancy, providing strong messages to ASEAN policymakers wishing to create vibrant ageing societies.

GEOGRAPHIC SCOPE

The Philippines and Viet Nam

RELATED PUBLICATIONS

- Cruz, G.T., C. J. P. Cruz, and Y. Saito (eds.) (2019), *Ageing and Health in The Philippines*. Jakarta: ERIA. Downloadable from: <https://www.eria.org/publications/ageing-and-health-in-the-philippines/>
- Vu, N. C., M. T. Tran, L. T. Dang, C. Chei, and Y. Saito (eds.) (2020), *Ageing and Health in Viet Nam*. Jakarta: ERIA. Downloadable from: <https://www.eria.org/publications/ageing-and-health-in-viet-nam/>

Mitigation of the Impact of COVID-19 on Long-term Care Practice – Psycho-social Approach to the Pandemic from Government Level to Individual Care Worker Level

Takeo Ogawa, Osuke Komagawa, Katsuhiko Kikuchi, Hiromi Kinebuchi, Shun Ohno, and Tri Budi W. Raharjo

PARTNER ORGANISATIONS

Keishin Gakuen

SUMMARY

COVID-19 disproportionately affects older people in terms of its severity and mortality. Hospitals and long-term care (LTC) facilities have been reported to be transmission hot spots of this disease. As the country with the most aged population structure in the world, Japan has the absolute disadvantage in controlling this infectious disease, although Japan has not seen the catastrophic spread of COVID-19 or high mortality in its LTC facilities, compared with other countries in Europe and the Americas that also have a high proportion of older people. Of course, even in Japan, some clusters of COVID-19 cases have emerged in LTC facilities and the death toll caused by COVID-19 in LTC facilities cannot be ignored. The total number of deaths decreased in 2020 from the previous year's, probably because of the suppression of the transmission of infectious diseases as a whole – not only COVID-19 but also other infectious diseases like flu – achieved by the strengthened health protocol.

This study will take a psycho-social approach to find out why Japan has somehow succeeded in mitigating the impact of COVID-19 in LTC facilities, from the government level to the individual care worker level. At the government level, it will discuss how the social welfare system, such as universal medical insurance, universal pension, or universal LTC insurance, has mitigated the risk of the pandemic. At the local community level, because of social distancing, considerable projects to support older people are being suspended, as well as activities to support cross-border workers, including LTC workers. This study will try to find out how such an indispensable support network, using digital technology, has been maintained by local authorities and other stakeholders like LTC service providers. At the individual level, Japan's care workers, including cross-border care workers, are well trained

to control infectious diseases because infection control is incorporated into the training curriculum of care workers. Such curriculum, however, focuses on the prevention of flu or food-borne infectious diseases, so it has not necessarily been effective in the prevention of COVID-19. This study will discuss how the curriculum can be modified to be ready for future pandemics.

Collected data will be published statistical data, infection-control manuals, and business-continuity plans of selected LTC providers. Key-informant interviews and focus-group interviews of care workers will be conducted online, both for Japanese and cross-border care workers in Japan.

The study will accommodate reports from Indonesia, the Philippines, and Thailand about the impact of COVID-19 on LTC facilities and potential cross-border care workers.

POLICY IMPLICATIONS

The study is expected to suggest effective policies to protect older people from infectious diseases, business continuity plans of LTC providers for unexpected disasters, and tips for self-care of essential workers, including care workers.

GEOGRAPHIC SCOPE

Indonesia, Japan, the Philippines, and Thailand

Transfer of Skills and Knowledge by Cross-Border Care Workers

Yuko Hirano, Osuke Komazawa, Tri Budi W Rahardjo, Susiana Nugraha, Dinni Agustin, Lisna Augustina, Misako Higashijima, Shun Ohno, Kunio Tsubota, Reiko Ogawa, Hiroyasu Shiozu, Yoichi Hiruma, Yukari Amano, Chimi Miyamoto, Ryota Endo, and Yuko Hirano

PARTNER ORGANISATIONS

Universitas Respati Indonesia, Nagasaki University

SUMMARY

Circulation of the long-term care workforce is recognised as one of the most important agenda discussed in Asia Health and Wellbeing Initiative (AHWIN). AHWIN was launched by Japan to promote regional cooperation to create vibrant and healthy societies in which people can enjoy long and productive lives.

Japan has first opened its labour market for healthcare industries under bilateral economic partnership agreements, to promote the acceleration of trade between Japan and the signatory countries: the Philippines, Indonesia, and Viet Nam. Since the first agreement between Indonesia and Japan in 2008, followed by Philippines-Japan in 2009, and Viet Nam-Japan in 2014, Japan has accepted thousands of nurses and care workers. Of these, approximately four hundred nurses and a thousand care workers have gone on to become full licensees in Japan. This means that they have passed an exam in Japan and may stay and work without restriction. If they fail the exam, they must return to their home countries. However, returnees who have spent several years in Japan face limited career paths in their home countries. A previous study by the same authors found this is particularly true for certified care workers since this profession has not been recognised well in their home countries. For this reason, the care worker returnees, including those who passed a certified care worker examination in Japan, can no longer use the work experiences they gained while abroad. Most have ceased to work as health professionals, and have instead started careers as Japanese interpreters, even though many of them would prefer to continue working in healthcare or long-term care.

In recent years, the Japanese government has created several new programmes to accept foreign care workers. To make these programmes mutually beneficial between Japan and sending countries like Indonesia or Viet Nam, it is crucial to discuss how such cross-border

care workers can be utilised in their home countries. However, as the authors have learnt from the previous experiences of returnees of the EPA programme, there is no career path for care workers in their home countries. A well-organised career recognition system for care workers is required if countries are to maximise the knowledge and skills that the returned care workers bring. This effort will also improve the social and economic status of care workers, who have a crucial role to create societies where people can enjoy active, healthy and productive ageing in the course of rapid population ageing which takes place in many Asian countries.

This project aims to develop a training programme for oral care and swallowing function rehabilitation, which can be used for the pre-departure trainings of potential cross-border care workers. The study also aims to contribute to the education of healthcare workers in the sending countries, where rapid population ageing is on the way.

POLICY IMPLICATIONS

This study is expected to provide an example of effective circulation of care workers and contribute to the standardisation of care skills. It will also provide suggestions for labour-market policymaking for long-term care in the region.

GEOGRAPHIC SCOPE

Indonesia, Japan and Viet Nam

Enhancing Regional Clinical Trial Collaboration Through Support for Expansion of an International Clinical Trial Network to Developing Southeast Asian Countries

Antonio Villanueva, Masato Ichikawa, Miwa Sonoda, Septelia Inawati, Wawaimuli Arouzal, Benjamin Sablan, Tatsuo Iiyama, et al

PARTNER ORGANISATIONS

National Center for Global Health and Medicine (Tokyo), University of Indonesia (Jakarta), University of the Philippines (Manila), Mahidol University (Bangkok), and Cambodia University of Health Sciences (Phnom Penh)

SUMMARY

Since products must be approved for use by each country's regulatory authority, quality evidence that can be submitted to countries that agree to common standards will streamline the final stages of research and development activities to enhance multilateral trade. Already instituted by the Association of Southeast Asian Nations (ASEAN), the ASEAN Common Technical Dossier for medicines and the Common Submission Dossier Template for medical devices now guide the entry into the 10 health markets of ASEAN. However, not all borders are equipped to handle research that can produce quality data. Further, the sharing of such data is not yet fully supported by functional international data management systems. Yet, the ASEAN market remains an untapped arena for health market growth and innovation and improvement toward global health. Therefore, support for the establishment of clinical trial research units in underdeveloped regional sites or markets is a win-win for all stakeholders.

As with regulatory harmonisation, global standards – for example, those from the International Council on Harmonisation, the WHO Prequalification, and the International Standards Organization (ISO) – guide human research and are the basic guidelines for an international clinical trial network of excellence. In addition, it is noteworthy that oftentimes the most cost-effective and diplomatic collaborations have been those between governments and public institutions, including the academe. So while public-academic-private relationships mature, the focus will be on establishing regional working teams through public academic and research institutions. Fortunately, such a regional clinical

trial network already exists: the Academic Research Organisation Alliance for ASEAN and East Asia (ARISE) network, whose secretariat is in the Department of International Trials (DIT), National Center for Global Health and Medicine (NCGM), Tokyo. While NCGM houses a satellite of Nagasaki University, DIT also partners with Osaka University and, hence, ARISE collaborates with both academic institutions. Notably, the Department of Multi-Regional Clinical Trials of Harvard University is also an affiliate. DIT engages staff from the Democratic Republic of the Congo (Africa), Indonesia, Japan, the Philippines, Thailand, and Viet Nam. ERIA can participate in ARISE and avail itself of its functional collaborative network while supporting the expansion of this network first to Cambodia, an upcoming chair, and Myanmar, the least developed within the network. Support for Indonesia is beyond question, being the most populous member of ASEAN. Its Muslim majority is a base to reach out to other halal regions worldwide. ERIA can, however, also emphasise its collaborative role by supporting ongoing ARISE cooperative offices towards clinical research unit sustainability, namely in the Philippines and Thailand.

