Economic Research Institute
for ASEAN and East Asia

SUMMARY OF ERIA RESEARCH PROJECTS

2018 - 2019

SUMMARY OF ERIA RESEARCH PROJECTS

2018 - 2019

Edited by Tyagita Silka Hapsari

Cover Design by Ranti Amelia
Layout by Artmosphere Design

Table of Contents

Deepening Economic Integration

Table of Contents

Narrowing Development Gaps

Sustainable Economic Development

Table of Contents

Energy-Related Research

Deepening Economic Integration

01

Creative Industries, Creative Economies, and Creative Activities in Japan and Their Global and Transnational Linkages in ASEAN and East Asia

Masahito Ambashi, Shujiro Urata, and Seio Nakajima

PARTNERS

Waseda University

SUMMARY

According to the World Economic Forum's The Future of Jobs Report published in 2016, creativity will become one of the most important skills in the Fourth Industrial Revolution. This revolution is characterised by a fusion of technologies that blurs the lines between the physical, digital, and biological spheres. In industry and commerce, the term 'creative industries' appeared in the policy circles of the United Kingdom (UK) in the late 1990s, and since then has been widely used in other countries, including Japan, the United States, Australia, and China.

Because the term originated in the UK, the majority of studies have focused on cases from Europe – from the UK in particular – and other Anglophone countries, such as Australia and the United States. Research on creative industries in Asia is limited. A few pioneering studies have appeared, but they tend to be one-country case studies. Nevertheless, since all three branches of creative industries – production, distribution, and consumption – have become global and transnational, a broader and comparative-regional perspective is essential if one is to understand the increasing flows of goods, services, and industry personnel.

In this project, we attempt to take a pioneering role in filling this gap, by providing comparative case studies from ASEAN and East Asia, and by zeroing in on cooperation and competition in the region. We will focus on the creative industries in Japan, with a particular emphasis on the increasingly transnational flows of goods, services, and industrial personnel within the ASEAN and East Asian regions. Although the focus is on Japan's creative industries, we also look at transnational approaches to the creative industries by examining the global networks of production, distribution, and consumption in ASEAN, East Asia, and beyond. We work under a guiding framework comprising the following facets of cultural production: (1) technology; (2) law and regulation; (3) industry structure; (4) organisational structure; (5) occupational career; and (6) market.

OBJECTIVES

The key objectives of this research are to provide answers to the above questions by putting to task the insights from economic and cultural sociology, management and organisation studies, economics—in particular new institutional economics and its transaction cost approach and contract theory variants (Caves 2000, 2003), as well as political science and international relations—including the notions of cultural diplomacy, public diplomacy, and soft power (Nye 2004).

POLICY IMPLICATIONS

We will propose policy recommendations roughly under these six facets, and determine the conditions necessary to nurture creative industries in Asia. We will provide recommendations for creative industry policies for both local and central governments that will nurture the ideal combination of these six facets.

GEOGRAPHIC SCOPE

ASEAN and Japan

02

Export Competitiveness of Manufacturing Industries in East Asia

Masahito Ambashi and Kaoru Nabeshima

PARTNERS

Waseda University

SUMMARY

The double-digit growth seen in international trade in recent decades can no longer be expected. According to the World Trade Organization, international trade grew 1.7% in 2016. This slowing growth – a feature of the weak global economy – has been accompanied by growing concern about the proliferation of trade measures. As tariffs come down, non-tariff measures (NTMs) and behind-the-border measures are becoming more significant. In fact, in many sectors, the impact of NTMs is larger than that of tariffs.

As international trade growth slows, so does growth in East Asian countries – ASEAN nations, China, Japan, and Korea – and particularly in advanced ASEAN countries. Some also face the middle-income trap. Given ASEAN nations' small economies, reliance on external markets, including other nations, is a key economic consideration if they are to achieve high growth rates in the future. It is important for them to improve their export competitiveness in a tough international trading environment if they are to sustain their growth.

In this study, we will examine factors that may influence the export competitiveness of East Asian countries, including regulations and international trade standards. The traditional approach has focused on examining only existing domestic regulations. However, from an exporter point of view, the main concern is the differences between domestic regulations and those of importing nations. In addition, the differences in regulations can drive innovation in exporting countries if they have to comply with the regulations of importers. We will also research the upgrading of supply chains in East Asia.

OBJECTIVES

1. To measure the impact of non-tariff measures on export performance;
2. To understand how the differences in regulations could induce innovations in selected countries; and
3. To look at the upgrading of supply chain in East Asia.

POLICY IMPLICATIONS

We plan to provide policy recommendations in three areas, mirroring the two themes of the study:

1. Improving the capacity and capabilities that are necessary for compliance with regulations and standards;
2. Strengthening domestic innovation capabilities to achieve regulatory compliance; and
3. Upgrading of supply chains.

GEOGRAPHIC SCOPE

East Asia

03

Study on the Hanoi-Vientiane Expressway

Masahito Ambashi

AUTHOR(S)

Masahito Ambashi, Souknilanh Keola, Leeber Leebouapao, Sthabandith Insisienmay, Narong Pomlaktong, Vo Tri Thanh, Masami Ishida

SUMMARY

Lao PDR faces a significant challenge in addressing the development gaps that arise from its geographical constraints as a landlocked nation. To turn this weakness into a strength and to become a land-linked country in the Mekong region, Lao PDR needs to play a greater role as a logistics hub, and promote manufacturing exports through enhanced connectivity with China, Thailand, and Viet Nam. The report Lao PDR at the Crossroads: Industrial Development Strategies 2016–2030, written by ERIA and Lao PDR's Ministry of Industry and Trade, stresses that such transformation is crucial not only for Lao PDR's industrial development, but also to accelerate economic growth across the Mekong region.

The research will focus on how Lao PDR and its neighbours can benefit from the Hanoi-Vientiane Expressway, a new highway between the two cities, by leveraging industrial networks. We will analyse the economic and industrial impacts of the Expressway from the perspective of global value chains and production networks in the Mekong region.

POLICY IMPLICATIONS

1. Initiate the formal designation of the route between Hanoi and Vientiane as a 'corridor' in the Greater Mekong Subregion in order to obtain finance from the Asian Development Bank, the World Bank, and other international public financial institutions; and
2. Propose the appropriate division of construction costs of the Expressway among stakeholders.

GEOGRAPHIC SCOPE

Lao PDR, Thailand, and Viet Nam

04

Regulating Intellectual Property Rights Protection for Development

Lurong Chen

SUMMARY

The issue of intellectual property rights (IPR) within trade, investment, and services remains at the heart of the 21st century global economy. The protection of IPR has become a critical issue not only for advanced economies but also for emerging markets. Protection of intellectual property can encourage innovation, knowledge diffusion, and technology transfer.

An efficient IPR protection system has deep implications for economic development via its impacts on price, the elasticity of demand, market efficiency, and long-term innovation potential. At a regional level, harmonising IPR regimes could eliminate the transaction costs of businesses operating across borders. For that reason, Asian countries have made substantial efforts to protect IPR through multilateral, bilateral, and plurilateral actions, particularly since 1995 when ASEAN economic ministers signed the ASEAN Framework Agreement on Intellectual Property Cooperation.

This project aims to investigate the links between IPR protection and economic growth with emphasis on:
1. the participation in global value chains; and
2. the move to a digital economy.

Within global value chains, the competitive edge and the division of value-added mainly depends on the capacity to innovate, rather than on advantages in terms of labour costs, access to raw materials, or the ease of obtaining capital. From the perspective of a developing country, improving the protection of IPR could help to attract foreign investment and facilitate technology discussion. In turn, this can accelerate development.

The digital revolution is delivering an unprecedented set of tools for bolstering growth and productivity, and improving world welfare. The growth of the knowledge economy calls for additional efforts from multiple stakeholders to protect IPR, which will thereby support technology transfer and innovation.

This project invites experts to assess the progress of improvements in IPR protection. It also asks them to identify weaknesses, threats, and challenges within IPR protection in ASEAN and East Asian countries, and introduces lessons learnt and experiences from other regions.

POLICY RECOMMENDATIONS

This study provides policy recommendations in three areas:

1. protecting IPR in order to boost growth and development;
2. global standards and domestic reform; and
3. participating in global rule-setting forums on IPR protection.

GEOGRAPHIC SCOPE

Indonesia, Malaysia, Singapore, Thailand, Viet Nam, the Philippines, Japan, and Republic of Korea

05

Services Supply Chains – Implications and Opportunities for RCEP

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

PARTNERS

University of Adelaide

SUMMARY

Services supply chains are becoming an important driver of trade and growth in the ASEAN and Asia region. In particular, the value-chain activities within the supply chain are critical if we are to fully exploit the potential of supply chains. There are ample opportunities for countries at various stages of growth to participate in the production value chain. It is important to examine the key fundamentals that might be needed for these countries – in which there is also a growing services sector – to participate effectively in the services supply chain.

The concept of servicification covers three different types of services in manufacturing, which increasingly depends on servicification to drive growth:

1. service value-added in manufacturing exports;
2. in-house services within manufacturing firms; and
3. services that are sold bundled with goods and commodities.

At the same time, services are value-creating activities along the global value chain. Literature on trade in value added shows that the share of service value added in manufacturing exports accounts for more than one third. In textiles and apparel, and food and beverages, service value added contributes to as much as 40% of exports (Miroudot, 2017). Thus servicification leads to higher value creation and shifts production towards more productive models.

POLICY IMPLICATIONS

Servicification of manufacturing firms has several impacts on productivity improvements. Service activities help firms to become more productive: for example, the use of services in logistics, management, or engineering can save time and materials and improve coordination (Nordas, 2010). Manufacturers also use services to differentiate their products from competitors and to take advantage of production in global value chains (Nordwall, 2016). Services are also enablers of such networks and value chains (Lodefalk, 2017). The paper examines if servicification in the Chinese manufacturing sector improves firms' productivity. This has important policy implications as the role of the service sectors increases in terms of trade and investment, and thereby drives the economic growth of the Chinese economy. This implies that the free movement of services and persons (service trade liberalisation) is essential to manufacturing.

GEOGRAPHIC SCOPE

Australia, Japan, Republic of Korea, China, India, Indonesia, Malaysia, Thailand, Philippines, Cambodia, Myanmar, Laos PDR, and Viet Nam

06

Microdynamics of Industrial Development and Trade and Industrial Policy

Doan Thi Thanh Ha and Dionisius Narjoko

SUMMARY

The broad theme of this research is globalisation and its impacts on East Asian countries, with a particular focus on microdata analysis. As discussed in Weinstein (2005), we understand 'globalisation' as referring to a process or an evolution of closer economic integration by way of increased trade, foreign investment, and immigration. Under the broad theme, country authors choose specific topics that might be of interest in the context of their own countries.

There have been numerous studies of the causes and consequences of globalisation, but we feel that the potential value added of this project comes from the microdata analysis on East Asian countries. It is true that various aspects of globalisation have been previously analysed, but analyses based on microdata are relatively scarce. There might be many microdata analyses on other regions—primarily North and South America and Europe—but not many such analyses exist for East Asian countries. This research project tries to fill this gap.

POLICY IMPLICATIONS

The project is expected to contribute to a better understanding of whether and how globalisation has affected the performance of the firms using the case studies from East Asian countries. All of these are also expected to provide insights on policymaking in the area related to the objective of the research.

GEOGRAPHIC SCOPE

East Asia

07

Non-Tariff Measures in ASEAN (Phase III: Renewal of Database and Country Report Design Phase)

Gracia Hadiwidjaja, Doan Thi Thanh Ha, and Samuel Rosenow

PARTNERS

National Team 1.5 track, ASEAN SEOM; ASEAN HLTF-EI; ASEAN Business Advisory Council; ASEAN countries; ERIA-RIN Members; UNCTAD; WTO; Representatives of ASEAN countries at the WTO; OECD (GP)

SUMMARY

With tariffs constrained by the WTO, we expect an increasing number of non-tariff measures (NTMs) designed to protect domestic firms and industries. This trend is quite possible in ASEAN, one of the fastest growing regions in the world in terms of growth in economy and trade.

Between 2008 and 2011, the number of NTMs rose substantially across the globe. However, this increase is not necessarily a bad sign for the economy. As consumer wealth rises around the world, the demands on governments for health, safety and environmental protection rise as well.

Many developing countries have greatly benefited from integration into the global economy through international trade in goods and services. In the past, developing countries' integration into international markets was made possible by appropriate conducive policies such as tariff liberalisation, as well as initiatives related to trade facilitation and aid for trade. Today, deeper integration in the global economy depends not only on liberal tariffs and supportive policies but increasingly requires policy responses to various forms of complex trade-related regional economic integration.

