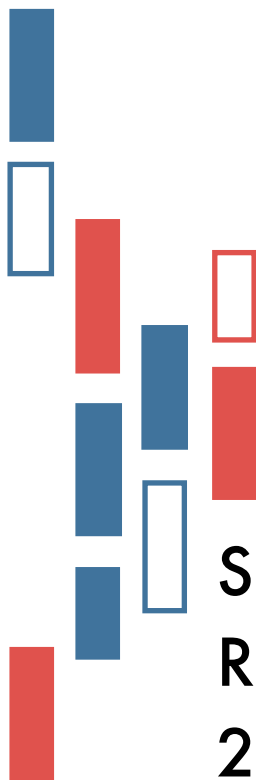




SUMMARY OF ERIA RESEARCH PROJECTS 2019 - 2020



Summary of ERIA Research Projects 2019 - 2020

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DEEPENING ECONOMIC INTEGRATION

Setting International Rules on E-Commerce and Digital Trade

Lurong Chen

SUMMARY

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

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

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

POLICY IMPLICATIONS

Policy insights and suggestions will be concerned with the following:

1. How can digital trade support Asia's long-term development interests? What priority issues, trends, and challenges should policymakers consider in facilitating digital trade, from national and regional perspectives?

2. Globally, what digital trade issues should the World Trade Organization cover? What are the possible rationales behind initiatives and arguments? How might the process affect digitalisation and development in Asia in the long and short term? How should countries in ASEAN and East Asia defend their interests and contribute to global rule-setting on digital trade?
3. Data governance is fundamental to international governance of the digital economy. To facilitate digital trade, how can regional integration help Asian countries realise free data flow with trust, taking into account privacy, consumer protection, competition policy, taxation, cyber-security, and artificial intelligence?

GEOGRAPHIC SCOPE

ASEAN plus six countries

02 | Economic integration

Handbook of Asian Economic Integration

Dionisius A 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

Impact of ASEAN Economic Integration (Phase 2)

Dionisius A 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

Asia

Russia–ASEAN Trade and Economic Relations: Prospects and Pathways

Anita Prakash and Tatyana Flegontova

PARTNER ORGANISATIONS

Russian Foreign Trade Academy (RFTA)
ASEAN-Russia Economic Ministers Meeting

SUMMARY

Russia, a member of East Asia Summit since 2010 and a full dialogue partner of ASEAN since 1996, marked the 20th anniversary of its dialogue relations with ASEAN in a commemorative summit held in Sochi, Russia, on 19–20 May 2016. The summit adopted the Sochi Declaration, charting out the future direction of ASEAN–Russia relationship and cooperation.

Given the economic and geographical importance of ASEAN and Russia, trade and economic relations between them are expected to grow beyond current levels. More integrated trade and value chain connectivity between ASEAN and the Eurasian Economic Union (EAEU) should be considered, as this grouping and Russia have similar principles of economic relations.

The Economic Research Institute for ASEAN and East Asia (ERIA) and the Center for Strategic Research, Russian Foreign Trade Academy have explored new value chains of production between ASEAN and Russia and between ASEAN and EAEU. A joint report evaluating the various dimensions of economic cooperation between ASEAN and Russia was prepared in 2018–2019 and has been acknowledged by the ASEAN–Russia Senior Economic Officials Meeting and the ASEAN–Russia Economic Ministers Meeting.

POLICY IMPLICATIONS

The report indicates that diversified investments in each other's economy will expand trade between ASEAN and Russia. These will require greater impetus, especially from ASEAN to Russia. Relations with EAEU can be further enriched through free trade agreements with ASEAN or with its individual member countries.

GEOGRAPHIC SCOPE

ASEAN, Russia

RELATED PUBLICATIONS

ASEAN Vision 2040 Volume II: Collective Leadership, ASEAN Centrality, and Strengthening the ASEAN Institutional Ecosystem

<http://www.eria.org/research/asean-vision-2040-volume-ii-collective-leadership-asean-centrality-and-strengthening-the-asean-institutional-ecosystem/>

ASEAN-Russia Trade and Economic Cooperation: Prospects and Pathways.
<http://www.eria.org/research/asean-russia-trade-and-economic-relations-prospect-and-pathways/>

03 | Globalisation

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 (AMSs) are more subject to uncertainty than those of developed countries. While many AMSs 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 without political regime change, economic policies of AMSs can be affected by strong interest groups acting behind closed doors. The private sector and investors, including domestic and multinational firms, are deeply concerned about the uncertainty and the need to maintain stable business environments.

POLICY IMPLICATIONS

Attempt to reduce domestic uncertainty and ensure sustainable economic growth
Consider how to address global uncertainty and secure global value chains

GEOGRAPHIC SCOPE

Indonesia, Malaysia, the Philippines, and Thailand

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

Masahito Ambashi

PARTNER ORGANIZATION

University of Adelaide

SUMMARY

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

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

The main research themes include the following:

1. Extending the methodological framework developed from the Second Phase Services Supply Chain project in terms of identifying and mapping the international supply chain in services activities, in all the modes of supply. The study will develop and analyse the effects of second- and third-stage unbundling based on analysis of countries, sectors, and firms.
2. Understanding the economic structure and implications of second- and third-stage unbundling on manufacturing and services for Regional Comprehensive Economic Partnership (RCEP) countries.
3. Examining the impact of emerging new services from second- and third-stage unbundling on (a) manufacturing, (b) value chains in services, and (c) the servicification of the ASEAN economies.
4. Identifying the industrial dynamism of countries to second- and third-stage unbundling in global production value chains as well as the industrial and development gaps of RCEP countries.

5. Identifying the key factors that contribute to the competitiveness of ASEAN members as participants in these supply chains and the drivers of the scope for 'upgrading', productivity gains, and labour markets.

POLICY IMPLICATIONS

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

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

GEOGRAPHIC SCOPE

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

04 | Non-Tariff Measures

Economic Impact of Non-tariff Measures on Firms and Competitiveness in Asia

Shujiro Urata, Ha Thi Thanh Doan

SUMMARY

With the progress of bilateral and multilateral trade agreements, the use of tariffs as a protectionist tool has declined while the number of non-tariff measures (NTMs) has increased. These opposite trends have triggered questions of whether NTMs are being used as a substitute for tariffs and how they affect economic and social objectives.

NTMs are policy measures, other than ordinary customs tariff, that can potentially affect trade by changing the price, quantity traded, or both. NTMs can impose heavy burdens on producers and consumers. For producers, compliance with NTMs raises production cost through adjustment of production technology or sourcing for better-quality inputs. Producers need to bear the enforcement costs to conform with regulations. For consumers, NTMs can result in more expensive imports or narrower product choice. NTMs, however, can serve legitimate purposes. Unlike tariffs, which clearly distort trade and welfare, NTMs are typically designed to correct several market failures, notably to protect the health and safety of consumers and to preserve the environment. NTMs are not necessarily non-tariff barriers, thus their elimination is not an option. The complexity of NTMs as a regulatory tool poses considerable challenges to policymakers. The expansion of global value chains further magnifies the impact of NTMs on trade and competitiveness.

Despite the growing importance of NTMs in international trade, availability and accessibility of their data are limited. Recognising the urgent need to enhance the understanding and transparency of existing NTMs, the Economic Research Institute for ASEAN and East Asia, in coordination with the United Nations Conference on Trade and Development, has developed a database on NTMs in ASEAN and East Asia. Information is collected from all possible official sources and classified by the internationally-comparable MAST 2018 classification. Product classification based on the ASEAN Harmonized Tariff Nomenclature 2017 allows analysis at sectoral and product levels.

Objectives

- Increase the visibility and encourage the utilisation of the ERIA–UNCTAD NTM database amongst researchers.
- Enrich understanding about NTMs and their economic impact.

POLICY IMPLICATIONS

- Policies for ‘smart’ NTMs that can attain public policy goals and minimise trade-distorting effect
- Policies to support firms, especially small and medium-sized enterprises, to conform with NTMs and improve competitiveness

GEOGRAPHIC SCOPE

East Asia



NARROWING DEVELOPMENT GAPS



05 | Agriculture

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

Masanori Kozono

SUMMARY

The cold chain or low-temperature storage and transportation system is important to improve the food value chain and realise higher value-added of food and agricultural products, especially in the ASEAN region as it has a mostly tropical climate. Recently, the increase in income brought about by economic growth, increase in the number of middle-income households, change in lifestyle, and rise of modern supermarkets have contributed to the rapid expansion of demand for cold chains. However, in most ASEAN countries, especially in Cambodia, Lao People's Democratic Republic (Lao PDR), and Myanmar, the cold chain system is undeveloped or not functioning well due to various causes. This study aims to contribute to the realisation of higher value-added of food and agricultural products by facilitating cold chain development, with the engagement of upstream stakeholders such as farmers.

GEOGRAPHIC SCOPE

Selected countries from ASEAN Member States (tbd)

RELATED PUBLICATIONS

- Overview of Agri-food Industries in ASEAN: Basic Information on the Food Value Chain
- Food Value Chain in ASEAN: Case Studies Focusing on Local Producers
- The Cold Chain for Agri-food Products in ASEAN

06 | Cities and Urban Amenities

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

Dionisius A 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.

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

The Comprehensive Asia Development Plan 3.0 (CADP 3.0)

Fukunari Kimura and Masahito Ambashi

SUMMARY

The Economic Research Institute for ASEAN and East Asia published the Comprehensive Asia Development Plan (CADP) 1.0 in 2010 and CADP 2.0 in 2015 and intends to publish subsequent plans every 5 years for submission to relevant ministers. Thus, CADP 3.0 is due in 2020, when Viet Nam chairs the East Asia and ASEAN summits. Connectivity and infrastructure development remain important issues to realise a 'competitive, innovative, and dynamic ASEAN' as outlined in the ASEAN Economic Community Blueprint 2025.

