







15 Years of Forewords Prof Hidetoshi Nishimura

For fifteen illustrious years, **Professor Hidetoshi Nishimura** helmed the Economic Research Institute for ASEAN and East Asia (ERIA) as its esteemed President, steering the institute through the ever-evolving tides of regional development and economic growth. His unyielding commitment to advancing research, fostering cooperation, and nurturing a deeper understanding of ASEAN and East Asia's dynamics has inspired generations of researchers, policymakers, and economists.

As he embarks on a new chapter beyond the walls of ERIA, we bid farewell to a leader, a mentor, and a dear friend. Yet, our gratitude and admiration endure, as his legacy lives on in the seeds of progress sown during his tenure. These forewords stand as a testament to the profound impact of his work and his unwavering dedication to advancing the welfare of ASEAN and East Asia.

Farewell, dear Professor Nishimura, and may your journey be filled with new horizons and boundless achievements.

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Disaster

Management



PREFACE

ne aspect of disasters that has been studied in less detail so far is that related to the distributional economic and social impacts. This is due, perhaps, to the intrinsic complexity that characterises long-term social and economic predictions, because they involve unprecedented productivity situations; or may be due to the variety of material, organisational, and cultural reactions of human society to food security.

The global interdependence of food supply chains is well known. When one part of the agricultural production network is affected by natural hazards or climate-induced disasters, the consequences reverberate globally: supply decreases and food prices increase. In agricultural production systems, food supply, supply chain infrastructure, and transport to and from local markets are vulnerable to natural hazards. These reduce the availability and affordability of food in the region.

In the developing countries of Asia, for example, 22% of the total economic impact of natural disasters was in the agriculture sector: crops, livestock, fisheries, and forestry. Data, however, are scarce, so little is known about the substantial impact of natural disasters and climate change on the agricultural value chains and the disproportionate burden placed on people who rely on agriculture for their livelihood. No consistent accounting for direct and indirect agriculture losses from natural hazards exist in any of the primary global hazard databases, although some national databases separately record losses in agriculture.

To further understand the distributional impacts of disasters on food security and to assess policy implications from this understanding, the Economic Research Institute for ASEAN and East Asia (ERIA) organised a study, that brought together leading academics from across the globe and policymakers from the ASEAN to describe several approaches for building resilience into food value chains, share knowledge, and better understand risk reduction from different disciplinary perspectives.

The two volumes of this book are the outcome of that study, and addresses the differential vulnerability of people, places, and sub-sectors, introducing concepts and methods for analysis, and illustrate the impacts on food security at the local, national, and regional level. The chapters in the first volume set the stage by focusing on the relationship between natural disasters and climate change and by broadly exploring their economic and social aftermaths. The chapters in the second volume discuss the resilience measures and adaptation road maps in terms of information sharing, preparedness, enhancing decision making capacity – particularly the relevance of improving the roles of markets through investments and insurance to face the financial challenges.

These two volumes complement each other in clarifying resilient pathways in the vital process of disaster risk management and adaptation to climate change. As the authors continue to research, debate, analyse, and propose an enabling environment to enhance resilience, new publications like this bring fresh insights into policy development.

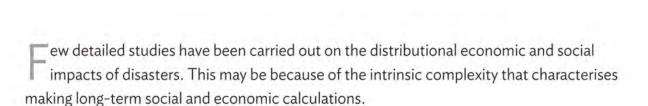
Here we emphasise the need for holistic actions: for improved resilience of global food security rather than narrowly drawn sectoral approaches, for innovative disaster risk management measures rather than reliance on established patterns, and ensuring that governments and the private sector take a powerful lead in implementing robust institutional frameworks rather than entrusting the task to communities and international agencies. I am confident that this book will contribute to policy development and academic understanding in an area where new acumen is urgently needed.

Hidetoshi Nishimura

President

Economic Research Institute for ASEAN and East Asia

FOREWORD



The global interdependence of food supply chains is well known. Thus, when one part of the agricultural production network is affected by natural hazards or climate-induced disasters, the consequences reverberate globally—supply decreases and food prices increase. In agricultural production systems, food supply, supply chain infrastructure and transport to and from local markets are all vulnerable to disruption by natural disasters and climate change, so affecting the availability and affordability of food.

In the developing countries of Asia, we see, for example, that 22% of the total economic impact of natural disasters is in the agriculture sector: on crops, livestock, fisheries, and forestry. But as data is scarce, little is known about the substantial impact of natural disasters and climate change, by which we mean the burden placed on those people who rely on agriculture for their very livelihood. None of the primary global hazard databases are consistent in their accounting of direct and indirect agriculture losses from natural hazards, although some national databases separately record losses in agriculture.

To better understand this distributional impact of disasters on food security and to assess the policy implications, the Economic Research Institute for ASEAN and East Asia (ERIA) organised a study that brought together leading academics from around the globe with policymakers from the Association of Southeast Asian Nations to examine various approaches to build resilience into food value chains, share knowledge, and gain a better understanding of risk reduction from different disciplinary perspectives.

This two volume study, the outcome of that research, address the varying vulnerabilities of people, places and sub-sectors. It also introduces concepts and methods of analysis as well as illustrates the impacts on food security at the local, national, and regional levels. Volume One sets the stage by focusing on the relationship between natural disasters and climate change, and exploring their economic and social aftermaths more broadly. Volume Two goes on to discuss the resilience measures currently available before presenting national 'adaptation roadmaps' in terms of information sharing, preparedness, and enhancing effective decision-making capacity through a focus on improving the role of the financial markets via investment and insurance.

Together, the two volumes clarify pathways for resilience for addressing disaster risk management and adaptation to climate change. As stakeholders in this field continue to research, debate, analyse, and propose new options for improving resilience, publications such as this provide fresh insights that can be used to develop effective policies. This study emphasises the need for holistic actions: improved resilience of global food security rather than narrow sectoral approaches; innovative disaster-risk management measures rather than reliance on established patterns; and ensuring governments and the private sector take the lead in implementing robust institutional frameworks rather than entrusting the task to communities and international agencies.

I would like to thank the authors of all the chapters for their contribution, skilfully woven together by the editors of the two volumes. I would also like to thank the government officials, from Cambodia, the Lao PDR, Myanmar, and Viet Nam, who all participated in this study through ERIA's Capacity Building Programme. Although originally joining as observers, each went on to produce a national 'adaptation roadmap', an achievement beyond our original expectation.

I am confident that together these two volumes will make a significant contribution to policy development and academic understanding in this field, where new insights are urgently needed.

Hidetoshi Nishimura

President

Vulnerability of Agriculture Production Networks and Global Food Value Chains Due to Natural Disaster - Y2020





FOREWORD

The global interdependence of food supply chains is well known. When one part of the agricultural production network is affected by natural hazards or climate-induced disasters, the consequences reverberate globally: supply decreases and food prices increase. In agricultural production systems, food supply, supply chain infrastructure, and transport to and from local markets are vulnerable to natural hazards. These reduce the availability and affordability of food in the region.

In the developing countries of Asia, for example, 22% of the total economic impact of natural disasters was in the agriculture sector: crops, livestock, fisheries, and forestry. Data, however, are scarce, so little is known about the substantial impact of natural disasters and climate change on the agricultural value chains and the disproportionate burden placed on people who rely on agriculture for their livelihood. No consistent accounting for direct and indirect agriculture losses from natural hazards exist in any of the primary global hazard databases, although some national databases separately record losses in agriculture.

To further understand the vulnerability of global food value chains and to assess policy implications from this understanding, the Economic Research Institute for ASEAN and East Asia (ERIA) co-organised with TU-Wien (the University of Technology Vienna) an international workshop on 20–24 June 2016. This event was sponsored by the Organisation for Economic Co-operation and Development (OECD) Co-operative Research Programme on Biological Resource Management for Sustainable Agricultural Systems. The workshop brought together leading academics from OECD countries and other international organisations to describe several approaches in building resilience to

Vulnerability of Agricultural Production Networks and Global Food Value Chains Due to Natural Disasters

food value chains, share knowledge, and understand risk reduction more from different disciplinary perspectives. ERIA is happy to collaborate in that knowledge initiative.

I acknowledge the support of the Government of Austria's Federal Ministry of Agriculture, Forestry, Environment and Water Management and OECD for their efficient organisation and helpful support in planning and running the workshop. The essence of this joint effort can be captured in the recommendations that follow each chapter. These are collected in the summary section.

This book is based on papers presented and discussed in that workshop. It comes at a critical time as we are looking for innovative approaches to support the implementation of the Sendai Framework for Disaster Risk Reduction and the ASEAN Community Vision 2025. The chapters assist in clarifying resilient pathways in the vital process of disaster risk management and adaptation to climate change. As the authors continue to research, debate, analyse, and propose an enabling environment to food value chain resilience, new publications like this bring fresh insights into policy development.

Here we emphasise the need for holistic actions: for improved resilience of global food value chains rather than narrowly drawn sectoral approaches, for innovative disaster risk management measures rather than reliance on established patterns, and ensuring that governments and the private sector take the powerful lead in implementing robust institutional frameworks rather than entrusting the task to communities and international agencies. I am confident that this book will contribute to policy development and academic understanding in an area where new acumen is urgently needed.

Hidetoshi Nishimura

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President

Economic Research Institute for

ASEAN and East Asia

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FOREWORD

Small and medium-sized enterprises (SMEs) are an important driver for job creation and economic growth in the ASEAN region. As the ASEAN Economic Community moves towards a higher level of market integration, new perspectives are opening for these firms. Innovative and high-growth SMEs, in particular, have an opportunity to transform their business.

To help SMEs fully tap these new possibilities, the 10 ASEAN member countries (Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam) are taking steps to stimulate SME growth. This includes extensive structural reforms to enhance productivity, human capital and enterprise performance.

This report presents the SME development policies and actions implemented by the ASEAN countries and helps identify strengths and weaknesses in policy design and implementation. It compares the experiences and performance of the 10 countries, measures convergence towards the policy guidelines of the ASEAN Strategic Plan for SME Development (2010-15), and recommends priority reforms. Its methodology - the SME Policy Index - is based on a tool developed by the Organisation for Economic Co-operation and Development (OECD) to assess policy development across countries sharing a common SME policy platform.

This publication underscores the need for a more comprehensive approach to SME development in the ASEAN region. It calls for combining on-going reforms to improve the general business environment with targeted interventions to support specific segments of the enterprise population, such as innovative enterprises, start-ups or export-oriented enterprises. The report also recommends government action to create a level playing field for all SMEs through regulatory reform and administrative simplification, as well as investment in human resources, provision of business development services, better access to finance, and the fostering of technological transfer.

This publication is the result of the joint effort between the Economic Research Institute for ASEAN and East Asia (ERIA) and the OECD through its Southeast Asia Regional Programme, supported by the ASEAN Secretariat and the members of the ASEAN SME Working Group. ERIA and the OECD greatly value the work that has been accomplished over the last two years and look forward to continuing this close and fruitful co-operation.

Hidetoshi Nishimura

Executive Director of ERIA

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Secretary-General of the OECD

ACKNOWLEDGMENT

This Full Report on ASEAN RISING: ASEAN and AEC Beyond 2015 would not have come into fruition without the collaboration and support of a large number of individuals and institutions. The Economic Research Institute for ASEAN and East Asia (ERIA) thanks the more than 30 experts and specialists in the region who shared their ideas through their thought or issues papers, most of which have been incorporated in this report (please see Appendix for the list of the papers and authors). ERIA also expresses sincere gratitude for the continued support of the ASEAN High Level Task Force on Economic Integration (HLTF-EI) over the course of the implementation of the project especially during the series of four workshops held in November 2013 in Jakarta, Kuala Lumpur, Yangon and Manila. The success of the workshops would not have been possible without the excellent cooperation and collaboration with the following institutions and government agencies, and ERIA expresses its profuse thanks to them:

Jakarta: Centre for Strategic and International Studies

(CSIS), and the Ministry of Trade (MOT);

Kuala Lumpur: Institute for Strategic and International Studies

(ISIS), and the Ministry of International Trade and

Industry (MITI);

Yangon: Yangon Institute of Economics (YIE), and the

Ministry of National Planning and Economic

Development (MNPED); and

Manila: Philippine Institute for Development Studies (PIDS),

and the Department of Trade and Industry (DTI).

ERIA is proud of its senior team that ably coordinated the activities of the project during the entire year of 2013 and the preparation of this Report:

Ponciano Intal, Jr. (senior researcher);

Fukunari Kimura (chief economist);

Yoshifumi Fukunaga (senior policy coordinator); and

Dionisius Narjoko (researcher).

ERIA is also happy of its other staff members, economists all, who stepped up with papers and contributed in the preparation of the Full Report: Han Phoumin, Sothea Oum, Lili Yan Ing, Fauziah Zen, and Ikumo Isono. Thus, in many ways, the ASEAN and AEC Beyond 2015 project, of which ASEAN RISING: ASEAN and AEC Beyond 2015 is the final integrative output, is an Institute-wide effort.

ASEAN RISING: ASEAN and AEC Beyond 2015 is but the latest endeavour of ERIA in its unceasing support to ASEAN and regional integration efforts in ASEAN and East Asia. The Institute shares the optimism embodied in the report as ASEAN and the region cooperatively and concertedly address the challenges and tap the opportunities that deeper integration in the region entails and offers respectively. We hope the recommendations in the report would help ASEAN and the region move forward confidently into 2015 and beyond. The Institute stands ready to contribute to the fulfilment of ASEAN RISING.

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Prof. Hidetoshi Nishimura
Executive Director
ERIA
20 January 2014

Foreword

In line with the globalisation trend, it becomes inevitable for the South East Asian economies to prepare themselves to move towards the path of a more border-less and well-connected world. Evidence has shown that countries can gain a lot from internationalisation, especially from trade, knowledge and information exchanges, and flows of people and goods. One of the key targets of ASEAN in achieving a dynamic, vibrant, globally connected and strong region is to fully realise ASEAN Connectivity which consists of three pillars, namely, physical connectivity, people-to-people connectivity, and institutional connectivity. Physical connectivity is especially important because it is not only a means to connect places in South East Asia but is also vital to support people-to-people and institutional connectivity. This is documented and highlighted in several leading studies and reports, in particular, the Master Plan on ASEAN Connectivity (MPAC) and the Comprehensive Asia Development Plan (CADP).

To realise the MPAC, the region needs to improve and accelerate several aspects, including financing and coordination. Given the situation where there is a lack of public funds to finance infrastructure development, calls have been made in various ASEAN countries for an increased role of the private sector. One of the popular schemes is the Public Private Partnership (PPP) model. Lack of financing is one of the most common problems causing delays in infrastructure development and is closely linked with other decisive factors like the regulatory framework, institutional settings and market structure. Searching for solutions to address this problem will eventually help in resolving other interlocking obstacles. Thus, at the regional level, it is important to perform stronger, more efficient and more effective coordination and cooperation, especially in developing cross-border infrastructure.

In this regard, the ASEAN Connectivity Coordinating Committee (ACCC) has commissioned the Economic Research Institute for ASEAN and East Asia (ERIA), which has been a perennial supporter of ASEAN Connectivity and has been deeply involved in the preparation of the MPAC and the CADP,

to conduct a study on financing modalities in South East Asia to accelerate the realisation of the MPAC. For this study, ERIA set up a team composed of 13 scholars and experts. This report titled "Financing ASEAN Connectivity" is the final output of their hard work and commitment.

This report is important because it provides a comprehensive picture of the infrastructure situation and policy in ten ASEAN Member States (AMSs) and gives an analysis of fundamental problems. It also presents principles of PPP policy that recognize the uniqueness of South East Asia and thereupon offers recommendations for concrete actions.

In particular, the report notes that different stages of infrastructure policy, financing method, and financial capacity in the AMSs should be recognised as unique features. It also takes into account innovative ways of financing in search for specific modalities that will suit specific AMSs. Therefore, the key to accelerating PPP development in South East Asia is to apply innovative financing without jeopardizing the economy.

Concrete steps must be taken by ASEAN leaders to realise better connectivity in the region. There are identified challenges ahead, especially in expanding the markets (including financial and capital markets, construction market, and related services markets), improving business climate, working from planning to implementation stages, realising cross-border infrastructure, and getting potential, yet unutilised, funds. To be realistic, many of the above can only be addressed in the medium term period; and while efforts to address them must be done, short-term innovations may be needed to improvise and provide factual immediate solutions. These can be answered through appropriate regulatory framework and consistent law enforcement, systematic capacity building, efficient and effective institutionalised working mechanisms, and strengthened regional coordination to harmonise cross-border cooperation.

The list of tasks to do is long but the region can support one another, started by having regular and focused communication and interaction in an equal forum. It is for this reason that the report's major recommendation is to establish the ASEAN PPP Forum.₁₇To accompany this and support the

implementation of PPP, a set of customized PPP Guidelines, or ASEAN PPP Guidelines, would be needed.

Finally, this report could not have been completed without the valuable support from the ASEAN Secretariat, the active contributions from the members of the ACCC and the AMS government officials, as well as the World Bank Infrastructure Policy in Singapore. ERIA extends its highest appreciation to everyone who has been involved in this study. It also sincerely hopes that this report can be a valuable contribution in the field of infrastructure development in South East Asia.

Jakarta, November 2014

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Hidetoshi Nishimura

Executive Director, ERIA

FOREWORD

Infrastructure is vital and in increasing demand, especially in emerging economies with rapid rates of economic and population growth. Lack of infrastructure has been a major concern of many Southeast Asian leaders, triggered by the wide gap between demand and supply.

Apart from lacking an adequate supply of infrastructure to support economic growth and rapid urbanisation, emerging countries are also dealing with the challenges of improving the quality of their existing infrastructure. Infrastructure quality is a crucial factor in improving human well-being and safety, production efficiency, as well as expanding capacity. People can move faster and more safely, and can work more efficiently and creatively, giving them larger access to markets. Children can receive decent treatment in hospitals and education in schools, seeding us with hope for a better future across the region. Infrastructure is also believed to be a major factor in poverty alleviation.

As a growing region, Asia is the future of the world. By 2030, Asia will represent two-thirds of the global middle class. Southeast Asia will play an increasingly important role in the world economy. Some of countries in this region have been categorised as middle-income economies, and have started to turn their attention towards avoiding the middle-income trap. Although there are debates among economists on the magnitude of the impact of infrastructure on growth, there is no dispute that when an infrastructure project is selected correctly and the process to develop it is conducted in an efficient way, it can have a significant impact on growth. A recent study by the IMF in its World Economic Outlook dated October 2014 points out that USD1 spent on capital spending (infrastructure) raises output by USD3.

If PPP is based on a good governance process, we should expect that the PPP will be implemented in the right way, providing additional sources for infrastructure finance and supporting economic growth. Efficiency, innovation, and quality are among the key advantages sought by PPP projects. However, setting up and launching a PPP is no easy task, especially in emerging economies with limitations in market characteristics and size, and inexperience with PPPs. Connectivity has become a major issue in the ASEAN community, with calls for faster and better infrastructure development. Thus, PPP is inevitably included in those collective efforts targeting connectivity.

ERIA has been active in conducting this study, capacity-building and supporting ASEAN Member States (AMS) in the areas of infrastructure development and PPP. After a series of PPP country reports in ASEAN, ERIA has produced a book on "Financing ASEAN Connectivity" and now these ASEAN PPP Guidelines. The 9th EAS Chairman's Statement Paragraph 29 dated 13 November 2014 in Nay Pyi Taw, Myanmar, has mentioned these PPP Guidelines as support from ERIA and encouraged further work of ERIA.

These Guidelines are aimed at providing AMS with a customised guide recognising the unique features of ASEAN countries. While aiming at full-featured PPP, the Guidelines also acknowledge possible PPP implementation using a transition state before progressing towards a matured PPP policy state. These Guidelines are the first among PPP guidebooks to be concerned with a transition state of PPP and cross-border PPPs. The features are important because they are the two unique issues in which PPP could play a further role in Southeast Asia beyond its conventional form. Undoubtedly, there are significant challenges to using PPPs. At the current time, the AMS consist of diverse states of development and PPP policy maturity, with no common recipe that would work for all countries. However, PPPs provide room for a larger scope of cooperation and stronger bonding as an ASEAN community.

These ASEAN PPP Guidelines could not have been completed without valuable support from the ASEAN Secretariat and active contributions from the members of the ACCC, under the leadership of U Min Lwin, Myanmar Permanent Representative Ambassador for ASEAN. Among notable parties that generously provided the team with constant inputs and feedback are AMS government officials and the World Bank Infrastructure Policy team in Singapore. ERIA extends its highest appreciation to everyone who has been involved in the writing of the ASEAN PPP Guidelines. It also sincerely hopes that this book can be a valuable contribution in the field of infrastructure development and PPP in Southeast Asia in the years ahead.

Hidetoshi Nishimura

Executive Director, ERIA

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Jakarta, November 2014

Acknowledgements

The Economic Research Institute for ASEAN and East Asia (ERIA) expresses sincere gratitude to the ASEAN Socio-Cultural Community (ASCC) Council which has entrusted ERIA with the prestigious responsibility of conducting the study on *Framing the ASEAN Socio-Cultural Community Post-2015*. Likewise, the strong support of, and coordination with, the ASCC Department of the ASEAN Secretariat has been indispensable and fundamental in the conduct of the study.

This report is the updated final report of the *Framing the ASCC Post-2015* study of which the interim report was submitted to the ASEAN Secretariat in March 2015. This final report consists of six chapters, starting with the progress and challenges of ASEAN and the ASCC; followed by the vision, outcomes, and framework for the ASCC Blueprint 2015–2025; and then by a more detailed elaboration of the framework and key strategies for its implementation. ERIA hopes this final report will contribute to the formulation of the ASEAN Socio-Cultural Community Vision 2025.

The Framing the ASCC Post-2015 study is an ERIA collaborative research effort. The chapters were written by drawing insights from background papers and from workshop deliberations attended by background paper authors, senior officials from the ASCC Department, as well as a delegation from the Government of Malaysia, the chair of ASEAN for 2015. ERIA

sincerely thanks the authors of the background papers for their contribution to the finalisation of this report. The background papers for the study are listed on the next pages.

Last but not least, ERIA greatly appreciates the cooperation and support of the ASEAN Socio-Cultural Community Department of the ASEAN Secretariat in the conduct and the finalisation of the study.

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Prof Hidetoshi Nishimura

President

ERIA

October 2015

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Economic Research Institute for ASEAN and East Asia



This 50th anniversary milestone of the founding of the Association of Southeast Asian Nations (ASEAN) is truly an event worth celebrating. We should come together and admire the achievements we can all see around us, both the visible changes in cityscapes and livelihoods of citizens of the region, and the equally important but invisible absence of interstate war and conflict that has marked the region now for nearly two generations. ASEAN can be proud of the role it has played in all of these.

But the purpose of reflecting on the achievements of the past is not to be self-congratulatory and self-indulgent. We must use this occasion to take stock of how we got to where we are, identify the challenges ahead, and to consider new directions for the future. We must learn from the past, from this region and other regional groupings, and think about how to shape and balance a future in which leaders will need to take into account the aspirations of citizens on the one hand, and the implications of the gig economy and ageing populations on the other.

This anniversary must be the platform from which to do this stocktake. The road ahead is long. And we do not want historians of the future to say that after the first 50 years of the Association, its leaders, complacent with stability and growth, turned inwards and forgot that to sustain and consolidate the growth of the past, they still needed to work together to achieve the goals of the ASEAN Economic Blueprint 2025, a highly integrated, cohesive, and global dynamic economy, supportive of innovation and competition.

This fifth volume of ERIA's five-volume ASEAN@50 publication allows us to move beyond reflection and look into the challenges and possibilities for the future. The voices of ASEAN (see Volume 2) are again heard, along with the implications of other international developments that will have a bearing on the region. This volume moves on to look at many of the issues – from trade facilitation to non-tariff measures, services, connectivity, financial integration, and good regulatory practice, etc. – that are all still 'works in process' and need a lot more attention if by 2025 we are to have the ASEAN Economic Community we desire. Finally, this volume provides recommendations that could support us along the journey ahead, painting possibilities for where we may be in 2025 and 2035.

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I would like to thank and congratulate all the contributors to this volume for their thoughts and computations that can inspire us for the journey. I would like to pay special thanks to H.E. Ambassador Elizabeth Buensuceso, Permanent Representative of the Philippines to ASEAN, for her passion and enthusiasm to support this and all other volumes of this anniversary publication.

Jakarta, August 2017

Hidetoshi Nishimura

President

Economic Research Institute for ASEAN and East Asia



Foreword



'The fragmented economies of Southeast Asia [with] each country pursuing its own limited objectives and dissipating its meager resources in the overlapping or even conflicting endeavors of sister states carry the seeds of weakness in their incapacity for growth and their self-perpetuating dependence on the advanced, industrial nations.' These were the words of Narciso R. Ramos, Foreign Minister of the Philippines, when on 8 August 1967, he and four fellow foreign ministers signed the foundational document for yet another regional body; this time, the Association of Southeast Asian Nations.

How these fragmented economies advanced from such unpromising beginnings to the dynamic region they are today is a history that needs to be recounted, and I am pleased that this volume addresses the questions we all have by reflecting on the keys to ASEAN's longevity and success.

At the time of its establishment, and noting the recent region's recent history, the words of the founding charter appeared overly lofty and ambitious, talking of 'the collective will of the nations of South-East Asia to bind themselves together in friendship and cooperation and, through joint efforts and sacrifices, secure for their peoples and for posterity the blessings of peace, freedom and prosperity'. But with changes of government in the region and wars being fought outside of ASEAN's then borders, a new political reality was taking shape and for the first time the governments of ASEAN Member States had a common purpose.

Of course, no one could have imagined just what or how such a transformation would bloom in the years to come. Chapter 1 notes how, 'the first 30 years [of ASEAN] were bookended by economic crises'. With hindsight we see just how economic and political crises can intertwine to bring bursts of renewal and reform. The early years of ASEAN brought stability to the region, allowing for countries to develop their own economies. Changes in the world economy, for example in commodity prices, were skilfully responded to with domestic policy reform and adjustment. Then, in December 25

1997, at the height of the Asian economic crisis, rather than retreating into isolation and despair, the Leaders of ASEAN came together – in what for some looked like the theatre of the absurd – to sign up to ASEAN Vision 2020. Supported by creating +1 ties to other regional states, this Vision set the framework for ASEAN to become an ever-increasing part of the global value chain.

Importantly, another crucial change took place in the region with the reset of political ideologies in the mid- to late 1960s. The nationalistic ideologies that spurned outside interference and capitalism which dominated some countries gave way to a new embrace of the outside world. Countries of the region were now open to business, accepting the benefits of trade and welcoming outside investment, a key step towards economic transformation.

Economically, the last 50 years have been truly remarkable ones for ASEAN. The next 50 years, with the advent of the Gig economy and Connected Industry, amongst other current buzz terms, will create plenty of challenges for ASEAN and the need to create a people-responsive economy. Lessons for the future can always be discovered from understanding the past. I have no doubt that Volume 3, ASEAN and Member States: Transformation and Integration, gives us cause for measured optimism that ASEAN and the ASEAN Member States could successfully adapt to changes and move forward robustly amidst the challenges of the economic and technological environment in the future.

I would like to thank all those who contributed to this volume, a valuable public memory for us to share with our current and future generations.

May I also express my gratitude to Ambassador Elizabeth Buensuceso of the Philippine Permanent Mission to ASEAN for her strong support and guidance since the start of the ASEAN@50 project.

Jakarta, August 2017

Hidetoshi Nishimura

President

Economic Research Institute for ASEAN and East Asia



Foreword



Recent turbulence in what was often assumed to be the soundly anchored, mature political and economic trading regimes of North America and Europe reminds us that public attitude should not be taken for granted. This is an important lesson for us all on the 50th anniversary of the Association of Southeast Asia Nations (ASEAN).

Voices on ASEAN: What does ASEAN mean to ASEAN peoples? is therefore a timely and welcome contribution on this significant anniversary of ASEAN. The information contained therein should not be taken lightly but be used to ensure ASEAN enters its second half century not resting on the laurels of its remarkable economic achievements to date, but guides it forward in line with the hopes and expectations of its citizens.

We have seen how over the last 50 years ASEAN has been remarkably adept at providing a platform for creating a new regional identity, political and economic realities, in an area once noted for internal conflict and divided by colonial histories. ASEAN has been a way to address these priority challenges through creating stability and fostering economic growth.

But as ASEAN looks to the future, this study reminds us of both the gaps and expectations amongst ASEAN citizens concerning the region. Awareness of ASEAN is higher than it has ever been, but awareness of ASEAN is primarily for its economic pillar. Yet the concerns of its people go beyond the economic sphere. Corruption is the issue of number one concern of almost half its people, followed by climate change and natural disasters. Indeed, only one of the top five issues relates directly to the economic pillar championed by ASEAN.

If the leaders of ASEAN can address these concerns with the vigour and foresight employed by them in the first 50 years, then ASEAN will be truly remarkable, continue to be relevant to its citizens on a more personal level while also shepherding the region's economic future.

For this important study, I would like to thank all those who contributed to Voices on ASEAN: What does ASEAN mean to ASEAN peoples?, the second of our five-volume series to mark the 50th anniversary of ASEAN. In addition to my colleagues at ERIA who analysed the data and wrote the integrative chapter of the volume, I would like to pay a special tribute to our 10 research institute network partners who worked tirelessly in each of the 10 ASEAN member states to implement the surveys, arrange for numerous focus group discussions, share their findings with the team at ERIA, and write the country chapters in the volume.

Jakarta, August 2017

Hidetoshi Nishimura

President

Economic Research Institute for ASEAN and East Asia

FOREWORD

Innovation has strongly promoted the development and prosperity of humankind, particularly in the modern economy, by introducing new ideas and technologies to create a shift in both daily life and society. Since the pioneering works of Joseph A. Schumpeter, economics has paid much attention to the process of technological development and innovation. Theoretically and empirically, economic studies have made it clear that research and development and innovative activities are vitally important for modern countries, industries, and firms to achieve growth and sustainable development. There have not been many studies focusing on innovation in the Association of Southeast Asian Nations (ASEAN), however, one exception being the previous ERIA study project, 'Globalisation and Innovation in East Asia', published in 2011.

This scarcity of relevant innovation studies for ASEAN may be an indication that the interest in or expectation of facilitating innovation policies has not always been high amongst stakeholders in the region. But times have changed. Developing countries outside of ASEAN, especially China, have increasingly strengthened their innovation ability, while ASEAN Member States (AMS) such as Indonesia, Malaysia, and Thailand are facing the difficulty of having to depend solely on the development strategy of combining manufacturing with low-wage workers. Given that ASEAN is engaged in fierce competition with other emerging countries, creating innovation independently is an urgent issue for ASEAN to achieve sustainable development, and in particular escape from the middle-income trap.

Innovation Policy in ASEAN is the culmination of ERIA studies in fiscal year 2017. It is the first comprehensive innovation study of ASEAN, in that it includes not only a theoretical framework specified for ASEAN, but also individual country analyses based upon detailed data, empirics, and case studies including cases of both success and failure. One of the book's key messages is that for ASEAN it is important not only to increase investment in research and development and innovative activities, but also to enhance innovation capability and improve the environment where innovation tends to take place. I believe that the book will provide insights for all stakeholders who want to examine innovation policies in the region.

ERIA has dedicated tremendous efforts to the study of connectivity enhancement in East Asia, which was embodied in the *Comprehensive Asia Development Plan (CADP)* and the *CADP 2.0*. As indicated in these ERIA studies, physical, institutional, and people-to-people connectivity constitute an essential foundation for nurturing innovation because AMS are likely to benefit from technology diffusion and knowledge spillovers through integrating with production networks that have been developed in East Asia. Hence, the book suggests a basic strategy of enhancing innovation by further strengthening economic integration, which is also suggestive for trade policy issues. In light of this, the book will contribute to determining the direction of connectivity and innovation in ASEAN.

The co-authors played an important role in the development of this project. I would like to particularly thank Jose Ramon G. Albert, Haryo Aswicahyono, David Christian, Yose Rizal Damuri, Thu Hang Dinh, Nobuya Fukugawa, Yanfei Li, Hank Lim, Gilberto M. Llanto, Suresh Narayanan, Anh Duong Nguyen, Francis Mark A. Quimba, Rajah Rasiah, Saowaruj Rattanakhamfu, Somkiat Tangkitvanich, Vo Tri Thanh, Lai Yew-Wah, and Dayong Zhang. I would also like to thank Masahito Ambashi. He completed the whole book report to near perfection. I am very grateful to Nobuya Fukugawa, who stimulated our research during his sabbatical leave spent at ERIA. Lastly, I would like to express my gratitude to Chrestella Budyanto, Maria Priscila del Rosario, Fadriani Trianingsih, and Stefan Wesiak for their editorial and publishing support.

I hope that *Innovation Policy in ASEAN* will be useful guidance to all of you for promoting innovative activities in ASEAN.

