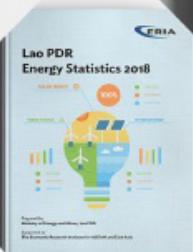
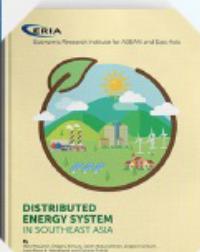
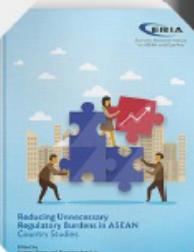
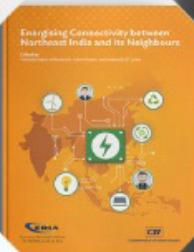
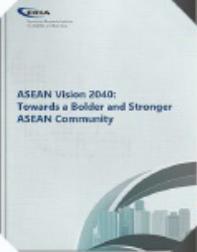
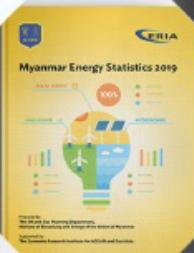
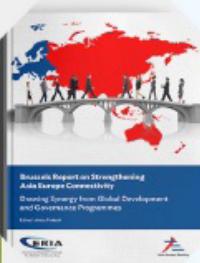
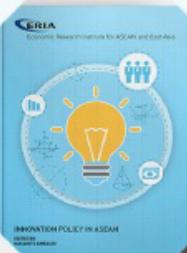




10th anniversary 2008-2018

Economic Research Institute  
for ASEAN and East Asia



# Publications Catalogue 2019

April 2018 - March 2019



# **PUBLICATIONS CATALOGUE 2019**

**(April 2018 – March 2019)**



# PUBLICATIONS CATALOGUE

## **The Economic Research Institute for ASEAN and East Asia**

publishes books, research reports, discussion papers, and policy briefs to share and disseminate its research findings and policy recommendations.

These publications cover a wide range of subject matter on deepening economic integration, narrowing development gaps, and sustainable development – the three pillars under which ERIA conducts research. ERIA is also highly involved in energy-related research.

ERIA also co-publishes with international academic and professional printing houses.

In fiscal year 2018, ERIA produced a four-volume study on ASEAN Vision 2040 in support of Thailand's Chairmanship of ASEAN in 2019. ERIA also produced 11 books covering various topics in the areas of connectivity, ageing and long-term care, regulatory management, energy, and on energy-related issues in the region. ERIA also published 19 research project reports, 20 discussion papers, and three policy briefs.

Please send inquiries to [contactus@eria.org](mailto:contactus@eria.org) or call +6221-5797-4460.

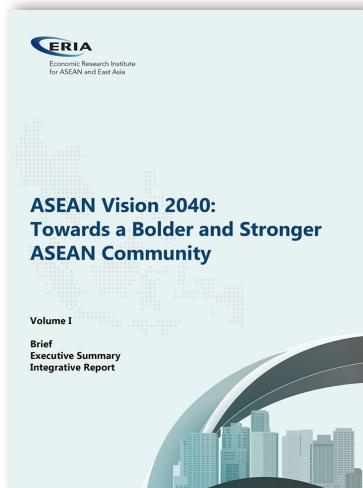
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# ASEAN Vision 2040

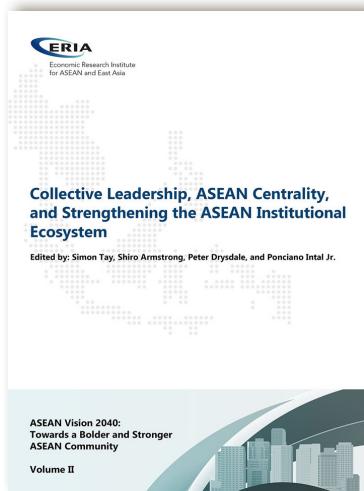
A four-volume report on 'ASEAN Vision 2040' in support of Thailand's chairmanship of ASEAN. This comprehensive study assesses the challenges faced by ASEAN and sets out a vision for the next 2 decades and the strategies to achieve it. Through this publication ERIA proposes a message of collective leadership of the East Asia region, which means strengthening ASEAN centrality for it to become the institutional hub for regional integration and economic and social development.



Volume I

## **ASEAN Vision 2040: Towards a Bolder and Stronger ASEAN Community**

Volume I consists of the integrative report and executive summary of ASEAN Vision 2040, and a brief on new challenges and key priorities and strategies. ASEAN Vision 2040 has been drawn up in the context of ASEAN's achievements, revealed aspirations, and expectations of the peoples of ASEAN for the near future, and the recent and expected global, regional, and technological developments. The volume presents the ASEAN Vision 2040 and highlights key areas of collective leadership and ASEAN centrality, harnessing the emerging Industry 4.0 to transform the ASEAN economies and enhance ASEAN resiliency and developmental sustainability, realising a seamless ASEAN, engendering greater inclusivity, and a deeper sense of community and belonging, and strengthening the ASEAN institutional ecosystem.



Volume II

## **Collective Leadership, ASEAN Centrality, and Strengthening the ASEAN Institutional Ecosystem**

*Edited by Simon Tay, Shiro Armstrong, Peter Drysdale, and  
Ponciano Intal Jr.*

The papers in Volume II discuss the imperative of collective leadership and ASEAN centrality in light of the greater uncertainty in the global trading system and on regional security which have been underpinning ASEAN's outward oriented strategy and development. It is suggested that ASEAN's major Dialogue Partners in East Asia and the United States as well as ASEAN itself can be important contributors to strengthening collective leadership in East Asia and to enhancing ASEAN Centrality. The last paper in the volume presents ideas on how to strengthen ASEAN's institutional ecosystem, which is important for ASEAN to be able to assert ASEAN centrality in an increasingly uncertain and changing regional environment.

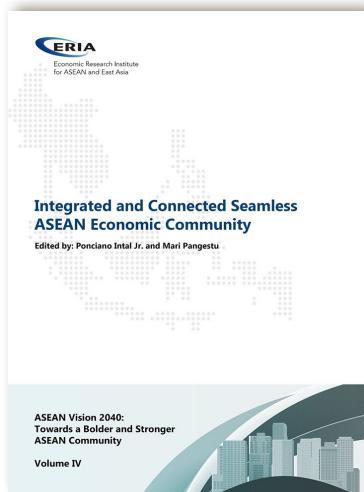


Volume III

## Transforming and Deepening the ASEAN Community

*Edited by Fukunari Kimura, Venkatachalam Anbumozhi,  
and Hidetoshi Nishimura*

The papers in Volume III delve into the theme of transforming and deepening the ASEAN Community. The main focus is on the digital and fourth industrial revolution as well as on innovation as both offer opportunities and challenges for ASEAN Member States for economic transformation and enhanced resiliency and sustainability. The volume also emphasises the drive towards greater inclusivity, leaving no one behind, and greater people centredness and engagement to deepen the sense of belongingness in the ASEAN Community.



Volume IV

## **Integrated and Connected Seamless ASEAN Economic Community**

*Edited by Ponciano Intal Jr. and Mari Pangestu*

The volume consists of papers on critical elements for an integrated and connected Seamless ASEAN Economic Community up to 2040. The critical elements include seamless trade facilitation, managing non-tariff measures, strategies on standards and conformance, engendering skills mobility and development, service sector development and open investment environment, competition and intellectual property policy, seamless logistics and connectivity, data flows and electronic payments in the digital economy, capital market deepening, and good regulatory practice.



## Agriculture and Disaster Management



### Integrated Space-Based Geospatial System: Strengthening ASEAN's Resilience and Connectivity

*Ryosuke Shibasaki, Takayoshi Fukuyo, Hiroyuki Miyazaki, Quentin Verspieren, and Venkatachalam Anbumozhi*

In recent decades, regional organisations have become increasingly active in connectivity disasters. This reflects a broader growing trend of intensifying regional cooperation for building resilient communities. However, the potentials of space and geospatial technology and their role in sustainable development and strengthening resilience is not clear. They can improve the efficiency and resilience of industrial operations and effectively address issues in the regional economic integration of the Association of Southeast Asian Nations (ASEAN). This report examines the possibilities and models of transborder mechanisms to deliver geospatial and space-based information from data providers to end users in disaster-affected areas, and financial schemes involving the private sector or public-private partnerships to enable the collaborative integration of the technologies in practical ways. It provides vital information about what combinations of technologies have been applied and how they have contributed to the resilience of urban development, infrastructure planning and management, transportation management, and agricultural operations.



# Connectivity



## Brussels Report on Strengthening Asia Europe Connectivity: Drawing Synergy from Global Development and Governance Programmes

*Edited by Anita Prakash*

The European Union hosted the 12th Asia–Europe Meeting (ASEM) summit in Brussels on 18–19 October 2018, where the ASEM leaders met under the theme of ‘Global Partners for Global Challenges’ to chart ASEM’s common response to global challenges. Leaders also took stock of Asia–Europe cooperation and connectivity mechanisms and their contribution towards the realisation of global development programmes.