The past 5 years have witnessed a radical change in information and communication technology (ICT). The digitalisation of economy based on ICT has changed the conceptual framework of 'unbundling' as advocated by Richard Baldwin in *The Great Convergence: Information Technology and the New Globalization*. He argues that the 'third unbundling' has emerged following the 'second unbundling', which started in the 1980s. Further advancement in ICT is making a qualitative breakthrough by reducing face-to-face costs and unbundling 'tasks' in different locations. This technological change has created many opportunities for new businesses in ASEAN and East Asia, such as e-commerce (B-to-B and B-to-C) by platform firms. As a result, we are required to reformulate our development strategies to include leapfrog and feedback strategies as well as the existing step-by-step strategy.

CADP 2.0 was built on the idea of fragmentation theory and production networks. CADP 3.0 will guide policy direction for ASEAN and East Asia in infrastructure and industrial promotion policies in the midst of digitalisation and the fourth industrial revolution. CADP 3.0 will demonstrate the economic impacts of these required policies in ASEAN and East Asia by using a geographic simulation model.

POLICY IMPLICATIONS

- CADP 3.0 will present the new development strategy, including leapfrogging and feedback, based on the conceptual framework of unbundling while highlighting the importance of the existing step-by-step development strategy.
- CADP 3.0 will show what kind of infrastructure and development strategies are needed to drive innovation in cities, energy, environment, data, human resources, and so on amidst ICT advancement, digitalisation, and the fourth industrial revolution.

GEOGRAPHIC SCOPE

ASEAN and East Asia

Asia-Africa Growth Corridor: Development and Cooperation in Indo-Pacific

Sachin Chaturvedi, Anita Prakash, and Priyadarshi Dash

PARTNER ORGANIZATION

ERIA, Research and Information System for Developing Countries (RIS),
New Delhi

SUMMARY

The Asia–Africa Growth Corridor (AAGC) covers the Indo–Pacific region that includes the littoral countries in the Indian Ocean region and extends up to Japan and Oceania on the eastern flank. The idea of Indo–Pacific has generated interest and hope as an important platform for countries in the region to increase trade and commerce, promote investment, harness marine resources, and establish stronger connectivity. A free, open, and inclusive Indo–Pacific region is vital for maritime security, peace, and prosperity and would facilitate the success of AAGC. The growth corridor envisages a people-centric sustainable growth strategy supported by four pillars: (1) improvement of capacity and skills, (2) quality infrastructure and institutional connectivity, (3) development and cooperation projects, and (4) people-to-people partnership. Asia and Africa have cherished rich historical, civilisational, and economic linkages for several centuries.

Given the theoretical rationale for the growth corridor approach and the innovations in financing and project execution, the proposed volume will have 17 chapters covering five themes. Besides covering the concept, rationale, theoretical perspectives, and modus operandi of implementation, the chapters will delve into the issues of trade, investment, industrialisation, social development, and most importantly, interactions amongst peoples and businesses of the participating countries. Certain chapters will be devoted to important sectors of cooperation amongst participating countries and extensively cover the rationale, scope, and specific instruments of development intervention in Asia and Africa and provide the road map for implementing the projects.

POLICY IMPLICATIONS

Asia and Africa face common developmental challenges and aspire for faster economic growth and development. The whole of Africa and countries in Asia, including India, are gifted with substantial young populations that will raise productivity and yield demographic dividend. The book will recom

mend evidence-based policy initiatives and development projects that India and partner countries in Southeast Asia and East Asia can undertake in participating African countries in quality infrastructure, capacity building, skills development, local industrialisation, and people-to-people and business-to-business partnerships. By following a demand-driven approach, projects will be identified in the countries jointly funded by the member states.

GEOGRAPHIC SCOPE

Asia, Africa, Oceania, Europe

RELATED PUBLICATIONS

- Asia Africa Growth Corridor: A vision Document. 2017
- <http://www.eria.org/research/asia-africa-growth-corridor-a-vision-document/>
- Prakash, Anita. Asia Africa Growth Corridor: Development Cooperation and Connectivity in the Indo-Pacific. 2018
- <http://www.eria.org/research/asia-africa-growth-corridor-development-cooperation-and-connectivity-in-the-indo-pacific/>
- Prakash, Anita. Role of Industrialisation and ICT in Africa's Growth and Integration into Global Value Chains. 2019
- <http://www.eria.org/research/the-role-of-industrialisation-and-ict-in-africa-growth-and-integration-into-global-value-chains/>

Asia-Europe Connectivity and Cooperation: Ensuring Inclusive and Sustainable Growth Amidst New Global Challenges

Anita Prakash

PARTNER ORGANISATIONS

Ministry of Foreign Affairs, Cambodia; NZIER, Wellington; ITC, Geneva; Clingendael Institute, The Hague; Freiburg University, Freiburg; University of Lausanne, Switzerland; NUS, Singapore; Ideacorp, Philippines; Asian Vision Institute, Cambodia

SUMMARY

Europe and Asia need interdependence and connectedness as both are at a juncture where threats and challenges to and opportunities for them are more common than ever. The Asia–Europe Meeting (ASEM) 2020 will be built on the economic, political, and social-cultural successes of ASEM’s 24 years of existence. ASEM 2020 will chart how Asia–Europe cooperation will move forward through innovative cooperation and collaboration in an age of rapid change and disruption. ASEM 2020 is an opportunity to interweave inclusive and sustainable growth for Asia and Europe around the needs of youth, women, the aged, and the disadvantaged.

Responding to ASEM leaders’ commitment to build a cohesive, competitive, resilient, and sustainable ASEM community for the peoples of Asia and Europe, the Economic Research Institute for ASEAN and East Asia will conduct a plenary study, Asia–Europe Connectivity and Cooperation: Ensuring Inclusive and Sustainable Growth Amidst New Global Challenges, for the 13th ASEM Summit in Phnom Penh, Cambodia. The Cambodian chair of the summit recognises that ASEM is entering a phase of rapid change and disruption across all three pillars of ASEM connectivity and cooperation. Asia and Europe face advances in technology, innovation, automation, robotics, digital platforms, and greater connectivity that are prompting innovative economic and financial cooperation, sustainable growth, and movement of people and investments to new locations. New areas of cooperation in finance, innovation, infrastructure, global health, and multilateral governance are no longer a matter of choice. The study will enable their inclusion in the blueprint of ASEM connectivity to make ASEM future-proof and to help Asia and Europe address global and regional challenges together.

The plenary study will be presented to the leaders of 51 countries at the 13th ASEM Summit.

POLICY IMPLICATIONS

The study will support the Asia–Europe Connectivity Mechanisms and the Pathfinders Group on ASEM Connectivity in assessing new areas of cooperation in finance, innovation, infrastructure, global health, multilateral governance, energy, and climate change, and will enable their inclusion in the blueprint of ASEM connectivity, to make ASEM future-proof and to help Asia and Europe address global and regional challenges together.

The study will support ASEM's readiness to address global and regional challenges and opportunities.

GEOGRAPHIC SCOPE

Asia, Europe, Oceania

RELATED PUBLICATIONS

- Asia Europe Economic Connectivity: Global Value Chains in ASEM Region. 2019
- <http://www.eria.org/research/asia-europe-economic-connectivity-global-value-chain-structures-in-asem-region/>
- Prakash, Anita, ed. Brussels Report on Strengthening Asia-Europe Connectivity: Drawing Synergy from Global Development and Governance Programmes. 2018
- <http://www.eria.org/research/brussels-report-on-strengthening-asia-europe-connectivity-drawing-synergy-from-global-development-and-governance-programmes/>
- Prakash, Anita, ed. Asia-Europe Connectivity Vision 2025: Challenges and Opportunities. Jakarta: ERIA-Government of Mongolia. 2016.
- Downloadable from: http://www.eria.org/publications/key_reports/asia-europe-connectivity-vision-2025.html
- Prakash, Anita and Maaïke Okano Heijmans. ASEM Connectivity Inventory, ERIA-Clingendael Institute. 2018
- Downloadable from: <http://www.eria.org/research/asem-connectivity-inventory/>

08 | Health and Ageing

Health And Long-Term Care Information in Ageing Asia

Reiko Hayashi and Osuke Komazawa

PARTNER ORGANISATIONS

National Institute of Population and Social Security Research, Japan

SUMMARY

The Asian population continues to age along with the world population. 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. The need to understand and act is urgent, as many Asian populations will age faster in the coming decades than those in Europe and Northern America, or even Japan. The need to promote economic development as 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 high level of internal and international migration are resulting in aged parents being left behind and alone.

The research team will survey sources of information on health and long-term care, covering censuses, vital statistics, household surveys, and statistics based on administrative records, particularly those conducted by ministries of health, to clarify the situation of health and long-term care. Feasibility studies on health information will be conducted in some countries.

In line with the previous project, this year's project will focus on the following:

1. Adding to the existing database indicators of long-term-care demand and supply in South, Central, and Western Asia.
2. Collecting and comparing healthcare information, including cause-of-death statistics, healthcare access statistics, and disease-specific morbidity in East and Southeast Asia as well as target countries in South, Central, and Western Asia.
3. Analysing the health information systems in Viet Nam and another country (under consideration) and determining their strength and weakness.
4. Conducting regular meetings virtually and physically amongst members of the research team.

5. Uploading visual data, in addition to research reports, to the Asia Health and Wellbeing Initiative website in collaboration with the partners. The research results will be disseminated at international conferences.

POLICY IMPLICATIONS

This research project will compile evidence on health and long-term-care demand and supply by comparing statistics. The data will be disseminated to policymakers. The project's base of evidence will be used to inform the following national and international policies:

1. Strengthen the system of long-term-care provision in Asia, such as service allocation by province, care workforce development, family caregiver support system, and so forth.
2. Enforce national health and long-term-care information system.
3. Clarify the demand and supply gap in healthcare access by major disease group.