Professor Hidetoshi Nishimura

President

Economic Research Institute for ASEAN and East Asia

August 2018

Connectivity



ERIA Research Project Report 2012 No 31: The Road to Bali: ERIA Perspectives on the WTO Ministerial and Asian Integration - Y2013

Foreword

I am delighted to launch this new e-book, "The Road to Bali: ERIA Perspectives on the WTO Ministerial and Asian Integration". This is the first product from the collaboration of the Economic Research Institute for ASEAN and East Asia (ERIA), UPH (Universitas Pelita Harapan), and the World Trade Institute (WTI).

In December this year, the World Trade Organization (WTO) will host its Ninth Ministerial Conference (MC9) in Bali, Indonesia. Looking back on the WTO's young history, the very first ministerial conference also took place in this region, in Singapore in 1996. Over the past 17 years, we have witnessed significant changes. The WTO's Doha Development Agenda negotiations were launched in 2001 but its conclusion has faced huge and recurring challenges. In the meantime, preferential trade agreements (PTAs), particularly bilateral ones, have offered a faster track for trade liberalization and market integration. Many new issues and policy agendas have been taken up in preferential deals. Beyond bilateral PTAs, the world has also recently witnessed the rise of mega-PTAs: such as the Regional Comprehensive Economic Partnership (RCEP), the Trans Pacific Partnership (TPP), the Pacific Alliance, and the Trans-Atlantic Trade and Investment Partnership (TTIP).

Although not generally considered a mega-FTA, the ASEAN Economic Community has provided a far broader and deeper economic integration path for the 10 ASEAN member states than usual PTAs. At the same time, the proliferating web of PTAs has become the source of a number of systemic problems, creating a veritable spaghetti or noodle bowl of overlapping trade disciplines and market opening commitments. Differing sets of rules are maintained in many areas, particularly rules of origin (ROO), trade-related intellectual property rights, and investment protection. Such developments have likely both generated and diverted trade and investment flows. On the other hand, preferential agreements have yielded few meaningful advances on thorny issues such as subsidy and related trade remedy regimes or agricultural trade.

Despite the surge of preferentialism, the WTO's engagement has remained limited. The dispute settlement body has monitored some PTAs, but only a few. The WTO's Committee on Regional Trade Agreement has provided an important venue for peer review of PTAs, but not all agreements have been thoroughly discussed.

Bali has long been an epicenter of Asian regionalism. In 2003, ASEAN Leaders agreed on their goal of establishing the ASEAN Community (originally targeted in 2020, now accelerated to 2015). In 2011, ASEAN Leaders proposed a new megaregional PTA construct – the RCEP, which brings together the ASEAN+6 members (Australia, China, India, Japan, Korea and New Zealand). Heads of states have also recently discussed the possibility of concluding the TPP negotiations on the margins of the latest APEC Leaders Meeting held in Bali. It is critical for trade ministers gathered for MC9 in Bali to ponder the WTO's continued relevance in a world of heightened preferentialism and to do so in a creative way.

This e-book offers insights from East Asian scholars to help WTO Members make a success of the forthcoming Bali Ministerial and set the membership on a needed post-Bali reform path. The e-book features contributions from a number of ERIA's regional institute network (RIN) members, complemented by a paper from a legal scholar from UPH which enriches the economists' discussion with a legal perspective on the manifold challenges WTO Members confront. The e-book also features an introductory chapter penned by the publication's co-editors, ERIA's Yoshifumi Fukunaga, UPH's John Riady and the WTI's Pierre Sauvé, summarizing key messages and advancing a set of recommendations flowing from the analyses on offer. Last but not least, we highly appreciate the supports for this e-book from H.E. Gita Wirjawan, Minister of Trade, Government of Indonesia, as the Chair of MC9.

Special thanks are hereby extended to Prof. Fukunari Kimura (ERIA) and Mr. Nathaniel Santoso (UPH) for their support throughout the e-book's preparation as

well as to the WTI's Susan Kaplan for her excellent editorial assistance. I am also keen to acknowledge the precious support from the Swiss State Secretariat of Economic Affairs (SECO) for affording the three institutes the means to initiate their unique cooperation and policy dialogue.

Last but not least, I would like to thank the authors of this book's various chapters for enriching us with their deep insights and forward-looking proposals on how the WTO can best continue to underpin global prosperity and the Asian lessons WTO Members can usefully draw on in charting new directions for the multilateral trading system.

Hidetoshi Nishimura Executive Director, ERIA Jakarta, November 2013 Reducing Unnecessary Regulatory Burdens in ASEAN: Country Studies -

Publications: ERIA - Y2018

Foreword

"Why is RURB important?" is the question asked right at the beginning of this book. The answers can be found in the chapters that follow, showing how RURB can be used to identify and review regulations as well as develop solutions through a process of dialogue and discussion between regulators and business.

Now is the time for governments to support the business community by reducing the cost of doing business. This will help free-up resources for businesses and make them more competitive. In turn, this can help stimulate investment, create new jobs, and support a more vibrant and dynamic business sector. However, an absence of systems and procedures to review and assess regulations is holding this back in many ASEAN Member States, resulting in burdensome regulations continuing to be on the statute books.

Pressure for establishing mechanisms for regulatory review is coming not just from the business sector but ASEAN Member States' commitment to the ASEAN Economic Community 2025 Blueprint. This Blueprint emphases good regulatory practice and good governance: a commitment to review existing regulatory procedures and establish regulatory conversations between stakeholders.

In view of these developments, this study of seven ASEAN Member States was undertaken to identify the findings of applying a RURB approach to priority development sectors in each country. This involved a mapping of all regulations and the regulators in the specific sector, their rationale and objective. It necessitated input from both business and regulators to identify the problems and understand the difficulties in revoking regulations. As a consensus-building approach to regulatory review, options for problematic regulations were proposed by the researchers – although implementation of solutions was beyond the remit of this study.

This study would not have been possible without the support of the Malaysian Productivity Corporation, and their willingness to share their time, experience and expertise of RURB with ERIA and the researchers involved in this project. For this, I would especially like to thank Dato' Abdul Latif Abu Seman for his support of this project, and Mohd Yazid Abdul Majid who managed this project on behalf of MPC. I would also like to thank the MPC experts who contributed greatly to this study at the trainings and technical study workshops: Izhar Che Mee and Goh Swee Seang.

I would like to thank the authors of the country studies, as well as Punita Nook Naidu for writing a case history. From ERIA, I would like to thank Ponciano Intal, Jr., ERIA Senior Economist, for his guidance of this study, Edo Setyadi, Research Associate, Melanie Milo, former ERIA Economist, and Jeremy Gross, Director for Capacity Building, for their contributions to this book.

The participation of government officials from Cambodia and Viet Nam would not have been possible without the generous support ERIA receives for its Capacity Building Programme from the Australian Government, which I gratefully acknowledge here. I would also like to acknowledge the government officials who participated and enriched this study: Sam Chetra, Im Koy and Sok Thida from the Ministry of Commerce, Cambodia, and Va Sophanrorth from the Ministry of Economy and Finance. From Viet Nam, Le Thu Tra and Pham Hoang Thai from the Ministry of Industry and Trade, and Ha Tu Cau from the Ministry of Justice.

I sincerely believe that Reducing Unnecessary Regulatory Burdens in ASEAN: Country Studies makes an important contribution to our understanding of the benefits of better regulatory review, and that this book will help focus our attention on this issue in our joint pursuit of better regulatory management to support a stronger, more competitive businesses sector.

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Professor Hidetoshi Nishimura President, Research Institute for ASEAN and East Asia September 2018 Brussels Report on Strengthening Asia Europe Connectivity : Drawing Synergy from Global Development and Governance Programmes - Publications : ERIA - Y2018

The Economic Research Institute for ASEAN and East Asia (ERIA) is very pleased to present the Report on 'Asia–Europe Economic Connectivity: Global Value Chain Structures in ASEM Region' to the 8th ASEM Economic Ministers Meeting and to the ASEM Senior Officials Meeting on Trade and Industry.

ERIA has conducted several connectivity-related studies in the ASEM region, notably the 'ASEM Connectivity Vision 2025' and the 'Brussels Report on ASEM Connectivity'. ERIA endeavours to support the ASEM chair and ASEM mechanisms through policy and research support to develop holistic connectivity for the ASEM region. Our connectivity-related research is also helping closer economic cooperation between Asia and Africa, and Asia and Europe.

It gives me great pleasure to share this expertise, through this report, with the wider ASEM community. We hope that this report will help the ASEM Leaders and ASEM Economic Ministers to prepare the road map for ASEM economic connectivity, which can be laid out at the 13th ASEM Summit in Cambodia in 2020.

ERIA will remain committed to providing all possible support and expertise that may be required to make ASEM a more responsive and creative platform for connectivity between Asia and Europe.

I believe that this report will make a significant contribution to the road map towards the 13th ASEM Summit in Cambodia in 2020.

Hidetoshi Nishimura

President

he Economic Research Institute for ASEAN and East Asia (ERIA) is proud to be associated with the Asia-Europe Meeting (ASEM) Summit and ASEM Ministerial meetings.



ERIA has been supporting the ASEM through its research and policy work on connectivity, economic integration, and inclusive growth since 2016 when it supported the Government of Mongolia by writing the 'Asia–Europe Connectivity Vision 2025', which was presented to the ASEM leaders the 11th ASEM Summit in 2016. Since then ERIA has supported the tasks of the ASEM Pathfinders Group on Connectivity (APGC) in developing the focus areas of cooperation and connectivity.

It gives me great pleasure to share the study '13th Asia-Europe Meeting (ASEM) Summit: Multilateral Cooperation for a Resilient, Sustainable, and Rules-Based Future for ASEM.' This study conjoins Cambodia's vision for ASEM with priority actions needed within focus areas of ASEM to support the ASEM Partner countries to address the global and regional challenges together.

I am confident that this study will give direction to the future of Asia-Europe relations and bring the peoples of Asia and Europe ever closer. ERIA will remain committed to providing all possible support and expertise that may be required to make the ASEM a responsive and creative platform for connectivity between Asia and Europe.

I believe that this book will contribute to the success of the 13th ASEM Summit (ASEM13) in Cambodia.

Professor Hidetoshi Nishimura

President

Economy



ACKNOWLEDGEMENT

The Comprehensive Asia Development Plan (CADP) is the crystallization of various academic efforts, especially the strong leadership, rigorous analysis, deep insight and relentless efforts of Dr. Fukunari Kimura and Mr. So Umezaki, with support from many other scholars including, Dr. Mitsuyo Ando, Dr. Haryo Aswicahyono, Dr. Ruth Banomyong, Dr. Truong Chi Binh, Dr. Nguyen Binh Giang, Dr. Toshitaka Gokan, Dr. Kazunobu Hayakawa, Dr. Socheth Hem, Dr. Patarapong Intarakumnerd, Dr. Masami Ishida, Mr. Toru Ishihara and his team, Dr. Ikumo Isono, Dr. Souknilan Keola, Dr. Somrote Komolavanij, Dr. Toshihiro Kudo, Dr. Satoru Kumagai, Dr. Moe Kyaw, Dr. Mari-Len Macasaquit, Dr. Tomohiro Machikita, Mr. Mitsuhiro Maeda, Dr. Sunil Mani, Dr. Toru Mihara, Dr. Avvari V. Mohan, Dr. Siwage Dharma Negara, Dr. Leuam Nhongvongsithi, Dr. Ayako Obashi, Dr. Apichat Sopadang, Dr. Chang Yii Tan, Dr. Masatsugu Tsuji, Dr. Yasushi Ueki and Dr. Korrakot Yaibuathet.

ERIA also owes grateful thanks to research groups in Nippon Koei and the National University of Singapore. ERIA is also grateful for valuable guidance and instructions provided by the ASEAN Secretariat and inter-alia His Excellency Dr. Surin Pitsuwan, Secretary-General of ASEAN, in making the CADP properly responsive to the needs of policy makers and in providing great support for our activities.

Additionally ERIA would like to express its deepest gratitude to the Asian Development Bank (ADB), the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), and various donor agencies including the Japan International Cooperation Agency (JICA) for providing valuable information related to infrastructure projects, and other inputs. Especially we thank ADB for making time to conduct informal discussions with our team, and for the insights provided which were really useful for our analysis.

ERIA also expresses sincere thanks to the members of supporting study projects, the teams of the Institute of Developing Economies, Japan External Trade Organization (IDE-JETRO) and other research institutes who conducted thorough and time consuming analyses, such as the evaluation of the regional economic impact of infrastructure development.

The methodology of our research needs much refining and improvement, but we hope that the research will pave the way for improved collective actions among countries and international institutes, and that it will be a useful reference for further actions to be considered by donor agencies and funding institutions, inter alia ADB.

Hidetoshi Nishimura

Nishimura

Executive Director,

FOREWORD

The Economic Research Institute for ASEAN and East Asia (ERIA) is an International Organisation which pursues economic research and makes policy recommendations relevant to the East Asia Summit member countries.

The Australian Government was one of the earliest donors among the member countries which pledged financial contribution to ERIA to conduct its research in such manner that the findings are of value to the member countries.

ERIA would like to take this opportunity to thank the Australian Government and AusAID, without whose generous contribution this research would not have been possible. ERIA also looks forward to continued association with AusAID in the future and hopes that the member countries find this research useful.

Hidetoshi Nishimura Executive Director, ERIA

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Hidetoshi Nishimura Executive Director, ERIA

Preface

Despite the surge in manufactures trade and production networks that anchor the industrialization process in East Asia, agriculture remains an important sector of the economy of most developing countries in the region. Indeed, for the lower-income member countries of the Association of Southeast Asian Nations (ASEAN) that rely preponderantly on agriculture, agricultural development is the key to widespread economic growth and rapid poverty reduction. For the middle-income ASEAN countries as well as China and India, agricultural development remains an important pillar for balanced growth, sustained poverty reduction, and a deeper domestic consumption base for their manufacturing and service industries.

An integrating and industrializing East Asia offers both opportunities and challenges to the region's agricultural sector. On the one hand, a robustly growing East Asia is a growing source of demand for a wider range of agricultural products for food and industrial purposes. On the other hand, for food-deficit countries, the increased opportunities for agricultural exports from a robustly growing and industrializing East Asia are tempered by the political and social imperative of food security. This is because natural disasters like drought or widespread pest infestation that significantly reduce domestic food production can cause food prices to spike unless global prices are stable.

This book consists of papers from the Economic Research Institute for ASEAN and East Asia (ERIA) research project on "Agricultural Development, Trade and Regional Cooperation in Developing East Asia" in Fiscal Year 2010-11. It aims to address the twin issues of the growing opportunities for agricultural development and trade arising from a robustly growing East Asia on the one hand and the political and social imperative of food security on the other hand. All papers in this book were presented in two workshops held in Siem Riep and Phnom Penh, Cambodia in 2010 and 2011. The collection of papers in the book examines the aforementioned concerns as follows:

 Examine the role that agricultural development can play in engendering sustained economic growth and substantially reducing poverty in the poorer countries of Cambodia, Laos, and Myanmar.

 Understand the interaction of agricultural commercialization and modernization on the one hand and rural transformation and agri-based manufacturing on the other hand and their implications on the overall economies of the middle-income countries of Indonesia, Thailand, and Viet Nam.

 Analyze the changes in consumption in the fast-growing economy and market of China and their implications on East Asia's agricultural trade, and examine how a food-deficit country like the Philippines can benefit from expanded opportunities for agricultural trade while addressing food-security concerns.

Explore the possibilities of regional cooperation in mitigating the welfare effects of
natural disasters and crises; in developing the potentials of a green economy within
the confluence of Northeast India, Southwest China, and Myanmar; and in
strengthening the role of agricultural research and development as a major
productivity-enhancing investment in developing East Asia's agriculture

I sincerely hope that the recommendations put forward by ERIA's initial study on agricultural development issues in the region prescribed in this book would be fruitful for concerned stakeholders in the region to stimulate discussions on a more open agricultural economy in tandem with investments in productivity-enhancing interventions like irrigation and agricultural research and development, while creating regional cooperative efforts that redress or temper the negative welfare effects of crises and natural disasters. I welcome your feedback for us to advance our research in these areas.

Hidetoshi Nishimura

Executive Director

This study entitled 'East Asian Integration' is one of the flagship reports of the Economic Research Institute of ASEAN and East Asia (ERIA). The East Asia Summit held on 10 October 2013, through Article 34 of the Chairman's Statement, mandates that ERIA provide analytic support in sharpening the Regional Comprehensive Economic Partnership (RCEP) process to ensure a successful and mutually beneficial end for all parties, and enhance overall East Asian Integration. RCEP is a critical element in regional integration in East Asia and Pacific.

RCEP takes initiatives on regional economic integration in East Asia to a higher level. First, in contrast to the ASEAN+1 FTAs where individual ASEAN member states (AMSs) had essentially bilateral commitments with the ASEAN+1 dialogue partners, AMSs would likely need to have common commitments with the partners (perhaps with a few exceptions) under RCEP. Second, the commitments of the dialogue partners need to be common commitments congruent with those of the AMSs. Third, the commitments under RCEP are considered substantially higher than those under the ASEAN+1 FTAs. RCEP is expected to be not merely a consolidation of the ASEAN+1 FTAs. RCEP, or any form of East Asia integration, would need to be a better quality agreement than the existing ones for it to be credible and worthy of the resources and ensure a more meaningful integration.

This report would not have been realised without the strategic guidance from our government counterparts, particularly the ASEAN Senior Officials, and the ASEAN Secretariat team, whom we gratefully acknowledge. We also thank the opportunity given to ERIA to be engaged and share the findings at the RCEP Trade Negotiation Committee Lead Meeting in June 2013, ASEAN Senior Economic Officials Meeting in April 2014, East Asia Policy Dialogue with H.E. Pascal Lamy in April 2015, and a number of capacity building symposia on the RCEP in Cambodia, Lao PDR, Myanmar, and Viet Nam.

This report is carefully crafted by distinguished scholars in international trade and investment: Lili Yan Ing, Shujiro Urata, Ken Itakura, Misa Okabe, Inkyo Cheong, Erlinda Medalla, Olivier Cadot, Hikari Ishido, Shandre Thangavelu, Junianto James Losari, and Nanda Nurridzki.

It consists of three main topics: trade in goods, trade in services, and investment.

Chapter 1 provides insights on the impacts of different scenarios describing different levels of liberalisation in trade in goods, trade in services, and investment on East Asia's trade, income, and overall welfare. Chapter 2 explains the impacts of the existing FTAs on East Asia's trade. Chapter 3 provides insights on how to improve the use of FTAs, lessons learned from Korea. Chapter 4 details the rules of origin (ROO) of the existing ASEAN Free Trade Area (AFTA) and ASEAN+1 FTAs: ASEAN-China, ASEAN-India, ASEAN-Japan, ASEAN-Korea, and ASEAN-Australia and New Zealand FTAs. Chapter 5 provides evidence on the cost of compliance of ROO of ASEAN's FTAs. Chapter 6 conducts mapping exercises on commitment of liberalisation in the services sector of existing FTAs in the region. Chapter 7 outlines the impacts of trade expansion on labour productivity in the services sector, and the linkage between services and manufacturing sectors. Chapter 8 reviews investment protection of investment agreements, the ASEAN Comprehensive Investment Agreement, and the ASEAN-Australia New Zealand, the ASEAN-China, and the ASEAN-Korea Investment Agreements. Chapter 9 provides reviews of clauses of liberalisation of the existing investment agreements in the region.

For policymakers, business associations, and academia, the report will be an important base on key areas of regional and multilateral integration, as we all hope that regional integration could be a building block of multilateral integration.

We hope that the findings of this study can provide insights on overall East Asian integration and be useful as benchmark exercises to accelerate to the growth of trade in goods, trade in services, and investment in region.

Professor Hidetoshi Nishimura

President of ERIA

Jakarta, August 2015

The study, entitled 'The Use of FTAs in ASEAN: Survey-based Analysis' is one of the flagship reports of the Economic Research Institute of ASEAN and East Asia. Based on a study of firms conducted between April and August 2013, this study provides insights on the use of free trade agreements (FTAs) across ASEAN countries, the constraints on the use of FTAs, and how to overcome these constraints to improve the use of FTAs in ASEAN.

By August 2015, the 16 countries of East Asia had 66 FTAs in effect out of 126 FTAs around the globe. While Asian countries have been very active in engaging FTAs, early studies largely conducted between 2008 and 2011 assert that the historic use of FTAs in this region was relatively low.

The main value added of this study is twofold. First, this study's survey took place in 2013, three years after the ASEAN+1 FTA came into effect in January 2010; this allows this study to detail the use of the ASEAN Free Trade Area (AFTA) and the other five ASEAN+1 FTAs: ASEAN—China, ASEAN—India, ASEAN—Japan, ASEAN—Korea, and ASEAN—Australia and New Zealand FTAs. Second, this study covers the use of FTAs in the manufacturing and services sectors. It also explains how export and import intensity affects the use of FTAs differently.

This study would not have been possible without our strong collaboration with the ASEAN Business Advisory Council both in organising the surveys and focus group discussions and in disseminating the findings to ASEAN Leaders. Our appreciation likewise goes to all country team leaders of the study and their survey staff who put their best efforts to get detailed findings. The ASEAN and country reports were edited by leading trade economists, Lili Yan Ing and Shujiro Urata. The survey was prepared by a core team composed of Ikumo Isono and Yoshifumi Fukunaga, led by Lili Yan Ing.

For policymakers, business associations, labour unions, non-government organisations, and academia, this report will be an important resource complement on the use of FTAs, which is based on customs data.

We hope that the study can provide firm findings on the overall use of FTAs in ASEAN, not only AFTA but also ASEAN+1 FTAs, and insights on overcoming the constraints in using FTAs to improve overall trade in goods and services in ASEAN.

Jakarta, August 2015

A. Nichimura

Professor Hidetoshi Nishimura

President

Acknowledgements

The original version of the Comprehensive Asia Development Plan (CADP) presents a grand spatial design of economic infrastructure and industrial placement in ASEAN and East Asia. Since the submission of such first version of the CADP to the East Asia Summit in 2010, ASEAN and East Asia have made significant achievements in developing hard infrastructure, enhancing connectivity, and participating in international production networks.

However, continuous efforts for infrastructure development and narrowing development gaps are still needed not only for Tier 2 regions to participate in international production networks and for Tier 3 regions to be connected with distant urban centres, but also for Tier 1 regions to upgrade production networks and stimulate innovation by taking advantage of industrial agglomeration and urbanisation.

These economic environments and policy challenges motivated the Economic Research Institute for ASEAN and East Asia (ERIA) to upgrade the original version of the CADP to the second version, titled 'The Comprehensive Asia Development Plan 2.0 (CADP 2.0): Infrastructure for Connectivity and Innovation'. The revision of the CADP was also noted in the Chairman's statement of the 9th East Asia Summit on 13 November 2014 held in Nay Pyi Taw, Myanmar.

CADP 2.0 was drafted by Fukunari Kimura, Chief Economist, and Yasushi Ueki, Economist, with substantial contributions by ERIA's CADP research team members (Takashi Aoki, Toru Ishihara, Norihiro Kawasaki, Nobuyuki Mori, Takashi Okada, and Tadashi Takatsuka) and energy economists (Venkatachalam Anbumozhi, Shigeru Kimura, Yanfei Li, and Han Phoumin); intellectual inputs from Ponciano S. Intal, Jr.; insightful suggestions from Anita Prakash; and editorial support from Maria Priscila del Rosario, Fadriani Trianingsih, and Chrestella Budyanto.

CADP 2.0 has come into fruition in collaboration with the Geographical Simulation Model team of the Institute of Developing Economies (Toshitaka Gokan, Kazunobu Hayakawa, Ikumo Isono, Satoru Kumagai, Keola Souknilanh, Kenmei Tsubota); inputs from the Asian Development Bank, Japan International Cooperation Agency, and

Japan External Trade Organization; and academic contributions by many scholars outside of ERIA: Mitsuyo Ando, Ruth Banomyong, Nguyen Binh Giang, Daisuke Hiratsuka, Patarapong Intarakumnerd, Masami Ishida, Tomohiro Machikita, Aung Min, Vanthana Nolintha, Ayako Obashi, Sau Sisovanna, and Apichat Sopadang.

The methodology of the CADP 2.0 leaves much to be improved. But we hope that CADP 2.0 will be a useful reference for international donor agencies and funding institutions to take coordinated and effective actions for developing quality infrastructure for connectivity and innovation.

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Prof Hidetoshi Nishimura

President, Economic Research Institute for ASEAN and East Asia

November 2015

Economic growth in ASEAN countries is thought to be moving from the first to the second stage, where the growth of various industries, including that of the content industry, is needed to increase exports and expand domestic demand. The content industry is expected to play a big role in the further economic growth of the Asian region.

The Asian region has a large and growing media and content market, whose aggregate market size is the second largest following North America. The growth rate (CAGR) of the industry in Asia-Pacific between 2013 and 2018 will be 5.7 percent, higher than that of North America and Western Europe. PricewaterhouseCoopers Global Entertainment and Media Outlook 2014–2018 forecasts the ASEAN region's CAGR in 2013–2018 to be 7.9 percent. Considering fundamentals such as large population, high GDP growth, and the realisation of the ASEAN Economic Community, the Asian content industry is anticipated to further develop and is expected to contribute to sustainable economic growth through its economic effects, such as job creation, and ripple effects to other industries as well as its market size and high growth rate.

In order to promote and develop the content industry, we have to consider three factors.

The first is a change of the industrial environment. The technological environment of the content industry in Asian countries faces rapid and radical change, such as dissemination through the Internet, spread of smartphones and tablets, technical evolution (e.g. virtual reality, 360 degree camera, UHDTV, smart TV, and others). Changes in business and market structures, such as penetration of online content distribution and increase of international co-production, are also taking place.

The second is differences and diversity among countries. Each country has a different culture, regulations, and market conditions that affect content industry. Asian countries can use each other's strengths to make up for weaknesses to promote content industry in each country, thus bringing further economic growth in the region.

The third is 'scale' of the Asian region, content market, or industry. International competitiveness of the Asian content industry will be enhanced through mutual cooperation among countries. It is vital to make full use of content companies, professionals, markets, resources, and cultural assets in each country to raise the presence of the industry, considering the differences of each country.

Based on the above, the Economic Research Institute for ASEAN and East Asia (ERIA) organised a working group consisting of experts from eight countries in the region to research on the status of the Asian content industry, analyse the problems, and propose policy recommendations. During the first year, the working group collected basic data on the content industry in each country and, using a common data framework, analysed industrial features and structures. In the second year, the working group evaluated the necessity and effectiveness of promotion policies for the industry using questionnaire survey in eight countries. It proposed policy recommendations based on the results of two years' research.

Finally, this report could not have been completed without the valuable support from the members of the working group and all parties from eight countries who cooperated on the research project. ERIA extends its highest appreciation to everyone involved in this study. We also sincerely hope that this report can be a valuable contribution to the growth of the content industry and the economies of East Asia and ASEAN.

Nichimita

Hidetoshi Nishimura

President

Economic Research Institute for ASEAN and East Asia

Jakarta, November 2015

The Development of Regulatory Management Systems in East Asia: Deconstruction, Insights, and Fostering ASEAN's Quiet Revolution - Y2016



Foreword and Acknowledgements

he ERIA Report 'ASEAN RISING: Moving ASEAN and AEC Forward Beyond 2015' highlights the importance of a Responsive Association of Southeast Asian Nations (ASEAN) as part of an ASEAN strategy to achieve robust and equitable growth in an integrating ASEAN region beyond 2015. A Responsive ASEAN involves ASEAN and ASEAN Member States being responsive to and addressing the concerns of business in the region as they need to maintain and continuously develop business and investment environments that assist the private sector as the key motor of sustained high and equitable growth in ASEAN.

A Responsive ASEAN also entails a responsive regulatory regime, which in terms of process involves consultation, coordination, and evaluation, and in terms of content involves pro-competitive, commensurate, and non-discriminatory regulations, or what the World Bank calls 'Smart' regulations, i.e. streamlined, meaningful, adaptive, relevant, and transparent regulations. Finally, Responsive ASEAN entails regulatory coherence that facilitates an attractive business and investment climate in the integrating region. Regulatory coherence at the regional level in ASEAN calls for greater regulatory convergence of rules, regulations, and standards, helping, in turn, to reduce trade barriers among members. Regulatory coherence at the national level involves a variety of policies and regulations fitting together in a least-cost fashion, free of unnecessary redundancies and conflicting policies that are consistent with regional and other international agreements. It also involves effective coordination among agencies at the national level as well as between national and subnational levels of government.

The Economic Research Institute for ASEAN and East Asia (ERIA) and the governments of Malaysia and New Zealand agreed to undertake a comparative study of regulatory management in countries in the East Asia and Pacific region. The New Zealand Institute of Economic Research (NZIER) joined with ERIA to undertake the study. This project was designed to contribute to connectivity in the Asia-Pacific region by focusing on the development of responsive regulatory regimes. It also has the potential to guide further capacity building in the public sector by sharing understanding across countries and creating a process for learning together.

The countries in the study included Australia, Indonesia, Japan, Malaysia, New Zealand, the Philippines, Singapore, Republic of Korea, Thailand, and Viet Nam. This meant that there was a mixture of ASEAN and Organisation for Economic Cooperation and Development (OECD) member countries from the Asia-Pacific region. Cambodia, Lao PDR, and Myanmar participated in the workshops as observers. The project tapped the expertise of both researchers and practitioners in undertaking the country studies. The collaboration among the researchers and practitioners has proven to be very fruitful.

ERIA would like to thank the Study Team headed by Ponciano Intal, Jr., senior economist at ERIA, and Derek Gill, principal economist of NZIER. ERIA would also like to thank the contributions of each member of the study team who are listed in the next section. Finally, ERIA is most appreciative of the support of the Government of New Zealand and the Government of Malaysia. The project is a good example of fruitful collaboration among research institutions and government officials.

Hidetoshi Nishimura

Pishimuja

President, ERIA

Lao PDR has achieved remarkable economic growth in recent years. With growing international division of labour, the country has gradually integrated with international global production networks based on 'the second unbundling.' This economic achievement is exemplified by improved living standards throughout the country, as indicated by an increase in per capita income. On the other hand, Lao PDR faces the problems of an overdependence on the energy and mineral sectors, and growing development gaps within the country.

Lao PDR is at a turning point, where it can turn its weakness of being a 'landlocked' country into its strength, by becoming a 'land-linked' country in the Mekong Region. As chair of the ASEAN Summit and the East Asia Summit this year — a role it takes on only every 10 years — Lao PDR has a great opportunity to announce its novel industrial development strategy to potential investors around the world. 'Lao PDR at the Crossroads,' the research title, refers to this crucial time for a decision about the country's future and its central location as a transport hub in the Mekong Region.

These circumstances were motivation for the Lao PDR government and the Economic Research Institute for ASEAN and East Asia (ERIA) to create a unique mid- and long-term development vision, titled 'Lao PDR at the Crossroads: Industrial Development Strategies 2016–2030'. The study was designed to generate concrete policy measures and recommendations that, if adopted, are likely to contribute to the further development and growth of Lao PDR. I am strongly convinced that the analyses and policy recommendations presented in 'Lao PDR at the Crossroads' will be conducive to the pursuit of new development strategies. Its ideas and policy recommendations were also incorporated into Lao PDR's official plans such as the 10-Year Development Strategy (2016–2025) and Vision 2030 (2016–2030).

The policy measures proposed in this study are expected not only to promote the economic development of Lao PDR, but also to improve connectivity in the ASEAN region as a whole. I firmly believe that 'Lao PDR at the Crossroads' will contribute to the revision of the 'Master Plan on ASEAN Connectivity.'

First and foremost, I would like to express my special appreciation for the continuous support of the Ministry of Industry and Commerce (MOIC) under the auspices of H.E. Khemmani Pholsena, Minister for MOIC.

I am deeply indebted to those directly involved in this project. Fukunari Kimura, ERIA's Chief Economist, Masahito Ambashi, ERIA Economist, and Souknilanh Keola, IDE—JETRO Research Fellow, who edited the whole report and to achieve near-perfection. There were also substantial contributions from two Lao institutes and their researchers: the National Economic Research Institute (Leeber Leebouapao, Sthabandith Insisienmay, and Vanthana Nolintha) and the Economic Research Institute for Trade (Xaysomphet Norasingh, Viengsavang Thipphavong, Thantavanh Manolom, Lekxay Keoyasan, and Vanaxay Soukhaseum) who wrote the drafts of Chapters 2 to 4 and provided invaluable data. Daiwa Institute of Research Ltd. (Masahiro Nakamura, Hideaki Kasai, Jin Yoshida, Keisuke Goto, Sanae Ota, Yu Karasawa, and Rei Naka) largely contributed Chapters 5 and 6 by conducting extensive field surveys. And the IDE—JETRO Geographical Simulation Model team (Satoru Kumagai and Ikumo Isono) supported the quantitative analysis of Chapter 7 with their expertise.

I would also like to thank other ERIA staff: Yasuhiro Yamada, for his enthusiastic support in Vientiane, and Jeremy Gross, for coordinating the National Policy Dialogue on 30 March 2016. I would also like to express my gratitude to Maria Priscila del Rosario, Stefan Wesiak, Fadriani Trianingsih, and Chrestella Budyanto for their editorial and publishing support.

I hope that 'Lao PDR at the Crossroads' will be a useful reference for the Lao PDR government as well as international donor agencies and funding institutions, to help them take concrete actions for promoting the industrial development of the country.