In the fiscal year 2021, then, core membership and participation in ARISE will be established. Whilst collaborating on pilot projects with Indonesia, as well as support for Cambodia through ARISE, the international clinical trials network can be expanded. By 2022, the Philippines may see support, and depending on the progress of the previous cooperative projects, followed thereafter by Lao People's Democratic Republic and Myanmar (pending its political stability). For all component projects of this programme, reviews of best practices will guide policy recommendations.

POLICY IMPLICATIONS

Policy recommendations will be based on an assessment of the collaboration with regional clinical trial network sites through ARISE to streamline the clinical research management process and to produce quality data toward evidence-based policy recommendations and market entries. Further recommendations will consider how this network fosters scientific mentorships and local sustainability of clinical research units.

Moving forward towards 2022, data management systems will be assessed as well, possibly towards unified or harmonised data-sharing.

GEOGRAPHIC SCOPE

Japan, Indonesia, the Philippines, Thailand Cambodia

Enhancing the Quality and Awareness Within the International Clinical Trial Network Through Support for Annual Capacity Building and an Annual International Health Economics Forum

Antonio Villanueva, Sifa Muchanga, Miwa Sonoda, Masato Ichikawa, Sota Machida, Tatsuo Iiyama, et al

PARTNER ORGANISATIONS

National Center for Global Health and Medicine (Tokyo), Osaka University, Nagasaki University, Harvard University, Universiti Brunei Darussalam

SUMMARY

Whilst several developing nations in the region have clinical trial centres that require much improvement, other developed countries already practice advanced clinical trial methodologies. Teams that can share expertise include researchers from China, Japan, the Republic of Korea, Malaysia, Singapore, and Thailand, as well as Australia, New Zealand, and India. International training on clinical trials, including forums that can increase public awareness, have already been seen to not only secure trust amongst academic researchers within an international network but also enhance the participation of public-academic-private enterprises. The National Center for Global Health and Medicine's (NCGM) international capacity-building training programme held every January in Tokyo (online in 2021) can be supported by helping expand coverage of participants from more Southeast Asian countries. Delegates participate from Indonesia, Japan, the Philippines, Thailand, Viet Nam, and the Democratic Republic of the Congo. By supporting additional delegates from an underdeveloped and an advanced country, the quality of training on evidence-based medicine can maximise sharing of knowledge, experience, and indigenous and advanced technology. Thus, proposed delegates for the capacity-building module would come from Cambodia and Brunei for 2021, Lao People's Democratic Republic and Malaysia in 2022, and Myanmar and Singapore in 2023.

It is proposed that ERIA's Health Unit collaborate with the current chair and the International Infectious Diseases Forum of NCGM each year to produce an annual event, physically and/or online as the pandemic permits. Thus, such a forum would be held in collaboration with the



current chair, Brunei in 2021, Cambodia in 2022, Indonesia in 2023, and so on. The proposed theme for 2021 is Balancing Health and Economy During the COVID-19 Pandemic.

For all component projects of this programme, reviews of best practices will guide policy recommendations.

POLICY IMPLICATIONS

International capacity building and international forums will heighten clinical trial management and data quality whilst minimising risk and further deepening awareness and trust amongst member states.

Recommendations that foster the sharing of health-related issues within an economic framework can gradually create an environment that can proceed more smoothly with regard to harmonised methodologies, followed by integrated markets.

Collaborating with the current chair each year can deepen the relationship between ERIA and member states as a regional community that upholds excellence, respect, and trust whilst enhancing awareness of healthcare.

GEOGRAPHIC SCOPE

Japan, Brunei, Cambodia, Indonesia, the Philippines, Thailand, Viet Nam, Democratic Republic of the Congo, all ERIA member states

Pilot Project: RT-PCR Saliva IVD Clinical Performance Test to Support Policy for Enhanced Travel

Antonio Villanueva, Septelia Inawati, Wawaimuli Arouzal, Regina Berba, Paulyn Ubial, Vivi Lisdawati, and Tatsuo Iiyama

PARTNER ORGANISATIONS

National Center for Global Health and Medicine (Tokyo), University of Indonesia (Jakarta)-RSPI Sulianti Saroso National Infectious Hospital (Jakarta), and University of the Philippines (Manila)

SUMMARY

Much research and development throughout the COVID-19 pandemic has focused on vaccines and medicines that can prevent and/or treat the disease. Medical devices can offer alternatives that can be used to control the pandemic as well. Currently, the RT-PCR nasopharyngeal swab test is used globally to identify the virus, including at most ports of entry and exit in every nation. Rapid antigen-antibody tests have been proposed previously as alternatives. However, the target phase of the disease differs since RT-PCR can identify SARS-CoV-2 during the early phase while antibodies are produced at later phases. Pure antigen tests are also undergoing comparative studies. Unlike the antigen tests, however, the RT-saliva test, similar to the RT-PCR swab, identifies the virus genetically yet produces results swiftly with minimal logistics and with less exposure to healthcare personnel. Can the RT-saliva test therefore be used as effectively as the RT-PCR?

To determine this, a clinical performance study can compare an RT-saliva arm with the standard RT-PCR nasopharyngeal swab arm. In addition to the standard swab test used in each selected country site, saliva will be collected from the same subjects to process the RT-saliva test. Based on previous studies against other comparators, a target study population of 500 individuals is recommended from each country. Because of its relatively high number of COVID-19 cases, Indonesia is the first preferred site. Next, although with a decreasing rate of positive cases, the Philippines may serve as a second option and is conducting an ongoing study. For the World Health Organization, data from at least two regions are preferred; therefore, results from Japan, the Philippines, and Indonesia will be analysed. Per public international health practice and global health diplomacy, public academic institutions,

infectious diseases hospitals, or research institutions authorised by their ministries of health are prioritised and collaborated with: the University of Indonesia with RSPI Sulianti Saroso National Infectious Hospital.

With the expected results, the RT-PCR saliva test could be implemented expediently at ports of entry and exit, thereby facilitating travel by reducing quarantine time, facility costs, and logistics imposed while waiting for results. Further, considering that efficacy of vaccines requires at least 1 month before adequate levels of antibodies develop, that long-term post-marketing surveillance safety data for vaccines are not yet available, that not all individuals can avail of vaccines due to certain health statuses, and that much of the global population will not have access to the vaccines immediately, alternatives to curb the pandemic without hampering economies are mandated.

POLICY IMPLICATIONS

Recommendations will establish public health policy alternatives as well as a balance between health and economy by enhancing safe opportunities for travel.

Recommendations may further assess the capacity of developing member states (here, in particular, Indonesia and the Philippines) to integrate such medical devices into their healthcare systems and health markets.

GEOGRAPHIC SCOPE

Japan, Indonesia, and the Philippines

Review on Best Practices from the Avigan

Global Trials

Antonio Villanueva, Masato Ichikawa, Takashi Kobayashi, Sifa Muchanga, Marlinang Siburian, Nattha Kerdsakundee, Mieko Hamana, et al

PARTNER ORGANISATIONS

National Center for Global Health and Medicine (Tokyo), Ministry of Foreign Affairs (Japan), and Mahidol University (Bangkok)

SUMMARY

At the height of the COVID-19 pandemic in 2020, the Government of Japan, through its Ministry of Foreign Affairs and the National Center for Global Health and Medicine (NCGM), with the support of the original pharmaceutical manufacturer of the antiviral drug favipiravir (Avigan), and under the auspices of the United Nations Office for Project Services, distributed the anti-viral drug to participating nations worldwide on five continents. Alongside global health diplomacy, favipiravir was being trialled for its safety and effectiveness in treating mild cases of COVID-19. With the centre's study operations in NCGM's Department of International Trials, a scientific call centre was initiated and data management software designed to collect multi-regional results. International online training, multi-linguistics, varied information communication technology systems, differing contract timelines, and the evolving pandemic were amongst the issues encountered. Whilst the implications for such an innovative attempt at global trials during a pandemic are far-reaching, the struggles of the numerous teams were and still are under discovery. This review shares the unfolding best practices learned by the central management team.

POLICY IMPLICATIONS

Policy recommendations will describe best practices for collaborating with global ministries of foreign affairs in a global clinical study, streamlining global clinical studies, and managing a global clinical study during a pandemic.