GEOGRAPHIC SCOPE

Asia Pacific Region

RELATED PUBLICATIONS

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

Human Resource Development, Employment, and International Migration of Nurses and Caregivers in the Asia and Pacific Region

Yuko Tsujita and Osuke Komazawa

PARTNER ORGANISATIONS

Institute of Development Economics, Japan External Trade Organization

SUMMARY

International migration of nurses and caregivers has recently increased. The growing demand for nurses arises from increasing demand for better health services, progressively ageing populations, promotion of medical tourism, and shift from home care to institutional care, particularly long-term care, in many developed countries. In OECD countries, 14.5% of nurses and 28.5% of home-based caregivers, on average, were born abroad (OECD, 2015).

Although Asia is the main nurse-sending region, little is known about the education and training, employment, and international migration of its nursing workforce, and the impact of such knowledge on the health sector in Asian countries. This project aims to examine the situation, issues, and challenges of the nursing workforce in Asian countries, including those that concern (i) human resource development, (ii) career development, (iii) socio-economic characteristics of nurses who left their home country to work overseas, and (iv) impact of international migration of nurses on the health sector in Asian countries.

Some countries in the Asia–Pacific region receive nurses. The literature suggests that foreign-trained nurses cannot necessarily build their careers in host countries. Some, particularly those from developing countries, are stalled in entry-level or low-ranking positions in the nursing hierarchy, and others are relegated to low-skilled, lower-status, and low-paid jobs that do not require a nursing license. Given the ageing population in many developed countries and increasing demand for elderly care, licensed nurses are more easily engaged in the elderly-care sector in nurse-receiving developed countries. This project will analyse the situation and issues from the perspective of nurses and nurses-turned-caregivers from Asian countries in nurse-receiving countries.

POLICY IMPLICATIONS

The implications of this study relate to policy on nursing education and training, career development, and nurse and caregiver recruitment in the Asia–Pacific region.

GEOGRAPHIC SCOPE

Indonesia, Malaysia, Myanmar, the Philippines and Viet Nam

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

Osuke Komazawa

PARTNER ORGANISATIONS

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

SUMMARY

At the 20th ASEAN Plus Three Commemorative Summit, leaders reaffirmed their commitment to promote active ageing – whereby people remain physically active as they age – and the empowerment of older persons. In particular, leaders sought to advance regional cooperation on ageing-related challenges among ASEAN member states and the development of a regional plan of action to implement the 2015 Kuala Lumpur Declaration on Ageing: Empowering Older Persons in 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 was completed by the end of March 2019, and the 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

Modelling Human Development and Circulation of Long-Term Care Workforce

Takeo Ogawa and Osuke Komazawa

PARTNER ORGANISATIONS

Keishin Gakuen, Japan

SUMMARY

The Government of Japan launched the Asia Health and Wellbeing Initiative (AHWIN) to promote regional and bilateral cooperation to create vibrant and healthy societies where people can enjoy long and productive lives and contribute to sustainable development. Cross-border circulation of human resources for long-term care is one of the most supported activities of this initiative. The development of human resources for long-term care all over Asia is expected to smooth the path for Japanese long-term-care service providers to invest overseas in care industries and encourage these industries in countries that have not necessarily nurtured long-term care service. The establishment of such a win-win relationship amongst Asian countries is the most important goal of AHWIN.

The goal of the project is international harmonisation of national qualification frameworks of long-term-care training. Japan has a national qualification system for certified care workers and a career ladder system for long-term-care professionals. The Philippines has a qualified caregiver training system under the Technical Education and Skills Development Authority and the Philippine Qualifications Framework. Indonesia and other ASEAN countries are establishing their own qualification frameworks for job training while India is promoting some. National qualification frameworks, however, must be harmonised under an Asian qualification framework for international long-term-care work. Although Japan welcomes care workers from abroad, how to identify them within its qualification framework is not yet clear. Care workers in the origin countries are confused about their professional rank in the receiving country.

This project will focus on the Philippines and India to clarify harmonisation issues:

1. How does the origin country estimate the competency of migrating workers using its national qualification framework?
2. How will Japan estimate the competency of invited workers using its long-term-care professional career ladder system?
3. How will the origin country estimate the competency of returned care workers from Japan using its national qualification framework?

POLICY IMPLICATIONS

1. Establishing long-term care as a high-expertise profession
2. Establishing the international qualification framework for long-term care

GEOGRAPHIC SCOPE

India and the Philippines

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

Osuke Komazawa

PARTNER ORGANISATIONS

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 an 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

Preparation for Ageing Society in Thailand

Osuke Komazawa

PARTNER ORGANISATIONS

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 the 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 the 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 IMPLICATIONS

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.
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

Thailand

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

Osuke Komazawa

PARTNER ORGANISATIONS

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 of this programme 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 IMPLICATIONS

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

GEOGRAPHIC SCOPE

Indonesia and Japan

09 | Human Resources

Human Capital in ASEAN

Rashesh Shrestha

SUMMARY

Rapid technological advancements and shifting patterns of specialisation and trade have required Asian economies to accelerate the accumulation of human capital. While much has been written about the state of human capital at the aggregate level, understanding the factors affecting human capital formation at the level of individuals and households, particularly in developing and emerging countries, is limited. Empirical research grounded on economic theories of human capital investment can provide insights for policymakers.

Various strands of economic literature can contribute to a better understanding of the process of human capital development. A multi-dimensional conceptualisation of human capital, involving cognitive and non-cognitive characteristics as well as health, is widely accepted. Each component of human capital undergoes a formative process. In one important strand, researchers conduct a structural estimation of the human capital production function to uncover the contribution of various factors to overall human capital. The estimates from these models can identify where policy interventions can be most effective.

Most observers of Southeast Asian economies concur that the region faces a risk of skills shortage. Amongst the wealthiest ASEAN economies, Thailand and Malaysia face an ageing population, Indonesia and the Philippines have poor education infrastructure, and Singapore has a small workforce. The World Bank's Human Capital Index gauges the amount of human capital that children who are born today can expect to achieve when they are 18 years old, relative to the ideal scenario of full education and health. For Southeast Asia, the index ranges from 0.45 for Lao People's Democratic Republic (Lao PDR) to 0.88 for Singapore. This means that, given the current provision of health and education, the productivity of a child born today in Lao PDR will be 45% of the ideal condition. ASEAN Member States are keenly interested in expanding their human capital base to sustain their economic growth and modernise their economies. Expansion of education and training has been highlighted as a policy imperative.

The objective of this project is to expand the perspective on human capital development by analysing factors that impact each component of human capital. The project will bring together researchers to conduct empirical research. Each researcher will develop an original research proposal and conduct rigorous empirical research.

POLICY IMPLICATIONS

The study will recommend policies to help countries prioritise their investment in developing human capital.

GEOGRAPHIC SCOPE

India, Cambodia, Indonesia, Thailand, Viet Nam

10 | Industry and Business

The Current Status and The Future Prospect of xEV in ASEAN

Martin Schröder (Kyushu University), Yasushi Ueki, and Fusanori Iwasaki

SUMMARY

This project seeks to clarify the impacts of electric vehicles (xEV) to automobile industries and our society by explaining the current xEV status and the future global automobile production network in the ASEAN region. Highly sophisticated cross-border production networks characterise the automotive and electronic industries in the ASEAN region, i.e. specific production factors are highly fragmented across countries. Although still limited to a few cases, automotive suppliers have started to locate certain xEV production processes in ASEAN countries. The automotive component industry is a representative example because it already operates a complex division of labour in ASEAN and has been designated as a key industry of the ASEAN Economic Community. Studying the workforce and the actual content of work in the xEV production network is important to understand similarities and differences amongst production sites in the Cambodia–Lao PDR–Myanmar–Viet Nam region and older ASEAN member countries. The project also seeks to understand the research and development activities of automotive industries, particularly those related to the development of xEV in the ASEAN region, where developing countries have different levels of production complexities. The project aims to conduct research through firm surveys and case studies that could analyse factories producing identical or at least similar xEV components.

POLICY IMPLICATIONS

From the results of the project's objectives, recommendations regarding xEV strategies of automotive and electronic firms in ASEAN could be formulated. The proposed research could help small and medium-sized enterprises in ASEAN and transnational enterprises identify xEV strategies they could adopt.

Regarding the gaps between local capabilities and the xEV technology that transnational enterprises demand, the research could formulate policy recommendations for ASEAN countries. But as xEV progress in ASEAN countries depends on the social infrastructure in each member country and the xEV progress in China, recommendations would focus on formulating an xEV development strategy for these particular countries.

GEOGRAPHIC SCOPE

ASEAN

Survey on the Automotive Industry in Viet Nam

Yasuhiro Yamada, Fusanori Iwasaki, Doan Thi Thanh Ha, Yasushi Ueki,
Joko Purwanto

PARTNER ORGANISATIONS

Viet Nam Ministry of Industry

SUMMARY

ERIA and the Ministry of Industry and Trade of Viet Nam are analysing the automotive sector in Viet Nam to propose road maps to develop the sector. The study covers all related aspects of the automotive industry, i.e. supply chain; related support industries; economic impacts; and development of new vehicles technology such as electric vehicles, trade, market competition, and many more.

POLICY IMPLICATIONS

The results should propel the Ministry of Industry and Trade of Viet Nam to establish elaborate policy measures for developing a sustainable and competitive automotive sector.