In the case of ASEAN, however, the latest official data on NTMs is only available for 2009, as released by the ASEAN Secretariat. A number of surveys have been conducted to fill the gap, but more work is needed. In this context, the project seeks a strong multi-agency collaboration between ERIA and UNCTAD supported by experts on NTMs to: (i) collect, validate and classify NTMs data from official sources issued by governments; (ii) improve general understanding of these measures and their impact on world trade; and (iii) provide insights on policy recommendations for streamlining NTMs and trade regulation reforms.

As the NTM data for ASEAN are collected according to the MAST NTM classification and UNCTAD's NTM data collection approach, analyses can be prepared and policy options can be devised to make appropriate assessment of the trade and development impacts of such barriers to trade.

Beside keeping the database up-to-date with current national regulations, the value added of this project is to provide analytical exercises of impact assessment of trade-related reforms by providing reliable and up-to-date information on NTMs, conducting rigorous analyses on NTMs and how these will affect trade policy and overall trade performances, comparing NTMs in ASEAN region to the other regions, and providing inputs in streamlining NTMs in this region.

OBJECTIVES

1. To update the existing ASEAN NTMs database, by collecting and validating the most up-to-date NTM information from official sources;
2. To further develop export capacities by improving NTM transparency and providing trading partners with access to NTMs related information;
3. To conduct rigorous analyses on NTMs and how these will affect trade policy and overall trade performance; and
4. To provide insights for NTMs streamlining in ASEAN.

GEOGRAPHIC SCOPE

Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Viet Nam

RELATED PUBLICATIONS

Cadot, O., E. Munadi, and L. Y. Ing. 'Streamlining Non-Tariff Measures in ASEAN: The Way Forward', *Asian Economic Papers*, 14(1) (2015), 35-70.

Ing, L.Y. and O. Cadot (2016), 'Facilitating ASEAN Trade in Goods.' *ERIA Discussion Paper* No 20. Jakarta: ERIA
Downloadable from: http://www.eria.org/research/facilitating-asean-trade-in-goods/

Ing, L. Y., O. Cadot, M. R. Anandhika, and S. Urata, 'Non-Tariff Measures in ASEAN: A Simple Proposal' in Ing, L. Y., S. de Cordoba, and O. Cadot (eds.), *Non-Tariff Measures in ASEAN*. Jakarta: ERIA, pp. 13-36.
Downloadable from: http://www.eria.org/publications/non-tariff-measures-in-asean/

08

ASEAN Seamless Trade Facilitation Index and Trade Transaction Cost

Ponciano S. Intal, Jr., Dionisius Narjoko, Salvador Buban, Rashesh Shrestha, and Doan Thi Thanh Ha

PARTNERS

ASEAN Trade Facilitation Joint Consultative Committee (ATF JCC), ASEAN Secretariat, Department of Trade and Industry, Philippines, and Indonesia Customs Agency (*Bea Cukai*).

SUMMARY

This project is conducted in response to a request from the Philippine Department of Trade and Industry. The Department has requested new ASEAN trade facilitation indicators in light of the decision of ASEAN economic ministers to reduce trade transaction costs in ASEAN by 10% by 2020. The project reviewed the current internationally known trade facilitation indicators (e.g., Ease of Doing Business Trade Across Borders; Logistics Performance Index) and, after consultation with the ASEAN Trade Facilitation Joint Consultative Committee (ATF JCC), decided to develop an ASEAN-specific set of trade facilitation indicators. These are called the ASEAN Seamless Trade Facilitation Indicators (ASTFI). The ASTFI were approved by ASEAN economic ministers in August 2017 on the recommendation of the ATF JCC.

An ASTFI survey of trade facilitation measures was conducted in early 2018 and the outcomes were incorporated into the ASTFI Baseline Study. This was then presented to the ATF JCC in July 2018 and to the ASEAN Secretariat in early August 2018, and was welcomed by ministers at the 50th ASEAN Economic Ministers Meeting in August 2018. The more recent part of the project is the Trade Transactions Cost (TTC). This is the basis for examining the 2020 target of a 10% reduction in transaction costs and how this relates to the ASTFI. It uses three types of questionnaires – time release study, time to permit approval and dwell time – as a basis for data gathering. TTC is proxied by the time release from a time release study and by the time to permit approval. The dwell time is used as an indicator that complements the results of the time release study. The TTC estimation framework has been presented to ATF JCC, and the baseline study is currently underway, in coordination with the Coordinating Committee on Customs and ATF JCC.

POLICY IMPLICATIONS

The ASTFI and TTC will be used by ASEAN in regular monitoring of the ASEAN trade facilitation environment from 2018 to 2020. We will assess how improvement in ASTFI impacts on the reduction of trade transaction costs and contributes to the 2020 target of 10% reduction.

GEOGRAPHIC SCOPE

ASEAN

09

International Regulatory Cooperation (IRC) for ASEAN

Ponciano S. Intal, Jr. and Derek Gill

PARTNER

New Zealand Institute of Economic Research

SUMMARY

In a world of cross-border value chains, international regulatory cooperation is an important potential initiative for two reasons: (1) to reduce costs of international trade arising from differing national regulations; and (2) to ensure that regulations are effective. International regulatory cooperation can help address these twin concerns by improving regulatory coherence among countries through improved design and execution of regulations on goods and services as they cross national borders.

Although not explicitly indicated in the AEC Blueprint 2025, international regulatory cooperation as a means of engendering regional regulatory coherence largely falls within the ambit of Section B.7 on effective, efficient, coherent, and responsive regulations and good regulatory practice. This project will explore the extent of and barriers to the development of international regulatory cooperation in ASEAN. The primary focus is on identifying the enablers and facilitating factors in effective international regulatory cooperation and outlining the main barriers and constraints that must be overcome. The secondary focus is on the pervasiveness of international regulatory cooperation in the region.

The project is a seminal work on international regulatory cooperation for ERIA, although it follows on from the earlier ERIA project with the New Zealand Institute for Economic Research (NZIER) on regulatory management systems in East Asia. The first phase of the project will:
1. develop a framework for international regulatory cooperation;
2. survey the pervasiveness and persuasiveness of various forms of international regulatory cooperation in ASEAN; and
3. work in parallel with NZIER’s case studies on international regulatory cooperation in the region.

POLICY IMPLICATIONS

The project aims to provide insights on the factors and challenges involved in the development and success of international regulatory cooperation. It is expected that such insights will indicate the policy recommendations necessary to enhance regulatory cooperation in ASEAN and East Asia.

GEOGRAPHIC SCOPE

ASEAN

10

Comprehensive Asia Development Plan 3.0

Fukunari Kimura and Masahito Ambashi

SUMMARY

ERIA published the Comprehensive Asia Development Plan 1.0 (CADP 1.0) in 2010, followed by CADP 2.0 in 2015. CADP 3.0 is due in 2020, when Viet Nam will chair the East Asia and ASEAN summits. In 2020, connectivity and infrastructure development will remain important factors in realising a 'competitive, innovative, and dynamic ASEAN', as laid out in the ASEAN Economic Community Blueprint 2025.

Notably, within the past five years we have witnessed a radical change in information and communication technology (ICT). Digitalisation of the economy on the basis of ICT has changed the conceptual framework of unbundlings advocated by Richard Baldwin in his book The Great Convergence: Information Technology and the New Globalization. He states that the 'third unbundling' has now emerged, following the 'second unbundling' that began in the 1980s.

Further advancements in communication technology are making qualitative breakthroughs by reducing costs, and a task can be unbundled and taken care of by persons in different locations. This kind of technological change has created opportunities for new businesses in ASEAN and East Asia, such as the e-commerce opportunities (business-to-business and business-to-consumer) provided by platform firms. As a result, we are required to reformulate our development strategies to include the leapfrog (skipping the middle development stages) and feedback (apply technologies of more advanced development stages back to lower ones) strategies, as well as the existing step-by-step strategy (Kimura, 2018).

CADP 3.0 will guide the policy direction of ASEAN and East Asian infrastructure and industrial promotion; these are both extended from CADP 2.0, which is built on the idea of fragmentation (segmenting vertically-integrated production processes and outsourcing them to other countries) and production networks (the international division and integration of production processes). CADP 3.0 will also demonstrate the economic impacts of these policies by using a geographic simulation model.

POLICY IMPLICATIONS

ASEAN and East Asia countries are expected to gain a deeper understanding of the ICT-led changes in globalisation. Countries will be able to promote infrastructure investment and innovation to take advantage of globalisation.

GEOGRAPHIC SCOPE

ASEAN and East Asia

RELATED PUBLICATIONS

Mori, N., Y. Nishida, and T. Fujisawa (2017), *2016 Progress Survey Report of Infrastructure Projects in CADP 2.0.* ERIA Research Project Report 2016-01. Jakarta: ERIA.
Downloadable from: http://www.eria.org/research/2016-progress-survey-report-of-infrastructure-projects-in-cadp-20/

ERIA CADP Research Team (2015), *The Comprehensive Asian Development Plan 2.0 (CADP 2.0): Infrastructure for Connectivity and Innovation*. ERIA Research Project Report 2014-04. Jakarta: ERIA.
Downloadable from: http://www.eria.org/publications/the-comprehensive-asian-development-plan-20-cadp-20-infrastructure-for-connectivity-and-innovation/

11

Human Resources for Healthcare and Elderly Care in Asia

Osuke Komazawa

AUTHORS

Yuko Tsujita, Aswatini Raharto, Patcharawalai Wongboonsin, Mita Noveria, Yurika Suzuki, Hisaya Oda, Maria Reinaruth D. Carlos, and Naomi Hatsukano

PARTNERS

Institute of Developing Economics - Japan External Trade Organization, Lembaga Ilmu Pengetahuan Indonesia (Indonesian Institute of Sciences), Chulalongkorn University, Ryukoku University, and Ritsumeikan University

SUMMARY

The movement of people across borders in Asia is a key component of deeper economic integration in the region. The effort to facilitate the seamless movement of skilled labour in ASEAN started with mutual recognition arrangements (MRAs) on several professional services. These allowed professionals to practice in other ASEAN countries through mutual recognition of their qualifications. However, the ASEAN MRA on nursing services, which was signed and came into force in December 2012, has facilitated the mobility of nurses in only a few countries. While some countries are actively recruiting foreign nurses and care workers, others are regulating foreign workers.

This study examines the case of Filipino, Indonesian, and Indian nurses and care workers to better understand the flow of human resources in the nursing and elderly care sectors. In some Asian countries that have experienced rapid population ageing, older people are traditionally expected to be cared for by their families. The current demographic, economic, and social transformation, however, hinders some families' availability and ability to take care of their senior dependents. The countries that are currently receiving foreign nurses, such as Japan and Malaysia, will be compared by analysing those who are engaged in nursing and elderly care in each society. In addition, Thailand's elderly care is also examined, as the country is now rapidly ageing.

This study aims to explore a wide range of features of human resource development and employment in the nursing and elderly care sector. It will focus on foreign nurses and care workers, and is expected to identify the problems, obstacles, and challenges that are limiting the movement of nurses and care workers in the region.

This study consists of data collection and analysis as follows:

1. Analysis of national data and policies for nursing and elderly care;
2. Visits to hospitals/nursing homes, relevant administrative offices, and training institutions;
3. Questionnaire surveys on foreign nurses and care workers; and
4. In-depth interviews with nurses and care workers.

Both quantitative and qualitative techniques are used in data collection and analytical methodology.

POLICY IMPLICATIONS

Asia is one of the fastest ageing regions in the world. Findings in this study deepen our understanding of nursing and elderly care and show the important implications for countries receiving and sending nurses and care workers. More broadly, this study also indicates implications for policies on labour, employment, and human resource development in healthcare.

GEOGRAPHIC SCOPE

Indonesia, Malaysia, the Philippines, and Thailand

12

Cities, Urban Amenities and the Global Production Value Chain: New Developments in Trade and Services Liberalisation in East Asia and ASEAN

Dionisius Narjoko

SUMMARY

The regional and global supply chain activities in Asia and ASEAN are growing and deepening as more mature economies are moving to the second stage of production fragmentation and newly emerging ASEAN countries are already building up the industrial base for the first stage of production fragmentation. However, we are also observing certain challenges emerging in the Asian region. The level of liberalisation and in particular services and investment liberalisation is losing its momentum. Asian cities are plagued with high population densities, which decreased the returns to urbanisation (pollution and congestions) and limited their productive contribution to the regional growth. The level of trade and investment liberalisation in the multilateral agreements, such as the Regional Comprehensive Economic Partnership (RCEP), is becoming weaker and tends to be of a very low denomination for further regional integration.

There are several policy issues that have to be addressed as East Asian and ASEAN economies are in different stages of growth in the global production value chain. Most of the developed ASEAN countries of Indonesia, Philippines, Thailand and Viet Nam are in the middle stage of second unbundling; Malaysia is in the later stage of second unbundling and ASEAN LDCs of Cambodia and Lao PDR are now in the beginning stage of second unbundling. Singapore is already in the beginning stage of third unbundling.