GEOGRAPHIC SCOPE

Japan; Regional; Global

Review on the Priority Needs of ASEAN During Transformation from Infectious to Non-Communicable Disease Burdens Toward Universal Healthcare

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PARTNER ORGANISATIONS

National Center for Global Health and Medicine (Tokyo), ASEAN

SUMMARY

In recent decades, public international health experts have recognised that developing economies tend to undergo a common process of health transformation from a burden of infectious diseases to a double burden that adds non-communicable diseases, and finally a triple burden that includes mental health. That is of particular interest for member states of the Economic Research Institute for ASEAN and East Asia (ERIA), most of which are not advanced. Unlike advanced economies that have conquered the infectious burden, the low-to-middle-income countries battle both transformation burdens and, in urbanised centres, even all three. The statistics on the top-10 causes of mortality and morbidity and how each member state approaches the lists reflect such transformational processes and can help address not only local, national, regional, and global health priorities but also create strategies in focusing research and development and marketing efforts throughout the region.

This study will engage the collaboration of health economics experts from each ERIA member state to share data, policy, and expert opinions.

POLICY IMPLICATIONS

Policy recommendations will describe best practices for collaborating with global ministries of foreign affairs in a global clinical study, streamlining global clinical studies, and managing a global clinical study during a pandemic.

GEOGRAPHIC SCOPE

All participating ERIA member states

Indonesian Manufacturing

Dionisius A Narjoko, Chandra Tri Putra, Carlos Mangunsong, Haryo Aswicahyono, and Ainul Huda

PARTNER ORGANISATIONS

Australian National University, Centre for Strategic and International Studies, PT. Daya Teknologi Strategi Indonesia

SUMMARY

The trade tensions between major countries have disrupted global trade and threatened ASEAN's export performance, including that of Indonesia. The Government of Indonesia is exploring ways to improve exports, especially from the manufacturing sector. The Coordinating Ministry Office for Economic Affairs (CMOEA) requested the Economic Research Institute for ASEAN and East Asia (ERIA) to come up with alternatives strategies to improve manufacturing exports. This study is intended as an element of ERIA's support to CMOEA's request. The study builds from the work in the previous fiscal year, which helped determine potential exporting products or export destinations. The FY2020 study extended these findings and combined them with other findings to create several strategies that are feasible for implementation. In creating the strategies, the study considered the likely impact of free trade agreements (FTAs) that Indonesia has signed, the political dynamics in the region, and the likely changed global demand due to the COVID-19 pandemic. This study will be useful for policymakers as it presents several possible sets of policy choices, with a different strategy in each set, some of which are useful to maximise the utilisation of all FTAs that Indonesia has signed.

POLICY IMPLICATIONS

Some strategies to increase Indonesia's manufacturing exports based on demand from the export destination country

GEOGRAPHIC SCOPE

Indonesia

COVID-19 and Challenges for the Automotive and Parts Industries

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PARTNER ORGANISATIONS

Research Institute of Automotive and Parts Industries, Waseda University

SUMMARY

The COVID-19 pandemic has enormously influenced the supply chain management of manufacturing (ERIA 2020; Baldwin 2020). This research project sheds light on the impacts of COVID-19 on the management and strategy of automotive and parts businesses in East Asia through online and offline interviews with their headquarters in Japan (and, if possible, of Korean and European firms, as well). This research will focus on headquarters because of their company-wide global production, research and development, and sales. Although online applications for mobile work, such as ZOOM, CISCO Webex, or Microsoft Teams, have been utilised for business continuity, automotive and parts companies must have faced several challenges unexpected in business continuity plans. The research team seeks to understand managerial challenges entailed in online communications between headquarters and manufacturing plants, including domestic and international, and intra- and inter-firm. The research team, composed of members from the Economic Research Institute for ASEAN and East Asia and the Research Institute of Automotive and Parts Industries of Waseda University, will develop a standard questionnaire to collect empirical and qualitative data from several prefectures in Japan in cooperation with local automotive experts.

POLICY IMPLICATIONS

Two sets of recommendations could be derived from this research:

1. The research can investigate the current difficulties of supply chain management and business continuity management under the pandemic and the 'new normal' of our daily lives.
2. We can get an insight towards the transformation of automotive and parts industries such as CASE, MaaS, and Industry 4.0.

GEOGRAPHIC SCOPE

ASEAN, Japan

An aerial photograph showing a parking lot with several cars, a road with a white car, and a residential area with green-roofed buildings. A semi-transparent green overlay covers the bottom left and bottom center of the image.

Sustainable
Economic
Development

Circular Economy Road Map for ASEAN

Venkatachalam Anbumozhi, Henrich Wyes, K. Ramanathan, and Chettaippa Viswanathan

PARTNER ORGANISATIONS

Institute for Natural Resource Management, Viet Nam

SUMMARY

The current linear production process or take–make–dispose economic model leads to waste of raw materials and resources, which the Association of Southeast Asian Nations (ASEAN) can no longer afford. To remain competitive, ASEAN Member States (AMSs) have no choice but to move towards a more circular economic model, under which the value of products and materials is maintained for as long as possible and production of waste is minimised. At the ASEAN level, the formulation and elaboration of this concept are found in many recent ministerial statements and in ASEAN Socio-Cultural Community and ASEAN Economic Community sub-sector group working agendas. Discussed at an abstract level, however, such grand vision risks becoming a buzzword, disconnected from the sectoral needs and aspirations of keeping ASEAN production networks sustainable and competitive. Conversely, several initiatives on circular economy exist at the global level. Finland, for example, has developed a blueprint, 'Leading the cycle: Finnish road map to a circular economy 2016–2025', which outlines a multi-pronged strategy that Finland and the European Union could take to become a 'truly' circular economy by 2025. The proposed Finnish approach looks holistically at developing initiatives and policies in various stages of the life cycle of products and materials: resource use, consumer, retail, distribution, firm-to-firm transactions, manufacturing, material processing, primary sector, transport, and logistics.

This study aims to design such a framework (2020–2040) for ASEAN (or perhaps a more eclectic one based on studies of other leading nations, as well) to study the extent to which ASEAN and other benchmark countries (Australia, China, Germany, Japan, the Republic of Korea, New Zealand, etc.) have developed road maps, either explicitly or implicitly, for transitioning to circular economies. The study method involves three steps: (i) developing a standard format in which the previous study results of the Economic Research Institute for ASEAN and East Asia will be integrated to create a template of collected data and information, (ii) identifying experts from AMSs and benchmark countries to prepare circular economy road maps for each AMS, and (iii) using the collected information that provides insights on new policies needed and the science technology and innovation (STI) interface

approaches to foster a circular economy in participating countries at different stages of their life cycle.

POLICY IMPLICATIONS

1. A rationale and analytical framework with critical analysis on benchmark country studies
2. A road map report presenting the findings that will provide an understanding of the level of policy sophistication attained by each country and the STI interface needed at various stages of the circular economy
3. A formulation of South–South and North–South cooperation projects to enable AMSs to transition to circular economies

GEOGRAPHIC SCOPE

ASEAN

RELATED PUBLICATIONS

- Anbumozhi, V., K. Ramanathan., and H. Wayes (eds.) (2020), *Assessing the Readiness of Industry 4.0 and the Circular Economy*. Jakarta: ERIA. Downloadable from: <https://www.eria.org/research/assessing-the-readiness-of-industry-40-and-the-circular-economy/>
- Anbumozhi, V., F. Kimura (eds.) (2018), *Industry 4.0: Empowering ASEAN for the Circular Economy*. Jakarta: ERIA. Downloadable from: <https://www.eria.org/research/industry-40-empowering-asean-for-the-circular-economy/>
- Anbumozhi, V., J. Kim (eds.) (2016), *Towards a Circular Economy: Corporate Management and Policy Pathways*. ERIA Research Project Report 2014-44. Jakarta: ERIA. Downloadable from: <https://www.eria.org/publications/towards-a-circular-economy-corporate-management-and-policy-pathways/>



Impact of COVID-19 on Financing the Low-carbon Energy Transition

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PARTNER ORGANISATIONS

Australian National University

SUMMARY

Several reasons exist for leveraging private finance to accelerate the low-carbon energy transition and to achieve the nationally determined contributions (NDCs) agreed as a part of the Paris Agreement. First, advanced countries have not yet agreed on any clear plans to meet their commitment to provide US\$100 billion annually by 2020 so that developing countries can reach their NDC targets. Second, as estimates indicate, more than US\$100 billion per year is needed to meet the low-carbon transition challenges that include not only investments in renewable energy but also energy efficiency and other strategies such as the deployment of clean coal and carbon capture and storage technologies. Third, government budgets of both advanced and emerging economies are often constrained by financial debts and other austerity policies, with little clarity on when and how public financial flows will be scaled up to meet the targets for 2030. This study examines the impact of COVID-19 on the financial sector – equity markets, bond markets, banking sector, and the central banks. An in-depth country analysis is being done on the barriers to low-carbon green growth in major economies of ASEAN and East Asia.