GEOGRAPHIC SCOPE

Viet Nam



SUSTAINABLE DEVELOPMENT

11 | Disaster and Management

Innovations and Experiences in Financing Disaster Risk Reduction

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PARTNER ORGANISATIONS

Asian Disasters Risk Reduction Centre

SUMMARY

This study examines the experiences of ASEAN Member States in financing integrated disaster risk reduction (DRR) strategies, and innovations needed, particularly business continuity plans (BCPs) and adaptation road maps (ARMs). The study investigates the priorities in financing DRR from the perspective of ARMs for food security and resilience of value chains by asking questions of the equity and adequacy of past efforts. More questions need to be asked about the role of public and private sectors, international financing, and the institutional architecture needed for the ASEAN Agreement on Disaster Management and Emergency Response (AADMER). Five papers covering the international experiences of action on BCPs and ARMs, as well as consequences if further actions are not scaled up, are analysed and the benefits of such actions are quantified. To find out the role of the public sector in implementing BCPs and ARMs, the papers review the international financial assistance received in the past under the categories of disaster prevention and preparedness, emergency responses, and reconstruction and rehabilitation under the categories of technical support to economic assistance. Private investment in implanting BCP and ARM through such schemes as personal and institutional insurance is elaborated as essential for enhancing the resilience of ASEAN countries, communities, and their assets. Two papers document the drivers of new innovative financing measures that are cost-effective and instrumental in preventing and reducing the losses and contribute to BCP and ARM in terms of job creation and economic growth. Five papers, through a bottom-up approach, share best ideas on innovative financing of DRR.

POLICY IMPLICATIONS

1. A justifiable mix of public, private, and international financing of BCPs, ARMs, and AADMER
2. The ways and means to improve the capacity of sectoral policies to achieve global value chain resilience and food security from the perspective of DRR

3. Innovative financial instruments for DRR in the context of sectoral investments, official development assistance, and climate policies aimed at DRR

GEOGRAPHIC SCOPE

ASEAN

RELATED PUBLICATIONS

- https://www.eria.org/uploads/media/Books/2019-Towards-a-Resilient-ASEAN-Vol1/17_Disaster-Climate-change-vol.1-Chapter-13.pdf
- http://www.eria.org/uploads/media/Books/2019-vol2-Towards-a-Resilient-ASEAN/01_Disaster-Climate-change-vol.2-Title-page.pdf

Securing Resilience of Nuclear Infrastructure against Severe Natural Disasters

Tomoko Murakami, Venkatachalam Anbumozhi

PARTNER ORGANISATIONS

Institute for Energy Economics Japan

SUMMARY

Nuclear power plants all over the world are exposed to natural hazards such as cyclones, floods, fires, tsunamis, volcanic eruptions, and earthquakes. Worldwide, about 20% of nuclear reactors are operating in areas of significant seismic activity. With safety always a key concern, safety specialists and architects have to take extreme natural forces into consideration. A distinct new emphasis on external hazards in nuclear safety consideration followed the earthquake and tsunami that hit the Fukushima Daiichi nuclear power plant in 2010, the largest to ever affect a nuclear facility. The incident underlined the need for an international safety network concerned with natural hazards, something that did not exist at the time of the incident. This led to a bold response from the international nuclear community and it is hoped that improvements since adopted by all nuclear power plants and lessons learned will serve as an example worldwide.

This study examines the factors that could enhance the resilience of nuclear power plants by considering the actions to be taken in the aftermath, such as plant instrumentation, shutdown criteria, plant walk-down, and restart of reactors. The study examines technical knowledge and research developments related to the occurrence and effects of extreme external events on nuclear power plant sites.

The study looks deeper into the following issues. First, how do countries deal with compound disasters? Rapid energy demand and expanding nuclear power plants increase the risk of disasters and their associated amplified negative impacts on energy security and low-carbon future. How do governments in the region prepare for these augmented risks? Second, how do governments strengthen governance at national and regional levels? In particular, regional cooperation in ASEAN and East Asia is critical in dealing with catastrophes such as Fukushima that extend beyond national capacity and, increasingly, national borders. Third, how do we allocate resources for short- and long-term needs in achieving energy security, infrastructure safety, and economic systems resilience?

POLICY IMPLICATIONS

Multi-sectoral policy coordination needed to support energy supply under compound disasters

Ways to enhance the utilisation of local institutions for improved resilience

International framework for advancing nuclear energy facilities against disasters

GEOGRAPHIC SCOPE

Japan and ASEAN

Public Acceptance of the Nuclear Power Plants

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SUMMARY

Across countries and continents, public acceptance of nuclear power is crucial for establishing a governmental nuclear energy programme. Therefore, understanding the determinants of public acceptance of nuclear power is important. This study examines the effects of knowledge, trust, risk, and benefit-related factors on public acceptance of nuclear power in Europe, the US, and Japan. Through field visits and interactive workshops, different levels of public acceptance and related communication strategies to effect changes have been identified by this study. Through public consultation, the effective communication role that sub-regional authorities and non-governmental organisations could play has also been identified. Several policies have been recommended based on the workshop's findings: (i) to build trust, nuclear communications need to include integrity, competence, and benevolence; (ii) talking about the need for nuclear power, rather than describing the technology using technical jargon, is crucially important and effective; (iii) what works best is to share personal stories, be open, honestly admit mistakes, and apologise when necessary; (iv) involvement by local stakeholders should be led by locals employed where nuclear facilities are located; (v) new opportunities can be created by promoting confidence to secure public and private investment and delivering projects and programmes to secure an ambitious economic legacy; (vi) the role of media and how to provide information to media should be reconsidered; and (vii) media, including social media, can and should build public opinion and can often amplify trends.

POLICY IMPLICATIONS

1. The role of national, municipal, and local governments is important to maintain a clear and firm position on the commitment to projects.
2. Developing business projects and inviting investment are also important for enhancing the involvement of local stakeholders in the nuclear industry. This can be done by promoting opportunities to secure public and private investment and delivering projects and programmes to secure an ambitious economic legacy.
3. The role of media and how to provide information to media should be reconsidered.

GEOGRAPHIC SCOPE

Japan and South East Asia

RELATED PUBLICATIONS

- <http://www.eria.org/publications/public-acceptance-of-nuclear-power-plants-in-hosting-communities-a-multilevel-system-analysis/>

13 | Environment and Global Warming

Circular Economy Road Map for ASEAN

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PARTNER ORGANISATIONS

Institute for Natural Resource Management, Viet Nam

SUMMARY

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

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

POLICY IMPLICATIONS

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

GEOGRAPHIC SCOPE

ASEAN

RELATED PUBLICATIONS

- <https://www.eria.org/research/industry-40-empowering-asean-for-the-circular-economy/>
- <https://www.eria.org/publications/towards-a-circular-economy-corporate-management-and-policy-pathways/>

Evaluation of CO₂ Emission Reduction by Alternative Biofuel Introduction in EAS Countries

Makoto Toba, Venkatachalam Anbumozhi

PARTNER ORGANISATIONS

National Institute of Advanced Industrial Science and Technology (AIST)

SUMMARY

A regional fleet of light-duty vehicles is set to increase massively from about 850 million passenger cars in 2015 to over 1.5 billion by 2050. To meet expanded energy demand in transportation, energy resources should shift from imported fossil fuels to renewable ones produced in East Asian countries. This study discusses the production, trade, supply, and utilisation of transportation energy from biofuels according to (i) potential study of diversified transportation energy mix, (ii) research on next-generation biofuels, and (iii) bio-methanol as an energy carrier. The study discusses strategies of transport fuel, which makes up 23% of energy-related emissions. A combination of in-depth scenario analysis and country-level feasibility study on the next-generation fuel was carried out in Indonesia, Thailand, and India. An integrated report was prepared and submitted for the Energy Ministerial Meeting. The study is being continued, focusing on the potential penetration of electric vehicles vis-à-vis biofuelled vehicles.

POLICY IMPLICATIONS

- A combination of electrical vehicle introduction and biofuel utilisation is the most effective in reducing oil consumption and CO₂ emission. Electric vehicle penetration has a positive effect on promoting the use of biofuel in supporting agriculture.
- While electrical vehicle promotion will contribute mainly to gasoline reduction, the imbalance between gasoline and diesel fuel consumption remains an issue in Thailand since diesel fuel consumption is much higher than gasoline consumption. Hence, reducing diesel fuel consumption should be prioritised through an appropriate blend of biodiesel.
- Effects of biofuel introduction on oil consumption and/or CO₂ emission reduction are limited to new vehicles.

GEOGRAPHIC SCOPE

India, Indonesia, the Philippines, Thailand,

RELATED PUBLICATIONS

- <http://www.eria.org/publications/evaluation-of-co2-emissions-reduction-through-mobility-electrification/>

Realising Smart Cities Through Integrated Energy Revolution

Venkatachalam Anbumozhi and Sivanappan Kumar

PARTNER ORGANISATIONS

Asian Institute of Technology

SUMMARY

The smart city concept embeds an element of urban design that uses highly advanced technologies wherein energy services become one big and highly complex cyber-physical system, in which computer-based algorithms improve the quality of life of residents and build a sustainable and clean environment. This study adopted a gap analysis of converting a city into a smart city by reviewing what has been done in major cities with regard to the energy revolution: energy access and resilience, conceptualising smart city based on the level of development, and willingness to adapt and reform. Learning from these experiences, a plan of action and a public-private community protocol are proposed for smart city programmes in East Asia Summit countries. The study selected six cities to form the ASEAN Smart Cities Network (ASCN), a collaborative platform where ASEAN cities can learn from one another's experiences in adopting smart technology, identify solutions and, more importantly, engage industry and global partners to work towards the common goal of making urban development sustainable and their cities liveable. This study established key performance indicators for the introduction of sector-wide smart technologies. It developed an assessment tool that can be applied to 26 pioneer cities in the network to assess energy-saving and avoid emissions. The study had analysed 10 digital applications and found that cities could use them to improve energy conservation by 10%–30%. The study found that even the most cutting-edge smart cities are still at the beginning of their journey. Smart cities add digital intelligence to existing urban systems, making it possible to do more with less. Connected applications put real-time, transparent information into the hands of users to help them make better energy choices. Users can save time, reduce energy use, and even help boost social connectedness. When cities function more efficiently, they also become more productive places to do business. Amongst other positive economic and social outcomes in Singapore, the study found that these tools could reduce emissions by 8%–10%, shorten an average commute by 15%–20%, and cut greenhouse gas emissions by 10%–15%. Still, many cities have yet to implement some of the applications that could have the biggest impacts.