Building on ASEM leaders’ resolve for sharing common goals and objectives of important global partnerships and cooperation programmes that add value to ASEM’s vision of connectivity, the ‘Brussels Report on Strengthening Asia Europe Connectivity: Drawing Synergy from Global Development and Governance Programmes’ draws out Asia’s and Europe’s contribution towards these goals and objectives. The report suggests pathways for ASEM connectivity mechanisms to contribute to global development programmes and to draw synergy for ASEM connectivity from the progress made in realising the developmental goals. The Brussels Report brings out the importance of ASEM’s voice in global development and governance programmes, and its important role in sustaining the spirit of consensus and multilateralism in global governance. The Brussels Report draws out the interlinkages that will help ASEM to fulfil these roles, strengthen ASEM connectivity across all its three pillars, and also facilitate the tasks of ASEM Pathfinders Group on Connectivity.

## **The Eurasian Land Bridge: The Role of Service Providers in Linking the Regional Value Chains in East Asia and the European Union**

ERIA Discussion Paper 2018-01

*By Richard Pomfret*

Rail links between China and Europe are typically analysed in the context of China's Belt and Road Initiative, focusing on China's economic rise and the implications for international relations. This paper argues that establishment of the China–Europe Land Bridge predated the Belt and Road Initiative and has been market-driven, as service-providers identified and responded to demand for efficient freight services along pre-existing railway lines. Governments' role was trade facilitating, i.e. reducing delays and costs at border crossing points, rather than investing in hard infrastructure. Service-providers responded by linking European and Asian value chains (e.g. in automobiles and electronic goods) and reducing costs for traders shipping between China and Europe. The Eurasian Land Bridge provides a case study of 'servicification' as a component of increased trade in the 21st century.

## **Division of Labour Amongst Innovation Intermediaries in Agricultural Innovation Systems: The Case of Indonesia**

ERIA Discussion Paper 2018-06

*By Nobuya Fukugawa, Masahito Ambashi, and Yuanita Suhud*

Innovation intermediaries are individuals and organisations that enhance connectivity amongst constituencies of national, sectoral, and regional systems of innovation, thereby facilitating knowledge spillover. This paper articulates the whole picture of Indonesia's agricultural innovation system, with a special focus on how different innovation intermediaries play different roles in technology transfer and knowledge dissemination. First, the public sector accounts for more than half of the actors involved in research and extension, but insufficient routes to transfer local needs to the public sector impede efficient feedback. Second, village unit cooperatives are closely associated with extension workers, suggesting the presence of a feedback mechanism, but many of them face serious financial distress. Third, private agricultural research and development and extension are organised and managed efficiently where they involve fewer internal actors working in an environment with minimal bureaucracy. However, a vague regulatory environment makes it difficult for multinational enterprises to hold a positive view towards agricultural research and development and extension from the public sector. Last, the changing governance system and the ensuing shift in political decision-making have introduced uncertainties to the arrangement of actors and resources in the system, which may take some time to resolve.

## **Rethinking Migration Governance in the Mekong Region: From the Perspective of the Migrant Workers and Their Employers**

ERIA Research Project Reports 2017 No. 19

*Naomi Hatsukano*

Workers in the Mekong Subregion migrate within their countries and beyond their country borders in search of better opportunities. Factories and other enterprises in the region also relocate within their home countries and beyond their home country borders to optimise opportunities and minimise costs in the era of the ASEAN Economic Community. This project explored the various aspects and dimensions of migration in the Mekong Subregion, including workers' decisions to work within or beyond their home country border, the related consequences, the situation of employers and enterprises, their attitude towards migrant workers, and the policy environment for migration and development in the Mekong Subregion.

## **Cross-border Transport Facilitation in Inland ASEAN and the ASEAN Economic Community**

ERIA Research Project Reports 2018 No. 18

*Edited by Masami Ishida*

The ASEAN Economic Community (AEC) was realised in 2015 and the Master Plan of ASEAN Connectivity (MPAC) was implemented between 2010 and 2015. This report examines transportation facilitation through the development of hard and soft infrastructure development. Regarding hard infrastructure, the report reviews the missing links identified in the MPAC and the effects of newly developed roads. As for soft infrastructure, the report reviews bilateral and multilateral agreements on exchange of traffic rights including the Cross-Border Transport Agreement (CBTA), the ASEAN Framework Agreement for Facilitation Goods in Transit (AFAFGIT), road traffic laws, and road signs of countries in the inland ASEAN subregion. The final chapter of the report also simulates the impacts of the newly developed roads on the economies of the whole subregion.

In this report, road signs are examined in detail, especially in the 'CLMV countries' (Cambodia, Lao PDR, Myanmar, and Viet Nam). What will happen if road signs are different once vehicles are able to cross borders freely? It was found that road signs in the countries of the subregion follow the Vienna Convention on Road Signs and Signals in 1968 and, while there are some differences between the road signs in some countries, no potentially dangerous incompatibilities were discovered.

## **Economic Potential of the Vientiane–Ha Noi Expressway Based on Experience of the Mekong Region**

ERIA Discussion Paper 2018-11

*By Masami Ishida*

The Vientiane–Ha Noi Expressway (VHE) will connect the capitals of Lao People’s Democratic Republic (Lao PDR) and Viet Nam, which have established special relations in politics, security, and ideology. Vientiane, however, has closer economic relations with Thailand than with Viet Nam and is further from Ha Noi than from Bangkok. Lao PDR trade is skewed towards Europe and India but weaker with the Pacific island countries, with which the VHE has the potential to increase trade. The economic effects of developing an expressway in northern Viet Nam show that the VHE could promote tourism, attract foreign direct investment, and create agricultural infrastructure for supplying vegetables and fruits to major cities; such effect on foreign direct investment is verified statistically. To ensure the VHE’s success, cross-border costs need to be reduced on both sides, and relations amongst friendship cities and provinces in Lao PDR, Viet Nam, and Thailand need to be deepened and expanded.

## **Asia Africa Growth Corridor: Development Cooperation and Connectivity in the Indo–Pacific**

ERIA Policy Brief 2018-03

*By Anita Prakash*

Asia and Africa are conjoined by the Indian Ocean and the two regions provide a renewed opportunity for partnership for sustainable development. The conceptualisation of an Asia Africa Growth Corridor (AAGC) by Prime Ministers Shinzo Abe and Narendra Modi is the convergence of the Free and Open Indo Pacific (FOIP) and Act East Policy of the two countries. The AAGC will bring out the economic gains for Africa through its integration with India, South Asia, Southeast Asia, East Asia, and Oceania. It sets out a new paradigm of connectivity and cooperation in the Indo–Pacific region. AAGC draws on the strength of shared values, convergent interests, and complementary skills and resources, to promote economic and social development, capacity building, connectivity, and infrastructure development in the Indo–Pacific region. It is expected to be a model for inter-regional growth, propelled by mutual trust and cooperation amongst friends and partner countries in Asia, Oceania, and Africa.

## **Balancing Investment and Development Assistance in Africa: Growth Prospects from Asia–Africa Connectivity**

ERIA Policy Brief 2018-01

*By Anita Prakash*

Africa's young demography and developing economy require integration and expansion into the global value chains. Asia can share its growth experience with Africa. Africa can benefit from trade, investment, and development cooperation through a measured combination of investments and development assistance. The policy challenge facing the countries of Africa and their development partners is to balance official development assistance programmes with foreign direct investment initiatives, as physical, institutional, and human resource capacities must grow simultaneously.



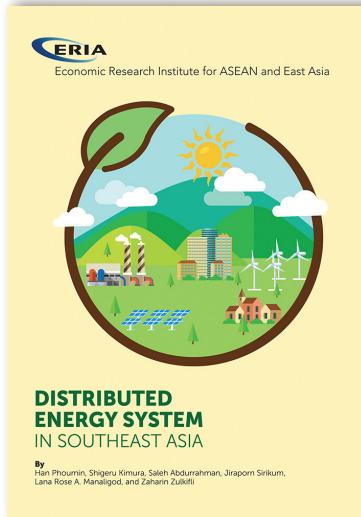
# Energy



## Cambodia Basic Energy Plan

*Prepared by Ministry of Mines and Energy of Cambodia  
Supported The Economic Research Institute for ASEAN and East Asia*

The Cambodia Basic Energy Plan is the first ever publication of energy policy targets with numerical values, as much as possible, for each energy field such as oil, electricity supply, renewable energy, energy efficiency, energy security, and the energy outlook. This basic energy plan applies a common approach to analysing each energy field including current issues and establishing the appropriate targets for solving the issues, and provides action plans, policies, and roadmaps for achieving those targets. The plan aims for energy supply to Cambodia with affordability and accessibility, and it provides suggestions for creating a transparent energy market. The plan sets out many medium-term targets. These targets will need to be reviewed every 5 years after the government's implementation of programmes and actions aimed at achieving the targets set.