OBJECTIVES

The current study focuses on the role of cities in creating urban networks and urban amenities, attracting and developing skills and human capital, as well as driving creativity. This in turn supports the development and liberalisation of the services sectors and the operation of the global production value chain in the Asian region.

In particular, the study focuses on:

1. The regional competitiveness and productivity of cities and what drives creativity in urban areas, leading to innovation and more extensive entrepreneurial activities;
2. Industrial policy in balancing 'agglomerative' effects with 'dispersion' effects will be critical for next stage. In fact, industrial and social policies to create sustainable as well as inclusive growth will be critical for the next stage of growth for the East Asian and ASEAN countries;

3. Human capital development will be critical and labour market implications of task-based activities will have direct impact on education and human capital development (training) policies in East Asia;
4. The skills development and the preparation for workers to move from skill-based activities to task-based activities will be critical and the relevance of their human capital for future skills will be critical. The study will focus on the labour market implications of task-based activities;
5. There is a need to understand services liberalisation and policies needed to manage the services liberalisation in the third stage unbundling;
6. There is a need to understand the transition (linear or nonlinear effects) and market structure from second stage unbundling to third stage unbundling as there might be significant structural adjustments in the domestic economy. There will likely be economic as well as social cost in the structural adjustments in the domestic economy; and
7. The third stage unbundling will highlight the importance of digital economy and services sector development in the region. 'New Age' free trade agreements will have to be developed to manage information flow ('oil' for new economy) and issues that will be important are localisation versus globalisation, e-commerce, virtual-migration, virtual-SMEs, artificial intelligence (AI) and robotics, and many more.

POLICY IMPLICATIONS

The project is expected to contribute to key policy discussions on the development of services liberalisation and development of services supply chain in the region.

1. The research is expected to contribute to the understanding of the relationship of urbanisation to creativity and innovation, including entrepreneurial activity and various dimensions of city performance;
2. It will draw out the implications for supply-chain activities and the implications of their development, with these drivers, for regional multilateral trade agreements such as RCEP that is currently under negotiation in Asia;
3. The services liberalisation will be crucial for regional integration and for a well-developed supply-chain (in goods and in services) which will allow countries in the region with various development stages to participate effectively;
4. The study intends to map the fundamental factors such as contribution of cities in Asia, urban amenities, institutional reforms, soft and hard infrastructure for various stages of the services supply-chain activities in the region; and
5. Because of the nature of international business in services, it is expected that the project will include treatment of investment and the movement of people, in the cases where these factor flows are linked to transactions in other modes.

GEOGRAPHIC SCOPE

ASEAN and East Asia

13

Economic Impact of ASEAN Economic Integration

Dionisius Narjoko

SUMMARY

This project will assess the impact of the ASEAN Economic Community (AEC) on the economy of the ASEAN Member States (AMS). Since its inception in early 2000s, AMS have, jointly and concertedly, embarked on a region-wide economic integration using the AEC as the framework. The Community is now in the second round of its implementation with the next milestone set in 2025. The year 2020 arrives as the midpoint of the AEC 2025.

It is important to mention that the report of this project is intended to serve as a companion document for the official AEC 2025 Midterm Review process. This is in line with the enhanced monitoring and implementation mechanism in the AEC 2025 for a more effective implementation.

In assessing the impact of AEC, this project will focus on answering the question of whether the AEC since its inception has been improving economic performance and welfare of the AMS, individually or together as a region. Answering the question alone, without putting it in the context, will not likely produce a rich story on the whole issue. Therefore, the project will firstly evaluate the extent of liberalisation in each of the AMS, which should provide us with some idea on how far AMS have been integrated over the time since the beginning of the 2000s. This evaluation should reflect various measures implemented through the AEC, although it is important to note that each member state's unilateral actions should also be reflected in it.

OBJECTIVES

The main objective of this project is to present evidence on how far the AEC has helped AMS to grow, to develop, and to integrate with each other and with the ASEAN Dialogue Partners (the Plus Six).

It is useful to mention that – should time and resources permit – the project could extend its objective to clarify the underlying mechanism(s) of the integration measures in affecting the performance variables. Effort on this is important to better understand the process and subsequently to better design integration measures in the future.

POLICY IMPLICATIONS

The project for this fiscal year (FY2018) is expected to produce a set of methods to conduct the empirical part of the study, which will be conducted in the next fiscal year (FY2019).

GEOGRAPHIC SCOPE

ASEAN

14

Handbook of Asian Economic Integration

Fukunari Kimura, Mari Pangestu, Shandre Thangavelu, Christopher Findlay, and Dionisius Narjoko

SUMMARY

ERIA has been working together with Edward Elgar Publishing to produce a handbook on regional economic integration in Asia. The volume will provide an opportunity for the wide range of ERIA's publications relevant to this topic to be compiled and placed in the context of related research in this field. This highlights ERIA's significant contribution to the field and assists in identifying priorities for future work.

Elgar Handbooks are works designed to provide a broad overview of research in a given field at the same time as creating a forum for more challenging, critical examination of complex and often under-explored issues within that field. Often widely cited, individual chapters present expert scholarly analysis and offer a vital reference point for advanced research. Taken as a whole they achieve a wide-ranging picture of the state-of-the-art. The Handbook would comprise original, specially commissioned chapters.

In addition, the publisher would establish a companion website for the book, which would include all data in all chapters (tables and charts) and material recorded by authors to assist with using the Handbook for teaching and lecturing purposes.

GEOGRAPHIC SCOPE

Asia

15

Connecting the Connectivity Plans in Indo Pacific: Harmonising Growth with Cooperative Governance

Anita Prakash

SUMMARY

The importance of 'connecting the connectivities' is far greater than mere convergence of different connectivity plans in Asia, and between Asia and Africa, and Asia and Europe. A roadmap for developing synergy between plans and stakeholders can only be formed through a broad commitment to put people and their prosperity at the core, employ good governance and accountability as drivers, and work towards the goals of sustainable development and global governance. Relevant plans are the Masterplan on ASEAN Connectivity, the Belt and Road Initiative, Asia Africa Growth Corridor, and the Asia–Europe Meeting. Stakeholders include BIMSTEC (Bangladesh, India, Myanmar, Sri Lanka, Thailand, Nepal, and Bhutan), the India Ocean Rim Association, the South Asian Association for Regional Cooperation, the Gulf Cooperation Council, and regional economic groups such as the Common Market for Eastern and Southern Africa, and the South African Customs Union. When connectivity plans converge with regional, national, and global development priorities, synergies among plans are likely to appear. However, differences in the origins, promoters, resources, and cooperation strategies present a challenge to Indo Pacific countries in pursuing their connectivity and cooperation plans. The issues of governance, transparency, and alignment with developmental needs far outweigh the strategic and security aspects of connectivity in the Indo Pacific region.

Connectivity has always existed. People have communicated and interacted across boundaries for business, government purposes, and social activities from time immemorial. However, the conceptualisation of connectivity is recent. The different usage of connectivity plans requires a clear and common platform on which standards of connectivity plans are deliberated and agreed to.

This study will bring out the methods in and obstacles to finding convergence among connectivity plans in the Indo Pacific region. It will also show how interregional connectivity plans can create consensus on the principles of governance, transparency, growth, and sustainable development.

POLICY IMPLICATIONS

Enable governments to engage in policy discussion on converging the connectivity plans for development and growth in the Indo Pacific region, bring out the role of bilateral and trilateral cooperation plans, and seek standards in governance of connectivity plans that address development and growth in the region.

GEOGRAPHIC SCOPE

Asia, ASEAN, Africa, Europe, Oceania, United States of America, and Canada

16

ASEAN Open Skies Policy

Fauziah Zen and Batari Saraswati

AUTHORS

Fauziah Zen, Batari Saraswati, Tan Sri Rebecca St Fatima, Alan Tan, Akihiko Shirai, M. Halley Yudhistira, Jaysa Prana, Rudhian, Eldo Maba, and Elingselasri

PARTNER

Institute for Democracy and Economic Affairs

SUMMARY

The objective of the ASEAN Single Aviation Market is to gain economic advantages from liberalisation. The ASEAN Single Aviation Market is expected to enhance connectivity between the region's aviation markets, encourage higher service quality, and provide greater choice and lower fares for the public. Aviation market integration in the region is slow, given the diverse nature of aviation and market size across the region.

The study estimates the differing economic benefits resulting from three different integration scenarios based on three of the global commercial aviation rights: the third freedom, fifth freedom, and seventh freedom.

The study found that:

1. air transport liberalisation increases consumer surplus due to greater choice of travel;
2. liberalisation also increases airport profits because more passengers are passing through airports;
3. liberalisation may also decrease airlines' profits due to increased competition – the degree varies depending on the airline's network and airline operational strategies; and
4. the benefits of the implementation of the ASEAN Single Aviation Market are likely to significantly outweigh the costs in terms of any lost profits for airlines, resulting in an increase in overall social welfare.

GEOGRAPHIC SCOPE

Indonesia, Malaysia, Singapore, Thailand, and Viet Nam

17

The Role and Impact of E-Commerce in Formalising Businesses: The Case of Southeast Asia

Fauziah Zen and Chaikal Nuryakin

AUTHORS

Fauziah Zen, Chaikal Nuryakin, Prani Sastiono, Ramonette B. Serafica, Saowaruj Rattanakhamfu, Dang Thai Binh, Mira Kartiwi, Alvin Ulido Lumbanraja, and Waran Natanael

PARTNERS

Institute for Economic and Social Research – Faculty of Economics and Business, University of Indonesia (LPEM FEB UI), Philippine Institute for Development Studies (PIDS), Thailand Development Research Institute (TDRI), Vietnam Academy of Social Sciences (VASS), and International Islamic University Malaysia (IIUM)

SUMMARY

E-commerce markets have grown significantly within ASEAN in recent years. Since 2015, the number of internet users in the six largest economies in ASEAN has risen from 244 million to 283 million (Statista, 2017). Despite this high growth, there remains room for further expansion in e-commerce markets across ASEAN. Based on a report by UNCTAD (2015), Singapore, Malaysia, Thailand, Indonesia, Viet Nam, and the Philippines all currently generate less than 4% of their retail sales online, a much lower proportion than other e-commerce markets such as the Republic of Korea (16%) and China (7%).

E-commerce platforms are making waves globally, but regulations have not yet firmly addressed their legal obligations or the tax regimes that apply to them, meaning that they effectively fall into the informal sector. That fact is intriguing, as payments made via these platforms can be monitored and managed.

In e-commerce environments, payments by the consumer are processed under a 'one roof system' – that is, the payments are transferred to the e-commerce platform's bank account. The system then forwards the payment to the merchant when the consumer receives the goods. Hypothetically, if a government were to regulate for value-added tax (VAT) to be automatically deducted within the payment system, this would boost government revenue significantly.

This study aims to estimate the potential impact of using e-commerce to formalise unregistered businesses and merchants, taking into account the applicable regulations in each country. We will also explore e-commerce regulations in selected South Asian countries, as e-commerce usually involves businesses and consumers from different jurisdictions and countries. We will focus on the tax and

consumer protection aspects of the regulations. Tax regulations affect business owners' willingness to register or formalise their businesses, while consumer protection questions arise more often with e-commerce platforms – given their nature – than traditional platforms. Consumer protection is also affected heavily by the formal or otherwise status of businesses and existing regulation.

GEOGRAPHIC SCOPE

Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam

Narrowing Development Gaps

18

Analysis of FTA Strategy to Strengthen Indonesian Export Industries Based on the Applied General Equilibrium Model

Masahito Ambashi

AUTHORS

Tsutsumi Masahiko and Masahito Ambashi

SUMMARY

Indonesia has been a powerful emerging country in East Asia for the last decade, and is participating internationally in global value chains (GVCs). Indonesia has achieved high GDP growth of around 5%, and has increased its imports (including of raw and intermediate materials, and final products) as domestic consumption has expanded rapidly. Given this background, it has been argued in policy circles that Indonesia must expand its exports in order to obtain foreign currency and sustain a sound financial environment.

Indonesia needs to expand its exports to counterbalance domestic demand, but the country remains at the low end of the trade scale and shows low export growth compared with other ASEAN member states (AMS). For example, in 2016 Viet Nam recorded international trade as a share of real GDP at 185%, and 144% export growth, but Indonesia achieved 37% and −8% respectively, well below the AMS average. Moreover, Indonesia's exports are heavily biased towards primary products such as palm oil, coal, and rubber. In terms of Indonesia's trade balance, although it may have a trade surplus with individual countries, it has a trade deficit with those nations if oil, coal, and gas are excluded. As a result, we see that Indonesian manufacturing and export competitiveness is somewhat fragile.

Indonesian policymakers are concerned Indonesia may fall into the middle-income trap. It does, however, seem possible to strengthen Indonesian industry. Indonesia can enhance export industries – mainly manufacturing – by taking advantage of free trade agreements (FTA) with new foreign partners, its abundant domestic labour force, and excellent start-up companies. If this strengthening of industry is to be achieved, a consistent policy package is needed that can build foreign demand by leveraging the Indonesian brand, amid the rapid increase in domestic demand. To this end, Indonesia's close connectivity with the United States, the European Union, and Arabic and east African countries should be boosted – particularly by FTAs – since these countries still have room to import more from Indonesia.