POLICY IMPLICATIONS

- Operational definition of smart cities and key performance indicators for assessing the readiness of ASEAN cities to become smart cities enabled by information and communications technology
- A methodology to assess energy-saving and emission reduction under digital city conditions
- Policy integration at different levels of government for operationalisation of smart cities in ASCN

GEOGRAPHIC SCOPE

EAS countries

RELATED PUBLICATIONS

- <https://www.springer.com/gp/book/9789811049002>

Unlocking the Potentials of Private Sector for Accelerated Low-Carbon Energy Transition

Venkatachalam Anbumozhi, Fukunari Kimura, Kaliappa Kalirajan

PARTNER ORGANISATIONS

Australian National University

SUMMARY

Several reasons exist for leveraging private finance to accelerate the low-carbon energy transition and to achieve the nationally determined contributions (NDCs) agreed as a part of the Paris Agreement. First, advanced countries have not yet agreed on any clear plans to meet their commitment to provide US\$100 billion annually by 2020 so that developing countries can reach their NDC targets. Second, as estimates indicate, more than US\$100 billion per year is needed to meet the low-carbon transition challenges that include not only investments in renewable energy but also energy efficiency and other strategies such as the deployment of clean coal and carbon capture and storage technologies. Third, government budgets of both advanced and emerging economies are often constrained by financial debts and other austerity policies, with little clarity on when and how public financial flows will be scaled up to meet the targets for 2030. This study resulted in a Springer–ERIA book on financing low-carbon energy. A market survey on the barriers and solutions to private capital mobilisation was conducted. A policy dialogue will be held to propose solutions to the policy conflicts and a regional guidelines paper is being prepared.

POLICY IMPLICATIONS

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

GEOGRAPHIC SCOPE

ASEAN +6

RELATED PUBLICATIONS

- <https://www.springer.com/gp/book/9789811085819>
- <http://www.eria.org/publications/policies-and-financing-strategies-for-low-carbon-energy-transition-overcoming-barriers-to-private-financial-institutions/>
- <http://www.eria.org/publications/unlocking-the-potential-of-private-financing-for-low-carbon-energy-transition-ideas-and-solutions-from-asean-markets/>

Temburong Eco Town Study Phase 4: Energy Efficiency Buildings and Clean Electricity Supply

Shigeru Kimura

PARTNER ORGANISATIONS

TEPCO, JEM

SUMMARY

This study focuses on the preparation of energy efficiency guidelines for new commercial buildings, clean electricity supply, and clean transport system in Temburong Eco Town in Brunei Darussalam. The study pays attention to the basic concepts of the Temburong Eco Town Master Plan: living laboratory, living tourism, and carbon neutral.

POLICY IMPLICATIONS

Guidelines to build energy-efficient buildings in Temburong district, and advanced smart-grid technologies that support clean electricity supply and clean transport system

GEOGRAPHIC SCOPE

Brunei Darussalam

Regional Knowledge Centre for Marine Plastic Debris

Michikazu Kojima

SUMMARY

Various documents on the importance of sharing knowledge and capacity development related to marine plastic debris have been produced by the United Nations, the Association of Southeast Asian Nations (ASEAN), and others. One is the ASEAN+3 Marine Plastics Debris Cooperative Action Initiative, which recommends the best use of existing institutions, such as the Economic Research Institute for ASEAN and East Asia (ERIA), for sharing knowledge and capacity development. The initiative was welcomed by the ASEAN+3 Summit (10 ASEAN Member States, China, Japan, and the Republic of Korea) in November 2018. With support from the Government of Japan and others, ERIA established the Regional Knowledge Center for Marine Plastic Debris (RKC-MPD) on 1 October 2019. The platform serves as an information clearinghouse on marine plastic debris in ASEAN+3 countries.

RKC-MPD shares good practices, including policies, awareness-raising, and capacity building. Based on information on marine plastic debris, comparative studies and gap analyses on marine plastic debris prevention are being conducted. Such studies will facilitate information exchange to tackle this issue and enhance collaboration amongst ASEAN+3 countries.

POLICY IMPLICATIONS

The marine plastic debris issue was highlighted at the ASEAN+3 summit, G20 forum, and others. Some ASEAN countries have formulated action plans and road maps related to marine plastic debris, single-use plastics, and plastic waste management. Sharing good practices may stimulate policies on the marine plastic issue in ASEAN +3 countries.

GEOGRAPHIC SCOPE

ASEAN +3 countries

RELATED PUBLICATIONS

- Kojima, Michikazu “Plastic Recycling: Policies and Good Practices in Asia” (ERIA-PR-FY2020-01-1)
- Op ed: ‘Tackling ASEAN’s marine plastic waste’ with Fusanori Iwasaki in Myanmar Times, 02 August 2019.
- Op ed: ‘Sea change: Japanese leads on marine plastic litter’ with Fusanori Iwasaki in East Asia Forum, Vol.11 No.3, pp. 24-25, July-September 2019.

Regional Waste Management: Inter-municipal Cooperation and Public-Private Partnership

Michikazu Kojima

PARTNER ORGANISATIONS

IDE-JETRO

SUMMARY

Southeast Asian countries aim to transition to appropriate waste management such as shifting from open dumping to sanitary landfill use or by introducing waste-to-energy technology. Progress, however, has been slow. For example, some key goals of the Philippines' Ecological Solid Waste Management Act in 2000, such as closing open dumpsites and shifting to sanitary landfills within 6 years, have not been achieved. The introduction of technologies creates the need for regional waste management, such as inter-municipal cooperation, because it exhibits economies of scale. Unfortunately, most Southeast Asian countries have no clear policies or institutional frameworks for regional waste management. Thailand is an exception. In 2015, its Cabinet issued the resolution on Clustering Local Administrative Organizations for Municipal Solid Waste Management. In some Southeast Asian countries, regionalisation of municipal solid waste management is led by the private sector, whose waste disposal sites receive solid wastes from municipalities. The private sector, however, invests only in financially viable areas, where the volume of waste is large enough and the local government can pay tipping fees.

This project is a study of economies of scale in waste management, institutional frameworks of inter-municipal cooperation, and public-private partnership on waste management in Southeast Asian countries.

The study reviews the status of regional waste management in Thailand, the Philippines, and Indonesia, and extracts lessons from Japan and India, which have many cases of inter-municipal cooperation and public-private partnership in waste management.

POLICY IMPLICATIONS

A challenge in improving waste management in developing countries is budget constraints. By implementing economies of scale through inter-municipal cooperation, budget for waste

management can be efficiently utilised. To improve waste management, policy on regional waste management should be applied.

GEOGRAPHIC SCOPE

Thailand, Philippines, Indonesia, Japan, India.

Energy Sustainability and Climate Change in Southeast Asia

Han Phoumin, Fukunari Kimura, Farhad Taghizadeh, Nophea Sasaki, Sok Vong

PARTNER ORGANISATIONS

ASEAN, AIT, Tokai university, Japan, and Institute of Malaysian and International Studies (IKMAS)

SUMMARY

Current energy consumption is concentrated in Asia and accounts for about 60% of the total global consumption (IEA, 2019). The rising energy demand is attributed to two major factors: population and decades of robust economic growth in Asia. Primary energy demand in the East Asia Summit (EAS) region will almost double, from 4,910 million tonnes of oil equivalent (Mtoe) in 2011 to 8,900 Mtoe in 2035 (Kimura, 2019). Coal's share will remain the largest (47%) of primary energy demand. For ASEAN alone, energy demand will increase by four-fifths in 2011–2035 (IEA, 2013; ERIA, 2013). Indonesia, Malaysia, the Philippines, and Thailand are the major energy consumers in ASEAN.

Rising energy demand, particularly fossil fuel consumption, has impacted negatively on the environment as a result of rising CO₂ and greenhouse gas (GHG) emissions. Data from the Environmental Protection Agency indicate that almost 60% of the global CO₂ and GHG emissions are from the burning of coal, oil, and gas for power generation, industries, and transportation (EPA, 2015).

The second major factor contributing to CO₂ and GHG emissions is forest destruction and degradation, caused mainly by expanded agricultural activities in developing tropical countries. The Congress Budget Office of the US Congress estimates that forest destruction accounts for about 12% of global GHG emissions (CBO, 2012). Globally, about 12 million–15 million hectares of forests are lost each year. Forest area in the Greater Mekong Sub-region was reduced from about 140 million hectares (73% of the land area) in 1973 to less than 100 million hectares (51%) in 2009 (WWF, 2015). The rapid land use changes are due to illegal logging and unchecked economic development, such as the conversion of forest land into economic zones and other development purposes.

CO₂ and GHG emissions have resulted in climate change and taken their toll on human lives. Abating them through the deployment of environmental technologies such as clean coal technology, carbon capture sequestration and storage, and reforestation will need people's participation and political and financial support (Han, 2015).

ERIA's Energy Outlook and Saving Potential 2019 (Kimura and Han, 2019) indicated that to meet COP21's target, the ASEAN countries will face tremendous challenges in restructuring their energy systems to promote high penetration of renewable energy and programmes on energy efficiency and conservation. Thus, this study comes at the right time to understand the key challenges to the use of greener energy while keeping economic growth in Southeast Asia steady.