Professor Hidetoshi Nishimura

4. Pishimu Ja

President, Economic Research Institute for ASEAN and East Asia

June 2016

Foreword [ERIA]

Over the years, multilateral trade negotiations have helped to substantially reduce tariff rates. While tariffs have been reduced, the number of non-tariff measures (NTMs) is increasing and is often blamed to be a source of the lack of integration in ASEAN. Yet, in spite of their growing number, we generally have little understanding and information, and thus there is an urgent need to develop a better understanding and transparency of existing NTMs.

The Economic Research Institute for ASEAN and East Asia (ERIA), in collaboration with the United Nations Conference for Trade and Development (UNCTAD), and ASEAN national teams consisting of economists and government officials of ASEAN countries collected and classified NTMs in the 10 ASEAN countries (Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam) based on the latest Multi Agency Support Team February 2012 classification. They worked on all regulations and official documents, including international conventions adopted by countries which had been in effect by January 2015.

The project is led by Lili Yan Ing (ERIA) and Santiago Fernandez de Cordoba (UNCTAD). The report editing team consists of Rizqy Anandhika and Ruth Elisabeth. The core team consists of Michelle Ayu Chinta Kristy, Chi Le Ngo, Maxim Gubarev, Fabien Dumesnil, and Denise Penello-Rial. The project is advanced through the supervision and comments from Shujiro Urata (ERIA), Olivier Cadot (Lausanne University), Ralf Peters (UNCTAD), Ponciano Intal, Jr. (ERIA), and Guillermo Valles Galmes (UNCTAD). The successful work would not have been possible without the invaluable work of national teams composed of the economists and government officials of ASEAN countries.

The project consists of two phases: NTM data collection (the data were released in January 2016) and country report (April 2016) and data analyses on how NTMs will affect trade in the region (January 2017). The project aims to (i) collect, validate, and store NTM data from official sources; (ii) improve the general understanding of these measures and their impact on world trade; and (iii) provide insights on NTMs in ASEAN countries.

The project also significantly benefited from the supervision and support of ASEAN government officials, particularly Sta. Rebecca Fatimah (MITI Malaysia), Sulaimah Mahmood (MTI Singapore), Donna Gultom (MOT Indonesia), Phuong Van Hoang (MIT Viet Nam), and Mark Ng (MTI Singapore). Along the way of conducting the project, the initial work and preliminary

findings were well endorsed and accepted at the ASEAN's Senior Economic Officials Meeting in August 2015 in Kuala Lumpur, at the ASEAN's High Level Task Force in January 2016 in Vientiane and East Asian Senior Economic Officials Meeting in April 2016 in Kuala Lumpur.

This initiative is only the beginning of the journey of ASEAN to improve the transparency of NTMs. ERIA and UNCTAD will work hand in hand with ASEAN member states in improving NTM transparency and overall trade environment.

Professor Hidetoshi Nishimura

President of ERIA

Jakarta, April 2016

Preface

Small and medium-sized enterprises are important contributors to employment and inclusive economic growth around the globe, including in Southeast Asia. As one of the fastest growing regions in the world, Southeast Asia has broadly embraced a growth model based on international trade, foreign investment and integration into regional and global value chains. This approach opens up an important window of opportunity for SMEs, but it also means that they must increase their competitiveness if they are to survive and grow in a highly competitive marketplace.

With the creation of the ASEAN Economic Community in 2015 and the adoption of the broader inclusive development goals of the 2030 Agenda, policymakers in the region are progressively turning to SME development as a way to foster equitable economic growth and to narrow substantial income gaps between and within ASEAN Member States.

The OECD Southeast Asia Regional Programme contributes to this effort by conducting policy analysis and training on SME development work in the areas of digitalisation, innovation, investment, global value chains, productivity, trade and greening the economy. The Economic Research Institute for ASEAN and East Asia (ERIA) also conducts analytical work on SME development related to trade, investment, human resource development and infrastructure enhancement, among other topics.

This study, the ASEAN SME Policy Index 2018: Boosting Competitiveness and Inclusive Growth, is the result of a collaboration between the OECD's Southeast Asia Regional Programme, ERIA and the ASEAN Coordinating Committee on Micro, Small and Medium Enterprises (ACCMSME), in partnership with the governments of the ten ASEAN Member States as well as experts, stakeholders and representatives of the SME sector. We are confident that it will be a valuable tool to map the depth and nature of SME policies across ASEAN and providing a framework for assessing and benchmarking progress in the design and implementation of SME policies. Aligned with the objectives of the ASEAN Strategic Action Plan for SME Development 2016-2025, this framework also allows for an assessment of its implementation. The corresponding analysis is supplemented by policy recommendations at the regional and country levels, as well as good practice examples from ASEAN and OECD member countries. It builds on a similar exercise that was piloted by the OECD and ERIA in 2014.

We look forward to continuing this fruitful collaboration to enhance SME development as an important driver of growth, job creation and social cohesion in Southeast Asia.

Prof Hidetoshi Nishimura

President ERIA

Angel Gurría OECD Secretary-General

FOREWORD

The circular economy represents a fundamental and necessary alternative to the linear take—make—consume—dispose economic model that currently predominates industrial production systems in Asia. This old model has brought unprecedented economic growth and welfare, but has run its course. Drastically new economic models are needed wherein material inputs and waste generation are minimised through eco-design, recycling and reusing of products, new business models, and new technologies. Products and production systems need to be designed for circularity, materials need to be efficiently processed, and waste needs to be sorted and recycled. Interactive platforms need to be set up that enable people and product connectivity. The value chain needs to be revisited in terms of its circularity function, and customers provided with services rather than throwaway products. This requires a change in mentality – a different way of looking at and organising our production and consumption processes.

Using Industry 4.0 is crucial to make this transition from a linear to a circular economy happen. Industry 4.0 refers to a set of diverse and complex automation processes that are currently being used in the industry from the internet of things and 3D printing to artificial intelligence, cloud computing, machine-to-machine communication, etc. Increasingly, Industry 4.0 technologies should be used to catalyse and facilitate the transition from a linear economic model to a circular one. This requires closer cooperation between the research, technological, and business communities and the creation of an enabling policy, and an institutional, business, and financial environment that will make this cooperation possible.

Major entry points to forward the integration of these two rapidly evolving technological and business fields are resource use and management and waste management: the beginning and the end of the circular economy model. Raw material extraction, processing, and production companies can use Industry 4.0 technologies more efficiently, while the same technologies can be used for more efficient resource management and turning waste into 'new' raw material, closing the material cycle.

This 'closing of the material cycle', using in an optimal manner the developments of Industry 4.0, will not happen by itself, at least not at the speed needed to transform our economies to conform to the requirements of the Sustainable Development Goals (SDG) such as SDG 9 – sustainable industrialisation – and SDG 12 –sustainable consumption and production. Major policy changes at the business level, and local, national, and international governance levels are needed that include the exchange of expertise at an inter-regional and inter-continental level, development of infrastructure and business activities, with a strong role for eco-innovative small and medium-sized enterprises and the shift from waste thinking to materials management for circularity. We cannot have a circular economy without the 4th Industrial Revolution, and we cannot have a socially useful and sustainable 4th Industrial Revolution without advancing the circular economy.

The chapters in this volume show the key opportunities as well as challenges in embracing the two concepts in the context of the fast-growing emerging economies of ASEAN. Transforming the challenges into opportunities requires the participation of the full breadth of society and actions in nations, sectors, supply chains, and cities. Major trend corrections are needed to get the regionally integrated economies on a pathway towards circularity that is aided by Industry 4.0. The contributing chapters identify key levers and point to inconvenient truths that provide systemic challenges for moving to circularity by the middle of the 21st century.

This book is published as part of ERIA's effort to disseminate knowledge products that can be used to promote industrial restructuring in ASEAN and East Asia. I am confident that it will help countries to identify policy challenges and opportunities associated with a new wave of industrial revolutions and greater integration of the emerging best practices into the economies of ASEAN and East Asia.

Hidetoshi Nishimura

President

The Economic Research Institute for ASEAN and East Asia (ERIA) is very pleased to present the Report on 'Asia–Europe Economic Connectivity: Global Value Chain Structures in ASEM Region' to the 8th ASEM Economic Ministers Meeting and to the ASEM Senior Officials Meeting on Trade and Industry.

ERIA has conducted several connectivity-related studies in the ASEM region, notably the 'ASEM Connectivity Vision 2025' and the 'Brussels Report on ASEM Connectivity'. ERIA endeavours to support the ASEM chair and ASEM mechanisms through policy and research support to develop holistic connectivity for the ASEM region. Our connectivity-related research is also helping closer economic cooperation between Asia and Africa, and Asia and Europe.

It gives me great pleasure to share this expertise, through this report, with the wider ASEM community. We hope that this report will help the ASEM Leaders and ASEM Economic Ministers to prepare the road map for ASEM economic connectivity, which can be laid out at the 13th ASEM Summit in Cambodia in 2020.

ERIA will remain committed to providing all possible support and expertise that may be required to make ASEM a more responsive and creative platform for connectivity between Asia and Europe.

I believe that this report will make a significant contribution to the road map towards the 13th ASEM Summit in Cambodia in 2020.

Hidetoshi Nishimura

President



Acknowledgements

ASEAN Vision 2040 is a vision of an ASEAN that steps boldly forward towards the year 2040 to transform the ASEAN Community and secure its position in the region and globally. The final report of ASEAN Vision 2040 would have been impossible without the support of 60 experts and specialists in the region (see Appendix). On behalf of the Economic Research Institute for ASEAN and East Asia (ERIA), I would like to thank the experts for sharing their perspectives during the various workshops, round table discussions, and ultimately through their insightful papers.

Moreover, I would like to express my gratitude for the cooperation and collaboration of the following institutions during the series of three roundtable discussions held in Jakarta and Bangkok in 2018:

Jakarta: The Habibie Center and the Centre for Strategic and

International Studies Indonesia

Bangkok: Chulalongkorn University

I would like to give special thanks to Dr Suthipand Chirathivat and Dr Piti Srisangnam of the ASEAN Studies Center of Chulalongkorn for the success of the Bangkok roundtable discussion.

I am proud of ERIA's senior researchers who coordinated the activities of the project and the preparation of the ASEAN Vision 2040 report: Senior Economist Dr Ponciano S. Intal, Jr. and Chief Economist Prof Fukunari Kimura. I am also gratified that nearly half of the contributors of this project are ERIA staff members, economists, and policy fellows, who have enriched the discussions with their wealth of knowledge.

This project would not have achieved its noble ambitions without the guidance of its lead coordinators of this project – Dr Shiro Armstrong, Prof Mari Elka Pangestu, Prof Simon Tay, and Senior Advisers Prof Peter Drysdale and Pak Jusuf Wanandi.

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ERIA hopes that the recommendations in the report will help ASEAN Member States to step boldly forward and to strengthen ASEAN centrality and community, as the region will face ever greater challenges over the next 2 decades. As always, ERIA is ready to support ASEAN Member States to address the challenges and to realise the ASEAN Vision 2040.

Jakarta, March 2019

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2/ Pishimu Ja

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Jakarta, March 2019

Hidetoshi Nishimura

President

Economic Research Institute for ASEAN and East Asia

Acknowledgements

At the bilateral meeting held in September 2016, we agreed to form the follow-up mechanism of the report *Lao PDR at the Crossroads: Industrial Development Strategies 2016–2030* that was published and submitted to the Ministry of Industry and Commerce (MOIC) in June 2016. With the support of the Japan International Cooperation Agency (JICA), the Japan External Trade Organization (JETRO), and other relevant agencies, such as the Embassy of Japan in the Lao PDR, this follow-up mechanism aims to discuss how the MOIC is implementing the policy recommendations presented in *Lao PDR at the Crossroads* to realise the Eighth Five-Year National Socio-Economic Development Plan (2016–2020).

So far, ERIA and the MOIC have held five workshops attended by the organisations mentioned above, and have conducted follow-up activities to establish four working groups in the following areas: (i) agriculture and food processing, (ii) labour-intensive industries, (iii) small and medium-sized enterprises, and (iv) industrial estates. This project report, which is one of the most important deliverables produced by the ERIA and MOIC team, focuses strongly on the Lao PDR's advantages, bottlenecks, and plausible policies in each industrial sector based on solid analyses and observations. It provides ideas to help policy makers implement measures and programmes, as well as useful guidance for aid agencies that are cooperating to work with the Government of the Lao PDR.

We are deeply indebted to many officials, researchers, and practitioners. First and foremost, I would like to extend our special thanks to Masahito Ambashi, Souknilanh Keola, Ichiro Ota, and Yasuhiro Yamada, who intensively work on completing this report as members of the ERIA project team. We would also like to give special thanks to MOIC officials, in particular, Sirisamphanh Vorachith, Xaysomphet Norasingh, Samly Boutsady, Sengphanomchone Inthasane, Kiengkham Rasachack, Kavin Saiyavong, and Somvixay Vongthirath. They are dedicated to work with the ERIA project team toward completion of the report while they are busy in daily tasks.

Outside partners have played an important role in the development of the follow-up mechanism. In particular, we would like to thank Takeshi Hikihara, Ambassador of the Japanese Embassy in the Lao PDR, who made useful comments at the fourth workshop on 6 February 2018. We would also like to express our gratitude to Kazuhiro Kuno, Minister to the Japanese Embassy in the Lao PDR; Yoshiharu Yoneyama, Chief Representative of JICA;

Katsuichi Iwakami, Chief Representative of JETRO; and Kasuki Furutani, President of the Japanese Chamber of Commerce and Industry Vientiane, who have continued to provide warm-hearted support for ERIA and MOIC activities.

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H.E. Khenmani Pholsena

Minister of Industry and Commerce of the Lao people's Democratic Republic

H. Pishimu Ja

Professor Hidetoshi Nishimura

President of the Economic Research Institute for ASEAN and East Asia (ERIA)

Foreword [ERIA]

It has been very interesting to observe the dynamics of globalisation over the past decade. Only a few years ago, we believed that further globalisation was inevitable as tariffs lost their relevance due to progressive trade liberalisation and the strong interdependence of global value chains. As such, non-tariff measures (NTMs) – which were widely seen as replacing tariffs – became one of our areas of research, and resulted in our first joint publication with the United Nations Conference on Trade and Development (UNCTAD): 'Non-Tariff Measures in ASEAN'.

But in the last few years trade protectionism has been gaining ground and globalisation has seen a backlash due to the rise of protectionism in some major developed countries, as exemplified by Brexit and United States President Trump's America First Policy. The United States has resorted to tariffs again as protectionist measures, igniting a trade war with China. The United States has also resorted to the use of tariffs against other major trading partners with whom it has a trade deficit, resulting in retaliation that will not benefit either party, or the world economy.

These dynamics affect the economies of Southeast Asia in different ways and to varying degrees. Net exporting countries that have a free trade agreement with both the United States and China may gain from the trade diversion, whereas other economies whose gross domestic product depend on trade volumes from both parties have started to suffer. Nevertheless, we believe that strengthening regional integration can make ASEAN more resilient to any shocks from outside the region. While tariffs have been reduced, the increasing of number of NTMs is often blamed for a lack of integration.

As part of our continuing commitment and efforts on NTM issues in the region, ERIA conducted the second phase of its 'NTMs in ASEAN Project' to analyse the dynamics of NTMs in ASEAN. The project has been led by Lili Yan Ing (ERIA) and Ralf Peters (UNCTAD), and has greatly benefited from the invaluable advice of Prof. Olivier Cadot (CEPR). The first phase of the project aims to code the NTMs of each ASEAN Member States to provide greater transparency. In the second phase, the studies utilise the 'NTMs in ASEAN Database' developed during the first phase of the project, and it is hoped the research results will encourage academics and policymakers to carry out analytical exercises using the NTM Database provided by ERIA and UNCTAD. The 'NTMs in ASEAN Database' is publicly available on the ERIA and UNCTAD TRAINS websites.

Even amidst global uncertainty, we at ERIA will keep working to strengthen regional integration. This is impossible to achieve without the genuine support of ASEAN Member States and the ASEAN Secretariat, which have worked together with us on various initiatives. We are currently working closely with ASEAN Trade Facilitation—Joint Consultative Committee (ATF—JCC) on a viable approach to design policies that address current NTM issues in region, including possible harmonisation and Mutual Recognition Agreements. ERIA, in coordination

with UNCTAD, will also provide capacity building for ASEAN Member States for the collection, classification, and analysis of NTMs, as we expect to hand over the NTM database to government officials of ASEAN Member States for regular updating to ensure transparency. We hope that our NTM Database will become a part of each ASEAN Member States' National Trade Repository and the ASEAN Trade Repository.

As one of the region's leading international organization and research institutes, ERIA will continue its efforts to serve the region by helping to deepen economic integration, narrow development gaps, and advance sustainable economic development.

Professor Hidetoshi Nishimura

Rishimuja

President of ERIA

FOREWORD [ERIA]

Tariffs, as a traditional trade policy tool, have declined worldwide. A new generation of free trade agreements has shifted the focus towards indirect policies which can affect trade. Amongst key policy areas, the importance of non-tariff measures (NTMs) is increasing. For the Association of Southeast Asian Nations (ASEAN), the removal of non-tariff barriers is amongst the major components of regional efforts to enhance intra-regional trade. In principle, the ASEAN Trade in Goods Agreement has explicitly stated obligations regarding NTMs. In practice, however, the integration agenda has focused primarily on tariffs, which have been reduced to 0.2% on average. As room to liberalise tariffs further is limited, addressing NTMs is a fundamental prerequisite for realising the ASEAN Economic Community. Because NTMs constitute a grey area where trade policy meets public policy goals, effective NTM management must consider not only their trade-distorting effects but also their potential benefits.

To understand the extent of NTM application and adopt an appropriate approach to managing them, a comprehensive and up-to-date NTM database is essential. Realising this urgent need, the Economic Research Institute for ASEAN and East Asia (ERIA) and the United Nations Conference on Trade and Development (UNCTAD) have cooperated to construct a detailed ASEAN NTM database. The first database was launched in 2015, and an update was completed in early 2019 to capture the dynamics of regulatory reform in ASEAN. At the 12th meeting of the ASEAN Trade Facilitation Joint Consultative Committee (ATFJCC), the database was endorsed as a primary resource for the National Trade Repository (NTR) as well as an input to ASEAN Trade Repository. Consequently, ERIA-UNCTAD has shared the raw database with the ASEAN Member States (AMS) to assist them in populating the NTM section of respective NTRs.

This database is only the first step towards improving transparency and competitiveness for AMS. The successful collaboration between ERIA and UNCTAD, with the unwavering support of AMS, will continue through various follow-up activities. Upon official request from the ATFJCC, efforts are being made to enhance the capacity of governments to sustain and update the database through in-country training programmes. Analytical work to quantify the impact of NTMs on trade and the economy is being conducted.



This report provides a snapshot of the usage of NTMs amongst ASEAN, and presents the ongoing efforts at national and regional level to address NTMs. It can serve as a useful reference for policymakers and researchers by shifting the common negative perception about NTMs, elaborating on the complexity of NTMs and the prevalence of NTMs in ASEAN, and recommending pragmatic approaches to manage NTMs. As such, we expect the database and the report could contribute to ASEAN's efforts in enhancing national competitiveness and moving forward with the integration agenda, which, ultimately, could foster economic growth.

Professor Hidetoshi Nishimura

President of ERIA Jakarta, August 2019

Preface

Cambodia and the Eurasian Economic Union (EAEU) are seeking a free trade agreement between them to increase trade, investment, and economic collaboration. This research has been undertaken in response to a request from the Ministry of Commerce (MOC), the Ministry of Economy and Finance (MEF), and the Royal Government of Cambodia, to undertake a feasibility and impact study of the Cambodia—EAEU FTA on Cambodia. The project was supported by the Economic Research Institute of ASEAN and East Asia (ERIA) as part of its continuous efforts to promote the deeper economic integration of Association of Southeast Asian Nations (ASEAN) Member States into the regional and global economy.

Cambodia has been exploring a free trade agreement (FTA) with the EAEU to expand market access to Eastern Europe. The EAEU is a common market comprised of five nations (Armenia, Belarus, Kazakhstan, Kyrgyzstan, and Russia), 176 million people, and a gross domestic product of US\$2.5 trillion. The study examines the key impacts of a Cambodia–EAEU FTA on the Cambodian economy and the ASEAN region in terms of trade, investment, welfare, and the growth impact on the domestic and regional economy.

The study aimed to provide a quantitative and qualitative assessment of the impacts of the proposed FTA between Cambodia and the EAEU on Cambodia. It also examines the EAEU's current FTAs and provides an update on recent developments in the Singapore–EAEU FTA negotiations and the Viet Nam–EAEU FTA (VN–EAEU FTA).

The study also documents the trade and investment related issues of the border and behind-the-border issues affecting trade and foreign investment between Cambodia and the EAEU. It also identifies key sectors that will be affected by the Cambodia—EAEU FTA. The study focuses on several key sectors in particular: (a) energy, (b) manufacturing (garment and textiles), (c) agriculture, (d) tourism, (e) aviation, (f) telecommunications, and (g) logistics.

The study identifies key policy challenges and recommendations to inform policymakers and help them maximise the benefits from the FTA negotiations.

Professor Hidetoshi Nishimura

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President of ERIA

Foreword

People know it when they see it, but it is hard to define the boundaries' is a description as apt for international regulatory cooperation (IRC) as it is for art, notes Derek Gill in the book, Interconnected Government: International Regulatory Cooperation in ASEAN. This may seem surprising for a practice that goes back to at least 1874 with the establishment of the Universal Postal Union and since then has become ever more deeply enmeshed at the bilateral, regional, and multilateral levels around the globe.

Yet, while the practice has been growing, questions remain as to what it actually is, what its different forms are, why do it, what is promoting it, what the barriers to it are, and how it is governed. These questions will be explored in this book, specifically intended as a guide to the Association of Southeast Asian Nations (ASEAN) Member States (AMS). To help understand perceptions of IRC within the AMS, this study used interviews and a survey of issues and attitudes relating to IRC in each AMS, along with New Zealand, to gain insight into its persuasiveness and pervasiveness.

But why do this study now? There is currently a lack of literature on and understanding of this issue in ASEAN. With more insight into the practice of IRC, we hope this study will promote IRC at a time when ASEAN is focused on good regulatory practice – of which IRC is a subset – as critical to achieving the goals of the ASEAN Economic Community Blueprint 2025. Within this blueprint, Element B7 'Effective, Efficient, Coherent and Responsive Regulations and Good Regulatory Practice', under the second characteristic of 'A Competitive, Innovative and Dynamic ASEAN', is key. While there are many drivers of IRC, good regulatory practice is seen as fundamental to reducing costs by streamlining regulations, thereby increasing trade and competitiveness.

The Economic Research Institute for ASEAN and East Asia (ERIA) has a long history of research in this field, and we are honoured to partner again with Derek Gill, Principal Economist at the New Zealand Institute of Economic Research, and co-editor of the 2016 two-volume series The Development of Regulatory Management Systems in East Asia. This book, like the 2016 series, was intended to be co-edited by Derek Gill along with Dr. Ponciano Intal, Jr. Tragically, Ponciano was taken from us in August 2019. ERIA, his family, friends, and colleagues still mourn his demise and miss his reassuring presence dearly. Like so many research projects and so much out-of-the-box thinking within ERIA and the ASEAN Community more broadly, this research project was inspired by Ponciano, and we would like to dedicate this book to his memory.

While it has been difficult to complete this book without Ponciano, I would like to give special thanks to Derek Gill who stepped in to take charge and complete this important study in a timely way, sharing insights we hope will inspire AMS to move forward in undertaking IRC.

This book was originally intended to contain individual country studies from each AMS, as well as New Zealand. While it has not been possible for us to proceed with this original plan, I am very pleased that this book can shed light on practices found in all AMS. I would therefore like to thank all contributors to this study whose case studies do not appear in this book. They are Prof. Ahmed M. Khalid and co-authors Dr. Nazlida Binti Muhammad and Dr. Masairol Bin Masri from Brunei Darussalam, Dr. Ngov Penghuy from Cambodia, Dr. Yose R. Damuri and co-author Mr. Dandy Rafitrandi from Indonesia, Dr. Leeber Leebouapao and co-author Dr. Aloun Phonvisay from the Lao People's Democratic Republic, Mr. Kyaw Soe Thein from Myanmar, Dr. Hank Lim Giok-Hay from Singapore, and Dr. Vo Tri Thanh from Viet Nam. My thanks also go to the authors of the country studies as presented in this book.

This project would not have succeeded without the support and close cooperation of the governments of the AMS, especially their support in implementing the survey on IRC.

Finally, I would like to thank the following within ERIA for their support in ensuring the completion of this study: Dr. Intan Murnira Ramli, Policy Fellow; Mr. Edo Setyadi, Research Associate; and Mr. Jeremy Gross, Director of Capacity Building.

May this book shed light on and improve understanding of IRC in ASEAN, and may it provide insight and inspiration for IRC to contribute to the development of an economically integrated and prosperous region.

Hidetoshi Nishimura

Pishimu Ja

President, Economic Research Institute for ASEAN and East Asia

Understanding the Consequences of the COVID-19 Pandemic for the Future of Southeast and East Asian Economic Integration — Recover, Responsive, Resilient — - Y2020

The coronavirus disease (COVID-19) pandemic has severely affected East and Southeast Asian economies, through disruptions to the flow of goods and services in the region's global value chains (GVCs) and a collapse in demand stemming from social distancing and lockdown measures.

At the same time, the COVID-19 pandemic has triggered change in every economic and social aspect – initiatives such as working from home using digital communications technology, the expansion and intensification of e-commerce, and a reduction in carbon dioxide (CO2) emissions, which all are progressing rapidly.

Since a similar pandemic is likely to occur in the future, we must learn from this experience and make efforts to build new economic and social systems and invent new methods of doing business, economic governance, and regulation, to minimise the adverse impacts of such a pandemic. It is important for us to retain this momentum and focus on solving major issues that have come to light, and to get the economy back onto a solid recovery track.

Specifically, the Association of Southeast Asian Nations (ASEAN) Member States and Dialogue Partners need to strengthen economic integration by (i) sustaining their seamless connectivity, (ii) further opening up the trade and investment regime, (iii) addressing energy and climate change issues, and (iv) using more Fourth Industrial Revolution (IR 4.0) technology.

The following are more specific actions that can be taken in each of these policy areas:

- (i) Sustained connectivity is an integral part to maintain the competitiveness of regional production networks. Several innovative and workable mechanisms to facilitate public-private partnerships can lend support for infrastructure development, as countries are still in recovery mode after huge stimulus packages during the pandemic.
- (ii) Trade liberalisation will focus on non-tariff measures and the service sector to minimise trade restrictiveness and ensure sufficient supply of services. Opening up the investment regime under ASEAN initiatives is important to maintain the attractiveness of the ASEAN region as a location for multinational enterprises (MNEs).
 - (i) Connectivity enhancement and (ii) trade-and-investment liberalisation as described above are important policies to improve the attractiveness of the ASEAN region as an investment destination. The current disruption in GVCs raises concerns about reshoring by MNEs that so far have invested in the region. Therefore, ASEAN needs to embark on policy actions to mitigate such concerns, by further opening upinvestment regimes and by encouraging MNEs to balance their investment portfolios.
- (iii) The ASEAN region should also capture opportunities for enhancing its energy security, resilience, and climate action. Ongoing behavioural changes such as work at home could lead to a change in energy consumption patterns and lessen the rebound of CO2 emissions. Low oil prices could facilitate the building up of emergency oil stockpiles and reviewing inefficient price subsidies. As a component of economic stimulus packages after the pandemic, ASEAN could accelerate the development of domestic and cross-country electricity networks, and invite investment in energy and the environment to restore strong economic growth.
- (iv) The adoption of new technology such as IR 4.0 (e.g. artificial intelligence, IoT, and robotics) will give manufacturing firms a better chance of rapidly increasing production when the economy recovers and demand picks up. Newer technology could be installed much earlier than it would have been for many manufacturers because of the pandemic, which could introduce a permanent change in technology at the company level.

ASEAN has successfully innovated its systems, with high responsiveness and resilience to changes in these fast-moving times – modelling a 'responsive ASEAN'.

As a resilient and responsive region, ASEAN can become the natural leader to demonstrate the optimum economic and social systems for undertaking all the adjustments needed to achieve economic integration, while offering an example for the global community.

The two policy briefs presented here propose the direction that ASEAN Member States, together with their Dialogue Partners, can take to overcome the aftermath of COVID-19.

The Economic Research Institute for ASEAN and East Asia (ERIA) will subsequently publish the Comprehensive AsiaDevelopment Plan (CADP 3.0) to illustrate in detail how we can recover from the current grave situation that has resulted from COVID-19 and how we can get back onto a dynamic growth path by taking maximum advantage of digital technology.

April 2020

Prof. Hidetoshi Nishimura

2/2 Pishimu Ja

President

Economic Research Institute for ASEAN and East Asia

Foreword

Globalisation, technological advancement, and resource consumption have historically served humanity well by typically delivering both economic growth and social progress. However, as these drivers have accelerated, evolved, and become intertwined over time, a divergence between economic growth and environmental sustainability has occurred, placing the planet and social progress under strain. In this context, the emerging concepts of Industry 4.0 and the circular economy offer promising opportunities for correcting the course with the right governance, an enabling environment, and public–private partnerships.

The countries and companies of the Association of Southeast Asian Nations (ASEAN) and East Asia stand at an important moment in history. The global, digitally enabled Industry 4.0 is already the fastest period of innovation ever. It is underpinned by rapid advances in technologies, including artificial intelligence, robotics, the Internet of Things, nanotechnology, and biotechnology, to name a few. Previous industrial revolutions advanced economic development but came largely at the expense of environment. In the past 2 decades, ASEAN and East Asia have emerged as the world's largest consumers of natural resources and raw materials. Resource demands continue to expand in line with the region's increasing population, rapid urbanisation, and continued economic growth. Without appropriate planning, the consumed resources and materials may ultimately end up as waste and pollution. It is, therefore, imperative that countries in the region focus on and invest in the circular economy for the improvement of resource efficiency.

Using Industry 4.0 is crucial to make the transition from a linear to a circular economy and requires closer cooperation between the research, technological, and business communities. It also requires the creation of an enabling policy and an appropriate institutional, business, and financial environment to make this cooperation possible. The major entry points to advance the integration of the rapidly evolving technological and business fields are resource use and waste management – the beginning and the end of the circular economy model. Raw material extraction, processing, and production companies can use Industry 4.0 technologies more efficiently, while the same technologies can be used for more efficient resource management and to turn the raw materials into new raw materials, closing the material cycle.

An important role in building a life strategy for Industry 4.0 and the circular economy lies in the results of assessments of the readiness of national economies and companies to adapt and adopt the initiatives. Readiness is often defined as the ability to capitalise on future production opportunities, mitigate risks and challenges, and be resilient and agile in responding to uncertainties. There are different approaches to such an assessment of readiness that use different qualitative and quantitative key indicators, both for countries and individual companies.

The chapters in this volume show assessment frameworks of differing magnitude for embracing the two concepts in the context of the fast-growing emerging economies of ASEAN. To provide governments and businesses with action-oriented information on the readiness of Industry 4.0 and the circular economy, the contributing authors developed multi-level self-assessment frameworks. It is the first comprehensive, quantitative measure of readiness in ASEAN and East Asia. Subsequent validation in countries and industries has led to various improvements in the way the ERIA Self-assessment Tool for Industry 4.0 and the Circular Economy is constructed and used.

As policymakers and industry leaders continue to refine and expand their industrial development and environmental protection programmes, this book provides them with useful measures to assist in their decision-making. This book is being published as part of ERIA's efforts to disseminate knowledge products that can be used to promote industrial restructuring in ASEAN and East Asia. I am confident that this book will help countries to identify the policy challenges and opportunities associated with the Fourth Industrial Revolution and allow for greater integration of it into the thinking on sustainability.

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Professor Hidetoshi Nishimura President, Economic Research Institute for ASEAN and East Asia

FOREWORD BY THE PRESIDENT



One of the vehicles to foster economic integration by regional groupings all over the world is through free trade agreements. The Association of Southeast Asian Nations (ASEAN) is no different. In pursuit of the goal of establishing a single market and production base with free flow of goods, ASEAN Member States (AMS) signed the ASEAN Trade in Goods Agreement (ATIGA) in 2009. ATIGA is a result of almost 2 decades of trade integration efforts amongst the AMS, starting with the signing of ASEAN Free Trade Area (AFTA) in 1993.

ATIGA, which is the forerunner of the ASEAN Plus 1 FTAs, including the recently signed Regional Comprehensive Economic Partnership (RCEP) agreement, consolidates and streamlines the provisions in the Agreement on the Common Effective Preferential Tariff (CEPT) and other relevant ASEAN agreements, and broadens its scope. The ATIGA goes beyond tariff reductions and contains specific provisions on rules of origin (ROO), non-tariff measures (NTMs), trade facilitation, and sanitary and phyto-sanitary (SPS) measures.