POLICY IMPLICATIONS

1. Policy reforms needed to support the role of private finance in achieving the Paris Agreement targets
2. Key policy levers and risk mitigation that governments can use to unlock the potentials of private capital
3. Potentials of regionally coordinated actions to scale up private investments in the energy sector

GEOGRAPHIC SCOPE

ASEAN Plus Six countries

RELATED PUBLICATIONS

- Anbumozhi, V., K. Kalirajan, and F. Kimura (eds.) (2018), *Financing for Low-carbon Energy Transition*. Singapore: Springer
- Anbumozhi, V., P. Wolff, and X. Yao (2020), *Policies and Financing Strategies for Low-Carbon Energy Transition: Overcoming Barriers to Private Financial Institutions*. ERIA Discussion Paper 2019-38. Jakarta: ERIA. Downloadable from: <https://www.eria.org/publications/policies-and-financing-strategies-for-low-carbon-energy-transition-overcoming-barriers-to-private-financial-institutions/>
- Anbumozhi, V., M. LoCastro, D. David, D. Lutfiana, and T. F. Rakhmah (2020), *Unlocking the Potential of Private Financing for Low-carbon Energy Transition: Ideas and Solutions from ASEAN Markets*. ERIA Discussion Paper 2019-27. Jakarta: ERIA. Downloadable from: <https://www.eria.org/publications/unlocking-the-potential-of-private-financing-for-low-carbon-energy-transition-ideas-and-solutions-from-asean-markets/>

Applying Extended Producer Responsibility Towards Plastic Waste in Asian Developing Countries to Reduce Marine Plastic Debris

Hendro Putra Johannes, Michikazu Kojima, Fusanori Iwasaki, Ellen Putri Edita

SUMMARY

The extended producer responsibility (EPR) mechanism is adopted in many countries to give producers the responsibility to manage their products up to the post-consumer stage. In developing countries, EPR is mostly implemented for electronic waste. However, with the rising concern about marine plastic, developing countries, including those in Asia, have started to apply EPR for package and container waste. In practice, developing countries significantly differ in their implementation of EPR compared with developed ones due to contrasting social, economic, technology, and other factors.

This paper aims to explore the challenges of developing countries in applying EPR and to determine possible measures to overcome the challenges. Results show that applying EPR for plastic waste in developing countries faces many challenges, such as the existence of a market-based collection system of recyclables, high transport cost, lack of waste collection services in rural areas, the limited number of facilities to manage certain types of plastic waste, insufficient pollution control, and free riding and orphan products. The challenges can be minimised by differentiating the responsibility of producers, focusing on rural and remote areas, involving informal sectors, creating joint facilities in recycling parks, expanding waste management collection services, increasing the use of EPR, and minimising free riding. Aside from optimising the implementation of EPR, other related measures ensure the circularity of plastic waste in Asian developing countries. For instance, governments or private companies facilitate investment to reduce the transport cost of collected recyclables, enhance recycling design, develop industrial standards for recycled products, and stimulate green public procurement.

POLICY IMPLICATIONS

The study presents typical challenges in EPR implementation and possible measures to address them. They can have great lessons for other Asian developing countries that are considering or even preparing related policy to implement EPR. Most Asian developing countries can benefit from other countries' experience, not only in adopting EPR but also in

enhancing the circular economy model in dealing with marine plastic debris.

GEOGRAPHIC SCOPE

Asian developing countries

RELATED PUBLICATIONS

- Kojima, M. (2019). *Plastic Recycling: Policies and Good Practices in Asia*. Jakarta: ERIA. Downloadable from: <https://rkcmpd-eria.org/publication/15>

Regional Knowledge Centre for Marine Plastic Debris

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PARTNER ORGANISATIONS

Institute for Global Environmental Strategies (IGES)

SUMMARY

The Regional Knowledge Centre for Marine Plastic Debris (RKC-MPD) is an information clearinghouse on marine plastic pollution in ASEAN+3 countries, which aims to facilitate national and regional cooperation by promoting relevant policies and good practices amongst the ASEAN Member States. The centre was established in October 2019 as a subsidiary body of the Economic Research Institute for ASEAN and East Asia (ERIA). RKC-MPD is expanding its data-gathering and resource network for capacity development by identifying key local experts in the plastic policy and marine plastic leakage, identifying national and regional networks on ocean environmental studies, identifying and enhancing capacity development of national hubs for material flow analysis, and identifying private sector partners for gathering information as well as for outreach activities. Several projects grouped into four pillars are for consideration under the RKC-MPD: capacity development of ASEAN governments and support for policy formulation; capacity development on information, administration, research, and investigation that contribute to policy formulation; information sharing for international frameworks or initiatives; and information sharing to raise awareness and promote efforts by the private sector and citizens. The region needs a knowledge centre for circular economy and ERIA could propose that the RKC-MPD fulfil the role.

Most recently, the RKC-MPD has developed a private sector platform on its website (rkcmpd-eria.org). In ASEAN+3 countries, the private sector has been helping reduce plastic waste and marine plastic debris. The platform hosts information submitted by private companies from all ASEAN+3 countries to showcase their products, services, or technologies that help reduce plastic waste and marine plastic debris. The RKC-MPD website also contains good practices, including ASEAN+3 national frameworks, government initiatives, scientific knowledge, and voluntary initiatives to reduce plastic waste and marine plastic debris.

POLICY IMPLICATIONS

To tackle marine plastic debris, each government should expand waste collection and proper disposal, raise awareness, reduce single-use plastics, promote the circular economy of plastics, and others. The region has various good practices, which should be shared.

GEOGRAPHIC SCOPE

ASEAN+3 countries

RELATED PUBLICATIONS

- Kojima, M., E. P. Edita, H. P. Johannes, and F. Iwasaki (2020), *Marine Lives Matter*. Jakarta: ERIA. Downloadable from: <https://www.eria.org/news-and-views/marine-lives-matter/>

Financing Infrastructure for Climate Change

Adaptation

Fauziah Zen, Usha Iyer-Raniga, Alin Halimatussadiyah, Adoracion Navaro, Hongyuan Yu, Zhu Yunjie, Weiyi Wang, Yanfei Li, Prakriti Naswa, Akvan Gajanayake, Alizan Mahadi, Yoshihiro Fujii, Darshan Joshi, Chang Young Ho, and Yoshihiro Fujii

PARTNER ORGANISATIONS

Philippine Institute for Development Studies, Philippines; Royal Melbourne Institute of Technology, Australia; Institute of Strategic and International Studies, Malaysia

SUMMARY

Threats from climate change are real and cannot be ignored. Scientists are increasingly recording rising sea levels, sea and air temperatures, weather anomalies, etc. The frequency and magnitude of climate-related disasters have been increasing globally. The Food and Agriculture Organization estimated, in 2015, that the world suffered economic cost up to US\$1.5 trillion from 2003 to 2013 because of climate-related disasters, apart from their impacts on human health. The International Panel on Climate Change estimated, in 2018, that the world would need \$1.6 trillion–\$3.8 trillion of investment in the energy system to maintain the rising temperature within 1.5 degrees C.

The major events pushing global awareness on climate change risks are (i) the Paris Agreement within the United Nations Framework Convention on Climate Change, dealing with greenhouse gas emissions mitigation, adaptation, and finance signed in 2016; (ii) the 2030 Agenda for Sustainable Development, widely cited as Sustainable Development Goals (SDGs); and (iii) the Sendai Framework for Disaster Risk Reduction in 2015. The awareness and commitment to reduce the effect of climate change have been supported by the majority of countries. To date, 75% of country commitments, represented by nationally determined contributions, have adaptation targets, although many are difficult to measure (only 18% of adaptation goals are quantified). Commitment to the SDGs also partially contains elements of supporting resilient infrastructure finance.

Governments can be better fiscally prepared for climate change if they (i) include climate change as part of their long-term objectives in public budget and expenditure framework, (ii) improve financial tracking and performance accountability at the spending units, and (iii) strengthen public financial management system to tap external climate finance.

This study aims to review the implementation of infrastructure financing for climate change adaptation in selected East Asia developing economies. It will look at regulatory aspects, budgeting, institutional frameworks, and implementation. The study will also present several case studies from selected economies.

POLICY IMPLICATIONS

The study reviews government strategies and actions for climate change adaptation, especially in the infrastructure sector. The study suggests ways to fill the gaps in data availability and quality and to maximise resource mobilisation, including access to climate funds and green financing. The study briefly discusses infrastructure policy responses to COVID-19.

GEOGRAPHIC SCOPE

Australia, China, India, Indonesia, Japan, Malaysia, the Philippines, Singapore

10 | Sustainable Development Goals

An Assessment of COVID-19 Impact on the Trajectory of Sustainable Development Goals

Venkatachalam Anbumozhi, Fukunari Kimura, and Kaliappa Kalirajan

PARTNER ORGANISATIONS

National Council for Research, Thailand

SUMMARY

The main propositions in this study are (i) translating the Sustainable Development Goals (SDGs) into regional economic integration strategies that can enhance the link between global objectives and the multifaceted reality of an Association of Southeast Asian Nations (ASEAN) community, enhance policy coherence, and provide a strategic option to strengthen ASEAN's bargaining power; (ii) a regional approach on complementarities to SDGs that can facilitate the definition of relevant targets and indicators and enhance the monitoring and evaluation framework and, in so doing, offer the scope to closely integrate social and environmental concerns of ASEAN communities into existing economic and political frameworks; and (iii) focusing on the geo-economic sphere – where ASEAN's integration is relatively more advanced – to prove the hypothesis that effective regional integration through such initiatives as the Regional Comprehensive Economic Partnership can support Asia's transformation agenda and foster more inclusive and sustainable growth. This hypothesis is tested in the context of COVID-19.