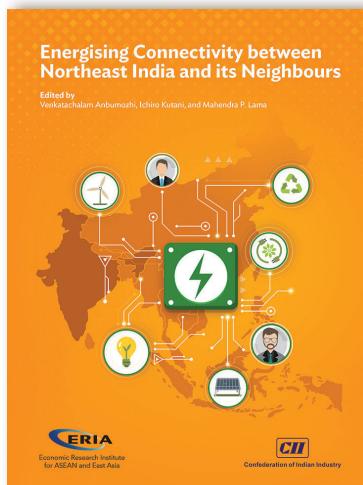


## Distributed Energy System in Southeast Asia

*By Han Phoumin, Shigeru Kimura, Saleh Abdurrahman, Jiraporn Sirikum, Lana Rose A. Manaligod, and Zaharin Zulkifli*

The study of distributed energy systems (DES) in the Association of Southeast Asian Nations (ASEAN) highlights the potential role DES could play in enhancing electricity access and provide energy solutions as a modern energy system in response to increasing energy demand. This study assesses the overall status and policies of DES in selected ASEAN countries through a literature survey and information exchanges from meetings and conferences within the region. The study also attempted to estimate the DES-related renewable energy capacity and investment needed for the period 2013–2040. It found that DES is modern small power generation with the flexibility to provide electricity to end-users more effectively due to its advantages of lower investment cost and ease of handling compared with large national power plants.

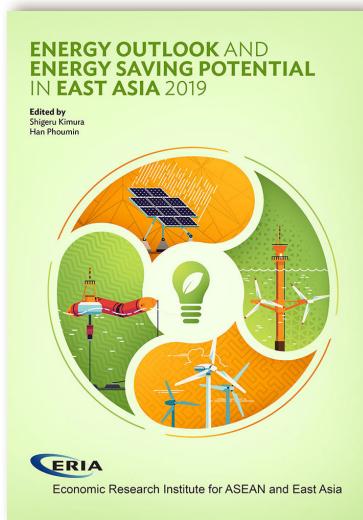
The study recommends ASEAN should carefully design friendly policies to support DES both using a top-down policy approach through use of renewable energy targets know as Renewable Portfolio Standard (RPS) and other policies such as fiscal incentives. DES could also be deployed more effectively if financial institutions were to provide support through risk-reduction mechanisms and by improving the profitability aspects of DES-related renewable investment. Finally, the study suggests that DES-related investment opportunities are large, and that DES will provide jobs and many business opportunities. DES is a modern generation system and its deployment will help to address the electricity supply shortage in ASEAN countries.



## Energising Connectivity between Northeast India and its Neighbours

*By Venkatachalam Anbumozhi, Ichiro Kutani, and Mahendra P. Lama*

Energy is a common thread that connects multiple areas of sustainable development of countries and sub-regions in Asia. In the drive to trigger and consolidate inclusive development, the North Eastern Region (NER) of India offers great potential as an electricity trading hub. This book analyses the multiple benefits of connecting the NER with neighbouring economies through cross-border energy trade. Supply and demand analysis under different connectivity scenarios shows that not only would NER-India be able to fully utilise the economic benefits of energy connectivity, but neighbouring countries like Bangladesh, Bhutan, and Myanmar could also keep carbon emissions in check by importing reliable and cost-effective renewable energy sources. In addition, those countries can reduce the energy security risks of serious supply gaps arising in the dry seasons. To harness the untapped energy potentials and make NER a robust economic growth pole, this report recommends initiating multi-layered interdisciplinary dialogues on tariffs and consultations on investment cooperation amongst the various stakeholders and development partners, both within NER states and outside India.

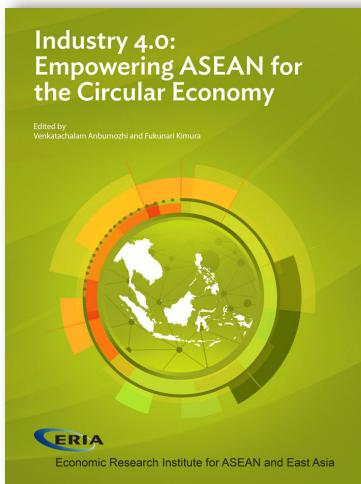


## Energy Outlook and Energy Saving Potential in East Asia 2019

*By Shigeru Kimura and Han Phoumin*

The Economic Research Institute for ASEAN and East Asia–East Asia Summit (ERIA–EAS) Energy Outlook was updated in 2017–2018 through a revision of macro assumptions, such as economic and population growth as well as crude oil prices in the current lower price situation. This outlook also incorporates more recent information on the EAS17 member countries' energy-saving goals and action plans, and power development plans such as renewable electricity. The EAS17 Outlook 2018 includes an estimation of the investment cost required for power generation and the whole energy infrastructure, including liquefied natural gas (LNG) receiving terminals and oil refineries.

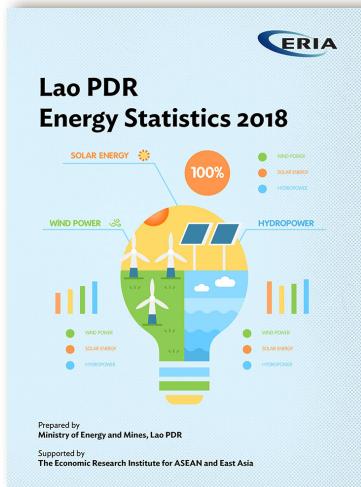
The outlook still focuses on analysing the additional energy savings that might be achieved by the individual countries above and beyond the Business-as-Usual scenario (BAU) projection. It continues to examine two scenarios – BAU and the Alternative Policy Scenario (APS) – and predicts energy supply, consumption, and CO<sub>2</sub> emissions from 2015 until 2040. The APS includes not only more ambitious energy-saving targets but also rapid advances in low-carbon energy technologies, especially renewable energy. The outlook also assesses the Intended Nationally Determined Contributions (INDC)/NDC reported by EAS17 countries. Energy supply security has become a top priority energy issue for the EAS17 region. Implementing Energy Efficiency and Conservation measures and increasing renewable energy shares will certainly contribute to maintaining regional energy security through the reduction of imported fossil fuel consumption and increasing the use of domestic energy. Regional energy networks, such as the Trans-ASEAN Gas Pipeline and the ASEAN Power Grid, and oil stockpiling are recommended to be set up and accelerated to maintain energy supply security. Nuclear power generation always remains an option for securing the energy supply in this region.



## Industry 4.0: Empowering ASEAN for the Circular Economy

*Edited by Venkatachalam Anbumozhi and Fukunari Kimura*

The transition to a circular economy is a unique opportunity for fast-growing Asian economies to be resource efficient, competitive, and innovative. The circular economy aims to eradicate wasteful use of raw materials and energy from the manufacturing process as well as systematically throughout the various life cycles, and to reuse the by-products. By creating an enabling policy framework for circular economy, government can also motivate corporate leaders to achieve greater benefits for sustainable development. This book investigates the challenges and opportunities of how countries and corporations are able to strike a better balance between economic growth and resource efficiency stewardship in the context of the emerging paradigm on circular economy policy. Through analysis of a number of case studies, this book also highlights immediate and relatively easy-to-implement circular thinking based on current policy approaches and market trends.

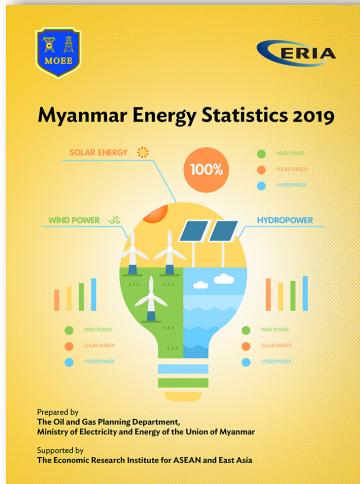


## Lao PDR Energy Statistics 2018

*Prepared by Ministry of Energy Mines Lao PDR  
Supported by ERIA*

Insufficient information and inadequate capacity to carry out comprehensive energy planning are identified as the main contributing factors to the current circumstances of the energy sector in Lao People's Democratic Republic (Lao PDR). To overcome such constraints, the Ministry of Energy and Mines (MEM) requested technical support from the Economic Research Institute for ASEAN and East Asia (ERIA). ERIA's president responded very positively to Lao PDR's request for support, and ERIA subsequently deployed technical staff and its expertise to support staff of MEM from Department of Energy, Policy and Planning (DEPP) to collect data and conduct analysis for the formulation of this 'Lao PDR Energy Statistics'.

This project and publication have greatly enhanced energy policy planning in Lao PDR. For the sustainability of the Project, the DEPP of the MEM will establish a systematic collection of energy data from various energy supply companies and other government agencies/corporations, so that energy data and statistics can be published continuously into the future. Having a good energy statistics will allow Lao PDR to contribute to and share data with ASEAN, International Energy Agency, Joint Organization Data Initiative (JODI), and other international forums and arenas.