With this in mind, it is critical for policymakers to analyse how FTA strategies affect Indonesian export industries. Carrying out analyses based upon the computable general equilibrium model formulated by, in particular, the Global Trade Analysis Project will aid such understanding. This study will identify the FTA strategy that will be most effective in strengthening Indonesian export industries through trade.

POLICY IMPLICATIONS

The project aims to recommend an FTA strategy that will strengthen Indonesian export industries.

GEOGRAPHIC SCOPE

Indonesia

19

Digital Economy, Innovation, and East Asia's Competitiveness in GVCs, Phase III: E-commerce Enabling Services in Asia

Lurong Chen

SUMMARY

Improving services will be as important an issue as connectivity if East Asia is to reach its full potential in the digital economy. For instance, from the perspective of logistics, service is key to the efficiency of distribution networks – online consumers require high standards of service and information. A logistics network will not function at its best until it delivers such high standard services, particularly at critical facilities in supply chains, such as mega e-fulfilment centres (distribution centres), parcel sorting centres, local parcel distribution centres for last-mile supply chains (covering the last part of the journey from hub to final destination), local city logistics depots, and returns centres. From the perspective of trade finance, the existence of a reliable credit guarantee system can effectively stimulate cross-border B2B e-commerce. Online e-commerce platforms can collect and integrate information from various sources and provide users with service packages.

Phase I and Phase II of ERIA research on the digital economy respectively investigated the issues of cross-border e-commerce and connectivity. The current study focuses on e-commerce enabling services, and its significance is twofold. First, it explores how digitalisation and service development can reinforce each other and fuel long-term growth in ASEAN and East Asia. Second, it contributes to the literature on globalisation's upcoming third unbundling. The study takes two tracks. Track A focuses on how to develop the service sector to improve ASEAN and East Asia's competitiveness in the digital economy; track B emphasises how digitalisation can enable new service products/models to unlock the region's development potential.

OBJECTIVES

The study will address questions such as:

1. What are the main concerns of e-commerce-enabling services from a regional and a national perspective?
2. What is the current state of e-commerce connectivity? What are the advantages and the limits?
3. What are the challenges in ASEAN and East Asia's e-commerce services? Why do they occur? To what extent do they limit the development of the digital economy?
4. How should these problems be solved? How can the regional/sub-regional framework effectively support resolution of these problems?
5. How can the benefits of new service products/models be maximised, and how can they serve as tools for development?

GEOGRAPHIC SCOPE

Cambodia, Indonesia, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Viet Nam, China, India, Japan, Republic of Korea, and the United States of America

20

Demand and Supply of Long-Term Care for Older Persons in Asia

Osuke Komazawa

AUTHOR

Reiko Hayashi

PARTNER

National Institute of Population and Social Security Research, Japan

SUMMARY

As the world population continues to age, so too does the Asian population. The number of Asians aged 65 and over will nearly triple from 335 million in 2015 to 937 million in 2050. How to promote healthy and active ageing is a critical policy priority, but inevitably the burden of long-term care for the elderly will grow. The need for understanding and action is urgent, as many Asian nations will age faster in the coming decades than those in Europe and North America, and even Japan. The need to promote economic development as the population ages poses challenges to countries that do not have sufficient fiscal strength to support social security costs such as pensions or health insurance systems. Changes in family values and the high level of internal and international migration is resulting in aged parents being left behind and alone. This makes family care more difficult and increases the demand for the social care offered by communities and governments.

Given this context, the study focuses on the present status and future trends of demand and supply of long-term care for the elderly in the Asia-Pacific region. Demand will be measured by the number of older persons who need care and by the living arrangements of older persons, particularly those living alone. Supply will be measured in terms of the human resources available to provide long-term care, and the long-term care facilities. Along with national level measurements and international comparisons, this study will address the importance of subnational differences. This is important as the size of the countries included in the study varies greatly. Comparing China, which has 1.4 billion people, with Japan (128 million) or Thailand (69 million) might lead to incorrect conclusions. Observing subnational level data is also important due to internal migration, whereby some rural areas lose a high proportion of their young people, and thus have a proportion of older persons that is much higher than the national average.

The outcomes of this study will be uploaded to the website of the Asia Health and Wellbeing Initiative (AHWIN), so that the status of ageing in the region can be easily and visually understood. The AHWIN website is also designed to allow the audience to use data for reference purposes for scientific or policy papers on population ageing.

This study focused on Southeast Asia and East Asia in its first year and, in the second year, will expand the target area into South and West Asia, and the Pacific region.

GEOGRAPHIC SCOPE

Asia Pacific

21

Feasibility of the Introduction of Japanese-style Rehabilitation Centres to Cambodia, Lao PDR, and Viet Nam

Osuke Komazawa

AUTHORS

Chika Hamasaki and Shigemi Kitahara

PARTNERS

Kitahara International Hospital and Kitahara Medical Strategies International Co., Ltd.

SUMMARY

This study will focus on brain injury rehabilitation in Cambodia, Lao PDR, and Viet Nam, where populations are expected to begin to age rapidly. Societies facing rapid ageing are expected to see a greater number of patients with brain injury (e.g. stroke) than societies with younger populations. This is because risk factors accumulate as individuals age—i.e., hypertension, diabetes mellitus, and hyperlipidemia—and thus demand for long-term care increases. An increase in the number of older people who require long-term care can impose a very heavy burden on developing economies such as Cambodia, Lao PDR, and Viet Nam. It is expected that ageing in these nations will take place before the countries are able to establish reliable social welfare systems for the elderly. Urgent action is required to disseminate preventive measures for brain injury and to prevent the impairment of activities of daily living of patients with brain injuries.

This project will examine whether Japanese-style rehabilitation can help to prevent the impairment of physical function and daily activities of patients with brain injuries in these three countries. It will examine the efficacy of Japanese-style rehabilitation for brain injury patients, as well as the impact of education and support for family providing long-term care. It also includes an education and training programme for rehabilitation therapists in these countries.

This study is expected to contribute to the development of rehabilitation service industries. Newly emerging rehabilitation service industries will contribute to economic development, and will help to sustain physical function and daily living activities.

During the first year of the study, background data related to rehabilitation for brain injury patients was collected. We also collected data on patients who were rehabilitated using Japanese methods in hospital. We have also given capacity building training to rehabilitation therapists. In the second year, this study will reveal the realities of rehabilitation practised in the community, not in hospital, and will tackle the improvement of nutrition to help prevent strokes.

POLICY RECOMMENDATIONS

This study will demonstrate to policymakers the importance of preventive measures in reducing the burden of healthcare and long-term care.

GEOGRAPHIC SCOPE

Cambodia, Lao PDR, Viet Nam, and Japan

22

Nurturing Human Resources for Acute Medicine in Asia Focusing on Trauma Care

Osuke Komazawa

AUTHORS

Naoki Aikawa

PARTNERS

Medical Excellence JAPAN

SUMMARY

The number of deaths from road traffic accidents is believed to be increasing worldwide and is significant in low-income countries. In India, for example, the number of road traffic deaths is not well understood because of underreporting, but is estimated at currently more than 200,000 per year, and to be increasing by 6% every year.
India also has just 0.73 medical doctors per 1000 habitants. The government has already implemented several road safety measures and the Ministry of Health and Family Welfare has started a capacity building programme for trauma care facilities in government hospitals.

This study provides opportunities for Indian and Japanese surgeons to exchange skills and experiences. Japan's traffic accident rate is falling and therefore Japanese trauma surgeons have fewer opportunities to see traffic trauma patients. Through this study, Japanese surgeons will gain experience in operations on traffic trauma patients and will learn the skills they need to cope with frequent traffic trauma, as seen in India. Indian surgeons will gain understanding of Japanese medical systems, such as emergency medical information systems, disaster medical assistance teams, and the concept of team medicine, which has not been introduced into India.

The Japanese Association for Acute Medicine, the Japanese Association for the Surgery of Trauma and the All India Institute of Medical Science (AIIMS) have agreed to exchange surgeons and related staff. The Japanese associations will dispatch doctors and related staff to AIIMS, and AIIMS will send doctors to Japan. During these exchanges, workshops will be held to deepen the understanding of trauma care systems in both countries. We will also hold a conference for both governments at which we will discuss policy recommendations.

POLICY IMPLICATIONS

We will propose a framework of human resource exchanges of doctors between countries. These exchanges can be used to improve medical services, particularly in trauma treatment. We believe the results will also help to develop human resources in medical services, which is one of the main targets of the Asia Human Wellbeing Initiative (AHWIN) launched by Japan. AHWIN aims to promote mutually beneficial cooperation to realise the two inseparable goals of healthy lives and economic growth in Asia, where populations are ageing.

We hope this project will show a good model of cross-border exchange of medical professionals, especially trauma surgeons, which will improve medical services in the region, and the development of medical care industries. We believe exchanges of surgeons will benefit all trauma patients, particularly the vulnerable and deprived who are most affected by road accidents. In this way our project will contribute to the realisation of the UN 2030 Agenda for Sustainable Development, and will leave no one behind.

GEOGRAPHIC SCOPE

India and Japan

23

Preparation for Ageing Society in Thailand

Osuke Komazawa

AUTHORS

Duangjai Lorthanavanich, Narumol Nirathron, Noppadol Rompho, and Surat Teerakapibal

PARTNERS

Thammasat University

SUMMARY

Thailand is heading towards rapid population ageing. The Centre of Excellence for Ageing Business and Care Development (ABCD) of Thammasat University was established to provide policy recommendations related to population ageing, and guidelines for both government and private sector. The ABCD also works on research collaborations on ageing societies.

This project consists of the following four parts.

1. Studying Thailand's ageing-related policy history and development, and reviewing recommendations from preceding studies on resolving ageing society issues. Method: Literature review of ageing society in Thailand from 2008 to 2018 via keyword searches of research, publications, the business sector, reviews of commercial products and services for the elderly – targeting Thailand only. Data synthesising and expert group discussions will then be conducted to form ideas and policy recommendations.
2. To provide policy recommendations related to older people in informal employment. Of the total Thai population, 55% work in the informal sector. Method: Mixed methodologies, both qualitative (interviewing and case studies), and quantitative (field surveys).
3. To analyse older people's consumption behaviours. Method: Primary data collection to uncover determinants of financial choices and how age influences these decisions.
4. To report on market and innovation trends that will enhance the capacity of the elderly to remain active in the economy and continue making positive economic contributions. Method: Reviewing secondary data, such as company profiles from start-up databases, government policies, and in-depth interviews with chief executives or founders of relevant health tech start-ups, mainly focusing on the ageing population.

This project also has input from a multi-sectoral advisory board, which consists of government officials, civil society, and academics. The board will advise the research team on the project and on the dissemination of outcomes.

POLICY RECOMMENDATIONS

1. To provide strategic recommendations on government and private sector management of population ageing, including guidelines on cooperation on healthcare and long-term care for older people between the government, private sector, NGOs, international organisations, the medical sector, and researchers;
2. To provide data on existing care business start-ups, market and innovation trends related to older people and contribute to the development of effective cooperation between public and private sectors. These are necessary to create active ageing societies;
3. To propose policies and policy modifications that encourage older people to make smarter financial choices;
4. To provide the government and membership-based organisations with the appropriate policy measures to prepare for the ageing of informal workers; and
5. To serve as a platform for a broader study on informal workers in Thailand and a study on ageing-related preparation of informal workers in ASEAN countries.

GEOGRAPHIC SCOPE

Cambodia, Lao PDR, Viet Nam, and Japan

24

Research on Outcomes of Long-Term Care Insurance Services in Japan: Evidence from National Long-Term Care Insurance Claim Data

Osuke Komazawa

AUTHORS

Nanako Tamiya

PARTNERS

University of Tsukuba and University of Tokyo

SUMMARY

The goal of this study is to clarify the structural and procedural factors associated with the sustainment or improvement of residents' care needs in long-term care facilities.

Residents in long-term care facilities, day-service users and day-care users will be included in this research. We will carry out statistical analyses by combining national long-term care insurance claim data, vital statistics data, and a survey of institutions and establishments giving long-term care. The period to be studied is September 2015 to March 2017.

We will focus on incentives designed to boost the quality of care, and will clarify their effect on the outcomes of residents. A multilevel logistic regression will be used to clarify facility effects after adjusting for the different characteristics of residents.

In order to ensure the continuous improvement of long-term care, and to explain how Japanese long-term care services contribute to maintaining and improving the health of long-term care service users, it is necessary to clarify the structures and processes that contribute to the improvement of outcomes.

We expect this research will facilitate better decision-making within Japan's Asia Health and Wellbeing Initiative (AHWIN). AHWIN aims to promote regional cooperation to create vibrant and healthy societies in which people can enjoy long and productive lives.