In 2019, the Coordinating Committee on the Implementation of ATIGA (CCA) requested the Economic Research Institute for ASEAN and East Asia (ERIA) to conduct a quantitative assessment of the impact of ATIGA on intra-ASEAN trade, as a contribution to the CCA's general review of ATIGA. This public version of the report, 'Impact of the ASEAN Trade in Goods Agreement (ATIGA) on Intra-ASEAN Trade', presents the outcome of the study. It is a result of the partnership and collaboration between ERIA, the AMS through the Coordinating Committee on the Implementation of ATIGA (CCA), and the ASEAN Secretariat.

This report finds that as a direct consequence of ATIGA, tariffs on intra-ASEAN trade have been reduced to zero for almost all tariff lines. The assessment has shown that commitments for tariff liberalisation under ATIGA have mostly been achieved. These liberalisation efforts have brought ASEAN closer to its goal of becoming a 'single market and a production base', which was one of three goals of AFTA as laid out in 1993.

But ATIGA exists in a context of unilateral liberalisation by AMS as well as the existence of alternative tariff preferences such as those enshrined in the World Trade Organization's Information and Technology Agreement and the ASEAN Plus One FTAs. Thus, only a limited number of tariff lines offer a margin of preference (MOP) high enough to incentivise firms to utilise ATIGA when trading within ASEAN because many AMS have set MFN tariffs to zero or at low levels. Furthermore, the cost of compliance with ATIGA provisions reduces the likelihood of utilisation due to low MOP. For these reasons, the impact of ATIGA is limited to sectors and products where MOP remains high (due to high MFN tariffs), mostly agriculture, processed food, and automotive. In these sectors, we find increasing utilisation of ATIGA preference over time. Gravity analysis also shows that only a handful of products show a trade creation effect of ATIGA, and that the trade creation effect is positively related to the MOP and FTA utilisation rate.

As AMS further liberalise their economies unilaterally and as new multilateral agreements (e.g. RCEP) enter into force, ATIGA needs to be updated to remain relevant. The key focus of reform should be on reducing the cost of compliance by, amongst other things, enhancing the rules of origin and the procedures for issuance of the certificates of origin that would help reduce cost and encourage utilisation. This would ensure that even the small margins offered by ATIGA continue to be valuable to traders. Furthermore, the sectors where ATIGA is most effective due to high MOP are those where small and medium-sized enterprises (SMEs) are involved. So, ATIGA can continue to be an important driver of SME engagement in intra-ASEAN trade. But to ensure ATIGA's success in doing so, specific information on barriers to utilisation of ATIGA by these firms needs to be collected and underlying issues need to be addressed.

As we continue progressing in deepening and strengthening regional economic integration through the ATIGA and the various ASEAN Plus 1 FTAs and RCEP, ERIA remains committed to continuing this fruitful partnership and collaborative work with ASEAN.

Professor Hidetoshi Nishimura

4. Pishimu Ja

President, Economic Research Institute for ASEAN and East Asia

Kata Pengantar

Industri manufaktur memainkan peranan penting dalam perekonomian Indonesia, dalam kontribusinya yang besar terhadap penciptaan output nasional dan penyediaan lapangan pekerjaan merupakan. Tidak hanya dalam sumbangannya terhadap output nasional, adopsi teknologi maju dan partisipasi kegiatan industri manufaktur nasional dalam perekonomian global juga berperanan besar dalam modernisasi industrialisasi di Indonesia.

Perjalanan industri manufaktur nasional mengalami pasang dan surutnya sampai saat ini. Industri tumbuh sangat cepat di era tahun 1990an yang didukung oleh kebijakan orientasi ekspor dan berbagari reformasi kebijakan diberbagai bidang yang mendukung pendekatan orientasi ekspor ini. Industri manufaktur sempat kontraksi sangat dalam disaat krisis ekonomi di tahun 1997 dan 1998, walaupun relatif cepat berhasil kembali ke tingkatan sebelum terjadinya krisis secara cepat di tahun 2000an awal. Namun, tingkat pertumbuhan industri manufaktur nasional sulit kembali ke tingkat pertumbuhan rata-rata sebelum krisis, yang berada pada kisaran 5 persen pertahunnya dibandingkan dengan tingkat pertumbuhan antara 7 sampai dengan 10 persen dimasa sebelum krisis ekonomi 1997/98.

Industri manufaktur Indonesia pasca krisis ekonomi 1997/98 menghadapi beberapa tantangan yang berasal dari dalam dan luar negeri. Beberapa perubahan mendasar seperti desentralisasi dan kebijakan tenaga kerja memberikan tekanan pada daya saing (produktivitas) industri manufaktur nasional dan, pada saat yang bersamaan, terjadi tekanan pada persaingan antar negara sebagai tujuan investasi manufaktur global dengan bangkitnya Tiongkok dan munculnya Vietnam sebagai negara industrialis baru. Selain itu, dunia mengalami resource boom selama sekitar sepuluh sampai lima belas tahun setelah krisis ekonomi 1997/98, yang secara umum mengakibatkan terjadinya pergeseran insentif investasi di Indonesia kearah sektor yang mengekstraksi sumber daya alam. Berbagai tekanan ini masih dirasakan sampai saat ini dan sebagai salah satu dampaknya adalah mulai terjadinya perubahan struktur di dalam industri manufaktur Indonesia. Selain itu, beberapa kalangan mencemaskan kemungkinan sudah mulai terjadinya proses deindustrialisasi.

Buku ini memaparkan situasi terkini dari perkembangan industri manufaktur Indonesia termasuk didalamnya beberapa tantangan utama yang dihadapi industri, seperti perdebatan tentang deindustrialisasi prematur dan dampak serta implikasi pandemi COVID-19 terhadap perkembangan industri manufaktur Indonesia kedepannya. Buku ini secara khusus mendiskusikan dan juga mengelaborasi berbagai faktor yang menjadi penentu kinerja industri manufaktur dalam jangka menengah, termasuk teknologi dan inovasi, sumber daya manusia, partisipasi dalam jejaring rantai nilai global dan agglomerasi industri, jasa pendukung industri, ekspor barang industri manufaktur dan utilisasi perjanjian perdagangan internasional, energi, dan pembiayaan ekspor serta pembangunan industri manufaktur secara umum.

Penulis dan kontributor buku ini merupakan bagian dari jejaring peneliti yang telah lama bekerja sama dengan ERIA dalam berbagai riset terutama yang terkait dengan kinerja dan pengembangan industri manufaktur di Indonesia. Beberapa dari penulis dan kontributor tersebut mewakili institusi yang telah mendalami beberapa isu penting di Indonesia, seperti Lembaga Penyelidikan Ekonomi dan Masyarakat Universitas Indonesia (LPEM FEB UI) dalam hal hubungan antara ekonomi makro dengan pertumbuhan industri, Asosiasi Pengusaha Indonesia (APINDO) Research Institute untuk diskusi terkait sumber daya manusia, dan Purnomo Yusgiantoro Center (PYC) yang memberikan gambaran tentang ketersediaan energi untuk pembangunan industri.

ERIA berharap bahwa buku ini menjadi salah satu referensi utama untuk topik bahasan industri manufaktur dan industrialisasi secara umum bagi berbagai kalangan, terutama akademia termasuk mahasiswa dan pengambil keputusan di lembaga publik atau pemerintah.

Akhir kata, merupakan sebuah kehormatan tersendiri bagi kami, sebagai lembaga independen internasional yang mendukung integrasi ekonomi di Asia Tenggara dan Asia Timur, untuk dapat mengambil bagian dalam diskusi publik dalam rangka mendukung pembangunan Indonesia, dan untuk hal tersebut kami menghaturkan penghargaan yang sebesar-besarnya kepada Kementerian Perencanaan Pembangunan Nasional/Badan Perencanaan Pembangunan Nasional Republik Indonesia dan kepada semua penulis dan kontributor buku ini.

Presiden Economic Research Institute for ASEAN and East Asia

Professor Hidetoshi Nishimura

Towards Seamless Trade Facilitation in ASEAN: Results from the ASEAN Seamless Trade Facilitation Indicators (ASTFI) Baseline Study - Y2021

Foreword

The growing importance of trade facilitation in international trade is manifested by the various initiatives and agreements undertaken all over the world. One of these significant milestones was the entry into force of the World Trade Organization – Trade Facilitation Agreement (WTO–TFA) in February 2017, which contains commitments from WTO Members in expediting the movement, release and clearance of goods, transit, including measures for effective cooperation between customs administration and relevant authorities on trade facilitation and customs compliance issues, including technical assistance provisions. Likewise, trade facilitation has been the focus of ASEAN towards the creation of Southeast and East Asia regional economic integration. It has been a continuous agenda in all ASEAN Economic Community (AEC) Blueprints including the one up to 2025 with an objective towards convergence in trade facilitation regimes amongst ASEAN Member States (AMS) and to move closer to the global best practice.

The ASEAN Economic Community 2025 Trade Facilitation Strategic Action Plan (SAP) outlines measurable targets to increase trade flows by facilitating the efficient movement of goods across borders. Translating the agenda into practical and measurable manner, the AMS agreed to achieve a short-term target of a 10 percent reduction in trade transactions cost by 2020 set by the ASEAN Economic Ministers in 2017. In achieving the target, the Philippines as the ASEAN Chair in 2017, proposed to measure trade facilitation in ASEAN using an ASEAN-specific set of indicators, which is designed to measure the extent to which trade is being facilitated in the region. The ASTFI aims to assist AMS in their efforts to design and implement trade facilitation policies, regulations, and procedures.

As a result, the ASEAN Trade Facilitation Joint Consultative Committee (ATF–JCC) invited the Economic Research Institute for ASEAN and East Asia (ERIA) to develop a set of the ASEAN-specific indicators, known as the 'ASEAN Seamless Trade Facilitation Indicators (ASTFI)', to conduct a baseline study using ASTFI, and to analyze indicators and the extent of trade transaction cost (TTC) in order to gain insights into necessary reforms to achieve the ten percent reduction targeted by the ministers.

This publication presents the first round of the ASTFI survey results that reflects the state of trade facilitation in all AMS in 2018 and provides the basis for the evaluation of the reduction of trade transaction cost by 2020. The second round ASTFI and the calculation of the TTC is currently being implemented and will be reported to the ASEAN and the public in the next few years.

This publication, Towards Seamless Trade Facilitation in ASEAN: Results of the ASEAN Seamless Trade Facilitation Indicators (ASTFI) Baseline Study, is the result of partnership and collaboration between ERIA, ATF—JCC, the ASEAN Secretariat and the trade-related government agencies in each of AMS. This project benefitted from the able leadership of the late Dr. Ponciano Intal Jr., Distinguished Senior Economist and Senior Policy Fellow of ERIA, who initiated this project. While it is yet to be completed as in providing a full picture of efforts of the AMS in achieving the objective of AEC Blueprint, we are confident that the indicators, along with narrative on key achievements and the remaining gaps, are useful for conversation amongst policymakers and other stakeholders to continuously

move towards the best global practice. The publication is also useful for sharing knowledge between the member states considering some ASEAN-uniqueness of trade, facilitation and the reforms of it, can only be learned from within.

ERIA looks forward to extending this fruitful partnership with ASEAN in a regional-wide collective effort to strengthen Southeast and East Asia economic integration.

Professor Hidetoshi Nishimura

2/2 Pishimuya

President, Economic Research Institute for ASEAN and East Asia

Preface

The Regional Comprehensive Economic Partnership (RCEP) became the largest free trade agreement in the world when it was signed in 2020. It comprises the 10 Member States of the Association of Southeast Asian Nations (ASEAN) (Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic (Lao PDR), Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam) and five other countries in the region (Australia, China, Japan, the Republic of Korea, and New Zealand). It encompasses a combined population of 2.2 billion people (30% of the world population), a total regional gross domestic product (GDP) of around \$38,813 billion (30% of global GDP in 2019), and nearly 28% of global trade. RCEP sets an important agenda by releasing huge resources for trade and investment, and creating dynamic regional and global value chain activities.

RCEP provides an important framework for global trade and regionalism, especially given the current context of uncertainty and inward-looking policies due to the coronavirus disease (COVID-19) pandemic. Moreover, RCEP will enhance digital connectivity as presented in ERIA's study, *The Comprehensive Asia Development Plan 3.0 (CADP 3.0)*, published this year, and accelerate the move towards a digital economy and society in the region. It provides an impetus for global trade and investment and supports open regionalism.

However, RCEP is not yet fully understood by many in terms of its features, commitments, likely impact, and how it differs from the other trade agreements. Moreover, RCEP introduced several new features not previously seen in other agreements, such as 'differential tariff concessions', co-sharing, single rules of origin, and a transition from positive to negative lists in services liberalisation. All these features are likely to create new dynamics in the implementation of the agreement and potentially create different impacts from those of previous agreements.

The Economic Research Institute for ASEAN and East Asia (ERIA) initiated a research project on RCEP in 2021, strongly motivated by the desire to raise the awareness of stakeholders of the potential value added and the complexity of some of the modalities used in the agreement. Our research reflects ERIA's strong commitment to supporting deeper ASEAN and East Asia regional integration. In fact, ERIA recommended the conclusion of the RCEP negotiations in the Mid-Term Review of the ASEAN Economic Community Blueprint 2015, which was submitted to the ASEAN Economic Ministers during Cambodia's ASEAN chairmanship in 2012. The Mid-Term Review found that stronger links with other East Asian economies are critical for robust economic growth in ASEAN, supporting the idea of RCEP.

ERIA's RCEP research project assesses various elements of the agreement and potential implications for economic integration in the region. It highlights the key features of the agreement and sets out to demonstrate how these could strengthen regional integration. The impact on businesses and behind-the-border issues, as well as the lack of domestic capacity of some RCEP member states, are also assessed. Adding another dimension is a discussion of how implementation of the agreement is entangled with the COVID-19 pandemic recovery.

This volume is the second of three books ERIA intends to publish. It sheds light on basic regional trade facts and the potential benefits arising from the member states' commitments to trade in goods, services, and investment, as well as cooperation between the member states on topics related to trade and sustainable growth. This book also compares the RCEP commitments with those of other major trade agreements being implemented by the RCEP member states.

ERIA is privileged to be part of this second-track process, as there is an urgent need on the part of stakeholders – including governments, but especially businesses and consumers – for guidance on how they can adjust or maximise the welfare impact arising from the implementation of the agreement. Most of the authors of this volume, in addition to our in-house economists, are experienced researchers and have been frequent participants in projects organised by ERIA. This book also serves as an important reference for researchers and students of international trade and related subjects.

Professor Hidetoshi Nishimura

5 Pishimu Ja

President, Economic Research Institute for ASEAN and East Asia

Foreword

In efforts to achieve global and regional economic integration, Non-Tariff Measures (NTMs) have become increasingly prominent, as most tariffs have been significantly reduced. The majority of these NTMs are imposed for reasons not primarily related to trade: for human, plant, and animal, health, and environmental protection. Given the increasing presence of NTMs, their complexity, and the fact that they are enacted by multiple agencies, the lack of transparency and approaches to measuring their impact on international trade is a major challenge.

Collaboration between ERIA and UNCTAD to develop an NTM database is based on ERIA's vision of deepening regional integration and UNCTAD's goal of supporting countries in fairly reaping the benefits of integrated economies. At first, NTM data for ASEAN countries in 2014 were successfully collected. Upon request, by member States to support the negotiations of the Regional Comprehensive Economic Partnership (RCEP), the NTM data for Australia, China, India, Japan, Republic of Korea, and New Zealand were then mapped. The database helped navigate the current NTMs regimes in the RCEP members. The data for India are still relevant because the ASEAN-India Free Trade Area (AIFTA) is in force. The databases for all 16 countries are publicly available on the Trade Analysis Information System (TRAINS) website of ERIA and UNCTAD, Nontariff measures (NTMs) | UNCTAD.

ERIA and UNCTAD have collaborated on numerous initiatives to promote the importance of understanding NTMs and addressing their challenges. ERIA and UNCTAD have provided capacity building to the 16 countries officials and academic for the collection, classification, and analysis of NTMs, and the NTM databases have been handed over to them for regular updating. This ensures transparency and provides the 16 countries with key input to the National Trade Repository. The NTM database helps researchers, policymakers, and businesses to get insight from the NTMs data for better informed policy and business decisions. ERIA and UNCTAD will continue to work with governments, academic, and businesses on impactful NTM-related programs to facilitate recovery in these challenging times.

Hidetoshi Nishimura Isabelle Durant

President Economic Research Institute for ASEAN and East Asia (ERIA)

Pishimuja

Deputy Secretary-General United Nations Conference on Trade and Development (UNCTAD)

Preface

Many countries are still struggling with the coronavirus disease (COVID-19) pandemic, which has brought various negative impacts upon the Association of Southeast Asian Nations (ASEAN) and East Asia economy, including trade disruptions; a decline in foreign direct investment; and scarring effects on poverty, education, and women. Alongside these, the pandemic has also revealed some positive aspects. International production networks in the East Asia region have been resilient to the pandemic, with *Factory Asia* continuing to produce and export throughout the pandemic, in contrast to other major production network regions such as North America and Europe. Furthermore, COVID-19 has accelerated the uptake of digitalisation, especially in the field of information and communication technology (ICT). This increasing deployment of ICT has created a positive impact on economic growth. Moving forward to the post-COVID-19 phase, maintaining the competitiveness of international production networks and leveraging the increased momentum of digitalisation are the keys to the region's development.

Based on that understanding, in 2022, the Economic Research Institute for ASEAN and East Asia (ERIA) has compiled the Comprehensive Asia Development Plan (CADP) 3.0, which is a key deliverable for the ASEAN and East Asia Summit. Nearly 7 years have passed since the previous plan, CADP 2.0, was published in 2015. While the basic concept of the CADP still applies — enhancing connectivity within the region — CADP 3.0 explicitly considers the above-mentioned urgent challenges and discusses economic development and social problem-solving in the region from the comprehensive perspectives of integration, innovation, inclusiveness, and sustainability. CADP 3.0 has 18 original chapters, discussing various topics related to the above four perspectives and digitalisation.

For the readers of the book, I have three points to emphasise. First, ASEAN and East Asia are at a historical turning point where industrial and economic structures are undergoing major changes, such as the rapid progress of digitalisation, the integration of manufacturing and services, and the promotion of a circular economy. COVID-19 has expedited the deployment of digital technologies in our daily activities. The integration of manufacturing and services is transforming the industrial structure (e.g. from manufacturing gasoline automobiles to providing Mobility as a Service (MaaS) that uses electric vehicles and autonomous driving). The principle of the circular economy will require turning current supply chains that span multiple countries into circular ones in which everything – from product planning and design to parts, assembly, and consumption – is unified under the common concept of recycling.

Second, it is urgent to create a completely digital society by building a digital single market in which all businesses, governments, and public institutions in the region use common data – aiming for a fully digitalised supply chain. To do so, it is essential to build a common ASEAN and East Asia data infrastructure (platform) and realise a society in which everything is connected through mutual compatibility (interoperability) of systems amongst ASEAN and East Asia countries. Of course, it is also necessary to promote unified cybersecurity measures within the region that support the digital society at the same time.

Third, more practical policy planning will be required when moving to the concrete implementation phase in the near future. In doing so, it is essential to widely reflect the voices of private businesses, which are key players in realising a fully digitalised circular economy.

I hope that, based on the directions outlined in CADP 3.0, more ambitious and realistic policies will be formed, new social and economic foundations will be constructed, and a completely digitalised society will be achieved, and that ASEAN and East Asia will continue to lead the global economy.

2/2 Pishimu Ja

Professor Hidetoshi Nishimura

President, Economic Research Institute for ASEAN and East Asia

Foreword

The ongoing coronavirus disease (COVID-19) pandemic and economic recovery efforts have forced the world to face the need for a new framework for achieving better economic conditions. Economic recovery amidst global uncertainty and limited liquidity raises the need for G20 collaboration to create a new normal situation.

Economic Research Institute for ASEAN and East Asia (ERIA) and the International Economic Association (IEA) have the honour to respond to the request of the Government of Indonesia to support its G20 Presidency in 2022. Together with the Government of Indonesia and respected academics from the G20 countries, the G20 expert team examines the global economic situation and the priority issues of the G20 Presidency of Indonesia. The report focuses on three main areas for the G20 sherpa and finance tracks: (i) economic recovery, (ii) digital transformation, and (iii) inclusive growth and sustainable development.

We believe this report will provide insights that will contribute to the success of Indonesia's G20 Presidency and improvement of the world economy. ERIA and IEA are committed to supporting the success of Indonesia's G20 Presidency and will continue their support to the upcoming G20 in the future.

Hidetoshi Nishimura

Dani Rodrik

President

Economic Research Institute for ASEAN and

East Asia (ERIA)

President International Economic Association (IEA)

Preface

The Regional Comprehensive Economic Partnership (RCEP) became the largest free trade agreement in the world when it was signed in 2020. It comprises the 10 members of ASEAN (Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam) and five other countries in the region – Australia, China, Japan, the Republic of Korea, and New Zealand. It encompasses a combined population of 2.2 billion people (30% of the world population), a total regional gross domestic product (GDP) of around \$38,813 billion (30% of global GDP in 2019), and nearly 28% of global trade.

RCEP sets an important agenda by releasing huge resources for trade and investment, and creating dynamic regional and global value-chain activities. It is a critically important framework for global trade and regionalism, especially given the current context of uncertainty and inward-looking policies due to the coronavirus disease (COVID-19) pandemic. It provides an impetus for global trade and investment and supports open regionalism.

RCEP, however, is not yet fully understood by many in terms of its features, commitments, likely impact, and how it differs from the other trade agreements. Moreover, RCEP introduced several new features not previously seen in other agreements, such as 'differential tariff concessions', co-sharing, single rules of origin, and transition from positive to negative list in services liberalisation. All of these are likely to create new dynamics in the implementation of the agreement and potentially create impacts different from those of other previously signed agreements.

Last year ERIA initiated another round of research on RCEP, strongly motivated by seeking to raise the awareness of stakeholders of the potential value added and the complexity of some modalities used by the agreement. Our research is a reflection of ERIA's strong commitment to supporting deeper ASEAN and East Asia regional integration. In fact, we are proud to mention that ERIA recommended the conclusion of RCEP negotiation as one of its recommendations in the Mid-Term Review (MTR) of AEC Blueprint 2015, which was submitted to the ASEAN Economic Ministers (AEM) during Cambodia's ASEAN Chairmanship in 2012. The MTR found that stronger links with the other East Asian economies are critical for robust economic growth in ASEAN, supporting the idea of RCEP.

ERIA's research this time assesses various elements of the agreement and potential implications for economic integration in the region. It highlights the key features of the agreement and sets out to demonstrate how these could strengthen regional integration. The impact on businesses, behind-the-border issues, and lack of domestic capacity of some RCEP members are also assessed. Adding another dimension is some discussion of how implementation of the agreement is entangled with the COVID-19 pandemic recovery.

This book is the first of three books ERIA intends to publish. This volume is provided to quickly disseminate some of the key findings of our research. ERIA is privileged to be part of this second-track process as there is an urgent need from the stakeholders, including government, and especially businesses and consumers, for guidance on how they can adjust or maximise the welfare impact arising from the implementation of the agreement. Most of the authors of this volume, in addition to our in-house economists, are experienced researchers and have been frequent participants in projects organised by ERIA. This book also serves as an important reference for researchers and students of international trade and related subjects.

ERIA looks forward to extending its fruitful partnership with the members of the East Asia Summit in a region-wide and people-oriented collective effort to strengthen Southeast Asian and East Asian economic integration. I would like to thank all contributors and I look forward to further collaboration.

Professor Hidetoshi Nishimura

President, Economic Research Institute for ASEAN and East Asia

FOREWORD

The world has witnessed various technological advances that have revolutionised production methods, business organisation, and the way people work and live. Countries both in the North and the South are facing opportunities and challenges from a new wave of a technological revolution driven by progress in information and communication technology, complemented by new sources of energy and new types of materials. New technologies and high-tech-enabled business models have huge implications for development – both economically and socially.

Globally, the development of the digital economy has been integral to the achievement of the United Nations Sustainable Development Goals. The ASEAN Economic Community Blueprint 2025 (AEC 2025) highlights the importance of incorporating economic digitalisation in regional development. Digital integration is also important in contributing to the success of the AEC 2025 Consolidated Strategic Action Plan. Broadly speaking, digital transformation will help the region achieve the five objectives defined in the ASEAN Socio-Cultural Community Blueprint 2025: (i) human development, (ii) social welfare and protection, (iii) social justice and rights, (iv) ensuring environmental sustainability, and (v) building ASEAN identity.

Countries in the Association of Southeast Asian Nations (ASEAN) and East Asia have made remarkable progress in economic development. Whether the region can continue its rapid growth will to a great extent depend on how well it manages the digital transformation. An in-depth understanding of regional and national advantages and disadvantages, when faced with challenges from digitalisation, will help smooth the digital transformation and unleash Asia's development potential in the digital era. In this context, the Economic Research Institute for ASEAN and East Asia (ERIA) has undertaken a series of policy-oriented research projects on the digital economy.

The current volume, Accelerating Digital Transformation in Indonesia – prepared by Lurong Chen, Kalamullah Ramli, Fithra Faisal Hastiadi, and Muhammad Suryanegara – provides policy recommendations, from a country perspective, on how to accelerate the pace of digital transformation with a balance between efficiency and inclusiveness, and in the long term, how to synchronise the interaction amongst digitalisation, competition, innovation, and human development in Asian development.

Hidetoshi Nishimura

Pishimu Ja

President

Economic Research Institute for ASEAN and East Asia (ERIA)

Energy



Foreword

Energy security and climate change are very important issues in the world. At the 2nd East Asia Summit (EAS) held in Cebu, Philippines in January 2007, the leaders of the region declared that East Asia could mitigate these problems by strong leadership on several countermeasures. These include: a) promotion of energy conservation, b) utilisation of bio-fuels, and c) cleaner use of coal.

Two groups were designated to assist in implementing the countermeasures mentioned above: the Energy Cooperation Task Force (ECTF) and the Economic Research Institute for ASEAN and East Asia (ERIA). ECTF is responsible for supporting the efforts of the EAS and its Energy Ministers Meeting (EMM) to promote cooperation on policies in implementing these countermeasures. ERIA is responsible for studying the potential impacts of the countermeasures. ERIA is focusing on energy studies in two areas: first, promotion of energy conservation, and second, utilisation of bio-fuels.

This report was prepared by the Working Group for the Analysis of Energy Saving Potential in East Asia under the ERIA Energy Project. The report covers all research activities of the Working Group from August 2013 to May 2014, including methodology, estimated impacts of current energy saving goals, and policy recommendations to the ECTF. This report extends and enhances the analysis of the working group undertaken annually from 2007 to 2012.

The structure of this report is still similar to the previous versions in view of the application of similar methodology but it should be noted that one of the important accomplishments of this research study is the development of energy efficiency targets for the countries that did not have targets when this project started in 2007. It could be said that these countries started taking energy efficiency as an important energy policy as a result of this study.

This report hopefully contributes to mitigating problems related to energy security and climate change through increasing understanding of the potential for energy saving of a range of energy efficiency goals, action plans and policies. A number of key insights for policy development are also discussed.

Prof. Hidetoshi Nishimura Executive Director ERIA September 2014

FOREWORD

In East Asian countries where electricity demand is rapidly increasing, there is a necessity for planting up more generating capacities to meet the growing demand. At the same time, cheaper electricity will be required when considering the impact on the general public and economy, and the needs for cleaner electricity will become stronger when considering impact on pollution and climate issue.

On the other hand, in East Asian countries, (potential) resources like coal, natural gas and river to fuel power plants remain underdeveloped. If this region can utilise these resources, it might be possible to supply sufficient amount of electricity at cheaper price. Furthermore, energy security is enhanced through reducing regional import dependency of energy supply. One possible option to maximise the use of undeveloped resources in the region is international/regional grid interconnection. The region can optimise power supply mix through cross-border power transaction.

Against this backdrop, ERIA organised a working group to carry out a study which aims to analyse a possible optimum power generation mix of the region, and to provide policy recommendations for the improvement of that situation. Experts from EAS countries were gathered to discuss their existing power development plans and possibility for regional optimisation. The result of their work is this volume titled *Investing in Power Grid Interconnection in East Asia*.

It is our hope that the outcome from this work will serve as a reference for policymakers in East Asian countries and contribute to the improvement of energy security in the region as a whole.

> Prof. Hidetoshi Nishimura ERIA Executive Director September 2014

Foreword

The concept of a low-carbon city or eco town to curb the increasing energy demand and to mitigate emissions of greenhouse gases is gaining popularity among the countries of the Association of Southeast Asian Nations (ASEAN). This is because both increasing energy demand and carbon dioxide emissions could threaten the sustainability of future energy supply and could impact the environment, health, and tourism – thus, the quality of life – of these countries. Towards energy saving and green environment, the eco town concept is considered as an ideal solution. This study then focuses on introducing current and future energy efficiency technologies on buildings and road transport as well as smart grid technologies to be applied to a future town in Temburong District in Brunei Darussalam, or to any other city in ASEAN.

The Ministry of Development of Brunei Darussalam plans to design the Temburong District as a world-class and green city. The framework for the development of Temburong District, developed by the Town and Country Planning Department, highlights a new bridge, a new university, commercial and industrial centres, housing, schools, flood prevention projects, and public facilities. Thus, the need for sustainable urban development is highly crucial to secure Temburong District's reputation as the 'Green Jewel of Brunei'. Protecting the area's abundant natural resources is key, and providing facilities to attract tourists will contribute to economic growth.

The ongoing construction of Temburong Bridge, which will link Temburong District to the rest of the country, is scheduled to be completed by the end of 2019. With this, the government expects a boost in tourist arrivals in the district, necessitating the eco town concept to be applied to facilitate the influx of tourists as well as to preserve the ecosystem of the national park. Temburong District in Brunei Darussalam could become the world's best example of an eco town, boasting the best facilities to host world-class summits, meetings, and conferences, while enjoying the rich nature of the district.

The Economic Research Institute for ASEAN and East Asia (ERIA) is committed to support the future development and study of Temburong District in Brunei. In 2017, ERIA and the Brunei National Energy Research Institute (BNERI) will look closely at the climate data of Temburong District and conduct a simulation model to optimise the size of renewable electricity sources, such as solar/photovoltaic (PV), wind, biomass, and backup power generation facilities. Based on the renewable electricity plan, ERIA and BNERI will also come up with a smart city development design in Temburong in the next stage.

I hope that this study will benefit Brunei. I further hope that the eco town concept could be replicated in other countries in the region, tailor-made to meet their respective economic, social, and environmental capabilities.

2/2 Pischimu Ja

Hidetoshi Nishimura

President

Economic Research Institute for ASEAN and East Asia

Foreword

Myanmar is endowed with rich natural resources in quantities that, if fully developed, would be sufficient to meet most of the country's daily energy needs. Myanmar's energy policy is generally aimed at ensuring energy independence by increasing national production of available primary energy resources through intensive exploration and development activities. Myanmar also acknowledges electricity as the main power source driving economic development and it addresses the need to generate and distribute more power in terms of greater volumes, density, and reliability. Myanmar's natural gas will play a very important role in Myanmar's future. Although Myanmar has been a major producer of natural gas in Asia, the country has not fully utilised natural gas for its own uses. As energy demand is expected to increase significantly in the future, Myanmar will need to have a clear policy direction towards its resource uses, including the natural gas development for both import and export. However, natural gas is expected to have a larger share of the primary energy mix, just after oil, by 2040.

Thus, Myanmar's natural gas will play a greater role in providing energy security as the country will be exposed to increasing energy demand in all sectors particularly gas consumption in the power sector and industries. Myanmar's oil and gas sector faces several challenges that will have to be overcome to ensure its sustainability. Domestic gas will need to be managed effectively to secure a stable supply to businesses and end-use consumers.

The Natural Gas Master Plan is designed to be the country's long-term plan as it should ensure sustainable energy sector development and conserving the environment sustainably. It also necessitates adopting national strategies for a sustainable and reliable energy supply, ultimately complementing the United Nation's Sustainable Development Goals of 2015. Natural gas has become the preferred fuel in Myanmar in terms of available reserves, environmentally friendly electricity generation, as well as the development of industry. Thus, the natural gas demand cannot be realised without infrastructure development. That is why the Natural Gas Master Plan places such high importance on energy infrastructure development such as investment in and development of the upstream sector, the pipeline sector, the LNG sector, and city gas as well.

The Natural Gas Master Plan provides us with a clearer view of the most likely future energy landscape including key trends that are likely to shape Myanmar's energy mix over the next 20 years. Natural gas will serve as a backbone for fueling economic growth as we look to the decades ahead.

The Ministry of Electricity and Energy of Union of Myanmar (MOEE) and the Economic Research Institute for ASEAN and East Asia (ERIA) have carried out this valuable study, which will serve Myanmar's energy security interests by utilising natural gas development for sustainable economic growth.

The MOEE and ERIA look forward to further fruitful cooperation on energy policy support for Myanmar, so the country can use its resources to steer economic growth in a sustainable way.