Papers have been commissioned under these thematic areas:

1. Impact of COVID-19 and measuring the distance to 2030 targets. This component will use the latest information on various indicators available in ASEAN and the United Nations databases to establish the distance of ASEAN Member States (AMSs) from individual targets. Indicators for each priority area are selected to represent trends and improvements from 2000 to 2030.
2. Regional economic cooperation for doubling the impacts in the post-COVID-19 era. To help AMSs explore the transboundary economic effects or contribution of their trade and investment policies on sustainable development patterns, this component proposes an assessment of countries for their 'regional integration contributions' to meeting some of the targets in the 2030 agenda. At the regional level, a geo-environmental index has

been developed to differentiate the roles of countries as risk disseminator or assimilator for meeting the complementary SDG targets. Doubling effort strategies are to be proposed based on that index.

3. Engaging the private sector to realise SDGs in the post-COVID-19 era. The principles underpinning private sector engagement in measures are analysed under SDG 12.6, which encourages companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle. A regional public-private dialogue is being planned.

POLICY IMPLICATIONS

1. Provision of a high-level overview of strength and weakness and the distance the ASEAN+3 must travel to meet the SDGs in the context of the COVID-19 pandemic
2. Required regional cooperation strategies for the national implementation of the 2030 agenda from the perspective of ongoing ASEAN community endeavours
3. SDG corporate reporting benchmark for the private sector

GEOGRAPHIC SCOPE

ASEAN, China, India

RELATED PUBLICATIONS

- Anbumozhi, V (2016), 'How ASEAN can Advance the SDG Agenda'. Jakarta: ERIA. Downloadable from: <https://www.eria.org/news-and-views/how-asean-can-advance-the-sdg-agenda/>



11 | Effective Use of Energy

Analysis of East Asia Summit Future Mobility Fuel Scenario Considering the Sustainable Use of Biofuels and Other Alternative Vehicle Fuels

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PARTNER ORGANISATIONS

National Institute of Advanced Industrial Science and Technology

SUMMARY

Reducing carbon emissions in the transport sector is now attracting great attention worldwide, especially after the Paris Agreement in 2015. To meet this target, East Asia Summit (EAS) countries have been making great efforts to introduce biofuels on a large scale, considering the potential of their resources. Meanwhile, the introduction of electrified vehicles (xEVs) is expanding rapidly, which can be another efficient option to reduce greenhouse gas emissions in the transport sector. Therefore, creating a future mobility fuel scenario with a balance of biofuel vehicles and xEVs is extremely necessary.

In this study, scenarios for India, Indonesia, and Thailand were examined by considering the potential of biofuels and xEVs and establishing the constitution of power generation. Well-to-wheel CO₂ emissions for several scenarios will be estimated by creating an energy-mix model.

In addition, the sustainability of biofuels and xEVs will be considered. Diffusion of xEVs can contribute to CO₂ reduction but may affect mineral resource demand induced by motors and batteries.

This study is aimed at analysing a future scenario of EAS mobility that contributes greatly to achieving Sustainable Development Goals (SDGs) 7, 12, and 13, and balances transport CO₂ reduction, biofuel use, and mineral resource demand. The outcome will contribute to the EAS energy research road map.

POLICY IMPLICATIONS

1. Mobility scenario and strategy of EAS countries
2. Reduction of transport energy consumption and CO2 emission in EAS countries
3. Implementation of sustainable transport energy that contributes greatly to achieving SDGs

GEOGRAPHIC SCOPE

India, Indonesia, the Philippines, Thailand

Global Situation of Small Modular Reactor Development and Deployment

Tomoko Murakami and Venkatachalam Anbumozhi

PARTNER ORGANISATIONS

Institute for Energy Economics Japan

SUMMARY

Several countries need a huge amount of clean low-carbon energy to meet their climate goals. To reinforce the competitiveness of nuclear energy in the clean and low-carbon energy market, advanced reactors of innovative features have been developed in niche markets. Amongst those advanced reactors, small modular reactors (SMRs) are expected to meet various demands that have not been satisfied by conventional large-scale reactors because of the SMRs' design features: small generation capacity, modular construction technology, safety and low risk of radiation exposure, etc. Because of such advantages, SMR development projects are taken up in some leading countries such as the United States (US), the United Kingdom, Canada, etc. At the same time, some countries that have not utilised nuclear energy are considering the deployment of SMRs.

However, many barriers exist in deploying nuclear power plants. The 'newcomer' countries are seeking various options to meet their energy and environmental policy. Most of the Economic Research Institute for ASEAN and East Asia member countries are also at an important phase to decide their future energy options because they are experiencing rapid economic development and are expected to continuously increase energy demand.

This research will focus on the innovative efforts in the leading countries and on considerations in the 'newcomer' countries to provide the Asian member countries with useful insight and information to consider their future energy policy.

POLICY IMPLICATIONS

1. Evidence-based information for potential newcomer countries to decide whether SMRs are suitable for their electric power system

2. Promote international cooperation with potential newcomer countries in fields of energy planning, feasibility studies, infrastructure development, etc.

GEOGRAPHIC SCOPE

Europe, Japan, Southeast Asia, the US

Sustainable Oil Palm Development and Trade in ASEAN

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PARTNER ORGANISATIONS

Bogor Agriculture University, Sinar Mas

SUMMARY

A consensus declares that the trend of increasing palm oil yields will continue and accelerate, allowing companies to improve the production and profitability of palm oil without the need for additional land. Recognised and anticipated consumer concerns, especially in Europe, however, have been a deterrent to the further expansion of palm oil production, resulting in trade disputes between the European Union (EU) and the Association of Southeast Asian Nations (ASEAN). Palm biodiesel will only be economically viable if prices of crude palm oil remain at the current level, which are lower than prices of petroleum diesel, or if sufficient subsidies are granted to palm oil producers. Various best practices for minimising the environmental impact of palm oil plantations have been developed but few independent assessments of their application and effectiveness have been made.

Knowledge gaps exist in the following areas:

1. Development of medium- to long-term biofuel demand and supply scenarios under differing regulations, production efficiency, and best sustainability practices and their impact on land-use changes.
2. Analysis of new policy mechanisms introduced in the EU and other countries and their impact on crude palm oil prices, biofuel development, oil palm expansion, and tropical forests in major ASEAN countries.
3. Research into the impact on food security of increased production in biofuel and palm oil. Is there a real and significant threat in Indonesia and Malaysia? If so, how can it be remedied?
4. Investigation of how energy security benefits and low-carbon environmental benefits can be maximised through sustainable palm oil and improved management systems.
5. Examination of the tensions and complementarities between public and private as well as international actors in implementing the several sustainability standards, the

degree to which they are implemented, and the way they are formulated, and the likely economic and social outcome in relation to their design.

POLICY IMPLICATIONS

1. Evolving regulatory and incentive systems at national and regional levels and their effectiveness in improving energy security and low-carbon pathways to support ASEAN through biofuel and palm oil will be reported at the East Asia Summit Energy Ministers Meeting.
2. Establish analytical frameworks and identify ways by which selected public policies can influence national and cross-border palm oil trade. This will be useful to policymakers, academia, and private sector stakeholders seeking the best ways to have a common understanding of policy environment to base decisions on investment in optimal projects and business models.
3. Policy brief will coincide with important events such as ASEAN+3, energy and environmental ministers meeting, World Circular Economy Forum, and ASEAN–EU–Japan Senior Officials Dialogue.

GEOGRAPHIC SCOPE

Indonesia, Malaysia, Thailand

RELATED PUBLICATIONS

- Yamaguchi, K (ed) (2013), *Study on Asian Potential of Biofuel Market*. ERIA Research Project Report 2013-20. Jakarta: ERIA. Downloadable from: <https://www.eria.org/publications/study-on-asian-potential-of-biofuel-market/>

A Flexible Liquefied Natural Gas Market and Promotion of Investment

Hiroshi Hashimoto and Han Phoumin

PARTNER ORGANISATIONS

Institute for Energy Economics Japan

SUMMARY

Demand for natural gas in ASEAN is expected to grow faster than its total energy requirement. The share of natural gas in the energy mix in ASEAN is expected to expand from 20% in 2017 to 23% in 2050. This implies that import dependency of liquefied natural gas (LNG) could rise significantly from about 30% now to nearly 50% by 2050. Therefore, ASEAN will need stable investment upstream and in natural gas and LNG infrastructures such as receiving terminals, pipelines, and gas-fired power generation facilities, as well as LNG supply sources from within and outside the region.