Outcomes for this study will be:

1. identifying long-term care providers that help to improve the physical function outcomes of residents;
2. satisfying the needs of service operators in ASEAN to learn about the services identified above; and
3. documenting how to provide long-term care services in ASEAN member states.

This study will also review relevant literature to describe factors associated with dependence level in terms of physical function of residents in long-term care facilities, day-service users and day-care users.

GEOGRAPHIC SCOPE

Japan

25

Transfer of Skills and Knowledge by Cross-Border Care Workers: A Study on Indonesian Care Workers who Returned from Japan

Osuke Komazawa

AUTHORS

Tri Budi W. Rahardjo, Susiana Nugraha, and Yuko Hirano

PARTNERS

Universitas Respati Indonesia and Nagasaki University

SUMMARY

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

Japan has 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 more than 4,700 nurses and care workers. Of these, approximately three hundred nurses and seven hundred 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 does not exist 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 November 2017, the Japanese government announced the expansion of the occupation categories under the Technical Intern Training Program (TITP), which promotes skills and knowledge transfer from Japan to other regions, and international cooperation via human resources development. Care work is one of the new additional categories of TITP. The Japanese government stresses that the benefit for TITP trainees is to 'boost their careers and contribute to the development of industries through the utilisation of their acquired skills after returning to their home countries'.

However, as we have learnt, there is no career path for returnee 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 in societies that are actively ageing.

This project aims to develop a training programme for oral care and swallowing function rehabilitation, which can be used by trainees under the economic partnership agreements and TITP as pre-departure training. 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 RECOMMENDATIONS

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 and Japan

26

Formal Education and Business Productivity

Rashesh Shreshta and Daniel Suryadarma

SUMMARY

In a highly competitive global economy, businesses must continually increase their productivity and add greater value if they are to grow. This is potentially afforded by a greater supply of educated workers. Data from Indonesia shows that some sectors of the economy have increased their concentration of educated workers. In 2008, 34% of workers aged 20–49 in the manufacturing sector had a senior or higher level of education; by 2014, this had increased to 41%. Likewise, the wholesale/retail trade and service industries also saw a greater concentration of educated workers. This trend is likely to be similar in other ASEAN Member States. However, whether this phenomenon has translated into greater productivity in these sectors is an open question, and the answer partly depends on the quality of education provided.

The links between education and business productivity are numerous. Educated workers are more likely and able to adopt the latest technology and adapt to changing circumstances. They also process information better, and learn new techniques more easily. Additional schooling may also provide workers with soft skills that enable them to work together with others to improve collective productivity. The extent to which education systems are developing these abilities in their workers is an important question, not least because of the increasing role of skills in today's economy. If we find that some countries' education systems are able to produce workers that add greater value, lagging countries could emulate these leaders' pedagogical tools and educational institutions.

Existing measures of educational quality suggest a wide variability in the ASEAN region. One available comparative measure is the Programme for International Student Assessment, which tests the literary and numeracy skills of fifteen-year-old students. Another way to assess education quality would be to look at economic returns of an additional year of education. In this way, we can compare wage differentials among workers with various education levels. In addition, international organisations such as the World Economic Forum produce summary data on human capital, which is based on the supply of educated workers. While these measures are indicative, they are methodologically and substantially imperfect. From the perspective of productivity and value added, what we care about is the causal impact of education on value added in the production of goods and services.

POLICY IMPLICATIONS

It is the government's responsibility to create a productive and resilient workforce. The fulfilment of this goal is an important (but not the only) marker of quality education. We expect the study to show the comparative efficiency of ASEAN education systems in developing worker skills. The analysis will be relevant for policymakers who are considering the effectiveness of their country's formal education and who desire to improve human capital productivity. This can be done through an in-depth and comparative qualitative analysis of the country's education institutions, which will include consultations with experts.

GEOGRAPHIC SCOPE

Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam

27

Labour in East Asia

Rashesh Shreshta and Fukunari Kimura

SUMMARY

Due to the fragmentation of production processes across borders, it has become necessary to use the trade-in-value-added (TiVA) concept to analyse trade. The main advantage of a TiVA perspective is that it clarifies a country's forward and backward linkages to the global production process. A country's exports may include inputs sourced from other countries, or those exports may be used in producing a partner country's exports. As such, the OECD–WTO definition of participation in the global value chain (GVC) is the sum of foreign value added in gross final exports and share of domestic value added in exports of intermediaries. TiVA analysis also reveals the degree to which employment in various industries in one country is related to final consumption in other countries.

For this project, fifteen original research papers were commissioned. These papers are designed to shed light on various labour market issues by studying the experience of East Asia, a region with highly developed inter-country production networks that serve as a production base for developed countries. Each paper contributes to an understanding of trade and employment using GVC analysis, an emerging literature that still needs in-depth study. The papers present macroeconomic analyses of GVC and employment in East Asia with microeconomic and country-specific quantitative analysis to uncover the nuances of country-specific context.

Selected papers from this project will be published in a special issue of the academic journal Review of Development Economics, with Rashesh Shrestha and Fukunari Kimura as guest editors. An academic book based on these papers will also be published.

POLICY IMPLICATIONS

Successful GVC integration requires complementary domestic conditions, including industrial policies that make it easy for new firms to establish and integrate, education policies that provide the workforce with technical and entrepreneurial skills, and e-commerce infrastructure to facilitate interaction with international partners. Similarly, to move up the value chain, policies that facilitate 'learning by doing', enhance the skills of the workforce, and build on relationships that are created by integration become crucial.

GEOGRAPHIC SCOPE

East Asia

28

Understanding the Economic Effects of Financial Inclusion in ASEAN and East Asia

Rashesh Shrestha and Tony Cavoli

AUTHORS

Tony Cavoli, Jennifer Corbett, Rajabrata Banerjee, Ronald Donato, Sasidaran Gopalan, Ilke Onur, Ramkishen Rajan, Rashesh Shrestha

SUMMARY

This project examines the causes and consequences of inequalities in financial inclusion (FI), and the concomitant policy implications, paying particular attention to the effects of FI on economic prosperity and well-being. Recent scholarly work has examined the determinants of FI, but the focus of this project is firmly on understanding the economic consequences of expanding FI and its relationship to the key policy challenges of poverty reduction and income growth. The project will also consider the effect of FI on other development indicators such as health and education, gender issues, and social capital.

Specific questions this project addresses include:

1. What is the link between FI and income growth?
2. Do FI and FI policy initiatives affect development outcomes such as reduction in gender, education, and health disparities, and poverty reduction? Are these effects comparable among Asian countries?
3. Are particular FI policies (those that emphasise financial access, or usage, those that focus on the demand for financial products by consumers and firms, or those that focus on the supply, or provision of financial products) more effective than others in influencing development outcomes and income growth?

POLICY IMPLICATIONS

The insights that we would expect and that could inform policy design would be around:

1. How FI improves well-being by moving individuals onto smooth consumption paths over time and improves their access to health, education, and similar expenditures.
2. How FI enables increased current and future output.
3. An assessment of the types of financial inclusion initiatives (for example, demand based, supply based, financial access, usage, financial literacy policies, fintech) that have a stronger effect on development outcomes, poverty, and output growth.
4. The effect of FI on gender outcomes and social capital.

GEOGRAPHIC SCOPE

East Asia

Sustainable Economic Development

29

Addressing Economic and Policy Uncertainty for Smooth Business Activities in ASEAN

Masahito Ambashi

SUMMARY

Uncertainty has long been a focus of economic research since the classic works of J. M. Keynes and F. H. Knight. Recent theoretical and empirical studies have shown that uncertainty, in general, negatively affects the real economy, including GDP, investment, trade, and employment. In particular, uncertainty can arise if governments put in place unpredictable or inconsistent policies, and from shocks such as accidents, natural disasters, and civil war.

Economic policies of ASEAN Member States (AMS) seem to be more subjected to policy uncertainty than those of developed countries. While many AMS sustain democratic electoral systems, political regime changes can be accompanied by extreme swings in policies, leading to greater uncertainty for the economy and business environment. Even if no political regime change occurs, economic policies of AMS can be affected by strong interest groups that act behind closed doors. I do not give anecdotal examples of policies in each AMS, but it is clear that the private sector, and investors, including domestic and multinational firms, are deeply concerned about uncertainty and the need to maintain stable business environments.

With this issue in mind, I examine how global and domestic uncertainties affect macroeconomic performance – such as household consumption expenditure, gross fixed capital formation, and goods and services exports – in Indonesia, Malaysia, the Philippines, and Thailand. The Global Economic Policy Uncertainty Index is used for the global uncertainty measure, and the difference between actual GDP growth and the smoothed GDP growth trend is used as a proxy for domestic shocks. Following empirical analysis based on time-series data, an interesting finding is that while domestic shocks generally tend to decrease macroeconomic performance in the aforementioned countries, only Malaysia's goods and services exports are adversely affected by increased global uncertainty. I conjecture that this is due to Malaysia's export industry structure, which is focused heavily on the production of electrical machinery, apparatus, and appliances, such as semiconductor devices and integrated circuits. Such production is deeply linked to global production networks.

POLICY IMPLICATIONS

This study suggests policies to reduce domestic uncertainty and ensure sustainable economic growth.

GEOGRAPHIC SCOPE

Indonesia, Malaysia, the Philippines, and Thailand

30

Enhancing Productivity of Domestic Private Firms: Industrial Location and Linkages

Doan Thi Thanh Ha

SUMMARY

Since 1986, Viet Nam has transformed itself into one of the world's fastest growing economies. With an average annual GDP growth of 6.8% during the 1990-2016 period, the country has lifted itself out of poverty and reached a lower-middle income status. However, the development road is still a long way ahead until the country can close the income gap with more advanced nations. Gains from productivity, the third momentum for growth, are limited and have diminished over time. There has been concern about the middle-income trap if Viet Nam is unable to maintain its high growth rate for the coming decades. And now the country faces a fundamental challenge: how to generate sustainable productivity growth.

Stagnation of productivity growth is particularly worrisome for the domestic private sector and labour productivity of domestic private firms has been trending downwards since the early 2000s. Most domestic enterprises are small and lack resources to go global. Their market is limited, while manufacturing exports are dominated by foreign direct investment (FDI) firms. The FDI sector accounts for 50% of revenue and about two-thirds of export turnover. However, despite the strong presence of foreign firms and the exponential rise in the number of private local firms, interaction between these two players is weak. Only half of FDI intermediate inputs are purchased domestically. Out of these, most are sourced from other FDI firms.

To design an appropriate development agenda for the private sector, it is necessary that the Vietnamese government considers opportunities and challenges of globalisation's 'third unbundling', triggered by technological advance, especially artificial intelligence. For Vietnamese firms to improve their productivity in this new era, innovation and skills upgrading are of great importance. To assist this goal, Viet Nam should make use of its abundant FDI by facilitating FDI spillovers and linkages. As such, industrial agglomeration - a concept closely related to inter-firm transactions - is an important channel to connect the two sectors.

In Viet Nam, trade and investment liberalisation policies have stimulated the formation of industrial clusters. By 2014, the country had established 292 industrial zones and three export processing zones. However, the efficiency of those clusters in enhancing local firms' productivity as well as human resource development remain questionable. Analytical studies are scarce and do not provide a consistent picture of the benefits local firms and workers have reaped from their foreign counterparts.

OBJECTIVES

1. To document industrial agglomeration and co-agglomeration patterns among firms and industries in Viet Nam;
2. To determine forces of agglomeration and obstacles to the process of agglomeration; and
3. To examine the relationship between agglomeration and local firms' performance with a focus on the interaction between agglomeration and FDI spillover.

POLICY IMPLICATIONS

Based on the findings, the study will draw policy implications regarding the development of soft and hard infrastructure to form efficient agglomerations, in line with the Comprehensive Asia Development Plan 2.0.

GEOGRAPHIC SCOPE

Viet Nam

RELATED PUBLICATIONS

Mori, N., Y. Nishida, and T. Fujisawa (2017), *2016 Progress Survey Report of Infrastructure Projects in CADP 2.0*. Jakarta: ERIA.
Downloadable from: http://www.eria.org/research/2016-progress-survey-report-of-infrastructure-projects-in-cadp-20/

ERIA CADP Research Team (2015), *The Comprehensive Asian Development Plan 2.0 (CADP 2.0): Infrastructure for Connectivity and Innovation*. Jakarta: ERIA.
Downloadable from: http://www.eria.org/publications/the-comprehensive-asian-development-plan-20-cadp-20-infrastructure-for-connectivity-and-innovation/

31

Leveraging Access to Finance for Vietnamese SMEs' Participation in the Global Value Chains

Doan Thi Thanh Ha, Dionisius Narjoko, and Vo Tri Thanh

PARTNERS

Central Institute for Economic Management (CIEM)

SUMMARY

Viet Nam's exports have increased rapidly in recent years. However, there has been an emerging concern that export growth failed to substantially benefit Viet Nam's businesses and people, given the fact that foreign-invested firms account for the lion's share in such exports. As of 2017, exports have amounted to approximately 95% of GDP, but foreign-invested enterprises accounted for almost 70.4% of gross exports. Meanwhile, given the poor supply linkage between domestic and foreign-invested enterprises, the latter has to rely largely on imports of materials and inputs to meet the export needs. To make exports more beneficial and more inclusive, Viet Nam needs a broader strategy to engage domestic enterprises in the foreign direct investment (FDI)-led global value chains.