## Myanmar Energy Statistics 2019

*Prepared by the Oil and Gas Planning Department,  
Ministry of Electricity and Energy of the Union of Myanmar*

*Supported by ERIA*

Insufficient information and inadequate capacity to carry out comprehensive energy planning are identified as the main contributing factors to the current circumstances of the energy sector in The Republic of the Union of Myanmar. To help overcome these constraints, the Ministry of Electricity and Energy (MEE) requested technical support from the Economic Research Institute for ASEAN and East Asia (ERIA). ERIA's president responded very positively to Myanmar's request, and ERIA has deployed technical staff and expertise to support staff of the Oil and Gas Planning Department (OGPD) of the MEE with data collection and analysis for the formulation of this 'Myanmar Energy Statistics 2019'.

This project and publication have greatly enhanced energy policy planning in Myanmar. To ensure the sustainability of the Project, the OGPD will establish a systematic collection of energy data from the electricity sector, Myanmar Oil and Gas Enterprise (MOGE), Myanmar Petrochemical Enterprise, Myanmar Petroleum Products Enterprise, and other related sectors, so energy data and statistics can continue to be published. Having good energy statistics will allow Myanmar to contribute to and share data with ASEAN, International Energy Agency, Joint Organization Data Initiative (JODI), and other international forums and organisations.

## **An Analysis of Alternative Vehicles' Potential and Implications for Energy Supply Industries in Indonesia**

ERIA Research Project Reports 2017 No. 15

*Edited by Shigeru Kimura, Shigeru Suehiro, and Naoko Doi*

An increasing demand for oil is one of Indonesia's top policy priorities as it is linked to many of the country's concerns, such as the deteriorating security of its oil supply, growing fiscal imbalances, and worsening air quality. Indonesia has announced that it aims to ban sales of internal combustion engine vehicles by 2040. The country also intends for alternative vehicles to account for 20% of all vehicles produced by 2025. The impacts of these targets are expected to transform the energy industry, with significant repercussions for electricity generation, transmission, and distribution; as well as for refineries, oil product retailers, and gas stations. This study aims to support policymakers in East Asia Summit countries by analysing the shift towards electric vehicles as a way to improve the efficiency of the transport sector and mitigate oil demand concerns. A quantitative analysis was carried out to present the magnitude of the impact of this shift on energy demand, carbon dioxide emissions, and investment requirements. Moreover, a qualitative analysis comparing international vehicle incentives was carried out to support policymakers in formulating similar incentives in Indonesia.

## **An International Analysis of Public Acceptance of Nuclear Power**

ERIA Research Project Reports 2017 No. 3

*Edited by Tomoko Murakami and Venkatachalam Anbumozhi*

Across countries and continents, public acceptance of nuclear power is a crucial factor for governmental establishment of a nuclear energy programme. Therefore, it is important to understand the determinants of public acceptance of nuclear power. This report examines the effects of knowledge, trust, risk, and benefit related factors on public acceptance of nuclear power in Europe, the United States, and Japan. Through field visits and interactive workshops different levels of public acceptance and related communication strategies to effect changes are identified. The report also identifies the effective communication role sub-regional and non-governmental organisations could play. The cost of generating electricity and energy security concerns appear to have the strongest positive effect on public acceptance of nuclear power.

## **Assessment of Electricity Storage Technology for Solar PV**

ERIA Research Project Reports 2017 No. 13

*Edited by Sichao Kan, Yoshiaki Shibata, Ichiro Kutani*

Solar photovoltaic (PV) is one of the promising technologies to address not only climate issues but pollution and energy security concerns as well. The rapidly declining cost of solar PV systems makes it an even economically feasible choice for a country. However, it is also a fact that on-grid solar PV is beset with unresolved issues such as fluctuating power output. In terms of the choice of technologies, we already have existing alternatives such as lithium-ion batteries. In choosing the most appropriate technology, however, cost is one of the biggest considerations. This issue is well known but has not been well quantified. Hence, this study tries to quantify the necessary capacity of batteries against the output from solar PV, as well as their estimated total system costs. The cost estimates based on varied assumptions will help policymakers create better energy policies in their respective ASEAN countries.

## **Assessment of Readiness for Fossil Fuel Import Disruption**

ERIA Research Project Reports 2017 No. 6

*Edited by Tsunaeki Nakamura, Shim Jun Young, and Ichiro Kutani*

Many emerging countries in the East Asia Summit (EAS) region are likely to increase dependence on imported fossil fuel supply in the future. This trend means that the energy security of these countries will become more vulnerable. Amongst various fossil fuels, liquefied natural gas (LNG) is expected to become an increasingly important energy supply source in the coming decades.

This study looks at disruption of LNG imports to investigate possible countermeasures and contingency plans in emerging EAS countries introducing LNG, such as Myanmar, the Philippines, Thailand, and Viet Nam. The report concludes with some policy recommendations. The risk assessment process of LNG import disruptions and countermeasures are generalised and summarised for countries to potentially incorporate them into national energy supply plans. In addition, recommendations for energy policy, LNG import and natural gas policy, and regional cooperation are discussed. It is stressed that countries need to set up long-term energy supply plans, which should be considered along with building resilience against LNG import disruptions.

## **Assessment of Necessary Innovations for Sustainable Use of Conventional and New-Type Geothermal Resources and their Benefits in East Asia**

ERIA Research Project Reports 2017 No. 7

Edited by Kasumi Yasukawa and Venkatachalam Anbumozhi

Against a backdrop of rising demand for sustainable energy solutions, there is a growing convergence in the role new types of geothermal technologies such a Ground Source Heat Pump (GSHP) can play in addressing energy security, generating local employment, and mitigating climate change. This report critically examines technical, social, policy, legal, and fiscal barriers to geo-thermal power production, direct use, and GSHP, and the estimated benefits in China, Indonesia, Japan, the Republic of Korea, Malaysia, the Philippines, Thailand, and Viet Nam. Amongst the five types of barriers, it was found that technical and policy barriers dominate the Indonesian geothermal sector, while fiscal barriers are prevalent in the Philippines. Social barriers remain a challenge in Japan regarding direct use and GSHP. Three main areas are recommended for immediate policy action. One, clarify precisely the role of each state entity in providing critical incentives and concessions at three different stages of geothermal power development. Second, the tariff setting and tax holidays for geothermal, direct use, and GSHP should be seen not as a one-time event, but as a process – based on a published methodology and stakeholder consultation. Third, the inability to develop new resources is often due to lack of information on the reserve capacity. More spending on research and development is recommended.

## **Comparative Analysis of Power Prices in the Philippines and Selected ASEAN Countries**

ERIA Research Project Reports 2017 No. 12

*Edited by Emiri Yokota and Ichiro Kutani*

This study compares the electricity supply costs in the Philippines with that in three ASEAN member countries – Indonesia, Malaysia, and Thailand. The study presents seven recommendations pertaining to the Philippines' electricity supply chain, ranging from fuel supply to electricity distribution.

Recommendations to 'shift back to market-based load dispatch', 'adopt thermal efficiency standards for power generation', and 'create good business environment to reduce WACC' are identified with larger effects on cost reduction than the other recommendations. Thus, it is suggested that promotions should focus on the most impactful policy recommendations.

## **Electricity Futures in the Greater Mekong Subregion: Towards Sustainability, Inclusive Development, and Conflict Resolution**

ERIA Research Project Reports 2017 No. 8

*Edited by Hisashi Yoshikawa and Venkatachalam Anbumozhi*

International energy markets are seeing a wave of innovations and the rise of new ideas and values, and the emerging economies of the Mekong sub-region should not be left behind. This report focuses on the electricity future of Myanmar and the Greater Mekong Subregion, emphasising rural electrification through renewable power generation by means of mini-grids as well as central-grid capacity expansion through sustainable power options. It analyses the current energy situation, including constraints in the region during this transitional stage, and proposes tangible policy recommendations that work towards energy security, environmental protection, and climate change mitigation. It recommends Myanmar takes advantage of the falling cost of solar electricity by making it a strategic priority in its power development plan; devises appropriate financial support schemes and power purchase agreements to be provided to mini-grid developers as well as operators; actively participates in the regional power grid to expand its access to electricity and meet rising urban power demand; and minimises environmental and societal risks.

## **Formulation of Temburong Eco Town Master Plan in Brunei Darussalam**

ERIA Research Project Reports 2017 No. 11

*By Nikken Sekkei Civil Engineering Ltd*

Brunei Darussalam's 'Wawasan Brunei 2035' vision assumes a sustainable society for the future and advocates a departure from oil dependence, development of human resources, creation of new industry, and development of small and medium-sized enterprises. In Temburong district, tourism will increase with the opening of the new bridge from Bandar Seri Begawan district in 2020. To ensure compatibility between development and nature conservation, this project sets vision of a carbon-neutral society for wildlife preservation in Borneo. It proposes strategic development throughout the following approaches or key concepts: a) Living lab: diverse community, creative work and life style; b) Carbon-neutral: renewable energy, sustainable mobility system, sustainable architecture/agroforestry, small economy; c) Learning tourism, featuring Temburong and Borneo, and a Showcase of Smart Tech. This study proposes to improve the internal road and new bridge connecting the two areas divided by the Temburong River, and to make the road in front of the current commercial area along the river a pedestrian priority area to turn it into a bustling riverfront. Labu Estate will have university, R&D, hotel, convention, tourism centre, and residential functions as the centre of education, R&D, and tourism. By clustering universities, R&D, and houses, the formation of a diverse community that fosters interaction and innovation is proposed.