U Win Khaing Union Minister Ministry of Electricity and

Ministry of Electricity and Energy

December, 2018

Hidetoshi Nishimura

President, Economic Research Institute for ASEAN and East Asia

December, 2018

Energy is a common thread that connects multiple areas of sustainable development for countries and sub-regions in Asia. For the seven states of the North Eastern Region (NER) of India, energy connectivity with neighbouring countries assumes a critical importance. Ready access to affordable energy is essential for both economic and social development. NER has states, such as Assam and Tripura, which are rich in petroleum resources. Arunachal Pradesh has substantial hydro-power potential. Meghalaya has coal and uranium resources, while Mizoram has rich biomass. Sikkim and other North Eastern states also have hydro-potential. Assam, Nagaland, and Arunachal Pradesh have rich solar potential.

While there is a consensus amongst the states in the region on the need to fully harness abundant renewable energy potential, they also have the option of serving as a conduit for energy transmission amongst the neighboring countries of Bangladesh, Bhutan, Myanmar, and Nepal, and supply the surplus clean energy to the national power grids of India, thus helping to meet its Paris Climate Agreement targets on carbon emissions, if and when connectivity is established. There are multiple benefits in integrating NER energy markets with neighbouring countries, for which each state must calibrate its prospects and challenges. In view of this, the Indian government has been strengthening its Act East Policy that focuses on economic integration, including energy trade with the Association of Southeast Asian Nations (ASEAN). Mobilising knowledge, technology, and investment are essential parts of this strategy.

In response to this and to add to the existing knowledge base and catalyse actions, the Confederation of Indian Industries (CII) requested the Economic Research Institute for ASEAN and East Asia (ERIA) to develop a theme study entitled 'Integrating NER India with Neighbouring Countries through Cross-Border Energy Trade'. This publication takes stock of the prospects and challenges of making that energy integration.

It quantifies the potentials of the benefits and identifies some of the strategies for the region's policymakers to consider that balance the economic, social, and environmental dimensions of cross-border energy trade and provides a series of recommendations to enact a regional cooperation framework for the NER states. It is hoped that this theme study will provide a practical contribution to the deliberations of policymakers and the business community.

Hidetoshi Nishimura

26 Pishimu Ja

East Asian economies have experienced sustained concerns on the security of energy supply, especially regarding the reliance on the imports of oil and natural gas. Such is also true with ASEAN countries. The new era of renewable energy, in particular solar and wind, has the potential to relieve such concerns, since these can be harvested indigenously. However, the intermittency of these sources poses substantial challenges to the existing energy infrastructure, especially the power grid.

Hydrogen is a new energy pathway that complements the deep penetration of intermittently active renewables by providing unlimited storage potential, but it also presents itself as a zero-emissions energy source.

Importantly, as related technologies make continuous progress, together with substantial decreases in costs, hydrogen will approach commercial competitiveness to conventional energy systems. Information regarding the potential of cost reductions along the hydrogen supply chain by 2040 can be found in this report.

For the reasons above, policy makers in many countries will start giving more attention to hydrogen, keeping in mind its potential to support a new generation of energy infrastructure that could be truly zero-emission.

This timely study consists of comprehensive analyses of the hydrogen supply chain in the Asian context, highlighting its potential based on each country's energy resources, the forecasted demand and scale of production, and trading of hydrogen for energy use in each country, as well as the resulting costs and carbon emissions.

From its early stage of market development, EAS-region demand for hydrogen for energy use is estimated to reach up to 104.7 Mtoe per year by 2040. Such demand will be contributed by the power generation sector, the industry sector, and the transport sector, which uses hydrogen to replace the use of fossil fuels.

The hydrogen initiatives led by Australia, Japan, Republic of Korea, and New Zealand coincide with ASEAN's announced ambition to achieve 23% renewable energy integration into its energy system by 2025, with even more by 2030. It is thus hoped that ASEAN countries will join the global development of supply chains for hydrogen production and consumption. Some ASEAN countries have the prospects to become a prosumer of zero-emission hydrogen energy, while others to become net exporters of it.

Hidetoshi Nishimura President of ERIA Jakarta, April 2019

2/5 Pishimu Ja

Foreword

Promoting the use of biomass in power generation is one option for Thailand to respond to the need to accelerate its share of renewable energy and to meet the growing energy demand in an affordable and sustainable manner. This is due to its potential supply, especially in its northern and southern provinces. Improving the biomass supply chain could also provide many opportunities for local people to engage in the activities, and thus increase their earnings and improve their well-being.

In this regard, the Ministry of Energy of Thailand requested the Economic Research Institute for ASEAN and East Asia (ERIA) to conduct a study on the biomass supply chain for power generation in southern Thailand. Acknowledging the country's need to respond to growing electricity demand in its southern provinces, ERIA deployed a professional team from its Jakarta headquarters to work with Thai experts comprising university professors and professional staff from its Ministry of Energy. Scoping the biomass supply chain and its supply potential is the first step to understand if expansion for new capacity of biomass power generation is viable or not. The expert team also analysed the levelized cost of energy to check the competitiveness of biomass power generation. The results suggest that expansion of biomass power generation in the southern provinces, supported by the government's policy on feed-in tariff, is very attractive for investment in biomass power generation. Thus, the study suggests that stable supply and competitive biomass price needs to be ensured through the improvement of the supply chain. The study also suggests that the current feed-in tariff policy is encouraged as it will attract more investments in the biomass power generation in Thailand's southern provinces.

Most importantly, the government, through its specialised agencies, should send a clear message to investors regarding the government's support to biomass power generation. The bureaucratic burden borne out by the administrative process, which could ultimately add cost to the investment, should also be minimised.

May I then take this opportunity extend my sincere appreciation to all those who supported and contributed to this study.

Professor Hidetoshi Nishimura

President

Economic Research Institute for ASEAN and East Asia

Rishimuja

Foreword

ASEAN's process of economic integration is geographically multi-layered and, therefore, sub-regional initiatives are particularly effective to address development gaps, enhance connectivity, and promote international coordination. The Mekong subregion (MSR), with its strategic location, economic dynamism, and abundant water resources, is the centre of many mega-connectivity initiatives compared with the Indonesia–Malaysia–Thailand Growth Triangle and the Brunei Darussalam–Indonesia–Malaysia–Philippines East ASEAN Growth Area. Successful advocacy of Mekong issues will strengthen ASEAN unity and ASEAN's adaptive capability in a changing global and regional environment.

For the past decade, MSR countries have achieved significant socio-economic progress, enjoying high economic growth and remarkable reductions in poverty. Yet, the development gap between the MSR and other ASEAN countries remains sizable. In addition, the MSR is starting to face a series of serious immediate backlashes particularly in energy, water resources management, and the environment. Without robust and effective policy dialogues and coordinated measures, the MSR as a whole may not induce sustainable and harmonious development, which may in turn impede ASEAN's efforts for deeper economic integration and inclusive growth. The MSR therefore needs to search for a new development strategy to ensure that regional and individual economic and social transformations contribute more to inclusive and sustainable development.

This report highlights the importance of MSR development for ASEAN integration and prosperity. It diagnoses the current status of development and cooperation in MSR and proposes a framework for inclusive and sustainable growth. The policy recommendations are structured around four key areas: (i) connectivity, including both digital connectivity and physical connectivity; (ii) industrialisation, which covers industrial upgrading and micro, small, and medium-sized enterprises; (iii) human welfare, including health services and human resource development; and (iv) sustainability — energy, water resources management and the environment. The successful implementation of these four pillars requires strong commitment at the national, subregional, and regional levels.

The report is written at a critical time when the world is facing unprecedented challenges – rising trade conflicts and the return to protectionism, technological advances and job displacement, disruption in the global value chain, and the threat of poverty and increasing inequality due to the COVID-19 pandemic and climate change, amongst others. The new development strategy, therefore, must be able to address these challenges. I believe that this report will provide valuable insights into the obstacles the MSR countries are experiencing and how to overcome them in the new context.

Professor Hidetoshi Nishimura

4. Pischimu Ja

President of ERIA

Brunei Darussalam has been consuming gasoline and diesel oil for road transport activities due to the increase of personal cars and natural gas for power generation following the rapid increase of electricity demand. In addition, a new refinery, which started its operation at the end of 2019, consumes imported coal for auto generation in the refinery site. According to the country's energy outlook produced by the Ministry of Energy, the total primary energy supply (TPES), mainly from fossil fuels, will increase significantly at 4.3% per year until 2040 at 5.6% of gross domestic product growth. In parallel, CO₂ emissions will increase at 3.6% annually until 2040.

Whilst variable renewable energy (vRE), such as solar/photovoltaic, is one of the options for Brunei, it will not be a sustainable solution due to its intermittency and lower capacity factor (maximum 15%), the need for a huge land area, and its higher generation cost compared to existing power plants. If the country will shift from internal combustion engine to battery electricity vehicle, it will need additional electricity demand, and power generation to consume natural gas will increase because of insufficient electricity generation by vRE.

Currently hydrogen is highlighted globally. Some East Asia Summit (or ASEAN 10 + 8 countries – Australia, China, India, Japan, Republic of Korea, New Zealand, Russian Federation, and the United States) have formulated their hydrogen strategic plans for future available technology and carbon-free energy. Brunei Darussalam, being a natural gas—rich country has opened a hydrogen demonstration plant in western Brunei Darussalam with the support of Japan. It means that Brunei Darussalam will be a hydrogen production country and will use some portion of the hydrogen to be produced domestically for its internal use, such as road transport sector and power generation. If this could be achieved in the future, gasoline and diesel consumption, as well as natural gas use for power generation, will drastically reduce. The country could also be carbon neutral if it could use hydrogen. But a still-large issue is the much-higher hydrogen supply cost compared to gasoline and natural gas prices.

With these backgrounds, this study forecasts the hydrogen demand potential in Brunei Darussalam by applying the econometrics approach and the hydrogen production potential, especially from natural gas, through technical investigation. In addition, this study touches upon hydrogen supply costs in Brunei Darussalam.

The results of this study are expected to contribute to the wider use of hydrogen not only in Brunei Darussalam but also in the East Asia Summit region.

Professor Hidetoshi Nishimura

President, Economic Research Institute for ASEAN and East Asia.

Foreword

Brunei Darussalam is rich in energy resources such as oil and gas, but its total final energy consumption significantly increased by 3.4% per annum in 1990–2015, while gross domestic product (GDP) grew by 2.9% in the same period. Total final energy consumption will grow by 7.4% per annum in 2015–2040, with GDP growth rate assumed at 5.6% (Kimura and Phoumin, 2019). Energy elasticity to GDP was and will be more than 1. Brunei Darussalam, therefore, needs to promote energy efficiency and conservation (EEC) in residential and commercial activities, whose demand for electricity will continue to grow more than demand for gasoline and diesel oil as transport fuel. To set up appropriate energy efficiency policies for the residential and commercial sectors, however, policy makers must know their current energy consumption situation and level. The Economic Research Institute for ASEAN and East Asia (ERIA) supported the Ministry of Energy in conducting the Brunei Darussalam Household Energy Consumption Survey (BDHECS) in 2015 and the Commercial Buildings — Brunei Darussalam Energy Consumption Survey (C-BDECS) in 2018, in collaboration with the Brunei National Energy Research Institute (BNERI).

The ministry implemented both surveys through BNERI. ERIA provided technical support for the (i) design of the survey questionnaires, (ii) content of the questionnaire manual, (iii) training for enumerators (university students), (iv) validation check of the sampled data, (v) use of database, and (vi) analysis of the sampled data (how to produce key tables and figures).

The BDHECS results suggest that high-energy performance standards should be promoted and that a labelling system should be applied to appliances that use a significant amount of energy, such as air conditioners, refrigerators, lighting, and water heaters. The C-BDECS results suggest that applying building energy intensity labelling will be crucial.

Brunei Darussalam must implement EEC policies and action plans for households and commercial buildings to mitigate their increasing electricity consumption. ERIA would like to support the promotion of EEC continuously through policy-oriented energy research studies.

Professor Hidetoshi Nishimura

2/2 Pichimu Va

President, ERIA

The ASEAN and East Asia grouping faces tremendous challenges when it comes to the future energy landscape and in trying to determine how the energy transition will embrace new architectures including sound policy and technologies to ensure energy access with affordability, energy security, and energy sustainability. The economy of the East Asia Summit (EAS) countries has been hit by the coronavirus (COVID-19) pandemic, but energy demand growth is expected to bounce back strongly as the economy recovers after 2021. Thus, all decisions and energy policy measures will need to be weighed against potentially higher energy costs, affordability, and energy security risks for the post-Covid-19 era. ERIA will release its short-term energy outlook for EAS17 taking account of the impact of the pandemic in a separate report.

ERIA continuously updated the long-term energy outlooks (up to 2050) of the EAS17 countries in 2019–2020, based on national energy data and both existing and aggressive energy policies, in other word targets of energy efficiency and conservation (EEC) and renewable energy (RE). This report, produced to reflect the updated energy outlook results, was prepared by the Working Group for Analysis of Energy Saving Potential in East Asia under the ERIA Energy Project. It covers all research activities of the Working Group from August 2019 to May 2020, including methodology, estimated impacts of current energy saving goals, and policy recommendations to the EAS/ECTF.

It is highlighted that although EAS17 counties will rely on fossil fuels until 2050, the energy mix composition will change to more renewables and clean fuels. According to the previous EAS energy outlook, coal was dominant, followed by gas in terms of power generation. But this latest outlook shows a declining trend of coal due to a rapid increase of gas and Variable Renewable Energy (VRE) following of policy changes in EAS 17 countries.

To achieve sustainable energy development in EAS17, the clean use of fossil fuel through deployment of clean technologies is indispensable for decarbonising emissions. In addition, use of renewables, increasing energy efficiency, and use of new energy technologies such as CCUS/carbon recycling and hydrogen should be accelerated along with the adoption of clean technologies in the medium to long term in the EAS17's future energy system. Investment in energy efficiency will also help to avoid the building of more power plants.

We hope this report will contribute to mitigating the problems related to energy security and climate change by increasing understanding of the potential for energy saving of a range of energy efficiency goals, action plans, and policies. Several key insights for policy development are also discussed in the report. ERIA will include commercially available energy technologies in future such as CCUS and hydrogen into the next EAS energy outlook modelling.

Professor Hidetoshi Nishimura President of ERIA

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Foreword

ASEAN's process of economic integration is geographically multi-layered and, therefore, sub-regional initiatives are particularly effective to address development gaps, enhance connectivity, and promote international coordination. The Mekong subregion (MSR), with its strategic location, economic dynamism, and abundant water resources, is the centre of many mega-connectivity initiatives compared with the Indonesia–Malaysia–Thailand Growth Triangle and the Brunei Darussalam–Indonesia–Malaysia–Philippines East ASEAN Growth Area. Successful advocacy of Mekong issues will strengthen ASEAN unity and ASEAN's adaptive capability in a changing global and regional environment.

For the past decade, MSR countries have achieved significant socio-economic progress, enjoying high economic growth and remarkable reductions in poverty. Yet, the development gap between the MSR and other ASEAN countries remains sizable. In addition, the MSR is starting to face a series of serious immediate backlashes particularly in energy, water resources management, and the environment. Without robust and effective policy dialogues and coordinated measures, the MSR as a whole may not induce sustainable and harmonious development, which may in turn impede ASEAN's efforts for deeper economic integration and inclusive growth. The MSR therefore needs to search for a new development strategy to ensure that regional and individual economic and social transformations contribute more to inclusive and sustainable development.

This report highlights the importance of MSR development for ASEAN integration and prosperity. It diagnoses the current status of development and cooperation in MSR and proposes a framework for inclusive and sustainable growth. The policy recommendations are structured around four key areas: (i) connectivity, including both digital connectivity and physical connectivity; (ii) industrialisation, which covers industrial upgrading and micro, small, and medium-sized enterprises; (iii) human welfare, including health services and human resource development; and (iv) sustainability — energy, water resources management and the environment. The successful implementation of these four pillars requires strong commitment at the national, subregional, and regional levels.

The report is written at a critical time when the world is facing unprecedented challenges — rising trade conflicts and the return to protectionism, technological advances and job displacement, disruption in the global value chain, and the threat of poverty and increasing inequality due to the COVID-19 pandemic and climate change, amongst others. The new development strategy, therefore, must be able to address these challenges. I believe that this report will provide valuable insights into the obstacles the MSR countries are experiencing and how to overcome them in the new context.

Professor Hidetoshi Nishimura

2/2 Pishimu Ja

President of ERIA

A Study on the Impact of Financing Restrictions on New Coal-Fired Power Plants in the Asian Region - Y2021

Foreword

Recent years have seen lively discussions, mainly in Europe, on restricting fossil fuelrelated assistance to developing countries against a backdrop of growing climate change concerns. In response to calls for environmental, social, and governance investment, private companies are also increasingly holding back and withdrawing from coal-fired power projects.

This study evaluates the impact of investment and financing restrictions on new coal-fired power plants in seven Asian countries. It quantitatively shows the economic impact and shares the results with stakeholders in each country.

The seven East Asia Summit (EAS) countries in this study – India, Indonesia, Malaysia, Myanmar, the Philippines, Thailand, and Viet Nam – rely on coal to a different but significant extent in their power mix. Without coal power, these seven countries would risk power supply stability, see a huge increase in gas demand that the world liquefied natural gas (LNG) system could not absorb, and find their CO2 emissions still rising.

Coal divestment is not the only way to control CO2 emissions. Clean fuels and other low-carbon technologies and decarbonisation measures such as energy efficiency, renewables, carbon capture, utilisation, and storage (CCUS), ammonia, and hydrogen should be strongly promoted, and financing high-efficiency ultra-supercritical (USC) coal power plants and clean coal technologies like integrated coal gasification combined cycle (IGCC) should still continue.

I hope this report will encourage ASEAN Member States to pursue a rational balance of economic efficiency, energy access, energy security, and protecting the environment in their respective energy policies.

Hidetoshi Nishimura

2/ Pishimu Ja

President

Study on the Potential for the Promotion of Carbon Dioxide Capture, Utilisation, and Storage in ASEAN Countries - Y2021

Preface

The total primary energy supply of the Association of Southeast Asian Nations (ASEAN) will increase by 2.8 times from 2017 to 2050, and its share of fossil fuels in 2050 will be just less than 90% in the business-as-usual case and 80% in the Alternative Policy Scenario (APS) case, which will include ambitious targets for promoting energy efficiency and conservation (EEC) activities and the deployment of variable renewable energy (VRE), such as solar photovoltaics. The main use of coal and gas will be as fuels for power generation, and the share of power generation for both will be 80% for the BAU and 70% for the APS. On the other hand, oil is and will be consumed mainly for road transport activities, such as vehicles. Consequently, carbon dioxide (CO2) emissions will increase by 3.2 times (1.2 billion tonnes of carbon in 2050) from 2017 to 2050 under the BAU. If ASEAN can achieve EEC and VRE aggressively, CO2 emissions will decrease to 0.9 billion tonnes of carbon in 2050 and this could be significant (a 28% reduction) but will not be sustainable compared to the current levels (0.4 billion tonnes of carbon in 2017). Many of the ASEAN Member States will need to accomplish higher economic growth in order to catch up with developed countries, and, thus, they will surely need electricity to accelerate their economic growth. Considering these matters, one of the solutions for ASEAN will be the application of carbon capture, utilisation, and storage (CCUS).

ASEAN will continue to consume coal and gas for its power generation but will be able to reduce CO₂ emissions from coal and gas combustion with CCUS in future. However, CCUS is not currently available as an energy technology in terms of the economic aspect (cost). Thus, ASEAN has to start collaborating and cooperating with Organisation for Economic Co-operation and Development (OECD) countries and joining discussions on CCUS. In addition, ASEAN has to seek CCUS value chains covering the capture of CO₂, the application of technology for reducing CO₂, and the storage of CO₂" in ASEAN or the East Asian Summit region. I hope this report encourages ASEAN Member States to work towards the implementation of CCUS.

Prof. Hidetoshi Nishimura

2/3 Pishimu Ja

The Economic Research Institute for ASEAN and East Asia (ERIA) has since 2016 had an excellent and close relationship with the Government of Brunei Darussalam and has been providing expertise in the efforts to improve, preserve, and protect Brunei's natural and built environment. Part of the collaboration has entailed a series of studies of the Temburong District Ecotown Projects which identified several potentials and implications of the projects, especially in the field of energy. Temburong district is known as Brunei's 'green jewel' with its flowing hills, lush flora, and babbling streams, and is home to large expanses of unspoiled rainforests and rich varieties of rare flora and fauna. The district is becoming more attractive due to the easy access from Bandar Seri Begawan with the opening of Temburong Bridge on 17 March 2020, positioning Temburong to be a good example of a successful ecotown or smart city in the Association of Southeast Asian Nations (ASEAN).

Phase 1 of the Temburong Ecotown study conducted in 2016–2017 reviewed energy technologies related to ecotowns or smart cities and contributed to promoting energy efficiency and conservation (EEC), clean transport, and variable renewable energy (vRE) with smart-grid technologies. Phase 2 sought to identify the best mix of existing diesel power generation, new solar/PV power generation, and new battery storage capacity. It applied a simulation approach on an hourly basis solar radiation data and hourly basis future electricity demand in Temburong district. Phase 3 featured a master plan for Temburong ecotown development in collaboration with Nikken Sekkei Civil Engineering Ltd., which touched on the urban design of Temburong district.

Phase 4 conducted in 2019–2020 and set out in this report focused on saving energy in commercial buildings, creating a clean electricity supply, and creating cleaner transport systems. Three concrete and applicable aspects to support Temburong's ecotown development are provided in the report – first, preparation of energy efficiency guidelines for commercial buildings (both new buildings and retrofitting) in Temburong district; second, clean electricity supply to Temburong district applying smart-grid technology; and third, a proposal for a smart transport system for the district. In addition, an overall road map for the development of an ecotown in the district was included. This study has been the result of close cooperation with the Ministry of Energy (ME) Brunei Darussalam and ERIA is looking forward to discussing further steps based on the study results.

Building on this good momentum, the development of Temburong ecotown must be carefully monitored and managed to ensure the right balance of development and preservation of natural assets, local culture, as well as the rural character of the district. It is of the utmost importance that the development benefits the local population in maintaining inclusiveness, generation of new jobs, and income growth. Hence, ERIA looks forward to building on the Temburong Eco Town Masterplan based on all of our previous studies with greater focus on industries and sectors that can be globally competitive and on economic activities that ensure inclusiveness of the district's residents.

Professor Hidetoshi Nishimura

2. Pishimu Ja

Indonesia's electricity demand will increase significantly, by about 4.5 times, from 2017 to 2040 under the business-as-usual scenario, according to the East Asia Summit Energy Outlook 2017 edition of the Economic Research Institute for ASEAN and East Asia. This increase will be realised not only in the big cities, such as Jakarta and Surabaya, but also on Indonesia's small and midsized islands. As Indonesia is also rich in coal and natural gas, given the global challenges posed by climate change, natural gas will become an increasingly interesting source of power generation for Indonesia.

Eastern Indonesia is made up of two big islands: Sulawesi and West Papua (former Irian Jaya), and several groups of very diverse smaller islands, such as the Maluku and Nusa Tenggara islands. Around 41 million people inhabited these parts in 2017, accounting for around 16% of Indonesia's total population. Eastern Indonesia has three natural gas production sites: Bontang, Donggi Senoro, and Tangguh, and one planned production site – Masela LNG Block. The potential of shifting power generation sources from diesel to natural gas using small-scale liquefied natural gas (LNG) carrier vessels in this area is promising.

This report proposes a strategy for delivering small-scale LNG carrier vessels from LNG production sites to LNG power generation plants in Eastern Indonesia based on a personal computer-based dynamic simulation model. According to projected LNG demand at LNG power plants, forecast based on electricity demand at each demand site in Eastern Indonesia, the model seeks feasible solutions for delivering LNG from the origin to a destination using a computer simulation approach. The major outcomes of the dynamic simulation model are necessary number of LNG ships, maximum capacity of LNG receiving tanks, and their costs, consisting of capital and operating costs.

This study had to use tentative assumptions due to lack of data and information, but provided many meaningful results. I hope this study report will help Indonesia adopt appropriate policies to reallocate LNG production sites for export use and domestic use.

Professor Hidetoshi Nishimura

2/2 Pischimu Va

Mongolia has achieved remarkably high economic growth. Its average gross domestic product (GDP) growth rate was 7.2% during the period 2008–2018, the second-fastest amongst East Asian countries over that period. In 2018, Mongolia's real GDP per capita amounted to US\$4,017. This strong economic growth from 2008–2018 was accompanied by an increase in energy consumption in all sectors. With its promising long-term development prospects, the rise of the country's energy consumption should continue into the future.

Mongolia has set its Nationally Determined Contribution (NDC) to reduce its total national greenhouse gas emissions – excluding land use, land use change, and forestry – by 14% by 2030, compared with the projected emissions under the business-as-usual scenario. Reaching this NDC target would not be possible without improvements in energy efficiency in all sectors, especially in residential, commercial, industrial, transport, and power generation.

The Economic Research Institute for ASEAN and East Asia (ERIA) was honoured by the request to conduct this study on Mongolia's energy efficiency indicators 2019, which establishes a solid starting point for further policy measures to improve energy efficiency in Mongolia. The study has compiled and collected data on energy consumption and sectoral activities, and defined and estimated energy indicators for the first time. The report shows that energy efficiency should be a high priority issue on the political agenda.

Mongolia has abundant natural and mineral resources. To efficiently meet most of its daily energy needs these resources need to be properly developed and managed. Its energy policy aims to ensure access of its citizens to modern energy services developed on the basis of its important and high potential renewable energy sources. At the same time, it is developing infrastructures to optimise the use of its mineral deposits as energy feedstock. Mongolia also recognises electricity as the main source driving economic development and addresses the need to generate and distribute more power in terms of greater volume, density, and reliability.

The increase of energy demand puts pressure on the government to take energy conservation seriously. Energy efficiency figures prominently in Mongolia's National Green Development Plan approved by Parliament in June 2014. For example, the government aims to reduce greenhouse gas emissions in the energy sector through an increase in energy efficiency of 20% by 2030, whilst seeking to reduce building heat losses by 20% and 40% by 2020 and 2030, respectively.

In the 'State Policy on Energy 2015–2030', energy efficiency was one of the three major policy principles approved by the Government of Mongolia. On 26 November 2015, the Parliament ratified the Energy Conservation Law, which requires a subset of Mongolia's electricity and heat consumers (referred to as 'designated entities') to implement activities aimed at improving energy efficiency.

Energy efficiency indicators are widely considered an important tool for supporting energy efficiency and conservation policymaking, to design effective policies, and to monitor progress towards policy objectives.

On behalf of the Ministry of Energy of Mongolia, I would like to thank ERIA for the technical and financial support for this study on Mongolia's Energy Efficiency Indicators 2019 Project.

We will continue to work together to build the energy data to support energy policies and planning in Mongolia.

H.E. N. Tavinbekh

Minister of Energy Mongolia

Prof. Hidetoshi Nishimura

President



FOREWORD

Asia's historical development is at a crossroads. Twenty months into the coronavirus disease (COVID-19) pandemic, the cumulative economic and financial impacts are estimated to be much worse than those of the 2008 global financial meltdown and the 1997 Asian economic crunch. Several projections express doubts as to whether Asian countries, which have been progressively integrated into the global economy, can continue to grow at the pace they have enjoyed for more than 3 decades, in the aftermath of the pandemic. The deceleration of the region's economic growth cannot simply be ignored, given the complex nature of the pandemic containment measures as well as its impacts on the industrial production structure and the economics of sustainable development.

Countries in the region differ widely in terms of development stage, health infrastructure provision, and level of economic integration. As the number of countries in the Association of Southeast Asian Nations (ASEAN) and East Asia that have reached middle-income status increases, reaching the next stage needs much more creativity in successfully addressing other challenges such as inequality, resilience, and sustainability.

The Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) stated categorically that the planet is 131

heading irrevocably towards warming and that we should aim to keep climate change below preindustrial levels by the turn of the century. In line with this, 130 countries have set or are considering to meet net zero emission targets. Within the region, Japan and the Republic of Korea have joined the pledge for net zero emissions by 2050 while China aims to achieve net zero emissions by 2060. Singapore has also announced ambitious plans to achieve net zero emissions beyond 2050. Although many ASEAN Member States have yet to set specific targets for net zero emissions, several are working hard to redesign their policies towards meeting the Paris Agreement climate targets, as expressed in the nationally determined contributions (NDCs).

This Economic Research Institute for ASEAN and East Asia (ERIA) book, Assessing the Impacts of COVID-19: Regional Policies and Practices for Green Recovery, reviews and assesses the low-carbon green growth policies and practices of the regional economies and identifies policy gaps and new opportunities. With input from international experts and regional think tanks, this study facilitates forging a regional perspective on net zero transition challenges, options, and issues.

Governments across ASEAN and East Asia have deployed a significant amount of emergency capital in the response to the pandemic, with an initial focus on protecting lives and livelihoods. The pandemic has its own global economic impacts but has also created a once-in-a-generation

opportunity to implement difficult domestic reforms towards a sustainable future that will simultaneously require technology, regulatory policy, and financing innovations. One should never let a good crisis go to waste. In this regard, this book proposes three key points of action.

First, clear and long-term policy frameworks are needed in the post-COVID-19 era as part of the stimulus recovery. This will send the right market signals and help speed up the development and uptake of low-carbon, resource-efficient, and carbon capture and utilisation (CCU) technologies.

Second, investment must be scaled up. Mobilisation of the private sector – including development banks, institutional investors, and bond markets – is crucial to the financing of low-carbon green growth initiatives. Public financing and development aid are also critical for leveraging private capital and meeting the Paris Agreement climate targets.

Third, stronger regional cooperation is needed to share knowledge, technology, and finance effectively and to coordinate action — leading to the effective implementation of strategies such as the ASEAN Comprehensive Recovery Framework.

As an international organisation and a strategic knowledge partner, ERIA provides policy support to the East Asia Summit countries on low-carbon initiatives in a range of sectors, including energy, transport, waste management, and agriculture. It promotes knowledge sharing by holding conferences, policy dialogues, and workshops; and by conducting research studies on the technical, economic, and legal standards of emerging technologies and the taxonomy of financing instruments. Holding capacity building and training workshops to bridge the knowledge gap

amongst policymakers and the private sector is one of ERIA's most important contributions. As countries around the world struggle to repair their battered economies, resetting policy measures during the pandemic recovery towards an inclusive low-carbon green growth path is more than a climate response – it is essential in scaling up actions towards sustainable economic development.

I hope this book will encourage policymakers and practitioners who are considering and evaluating important policy options for building a better future for the citizens of this region. The book will also serve as a valuable knowledge resource for those seeking a comprehensive overview of low-carbon green growth initiatives in ASEAN and East Asia.

2. Pischimu Ja

Professor Hidetoshi Nishimura

President

Economic Research Institute for ASEAN and

East Asia



FOREWORD BY THE PRESIDENT

Asia's historical development is at crossroad. Eighteen months into the Covid-19 pandemic crisis, the cumulative economic and financial impacts were estimated to be much harder than that of the 2008 global financial meltdown and 1997 Asian economic crunch. Several projections express certain levels of doubt over whether Asian countries, which have been progressively integrated into the global economy, could continue to grow at the pace it had previously enjoyed for more than 3 decades, in the aftermath of pandemic. The deceleration of region's economic growth cannot be simply ignored, given the complex nature of the pandemic containment measures as well as its impacts on industrial production structures and the economics of sustainable development.

Countries in the region differ widely in terms of development stage, health infrastructure provision, and level of economic integration. As the number of countries in the Association of Southeast Asian Nations (ASEAN) and East Asia that have reached middle-income status increases, reaching the next stage needs much more creativity in successfully addressing other challenges such as inequality, resilience, and sustainability

The Fourth Assessment Report of Intergovernmental Panel on Climate Change (IPCC) stated categorically that the planet is heading irrevocably towards warming and that we should aim to keep climate change below pre-industrial levels by the turn of the century. In line with this, 52 countries have pledged to meet net zero emission targets. Within the region, Japan and the Republic of Korea have joined the pledge for net zero emissions by 2050, while China aims to achieve net zero emissions by 2060. Singapore has also announced ambitious plans to achieve net zero emissions beyond 2050. Although many ASEAN Member States have yet to set specific targets for net zero emissions, several are working hard to redesign their policies towards meeting the Paris Agreement climate targets, as expressed in the nationally determined contributions (NDCs).

This Economic Research Institute for ASEAN and East Asia (ERIA) study, Rethinking Low-Carbon Green Growth in the Post-COVID-19 World: Towards a Net Zero Economy, sheds light on the experiences and lessons of the East Asia Summit countries. This book reviews and assesses the low-carbon green growth policies and practices of the regional economies, and identifies policy gaps and new opportunities. With input from international experts and regional think tanks, this study facilitates forging a regional perspective on net zero

transition challenges, options, and issues.

Governments across ASEAN and East Asia have deployed a significant amount of emergency capital in the response to the pandemic, with an initial focus on protecting lives and livelihoods. The pandemic has its own global economic impacts, but has also created a once-in-a-generation opportunity to implement difficult domestic reforms towards a sustainable future that will simultaneously require technology, regulatory policy, and financing innovations. One should never let a good crisis go to waste. In this regard, this book proposes three key points of action.