The world is expecting a significant expansion of LNG production in the next decade, creating additional opportunities for LNG players to make the market more flexible. LNG used to be marketed and sold to ready LNG users. The value chain was constructed in a vertically integrated manner. Those with LNG supply may take advantage of their expertise to develop emerging LNG markets and optimise LNG volumes amongst different international LNG markets. This could significantly increase LNG consumption points to make market activities more flexible. Increasing transactions amongst a greater number of players should make it less difficult for them to create Asia's own LNG price indexes.

Despite challenges, such as the balance between vertical integration of the LNG value chain and increasing flexibility of LNG transactions, credit ratings of diversified parties to be involved, and different technical standards in different countries, Japanese players are expected to continue contributing to the development of the LNG market in collaboration with national and private energy companies and regional organisations in the ASEAN region.

This study aims to identify ways to develop LNG-consuming markets in the most promising region for economic growth in the world, how LNG supply sources could be more flexible and competitive in the ASEAN LNG market, and how technical and regulatory standards should be coordinated amongst individual economies so that future LNG cargoes can move freely

between markets in response to dynamic developments in those markets. The study will also look at recent and expected developments of price formation in Asian LNG markets and see what can be done to promote more suitable price benchmarks in the region, as well as issues surrounding financing and investment in each segment of the LNG value chain, in accordance with evolving LNG pricing developments.

POLICY IMPLICATIONS

The study will provide recommendations for a sustainable LNG and gas market in the East Asia Summit region. The study will necessarily tackle market conditions, reform and regional commitment to an LNG hub, transparency of stock, and inventory and hedging procedures to ensure stable supply and reasonable prices of LNG and gas to Asia.

GEOGRAPHIC SCOPE

ASEAN and East Asia

Electricity Market Reform in ASEAN and India

Han Phoumin and Fukunari Kimura, Rabindra Nepal, Farhad Taghizadeh, Nophea Sasaki, et al.

PARTNER ORGANISATIONS

Association of Southeast Asian Nations; Asian Institute of Technology; Tokai University, Japan; University of Institute of Malaysian and International Studies; University of Wollongong, Australia.

SUMMARY

The past two decades showed remarkable progress in the Association of Southeast Asian Nations (ASEAN) energy sector, achieved through rural electrification access, rapid provision of large-scale and high-volume national grid systems, successful mobilisation of indigenous resources, adoption of new technologies, gradually increasing share of renewables in the energy mix, and the beginning of cross-country entry trade. Despite this progress, however, electricity market reform in the past 3 decades in many developing countries, including those of Southeast Asia, has not achieved free-market competition. The reform starts from a vertically state-owned system to a hybrid market-based system where a state-owned utility remains the 'single buyer' whilst allowing the private sector to join in supplying electricity as independent power producers. Studies have shown that the single-buyer model is prone to loopholes that invite corruption, weaken payment discipline, and exact large contingent liabilities on the government budget. Thus, this study aims to investigate electricity market reform in Southeast Asia in areas of electricity price structure and its effects on productivity and social well-being; electricity market reform from a single buyer to free and open-market competition; the impact of liquefied natural gas and the gas pricing mechanism on the power mix structure in ASEAN or its individual members; contract mechanism and transparency and bidding process; and the impact of a free electricity market mechanism on renewables, clean energy, and technology penetration.

POLICY IMPLICATIONS

The study will provide the following policy recommendations:

1. Energy policy reforms for free electricity market competition
2. Step-by-step approaches to free electricity market

3. Impacts of liquefied natural gas pricing mechanisms on the energy mix in ASEAN
4. Electricity market reforms to accelerate the development of renewables and clean energy

GEOGRAPHIC SCOPE

ASEAN and India

Enhanced Flexibilisation of Coal-fired Power Plants for Optimal Grid Stabilisation in the ASEAN Region

Yamada Fumiko and Han Phoumin

PARTNER ORGANISATIONS

Japan Coal Energy Centre

SUMMARY

The Association of Southeast Asian Nations (ASEAN), one of the most dynamic and fastest-growing economic regions in the world, faces tremendous challenges to its sustainable growth with the threat of rising pollution and climate change. ASEAN Member States (AMSs) are signatories to the Paris Agreement, but meaningful actions to curb emissions are contentious given the need for electricity access, affordability, and sustainability. Malaysia is targeting a 45% reduction of greenhouse gas emissions intensity against GDP by 2030. Thailand is committed to an unconditional 20% emissions reduction by 2030 against its business-as-usual scenario, under which emissions may increase in the same period by as much as 25%. Indonesia is consistently committed to reduce emissions by 29% (or by 41%, with international support) by 2030. Other AMSs are trying hard to address the emission-reduction requirements mainly by introducing renewable energy. ASEAN has set an aspirational target to increase the component of renewable energy to 23% by 2025 in its primary energy mix.

Indonesia is committed to 23% renewable energy in its total primary energy supply by 2025, whilst Malaysia is confident about its target of 2,080 MW of renewable energy installed capacity by 2020 (excluding large hydro). The Philippines is making strenuous efforts towards its target of 15.2 GW of renewable energy in 2030. Viet Nam is committed to 21% renewable energy through 130 GW installed capacity by 2030. Aside from targeting emissions reduction, some AMSs are struggling to increase renewable share in the power mix.

Renewable energy is variable and intermittent. Accordingly, the ongoing and forthcoming massive introduction of renewables will enhance energy sustainability and resilience only if existing fossil fuel power plants are appropriately controlled and operated with enough

flexibilisation as required by the grid through introduction of techniques, best practices, and technologies such as the Internet of Things and artificial intelligence. The situation may vary from one country to another. Gas power plants play an important role in energy transition. However, some countries with less dominant gas power have to do it with coal-fired power plants, as in the case of India. To sustain the present high growth and enhance energy resilience, ASEAN will need to address the emerging issue of possible grid fluctuation with the massive introduction of renewables.

This study will help provide best practices and applicable measures and technologies for coal-fired power plants for their flexible yet optimal operation in order to contribute to the stabilisation and sustainability of national and transnational grids, and to the minimisation of negative impacts both on the grid and the existing coal-fired power plants by the massive introduction of renewables.

POLICY IMPLICATIONS

Expected policy recommendations:

1. Guidelines for the optimal policy framework for ASEAN to facilitate flexible operation of coal-fired power plants to ensure optimal stabilisation of the grid
2. Country strategies to introduce and implement flexible operation of coal-fired power plants, and sharing of best practices
3. Policy recommendation to the East Asia Summit to facilitate the country policy efforts based on the proposed strategies.

GEOGRAPHIC SCOPE

ASEAN region

Hydrogen Sourced from Renewables and Clean Energy: A Feasibility Study of Achieving Large-scale Demonstration in China

Han Phoumin and Yanfei Li

PARTNER ORGANISATIONS

Several Chinese universities

SUMMARY

This study will consist of sub-projects comprehensively covering technical, economic, financial, institutional, regulatory, and policy issues related to enabling large-scale hydrogen energy demonstration projects in China. Feasibility studies of selected large-scale demonstration projects in China will be conducted in collaboration with local entities such as China Energy Engineering Group, China Guangdong Nuclear Power Holding Group, Dalian University of Technology, China National Petroleum Corporation, and Foshan Institute of Environment and Energy. Senior energy experts and researchers will carry out the listed research projects. In the implementation plan study, findings from the above-mentioned projects will provide the basis for discussion at interviews and workshops to be held amongst industry players, government bodies, and academic researchers to identify key barriers and solutions, together with an agenda for actions in implementation to realise the selected demonstration projects.

POLICY IMPLICATIONS

The studies will provide policy recommendations concerning potential risk reduction in the proposed large-scale renewable-to-hydrogen energy demonstration projects globally. The studies will also draw policy recommendations about best practices and experience from successful demonstrations and share the lessons globally.

GEOGRAPHIC SCOPE

China

Assessment of Electric Vehicle Penetration in Lao PDR

Shigeru Kimura, Joko Purwanto, Keisuke Ueda

PARTNER ORGANISATIONS

Department of Planning and Cooperation, The Ministry of Energy and Mines, Lao PDR

SUMMARY

Oil, a major fuel in the total primary energy supply in the Lao People's Democratic Republic (Lao PDR), is used mainly for transport and is imported from neighbouring countries such as Thailand and Viet Nam. Lao PDR is rich in hydropower and has significant potential to develop it. Therefore, penetration of electric vehicles (EVs) is an option for Lao PDR in terms of reducing its import of transport fuels such as gasoline and diesel and in developing its hydropower. Thus, the Ministry of Energy and Mines of Lao PDR has requested the Economic Research Institute for ASEAN and East Asia (ERIA) to analyse the impacts of EV penetration in Lao PDR.

This project aims to support the Department of Planning and Cooperation of the Ministry of Energy and Mines in analysing impacts of EV penetration in Lao PDR in terms of changing its energy mix to shift from oil to electricity, forecasting oil demand reduction and electricity demand increase, revising oil imports on a physical and monetary basis, and elaborating hydropower development plans. In addition, the study should define the necessary number of EV charging stations, the needed capacity enhancement of domestic transmission lines, and the need for construction of new hydropower plants on a physical and monetary basis.