## Liquefied Natural Gas Demand in Asia

ERIA Research Project Reports 2017 No. 5

*Edited by Yoshikazu Kobayashi and Yanfei Li*

The global liquefied natural gas (LNG) market has been undergoing sustained and fundamental transformation since 2010. A combination of forces led by the revolution in shale gas production in the United States, rising global LNG use, diverging natural gas and crude oil prices, and demand shifts from traditional Northeast Asian countries (Japan, Republic of Korea, and Taiwan) to China, Southeast Asia, and South Asia present new challenges and opportunities for producing and consuming regions. The LNG market is already experiencing rising competition from the United States and Australia in a market traditionally reliant on suppliers from Asia and the Middle East. While new competitive forces present challenges to producers, the development of a broad-based liquid and flexible LNG market can deliver substantial economic, environmental, and energy security benefits throughout the region. The challenge for policymakers in securing the widespread benefits of rising supplies of LNG is to transform potential LNG demand in Asia into real demand. This study delves deeply into these challenges and draws policy implications for supporting a growing market for LNG in this region.

## Natural Gas Master Plan for Myanmar

ERIA Research Project Reports 2017 No. 17

*Edited by Yoshikazu Kobayashi and Han Phoumin*

Natural gas will play very important role in Myanmar in the future. Natural gas demand in Myanmar is forecasted to grow from 457 million cubic feet per day (mmcf) in 2017 to 1,097 mmcf in 2040. Although demand from the power sector will continue to lead demand growth in the country, demand from the industrial sector and (after 2030) the residential sector is also expected to grow significantly. As the country's dependence on natural gas grows, its domestic infrastructure will need to be upgraded. The pipeline connecting Shwedaung and Magway in particular needs to be renovated urgently. Gaps between demand and supply are expected to appear in Myanmar's natural gas balance around 2023. Importing LNG will likely be the most realistic option to fill in the gaps and deploying floating storage and regasification units will make it relatively easy to import LNG into Myanmar. The Government of Myanmar should continue to play a pivotal role in developing the natural gas market. Policy recommendations to the Myanmar government are: 1) provide policy support to create demand, 2) encourage domestic upstream development, 3) enhance the resilience of the pipeline network, 4) reform the energy pricing system, 5) manage quality issues with natural gas, and 6) grow human capital.

## Potential of Oil Stockpiling at Oil Terminals in Southeast Asia

ERIA Research Project Reports 2017 No. 4

*By Shigeru Kimura and Tetsuo Morikawa*

Oil demand in Southeast Asia has increased by 3% per year since 2000, which is faster than the world average, and regional oil production is struggling to keep up. This has resulted in dependency on oil imports from outside the region, which reached 44% in 2015. Import dependency is expected to be higher in the long term, raising concerns about oil supply security in Southeast Asia. Many Southeast Asian countries have been working on expanding oil stockpiling and introducing government stockpiling. While some countries have significant oil stockpiles, the stockpile in Southeast Asian countries is generally lower than the International Energy Agency (IEA) standard. A joint stockpiling scheme in the region is an even more distant target. This study analyses the current status and future prospects of oil stockpiling in selected Association of Southeast Asian Nations (ASEAN) countries with considerable demand size and geographical proximity – Indonesia, Malaysia, Singapore, and Thailand. This study firstly describes the oil demand, supply, governance, and industry in these four countries. It then examines the current status of oil stockpiling in these countries and analyses various oil stockpiling options for the future.

## Seeking Optimal Solutions for Delivering Liquefied Natural Gas to Mid-sized and Large Islands in the Philippines

ERIA Research Project Reports 2017 No. 14

*Edited by Shigeru Kimura*

The Philippines consists of many small, medium-sized, and large islands and there is large potential to increase electricity demand in future. The country's main power source is coal, followed by domestic natural gas produced by the Malampaya gas field. Imports of liquefied natural gas (LNG) will increase due to depletion of this gas field and a shift in power generation from coal to gas. It is essential, therefore, to devise an economic system for delivery of small and medium-scale LNG from primary to subordinate (secondary and tertiary) terminals located near the islands' gas-fired power plants (GPPs). The following approaches are applied to determine the optimal small and medium-scale LNG delivery solutions: 1) Estimation of electricity demand at the provincial level in 2040 based on the Philippines' Power Development Plan; 2) Estimation of LNG consumption and location of GPPs; 3) Optimal (minimum-cost) LNG delivery from a primary terminal to a subordinate terminal near GPPs using the linear programming model; 4) Based on the delivery results from the linear programming model, computerised simulation of LNG delivery using a dynamic simulation model under assumptions including LNG barge operation, tank size of the subordinate terminals, and in the case of typhoon strike.

## Simulation Study on Energy Mix for Power Generation in Temburong Eco Town

ERIA Research Project Reports 2017 No. 2

*Edited by Shigeru Kimura*

The eco town development plan in Temburong district, Brunei Darussalam, is about applying energy efficient technologies to achieve lower energy demand, especially electricity, to be used by buildings, and renewable energy such as solar photovoltaic (PV). Using a computer simulation model, this study seeks to determine appropriate capacities for both solar PV and electricity storage based on solar radiation data in Brunei and estimated electricity demand of commercial buildings for the eco town in Temburong district. There is already a diesel power plant in Temburong that installs 4 units x 3 megawatts (MW) power generation system, which provides electricity to subscribers in the area. In addition, about 6MW solar PV system will be installed soon. After installation of the system, electricity generation by the diesel station will be reduced. However, once new buildings are constructed according to the Temburong district development plan, more solar PV will be needed. In 2015 and 2016, ERIA collected climate data – solar radiation and rainfall data – in Brunei Darussalam to check intermittency caused by PV system installation. ERIA applied a dynamic simulation approach to check the intermittency under the combination of diesel power generation, solar PV system, and electricity storage. After the simulation, ERIA extracted the best capacity mix of diesel power, solar PV, and storage at minimum cost.

## Sustainable Development of the Transport Sector: Malaysia

ERIA Research Project Reports 2017 No. 10

*Edited by Hiroshi Kondo and Ichiro Kutani*

Malaysia intends to reduce its greenhouse gas emissions intensity of gross national product by 35%, and by an additional 10% under certain conditions by 2030 from 2005 figures. Since the transport sector is the second-largest CO<sub>2</sub> emitter in the country (28% of the total), and since car ownership and thereby CO<sub>2</sub> emission due to gasoline and diesel combustion is expected to rise, it is crucial to implement an appropriate policy to reduce CO<sub>2</sub> emission in this sector. This report conducts a scenario analysis to show that the deployment of energy-efficient vehicles (EEV scenario) has the larger potential to reduce CO<sub>2</sub> emissions, followed by electric vehicles (EV scenario), public transport (PT scenario), and biofuels (bio scenario). Specifically, the study discusses two approaches to reducing CO<sub>2</sub> emission in the transport sector – (1) maximise use of public transport and (2) deploy low-emission vehicles.

## **Study of Renewable Energy Potential and Its Effective Usage in East Asia Summit Countries**

ERIA Research Project Reports 2017 No. 9

*By Makoto Toba, Shinichi Goto, Shoichi Ichikawa, Nuwong Chollacoop, and Venkatachalam Anbumozhi*

East Asian countries are actively promoting the introduction of first-generation biofuels such as bioethanol and biodiesel, but are constrained by several feedstock and production factors. To reduce the import of crude oil and energy consumption in the transportation sector, overarching action such as production of next-generation biofuels from nonconventional resources, improvement of fuel efficiency of vehicles, and maintenance of road infrastructure needs to be taken. Against this background, the report estimates the potential of a diversified transportation energy mix, analyses the techno-economic feasibility of next-generation biofuels, and scrutinises the advances that need to be made in the use of bio-methanol as a mainstream energy carrier. Country-specific recommendations on the introduction of alternate biofuels, fuel efficiency standards, and regional trade are provided for Indonesia, Thailand, Malaysia, and the Philippines.

## **Vehicle Recycling in the ASEAN and other Asian Countries**

ERIA Research Project Reports 2017 No. 16

*Edited by Michikazu Kojima*

It is predicted that about 2.4 million motor vehicles will have been discarded in the Association of Southeast Asian Nations (ASEAN) from 2015 to 2020. End-of-Life Vehicle (ELV) recycling and disposal are expected to soon become more serious challenges for Asian countries. Hence, the development of the vehicle recycling system, including the development of industrial infrastructures such as the recycling facility of ELVs, is becoming a pressing issue. Simultaneously, a proper institutional system for vehicle recycling should be established. This study aimed to identify the current status and challenges of ELV recycling in Asian countries and to propose policy recommendations to address these problems. Research target countries under this study include ASEAN countries such as Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand, and Viet Nam, and major Asian countries such as India and Japan. The study included a literature review, interviews with stakeholders, and field surveys.