First, clear and long-term policy frameworks are needed in the post-COVID-19 era as part of the stimulus recovery. This will send the right market signals and help speed up the development and uptake of low-carbon, resource-efficient, and carbon capture and utilisation (CCU) technologies.

Second, investment must be scaled up. Mobilisation of the private sector – including development banks, institutional investors, and bond markets – is crucial to the financing of low-carbon green growth initiatives. Public financing and development aid are also critical for leveraging private capital and meeting the Paris Agreement climate targets.

Third, stronger regional cooperation is needed to share knowledge, technology, and finance effectively and to coordinate action — leading to the effective implementation of strategies such as the ASEAN Comprehensive Recovery Framework.

As an international organisation and a strategic knowledge partner, ERIA provides policy support to the East Asia Summit countries on low-carbon initiatives in a range of sectors, including energy, transport, waste management, and agriculture. It promotes knowledge sharing by holding conferences, policy dialogues, and workshops; and by conducting research studies on the technical, economic, and legal standards of emerging technologies and the taxonomy of financing instruments. Holding capacity building and training workshops to bridge the knowledge gap amongst policymakers and the private sector is one of ERIA's most important contributions.

As countries around the world struggle to repair their battered economies, resetting policy measures during the pandemic recovery towards an inclusive low-carbon green growth path is more than a climate response – it is essential in scaling up actions towards sustainable economic development.

I hope this book will encourage policymakers and practitioners who are considering and evaluating important policy options for building a better future for the citizens of this region. The book will also serve as a valuable knowledge resource for those seeking a comprehensive overview of low-carbon green growth initiatives in ASEAN and East Asia.

2. Pishimu Ja

Hidetoshi Nishimura President

The Association of Southeast Asian Nations (ASEAN) and East Asia face tremendous challenges in navigating the future energy landscape and in determining how the energy transition will embrace new architectures, including sound policy and technologies, to ensure access to energy that is affordable, secure, and sustainable. The East Asia Summit (EAS) economies have been hit hard by the coronavirus (COVID-19) pandemic, but energy demand growth is expected to bounce back strongly as the economies recover after 2022. All decisions and energy policy measures will need to be weighed against potentially higher energy costs and security risks in the post—COVID-19 era. The Economic Research Institute for ASEAN and East Asia (ERIA) will release its short-term energy outlook for 17 EAS members (EAS17), taking account of the pandemic's impact in a separate report. This report reflects the impacts of the COVID-19 pandemic and the updated energy outlook results.

Although EAS17 countries will rely on fossil fuels until 2050, the energy mix will include more renewables and clean fuels. According to the previous EAS energy outlook, coal was dominant, followed by gas in power generation. However, ASEAN will see a coal-to-gasification trend in the medium term. Coal is declining because of the rapidly increasing use of gas and variable renewable energy following policy changes in EAS17 countries.

To achieve sustainable energy development in EAS17, the clean use of fossil fuel by deploying clean technologies is indispensable to decarbonise emissions. Using renewables; increasing energy efficiency; and employing new energy technologies such as carbon capture, usage, and storage; carbon recycling; and hydrogen should be accelerated, and clean technologies adopted in the medium to long term in EAS17's future energy system. Investment in energy efficiency will help discourage building more power plants.

We hope the report will provide insights into ASEAN and East Asia energy demand brought about by COVID-19 and help countries mitigate problems related to energy security and climate change by showing how a range of energy efficiency goals, action plans, and policies can save energy. The report discusses several key insights for policy development. ERIA will include commercially available energy technologies such as carbon capture, usage, and storage and hydrogen in the next EAS energy outlook model.

Professor Hidetoshi Nishimura

2/ Pishimu Ya

Decarbonisation of Thermal Power Generation in ASEAN Countries - Y2022

Foreword

In recent years, decarbonisation of the power generation sector in East Asia Summit (EAS)

countries has steadily progressed. Biomass, hydrogen, and ammonia are considered to be

important technological options for EAS countries in their efforts to achieve decarbonisation

to mitigate the effects of climate change - if these are coupled with low-carbon power

generation sources.

In view of the future expansion of hydrogen and ammonia, policymakers in the EAS region

will have to prepare the necessary policies, programmes and plans, economic incentives, and

focused infrastructure expansion to support the hydrogen and ammonia fuels, thereby

accelerating power sector decarbonisation.

This report provides an assessment of the potential for reducing carbon dioxide emissions

through power generation with ammonia fuel. It identifies the strengths, weaknesses,

opportunities, and threats related to the decarbonisation of the power generation sector in

selected ASEAN countries. The report also includes a cost analysis of coal-ammonia mixed

combustion.

I hope the report will provide ASEAN countries with a good basis for understanding necessary

policies and measures, as well as business and infrastructure development for ammonia fuel.

Professor Hidetoshi Nishimura

5 Pishimu Ja

President

Economic Research Institute for ASEAN and East Asia (ERIA)

October 2022

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According to the East Asia Summit energy outlook being updated by the Economic Research

Institute for ASEAN and East Asia (ERIA), the Association of Southeast Asian Nations (ASEAN) will continue to depend on fossil fuels, coal, and gas for power generation and oil for transport. Their ratio to total primary energy supply in 2050 is 87% in a business-as-usual scenario and 82% in an alternative policy scenario, resulting from aggressive energy efficiency and conservation promotion and renewable energy deployment policies. Many countries, including in ASEAN, that participated in the 2021 United Nations Climate Change Conference (COP26) in Glasgow, United Kingdom, 31 October-13 November 2021, announced their carbon-neutral scenarios until 2050 or 2060. ASEAN countries, however, might not easily achieve carbon neutrality because (i) they will continuously increase energy consumption to catch up economically with Organisation for Economic Co-operation and Development countries, and (ii) variable renewable energy such as solar and/or wind is not suitable because the ASEAN region has only two seasons - dry and rainy - and few areas where wind speed is stable. Variable renewable energy will not, ultimately, achieve carbon neutrality in the region. ERIA, in collaboration with the Institute for Energy Economics, Japan, must, therefore, seek carbon-neutral pathways for ASEAN countries by applying an optimisation approach, which is a linear programming model, to choose low- or zero-emission technologies under a carbon dioxide (CO2) emission constraint and cost minimum objective function. Innovative energy technologies, including hydrogen, ammonia, carbon capture utilisation and storage, and direct air capture and biomass energy with CO2 capture and storage, will be added to conventional low-emission energy technologies, which include energy efficiency and conservation, hydropower, geothermal, nuclear power, and biomass, in the transition period. ASEAN countries vary in economic development, energy resource potential, land and population size, and such diversity must be respected. Each ASEAN country will pursue its own carbon-neutral pathway.

The model represents a long-term energy transition from 2020 to 2050 or 2060 and analyses the relationship between energy consumption and CO₂ emissions (energy technology cost or marginal abatement cost). The cost of energy technology will be extremely high for ASEAN countries, which will need to resort to international financing mechanisms such as Asia

Energy Transition Finance promoted by the Ministry of Economic, Trade and Industry, Japan.

I hope this report will help ASEAN countries forge their own carbon-neutral pathways.

Professor Hidetoshi Nishimura

2/ Pishimu Ja

President

Decarbonisation means targeting zero net emissions of carbon dioxide (CO₂) and follows the trend of new low-carbon energy technologies that will be widely available around 2040–2050. These also include carbon capture, utilisation, and storage (CCUS); hydrogen; and ammonia. These technologies are expensive compared to existing low-carbon fuels and technologies available in the East Asia Summit (EAS) region, such as natural gas and solar photovoltaic (PV) systems. However, CCUS, hydrogen, and ammonia are expected to become affordable around 2040–2050 due to innovation and technology development as well as market growth.

Hydrogen production is based on fossil fuels, such as coal and natural gas, using CCUS and water electrolysis technology. To produce hydrogen, unused energies should be explored, encompassing hydropower in isolated areas, flared gas at oil and natural gas production sites, and low-ranked coal. CCUS can be applied to flared gas and low-ranked coal, which will not affect existing energy supply due to unused energy.

In the case of transporting hydrogen, various factors must be addressed, including its form, distance, and amount, as hydrogen demand sites are usually not located at production sites. Therefore, an optimal hydrogen transport network is needed to connect these sites, applying hydrogen transport technologies.

The Economic Research Institute for ASEAN and East Asia (ERIA) continues to implement the hydrogen potential study in phase 3. This phase studies how hydrogen can contribute to decarbonisation and be produced from unused energy sources. ERIA also organised the hydrogen working group meetings, which discussed how hydrogen contributes to carbonneutral targets for several EAS countries.

Professor Hidetoshi Nishimura

2/3 Pishimu Ja

President

Forecast of Biomass Demand Potential in Indonesia: Seeking a Business Model for Wood Pellets - Y2022

Preface

By 2025, Indonesia aims to increase its renewable energy share to 23% in line with its commitment made during the COP 21 conference on climate change in Paris in 2015 to reduce its greenhouse gas emissions. Using bioenergy is one of the strategies to meet that target.

To do so, Indonesia needs to develop its industry of biofuels, biomass, and their related feedstock, such as palm oil and wood pellets. President Joko Widodo, for instance, has reiterated recently that Indonesia would like to focus more on processing palm oil into higher-value derivatives and products, such as biodiesel and green diesel for both domestic use and export. Wood pellets and wood chips for power generation have also been seriously considered as amongst the most important bioenergy resources and have entered into the long-term development plan of the forestry industry.

In the transport sector, the 2014 biodiesel blend mandate following the Ministry of Energy and Mineral Resources' regulation has been implemented with an increasing blending rate of 10% in 2014, known as 'B10', to 20% (B20) in 2016 and 30% (B30) in December 2019; this has made Indonesia the world frontrunner in the usage of biodiesel in transportation. Indonesia also has a lot of potential to produce bioethanol as transport fuel. The inability to implement the planned 5% blending mandate for bioethanol in gasoline shows some difficulties and challenges in creating a financing mechanism that stimulates the market.

The use of bioenergy in transportation is only the initial step. In power generation, the Ministry of Energy and Mineral Resources has identified that bioenergy's potential might reach as high as 32.6 GW, though only around 1.95 GW of biomass-fired plants' capacity has been installed. Co-firing, by converting a certain amount of the country's existing 18 GW coal-fired power plants to accommodate 5%–10% biomass, i.e. wood pellets and wood chips, is certainly one feasible solution to increase the use of bioenergy.

This report is based first on the solid analysis of biomass's supply and demand potential for the energy sector in Indonesia to 2040. Second, biomass-based power generation in Japan is analysed in relation to biomass development in Indonesia. Following this, a wood pellet business model in Indonesia is elaborated. Finally, an analysis of opportunities and challenges of biomass development for the energy sector in Indonesia and a set of recommended strategies to increase biomass use for energy sector in Indonesia are given.

ERIA will continue to support bioenergy industry policies and planning in Indonesia.

Prof. Hidetoshi Nishimura

President

Study on the Potential for Promoting Carbon Dioxide Capture, Utilisation, and Storage (CCUS) in ASEAN Countries Vol. II - Y2022

Preface

At the 4th East Asia Energy Forum (EAEF4) held on 13 September 2021, 'participant VIPs, experts, and audiences discussed 'A Low-Carbon Energy Transition in the ASEAN Region'. In the forum's panel session 2, experts discussed how available technologies, including carbon capture, utilisation, and storage (CCUS), and hydrogen and fuel ammonia, will contribute to reducing CO2 emissions around 2040–2050. The CCUS was again recognised as an important technology in achieving energy transition in the region. The Asia CCUS Network (ACN), established officially in June 2021, started its activities in 2021–2022, which included knowledge sharing, research study, and capacity-building training. This report covers the following activities: (i) capacity building training to provide basic lectures on capturing, transporting, and carbon recycling and storing of carbon dioxide (CO2); (ii) research study on the analysis of carbon capture and storage (CCS) cost applying a model case as well as a legal framework; (iii) workshop as a knowledge-sharing conference to introduce major results of the research study.

CCUS comprises carbon capture, carbon utilisation, carbon transport, carbon storage, and capacity-building training provided audiences a clear understanding of each CCUS technical element. The cost analysis of CCS applying a model case suggests overall CCS cost (about US\$60/t-CO2), which is in the range of published research papers, and capturing CO2 marks the highest cost compared to transport and storage. This result is similar to the Tomokomai CCS project operated by Japan CCS Co., Ltd.

I hope this report will provide ACN members, especially ASEAN policymakers, a correct understanding of CCUS technology and contribute to lowering CCUS deployment cost in the ASEAN and East Asia region in the future.

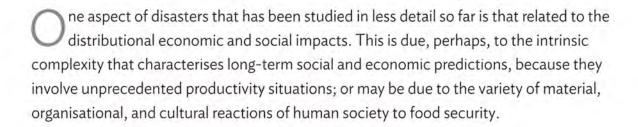
Prof. Hidetoshi Nishimura

President, Economic Research Institute of ASEAN and East Asia

Environment



PREFACE



The global interdependence of food supply chains is well known. When one part of the agricultural production network is affected by natural hazards or climate-induced disasters, the consequences reverberate globally: supply decreases and food prices increase. In agricultural production systems, food supply, supply chain infrastructure, and transport to and from local markets are vulnerable to natural hazards. These reduce the availability and affordability of food in the region.

In the developing countries of Asia, for example, 22% of the total economic impact of natural disasters was in the agriculture sector: crops, livestock, fisheries, and forestry. Data, however, are scarce, so little is known about the substantial impact of natural disasters and climate change on the agricultural value chains and the disproportionate burden placed on people who rely on agriculture for their livelihood. No consistent accounting for direct and indirect agriculture losses from natural hazards exist in any of the primary global hazard databases, although some national databases separately record losses in agriculture.

To further understand the distributional impacts of disasters on food security and to assess policy implications from this understanding, the Economic Research Institute for ASEAN and East Asia (ERIA) organised a study, that brought together leading academics from across the globe and policymakers from the ASEAN to describe several approaches for building resilience into food value chains, share knowledge, and better understand risk reduction from different disciplinary perspectives.

The two volumes of this book are the outcome of that study, and addresses the differential vulnerability of people, places, and sub-sectors, introducing concepts and methods for analysis, and illustrate the impacts on food security at the local, national, and regional level. The chapters in the first volume set the stage by focusing on the relationship between natural disasters and climate change and by broadly exploring their economic and social aftermaths. The chapters in the second volume discuss the resilience measures and adaptation road maps in terms of information sharing, preparedness, enhancing decision making capacity – particularly the relevance of improving the roles of markets through investments and insurance to face the financial challenges.

These two volumes complement each other in clarifying resilient pathways in the vital process of disaster risk management and adaptation to climate change. As the authors continue to research, debate, analyse, and propose an enabling environment to enhance resilience, new publications like this bring fresh insights into policy development.

Here we emphasise the need for holistic actions: for improved resilience of global food security rather than narrowly drawn sectoral approaches, for innovative disaster risk management measures rather than reliance on established patterns, and ensuring that governments and the private sector take a powerful lead in implementing robust institutional frameworks rather than entrusting the task to communities and international agencies. I am confident that this book will contribute to policy development and academic understanding in an area where new acumen is urgently needed.

Hidetoshi Nishimura

2/2 Pischimu Ja

President

Economic Research Institute for ASEAN and East Asia

FOREWORD



ew detailed studies have been carried out on the distributional economic and social impacts of disasters. This may be because of the intrinsic complexity that characterises making long-term social and economic calculations.

The global interdependence of food supply chains is well known. Thus, when one part of the agricultural production network is affected by natural hazards or climate-induced disasters, the consequences reverberate globally—supply decreases and food prices increase. In agricultural production systems, food supply, supply chain infrastructure and transport to and from local markets are all vulnerable to disruption by natural disasters and climate change, so affecting the availability and affordability of food.

In the developing countries of Asia, we see, for example, that 22% of the total economic impact of natural disasters is in the agriculture sector: on crops, livestock, fisheries, and forestry. But as data is scarce, little is known about the substantial impact of natural disasters and climate change, by which we mean the burden placed on those people who rely on agriculture for their very livelihood. None of the primary global hazard databases are consistent in their accounting of direct and indirect agriculture losses from natural hazards, although some national databases separately record losses in agriculture.

To better understand this distributional impact of disasters on food security and to assess the policy implications, the Economic Research Institute for ASEAN and East Asia (ERIA) organised a study that brought together leading academics from around the globe with policymakers from the Association of Southeast Asian Nations to examine various approaches to build resilience into food value chains, share knowledge, and gain a better understanding of risk reduction from different disciplinary perspectives.

FOREWORD

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This two volume study, the outcome of that research, address the varying vulnerabilities of people, places and sub-sectors. It also introduces concepts and methods of analysis as well as illustrates the impacts on food security at the local, national, and regional levels. Volume One sets the stage by focusing on the relationship between natural disasters and climate change, and exploring their economic and social aftermaths more broadly. Volume Two goes on to discuss the resilience measures currently available before presenting national 'adaptation roadmaps' in terms of information sharing, preparedness, and enhancing effective decision-making capacity through a focus on improving the role of the financial markets via investment and insurance.

Together, the two volumes clarify pathways for resilience for addressing disaster risk management and adaptation to climate change. As stakeholders in this field continue to research, debate, analyse, and propose new options for improving resilience, publications such as this provide fresh insights that can be used to develop effective policies. This study emphasises the need for holistic actions: improved resilience of global food security rather than narrow sectoral approaches; innovative disaster-risk management measures rather than reliance on established patterns; and ensuring governments and the private sector take the lead in implementing robust institutional frameworks rather than entrusting the task to communities and international agencies.

I would like to thank the authors of all the chapters for their contribution, skilfully woven together by the editors of the two volumes. I would also like to thank the government officials, from Cambodia, the Lao PDR, Myanmar, and Viet Nam, who all participated in this study through ERIA's Capacity Building Programme. Although originally joining as observers, each went on to produce a national 'adaptation roadmap', an achievement beyond our original expectation.

I am confident that together these two volumes will make a significant contribution to policy development and academic understanding in this field, where new insights are urgently needed.

Hidetoshi Nishimura

President

Preface

Global energy trends indicate a shift from fossil fuels that contain carbon to variable renewable energy (vRE) with zero carbon. Solar photovoltaic (PV) and wind power, which are typical vRE sources, have been increasing due to their significant low costs and appropriate government policies, such as feed-in tariff and renewable portfolio standards. The rapid increase of the solar PV market surely contributes to the vRE's significant low costs. However, vRE still has negative aspects – intermittency, seasonality, and low capacity factor – which are big reasons for the smaller share of vRE especially in the ASEAN region. Hydropower is a better energy source than vRE but its seasonality due to the big gap in hydropower output between the dry and the wet seasons is still a negative factor. The early disruptions to the ecosystem and damage from dams also add to the negative image of hydropower.

Currently, hydrogen is highlighted as a future energy option because of clean and stable energy. There are two hydrogen sources: one is fossil fuels with carbon capture utilisation and storage and other is water electrolysis, which uses electricity from renewable energy. Thus, hydrogen will be abundant. In addition, the transport and storage of hydrogen are technically available, and their cost is lower than electricity transmission lines and electric storage.

Hydrogen demand will be wide and consumed for large-scale power generation, fuel cell electric vehicles as well as heating demand in the industry sector. Thus, the hydrogen demand potential in the future, such as 2030–2050, will be significant (please refer to the hydrogen phase 1 report). But a big issue is hydrogen's extremely high supply cost.

Therefore, the Economic Research Institute for ASEAN and East Asia continues to implement the hydrogen potential study phase 2. It covers hydrogen to be produced from unused brown coal applying the gasification process and transformed into liquefied hydrogen for long-distance transport. ERIA also established the hydrogen working group to discuss how to the East Asia Summit countries can shift to a hydrogen society.

Professor Hidetoshi Nishimura

La Pishimu Ja

President, Economic Research Institute for ASEAN and East Asia

The coronavirus (COVID-19) has had a negative impact on waste management in some Association of Southeast Asian Nations (ASEAN) countries that are dealing with growing amounts of medical waste due to an increase in the number of patients. This condition is exacerbated by a lack of proper medical waste facilities, e.g. hospital incinerators, which can effectively kill the virus with high temperature. In line with this, the amount of plastic waste is rising because people rely more on food delivery services that frequently come with layers of plastic packaging.

In this critical situation, recycling becomes problematic. First, recycling workers now must use protective equipment. Second, in some landfills, recycling facilities cease, reducing the price of recyclable waste, which eventually reduces the income of the waste pickers. Although there is no clear evidence, the informal sector might be more vulnerable to these changes.

As a response to the current challenges, we need to adopt better policies quickly. Some policy recommendations from ASEAN countries and the city of Wuhan, the first epicentre of the virus, consist of, first, strengthening waste management policies, especially those related to infectious waste (e.g. rigid source separation and higher collection frequency as well as monitoring floating river waste) to address the rapid virus transmission. The second recommendation is adopting an inclusive approach towards all parties, particularly the vulnerable waste collection workers, the scavengers, and the workers in recycling centres. For example, the use of transparent plastic bags for detecting any potentially infectious waste, as well as the use of masks, gloves, and other protective equipment based on specific guidelines, will make waste collection and management safer. Apart from such physical protection, waste management workers also require protection from stigmatisation, by people collectively showing respect and appreciation for their significant contribution during the pandemic. Lastly, in addition to prioritising the safety of all parties, a market mechanism is also needed to financially support the scavengers who have lost their source of income because of the drop in recyclable waste prices.

Furthermore, it is reported that disposable face masks, which are made from plastics such as polypropylene and polyester, are usually littered in open space. Without proper collection of waste, the huge number of masks and other plastic waste generated during the COVID-19 pandemic will leak into the ocean. To tackle marine plastic debris as an ASEAN Plus Three region-wide effort, ERIA established the Regional Knowledge Centre for Marine Plastic Debris (RKC-MPD) in October 2019 with support from the Government of Japan. This was welcomed at the 16th ASEAN Plus Three Environmental Ministers Meeting and the 22nd ASEAN Plus Three Summit. The RKC-MPD will share good practices in the region, including on waste management during the COVID-19 pandemic.

Waste management is not a new issue in the region; therefore, we need to turn this severe situation into a better waste management structure for the longer term. ERIA, through the RKC-MPD, is willing to share the good practices, facilitate networking and cooperation amongst stakeholders, enhance scientific knowledge, and develop waste management abilities through raising awareness and conducting capacity-building activities in the region.

July 2020

Prof. Hidetoshi Nishimura

President

Economic Research Institute for ASEAN and East Asia



Healthcare

Foreword

Population ageing can be seen as one of the most outstanding achievements of humanity.

I am a Japanese person born in the year 1952. The demographic statistics of Japan from my birth year to the present are indicative of the substantial trends in population ageing.

According to statistics from the Government of Japan, the fertility rate in 1952 was as high as 2.98 per woman. This means that more than two million babies were born in Japan as my contemporaries. The under-five mortality rate of the same year was high at 79 per 1,000 live births, with a male life expectancy of 61.9 years.

By 2017, a mere 65 years from my birth year, the fertility rate in Japan had dropped by half to 1.43 per woman, which translates into only about 0.94 million births. Moreover, the under-five mortality rate had fallen drastically to as low as 2.6 per 1,000 live births, and the average male life expectancy had increased to 81.1 years. As a result of this demographic transition, the proportion of the people of 60 years of age or older was as high as 34% as of 1 October 2017.

Japan is an extreme example of population ageing, a trend that is also occurring worldwide. This demographic trend is a consequence of improvements in public health and progress achieved in medical science, a field in which humanity has taken great strides especially over the last one hundred years. Until a couple of centuries ago, we lost approximately one in four babies before their fifth birthdays. Population ageing has resulted in fundamental changes to our social system.

The international community has identified population ageing as a critical issue and, as a result, has taken several actions to cope with this social change. The Madrid International Plan of Action on Ageing was adopted in 2002 at the Second World Assembly on Ageing and called for 'changes in attitudes, policies and practices' to fulfil 'the enormous potential of ageing'.

Statistics show that Asia has the most notable and rapid pace of population ageing, both in terms of the numbers of older people and the older population's share of

the total population. This is also projected to become the case for ASEAN Member States. In 2015, the Heads of State/Government of ASEAN Member States adopted the Kuala Lumpur Declaration on Ageing: Empowering Older Persons in ASEAN, recognising that 'the promotion of health, active and productive ageing' is 'key to the well-being of older persons as valuable members of the family, community and society'.

As an international think tank mandated to provide policy recommendations for ASEAN Member States on issues of economic integration, narrowing development gaps, and sustainable development, the Economic Research Institute for ASEAN and East Asia (ERIA) has a responsibility to assist ASEAN Member States in fulfilling this declaration.

But ERIA's mandate is not limited to the three objectives stated above – economic integration, narrowing development gaps, and sustainable development. Due to the rapid change of society as a result of the advancement of Information and Communication Technology (ICT), it is important to promote re-skilling education for the existing workforce, particularly for older people, to allow them to catch up and upgrade their skills. Healthy ageing – through the capacity development of older people – is of key importance for the improvement of productivity in the era of population ageing. ERIA is a unique organisation that carries out research not only in the field of economics, but also in agricultural and environmental science, and population ageing is another area of research. We would like to integrate the outcome of our studies on population ageing with industrial policies designed for the era of digitalisation.

In 2017, ERIA received a contribution from the Government of Japan to promote research and come up with policy recommendations on population ageing and long-term care. This contribution was provided as one of the action items in the context of the Asia Health and Wellbeing Initiative (AHWIN) launched by the Government of Japan in 2016. Taking the concept of AHWIN into account, and making full use of ERIA's capacity and network in ASEAN Member States, ERIA launched a number of activities to improve policymaking and thereby contribute to healthy, active, and productive ageing.

To this end, ERIA decided to conduct longitudinal studies targeting older people in ASEAN Member States in collaboration with our partner organisations. The Longitudinal Study of Ageing and Health in the Philippines (LSAHP) is one of

them and this report is the product of the baseline survey of LSAHP. It provides a comprehensive look at the realities faced by older people in the Philippines: from health status to healthcare utilisation, economic wellbeing, and care for the elderly. All information is indispensable for policymaking on healthy and active ageing.

This project is designed to become a 'longitudinal' study, though at this stage it reports only the initial results of the baseline survey. The next stage of the project, which will be implemented in 2020, is crucial, since it will reveal the true results of the longitudinal data – this will allow us to analyse the factors contributing to the improvement of health expectancy.

We owe the achievements of this project to the dedicated work and firm leadership of Dr. Grace T. Cruz, Chairperson of Demographic Research and Development Foundation, Inc. and a professor of the University of the Philippines Population Institute. I also wish to praise the staff of DRDF for their outstanding work on the project from fieldwork to data processing. I heard that some of the field interviewers became emotional during the interviews when they learned about the realities the elderly people face on a daily basis. That is an unexpected effect of this project, but I hope such experiences will contribute to an awareness of the issues related to population ageing in the country, and lead to the encouragement of community-based approaches as well as policymaking, which will benefit the older population.

Furthermore, I would like to express my gratitude to the members of the LSAHP Advisory Committee of this study for the valuable advice they provided. This study is an ongoing project, and your continued and further support would be greatly appreciated.

We must not forget the support of Filipino mothers, fathers, grandmothers, and grandfathers who were randomly selected as respondents for this study. The remarkable 94% response rate shows that Filipinos understand the importance of social surveys. In our study, we also interviewed the children and caregivers of the selected respondents. Their kind cooperation enabled us to perform a more comprehensive analysis of the realities of older people. Dear mums, dads, families, caregivers, and related people, without your continued cooperation, this study would not have been possible. Thank you, and we look forward to seeing you again at the time of the next survey in 2020.

Lastly, I would like to reaffirm that population ageing is a mark of the success of humanity. I believe the improvement of health expectancy is the most important target to take advantage of this opportunity. I hope the rich information in this report will be fully utilised by all stakeholders – governments, international organisations, academia, civil organisations, the private sector, etc. – for the fulfilment of our ultimate goal: healthy, active, and productive ageing.

Thank you.

Professor Hidetoshi Nishimura

2/2 Pishimu Ja

President, Economic Research Institute for ASEAN and East Asia

Foreword

Population ageing – or the median age of a population increasing due to lower fertility rates and greater life expectancy – is unquestionably an outstanding accomplishment of the modern era.

I was born in Japan in 1952. According to the government, the total fertility rate of my birth year was as high as 2.98 children per woman in Japan – more than 2 million babies were my contemporaries. The under-five mortality rate was high, at 79.0 per 1,000 live births, and male life expectancy measured a rather low 61.90 years.

Yet in 2019 – only 67 years after my birth – Japan's total fertility rate dropped by more than half, to 1.36 children per woman, or a total of about 865,000 births per year. The under-five mortality rate fell drastically to 2.7 per 1,000 live births, and the average life expectancy of a man had grown almost 20 years, to 81.41 years. As a result of this demographic transition, the proportion of those aged 60 years or more represented about 34.4% of Japan's population.

Although my home country is an extreme example of population ageing, this trend is occurring worldwide, thanks to improved public health and the rapid progress of science. Because population demographics have changed so substantially within a relatively short duration – until a few centuries ago, one in four babies perished before their fifth birthdays, for example. The international community has identified population ageing as a critical issue. The Madrid International Plan of Action on Ageing, adopted at the Second World Assembly on Ageing in 2002, called for 'changes in attitudes, policies and practices' to fulfill 'the enormous potential of ageing.' Moreover, as statistics show that Asia has the most rapidly ageing population in the world – both in terms of the number of older people as well as the proportion of older people in the population'– the promotion of healthy, active and productive ageing' is 'key to the well-being of older persons as valuable members of the family, community, and society,' as recognised by ASEAN Member States in the 2015 Kuala Lumpur Declaration on Ageing: Empowering Older Persons in ASEAN.

An international organisation mandated to promote policy recommendations for ASEAN Member States on economic integration, narrowing income gaps, and sustainable development, the Economic Research Institute for ASEAN and East Asia (ERIA) is working to help fulfill the Kuala Lumpur declaration.

In 2017, ERIA received a contribution from the Government of Japan to research and to develop policy recommendations related to population ageing and long-term care, in line with its Asia Health and Wellbeing Initiative launched in 2016. ERIA subsequently created a network of activities to promote a policymaking process aimed at healthy, active, and productive ageing, including conducting various studies of older people in ASEAN Member States in collaboration with its partner organisations.

Viet Nam's pace of population ageing is amongst the fastest in the world, demonstrating the country's undeniable success in improving its health care services and systems, and that rising life expectancy is not necessarily correlated with higher economic status. Indeed, Viet Nam could become the leader of policy development in promoting healthy, active, and productive ageing in the world.

The following report, the Longitudinal Study of Ageing and Health in Viet Nam (LSAHV) aims to reveal the realities faced by older people in Viet Nam – health statuses, health care utilisation, economic well-being, use of information technology, social isolation, and care – as a step towards this goal. The next stage of this report, planned for 2021, aims to further analyse the longitudinal data contained within, including specific factors that have contributed to the improvement of health in Viet Nam to further evaluate and model this country's healthy and active ageing.

We owe the success of this report to the hard work and leadership of Dr. Vu Cong Nguyen, Deputy Director, Institute of Population, Health and Development (PHAD). I also wish to express my appreciation to the staff of PHAD for their outstanding work on this project.

This study would not have been realised without the strong support of the General Statistics Office and the General Office for Population and Family Planning of the Ministry of Health, Government of Viet Nam. In addition, local authorities' support

FOREWORD

Nurses are indispensable. They can be seen in any healthcare facility even when doctors are not present. In communities, nurses are at the front line of healthcare. They contribute greatly to improving it – from public health to cutting-edge medical treatment.

Care workers appeared more recently but they are essential. In most Association of Southeast Asian Nations (ASEAN) Member States (AMS), many people preserve the beautiful tradition of families and relatives caring for older people. In an ageing society such as Japan, however, where about a third of the population is aged 60 or more, who can care for older people? Most family caregivers are women. Does the tradition of family care not hinder their social participation or empowerment? As a population ages, professional care workers become more important.

AMS and East Asian countries will see rapidly increasing numbers of older people in the coming decades. Demand for nurses and care workers is expected to surge. Some countries will have a serious shortage of nurses and care workers, while some, where fertility rates are high, will be able to send them to other countries. Crossborder movement of such healthcare workers will be accelerated by regionally uneven population ageing.

Nurses and care workers need to have a close relationship with their clients. Such workers' service skills, including communication and language, are directly linked to clients' physical and mental health outcomes. Nurses and care workers require intensive training before moving to other countries to optimise their capacities.

This book focuses on Indonesia, Japan, Malaysia, the Philippines, and Thailand. Indonesia and the Philippines represent countries sending nurses and care workers abroad, while Japan and Malaysia are examples of destination countries. Thailand is one of the fastest-ageing AMS. Every chapter reveals each country's unique policies and systems for healthcare human resources and problems in securing them. Although each chapter focuses on a specific topic rather than a comprehensive discussion, I hope that readers can understand the diversity of the issues related to healthcare

human resources and that the book's findings will promote further research and discussion.