POLICY IMPLICATIONS

Pragmatic policy measures for a climate-friendly Southeast Asia

GEOGRAPHIC SCOPE

ASEAN

RELATED PUBLICATIONS

Springer

14 | Sustainable Development Goals

An Efficiency Based Regional Approach to Realise Sustainable Development Goals

Venkatachalam Anbumozhi, Fukunari Kimura, Kaliappa Kalirajan

PARTNER ORGANISATIONS

National Council for Research, Thailand

SUMMARY

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

1. Measuring the distance to 2030 targets. This component will use the latest information on various indicators available in ASEAN and UN databases to establish the distance of ASEAN Member States (AMSs) from individual targets. Indicators for each of the priority areas are selected to represent trends and improvements from 2000 to 2030.
2. Regional economic cooperation for doubling the impacts. To help AMSs explore the trans-boundary economic effects or contribution of their trade and investment policies on sustainable development patterns, this component proposes an assessment of countries for their 'regional integration contributions' to meeting some of the targets in the 2030 agenda. At the regional level, a geo-environmental index has been developed to differentiate the roles of countries as risk disseminator or assimilator for meeting the complementary SDG targets. Doubling effort strategies are to be proposed based on that index.
3. Engaging the private sector to realise SDGs. The principles underpinning the private sector engagement in measures are analysed under SDG 12.6, which encourages companies,

especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle. A regional public-private dialogue is being planned.

POLICY IMPLICATIONS

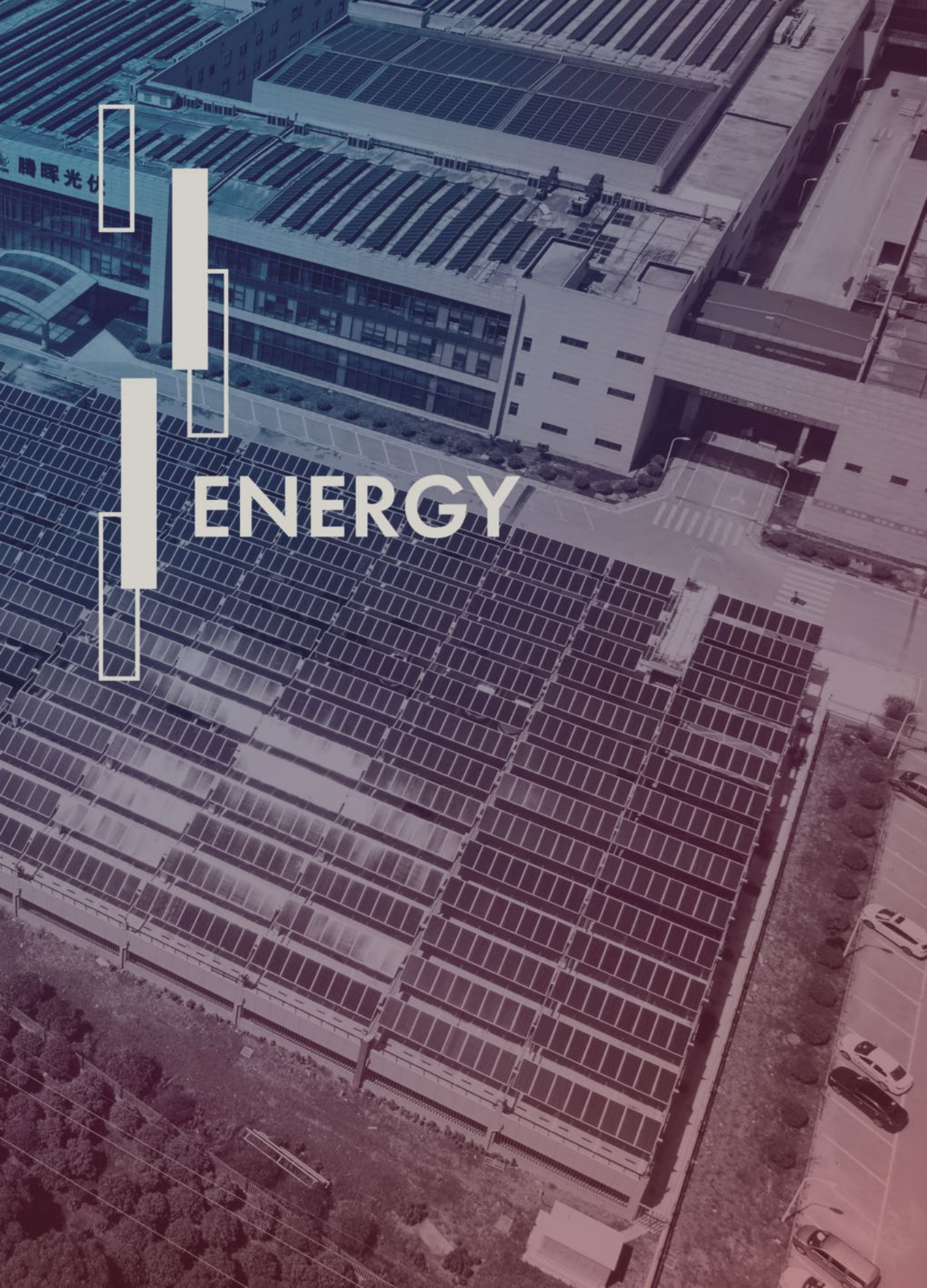
1. Provision of a high-level overview of strength and weakness and the distance the ASEAN+3 must travel to meet the SDGs
2. Regional cooperation strategies for the national implementation of the 2030 agenda from the perspective of ongoing ASEAN community endeavours
3. SDG metrics and corporate reporting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

GEOGRAPHIC SCOPE

ASEAN, China and India

RELATED PUBLICATIONS

<https://www.eria.org/news-and-views/how-asean-can-advance-the-sdg-agenda/>



ENERGY

15 | Effective Use of Energy

Nuclear Safety and Effective Use

Tomoko Murakami, Venkatachalam Anbumozhi

PARTNER ORGANISATIONS

Institute for Energy Economics Japan

SUMMARY

This study is a qualitative policy analysis of challenges to safety culture and security culture in advanced economies of Europe and the US and major economies in Asia, aimed at strengthening both cultures. The study analyses lessons, including strengths and limitations, that can be derived from advanced countries, given the long history of nuclear energy in the UK, France, the US, India, Republic of Korea, China, and Japan. The study will identify and examine the best practices in boosting nuclear security culture and their relevance for Southeast Asia. The study is designed to accentuate the important role of the state as the regulator in adopting policy and regulatory frameworks and in institutionalising nuclear education and training programmes to deepen safety and security cultures.

Best practices in and challenges to developing a nuclear safety culture and security culture are being examined using three frameworks of analysis: (i) a comprehensive nuclear safety policy framework, (ii) a proactive and independent regulatory body, and (iii) holistic nuclear education and training programmes. The study is based on the hypothesis that states interested in harnessing nuclear energy must develop a comprehensive policy framework on developing safety and security cultures, a proactive regulatory body, and holistic nuclear training programmes that cover both technical and human factors. Such measures are crucial in mitigating human errors that may lead to radiological accidents and nuclear security crises. Key lessons from overseas as best practices and challenges can inform policy recommendations for Southeast Asia in enhancing safety and security cultures.

POLICY IMPLICATIONS

- It is important to develop, through international cooperation, the scientific, technological, and legal bases required for a safe, environmentally friendly, and economical use of nuclear energy.
- Authoritative assessments must be provided and common understanding forged on key safety issues as input to government decisions on nuclear energy policy and to broader integrated industry analyses in areas such as energy and sustainable development.

GEOGRAPHIC SCOPE

Europe, Japan, USA and South East Asia

Public Acceptance of the Nuclear Power Plants

Tomoko Murakami, Venkatachalam Anbumozhi

PARTNER ORGANISATIONS

Institute for Energy Economics Japan

SUMMARY

Across countries and continents, public acceptance of nuclear power is crucial for establishing a governmental nuclear energy programme. Therefore, understanding the determinants of public acceptance of nuclear power is important. This study examines the effects of knowledge, trust, risk, and benefit-related factors on public acceptance of nuclear power in Europe, the US, and Japan. Through field visits and interactive workshops, different levels of public acceptance and related communication strategies to effect changes have been identified by this study. Through public consultation, the effective communication role that sub-regional authorities and non-governmental organisations could play has also been identified. Several policies have been recommended based on the workshop's findings: (i) to build trust, nuclear communications need to include integrity, competence, and benevolence; (ii) talking about the need for nuclear power, rather than describing the technology using technical jargon, is crucially important and effective; (iii) what works best is to share personal stories, be open, honestly admit mistakes, and apologise when necessary; (iv) involvement by local stakeholders should be led by locals employed where nuclear facilities are located; (v) new opportunities can be created by promoting confidence to secure public and private investment and delivering projects and programmes to secure an ambitious economic legacy; (vi) the role of media and how to provide information to media should be reconsidered; and (vii) media, including social media, can and should build public opinion and can often amplify trends.

POLICY IMPLICATIONS

- The role of national, municipal, and local governments is important to maintain a clear and firm position on the commitment to projects.
- Developing business projects and inviting investment are also important for enhancing the involvement of local stakeholders in the nuclear industry. This can be done by promoting opportunities to secure public and private investment and delivering projects and programmes to secure an ambitious economic legacy.
- The role of media and how to provide information to media should be reconsidered.