Two working group meetings with specialists from research target countries were held to review the results of the study, discuss desirable policy recommendations, and share feedback on the status, challenges, and policy direction of ELV recycling and disposal systems.



# Industry and Manufacturing

## **2016 Progress Survey Report of Infrastructure Projects in CADP 2.0**

ERIA Research Project Reports 2017 No. 1

*Edited by Takafumi Fujisawa and Kazuaki Yamamoto*

The Economic Research Institute for ASEAN and East Asia (ERIA) submitted the Comprehensive Asia Development Plan 2.0 (CADP 2.0) to the East Asia Summit in 2015. CADP 2.0 updates the infrastructure projects from the first CADP, reformulates the conceptual framework for connectivity and innovation, and discusses the quality of infrastructure projects. It lists 761 East Asian infrastructure projects in a wide range of sectors – such as roads and bridges, railroads, ports, and electric power – which were surveyed in 2016–2017.

This study presents the progress of those infrastructure projects and summarises the trends and prospects obtained from the survey. The results to some extent reflect the political and economic situation in each country and the influence of its policies.

## **Multi-product Firms, Tariff Liberalisation, and Product Churning in Vietnamese Manufacturing**

ERIA Discussion Paper 2018-08

Doan Thi Thanh Ha

Utilising firm-level data covering the 2010–2015 period, this study documents the frequency and characteristics of multi-product firms in Vietnamese manufacturing. Our major findings are as follows. First, multi-product firms are larger, more capital-intensive, more productive, and are more likely to export. Second, multi-product firms are active in the market. Approximately 60% of firms adjust their product scope within a 6-year period. Third, the contribution of firms' product extensive margin to aggregate output growth is limited due to the prevalence of product dropping, which offsets the positive impact of product adding. Most output growth during the period is thus generated by the intensive margin. Turning to the link between tariff reduction and product shedding, we do not detect any significant impact. However, we find that exporters have an important role in product adding, which suggests they may contribute to aggregate growth through the channel of product scope expansion. Contrary to our expectation, our analysis offers limited support for the heterogeneity of product turnover across ownership types. While we find that state-owned enterprises are more likely to spread economic activities across products and industries, there is little difference in terms of product churning amongst foreign direct investment, state-owned enterprises, and the domestic private sector.

## **Quantitative Assessment of the Impact of EMS Standards on the Firms' Attitude towards Product Safety**

ERIA Discussion Paper 2018-07

*Duong Lan Huong, Tsunehiro Otsuki, Etsuyo Michida*

In response to regulatory policies on environmental and consumer safety, firms implement various initiatives to enhance their environmental compliance to enter or stay in the markets where those regulatory policies are present. Using firm-level data from Japan, this paper examines the impact of ISO14001 adoption and the internationalisation status of firms on their compliance with product-related environmental regulations (PRERs) imposed by the European Union. We apply a bivariate probit model to estimate the relationship between adoption of ISO14001 and compliance with the European Union's RoHS (Restriction of Hazardous Substances) Directive and REACH (Registration, Evaluation, and Authorisation and Restriction of Chemicals) Regulation, taking into account the potential simultaneity between ISO adoption and PRER compliance. Also, the effect of internationalisation status such as participation in global value chains on PRER compliance is examined. The effect of ISO14001 on those PRERs may occur only when firms operate in a stringent regulatory environment.

## The Exchange Rate and Exporting: Evidence from Indonesian Manufacturing

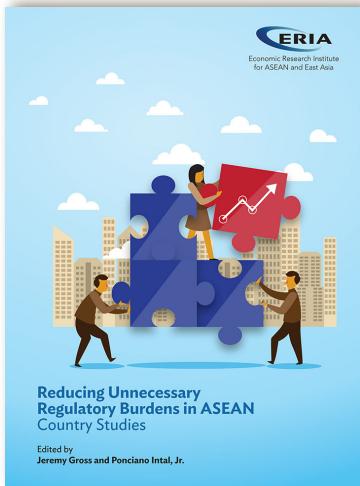
ERIA Discussion Paper 2018-18

*By Chandra Tri Putra and Dionisius Narjoko*

This paper examines the impact of the exchange rate on export performance using plant- and product-level data for the Indonesian manufacturing sector over the period 2008–2012. It addresses both the impacts of the level and volatility of the exchange rate on the value, scope, and composition of exported products. The study finds that the exchange rate affected the export values for the period of analysis, confirming the importance of the exchange rate level and volatility. The findings show that high exchange rate volatility tends to reduce the exporters' product scope, minimising uncertainty. Meanwhile, the impact on product concentration within firms encourages exporters to specialise, concentrating on exporting only of a few products that, presumably, are the exporters' core-competence products. This particular finding underlines the importance of product competition in the export market as another factor affecting the scope and concentration of exporter products. That is, tougher competition in the destination market reduces the mark-up across products and induces an exporter to skew its sales toward its best-performing/core-competence products. The study underlines the importance of policy for hedging the volatility of the exchange rate, which means developing the financial markets to provide sufficient resources or mechanisms for this.



# Regulatory Management and Governance



## Reducing Unnecessary Regulatory Burdens in ASEAN: Country Studies

*Edited by Jeremy Gross and Ponciano Intal, Jr.*

Reducing the costly and unnecessary burden of regulations on businesses is a key way government can support business competitiveness as well as attract investment. Yet in most countries there is no systematic way to review regulations or assess whether the regulations are fulfilling their objective.

The Reducing Unnecessary Regulatory Burden (RURB) approach, as pioneered by the Malaysian Productivity Corporation, is one way to address this. This ERIA study looks to see how by applying RURB, problematic regulations can be identified, options to address regulations developed, and dialogue between regulators and business fostered. In this study of seven ASEAN Member States, each country report focuses on a priority growth sector for that country. The results, presented alongside a case history from the sewerage sector in Malaysia, shows the potential of RURB for reducing regulatory bottlenecks if adopted by ASEAN members.

## **Division of Labour Amongst Innovation Intermediaries in Agricultural Innovation Systems: The Case of Indonesia**

ERIA Discussion Paper 2018-06

*By Nobuya Fukugawa, Masahito Ambashi, and Yuanita Suhud*

Innovation intermediaries are individuals and organisations that enhance connectivity amongst constituencies of national, sectoral, and regional systems of innovation, thereby facilitating knowledge spillover. This paper articulates the whole picture of Indonesia's agricultural innovation system, with a special focus on how different innovation intermediaries play different roles in technology transfer and knowledge dissemination. First, the public sector accounts for more than half of the actors involved in research and extension, but insufficient routes to transfer local needs to the public sector impede efficient feedback. Second, village unit cooperatives are closely associated with extension workers, suggesting the presence of a feedback mechanism, but many of them face serious financial distress. Third, private agricultural research and development and extension are organised and managed efficiently where they involve fewer internal actors working in an environment with minimal bureaucracy. However, a vague regulatory environment makes it difficult for multinational enterprises to hold a positive view towards agricultural research and development and extension from the public sector. Last, the changing governance system and the ensuing shift in political decision-making have introduced uncertainties to the arrangement of actors and resources in the system, which may take some time to resolve.

## **Regulatory Dissimilarity: A First Look at the Newly Collected Non-Tariff Measures Database**

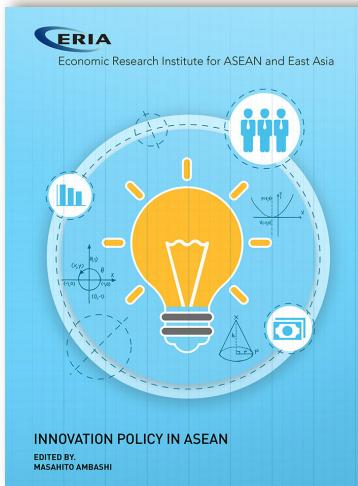
ERIA Discussion Paper 2018-12

*By Kaoru Nabeshima and Ayako Obashi*

In this paper we construct a dissimilarity indicator to measure the degree to which a product may face different sets of regulations in two countries (the export country and the import country). Since the indicator is highly scalable, we can also construct the difference in regulations applied at the sector or country levels. In this study, we mainly utilise country-level information to compare regulatory regimes across countries to see how much a country's set of regulations differs from the global norm. We also use this indicator to suggest a way to approach regulatory harmonisation in various regional integration efforts in East Asia. This allows us to identify which country can serve as a benchmark for regulatory harmonisation, by allowing countries to negotiate around a base set of regulations. This approach provides more concrete policy guidance on the issue of regulatory harmonisation compared to the tariff-equivalent approach.