As a Japanese national, I have a keen interest in care workers coming to Japan, which has the highest proportion of older people in the world. Cross-border care workers are critically important to sustain the long-term care system as the younger generations shrink. Japan's policy on allowing care workers into the country was conservative until the late 2000s, but in response to the serious shortage of its domestic labour force for care workers, Japan has opened several new pathways to legally accept foreign care workers since 2017. Readers can 'hear' the voices of cross-border care workers in Japan in chapter 1, which focuses on one such a pathway. Care workers came to Japan not only for economic reasons but also to improve their skills and learn care technology and to learn about Japan's culture. About half said they simply like caring for older people. We need to understand the diversity of cross-border workers' wishes and hopes. I greatly appreciate their substantial contribution to Japan's long-term care system, and I believe they will disseminate their knowledge and skills, helping develop long-term care in their home countries and the region, where populations are starting to age rapidly.

ASEAN agreements and documents encourage skills mobility. The Economic Research Institute for ASEAN and East Asia (ERIA) argued in its ASEAN Vision 2040, published in 2019, that because skills mobility provides a competitive edge, it is essential to the region's rapid economic growth. To deepen regional cooperation and integration, ASEAN has expedited mutual recognition arrangements (MRAs) for professionals. AMS signed the MRA on nursing services in 2006. It does not automatically recognise nursing certification in all AMS; bilateral agreements are required to assure quality and recognise qualifications. Reaching bilateral agreements is not straightforward and this book explains the implications of developing regional policies on cross-border nurses and care workers. I hope the study will be a driving force that will promote skills mobility to build competitive and knowledge-based economies.

Most cross-border nurses and care workers are young. I hope continuing research and policies related to cross-border healthcare professionals will support and protect the young people who bravely work abroad after hard and intensive pre-migration training.



Last but not least, I express my greatest appreciation for the tremendous support of everyone involved with this project, from the authors to the nurses and care workers who participated in the study. Dr Yuko Tsujita of the Institute of Developing Economies, Japan External Trade Organization (IDE–JETRO), the study's principal investigator, showed outstanding leadership and guided the study to success. Her effort and achievements deserve applause. The study strengthened more than a decade of collaboration between ERIA and IDE–JETRO and offers an excellent opportunity to deepen it and contribute to economic development, narrow the development gap, and promote sustainable development in AMS and East Asia.

24. Michimu Ja

Hidetoshi Nishimura

President

Economic Research Institute of ASEAN and East Asia

Foreword

Population ageing can be seen as one of the most outstanding achievements of humanity.

I am a Japanese person born in the year 1952. The demographic statistics of Japan from my birth year to the present are indicative of the substantial trends in population ageing.

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Japan is an extreme example of population ageing, a trend that is also occurring worldwide. This demographic trend is a consequence of improvements in public health and progress achieved in medical science, a field in which humanity has taken great strides especially over the last one hundred years. Until a couple of centuries ago, we lost approximately one in four babies before their fifth birthdays. Population ageing has resulted in fundamental changes to our social system.

The international community has identified population ageing as a critical issue and, as a result, has taken several actions to cope with this social change. The Madrid International Plan of Action on Ageing was adopted in 2002 at the Second World Assembly on Ageing and called for 'changes in attitudes, policies and practices' to fulfil 'the enormous potential of ageing'.

Statistics show that Asia has the most notable and rapid pace of population ageing, both in terms of the numbers of older people and the older population's share of

the total population. This is also projected to become the case for ASEAN Member States. In 2015, the Heads of State/Government of ASEAN Member States adopted the Kuala Lumpur Declaration on Ageing: Empowering Older Persons in ASEAN, recognising that 'the promotion of health, active and productive ageing' is 'key to the well-being of older persons as valuable members of the family, community and society'.

As an international think tank mandated to provide policy recommendations for ASEAN Member States on issues of economic integration, narrowing development gaps, and sustainable development, the Economic Research Institute for ASEAN and East Asia (ERIA) has a responsibility to assist ASEAN Member States in fulfilling this declaration.

But ERIA's mandate is not limited to the three objectives stated above – economic integration, narrowing development gaps, and sustainable development. Due to the rapid change of society as a result of the advancement of Information and Communication Technology (ICT), it is important to promote re-skilling education for the existing workforce, particularly for older people, to allow them to catch up and upgrade their skills. Healthy ageing – through the capacity development of older people – is of key importance for the improvement of productivity in the era of population ageing. ERIA is a unique organisation that carries out research not only in the field of economics, but also in agricultural and environmental science, and population ageing is another area of research. We would like to integrate the outcome of our studies on population ageing with industrial policies designed for the era of digitalisation.

In 2017, ERIA received a contribution from the Government of Japan to promote research and come up with policy recommendations on population ageing and long-term care. This contribution was provided as one of the action items in the context of the Asia Health and Wellbeing Initiative (AHWIN) launched by the Government of Japan in 2016. Taking the concept of AHWIN into account, and making full use of ERIA's capacity and network in ASEAN Member States, ERIA launched a number of activities to improve policymaking and thereby contribute to healthy, active, and productive ageing.

To this end, ERIA decided to conduct longitudinal studies targeting older people in ASEAN Member States in collaboration with our partner organisations. The Longitudinal Study of Ageing and Health in the Philippines (LSAHP) is one of

them and this report is the product of the baseline survey of LSAHP. It provides a comprehensive look at the realities faced by older people in the Philippines: from health status to healthcare utilisation, economic wellbeing, and care for the elderly. All information is indispensable for policymaking on healthy and active ageing.

This project is designed to become a 'longitudinal' study, though at this stage it reports only the initial results of the baseline survey. The next stage of the project, which will be implemented in 2020, is crucial, since it will reveal the true results of the longitudinal data – this will allow us to analyse the factors contributing to the improvement of health expectancy.

We owe the achievements of this project to the dedicated work and firm leadership of Dr. Grace T. Cruz, Chairperson of Demographic Research and Development Foundation, Inc. and a professor of the University of the Philippines Population Institute. I also wish to praise the staff of DRDF for their outstanding work on the project from fieldwork to data processing. I heard that some of the field interviewers became emotional during the interviews when they learned about the realities the elderly people face on a daily basis. That is an unexpected effect of this project, but I hope such experiences will contribute to an awareness of the issues related to population ageing in the country, and lead to the encouragement of community-based approaches as well as policymaking, which will benefit the older population.

Furthermore, I would like to express my gratitude to the members of the LSAHP Advisory Committee of this study for the valuable advice they provided. This study is an ongoing project, and your continued and further support would be greatly appreciated.

We must not forget the support of Filipino mothers, fathers, grandmothers, and grandfathers who were randomly selected as respondents for this study. The remarkable 94% response rate shows that Filipinos understand the importance of social surveys. In our study, we also interviewed the children and caregivers of the selected respondents. Their kind cooperation enabled us to perform a more comprehensive analysis of the realities of older people. Dear mums, dads, families, caregivers, and related people, without your continued cooperation, this study would not have been possible. Thank you, and we look forward to seeing you again at the time of the next survey in 2020.

Lastly, I would like to reaffirm that population ageing is a mark of the success of humanity. I believe the improvement of health expectancy is the most important target to take advantage of this opportunity. I hope the rich information in this report will be fully utilised by all stakeholders – governments, international organisations, academia, civil organisations, the private sector, etc. – for the fulfilment of our ultimate goal: healthy, active, and productive ageing.

Thank you.

Professor Hidetoshi Nishimura

Richimuja

President, Economic Research Institute for ASEAN and East Asia

Foreword

Human beings have never been free of infectious disease. Countless such diseases have brought serious challenges, some of which have been catastrophic. We have overcome such crises by exerting our wisdom, solidarity, and resilience. To combat the coronavirus disease (COVID-19) pandemic, we need to examine its effects empirically. However, the health protocol to prevent the transmission of COVID-19 strongly encourages us to maintain social distance and avoid face-to-face meetings. Under these conditions, how can we collect information about the impact of the pandemic on various groups in society?

Social distancing makes surveys on people's daily lives very challenging, but such surveys are increasingly necessary as COVID-19 is creating a massive impact on people's lives throughout the world. The 'Older People and COVID-19 in Indonesia: A SILANI follow-up survey' employed the phone survey method and is a good example of a feasible method that can be implemented in the era of social distancing. We were able to maintain social distancing throughout the procedures required to implement this survey - from the preparations to the interviews and data processing. All meetings amongst team members, as well as interviews with respondents, were conducted remotely. Phone surveys have limitations as to the extent of data collection (e.g. the duration of interviews is limited to about 30 minutes because people do not like to spend long on the phone), and in-person interviews can collect more extensive data. However, even phone surveys can collect very valuable information which can contribute to effective policymaking. At this point, let me express my gratitude to the members of this project team for proposing the idea of conducting a phone survey during the pandemic.

This phone survey focuses on the impact of COVID-19 on older people. As many other reports have confirmed, COVID-19 disproportionately affects older people and those with chronic health conditions. Human beings have never before had the current population structure, which has a vast number of older people. In the case of Japan, the 2015 census showed that the proportion of people aged 75 years or older is as high as 12.7%, whereas it was only 1.3% in the 1920 census. According to the United States Centers for Disease Control and Prevention, the chance of mortality of people aged 75–84 years is 220 times that of people aged 18–29 years and as high as 630 times for people aged 85 years and above. While population ageing reflects the success of human development, COVID-19 touches a sore spot in contemporary society. As responsible cosmopolitans, contemporary humans are required to participate in global collaboration and pool our knowledge and wisdom to mitigate and overcome the impacts of COVID-19.

Indonesia is the country most affected by COVID-19 amongst the Association of Southeast Asian Nations (ASEAN) Member States, in terms of the number of confirmed cases and deaths. As stated in this report, Indonesia's older population has much higher COVID-19 fatality rates than younger generations. This trend is common all over the world. Although the Government of Indonesia has made the utmost effort to slow down or stop the spread of this epidemic in the country, including large-scale social restrictions or Pembatasan Sosial Berskala Besar (PSBB), the battle against this disease is not straightforward. At the time of writing, the confirmed cases are still steadily increasing, even accelerating, and PSBB is still in effect. The persistent epidemic in the country, and the pandemic in the global sense, have pushed Indonesia into recession for the first time since the 1998 Asian financial crisis. COVID-19 is seriously affecting people's health status, social interactions, and economic activities - particularly underprivileged people, including many older people. The government is under pressure to respond swiftly to this crisis, so precise information on the actual daily lives of various groups of people is desperately needed. This survey was proposed by the Indonesian Ministry of National Development Planning (Bappenas). Considering the urgent need and critical importance, the Economic Research Institute for ASEAN and East Asia (ERIA) was pleased to collaborate with Bappenas on this survey.

This survey succeeded in revealing the actual lives of older people during the COVID-19 epidemic in Indonesia. More than half of the respondents reported decreased incomes and almost half of them reported that they had reduced the quality of the food they consumed during the pandemic. Such severe hardship runs the risk of undermining the health status of older people. However, this survey confirmed that government services have expanded to cover the higher number of people needing support during the epidemic, and the mutual support in families and communities has played a significant role in mitigating the impact of COVID-19. Such solidarity – often cited as the tradition of *gotong royong* – will bring great strength to the Indonesian people in this battle with the infectious disease, and can be shared with other countries as a good practice during the pandemic.

Finally, we would like to express our sincere appreciation to all the respondents and the people who supported them. As stated above, this survey was conducted by employing the phone survey method, so the kind support of their family members was indispensable. Indeed, in many cases, we called the contact telephone numbers of family members. In other cases, the selected respondents were incapable of answering the interview due to impaired cognitive function or other reasons, and families were requested to answer the questions as proxies. It seems to me that without a deep understanding of the importance of this survey, the respondents and families would not have remained on the phone throughout the interview. Our sincere thanks thus go to the respondents and their families for their patience, to Bappenas for the firm leadership of our colleagues, and to SurveyMETER for its dedicated work. The second report of this survey will be published in 2021, using the data from the second-round survey to compare the first and second surveys. As the President of ERIA, based in Jakarta, I am extremely happy to continue the collaboration with Indonesia, and I sincerely hope that the outcome of such cooperation will inform the government's policymaking to benefit the Indonesian people.

Professor Hidetoshi Nishimura

- Rishimu Ja

President, Economic Research Institute for ASEAN and East Asia

Foreword

In the first report of 'Older People and COVID-19 in Indonesia', I wrote that human beings have overcome countless infectious diseases with wisdom, solidarity, and resilience. The COVID-19 pandemic, however, is still having a major impact all over the world even though more than 2 years have passed since the outbreak. In their efforts to overcome the pandemic, many countries are still combating the mutation of the virus through a wide range of measures, such as expanding vaccination coverage. Indonesia is one of the ASEAN Member States most affected by COVID-19 in terms of the numbers of confirmed cases and fatalities. ERIA research reported that COVID-19 in Indonesia infected more than 6.0 million people and caused over 150,000 deaths (as of 30 June 2022). Of all age groups, older people are most affected by COVID-19 in terms of serious symptoms and mortality.

The worst health impacts since World War II the Indonesian economy has experienced has given rise to a recession. Indonesia reported three consecutive quarters of negative growth, of 1.74%, 2.41%, and 4.19%, quarter-on-quarter, respectively, from the fourth quarter of 2019 until the second quarter of 2020 (CEIC, 2021). Meanwhile, the Indonesian the government has been engaged in trying to improve economic growth with a view to achieving an upturn. The latest CEIC reports show that Indonesia's GDP expanded by 5.01%, year-on-year, in March 2022. Moreover, Indonesia's total exports in April 2022 reportedly reached an all-time high of about US\$27.3 billion, an estimated increase of over 45% compared with the previous year. These successes are the fruits of the government's effort and its effective economic policies.

But we must also consider the situation from a micro perspective. The COVID-19 has affected vulnerable people, such as the elderly, in particular. The Indonesian Government did not overlook the impact on those people and collaborated with us to clarify their challenges. Our first survey showed that the impact of COVID-19 on older people is not limited to the direct effects of the disease, but that it also includes the effect on their social and economic situation. The second survey of 'Older People and COVID-19 in Indonesia' was conducted in November 2020 to visualise the impact on the lives of older people. I am pleased to be able to publish this report as it shows that we are now gradually emerging from the worst of the pandemic.

I believe that this series of research has great academic and practical significance in that it shows the situation in the early stages of the pandemic, which will guide future policy to deal with possible public health emergencies.

The follow-up survey revealed changes in the condition of older people about 5 months after the first survey, which was conducted in July 2020. Over the course of 5 months, the COVID-19 situation in Indonesia had improved, and social activities gradually resumed accordingly. The survey, however, revealed that the situation of aged people had not necessarily improved. Around 40% of respondents saw their incomes decline, and 25% of them did nothing to overcome declining income problems. Although these tendencies had improved compared to the first round, cash assistance was still preferred to and had more beneficiaries than non-cash assistance. Moreover, the respondents who reported that their physical health had deteriorated increased compared to those in July 2020. In November 2020, about 21.41% of respondents said their health had deteriorated, compared with only 15.52% in July 2020. These two surveys revealed the necessity of easy and safe access to health facilities during a pandemic. Furthermore, some respondents still had difficulties gaining access to health facilities and medicine due to their economic situation. Meanwhile, mental health conditions over the same period - more older people chose in-person meetings to maintain social connectedness than before.

To mitigate the impact of COVID-19, it is necessary to understand what the actual impacts are. The first-round study provides valuable information about the impact of COVID-19 on older people in terms of their economic situation, health, and social interaction. Many older people saw a decline in their income and a deterioration in their physical and mental health, and changed their social interaction patterns. On the basis of various kinds of information including this survey, the government of Indonesia has tried to strike a balance between the economy and health during these 2 years. The policies concerning older people were also changed several times based on the infection situation. In this context, this follow-up survey was needed to provide an update on the COVID-19 impact on the condition of older people during the pandemic.

This survey was proposed by the Indonesian Ministry of National Development Planning (BAPPENAS). Considering the urgent need for and critical importance of such a survey, the Economic Research Institute for ASEAN and East Asia (ERIA) was honoured to collaborate with BAPPENAS on it, and we are pleased that our surveys contributed to supporting their economic and healthcare strategy. As Dr Pungky Sumad, Deputy for Population and Manpower, mentioned, the Indonesian government will continue to work to 'improve older people's livelihoods, including their health, economic conditions, and access to social protection during emergencies' for a better future society.

Beginning with this series of research, ERIA commits itself to assisting Indonesian policy making in the healthcare fields for the future as well.

Finally, we would like to express our sincere appreciation to our older respondents, who generously agreed to participate in this survey. We also appreciate the family members of older people for their kind support in making the phone survey a success. In the phone survey interviews, they were a big help for our team as they explained the survey's objectives and connect us with older people respondents in their families. As some of the selected respondents were incapable of responding to the interview questions because of their impaired cognitive function or for other reasons, their family members were requested to answer the questions as proxies.

Our sincere gratitude goes to BAPPENAS for the firm leadership of our colleagues and to SurveyMETER for its dedicated work. Conducting a survey during the pandemic was difficult employing usual methods as face-to-face meetings had to be avoided as much as possible. But this phone survey became a good example of a feasible method to be used during a pandemic.

Using the data from the second-round survey and comparing it with the first survey gives us a more insightful analysis enabling us to understand the change of older people over time and inputs to the adaptive policies. As the President of ERIA, based in Jakarta, I am extremely happy to continue the collaboration with Indonesia and I sincerely hope that the outcome of such cooperation will inform the government's policymaking to benefit the Indonesian people.

24. Pishimu Ja

Professor Hidetoshi Nishimura President, Economic Research Institute for ASEAN and East Asia

Miscellaneous



ERIA Economic Research Institute for ASEAN and East Asia

Frames

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Message from the Executive Director



Prof. Hidetoshi Nishimura ERIA Executive Director

rectings! With the dawning of a new year, the Economic Research Institute for

ASEAN and East Asia (ERIA) embarks on a more enhanced dissemination of its outputs and activities to introduce the Institute's works.

As the ASEAN Community moves toward 2015, ERIA has been contributing to the Community building process in ASEAN and East Asia through various studies and researches as the "Center of Excellence" in ASEAN and East Asia. ERIA's role is expanding while ASEAN and East Asia are turning into critical moments for their futures.

Our newest dissemination outlet is our ERIA FRAMES newsletter. As its name implies, the newsletter aims to present a picture of what the Institute is doing, the highlights of its recent studies and seminars/fora as well as some thoughts and insights from its scholars and key stakeholders on certain ASEAN and East Asia-related issues.

Through our *ERIA FRAMES*, we hope to have a wider and more visible presence among readers in the region.

I am very sure that ERIA will contribute to strengthening and deepening regional integration in ASEAN and East Asia. □

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ASEAN and AEC BEYOND 2015



ASEAN Beyond 2015 workshop series in four cities (photo: ERIA)

Sustaining the Momentum Beyond 2015

In response to and support of the call first made by Indonesian President, H.E. Dr. Yudhoyono, during the opening of the 18th ASEAN Summit in Jakarta in May 2011 to start the "successful discussion on what ASEAN would be beyond 2015 and

how to achieve such vision" and also to the Declaration of the ASEAN Leaders to "develop an ASEAN Community's post-2015 vision and its elements...", the Economic Research Institute for ASEAN and East Asia (ERIA) embarked on a major undertaking in 2012 which looked into various areas related to ASEAN and AEC beyond 2015. Tapping a large number of experts and specialists mainly

"AEC 2015 is not and should not be looked at as the end but just the beginning of coming up with a truly integrated ASEAN post 2015."

Prof. Iman Pambagyo, Dir. Gen. of International Trade Cooperation of Indonesian Trade Ministry

from the ASEAN region to prepare some 40 thought or issues papers on these areas, the nearly year-long study has now been completed and put together into a report titled ASEAN Rising: Moving ASEAN and AEC Forward Beyond 2015.

The results of the study were presented to various stakeholders in a series of four workshops entitled \longrightarrow 2

Message from the President



Greetings!

Fiscal year (FY) 2015 was significant for ERIA as it saw the completion of the ASEAN Economic Community (AEC), thus marking a new starting point for further regional economic integration in ASEAN and East Asia. With AEC 2015, ERIA will deepen its research to support economic integration in the region in the next decade.

In the area of research, ERIA's contribution to the region in FY2015 focused on infrastructure development. In November 2015, ERIA published its flagship report on infrastructure, 'The Comprehensive Asia Development Plan 2.0 (CADP 2.0): Infrastructure for Connectivity and Innovation', which contains information on over 750 infrastructure projects in ASEAN and East Asia. This report will hopefully be useful for international donor agencies and funding institutions in taking coordinated or harmonised action to improve the development of infrastructure for regional connectivity and innovation. Leaders of East Asia recognise this report as an important document towards the revision of the Master Plan on ASEAN Connectivity, as expressed in the Chairman's Statement of the Ninth East Asia Summit.

In January 2016, the Global Think Tank Report 2015 ranked ERIA as number 31 among the top 81 International Economic Think Tanks

ERIA focused not only on the AEC but also on the equally important ASEAN Socio-Cultural Community (ASCC). To support the ASEAN Community achieve a people-oriented community that is 'inclusive, sustainable, resilient, and dynamic', ERIA came up with the report on 'Framing ASEAN Socio-Cultural Community Post 2015', outlining the framework and key recommendations which hopefully will be incorporated in the ASCC Blueprint 2016–2025 and successfully implemented.

This is because almost all long-term and common economic problems, such as disaster management, food security, migration, and labour mobility, fall under the ASCC. ERIA submitted the final draft of this report at the 10th Coordinating Conference of ASEAN Socio-Cultural Community and the book at the ERIA International Symposium

Message from the President

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held in Malaysia in November 2015, in close cooperation with the Ministry of Culture and Tourism of Malaysia and the ASEAN Secretariat.

FY2015 highlighted ERIA's recognition of the important role of energy development in supporting the region's economic growth. ERIA's energy research has been growing significantly every year, lately comprising roughly 40 percent of its studies. The ERIA Energy Unit has been focusing on power grid interconnection systems, the eco town model, social acceptance of power plants, and oil stockpiling technology, among others. ERIA also jointly published the Southeast Asia Energy Outlook 2015 with Paris-based International Energy Agency. In the Energy Ministers Meeting in October 2015, the Ministers welcomed the Energy Research Institute Network and ERIA's high enthusiasm for and focus on energy research.

ERIA commemorated the first anniversary of the landmark signing of the memorandum of understanding (MoU) with the Organisation for Economic Co-operation and Development (OECD) in 2014. It held the ERIA-OECD MoU First Anniversary Symposium on 'Inspiring the ASEAN Community Towards 2025' in Jakarta, Indonesia. The joint policy research between

the two organisations is hoped to be useful in promoting economic growth and good practices on trade and investment policies in Southeast Asia, including building resiliency in ASEAN.

One of our important activities is holding frequent meetings with Ministers of member countries to input policy recommendations. Thus, in FY2015, ERIA co-organised the 'Mekong Five Economic Forum: Current Status and Prospect of Advancing Frontier Markets' in Tokyo, Japan. The forum was held at the sidelines of the Seventh Mekong—Japan Summit Meeting in July. All five Mekong leaders were invited to discuss the investment advantages and the growth strategy in their region.

As regards resiliency and disaster management, ERIA co-organised the 'Symposium on Building National Resilience: Recognising World Tsunami Day' and 'Enhancing Global Awareness on Disaster Management and Prevention', both held in November. These events aimed at sharing information on disaster management to strengthen national resilience against disasters and to raise awareness of the World Tsunami Day, which the United Nations adopted and recognised.

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Message from the President

In March 2016, ERIA successfully held its first Extraordinary Governing Board Meeting in Tokyo, Japan. The meeting emphasised the need for ERIA to regularly review its policy focus, giving due consideration to (i) deepening East Asian integration, (ii) realising an inclusive ASEAN Community, and (iii) addressing issues extending beyond the region, such as innovation. ERIA will continue to conduct activities under the cooperation of member countries.

We have also paid successful courtesy calls to the Deputy Prime Minister and Prime Minister of Japan, explained the plan of reformation starting in March 2016 and the proposed support for the Lao chairmanship this year, and showed deeper appreciation for their continuous support to ERIA.

ERIA's efforts in 2015 did not go unnoticed, with regional leaders commending ERIA's continuous support through the Chairman's Statements of various ASEAN and East Asian summits. In the 10th East Asia Summit, the Leaders encouraged ERIA to continue its support to the Chair of the ASEAN and East Asia Summits. ERIA was also recognised as one of the strategic and essential organisations that would help accomplish the goal of the AEC Blueprint 2025, thus deepening economic

integration and fostering the building of the ASEAN Community.

In January 2016, the Global Think Tank Report 2015 ranked ERIA as number 31 among the top 81 International Economic Think Tanks. ERIA's flagship report on the AEC 2015, ASEAN Rising, was ranked number 21 in the Best Policy Study-Report Produced by Think Tank 2015.

These, I would proudly say, are a confirmation that ERIA's research has been highly valued not only by East Asia but also globally.

Despite these achievements in 2015, we in ERIA continue to be prepared, yet humbled, by the daunting task we face. We will remain committed and work harder towards deeper ASEAN economic integration and economic development in East Asia.



Prof Hidetoshi Nishimura President

Message from the President

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Greetings!

Fiscal year (FY) 2016 was a challenging year for ERIA as it needed to help chart the future direction of ASEAN and East Asia after the establishment of the ASEAN Economic Community (AEC) in 2015. Looking back at the deliverables of this fiscal year reveals that ERIA expanded its field of activities and helped chart the new direction of ASEAN Community 2025.

In March 2016, ERIA successfully held its first Extraordinary Governing Board Meeting in Tokyo, Japan. The meeting emphasised the need for ERIA to regularly review its policy focus centring on (i) deepening East Asian integration, (ii) realising an inclusive ASEAN Community, and (iii) addressing issues extending beyond the region, such as innovation. ERIA will continue to conduct activities with the cooperation of member countries.

We have also paid successful courtesy calls to the Deputy Prime Minister and the Prime Minister of Japan and explained the plan of reform starting in March 2016. Then in June, during the Ninth Governing Board Meeting in Jakarta, the Governors discussed the future strategy of ERIA to support the economic integration of this region. They unanimously decided to create a new department - named 'Policy Design Department' - to propose actionable policy recommendations for each member state. Tan Sri Dr Rebecca Fatima Sta. Maria, former secretary general of the Ministry of International Trade and Industry, Malaysia, accepted ERIA's invitation to head this new department. Under her initiative, ERIA strongly committed to the negotiations on the Regional Comprehensive Economic Partnership (RCEP), held in Jakarta and Kobe, and provided inputs directly to the negotiators of each ASEAN Member State.

In research, ERIA and UNCTAD (United Nations Conference on Trade and Development), with the cooperation of government officials and experts of each country in the region, completed the comprehensive database of non-tariff measures (NTMs) in ASEAN. Everyone can freely access our website (http://asean.i-tip.org/Default.aspx) where about 6,000 NTMs are listed. Even though tariff rates have decreased in this region, NTMs may obstruct trade liberalisation. This database ensures transparency for traders inside and outside of this region.

Message from the President



Another flagship project was the Lao PDR at the Crossroads: Industrial Development Strategies 2016-2030, which was the major deliverable of the Lao PDR chairmanship of ASEAN and East Asia Summit in 2016. The key report on this project, which ERIA proposed to the leaders at the Mekong-Japan Summit on September 2016 in Vientiane, provided two important messages: labour productivity and connectivity. The labour productivity of the agriculture sector is less than half compared with that of other industry sectors. Thus, if agriculture productivity improves at the same level as others, many members of the labour force can move to other industrial sectors. The other message is connectivity. Lao PDR, located at the centre of the Mekong region, should take advantage of its 'landlocked' position by being 'land-linked," like Switzerland, to facilitate ASEAN connectivity

ERIA's activities significantly started to expand not only in AEC but also in the ASEAN Socio-Cultural Community (ASCC) and ASEAN Political-Security Community (APSC). On the ASCC, ERIA started to research on the health care and care industry to build the social safety management system in ASEAN. Another important field is disaster risk management.

ERIA – in cooperation with the Organisation for Economic Co-operation and Development (OECD), United Nations Office for Disaster Risk Reduction (UNISDR), United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), and the Government of Indonesia – held a big symposium on 'World Tsunami Awareness Day'. This provided an overview on the outcomes of relevant events in 2016 to enhance awareness of tsunami disaster in the region.

On the APSC, ERIA's good relations with the ASEAN Inter-Parliamentary Association (AIPA) started when ERIA, upon AIPA's invitation, attended the AIPA General Assembly in Nay Pyi Taw, Myanmar, in September. ERIA proposed to strengthen relations with AIPA, which were sealed with the approval of the 'Memorandum of Understanding to Develop AIPA's Capacity on Matters Concerning ASEAN Economic Community and ASEAN Economic Integration in Various Areas'. So far, ERIA has built a good channel to recommend policies directly to the members of parliament of ASEAN Member States.

ERIA's reach has also expanded globally in FY2016. In July, ERIA was formally invited to the Asia-Europe Meeting (ASEM 11) Summit in Ulaanbaatar, Mongolia. ERIA and the Government of Mongolia presented at the 15th Asia-Europe Business Forum — a side event of the ASEM Summit — the 'Asia-Europe Connectivity

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Vision 2025' that highlighted the importance of connectivity to cope with global catastrophic crisis. ERIA, during the Stakeholders' Session of the ASEM Summit Plenary attended by 53 Leaders and heads of international organisations, presented its observations on the world economy after Britain's exit from the European Union. On the energy stream, ERIA was invited to the 15th International Energy Forum in Algiers, Algeria in September to introduce our energy outlook on the ASEAN and the East Asia Summit regions. ERIA also presented at the 4th IEF-IGU (International Gas Union) Ministerial Meeting in Delhi, India on the natural gas market in East Asia. Through this, energy-related activities have been significantly spread out and the functions of the International Energy Agency gradually carried out in East Asia.

ERIA's efforts in 2016 did not go unnoticed, with regional leaders commending ERIA's continuous support through the Chairman's statements of various ASEAN and East Asian summits. At the 11th East Asia Summit, the Leaders encouraged ERIA to continue its support to the Chair of the ASEAN and East

Asia Summits. ERIA, in the 'Vientiane Declaration on Promoting Infrastructure Development Cooperation in East Asia', was also recognised as a strategic partner in promoting quality infrastructure investment in the region. Our key project, Comprehensive Asia Development Plan (CADP) 2.0, was also mentioned in this 'Declaration' and was referred to in the new Master Plan on ASEAN Connectivity 2025. This is by increasing technical assistance, utilising existing funds, and providing training programmes for professionals in infrastructure and connectivity-related sectors.

In January 2017, the Global Think Tank Report 2016 ranked ERIA as number 32 among the top 85 international economic think tanks. This confirms that ERIA's research has been highly valued globally.

Whereas we are proud of these achievements in 2016, we will not rest on our laurels. We in ERIA continue to be prepared to face and wrestle with challenges in the years ahead. This as we work harder towards deeper ASEAN economic integration and economic development in East Asia.

Prof Hidetoshi Nishimura

President

Message from the President









Message From President

"In January 2018, ERIA ranked 24th amongst the top 85 international economic think tanks, according to the Global Think Tank Report 2017."

Greetings!

Fiscal year (FY) 2017 was the year ERIA expanded the scope of its activities as it needed to help chart the future direction of ASEAN and East Asia. This is after the establishment of the ASEAN Economic Community (AEC) in 2015 and looking forward to the 50th anniversary of the establishment of ASEAN.

A review of ERIA's deliverables for FY2017 reveals that ERIA widely expanded its field of activities to help clear the path for the economic integration and development of East Asia.

One such deliverable is the ASEAN@50 projects, comprising the five-volume publication commemorating ASEAN's 50th anniversary, and three public symposia and the High Level Forum co-organised with the Government of the Philippines. Volume 1 of the publication showcases the thoughts, experiences, and insights of Leaders, ministers, and high level officials of the 10 ASEAN member states on the retrospectives and perspectives on the making, substance, significance, and future of ASEAN. We hope this would be an excellent reference material to help present and future readers, especially the youth, to better understand ASEAN. The High Level Forum, in October 2017, was graced by H.E. Gloria Macapagal Arroyo, former President of the Philippines, and H.E. Abhisit Vejjajiva, former Prime Minister of Thailand for the panel discussion. These two very articulate





ASEAN Leaders demonstrated deep understanding and insights, and voiced thought-provoking ideas for an even better ASEAN. ERIA also invited HE Rodrigo Roa Duterte, President of the Philippines, to whom was presented the five-volume commemorative publication. In his keynote speech, President Duterte said, 'Together, let us cultivate our peoples' sense of ownership, for them to own the ASEAN story as their story and to see ASEAN's future as their own'.

On economic research, ERIA started developing the ASEAN Seamless Trade Facilitation Indicator (ASTFI) and conducted the assessment of the ASEAN—Australia—New Zeeland Free Trade Agreement (FTA) and ASEAN—Canada FTA. ERIA reported on these developments at the ASEAN Economic Ministers Meeting and its Related Meetings in September 2017. The ministers welcomed these developments and anticipated their completion. ERIA's newly established Policy Design Department also worked hard with high officials of member states to make these deliverables more concrete and actionable.

Another important field is energy-related issues. Out of 52 research projects that ERIA conducted, more than 20 are related to energy. ERIA first hosted the East Asia Energy Forum in August to which it invited researchers and specialists, including two energy ministers from the Philippines and Brunei Darussalam, to discuss the future of conventional energy in the East Asia region. The Bohol Reflection, which was launched as the summary and suggestions of this conference was mentioned in the East Asia summit statement and proposed the importance of utilising the conventional energy.