GEOGRAPHIC SCOPE

Japan and South East Asia

RELATED PUBLICATIONS

<http://www.eria.org/publications/public-acceptance-of-nuclear-power-plants-in-hosting-communities-a-multilevel-system-analysis/>

Sustainable Oil Palm Development and Trade in ASEAN

Venkatachalam Anbumozhi, Budi Indra Setiawan

PARTNER ORGANISATIONS

Bogor Agriculture University, SINAR MAS

SUMMARY

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

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

POLICY IMPLICATIONS

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

GEOGRAPHIC SCOPE

Indonesia, Malaysia, Thailand

RELATED PUBLICATIONS

<http://www.eria.org/publications/study-on-asian-potential-of-biofuel-market/>

Study on Supply and Demand Potential of Hydrogen: Phase 2

Shigeru Kimura

PARTNER ORGANISATIONS

IEEJ, Chiyoda Corporation, Kawasaki Heavy Industry Corporation

SUMMARY

Phase 2 of the study focuses on review of hydrogen demand of fuel-cell vehicles and power generation up to 2040, cost of hydrogen production, cost of long-distance transportation of hydrogen, application of methylcyclohexane and liquefaction technologies, and search for breakthrough technologies that will reduce costs of hydrogen production and transportation.

POLICY IMPLICATIONS

To reduce the cost of hydrogen, ramping up its production is recommended. Breakthrough technologies to reduce hydrogen production and transportation costs are examined through existing demonstration projects.

GEOGRAPHIC SCOPE

EAS 16 countries especially Australia and Brunei Darussalam

Study on The Biomass and Coal Co-Combustion In ASEAN (Phase II)

Yasuo Otaka, Yamada Fumiko, Han Phoumin

PARTNER ORGANISATIONS

J-COAL

SUMMARY

Biomass utilisation is an important issue for ASEAN Member States (AMSs), where agriculture and forest industry remain crucial. Most biomass residues are treated as waste and either incinerated or sent to landfill, practices which may cause environmental degradation if continued. These wastes, which vary in type, grade, and characteristic, are sufficient in quantity for co-combustion with coal. Biomass is expected to be one of the most promising renewable fuels for CO₂ emission reduction and for rural electrification, which is crucial to rural development. Phase I of the study highlighted the interest of AMSs in biomass utilisation and co-combustion to improve renewable energy development and reduce CO₂ emission. Phase II will identify measures that AMSs may use to facilitate biomass utilisation focusing on co-combustion.

POLICY IMPLICATIONS

Policy measures for a high share of biomass through coal co-combustion

GEOGRAPHIC SCOPE

ASEAN

RELATED PUBLICATIONS

ERIA Publication

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

Joko Purwanto, Dian Lutfiana

PARTNER ORGANISATIONS

Ministry of Industry

SUMMARY

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

POLICY IMPLICATIONS

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

GEOGRAPHIC SCOPE

Indonesia

Seeking for Feasible Solutions on Delivering LNG to Mid and Large Islands in Indonesia

Joko Purwanto, Dian Lutfiana

SUMMARY

Indonesia has many islands that depend on diesel generators for electricity supply. Although the diesel generator is a well-established technology and easy to care for, its relatively high generation cost and high gas emission are a disadvantage.

Liquefied natural gas (LNG) costs less and emits less CO₂ than diesel. Until recently, LNG's high cost and extremely low-temperature characteristic kept many countries from using it. However, technological development, particularly floating storage and re-gasification, has largely reduced such challenges. Indonesia's large islands can enjoy LNG's economic and environmental benefits by adopting such technologies for power generation.

The study aims to analyse such opportunity by identifying possible configurations of small-scale LNG supply chain for power generation to contribute to Indonesia's development through stable, affordable, and sustainable supply of electricity.

The study is consistent with the strategic theme defined in the ASEAN Economic Community Blueprint 2025 and phase 1 of its subordinate paper, the ASEAN Plan of Action for Energy Cooperation (APAEC) 2016–2025. The study aims to contribute to regional energy policy and planning and the ASEAN Council on Petroleum framework.

POLICY IMPLICATIONS

The results of this study should provide the Government of Indonesia an alternative to conventional diesel fuel: LNG. This should lead to better policies for energy planning and maritime transportation.

GEOGRAPHIC SCOPE

Indonesia

The Influence on Energy and Economy by Electrified Vehicles Penetration in ASEAN

Shigeru Suehiro, Joko Purwanto

PARTNER ORGANISATIONS

IEEJ

SUMMARY

ASEAN countries have policies to promote electric vehicles (xEVs). Such vehicles reduce oil consumption and air pollution but increase demand for electricity. However, depending on its power generation sector, a country might not be ready to achieve energy self-sufficiency or solve its environmental problems.

Following the basic principle of energy policy, the study will analyse the effects and side effects of the deployment of xEVs on the economy, energy, and environment. The study will analyse qualitative and quantitative information on energy supply and demand structure, impacts on CO₂ emission, and the macroeconomy to contribute to automobile and energy policy planning by applying input-output analysis for Indonesia, Malaysia, Thailand, and Viet Nam.

POLICY IMPLICATIONS

The results of the study will allow ASEAN governments to set their objectives on adopting electric vehicle technologies and to formulate policies to attain those objectives.

GEOGRAPHIC SCOPE

Indonesia, Malaysia, Viet Nam, and Thailand

16 | International Cooperation

Integrating NER India with Regional Economies through Cross Border District Trade and Energy Sector Development

Venkatachalam Anbumozhi, Ichiro Kutani, Mahendra P Lama

PARTNER ORGANISATIONS

Confederation of Indian Industries

SUMMARY

Policy and academic interest in strengthening economic connections between the northeastern region (NER) of India and the major economic centres in South Asia and Southeast Asia has been increasing. The region has critical and strategic advantages in jointly participating in the development process of neighbouring Bangladesh, Bhutan, Myanmar, and Nepal. These countries, along with other states of India, have been amongst the most dynamic in Asia, with highly impressive socio-economic development. Advantages of economic integration amongst these countries emanate from politico-historical linkages, geographical proximity, socio-cultural cohesiveness, economic complementarities, and scope for further economic integration with ASEAN and China. However, trade and investment progress and industrial development in the eight states of NER of India have been limited by various infrastructure bottlenecks, policy misalignments, and information gaps. This study focuses on three aspects: (i) determining the energy sector development needs and potentials of electricity generation in NER; (ii) analysing the opportunities for cross-border energy trade between NRE and neighbouring Bangladesh, Myanmar, and Nepal; and (iii) estimating the cost of such arrangements and investment possibilities and drawing policy implications for prioritised investment needs, which cover regulatory reforms, financial flows, and institutional cooperation at national and international levels. It was found that although NER has the potential to become an energy hub linking South Asia and Southeast Asia, more policy reforms are needed. Much economic demand needs to be created by developing infrastructure and small and medium-sized enterprises. The study group prepared and submitted an integrated report to the Ministry of Power, Government of India, through the Confederation of Indian Industry. Dissemination of the key findings at the state level is recommended by the Government of India and is being implemented

POLICY IMPLICATIONS

To realise economic integration and ultimately graduate from energy insecurity, the NER subregion must provide substantive policy interventions to fill the gaps in (i) knowledge and information; (ii) seed projects; (iii) matchmaking, technical facilitation, human resources, and capacity building; (iv) policy coordination and institutional harmonisation; (v) start-up and real-time ladder steps (e.g. a three-way policy and institutional layer-building strategy to facilitate cross-border electricity trade amongst federal units within a country, between two countries, and within the region must be worked out in great detail); (vi) confidence-building; and (vii) technology.

GEOGRAPHIC SCOPE

India, South Asia and ASEAN

RELATED PUBLICATIONS

<https://www.eria.org/publications/energising-connectivity-between-northeast-india-and-its-neighbours/>

Preparation of Energy Efficiency Indicators for Mongolia: Phase 2

Shigeru Kimura, Leong Siew Meng, Cecilya Malik, Alloysius Joko Purwanto

PARTNER ORGANISATIONS

MEEI

SUMMARY

The Mongolian Energy Economics Institute conducted a detailed energy consumption survey on the industry, transport, residential, and commercial sectors in Mongolia to produce energy efficiency indicators. This first-time survey produced improvement points for the next survey.

POLICY IMPLICATIONS

As Mongolia's energy efficiency indicators are poor compared with that of OECD countries, more aggressive EEC policies are needed, especially in applying standard and labelling systems for appliances and the green building index approach in the residential and commercial sectors.

GEOGRAPHIC SCOPE

Mongolia

Preparation of Energy Efficiency Master Plan for Cambodia

Shigeru Kimura

SUMMARY

As energy efficiency and conservation (EEC) is crucial in Cambodia, this project aims to prepare an EEC master plan focused on the following major programmes: (i) penetration of energy service companies, (ii) growing energy managers, (iii) implementation of standard and labelling, (iv) education and campaign, and (v) collection of energy consumption data. The master plan will include a road map and feasible EEC targets up to 2025.

POLICY IMPLICATIONS

- Since energy is not subsidised in Cambodia, EEC with economic basis is workable.
- Energy service companies that assess the energy consumption of factories and building can promote EEC. However, Cambodia's General Department of Energy, Ministry of Mine and Energy have to establish EEC regulations on activities of energy service companies, including granting them incentives.
- The regulations secure the activities described in items (ii)–(iv) above.

GEOGRAPHIC SCOPE

Cambodia

RELATED PUBLICATIONS

Basic Energy Plan for Cambodia (2019)

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

Shigeru Kimura, Han Phoumin, Cecilya Malik

PARTNER ORGANISATIONS

IEEJ

SUMMARY

In this project, the national energy balance tables of 17 East Asia Summit (EAS) countries are used to estimate energy demand formulas. Using the newly estimated formulas, the EAS energy outlook and saving potentials are updated from 2017 to 2050. Based on the business-as-usual scenario and the alternative policy scenario, energy saving potentials are updated, and the scenario of large penetration of hydrogen is added.

POLICY IMPLICATIONS

Energy efficiency and renewable energy policies are aimed to improve energy intensity in the EAS region but are not to address CO₂ emission until 2050. Hydrogen is an option to reduce CO₂ emission and affordable hydrogen will be crucial in the future.