## Trade and Investment



### Innovation Policy in ASEAN

*Edited by Masahito Ambashi*

Innovation Policy in ASEAN is a first attempt at a comprehensive innovation study of ASEAN. The book includes not only an overall theoretical framework for ASEAN, but also individual country analyses based on detailed data, empirics, case studies including both those of success and of failure, and concrete policy recommendations ranging from national to ASEAN-wide regional innovation policies.

For ASEAN it is important not only to increase investment in research and development and innovative activities, but also to enhance innovation capability's physical and intangible characteristics, and improve the environment where innovation tends to take place. In the face of this significant challenge, achieving innovation can help each ASEAN Member State sophisticate its economies and industrial structures in the years to come. The book aims to provide insights for all stakeholders wishing to examine innovation policies in the region.

## Are Production Networks Passé in East Asia? Not Yet

ERIA Discussion Paper 2018-03

*By Ayako Obashi and Fukunari Kimura*

Many people have a vague notion that the room for expanding international production networks is almost exhausted and that this is why international trade has slowed down since the recovery from the great trade collapse. This paper presents evidence against such belief in the East Asian context by classifying finely disaggregated international trade data into five categories based on the stages of the production process. Our thorough data examinations show that the slowdown in world trade and East Asian trade was attributed mainly to sluggish growth in trade of primary goods and processed raw materials. In contrast, East Asian trade in manufactured parts and components and the assembled end products within international production networks mostly seen in machinery industries, continued to expand steadily, underpinned by the intensive margin growth. We argue that East Asian production networks did not slow down and the potentiality of the production networks has not been exhausted yet.

## Can Indonesia Secure a Development Dividend from its Resource Export Boom?

ERIA Discussion Paper 2018-04

*By Rashesh Shrestha and Ian Coxhead*

Indonesia has enjoyed a long spell of sustained and relatively rapid economic expansion, largely on the back of strong commodity prices. But threats to the continuation of this growth are mounting and Indonesia now faces the challenge of locking in gains and setting a course to sustain future development in less favourable times. Post-2000 growth differs from earlier experiences in that exports of agricultural products, especially palm oil, now play a leading role. In contrast to the country's earlier oil and gas export boom, the gains from agricultural export growth accrue mainly to private actors that include corporations, smallholders, and the agricultural labour force, with a much smaller share passing through to government budgets. Government can no longer simply mandate the use of funds for development purposes; many other actors and institutions are involved.

It is reasonable to assume that the benefits from such a decentralised export boom would be widely diffused, with relatively large effects on rural and farm households and lower-skilled workers. However, this boom has been accompanied by a sharp rise in inequality and virtually no real wage growth. Moreover, while spending rose robustly during the boom, it is not clear whether poor, farm-based households have chosen (or been able) to use the gains to smooth consumption or to invest for future generations.

## **China's Processing Trade and Value Chains**

ERIA Discussion Paper 2018-02

*By Lili Yan Ing, Wei Tian, Maiojie Yu*

The authors of this paper investigate how trade liberalisation affects the performance of Chinese manufacturing firms. To better understand China's role in global value chains, they examine Chinese firms with a significant import share from Indonesia, one of its largest processing source countries. They found that Chinese firms with a greater import share from Indonesia perform better in productivity, export, and sales, and they are more likely to engage in processing exports. Moreover, the impact of foreign trade liberalisation on China's export scope is more pronounced for firms with a larger import share from Indonesia because of their greater extent of engagement in global value chains.

## **Entering the Export Market: Do Trade Missions Help?**

ERIA Discussion Paper 2018-15

*By Alfons Palangkaraya and Elizabeth Webster*

In this paper, we investigate the impact of trade missions on export performance. Using the census of participant data of the State of Victoria trade missions during 2010–2013, we estimate the impact of trade missions at the extensive and intensive margins by employing matched difference-in-differences analyses. We find, on average, the missions increased participating firms' export value by more than 170%. We also find non-exporting (at the time of the mission) participants were 26 percentage points more likely to become exporters after the missions. There is evidence for diminishing returns for repeat participants and that the impact varies by the size and sector of the participants and by the destination country of the trade mission.

## Exchange Rate Movements, Exporting by Japanese Firms, and the Role of R&D and Global Outsourcing

ERIA Discussion Paper 2018-19

*By Tomohiko Inui and Young Gak Kim*

We investigate the effect of the exchange rate on Japanese firms' performance in the international markets, using a comprehensive Japanese firm-level dataset. We examine the effect of firm characteristics on firm export dynamics at the firm-region export level. The estimation results overall indicate that a depreciation in the exchange rate may play an important role in export expansion or entry, but a limited role in additional entry to a new regional market. The results also indicate that Japanese firms strategically utilise imports to alleviate negative shocks from the exchange rate on exports for price competitiveness.

## Export Dynamics and the Invoicing Currency

ERIA Discussion Paper 2018-14

*By Kazunobu Hayakawa, Toshiyuki Matsuura, Nuttawut Laksanapanyakul, and Taiyo Yoshimi*

In this paper, using finely disaggregated firm-level export data for Thailand, we examine how firms' export experience is related to the dynamic choice of the invoicing currency. We present evidence that the majority of exporters seldom change the invoicing currency for the same product/destination during the sample period. This evidence implies that changing the invoicing currency is costly for exporters. We also find that even after controlling for export size, the probability of choosing the export country's currency, or the producers' currency (PC) for the first export is significantly higher than for the export of the second and subsequent products/destinations. Assuming importers are risk averse, this finding implies that the accumulation of firm export experience provides better know-how for exchange rate risk management and enhances the use of currencies other than the PC in order to gain better profit. We also propose a theoretical model that provides the rationale for these empirical findings.

## **Exporter Dynamics and Productivity Dispersion within Industry**

ERIA Discussion Paper 2018-20

*By Keiko Ito*

This paper uses the firm-level panel data for Japan to examine between-firm productivity dispersion, and explore whether export market entry improves productivity and accelerates productivity catch-up by new exporters in relation to frontier firms. Even though a sizable number of firms start exporting every year, this paper's results show that, on average, these new exporters' productivity growth rate tends to deteriorate after export market entry. The results also imply that in the case of Japan, the sluggish productivity growth experienced by almost all firms may be attributable to the very low or even negative productivity growth of national frontier firms or top exporters.

## **Failure of an Export Promotion Policy? Evidence from Bonded Zones in Indonesia**

ERIA Discussion Paper 2018-16

*By T. Yudo Wicaksono, Carlos Mangunsong, and Titik Anas*

This study investigates the impact of the bonded-zone policy on firms' performance, employment, and extensive and intensive margins of exports, using Indonesia's medium-large manufacturing establishment database. We use modified difference-in-differences models to estimate the impact of the zones and exploit differences in the timing of zone approval as our identification strategy. Using a novel procedure to construct a data set of firms in bonded zones, we identified firms in bonded zones. We identified bonded-zone locations by using presidential, ministerial, and customs decrees that clearly lay out locations of the zones at the village level. We then linked this information with information from Statistik Industri. We consider the heterogeneity of factors that may bias the impact of the bonded-zone policy. Our research finds no consistent evidence that the zones promote exports either intensively or extensively. We do find, however, that bonded zones increase employment although not very robustly.

## **Imported Intermediate Inputs and Plants' Export Dynamics Evidence from Indonesian Plant-product-level Data**

ERIA Discussion Paper 2018-13

*By Sadayuki Takii*

This paper asks the question of whether the use of imported intermediate inputs leads to an expansion of plant-level export scope. Using a panel dataset constructed from Indonesian plant-product-level data, the number of plant exports is regressed on the number of intermediate inputs imported by the plant. The results of the instrumental variable estimation support the hypothesis that importing leads to export expansion. The results also indicate that importing intermediate inputs from East Asian countries promotes the expansion of export to advanced countries.

## **Innovation Process in Public Research Institute: Case Studies of AIST, Fraunhofer, and ITRI**

ERIA Discussion Paper 2018-10

*Byeongwoo Kang*

The design of national innovation systems has attracted attention from scholars and policymakers. Firms, universities, and government organisations (including public research institutes) are defined as the three major players, and interactions between the players are considered the key to a successful national innovation system. However, public research institutes are relatively understudied compared to firms and universities, even though their contribution to national innovation is not trivial. This paper aims to understand the detailed processes and reveals practical information regarding the innovation process in public research institutes. Focusing on the National Institute of Advanced Industrial Science and Technology (AIST) in Japan, Fraunhofer-Gesellschaft (Fraunhofer) in Germany, and the Industrial Technology Research Institute (ITRI) in Taiwan, this paper analyses and compares innovation processes of public research institutes with their patent data. Based on findings, this study further discusses issues for better management of public research institutes.

## **Product Innovation, Exporting, and Foreign Direct Investment: Theory and Evidence from China**

ERIA Discussion Paper 2018-17

*By Sizhong Sun*

This paper explores the inter-connection between domestic firms' product innovation, exporting, and the presence of foreign direct investment (FDI). We first set up a theoretical model where, in a monopolistically competitive market, heterogeneous firms first make an optimal decision on product innovation and then set prices for their products in both the domestic and foreign markets. Under mild assumptions, the theoretical model generates a set of population moments, which are applied using data on eight three-digit manufacturing industries in China. We find evidence that firms' product innovation is positively correlated with their export revenue, and the presence of FDI affects firms' product innovation and export behaviour both directly and indirectly (via its impact on product innovation), albeit not in all industries. The findings have significant implications for policymakers, not only in China but also in other developing countries.