However, Viet Nam's small- and medium-sized enterprises (SMEs) face enormous challenges to participate in the global value chains. Various studies have documented that the SMEs in Viet Nam lack adequate competitiveness in terms of price, quality, large volume supply, just-in-time delivery, and access to distribution channels. Nevertheless, even if such issues are resolved, Vietnamese SMEs still find themselves lacking access to financial resources in order to participate in the global value chains. As a specific example, various instruments of trade finance (for example, receivables financing) available in other countries are not accepted in Viet Nam.

While this effectively increases the cost of financing for SMEs, foreign-invested enterprises may consider contracting with foreign suppliers and foreign banks for more affordable supply chain financing. Identifying such regulatory gaps over supply chain financing is thus critical to design appropriate policies and capacity-building programmes for Viet Nam with an aim to better facilitate SMEs' participation in the global value chains. Such policies and programmes should also be designed in the context of evolving financial technology (fintech).

POLICY IMPLICATIONS

- Viet Nam should aim to harmonise financial regulations on credit extension and secured transactions involving SMEs;
- Viet Nam should attempt to leverage financial literacy of SMEs; and
- Viet Nam should adopt favourable policies to improve SMEs' access to finance in the context of rapidly evolving fintech.

GEOGRAPHIC SCOPE

Viet Nam

32

Technology and Jobs in East Asia

Doan Thi Thanh Ha

SUMMARY

The world today is witnessing an unprecedented pace of technological progress. The fourth industrial revolution, a concept encompassing the application of smart technology to economic activities, is predicted to exert a profound impact on the global economy by enhancing productivity and efficiency, as well as encouraging the exchange of ideas and improving life's conveniences. However, besides the benefits, there has been growing concern about the disappearance of some occupations and jobs. Displacement of workers increases income disparity and threatens social stability, thus posing a challenge for inclusive growth. Then, the question is how to take advantage of this new wave of development and at the same time to prepare workers for unfavourable changes, if any, in the labour market.

Theoretically, technological progress can either complement or substitute workers and skills. In addition, production expansion as a result of technological improvements could lead to rising labour demand. The net effect of technology on employment is thus not clear-cut with the answer remaining an empirical matter.

Against this backdrop, this project aims to deepen the understanding about the relationship between technology and jobs by providing further empirical evidence in the case of East Asian countries.

POLICY IMPLICATIONS

- Policies to support workers to adjust to the changing landscape, for example through education and training, financial aid, job seek support.
- Policies to encourage the development of labour intensive technology.
- Policies related to the informal sector, which can absorb laid-off workers from formal sectors.
- Policies to accommodate the development of new industries and new jobs.

GEOGRAPHIC SCOPE

East Asia

33

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

Osuke Komazawa

AUTHORS

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

PARTNERS

Demographic Research and Development Foundation, the Philippines; Institute of Population, Health and Development, Viet Nam; and 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 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, and 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 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, 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 will be selected randomly from the Philippines and Viet Nam. A baseline survey will be completed by the end of March 2019, and a second wave of surveys will take place in the latter half of 2020. The survey was developed in line with the Health and Retirement Survey 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 baseline survey, we will use the following questionnaires:

1. household questionnaire;
2. main questionnaire for sample older person;
3. anthropometric measures questionnaire;
4. main or potential caregiver questionnaire; and
5. questionnaire for one child of the ageing person.

The project will describe the current health of older persons in the fiscal year 2019-2020, based on the data collected through the baseline survey. It will also investigate associated correlates of the current health status of older adults in both countries.

POLICY IMPLICATIONS

The study is expected to uncover the factors that contribute directly to longer healthy life expectancy, providing strong messages to ASEAN policymakers wishing to create vibrant ageing societies.

GEOGRAPHIC SCOPE

The Philippines and Viet Nam.

34

International Trade of Recyclable Waste

Michikazu Kojima

AUTHORS

Michikazu Kojima, Ahmad Faris Mohamed, Panate Manoomaivibool, Nguyen Duc Quang, Aya Yoshida, Amit Jain, Dian Lutfiana

PARTNERS

Universiti Kebangsaan Malaysia, Mae Fah Luang University, Ha Noi University of Science and Technology, National Institute for Environmental Studies, IRG Systems South Asia Private Limited

SUMMARY

China has been the biggest importer of plastic waste and other recyclable waste for more than 10 years, and in 2016 imported more than half of the internationally traded plastic waste. However, China revised its non-tariff measures on some types of recyclable waste in 2017. For example, a ban was imposed on importing plastic waste (excluding plastic waste generated in production processes) and unsorted waste paper, with effect from the end of 2017.

In a workshop of the Asian Network for Prevention of Illegal Transboundary Movement of Hazardous Wastes held in Hanoi in November 2017, officers from ASEAN nations stated that they might have negative impact of the Chinese import restriction on some types of recyclable waste to ASEAN countries. The research will identify the impact of Chinese import restrictions on recyclable waste to recycling in ASEAN countries. Trade statistics in 2018 shows the decrease of import of plastic waste by and the increase of import of plastic waste in Southeast Asian countries, such as Malaysia, Viet Nam, Thailand and Indonesia. Increased imports of recyclable waste may stimulate investment in the recycling industry in ASEAN countries. But problems have been observed: illegal imports of plastic waste; improper treatment of residual waste from plastic recycling, including open burning of non-recyclable plastics. Governments are trying to restrict imports of plastic waste, particularly of uncleaned and unsorted plastic waste. China also now restrict imports of mixed waste paper, while imports by Indonesia and India have increased.

This project will identify the impact of Chinese regulation on the international trade in recyclable waste, and on recycling industries in surrounding Asian countries – particularly in Indonesia, Malaysia, Thailand, and Viet Nam. Appropriate trade restrictions and other related policies are also discussed.

POLICY IMPLICATIONS

Enforcement of pollution control for recycling industry – particularly the plastic recycling industry – should be strengthened. Quality control of imported plastic waste should be institutionalised and enforced. Import regulations should take into account the differences in quality of recyclable waste. China announced that it will prohibit imports of further waste metals from July 2019. There are also possibilities that metals scrap import will be increased in ASEAN countries.

GEOGRAPHIC SCOPE

Indonesia, Malaysia, Thailand, Viet Nam, India, China

35

Towards Sustainable Indonesia's East-West Maritime Nexus for Seamless Connectivity and Development

Fauziah Zen, M. Halley Yudhistira, and Kirana Wihana Jaya

AUTHORS

Fauziah Zen, M. Halley Yudhistira, Kirana Wihana Jaya, Buyung Lalana, Wisnu Handoko, Yusuf Sofiyandi, Bisuk Abraham Sisungkunon, Dewi K. Megasari, Hafida Fahmiasari, and Rudhian Chlissma Putra

PARTNERS

Ministry of Transportation, Republic of Indonesia and Institute for Economic and Social Research – Faculty of Economics and Business, University of Indonesia

SUMMARY

The Indonesian government has an interest in determining the future of the Pacific and Indian Ocean region and, notably, President Joko Widodo introduced the 'maritime-axis doctrine' – a five-pillared marine doctrine covering sovereignty, sustainability, prosperity –¬ in his speech at the East Asia Summit 2014. At that time, however, Indonesia faced significant challenges in improving its maritime sector, particularly its sea infrastructure. Large-scale transportation of goods is conducted by sea and, therefore, sea infrastructure is a crucial factor in growing trade. Connectivity between ports and the hinterland is also vital in ensuring the system is sustainable.

The government has established several special industrial zones in eastern Indonesia that are expected to become growth engines in the area. The growing economic outputs, particularly from eastern Indonesia, will be supported by this nexus, and this growth will reduce the need for subsidies in sea tolls in the eastern region. The study aims to identify the economic and welfare impact of Indonesia's sea toll programme – subsidised sea transport logistics – for eastern Indonesia, and examine possible improvements for hinterland connectivity. This connectivity is aimed at accelerating economic growth in eastern Indonesia so as to ensure the sea toll programme is sustainable. The study will also formulate complementary policies to increase the performance of the sea toll programme.

GEOGRAPHIC SCOPE

Indonesia

Energy-Related Research

36

Innovations and Experiences in Financing Disaster Risk Reduction and Climate Change

Venkatachalam Anbumozhi

PARTNER

Asian Disaster Risk Centre

SUMMARY

Many international policy debates – including those on the Sendai Framework, climate change, and disaster mitigation financing – converge on resilience. As such, this research represents a unique opportunity to ensure that disaster risk reduction becomes a fundamental component of inclusive and sustainable economic growth. The international financing of disaster risk reduction for ASEAN is coming under increasing scrutiny.

ERIA has developed business continuity plans for reducing the vulnerability of global value chains to natural disasters and also country-specific adaptation road maps to achieve food security. However, achieving food security is related to the implementation of regional cooperation agreements, and this needs additional financing. Implementation cannot go ahead without a full understanding of a government's institutional and financial capacity to manage the risks associated with disasters, whether either natural, economic, or climate induced.

This study examines the experiences and innovations of ASEAN nations in financing integrated disaster risk reduction strategies. It will investigate the financing priorities of the adaptation road maps for food security and resilience of value chains, by investigating the equity and adequacy of past efforts. More questions must also be asked about the roles of public and private sectors, of international financing and the institutional architecture needed for the ASEAN Agreement on Disaster Management and Emergency Response (AAMEDR).

POLICY IMPLICATIONS

We will recommend a mix of policies related to public, private, and international financing of business continuity plans, adaptation road maps, and AAMEDR. These will include:

1. How to improve sectoral policies to ensure global value chains are resilient, and food supplies secure, from the perspective of disaster risk reduction.
2. Recommendations on innovative financial instruments for disaster risk reduction in the context of sectoral investments, official development assistance, and climate policies aimed at disaster risk reduction.

GEOGRAPHIC SCOPE

ASEAN

RELATED PUBLICATIONS

Chantarat, S., K. Pannangpetch, N. Puttanapong, P. Rakwatin, and T. Tanompongphandh. (2013), *Index-Based Risk Financing and Development of Natural Disaster Insurance in Developing Asian Countries.* Jakarta: ERIA.

Downloadable from: http://www.eria.org/research/index-based-risk-financing-and-development-of-natural-disaster-insurance-in-developing-asian-countries/

37

Securing Resilience of Nuclear Infrastructure Against Severe Natural Disasters

Venkatachalam Anbumozhi and Tomoko Murakami

PARTNER

IEEJ

SUMMARY

Many natural disasters hit Asian countries each year, some causing serious damage. A huge typhoon hit the Philippines in September 2018, while in October 2018 a 7.5-magnitude earthquake in Sulawesi, Indonesia killed many and caused economic loss.

Several Asian countries are considering building nuclear power plants to meet rapidly increasing energy demand. If nuclear facilities are damaged by natural disasters, there is a high risk of more serious damage – the release of radioactive material – than at other types of power plants. It is therefore extremely important to share information in order to prepare for the impact of natural disasters on Asian nuclear facilities. Information sharing will allow countries to build best practices for securing safety and resilience, not only in countries that develop nuclear power, but also for their neighbours. The United States, which has the largest nuclear power capacity in the world, and western European countries, have accumulated abundant knowledge and experience of preparation and response to natural disasters. Most of this information is accessible at the library of the Nuclear Energy Agency (NEA) within the Organisation for Economic Co-operation and Development (OECD). This includes, for example, documents produced by the Working Group on External Events in OECD/NEA, which focuses on external hazards of common interest to NEA member countries.

Japan, Asia's first OECD member, brought in nuclear technology from the US in the early 1960s, and has learnt from Europe and the US about preparedness of nuclear facilities against natural disasters. It would also be useful for non-OECD Asian countries to gain knowledge, experience, and lessons from the experience of others.

POLICY RECOMMENDATIONS

1. The necessary conditions required for securing resilience of nuclear facilities will be analysed. We will summarise the actions to be taken by the operator, central government, and safety authorities in the region, and the requirements for securing resilience. Good practice from OECD countries will also be considered in our search for best practices in Asia.