GEOGRAPHIC SCOPE

EAS 17 countries without Russia

RELATED PUBLICATIONS

EAS Energy Outlook and Saving Potential (2018)

Preparation of Energy Security Master Plan for Myanmar

Shigeru Kimura

PARTNER ORGANISATIONS

IEEJ

SUMMARY

The demand for petroleum and electricity in Myanmar has been increasing significantly while the production of crude oil and gas has been decreasing. Since half of the energy consumed in Myanmar is biomass, the country's energy supply is secure. However, it is predicted that by 2040, petroleum and electricity demand will increase continuously to shift from biomass while crude oil and gas production will decrease remarkably. Thus, the energy supply security of Myanmar will be vulnerable. This study assesses Myanmar's future energy supply security and proposes counteractions.

POLICY IMPLICATIONS

- Domestic energy such as hydropower, coal, and biomass will be key role players.
- Coal and biomass will be essential.

GEOGRAPHIC SCOPE

Myanmar

Preparation of Petroleum Supply Chain Master Plan for Cambodia: Phase 1

Shigeru Kimura

PARTNER ORGANISATIONS

ASIAM

SUMMARY

According to the East Asia Summit's Energy Outlook, demand for petroleum in Cambodia will surely increase. Thus, seeking appropriate petroleum supply chains will be important, especially in setting up locations for secondary terminals. Phase 1 of this study conducts (i) a review of existing petroleum supply chains in Cambodia and future plans of petroleum supply chains using data and information from local oil companies, (ii) a petroleum consumption survey in selected provinces, (iii) a review of petroleum demand up to 2040, and (iv) national and provincial data collection. Phase 2 of the study applies an optimal approach, using linear programming to seek a cost-minimum petroleum supply chain based on forecast supply- and demand-side information and data.

POLICY IMPLICATIONS

- Choice of petroleum transport mode, i.e. truck, rail, ship, and pipeline, and location of secondary terminals are examined, applying cost-minimum approach.

GEOGRAPHIC SCOPE

Cambodia

Roles for EAS Engagement

Clara Gillispie, Han Phoumin

PARTNER ORGANISATIONS

National Bureau of Asia Research (NBR) USA

SUMMARY

Over the next two decades, the Indo–Pacific region will account for two-thirds of global energy demand growth, and by 2035 will account for one-half of total global energy consumption. Finding ways to meet this demand is essential to sustaining Asia’s economic growth, improving standards of living, and expanding access to electricity. Yet, the ways in which countries might seek to address their demand requirements can also introduce new policy challenges and energy security concerns. Booming electricity demand is putting immense pressure on existing power grids and transmission infrastructure, and rising levels of air pollution are becoming critical health and social challenge in cities across the region. For the emerging economies in South Asia and Southeast Asia, this challenge is especially acute as stakeholders grapple with how to dramatically scale up power sector capabilities, resources, and infrastructure whilst also ensuring affordability, sustainability, and access to financing.

Whilst major market shifts, such as the shale revolution in the US, have had a profound impact on the potential availability and affordability of a range of energy supply options, capacity to capitalise on these opportunities is often deeply constrained. Key challenges in the East Asia Summit (EAS) region, generally, and for emerging Asian economies, especially, include how to better address rigid, opaque, and uncompetitive energy markets (particularly for natural gas and liquefied natural gas); unresponsive energy pricing arrangements; weak and inadequate transmission infrastructure; and the need to broadly strengthen energy sector policymaking, governance, and technical capacity. Hence, revitalised and enhanced regional collaborations that clearly articulate how countries can overcome these barriers are critically needed. The Free and Open Indo–Pacific Strategy prioritises energy as a central pillar, emphasising how to strengthen natural-gas investment, trade, and development. Japan is a key partner and sees even more clearly the need to expand trade, infrastructure investment, and financing within the EAS region. The US and Japan have formalised a partnership under the umbrella of Japan–United States Strategic Energy Partnership and are now looking to expand this model with the Japan–United States Mekong Power Partnership. Yet, to be successful, any such vision will need to have a broader road map that offers guidance on specific, actionable next steps.

POLICY IMPLICATIONS

Energy-trade-related policy and electricity trade, particularly for ASEAN

GEOGRAPHIC SCOPE

ASEAN and East Asia

Study on Energy Statistics Regulations for Lao PDR

Shigeru Kimura, Han Phoumin

PARTNER ORGANISATIONS

ASIAM

SUMMARY

Although the Economic Research Institute for ASEAN and East Asia has been supporting the Department of Planning and Cooperation (DPC) and the Ministry of Energy and Mines (MEM) of the Lao People's Democratic Republic (Lao PDR) to produce the country's energy statistics, many primary data are still needed. ERIA will continually support DPC and MEM in establishing energy statistics regulations from energy market players or the supply side of energy and provide energy data collection tools, including questionnaires on coal, petroleum, electricity, and renewable energy, especially biomass.

POLICY IMPLICATIONS

- Energy data collection will be enhanced due to the energy statistics regulation in Lao PDR.
- More accurate energy balance tables will be produced and used to analyse the energy demand-supply situation of Lao PDR.

GEOGRAPHIC SCOPE

Lao PDR

Study on Implementation of Energy Efficiency in the Philippines

Shigeru Kimura

SUMMARY

Although the Department of Energy of the Philippines has established the Energy Efficiency and Conservation Act, its implementation is still an issue. This study is in support of the implementation of the act. A road map of commercial buildings and transport system, including green building index and zero-emission vehicles, is now being prepared. In addition, a survey on energy consumption of commercial buildings is being conducted to prepare a building energy index as a benchmark.

POLICY IMPLICATIONS

Set up of appropriate green-building guideline for the Philippines and penetration of zero-emission vehicles

GEOGRAPHIC SCOPE

Philippines

RELATED PUBLICATIONS

Energy Basic Plan for Cambodia (2019)

Study on Optimal Delivery Plan of LNG to Islands in the Eastern Part of Indonesia

Shigeru Kimura

SUMMARY

Indonesia will increase its consumption of natural gas for domestic power generation and heat demand in industrial and commercial sectors. As Indonesia has many islands, efficient delivery of liquefied natural gas (LNG) from production sites to demand sites is essential. Using linear programming and dynamic simulation methods, this study seeks ways to ensure optimal LNG delivery.

POLICY IMPLICATIONS

To analyse results of linear programming and dynamic simulation methods, appropriate LNG policies are extracted: (i) the city of Bontang will be in charge of delivering LNG to eastern parts of Indonesia such as Sulawesi, Bali, and Lombok, (ii) Tangguh and Masela will be in charge of export of LNG while Sumatra and Jawa will be in charge of delivery.

GEOGRAPHIC SCOPE

Indonesia

RELATED PUBLICATIONS

Study on Optimal Delivery Plan of Small LNG to Islands in Visayas and Mindanao, the Philippines (2019)

Vehicle Technology Impact Assessment Model Development for Indonesia

Joko Purwanto, Dian Lutfiana

SUMMARY

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

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

POLICY IMPLICATIONS

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

GEOGRAPHIC SCOPE

Indonesia

Feasibility Study on Transmission Highway in ACMECS

Shigeru Kimura, Keisuke Ueda

PARTNER ORGANISATIONS

- Ministry of Energy (Thailand)
- Electricity Generating Authority of Thailand (EGAT)
- Ministry of Mines and Energy (Cambodia)
- Electricite Du Cambodge (EDC)
- Ministry of Energy and Mines (Laos)
- Ministry of Electricity and Energy (Myanmar)
- Ministry of Electric Power (MOEP)
- Ministry of Industry and Trade (Viet Nam)
- TEPCO Power Grid, Inc.

SUMMARY

According to the East Asia Summit energy outlook prepared by ERIA, demand for electricity, gas, and oil in ASEAN countries will considerably increase, in line with expected economic and population growth in the region. The Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy (ACMECS) in Indo-China has a variety of energy sources: huge hydropower potential in Lao People's Democratic Republic (Lao PDR) and Myanmar, gas in Myanmar, and coal in Viet Nam. However, the abundant renewable resources, especially hydropower and solar power, are underutilised because the ACMECS countries have no bulk transmission lines to cover the entire region. High-voltage power is traded bilaterally and power stations are largely dedicated to exporting power from one country to another.

If bulk transmission lines such as east-west and north-south lines could connect Viet Nam, Lao PDR, Cambodia, Thailand, and Myanmar, the best generation mix in the five countries could be expected. Using diverse resources requires a physical bulk transmission line and multilateral trading system – the Transmission Highway – amongst ACMECS countries.

ERIA has organised a working group to carry out a study to (i) nominate candidates for new cross-border interconnections, (ii) estimate construction cost of these interconnections, and (iii) estimate financial and economic aspects and social benefits.

Lao PDR possesses large hydropower potential. This study will focus on how to utilise the potential by nominating candidates for cross-border interconnections.

The Transmission Highway is expected to yield sizable financial, economic, and social benefits as it allows ACMECS countries to tap into the potential benefits of an integrated ASEAN power system, including reduced investment costs, e.g. constructing a new thermal plant, and an increased ability to integrate variable renewable energy resources. These countries can take advantage of the region's resource diversity and an additional source of flexibility, which will allow them to integrate higher shares of renewables. Therefore, the Transmission Highway is a framework to increase power system reliability and increase economic efficiency, and meet renewable energy goals in line with the decarbonisation agenda.

POLICY IMPLICATIONS

- To fully recognise the significance of the Transmission Highway, clearly defined cost and benefit for bulk transmission line and regulation for electricity trading are needed.
- To achieve the best energy best mix for each ACMECS country, the abundant renewable resources could be used via the Transmission Highway.
- To solve potential barriers, which is especially helpful for convincing governments.

GEOGRAPHIC SCOPE

ACMECS countries. (Cambodia, Laos, Myanmar, Thailand, Viet Nam)

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