POLICY IMPLICATIONS

The study results should help the Government of Lao PDR develop its EV penetration road map.

GEOGRAPHIC SCOPE

Lao PDR

Biofuel Support Policy for Indonesia (FY 2020 Project)

Joko Purwanto, Dian Lutfiana

SUMMARY

Indonesia is targeting a more balanced energy mix structure, i.e. 23% of renewable share by 2025 and 31% by 2050. Promoting the use of biofuel in transport, industry, and electricity generation is a strategy to meet those targets, which aim to reduce the bill for petroleum-based transport fuel imports, thus reducing trade balance deficits and increasing the country's energy self-sufficiency.

The implementation of biofuel policies in the transport sector has so far been the most advanced.

The implementation of 20% biofuel blend (B20 diesel fuel) use for road transport has been mandatory since 2016 followed by the implementation of the use of the 30% biofuel blend (B30 fuel) by December 2019. The government is targeting the use of B40 or B50 fuel by the end of 2020 and introducing an even higher percentage of biodiesel blend as an alternative non-mandatory fuel type in the coming years.

As far back as 2006, there were several regulations in the country that regulated the use of certain blending percentages of bioethanol in gasoline fuel apart from biodiesel. However, several issues hampered the implementation of these regulations so that there is practically no bioethanol blend in transport fuel in Indonesia. Implementation of the use of a 2% blend of bioethanol in gasoline in certain cities in East Java province is being prepared, which should become the starting point of a more aggressive bioethanol policy in Indonesia in the coming years.

Pertamina, the national energy company owned by the Government of Indonesia, is running several demonstration projects producing next-generation biofuels, i.e. crude palm oil-based green diesel and green gasoline that practically have all the technical properties of conventional diesel and gasoline.

However, during the first quarter of 2020, Indonesia experienced the COVID-19 pandemic and the crude oil price drop as a result of the Russia–Saudi Arabia oil price dispute. These events have dramatically changed energy demand and prices and will have repercussions in the next couple of years. As a consequence, Indonesia's biofuel policy needs to adapt. In the

short term, for example, the oil price drop will drag down diesel prices, leaving biodiesel and bioethanol prices less competitive in a situation where transport fuel demand is extremely low.

This study proposes a scenario-based analysis to evaluate the effectiveness and efficiency of biofuel support policies, considering the impacts of biofuel production on the energy and agricultural markets, to reflect the reaction of the various sectors of the economy to changes in biofuel production whilst considering the impacts of the latest oil price drop and the COVID-19 pandemic. In addition, the suitability of complementary measures in steering the market will be assessed.

This study is an extension of a previous ERIA study titled 'Market Penetration Assessment of Biodiesel (B100) and Bioethanol (E100) as Road Transport Fuels in Indonesia'.

POLICY IMPLICATIONS

This study should provide the Government of Indonesia with a comprehensive road map to develop biofuel energy that takes into account all the sectors involved.

GEOGRAPHIC SCOPE

Indonesia

Economics and Risks of Power Systems Under High Penetration of Renewable Energies

Yuhji Matsuo, Joko Purwanto

PARTNER ORGANISATIONS

The Institute of Energy Economics, Japan

SUMMARY

Variable renewable energies, including solar photovoltaic and wind, have been rapidly spreading globally in line with recent cost declines. Due to intermittency, however, the massive introduction of these technologies leads to additional costs. This study investigates the economic feasibility of renewable energies and related risks with their high shares in the ASEAN region, concerning power grid interconnection and optimal use of hydropower resources, using a detailed optimal power generation mix model that takes into account the natural variability of renewable energies. The study will develop a detailed linear programming model. The model fully considers temporal fluctuations in solar and wind power output, as well as grid interconnection between countries, to simulate future power systems in the ASEAN region with high shares of renewable energies. The optimal power generation mix and the cost increases to achieve ambitious renewable targets are calculated. The target years are 2030 and 2050.

POLICY IMPLICATIONS

The costs and the benefits and the risks associated with the natural variation of renewable energies are estimated quantitatively for several cases with different renewable shares.

The results would imply the following:

1. High shares of renewable energies can be achievable with reasonable levels of cost increases but require strong policy measures to promote them.
2. Pursuing the best mix of low-carbon technologies reduces cost increases and enhances energy security.
3. Investing in grid infrastructure can contribute greatly to energy security and affordability.

GEOGRAPHIC SCOPE

ASEAN countries

Electric Vehicle Battery Recycling and Reuse

Naoko Doi, Joko Purwanto

PARTNER ORGANISATIONS

The Institute of Energy Economics, Japan

SUMMARY

In recent years, East Asia Summit (EAS) countries have made progress in electrifying transport. EVs are considered important technological options for EAS countries towards air quality improvement in urban areas, energy security enhancement to shift away from oil dependence, and climate change mitigation, coupled with low-carbon power generation sources.

Some countries consider EVs and battery production as opportunities for industrial development. Amongst EAS countries, some manufacturers have started investing in or planning for domestic battery and/or EV production in addition to formulating regulations on EV supply chains. Planning for infrastructure investment (mainly in charging stations) has been under consideration in some EAS countries.

Amongst ASEAN countries, Indonesia, Malaysia, and Thailand have formulated EV production plans that include battery production. Indonesia, for example, aims to establish an integrated production system, from the extraction of cobalt (required for cathodes) to battery production. Vehicle manufacturers in Thailand have formulated plans to assemble batteries produced in other countries.

Despite progress made in planning to manufacture EVs or batteries in ASEAN, its member countries have yet to formulate the plans or regulations on battery recycling.

The study will conduct quantitative and qualitative analysis on the following:

Firstly, EV demand in ASEAN by 2040. Using EV travel distance and lifetime as assumptions, the study will estimate the supply of used batteries by 2040. Based on this, the study will estimate the required capacity of stationary batteries or variable renewable energy by 2040.

Secondly, research on battery recycling in Europe, the US, Japan, and China to gain insights into the formulation of regulations and establishment of business models.

Thirdly, insights from countries in Europe, the US, Japan, and China on their implementation of regulations for appliance recycling by analysing (1) how regulations are implemented, (2) who bear the costs of recycling, and (3) how regulations contribute to appliance recycling.

Fourthly, policy recommendations for ASEAN countries to establish regulations on battery recycling, and to harmonise regulations amongst member countries. The study will formulate policy recommendations for ASEAN countries to coordinate EV battery manufacturing supply chain, including recycling.

POLICY IMPLICATIONS

The results of study should provide recommendations for ASEAN countries on the following:

1. Harmonisation of regulations. ASEAN countries are required to harmonise regulations for EV battery recycling as the region is expected to share the EV manufacturing supply chain.
2. Use of stationary batteries. The introduction of variable renewable energies in ASEAN countries should be coupled with the use of stationary batteries for grid stabilisation, and the use of recycled batteries should offer cost-effective options.

GEOGRAPHIC SCOPE

ASEAN countries

Market Penetration Assessment of Biodiesel (B100) and Bioethanol (E100) as Road Transport Fuels in Indonesia

Joko Purwanto, Dian Lutfiana

PARTNER ORGANISATIONS

Ministry of Industry

SUMMARY

This study aims to deliver a road map that allows optimal and sustainable penetration of high-percentage blended biofuels and flexible-fuel engine vehicles in Indonesia towards 2035, which should serve as the main strategy to reduce the country's energy import bills and increase its energy self-sufficiency.

POLICY IMPLICATIONS

The results of the study will allow the Government of Indonesia to set its sustainable objectives on blending biofuels with conventional fuels used in road transport and formulate accompanying policies.

GEOGRAPHIC SCOPE

Indonesia

Study on Forecast of Biomass Demand Potential in Indonesia: Seeking Business Model of Wood Pellets

Shigeru Kimura, Saleh Abdurrachman, Han Phoumin, Joko Purwanto, Dian Lutfiana

PARTNER ORGANISATIONS

Ministry of Energy and Mineral Resources of the Republic of Indonesia

SUMMARY

Biomass in Indonesia is considered a carbon-neutral fuel. Although the Ministry of Energy and Mineral Resources has policies to increase biomass consumption for energy, implementation has not been easy due to the absence of biomass supply chains that will transform raw biomass into secondary biomass such as biofuels and wood pellets, and the relatively higher cost of secondary biomass compared with conventional energy such as coal and oil. The project aims to forecast potential demand for biomass, consisting of biofuels (bioethanol and biodiesel) for vehicles, biomass power generation, biomass combustion at coal power plants (mixture of biomass and coal), biochar as agricultural fertiliser, etc. The establishment of a biomass supply chain will be studied, which should include collection and transport of raw biomass, fabrication into secondary biomass such as wood pellets, and transport of secondary biomass to final destinations such as power plants. The highlight of the study will be the business model for wood pellets to be used for combustion with coal at coal power plants and their export potential.