GEOGRAPHIC SCOPE

ASEAN and East Asia

38

Nuclear Public Acceptance Improvement Project

Venkatachalam Anbumozhi and Tomoko Murakami

PARTNER

IEEJ

SUMMARY

A negative attitude to nuclear power has spread since the accident at Japan's Fukushima Daiichi Nuclear Power Plant in 2011. Germany, Taiwan, the Republic of Korea, and Switzerland have changed course and are moving towards abandoning nuclear power. However, China and India are increasing their nuclear power plants in line with official energy policies, and ASEAN nations are undecided. Negative voices were raised in Vietnam and the Philippines, which had both been contemplating developing nuclear power and, consequently both have halted their plans. Countries outside Asia are also considering introducing nuclear power, but efforts to win over citizens have not been successful. This background indicates a looming situation in which social consensus is difficult to obtain and nuclear plants are put on hold. But some ASEAN nations are concerned about the electricity shortages that may come with brisk economic growth. And although they are hesitant on nuclear power generation, concerns surrounding increased greenhouse gas emissions are also mounting. Each ASEAN nation has set a greenhouse gas emissions reduction target, and also a renewable energy target. Improving public acceptance of nuclear, which is a low-carbon power supply, and building consensus, would pave the way for nuclear power introduction in ASEAN countries.

Even countries that have no intention of developing nuclear power must prepare nuclear-accident evacuation plans and drills because of the possibility that their neighbours will do so. All East Asian and ASEAN countries are, therefore, involved in the discussion of social acceptance of nuclear power.

To increase public acceptance, it is important to hold an international symposium for experts, and to invite regional leaders and opinion leaders from developed-country municipalities in which nuclear power facilities are located. The requirements needed to build public acceptance and find policy proposals can be discussed.

In 2017, workshops were held in Rokkasho and Tokyo in Japan and policy proposals were published. In 2018, further workshops were held at Maizuru, Omaezaki and Tokyo in Japan, and policy proposals are under review. In 2019, the Institute of Energy Economics, Japan will hold further discussions with local opinion leaders to clarify issues of public acceptance, and other items, in order to compile policy proposals.

POLICY RECOMMENDATIONS

1. Conditions necessary for improving nationwide public acceptance of nuclear power will be analysed and summarised in the policy proposal.
2. The policy proposal will also summarise tasks for the operator, central and local governments, residents of the municipality hosting a nuclear power plant, neighbouring residents, and residents in consuming regions.
3. Good practice from Finland, France, Sweden the UK, and the US will be compiled.
4. The proposal will also outline how nuclear power plants and local economies coexist, the present state of measures to prevent nuclear disasters, and how communication is carried out at each phase of the development of nuclear plants.

GEOGRAPHIC SCOPE

ASEAN and East Asia

39

Measuring the Readiness of Industry 4.0 for Circular Economy

Venkatachalam Anbumozhi, Krishnamoorthy Ramanathan, and Henrich Wyes

PARTNERS

The Southwestern University of Finance and Economics (SWUFE)

SUMMARY

The concepts of Industry 4.0 and the circular economy have recently gained traction in East Asian Summit (EAS) policymaking as positive, solution-based perspectives for achieving resource-efficient industrial development using the next generation of technologies.

Current academic, industrial, and policy debates set out a large number of initiatives to be included in any action plan for maximising the use of resources available within an economy. But the debates also indicate that the transition to Industry 4.0 and to a circular economy requires fundamental and complex change in many areas of our economic systems – including in technology, engineering, and economic and social domains.

This study addresses the interface between Industry 4.0 and the circular economy and examines whether their integration will unleash new gains in productivity and efficiency. The study also investigates how far the experiences gained in other parts of the world can be transferred to the ASEAN region, providing recommendations and conclusions.

The main objective of the study is to prepare a self-assessment framework consisting of robust indicators for measuring the readiness of EAS economies for Industry 4.0 and the circular economy.

POLICY RECOMMENDATIONS

A two-layer assessment framework with a four-scale indicator was developed and tested on the electronics, textile, automobile, and chemicals sectors. A web-based platform has been prepared.

RELATED PUBLICATIONS

Anbumozhi, V. and F. Kimura (2018), *Industry 4.0: Empowering ASEAN for the Circular Economy.* Jakarta: ERIA.
Downloadable from: http://www.eria.org/research/industry-40-empowering-asean-for-the-circular-economy/

40

Integrating NER–India with Regional Economies through Cross Border Energy Sector Development

Venkatachalam Anbumozhi, Ichiro Kutani, and Mahedra P. Lama

PARTNERS

Confederation of Indian Industry

SUMMARY

Energy is a common thread that connects multiple areas of sustainable development among countries and sub-regions in Asia. In the drive to trigger and consolidate inclusive development, the North Eastern Region (NER) of India offers great potential as a regional electricity trading hub. This report analyses the multiple benefits of connecting the NER with the economies of neighbouring countries through cross-border energy trade. Supply and demand analysis under different connectivity scenarios shows that not only will the NER benefit economically from energy connectivity, but neighbouring countries such as Bangladesh, Bhutan, and Myanmar will be able to keep carbon emissions in check by importing reliable and cost-effective renewable energy. These countries can also reduce the energy security risks of serious supply gaps in the dry season, due to reduced hydro power generation.

POLICY IMPLICATIONS

The following are tentative policy recommendations:

1. In order to harness the untapped energy potential within NER and make the region a robust economic growth centre, this report recommends to initiate federal, state, and local interdisciplinary dialogues on tariffs.
2. The report recommends consultations on investment cooperation among various stakeholders and development partners, both within NER states and outside India.
3. Prepare enabling documents, a legal framework, and detailed plan for all critical areas of cross-border energy trading in the NER at both national and regional levels (e.g. grid harmonisation, grid code and security, investment and finance, reforms and regulatory framework, and tariff considerations).
4. Bring together both conventionally accessed and new multilateral financial and investing institutions and public sectors.
5. Create a common energy platform and strategic planning and management committee exclusively for the NER through which stakeholders can negotiate and firm up cross-border energy trading. Stakeholders include the Ministry of Development of North Eastern Region, North Eastern Council, North Eastern Electric Power Corporation, North Eastern Development Finance Corporation, Ministry of Power, independent power producers, multilateral institutions, the national grid, and private power exchange distributors.

41

Development of Energy Outlook Model for Myanmar

Shigeru Kimura

AUTHORS

Alloysius Joko Purwanto

PARTNERS

Myanmar Ministry of Energy

SUMMARY

Forecasting future energy supply and demand is essential for policymaking on energy affairs. Case studies adding to business as usual scenario as a baseline energy outlook, which include several scenarios such as promotion of energy efficiency and conservation, renewable energy, and reduction of CO2, provide many energy policy options for the future. As yet, however, Myanmar does not have a national energy outlook. Consequently, the Ministry of Electricity and Energy has requested the Economic Research Institute for ASEAN and East Asia (ERIA) to help develop a national energy outlook model and sustainable energy development plan.

The project purpose is to strengthen the Ministry of Electricity and Energy and enable it to employ advanced techniques, methodologies, and modelling tools for the development, operation, and analysis of energy outlooks in Myanmar. The project will also enable the Ministry to establish and manage energy outlook modelling. Through this project, Myanmar is expected to establish an energy outlook modelling system, which includes data preparation, understanding of an econometrics approach and software tools, estimation of energy demand formulas and simulation modelling for sustainable energy planning.

GEOGRAPHIC SCOPE

Myanmar

42

The Influence on 3Es by Electric Vehicles Penetration in ASEAN

Shigeru Kimura

AUTHORS

Alloysius Joko Purwanto

PARTNERS

The Institute of Energy Economics, Japan (IEEJ)

SUMMARY

ASEAN is a growth centre in Asia and demand for passenger and freight transportation is strong, with cars and trucks convenient and proliferating. Today, we see the adverse effects, such as traffic congestion, traffic accidents, and air pollution, especially in urban areas. As demand for petroleum for fuel has increased, the oil self-sufficiency rate in the region has declined sharply, while CO2 emissions have increased. The use of cars and trucks is expected to continue to grow in line with economic growth, further increasing concerns for energy security and the environment.

To tackle these issues, ASEAN countries have announced policies to promote electric vehicles and the development of associated infrastructure. For example, Indonesia intends to ban the sales of fuel combustion engine vehicles by 2040. Malaysia plans to raise the number of electric passenger cars operating in the country to 100,000 by 2030 and establish 125,000 charging sites. Thailand announced an electric vehicle investment incentive and plans to convert all 22,000 tuk-tuk (three-wheeled taxis) to electric engines by 2025.

The move to electric vehicles will reduce oil consumption and air pollution, but nations must consider how to deal with increasing electricity demand. Further, there remains the possibility that energy self-sufficiency and environmental problems may not improve – this will depend on the particular features of an individual nation's power generation sector, including generation mix, and input fuels.

This study will analyse the effects of electric vehicles deployment (targeting until around 2040) on the three Es of economy, energy, and environment, the basic principle of energy policy. More precisely, the study will analyse qualitative and quantitative information on energy supply and demand, the impact on CO2 emissions and macroeconomics with the aim of contributing to the policy planning of ASEAN member countries in the field of automobiles and energy.

GEOGRAPHIC SCOPE

Indonesia, Malaysia, Thailand, Viet Nam

43

Petroleum Supply Master Plan for Cambodia

Shigeru Kimura and Han Phoumin

AUTHORS

Shigeru Kimura, Han Phoumin, Ceiclya Malik and Takahisa Hiruma

PARTNERS

Asian Research Institute, Inc., Cecilya Malik, Cambodian local consultant

SUMMARY

Petroleum is the dominant fuel in Cambodia and grew significantly at 7.2% per annum from 2010 to 2017, which was second highest growth. According to ERIA's East Asia Summit Energy Outlook, petroleum demand in Cambodia will increase at 3.8% per annum, and petroleum demand by 2040 will be 2.4 times the 2017 level. By 2040, therefore, Cambodia's petroleum supply chain will not be fit for purpose. It is, therefore, vital to research an optimal petroleum supply chain – from supply to end-consumer – based on provincial demand forecasts for each petroleum product. To this end, the General Department of Petroleum within Cambodia's Ministry of Mines and Energy asked ERIA to prepare the Cambodia Petroleum Supply Master Plan.

The purpose of this research is to prepare an appropriate map of Cambodia's petroleum supply chain and system for the future, up to and including 2040. This project will recommend policies, action plans, and roadmaps in order to build the optimal supply system. In 2019, we will research the actual demand in each province and the national supply chain, and in 2020, we will write a supply plan based on the 2040 demand forecast.

POLICY RECOMMENDATIONS

This project will strengthen the capacity of the General Department of Petroleum, giving it the means to establish a petroleum supply chain and system from the point of supply to the end-consumer. The project will cover storage, transport, and supply chain.

GEOGRAPHIC SCOPE

Cambodia

RELATED PUBLICATIONS

Cambodia Basic Energy Plan http://www.eria.org/publications/cambodia-basic-energy-plan/

44

Biomass and Coal Co-combustion in ASEAN Region (Phase II)

Shigeru Kimura and Han Phoumin

SUMMARY

Biomass use is an important issue for ASEAN member states, for which agriculture and forestry remain crucial industrial sectors. Residue is, however, treated as waste and disposed of either through incineration or landfill. The waste is varied in terms of type, grade and characteristic, but quantities are sufficient for use in co-combustion. This biomass waste is one of the most promising renewable fuels for smaller-scale power generation – it addresses the need for CO2 emissions reductions and also the rural electrification that is crucial to rural development.

That said, however, biomass is seasonal, while coal has better availability, and can therefore complement biomass. Biomass can contribute the lower CO2 emissions that would not be achieved if a smaller-scale power plant operated on coal only.

The Phase I study will propose CO2 emissions reductions and improved energy security for the ASEAN region through coal and biomass co-combustion in circulating fluidized bed boilers. Phase I has formulated two models based on two ASEAN member states; Indonesia, a biomass-rich coal producer, and the Philippines, a biomass-rich coal importer. Both countries have potential to develop co-combustion.

The Phase I study will, by May 2019, design a policy proposal covering co-combustion methods and measures for dissemination with necessary policy instruments. It will also detail the outcomes of the techno-economic evaluation of the two models, and will discuss the advantages of using domestic resources in co-combustion, including energy security, and environmental compliance. The proposal will explain the optimal combination of coal and biomass resources, both type and volume, and the most suitable technology for respective ASEAN member states, given fuel availability, environmental performance, and economy.

It is expected that the Phase I co-combustion policy proposal will help ASEAN and East Asia Summit nations to reduce CO2 emissions and tighten their energy security.

Having in Phase I highlighted the particular interests and concerns of ASEAN nations in biomass use and co-combustion, Phase II will identify the measures ASEAN nations need to take to facilitate biomass use. In Phase II we will also draw up best-practice guidelines for ASEAN. Phase I identified the following two models, plus additional cases for further consideration:

1) Indonesia – 50MW circulating fluidized bed, domestic coal

2) Philippines – 50MW circulating fluidized bed, imported coal 3) Thailand – co-combustion on mine-mouth subcritical/biomass gasification/small-scale gas engines

Phase II will identify examples of best practice, including the Phase I research, and will also formulate guidelines for an optimal policy framework for ASEAN to facilitate biomass use, with a focus on co-combustion.