ERIA's fields are continuously expanding to include population ageing and long-term care, agriculture, environment disaster management, and political areas. On population ageing and long-term care, ERIA started the longitudinal survey on the elderly in Southeast Asia, the research on the development of career paths for returned long-term care migrants from Japan to Southeast Asia, and the estimation of demand and supply of health care personnel. In August 2017, ERIA co-hosted a multi-stakeholder forum. More than 100 parliamentarians from 32 countries were invited to this forum where they discussed how to cope with the rapidly ageing societies worldwide. On agriculture, ERIA has been studying the upgrading of the ASEAN food value chain. On the environment area, ERIA has started the research activities focusing on the development of waste management in ASEAN.





ERIA has also been cultivating good relations with the ASEAN Inter-Parliamentary Assembly (AIPA). Based on a memorandum of understanding, ERIA was officially invited to the General Assembly of AIPA in September 2017 in Manila. ERIA delegates attended the General Assembly and the Economic Committee during which an agreement was reached to co-host the capacity building workshop for regulatory management system and good regulatory practice of ASEAN Member States.

ERIA's efforts in 2017 continued to expand relentlessly, and received unabated recognition from regional leaders. They commended ERIA's continuous support through the Chairman's statements of various ASEAN and East Asian summits. At the 11th East Asia Summit, the Leaders encouraged ERIA to continue its support to the Chair of the ASEAN and East Asia summits. ERIA's activities were mentioned in 11 paragraphs of statements of the ASEAN Summit and related summits in 2017. ERIA was highlighted in independent ERIA chapters. On communication and outreach activities, ERIA's media coverage has been getting stronger and wider in scope. Major newspapers of each ASEAN Member State have been publishing an article or opinion editorial of an ERIA researcher at least once a week.

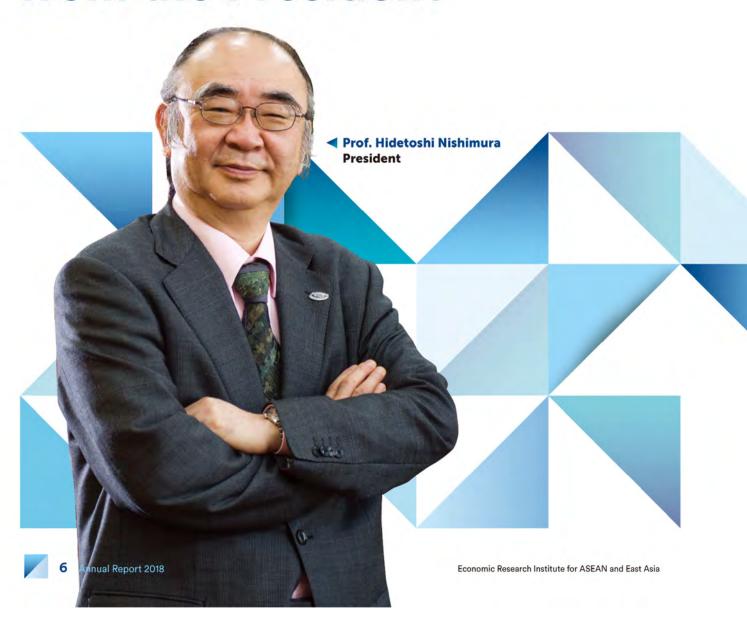
In January 2018, ERIA ranked 24th amongst the top 85 international economic think tanks, according to the Global Think Tank Report 2017. ERIA's research seems to have been highly valued globally.

We are proud of these achievements in 2017 but we will not be complacent. As ERIA celebrates its 10th anniversary in 2018, we will be more vigilant in helping address the challenges of deeper ASEAN economic integration and development in East Asia.

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Prof. Hidetoshi Nishimura President

Message from the President



ERIA was ranked 14th in the international economic policy think tanks category of the 2018 Global Go To Think Tank Index Report. ERIA's research seems to have been highly valued globally.

Fiscal year (FY) 2018 was the year ERIA expanded the scope of its activities as it needs to help chart the further direction of ASEAN and East Asia. This came after the establishment of the ASEAN Economic Community (AEC) in 2015 and as it looked forward to its 10th anniversary.

A review of ERIA's deliverables for FY2018 reveals that ERIA widely expanded its field of activities to help clear the path for the economic integration and development of East Asia.

One such deliverable is the 'ASEAN Vision 2040' project. Based on the cooperation and support of the chairs of ASEAN and the East Asia Summit, ERIA provided more than 30 themes for background papers on the prospects of ASEAN and East Asia in 2040 from political-security, economic, and socio-cultural perspectives. In this publication ERIA proposed 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. ERIA invited many of the region's experts and conducted several workshops with the key institutions, before submitting the integrated report to the ASEAN Foreign Minister's Meeting of January 2019. The ministers mentioned the importance and contribution of ERIA in their ministerial statement.

On economic research, ERIA, together with the Organisation for Economic Co-operation and Development (OECD), the ASEAN Coordinating Committee on Micro, Small, and Medium Enterprises (ACCMSME), supported by the Government of Canada, officially launched the ASEAN SME Policy Index (ASPI) 2018 in September 2018 on the occasion of the ASEAN Economic Ministers Meetings in Singapore. The ASEAN SME Policy Index 2018 maps and benchmarks SME development policies across ASEAN Member States. ERIA continued work

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Message from the President

on the joint feasibility studies of the ASEAN–Canada free trade agreement and reported the findings at the Seventh AEM–Canada Consultations. The Policy Design Department of ERIA also made policy recommendations on the trade and investment issues in particular. ERIA submitted a Discussion Paper to the East Asia Summit Economic Ministers Meeting (EASEMM) that identified three key challenges to the further economic integration of the region in the current period of global uncertainty.

Another important field is energy-related issues. About 30%-40% of research projects undertaken by ERIA relate to energy issues. In FY2018, ERIA conducted various studies on energy policy based on the EAS Mid-Term Energy Policy Research Roadmap, First, projects related to ASEAN Power Generation and Transmission System Planning Institution (AGTP) and ASEAN Transmission System Operator Institution (ATSO). Second, Issues concerning the natural gas market. Third, delivery of liquefied natural gas to islands in the Philippines. Fourth, a hydrogen potential study in the EAS region. ERIA reported the progress of each project to the EAS Energy Ministers Meeting of October 2018. ERIA also developed collaboration with each member state. It produced the first energy statistics of Lao PDR and the Myanmar Gas Master Plan, cooperating with the governments of Lao PDR and the Republic of the Union of Myanmar, respectively.

The scope of ERIA's activities is continuously expanding and deepening to tackle the key regional issues. Based on the experts' network on population aging and long-term care, which was built up during the first year (2017–2018) of ERIA's Healthcare Unit, the unit undertook several studies, participated in forums and conferences, and organised an

event. The activities of the Healthcare Unit are implemented in line with the Asia Health and Wellbeing Initiative (AHWIN), which was launched by the Government of Japan and aims to create vibrant and healthy societies where people can enjoy long and productive lives. The AHWIN website (https://www.ahwin.org/) was set up in January 2019 for the purpose of publicising the activities related to AHWIN, including the outcomes of studies carried out by ERIA's Healthcare Unit. In the area of the environment, ERIA conducted several studies on waste management systems in the region, and on circular economy and innovation. ERIA attended the World Circular Economy Forum in Yokohama on October 2018 to report the results of our studies.

ERIA has also kept good relations with several external partners such as the ASEAN Inter-Parliamentary Assembly (AIPA) with which ERIA has developed cooperation. ERIA and AIPA held a dialogue entitled Parliamentarians Supporting the 'Quiet Revolution' for Better Regulatory Governance in April 2018. ERIA is well placed to contribute to a dialogue with parliamentarians focusing on non-tariff measures and barriers as well as good regulatory practice and reducing unnecessary regulatory burdens thanks to its various projects and in-depth surveys on these issues.

ERIA's effort in 2018 continued to expand, and received unabated recognition from regional leaders. They commended ERIA's continuous support through the chairman's statement of various ASEAN and its related summits. At the 12th East Asia Summit, leaders 'commended the 10th Anniversary of ERIA and its contributions to deepening research on economic integration, narrowing the development gap, achieving sustainable development, and



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strengthening regional health services in ASEAN and East Asia. We encouraged ERIA to continue providing targeted high quality research on topics that highlight and address the challenges facing the region.'

ERIA held its 10th anniversary events in Singapore in August, in Tokyo in October, and in Jakarta in December. We were very honoured to receive the ministers, parliamentarians, high-level officials, and representatives from the business sector who have continuously supported ERIA's activities over the first 10 years of its existence. Especially on the occasion of the event in Jakarta, which is the back-to-back event of the High Level Seminar of 'Project 2045' commemorating the 60th anniversary of Indonesia-Japan diplomatic relations, ERIA collaborating with United Nations Development Plan, and the Committee of Japan and Indonesia, launched the final report of the Japan-Indonesia 60 year anniversary of the diplomatic relationship, which focuses on the long-term vision for the cooperation between the two countries.

In January 2018, ERIA was ranked 14th in the international economic policy think tanks category of the 2018 Global Go To Think Tank Index Report. ERIA's research seems to have been highly valued globally.

We are proud of these achievements in 2018 but we will not be complacent. As ERIA celebrates its 10th anniversary in 2018, we will be more vigilant in helping to address the challenges of deeper economic integration and development in ASEAN and East Asia in the years to come.

Prof. Hidetoshi Nishimura President

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In January 2020, ERIA was ranked 13th in the international economic policy think tanks category, and 11th in the Southeast Asia and the Pacific category of the 2019 Global Go To Think Tank Index Report

In fiscal year (FY) 2019 ERIA expanded the scope of its activities to help chart the future direction of ASEAN and East Asia.

A review of ERIA's deliverables for FY2019 reveals that ERIA widely expanded its field of activities to help clear the path for the economic integration and development of East Asia. One such deliverable is the 'ASEAN Vision 2040' project. Based on its cooperation with the Ministry of Foreign Affairs of Thailand, ERIA provided a four-volume set of publications on the prospects of ASEAN and East Asia in 2040 from political-security, economic, and socio-cultural perspectives. In it ERIA proposed a message of collective leadership of the East Asia region, which means ASEAN centrality, for it to become the institutional hub for regional integration and economic and social development. The 34th ASEAN summit statement commended ASEAN Vision

2040 and provided recommendations on how to most effectively prepare ASEAN for the future, and in particular for the Fourth Industrial Revolution.

As for economic research, ERIA, in collaboration with the United Nations Conference on Trade and Development (UNCTAD), launched a Non Tariff Measures Database on the occasion of the ASEAN Economic Ministers Meeting in September 2019. ERIA collected and classified NTMs in the ten ASEAN countries plus the six East Asia Countries. Both organisations collected data on all regulations from official documents including international conventions adopted by countries. ERIA has shared the raw or more detailed ASEAN data of the NTMs database to ASEAN Member States (AMS) to assist in developing their respective national trade repositories. The Database aims to (i) collect, validate, and store NTM data from official sources; (ii) improve



Message from the President

the general understanding of these measures and their impact on world trade; and (iii) provide insights on NTMs in 16 countries. ERIA also provided the East Asia Summit Economic Ministers Meeting (EASEMM) with Discussion Papers that identified three key challenges to the further economic integration of the region in the current period of global uncertainty, as well as on innovation.

Another important field is energy-related issues. About 30%-40% of research projects undertaken by ERIA relate to energy issues. In FY2019, ERIA conducted various studies on energy policy based on the EAS Mid-Term Energy Policy Research Roadmap. First, projects related to the demand and supply potential of Hydrogen Energy in East Asia. Second, issues concerning the Biomass Supply Chain for Power Generation. Third, the utilisation of Electric Vehicles for CO2 reduction. Fourth, the social benefit of clean coal technology. ERIA reported the progress of each project to the EAS Energy Ministers Meeting of October 2019. ERIA, together with the ministry of energy in Thailand, hosted the 2nd East Asia Energy Forum, which discussed future energy issues in the ACMECS region. ERIA also developed the Cambodia Basic Energy Plan in cooperation with the government of Cambodia.

The scope of ERIA's activities is continuously expanding and deepening to tackle the key regional issues. Based on the experts' network on population ageing and long-term care, ERIA's Healthcare Unit undertook several studies, participated in forums and conferences, and organised several events. The activities of the Healthcare Unit are implemented in line with the Asia Health and Wellbeing Initiative (AHWIN), which was launched by the Government of Japan and aims to create vibrant and healthy

societies where people can enjoy long and productive lives, ERIA completed a longitudinal survey of ageing and health in the Philippines and Viet Nam and a report on the survey in the Philippines was presented to the focal Secretaries. of the country. ERIA also hosed the AHWIN Forum in October 2019 to discuss the important elements in the approach to population ageing in Asia. In the area of the environment, ERIA conducted several studies on waste management as well as the issue of marine plastic debris in the region. In 2019, ERIA established a Regional Knowledge Centre on Marine Plastic Debris (RKC-MPD) as the ASEAN Plus Three framework. The Knowledge Centre will be a hub for the collecting of data on marine plastic debris, sharing best practices, as well as supporting capacity building programmes in the region, ERIA produced three publications on food value chains in the ASEAN region: 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; and The Cold Chain for Agri-food Products in ASEAN. The key messages were reported at the 19th ASEAN Ministerial Meeting on Agriculture and Forestry Plus Three meeting in October 2019.

ERIA has also kept good relations with several external partners such as the ASEAN Inter Parliamentary Assembly (AIPA) with which ERIA is now cooperating. ERIA attended the 40th AIPA General Assembly on August 2019 and submitted a draft resolution on 'Establishing AIPA-ERIA Joint Dialogue to Support the Waste Management for Sustainable Development,' The resolution was adopted by all AIPA member countries at the second plenary session of AIPA-GA. Based on the resolution, ERIA and AIPA will set up a Joint Dialogue.



In 2019 ERIA's efforts and activities continued to expand and received unabated recognition from regional leaders. Leaders 'encouraged ERIA to continue providing support for the Chair of the ASEAN Summit and the East Asia Summit and targeted high-quality research and actionable policy recommendations on topics that highlight and address the region's challenges to EAS Economic Ministers,' in the Chairman's statement of the 14th East Asia Summit on November 2019. In addition to the several ASEAN related conferences, in 2019 ERIA attended three G20 ministerial meetings on Agriculture, Trade, and Digital Economy, as well as Energy and the Environment, which were hosted by Japan in May and June. ERIA presented several. policy challenges on these topics in ASEAN and the East Asia region, which need to be addressed in collaboration with G20 member countries.

In January 2020, ERIA was ranked 13th in the international economic policy think tanks category, and 11th in the Southeast Asia and the Pacific category of the 2019 Global Go To Think Tank Index Report. ERIA was also ranked 44th globally in the category of 'Top Energy and Resources Policy Think Tanks', which is the first time ERIA has been ranked in this category. In short, ERIA's research seems to have been highly valued globally.

We are proud of our achievements in 2019, but we will not be complacent. ERIA will be more vigilant in helping to address the challenges of deeper economic integration and development in ASEAN and East Asia in the years to come.

Prof Hidetoshi Nishimura President





In January 2021, ERIA was ranked 9th in the international economic policy think tanks category, and 5th in the Southeast Asia and the Pacific category of the 2020 Global Go To Think Tank Index Report.

In fiscal year (FY) 2020, ERIA expanded the scope of its activities to help chart the future direction of ASEAN and East Asia.

A review of ERIA's deliverables for FY2020 reveals that ERIA widely expanded its field of activities to help clear the path for the economic integration and development of East Asia. The global coronavirus (COVID-19) pandemic has also been on the agenda of our research activities this fiscal year. ERIA published numerous policy briefs on its implications for the economy (trade, investment, and fiscal policy), energy, and the environment (waste management). These policy briefs give recommendations to ASEAN Member States for tackling the negative impact of COVID-19 effects in the region. Their key message of sustaining connectivity and the competitiveness of regional supply chains, and utilising digital technology was highly appreciated by the member states.

As for its research activities, ERIA published the Subregional Development Strategy in ASEAN after COVID-19: Inclusiveness and Sustainability in the Mekong Subregion (Mekong 2030). The subregional approach has proved to be particularly effective for addressing development gaps, enhancing connectivity, and promoting international coordination. ASEAN is encouraged to continue to adopt a multilayered approach to deeper economic integration and to activate other subregional initiatives. The publication was commended by the Chairman's statement of the 37th ASEAN Summit in November 2020 as providing useful insights for ASEAN Community building.



Message from the President

Another important field is energy-related issues. In FY2020, ERIA conducted various studies on energy policy based on the EAS Mid-Term Energy Policy Research Roadmap. ERIA has projects related to the demand and supply potential of Hydrogen Energy in East Asia, energy storage for renewable energy integration, and valuation of CO, Emissions Reduction by Mobility Electrification and Alternative Biofuel Introduction in EAS countries. ERIA also conducted projects to develop energy outlooks and master plans in the CLMV countries. ERIA reported the progress of each project to the EAS Energy Ministers Meeting of November 2020. ERIA hosted the 3rd East Asia Energy Forum, together with the Ministry of Industry and Trade of Viet Nam, which discussed 'Carbon Capture Utilisation and Storage (CCUS), and Carbon Recycling in ASEAN.'

The scope of ERIA's activities is continuously expanding and deepening to tackle the key regional issues. During FY2020, ERIA's Healthcare Unit published three books and two research project reports. 'Ageing and Health in Viet Nam' is one of them and it reports the result of the baseline survey of the Longitudinal Study of Ageing and Health in Viet Nam. ERIA co-organised an ASEANwide workshop in Ha Noi in November 2020 to discuss population ageing in the region and to launch this book, together with the Ministry of Health of Viet Nam, the World Health Organization, and the United Nations Population Fund. Another memorable event handled by the Healthcare Unit was the announcement event of the winners of the first Healthy Ageing Prize for Asian Innovation Award, which was co-organised with Japan Center for International Exchange. Three winners were selected from more than 130 applicants from twelve countries by the international advisory committee,

which is made up of leading experts on population ageing throughout the region. The Unit has been focused on the activities related population ageing in the region, but welcomed a new expert on clinical trials and health development in October 2020. In the area of the environment, ERIA conducted several studies on waste management as well as the issue of marine plastic debris in the region. Since October 2019, ERIA has been setting up a Regional Knowledge Centre on Marine Plastic Debris (RKC-MPD) as part of the ASEAN Plus Three framework. The Knowledge Centre launched a website for sharing best practices of member states. RKC-MPD also launched a private sector platform which highlights the cutting-edge technologies on marine plastic debris. Regarding agriculture, ERIA conducts projects on realisation of higher value added of agricultural products in ASEAN countries through the development of effective cold chains, and enhancing food supply chain resilience and food security in ASEAN through digital technologies. The key messages were reported at the 20th ASEAN Ministerial Meeting on Agriculture and Forestry Plus Three meeting held in October 2020.

ERIA has also kept good relations with several external partners such as the ASEAN Inter - Parliamentary Assembly (AIPA) with which ERIA is now cooperating. AIPA and ERIA renewed their Memorandum of Understanding on January 2020 and conducted the 'Online Joint Dialogue on Waste Management in the Context of COVID-19 Pandemic' on June 2020 to discuss municipal and medical waste management during the pandemic. ERIA attended the 41st AIPA General Assembly on September 2020. The AIPA General Assembly adopted a new resolution on 'Expanding Cooperation between AIPA and ERIA', which



COOKING RESEARCH MENTOTE TO ASSAULAN AND LIST PLOT

includes the extension of their Memorandum of Understanding to develop AIPA's capacity on matters concerning ASEAN Economic Community and ASEAN Economic Integration. 'The Ministers encouraged ERIA to undertake policy-based research to improve trade and investment including making value chains resilient to shocks of EAS economies, effectively address the impending recession, promote new technologies and develop a framework for the EAS regional economic integration and development after overcoming the COVID-19 pandemic' in the Joint Media Statement of the 8th EAS Economic Ministers Meeting.

In 2020, ERIA's efforts and activities continued to expand and received unabated recognition from regional leaders. Leaders 'encouraged ERIA to continue providing support to the Chair of the ASEAN Summit and the East Asia Summit by undertaking high-quality policy based research, especially those that will help the EAS region respond well to the after-effects of COVID-19

pandemic', in the Chairman's statement of the 15th East Asia Summit on November 2020. 'The Ministers commended efforts by ERIA as a regional think-tank in conducting quality research work to facilitate ASEAN's regional integration process' in the Chairman's Press Statement of The ASEAN Coordinating Council.

In January 2021, ERIA was ranked 9th in the international economic policy think tanks category, and 5th in the Southeast Asia and the Pacific category of the 2020 Global Go To Think Tank Index Report. ERIA was also ranked 43rd globally in the category of 'Top Energy and Resources Policy Think Tanks.' In short, ERIA's research seems to have been highly valued globally.

We are proud of our achievements in 2020, but we will not be complacent. ERIA will be more vigilant in helping to address the challenges of deeper economic integration and development in ASEAN and East Asia in the years to come.

Prof Hidetoshi Nishimura President

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We are proud of our achievements in 2021, but we will not be complacent. ERIA will be more vigilant in helping to address the challenges of pursuing deeper economic integration and development in ASEAN and East Asia in the years to come.

In fiscal year (FY) 2021, ERIA expanded the scope of its activities to help chart the future direction of ASEAN and East Asia.

A review of ERIA's deliverables for FY2021 reveals that ERIA has deepened its activities to help promote the economic integration and development of East Asia. As part of a study on 'The Impact of Covid-19 on Business Activities and Supply Chains in the ASEAN Member States and India', ERIA conducted an extensive questionnaire survey via Internet from November 2020 to February 2021. Effective responses were received from 1,789 firms – comprising local businesses, including large and small and medium-sized enterprises and multinational firms in all 11 countries. A significant number of firms – particularly those that

were adaptive to the Covid-19 shock in terms of quickly rearranging their supply chains - have taken advantage of the growth opportunities and have a better outlook. Almost half of them experienced positive sales growth in 2020 and more than half of them expect to expand their workforce in the next few years. The survey observed plenty of robust (not reduced) supply chain links between firms and firms' resilient supply chain responses were also observed. Many firms responded quickly to the COVID-19 shock and reconstructed their customer and supplier relationships and adapted their production locations to a non-negligible degree. The geographic diversity of customers and suppliers creates resilience of supply chains. Furthermore, the resilience of supply chains, particularly those with customers, results in improved performance in the long run.



Messages from President

Another important field is energy-related issues. In FY2021, ERIA conducted various studies on energy policy based on the EAS Mid-Term Energy Policy Research Roadmap. ERIA has carried out a variety of projects such as studies on the feasibility a Transmission Highway in ACMECS, Public Attitudes Towards Energy Policy and Sustainable Development in ASEAN Countries, Future Mobility Fuel Scenarios Considering the Sustainable Use of Biofuels and Other Alternative Vehicle Fuels in EAS Countries, and a flexible LNG market. ERIA also conducted projects on the low-carbon energy transition scenario in ASEAN. ERIA reported the progress of each project to the EAS Energy Ministers Meeting of September 2021. Together with Brunei Darussalam, ERIA hosted the 4th East Asia Energy Forum, which discussed low-carbon energy transition and carbon neutrality in ASEAN and East Asia. And together with the Ministry of Economy Trade and Industry of Japan, ERIA also launched the Asia CCUS network to facilitate the CCUS technologies in the region.

During FY2021, ERIA's Healthcare Unit completed one book and three research project reports, including 'Older People and COVID-19 in Indonesia (2022 edition)', which reports the results of a telephone survey to identify the impacts of the COVID-19 pandemic on older people's lives. This survey was proposed by Indonesia's Ministry of National Development Planning (BAPPENAS). Another memorable event handled by the Healthcare Unit was the announcement event of the winners of the second Healthy Ageing Prize for Asian Innovation Award, which was co-organised with Japan Center for International Exchange. Four winners were selected from ten countries by the international advisory committee which consists of leading experts on population ageing

throughout the region. The Healthcare Unit has been expanding its research focus from population ageing to healthcare topics in the region, such as clinical trials. As one of those activities, since July 2021 the unit has had an expert on secondment with the World Health Organization.

In the area of the environment, ERIA conducted several studies on waste management as well as the issue of marine plastic debris in the region under the Regional Knowledge Centre on Marine Plastic Debris (RKC–MPD) as part of the ASEAN Plus Three framework. RKC–MPD has established an online platform titled 'Private sector initiatives to reduce plastic waste and marine plastic debris.' This private sector platform (PSP) highlights best practices of tackling marine debris issues in the region. RKC–MPD held several PSP workshops with Indonesia, Malaysia, and Thailand in FY2021.

Regarding agriculture, ERIA has conducted a project on developing 'the ASEAN Guidelines on Promoting the Utilisation of Digital Technologies for ASEAN Food and Agricultural Sector', together with the ASEAN Secretariat. The guideline was endorsed at the 43rd ASEAN Ministerial Meeting on Agriculture and Forestry held in October 2021.

ERIA has also kept good relations with several external partners such as the Organisation for Economic Cooperation and Development (OECD). OECD and ERIA renewed their Memorandum of Understandings and had a signing ceremony in April 2021. ERIA participated in the OECD South East Asia Regional Programme (SEARP) Ministerial Meeting held in Seoul, Republic of Korea in February 2022 and highlighted the cooperation between

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OECD and ERIA for developing the ASEAN region. ERIA also attended the 42nd ASEAN Inter Parliamentary Assembly (AIPA) General Assembly in September 2021 and has strengthened the cooperation with AIPA based on the MoU to develop AIPA's capacity on matters concerning ASEAN Economic Community and ASEAN economic integration.

The 16th Chairman's statement of the East Asia Summit mentioned, 'We encouraged ERIA to continue providing for the Chair of the ASEAN Summit and the EAS its support and targeted high-quality research and actionable policy recommendations that highlight and address the ERIA's paper on 'Supply Chain Resilience and Post-Pandemic Recovery in the East Asia Summit region' to EAS Economic Ministers.'

The 38th and 39th ASEAN summit leaders also acknowledged the contribution of ERIA to ASEAN in the summit statement: '[ERIA's] support to the development

of Brunei Darussalam's two (2) PEDs, namely the Framework on Circular Economy for the AEC; and the NTM Toolkit in cooperation with UNCTAD. We also appreciated ERIA's assistance and support through research and studies that contribute to ASEAN's economic priorities, including but not limited to the upgrade of the ATIGA, addressing issues pertaining to the mobility of professionals in ASEAN Member States especially in relation to the 4IR, the follow-up work on the ASEAN Seamless Trade Facilitation Indicators — Trade Transactions Cost (ASTFI-TTC II), and supply chain resilience.

We are proud of our achievements in 2021, but we will not be complacent. ERIA will be more vigilant in helping to address the challenges of pursuing deeper economic integration and development in ASEAN and East Asia in the years to come.

Prof. Hidetoshi Nishimura

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President



We are proud of our achievements in 2022, but we will not be complacent. ERIA will be increasingly vigilant in helping to address the challenges of pursuing deeper economic integration and development in ASEAN and East Asia in the years to come.

In fiscal year (FY) 2022, the Economic Research Institute for ASEAN and East Asia (ERIA) celebrated 15 years of remarkable achievements.

A review of ERIA's deliverables for FY2022 reveals that ERIA has deepened its activities promoting the economic integration and development of East Asia. ERIA released a flagship publication — the Comprehensive Asia Development Plan (CADP) 3.0 — which sets out a roadmap for the region's recovery from the coronavirus disease (COVID-19) pandemic and sets out the vision for the future of Asia from four perspectives. First, integration: a more digitally integrated Asia will strengthen the competitiveness of international production networks in Asia. Second, innovation: a more digitally

innovative Asia will upgrade traditional industries and solve many kinds of complex social problems. Third, inclusiveness: achieving a more inclusive Asia requires closing the digital divide amongst people and businesses in all respects – geographical, industrial, and societal. Fourth, sustainability: creating a more sustainable Asia requires harnessing digitalisation to overcome the challenges of achieving a low-carbon economy, an environmentally friendly carbonneutral economy, and a disaster-resilient economy. CADP 3.0 clearly shows that digitalisation is the key to realising a more integrated, innovative, inclusive, and sustainable economy in Asia. The publication was commended in the Chairman's Statement at the 17th East Asia Summit (EAS).

Messages from the President

Another important field is energy. In FY2022, ERIA conducted various energy policy studies based on the EAS Mid-Term Energy Policy Research Roadmap, ERIA's research includes studies serving the East Asia Summit Economic Ministers Meeting (EAS EMM), the Asia Green Growth Partnership Ministerial Meeting, and the Asia Zero Emission Community Ministerial Meeting; bilateral studies with individual EAS countries; and studies based on ERIA's own initiative as a research institute, such as those in the context of the Energy Research Institute Network (ERIN). These studies include an update of the EAS Energy Outlook and Energy Saving Potential; Carbon Energy Taxation, Revenue Recycling, and Competitiveness; and Best Practices and Policies of Carbon Capture, Utilisation, and Storage, ERIA also launched The Technology List and Perspectives for Transition Finance in Asia to promote transition technology in the region.

A wide range of projects on ageing societies and the care of older persons in the region was carried out by the Health Unit, especially in FY2022, when the winners of the third Healthy Aging Prize for Asian Innovation, co-organised by ERIA and the Japan Center for International Exchange, were awarded. In addition, projects in the medical and pharmaceutical fields were advanced, e.g. a memorandum of understanding was signed with the National Center for Global Health and Medicine in Tokyo in December 2022.

In the field of the environment, ERIA conducted several studies on waste management and marine plastic debris in the region under the Regional Knowledge Centre for Marine Plastic

Debris (RKC-MPD) as part of the Association of Southeast Asian Nations (ASEAN) Plus Three framework. The RKC-MPD organises the Private Sector Platform to promote private sector innovation and new technologies to address marine debris, It also hosts the ERIA Expert Group to organise the sharing of knowledge and insights amongst experts in the region. In the field of agriculture, ERIA has promoted a project to support sustainable agriculture in ASEAN.

ERIA has also maintained good relations with several external partners such as the Organisation for Economic Co-operation and Development (OECD). ERIA participated in the OECD Southeast Asia Regional Programme (SEARP) Ministerial Conference held in Hanoi, Viet Nam in October 2022, highlighting the cooperation between the OECD and ERIA for the development of the ASEAN region. ERIA also participated in the 43rd General Assembly of the ASEAN Inter-Parliamentary Assembly (AIPA) in November 2022 and strengthened cooperation with AIPA by renewing a memorandum of understanding to develop AIPA's capacity on issues related to the ASEAN Economic Community (AEC) and ASEAN economic integration.

ERIA contributed to Cambodia's chairmanship of ASEAN and Indonesia's Presidency of the Group of Twenty (G20) in 2022. It also cooperated with the Government of Cambodia to support the Priority Economic Deliverables and ASEAN Socio-Cultural Community (ASCC) pillars based on two memoranda. Finally, ERIA participated in the Second ASEAN Global Dialogue at the 40th and 41st ASEAN Summit, together with EAS leaders and

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Economic Research Institute for ASEAN and East Asia

heads of international organisations. In line with the G20, ERIA participated in three ministerial meetings (Energy Transition; Trade, Investment, and Industry; and Agriculture) to provide the East Asian perspective on the resolution of global issues. ERIA also participated in the preparatory works for the upcoming G20 chairmanship of India.

The Chairman's Statement of the 17th EAS in Phnom Penh in November 2022 stated that 'We encouraged ERIA to continue providing support for the Chair of the ASEAN Summits and the EAS through targeted high-quality research and actionable policy recommendations, as exemplified through ERIA's paper on 'East Asia Post Pandemic – An Integrative, Innovative, Inclusive, and Sustainable Region through Digitalisation' which was presented to EAS Economic Ministers.

The 40th and 41st ASEAN Summit leaders also acknowledged the contribution of ERIA to ASEAN in the Chairman's Statement: 'We noted the achievements in accomplishing Cambodia's Priority Economic Deliverables for 2022, aided by the ERIA', adding that:

We commended the contribution of the ERIA to Cambodia's ASCC Chairmanship, in particular its support to the development of 13 priority ASCC deliverables. We also appreciated ERIA's assistance and support for research including on Learning Loss in Reading and Mathematics at Primary School Level during the Pandemic in Lower Mekong Countries, and workshops that contributed to ASEAN outcome documents under the ASCC, including the ASEAN Declaration on Fostering ASEAN Identity through the Safeguarding of Traditional Sports and Games in the Modern World and the ASEAN Declaration on Leveraging the Role of Sports in ASEAN Community Building and Achieving the SDGs.

We are proud of our achievements in 2022, but we will not be complacent. ERIA will be increasingly vigilant in helping to address the challenges of pursuing deeper economic integration and development in ASEAN and East Asia in the years to come

Prof. Hidetoshi Nishimura

President

Prepared by

Ayu Pratiwi Muyasyaroh
Dega Putra Wardhana
Fabian Muhammad Giffari Putra Riza
Fadriani Trianingsih
Hilmy Prilliadi
Livia Feliciani Nazara
Nadiya Pranindita
Noviawaty
Tomy Waskitho
Tyagita Silka Hapsari