## **Technical Change, Exports, and Employment Growth in China: A Structural Decomposition Analysis**

ERIA Discussion Paper 2018-09

*Doan Thi Thanh Ha and Trinh Quang Long*

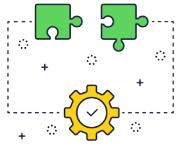
This paper analyses the sources of employment growth and assesses the contribution of exports to job creation in China. To do so, we utilise an input–output table to decompose employment growth into contributions from technical change, labour productivity, domestic final demand, and exports of domestically produced output. Our main data source is the annual input–output data from the China Industrial Productivity Database covering 1981–2010, of which employment figures have been adjusted to account for serious structural breaks observed in official statistics. The input–output framework allows us to explore both the direct impact of exports on employment within a given industry and the indirect impact through inter-industry transactions. Our major findings are fourfold. First, the increase in final demand, including both domestic demand and exports, is the main driver of employment growth in China. The strong growth in final demand offsets the decline in employment caused by enhanced labour productivity, especially during the 2000s. Second, the contribution of exports to job creation has increased significantly, especially in manufacturing and agriculture, following China's accession to the World Trade Organization. Third, labour productivity accelerated in all sectors, led by manufacturing. Last, most technical upgrading occurs in manufacturing, while agriculture experiences increased technical upgrading through the decline in labour usage.

## **Infrastructure and Industrialisation: Ensuring Sustainable and Inclusive Growth in Africa**

ERIA Policy Brief 2018-02

*By Anita Prakash*

Africa's economy is on a growth curve where development and investment plans must focus on the expansion of infrastructure, capacities, and institutions. Infrastructure development, which allows investing economies and companies to target the higher end of industrial value chains, will help to diversify the African economy and trade patterns, promote value-added production of goods and services, and boost consumption. Infrastructure planning and investment must be responsive to the development priorities of a country or subregion if infrastructure is to be an agent for growth and the narrowing of development gaps.



## Co-publications



### **ASEM Connectivity Inventory**

*By Anita Prakash (ERIA), Maaïke Okano-Heijmans, Wouter Zweers, and Brigitte Dekker (Clingendael Institute)*

The Asia Europe Meeting Pathfinders Group on Connectivity (APGC) has recognised ERIA as a key knowledge organisation to support the work on ASEM connectivity. In preparation for the 12th ASEM Summit and for taking the ASEM connectivity task forward, ERIA and Clingendael Institute prepared the 'ASEM Connectivity Inventory' for the APGC. The Report contains enumerations and qualitative analysis of ASEM connectivity activities since 2014, and gives recommendations on structure, processes, and coordination in the ASEM connectivity mechanisms. The report was presented to the APGC and the senior officials meeting in September 2018.



## **Financing for Low-carbon Energy Transition: Unlocking the Potential of Private Capital**

*Edited by Venkatachalam Anbumozhi, Kaliappa Kalirajan, and Fukunari Kimura*

This book is the first comprehensive assessment of the state of low-carbon investments in Asia, analysing the rationales, mandates and public-private financing activities. Based on the experiences of several regional initiatives wherein public financing is catalysing private investments in low-carbon infrastructure, this book proposes a framework that can be used as a tool to identify factors that influence private investment decisions and policy instruments that can scale up private capital.

Placing the Asian economies onto a low-carbon development pathway requires an unprecedented shift in investments. This book addresses this situation by asking questions such as: what is the central role of private finance in achieving the Paris Agreement targets; what key policy levers and risk mitigation can governments use in an effort to unlock the potentials of private capital; and how can regionally coordinated actions hold significant promise for scaling up private investments.



## Functional Recovery Care Text

*By Economic Research Institute for ASEAN and East Asia and  
Japan Society of Functional Recovery Care and Power Rehabilitation*

ERIA, in cooperation with Japan Society of Functional Recovery Care and Power Rehabilitation, provided a translation of the teaching materials of 'Functional Recovery Care', one of the tools for educating care workers as a step on the road towards achieving a healthy and actively ageing in Asia.

Asia is facing a massive demographic shift. By 2050, the number of people in Asia aged 65 or above is expected to grow to above 937 million people – more than double today's number.

Recognising the inevitable impact this will have on the region, the Japanese government launched the Asia Health and Wellbeing Initiative (AHWIN) in 2016 to share information and resources on ageing with Asian countries.

Japan is the fastest aging society in the world and has grappled with the problems resulting from ageing for many years. Thus it has accumulated valuable experience and lessons so far. For example, The Functional Recovery Care is one of the approaches that help seniors regain their ability to live independently.



## **Project 2045 Executive Summary Indonesia–Japan 2045: A Joint Project of Two Maritime Democracies**

*By United Nations Development Programme (UNDP) and  
Economic Research Institute for ASEAN and East Asia (ERIA)*

The Executive Summary of 'Our Common Future: A Joint Project of Two Maritime Democracies' is projecting the bilateral relationship between Japan and Indonesia with three main goals: first, to uphold democracy and become maritime global players; second, to rank amongst the world's top five economies; and third, to achieve high quality of life beyond SDG 2030. The strategy developed to address the above mentioned development challenges is expected to contribute to meeting the common targets that Indonesia and Japan have set on the occasion of the commemoration of 100 years of Indonesian independence in 2045. This summary discusses pathways to reaching the target of 10 challenges identified by the Executive Committee of Project 2045. The experts believe that to achieve these targets, the quality of human capital and the advancement of digital technology must be prioritised, the resilience to natural disaster improved, and connectivity enhanced.



## **Report of Project 2045 For ‘Joint Partnership’ towards Our Common Future: A Joint Project of Two Maritime Democracies**

*By United Nations Development Programme (UNDP) and  
Economic Research Institute for ASEAN and East Asia (ERIA)*

The Report of ‘Project 2045: The Path to Peaceful and Prosperous Indonesian in 2045’ sets out the future cooperation between Japan and Indonesia on the occasion of the 60th anniversary of their bilateral diplomatic relationship. With funding from the Government of Japan, the United Nations Development Programme (UNDP Indonesia) and the Economic Research Institute for ASEAN and East (ERIA) have been implementing this project over a period of one year. Experts from Indonesia and Japan have analysed the development path of their respective countries and have identified options that can contribute to further building a peaceful and prosperous Indonesia. They have three main goals: to uphold democracy and become maritime global players; to rank amongst the world’s top five economies; and to achieve high quality of life beyond SDG 2030. The strategy devised to address the above mentioned development challenges is expected to contribute to meeting the common targets that Indonesia and Japan have set on the occasion of the commemoration of 100 years of Indonesian independence in 2045. This report briefly discusses pathways to reach the target of 10 challenges identified by the Executive Committee of Project 2045. The study points out the complementarity of the two countries and the importance of their cooperation to fully realise their growth potential.



## **SME Policy Index: ASEAN 2018**

*By Economic Research Institute for ASEAN and East Asia (ERIA),  
ASEAN Coordinating Committee on Micro, Small and Medium Enterprises (ACCMSME), and  
Organisation for Economic Co-operation and Development (OECD)*

The SME Policy Index is a benchmarking tool for emerging economies to monitor and evaluate progress in policies that support small and medium-sized enterprises. The ASEAN SME Policy Index 2018 is a joint effort between the Economic Research Institute for ASEAN and East-Asia (ERIA), the Organisation for Economic Co-operation and Development (OECD), and the ASEAN Coordinating Committee on Micro, Small and Medium Enterprises (ACCMSME). The report is the outcome of work conducted by the ten ASEAN Member States (Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam). Divided into eight policy dimensions, it builds on the previous edition of the ASEAN SME Policy Index 2014. The current edition presents an updated methodology which makes this document a powerful tool to assess the strengths and weaknesses that exist in policy design, implementation, and monitoring and evaluation for SMEs, and allows for a benchmarking of the level to which the ASEAN Strategic Action Plan for SME Development (SAP SMED) 2016–2025 has been implemented. Its objective is to enhance the capacity of policy makers to identify policy areas for future reform, as well as implement reforms in accordance with international good practices.

The report provides a regional perspective on recent developments in SME-related policies in Southeast Asia as well as in individual ASEAN Member States. Based on this analysis the report provides a menu of concrete policy options for the region and for the individual countries.



## **World Trade Evolution: Growth, Productivity, and Employment**

*Edited by Lili Yan Ing and Miaojie Yu*

The book provides theoretical and empirical evidence on how world trade evolves, how trade affects resource allocation, how trade competition affects productivity, how China shock affects world trade, and how trade affects large and small countries. It is a useful reference which focuses on new approaches to international trade by looking into country-specific as well as firm-product level-specific cases.