Phase II will analyse the measures to be taken and the role to be played by co-combustion in addressing the looming issue of grid fluctuation, which arises from large-scale introduction of renewables.

POLICY RECOMMENDATIONS

1. Guidelines for an optimal policy framework for ASEAN to facilitate biomass use, with a focus on co-combustion.
2. By-country strategies for introduction, implementation, and dissemination of co-combustion best practices.
    - Strategies cover technology, policy measures, issues to be addressed, advantages, and benefits
    - Country strategies will be ready for immediate implementation.
3. Recommendations on the role of co-combustion in addressing the looming issue of grid fluctuation, which arises from large-scale introduction of renewables.
4. Policy recommendation to the East Asia Summit to facilitate the by-country policies.
    - Recommendations for regional policy instruments to facilitate the national policy efforts.

GEOGRAPHIC SCOPE

ASEAN

45

Study on Demand and Supply Potential of Hydrogen Energy in East Asia (Phase II)

Shigeru Kimura and Yanfei Li

AUTHORS

Shigeru Kimura, Yanfei Li, IEEJ, Chiyoda Corporation and Kawasaki Heavy Industry Inc.

PARTNERS

IEEJ, Chiyoda Corporation, Kawasaki Heavy Industry Inc.

SUMMARY

Energy demand in the Asia region has been increasing continuously due to economic growth. Consequently CO2 emissions have also been increasing significantly, because this region largely depends on coal. Many governments in the region have developed renewable energy, including solar/photovoltaic. However, progress has not been significant because of the disadvantages of renewable energy: plants are often small scale, energy sources are intermittent and seasonal, and prices are high. Hydrogen is possible as a renewable energy source, and the phase 2 study focuses on deeper research on demand, production and transport costs. It also looks to share knowledge on the hydrogen supply chain through a new hydrogen working group.

POLICY RECOMMENDATIONS

1. Forecast of future hydrogen demand and supportive polices and action plans.
2. Forecast of future hydrogen production, supply, and transport, and supportive polices and action plans.
3. Develop common understanding of hydrogen in East Asia region and supportive regional policies and plans.

GEOGRAPHIC SCOPE

ASEAN and East Asia

46

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

Shigeru Kimura, Han Phoumin, Alloysius Joko Purwanto, and Cecilya Malik

AUTHORS

Shigeru Kimura, Han Phoumin, WG members

PARTNERS

IEEJ

SUMMARY

Energy demand in the East Asia region is expected to grow rapidly due to ongoing economic growth. Energy saving is one of the options to mitigate the growing energy demand. - East Asia Summit countries set up their voluntary energy saving goals and action plans. Quantitative analysis is needed to understand energy saving and renewable energy potential through the energy outlook approach, applying EAS countries' energy saving goals

POLICY RECOMMENDATIONS

1. Clearly defined targets and action plans for energy efficiency, energy conservation, and renewable energy are needed.
2. Energy efficiency and low-carbon technology transfer from developed countries to developing countries is vital. Adequate access to financing is needed to ensure this occurs. It is important that the government facilitates this process, whether through public soft loan, bilateral offset credit mechanism, or another route.
3. High energy prices provide an incentive to promote energy efficiency and conservation and increase the production of renewable energy by improving the pricing mechanism for electricity, petroleum products and natural gas. This can be done by removing subsidies, while considering the needs of low-income groups.
4. There is a need to improve the quality and coverage of energy data in the East Asia Summit region. The collection of more detailed end-use data could be achieved through further survey work.
5. Challenges to make consistency between both the two energy outlooks between macro and micro approaches.

GEOGRAPHIC SCOPE

ASEAN and East Asia

47

Hydrogen Potential Study in Asia Region

Shigeru Kimura and Yanfei Li

PARTNERS

IEEJ, Chiyoda Corporation

SUMMARY

Hydrogen (H2) is typically not produced from natural environment, such as direct mining from earth. However, it could be artificially produced using various physical and chemical processes. The production processes typically consume energy in various forms. When hydrogen (high purity) is consumed for the purpose of acquiring energy (especially through the application of fuel cell (FC) technologies), it is considered as an energy carrier. As the typical exhaust substance generated from the consumption of hydrogen as an energy carrier is pure water (H2O), it is considered a clean energy. Such is specially true if hydrogen is produced from renewable energy based pathways. Hydrogen thus has the potential of becoming a fundamental solution to cure our dependence on fossil fuel as well as the concern of GHG emissions that are sourced from energy consumption. However, the application of hydrogen as an energy carrier has hardly been commercialized at this moment, due to challenges from several aspects, such as high initial capital cost, high production cost for hydrogen, and substantial requirement for infrastructure development. In the Asian context, we would like to ask if deployment of hydrogen-based powertrains, namely fuel cell electric vehicle (FCEV), for applications in ASEAN countries'
passenger car, bus, and truck fleets could be reasonably justified, with current technologies as well as with expected future development of the technologies. If not, we would like to understand how big the gaps in terms of the economics of hydrogen supply chains are and driven by which parts of the supply chain. Such practices will also lead us to clue regarding which niche area for FCEV application could be targeted and prioritised, as they are most likely to become competitive in the near future. Policy implications are drawn accordingly.

POLICY RECOMMENDATIONS

1. FCEV is not competitive yet, with current hydrogen technologies and market conditions such as economy of scale of hydrogen infrastructure and fossil fuel costs. But our results indicates a future in which FCEV will become competitive under certain circumstances and in certain application scenarios.
2. Indonesia and Philippines seem to be in positions closer to bridging the gaps in commercial feasibility of FCEV in the future.

3. FCEV bus will be the most promising application of hydrogen-based powertrain to replace conventional ones.
4. Our study has quantified the gaps in both TCO and fuel cost per km, policy support in the form of various subsidies, tax incentives, and RD&D can help accelerate the arrival of our expected future scenario.
5. Pricing emissions will also help bridging the gap in the economic competitiveness of hydrogen-based powertrain to compete with conventional as well as other alternative powertrains.

RELATED PUBLICATIONS

"Hydrogen on the rise as clean fuel", China Daily, Sep 28, 2018

48

LNG Market Development in Asia

Ichiro Kutani and Yoshikazu Kobayashi

PARTNERS

Institute of Energy Economics, Japan

SUMMARY

Based on the findings of a 2018 study and bearing in mind the ongoing development of the international natural gas and liquified natural gas (LNG) market, this research aims to achieve the following:

1. Consider the measures needed to establish a transparent, liquid, and stable LNG market in Asia;
2. Identify the areas from which new natural gas demand is expected; and
3. Activate upstream investments and enhance the cost competitiveness of LNG supply.

Under (1), we will review the current status and issues pertaining to development of the Asian LNG market, and will explore measures to reduce the price volatility that increases as the global LNG market expands. Under (2), we will focus on use of LNG in the transport sector and discuss the policy support needed to facilitate this. Under item (3) we give an overview of the current upstream investment projects and examine efforts by industry and government to enhance the cost competitiveness of LNG. We will focus on LNG from the US, because it is expected to play a significant role in the development of the Asian LNG market.

POLICY IMPLICATIONS

The following are tentative policy recommendations:

1. In order for the Asian LNG market to become more liquid and flexible, it is necessary to create a trading hub. Regional governments and industry should share information and views on this issue.
2. Governments should work closely among themselves and with industry to promote natural gas use in the transport sector, particularly with LNG bunkering. Port and supply infrastructure developments should be accelerated, and relevant laws, regulations, and safety standards should be swiftly developed and enforced.
3. Given the structural changes in the Asian market, a new financing and risk allocation scheme needs to be developed if LNG projects are to be realised. Cross investments between buyers and sellers or more flexible financing support from export credit agencies may be worth considering.

4. Cost competitiveness continues to be critically important if LNG is to find a market in Asia, because the region's natural gas demand will be elastic, based on price. Governments and industry in East Asia Summit countries should recognise the importance of cost competitiveness and work more closely in order to remove obstacles to further cost reductions. Such obstacles include policy uncertainty.

GEOGRAPHIC SCOPE

ASEAN Member States

RELATED PUBLICATIONS

Koyama, K., Y. Kobayashi, I. Kutani, and Y. Li (2018), *Liquefied Natural Gas Demand in Asia.* Jakarta: ERIA. Downloadable from: http://www.eria.org/publications/liquefied-natural-gas-demand-in-asia/

Kobayashi, Y. and Y. Li (2018), *Multilateral Joint Study on the Liquefied Natural Gas Market.* Jakarta: ERIA. Downloadable from: http://www.eria.org/research/multilateral-joint-study-on-the-liquefied-natural-gas-market/

Koyama, K., I. Kutani, and Y. Li (2018), *Joint Study for Liquefied Natural Gas Market*. Jakarta: ERIA. Downloadable from: http://www.eria.org/publications/joint-study-for-liquefied-natural-gas-market/

Uemura, T. and K. Ishigami (2018), *Formulating Policy Options for Promoting Natural Gas Utilization in the East Asia Summit Region Volume II: Supply Side Analysis.* Jakarta: ERIA. Downloadable from: http://www.eria.org/research/formulating-policy-options-for-promoting-natural-gas-utilization-in-the-east-asia-summit-region-volume-ii-supply-side-analysis/

Kutani, I. and Y. Li (2015), *Sustainable Development of Natural Gas Market in East Asia Summit Region.* Jakarta: ERIA. Downloadable from: http://www.eria.org/publications/sustainable-development-of-natural-gas-market-in-east-asia-summit-region/

49

Demand Growth and Establishment of a Flexible LNG Market in Asia

Yanfei Li and Naoko Kato

PARTNERS

IEEJ and EPRINC

SUMMARY

To realise a transparent and flexible LNG market in Asia, it is essential also to realise the potential LNG demand in the region. Although there are many potential projects for LNG-related infrastructure in emerging Asia, there are many challenges to overcome. Japan proposes to identify successful projects in LNG-related infrastructure (for example, gas to power projects) in Asia or other regions and create models or templates from these. Japan will look at risk share among different stakeholders, project management, roles played by the government and other stakeholders, and will hold a workshop to share these templates.

In addition, issues related to expanding LNG demand in Asia and establishing a flexible LNG market should also be addressed at the workshop and in the report. Such issues include the shortage of LNG carriers and small-scale demand.

POLICY IMPLICATIONS

The following are tentative policy recommendations:

1. LNG receiving and utilising projects should be well structured and risks should be properly shared among stakeholders, for example through power purchase agreements, or government guarantees.
2. LNG project schedules should be properly managed; government approvals should be issued smoothly.

GEOGRAPHIC SCOPE

Asia

50

Integrated Space-based/Geospatial System to strengthen the Resilience and Connectivity of ASEAN

Ryosuke Shibasaki and Venkatachalam Anbumozhi

AUTHORS

Takayoshi Fukuyo, Hiroyuki Miyazaki and Quentin Verspieren

PARTNERS

University of Tokyo

SUMMARY

In recent decades, regional organisations have become increasingly active when disasters affect connectivity. This reflects a broader growing trend of intensifying regional cooperation for building resilient communities. However, the potentials of space and geospatial technology and their role in sustainable development and strengthening resilience are unclear. They can improve the efficiency and resilience of industrial operations and effectively address issues in the regional economic integration of ASEAN countries.

This report examines the possibilities and models of transborder mechanisms to deliver geospatial and space-based information from data providers to end users in disaster-affected areas. It also looks at financial schemes involving the private sector or public-private partnerships in order to enable the collaborative integration of the technologies in practical ways. The report provides vital information about what combinations of technologies have been applied and how they have contributed to the resilience of urban development, infrastructure planning and management, transport, and agriculture.

POLICY IMPLICATIONS

The following are tentative policy recommendations:

1. ASEAN must prioritise people's safety and quality of life. Science and technology also contributes to improving resilience in the ASEAN region, which is one of the most populated and disaster-prone areas in the world, by disseminating information on disaster risks, and advice on navigating them.
2. To proceed with integration based around space and geospatial technology in ASEAN, the region needs to promote public-private partnerships on space infrastructure development and support the development of ground infrastructure. Further, data policies need to be established to facilitate transborder data transfer, and proper data management and use.
3. The report provides recommendations on strategies and frameworks for ASEAN's data policy and space infrastructure development.

The Economic Research Institute for ASEAN and East Asia (ERIA) is an international organisation based in Jakarta. Since its founding in 2008, ERIA through its research, supports the regional economic integration process among ASEAN member countries. As the leading economic think tank in the region and the Sherpa Institution for the East Asia and ASEAN Summit process, ERIA's research and policy recommendations have influenced the policymaking process in the region.

ERIA

Sentral Senayan II, 5th & 6th floors,
Jalan Asia Afrika No 8
Gelora Bung Karno, Senayan
Jakarta Pusat 10270, Indonesia
Tel. (62 - 21) 5797 4460
Fax. (62 - 21) 5797 4463
www.eria.org