POLICY IMPLICATIONS

The study should help the Government of Indonesia set policies that support the development of biomass and biofuels, especially in the use of wood pellets for combustion with coal at coal power plants and for export.

GEOGRAPHIC SCOPE

Indonesia

Vehicle Technology Impact Assessment Model Development for Indonesia

Joko Purwanto, Dian Lutfiana

SUMMARY

This project will develop a vehicle technology impact assessment model for Indonesia to assess the effects of energy, environmental, and transport policies on energy consumption, greenhouse gas emissions, air pollution, and changes in the road transport sector towards 2050. The model will be a representation of the road transport vehicle fleet structure, which consists of passenger and freight transport categories. Each category will be broken down into vehicle type; fuel (gasoline, diesel, compressed natural gas, hydrogen, etc.); propulsion technology (internal combustion engines, electric, etc.); and age.

The model will be fed data sets classified into the economic, demographic, fleet, detailed transport costs, fuel consumption, and emission factor categories. The expected outcomes are estimated road transport demand, vehicle turnover and fleet dynamics, fuel consumption, greenhouse gas emissions, air pollution, and impacts on total welfare.

POLICY IMPLICATIONS

The model will assess road transport policy measures such as efficiency standards, flanking measures, pricing, fuel quality, etc. to help stakeholders flesh out policy recommendations.

GEOGRAPHIC SCOPE

Indonesia

Cogeneration Development in Indonesia and Its Strategy for Market Penetration

Shigeru Kimura

SUMMARY

Cogeneration is a fundamental energy technology due to its high thermal efficiency. However, this technology can be applied only to factories that need both heat and electricity. This project looks for potential sub-industrial sectors to be able to apply cogeneration and then estimates the market size of cogeneration.

POLICY IMPLICATIONS

Promote energy conservation in industries applying cogeneration technology.

GEOGRAPHIC SCOPE

Indonesia

Oil and Gas Strategic Pricing for Myanmar

Shigeru Kimura, Alloysius Joko Purwanto, Ichiro Kutani, and Takahisa Hiruma

PARTNER ORGANISATIONS

Institute of Energy Economics, Japan and ASIAM Research Institute

SUMMARY

Myanmar produces natural gas but will import liquefied natural gas (LNG) because natural gas production is decreasing. Myanmar will have domestic production and import of natural gas. Thus, the Economic Research Institute for ASEAN and East Asia (ERIA) supports the Oil and Gas Planning Department of Myanmar's Ministry of Electricity and Energy in setting up a strategic gas pricing mechanism under a mixed gas supply situation. Since many oil players are engaging in the oil business especially sales of gasoline and diesel oil, ERIA is setting up an oil price mechanism to secure a market-oriented scheme without an oil price cartel.

POLICY IMPLICATIONS

Increase the competitiveness of the oil and gas market in Myanmar.

GEOGRAPHIC SCOPE

Myanmar

Petroleum Supply Chain Master Plan for Cambodia – Phase 2

Shigeru Kimura, Han Phoumin, Takahisa Hiruma, and Cecilya Malik

PARTNER ORGANISATIONS

ASIAM Research Institute

SUMMARY

Based on petroleum demand in 2040 of each of Cambodia's provinces forecast in Phase 1, the Economic Research Institute for ASEAN and East Asia seeks an optimal petroleum supply chain using the cost-minimum approach under several constraints: two primary ports (Sihanoukville and Phnom Penh); three transport modes (pipeline, railway, and tank truck); and imports from Thailand.

POLICY IMPLICATIONS

Send the optimisation results to oil companies in Cambodia for their comments.

GEOGRAPHIC SCOPE

Cambodia

Preparation of Cambodia Energy Statistics in 2000–2009

Shigeru Kimura, Han Phoumin, and Cecilya Malik

SUMMARY

The Economic Research Institute for ASEAN and East Asia (ERIA) supported the General Department of Energy, Ministry of Mines and Energy, Cambodia in publishing Cambodia Energy Statistics 2016, but it covers only the period after 2010, and thus cannot contribute to quality demand and supply analysis or provide an energy outlook. In this regard, ERIA prepares Cambodia Energy Statistics 2000–2009 including estimated data because many existing energy data are missing.

POLICY IMPLICATIONS

Using long time series energy demand and supply data in 2000-2018, analyze energy demand and supply situation of Cambodia from a wider viewpoint and produce more reliable energy outlook of Cambodia up to 2050

GEOGRAPHIC SCOPE

Cambodia

RELATED PUBLICATIONS

- General Department of Energy and General Department of Petroleum, Ministry of Mines and Energy of Cambodia (2016). *Cambodia National Energy Statistics 2016*. ERIA Research Project Report 2015-08. Jakarta: ERIA. Downloadable from: <https://www.eria.org/publications/cambodia-national-energy-statistics-2016/>

Preparation of Energy Efficiency Indicators for Myanmar

Shigeru Kimura, Alloysius Joko Purwanto, and Leong Slew Meng

SUMMARY

To curb the rapid increase of Myanmar's consumption of commercial energy sources such as petroleum and electricity, energy efficiency and conservation (EEC) must be promoted. Unfortunately, benchmarks of unit energy consumption across the sectors do not exist. Thus, the Economic Research Institute for ASEAN and East Asia (ERIA) supports the Oil and Gas Planning Department/Ministry of Electricity and Energy (OGPD/MOEE) in producing energy efficiency indicators as benchmarks across industrial and commercial sectors. ERIA also provides OGPD/MOEE with knowledge experience and energy consumption surveys of the sectors.

POLICY IMPLICATIONS

Accurate Energy Efficiency Indicators (EEI) contributes to setting up appropriate EEC policies for the sectors.

GEOGRAPHIC SCOPE

Myanmar

Preparation of Energy Efficiency Indicators for the Philippines

Shigeru Kimura and Leong Slew Meng

SUMMARY

In 2019–2020, the Economic Research Institute for ASEAN and East Asia (ERIA) provided energy efficiency and conservation (EEC) lectures to the Philippines Department of Energy (PDOE), including on technical and engineering aspects of EEC, energy management systems such as factory energy and management systems and building energy management systems, energy efficiency indicators, and how to conduct an energy consumption survey across the sector. In 2020–2021, ERIA is supporting PDOE to produce energy efficiency indicators using energy consumption survey results as benchmarks.

POLICY IMPLICATIONS

Preparation of appropriate EEC policies based on energy efficiency indicators.

GEOGRAPHIC SCOPE

Philippines

Preparation of Energy Outlook and Energy Saving Potential in East Asia Region

Shigeru Kimura

PARTNER ORGANISATIONS

Institute of Energy and Economics, Japan

SUMMARY

Based on the existing energy outlook models of EAS 17 countries to represent Business as Usual (BAU) scenario, we analyze how COVID-19 influences energy demand-supply situation especially in 2020 and up to 2050 due to no availability of official energy statistics in 2020 of EAS countries. In other words, we analyse the impact by economic recession (decrease or negative GDP in 2020) brought by the COVID-19 pandemic. The analysis focuses on short-term impact to cover 2020-2023 and long-term impact in 2020-3050.

GEOGRAPHIC SCOPE

ASEAN and East Asia

Study on Demand and Supply Potential of Hydrogen in East Asia – Phase 3

Shigeru Kimura, Alloysius Joko Pruwanto, Ichiro Kutani, Mitsuru Motokura, and Takahisa Hiruma

PARTNER ORGANISATIONS

Institute of Electrical Engineers of Japan, ASIAM Research Institute

SUMMARY

Phase 3 of this project forecasts the amount of hydrogen production from potential energy sources such as hydropower plants in an isolated area, flared gas, and low-ranked coal such as brown coal. Based on the hydrogen production and demand reviewed in Phase 2, Phase 3 seeks optimal hydrogen transportation routes between hydrogen production and demand sites applying the cost-minimum approach. In addition, Phase 3 provides an opportunity to discuss decarbonization as a long-term energy policy and the role of hydrogen.

POLICY IMPLICATIONS

Preparation of appropriate EEC policies based on energy efficiency indicators.

GEOGRAPHIC SCOPE

ASEAN and East Asia



Update of East Asia Summit Energy Outlook and Saving Potential

Shigeru Kimura, Dian Lutfiana, Han Phoumin, Joko Purwanto, Cecilya Malik

PARTNER ORGANISATIONS

Institute of Energy and Economics, Japan

SUMMARY

This project consists of a series of workshops and discussions between the Ministry of Energy of ASEAN and the East Asia Summit (EAS) countries on energy statistics and energy outlook modelling. The project also has a capacity-building activity, where participants from ASEAN are taught energy outlook modelling techniques.

POLICY IMPLICATIONS

The results should provide ASEAN and EAS countries with energy outlooks to help them formulate suitable policy packages with regard to the future road map.

GEOGRAPHIC SCOPE

ASEAN and EAS countries



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