



Summary of ERIA Research Projects

2013–2014



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1 ASEAN Rising: ASEAN and AEC Beyond 2015

Abstract

In response to H.E. Yudhoyono's clarion call during the 18th ASEAN Summit in May 2011, the Economic Research Institute for ASEAN and East Asia (ERIA) prepared the *Jakarta Framework for Moving ASEAN and AEC Forward into 2015 and Beyond*, the output of the Government of Indonesia-ERIA-Harvard University Symposium in October 2011. The Jakarta Framework was presented by ERIA, together with the ASEAN Secretary General, to H.E. Dr. Susilo Bambang Yudhoyono during the 19th ASEAN Summit in Bali in November 2011. The Chairman's Statement of the 18th and 19th ASEAN Summit expressed the Leaders' appreciation of this report of the Government of Indonesia-ERIA-Harvard Symposium, which provides creative ideas for a "competitive, dynamic, inclusive, sustainable, and globally engaged ASEAN beyond 2015".

As 2015 drew nearer and with the impetus for thinking through and preparing for the ASEAN Economic Community Blueprint post 2015 becoming stronger, ERIA decided in 2012 to tap a large number of specialists and experts from the ASEAN region (primarily) and outside to prepare more than 30 thought or issues papers on a wide range of areas related to moving ASEAN and the AEC forward beyond 2015. The papers explicate and deepen the ideas embodied in the Jakarta Framework and are put together in this study '*Moving ASEAN and AEC Forward Beyond 2015*'.

This study highlights the progress of, and challenges facing, ASEAN and AEC, reframes the 1997 ASEAN Vision 2020, proposes targets for ASEAN indicative of a Rising ASEAN, presents and elaborates on a framework toward the achievement of an "ASEAN Miracle", and provides key recommendations for moving ASEAN and AEC forward beyond 2015. The proposed framework emphasizes that the ASEAN Economic Community (AEC) is best seen not only as a regional integration initiative per se but also as a critical cog of a novel East Asian model of development and integration in which ASEAN has been playing a significant role. This model of integration and development is anchored on the formation, expansion and deepening of regional production networks in East Asia driven by flows of direct investment, technology diffusion and trade, and facilitated by more open economic policies in much of the region. There is congruence between the drive toward AEC and the novel East Asian model of development and integration. This synergy can be expected to catapult rising ASEAN to further heights of development and international credence.

Vision, Targets and Framework

Vision

The key elements of the ASEAN Vision beyond 2015 (e.g., 2025/2030) are:

- a) ***Economic Community of Dynamic Development*** – wherein ASEAN is a deeply integrated, connected, highly contestable, and nearly borderless production area and market; a highly attractive investment area for firms within and outside the region; a highly competitive economic region playing a big role in regional and global production networks and value chains; has a growing mass of modern and competitive small and medium enterprises; has prudently managed, well integrated and deepening financial and capital markets; and is a major hub of creativity, technological adaptation and innovation.
- b) ***Inclusive, Resilient, Sustainable and People-Centered ASEAN Community*** – wherein ASEAN Beyond 2015 is a community of vibrant and open societies that is aware of the region's history and diversities, bound by a common regional identity; is inclusive and committed to equitable development; is resilient and able to help vulnerable people and households adjust well to the vagaries of food and energy prices, weather and climate, and natural disasters; supports green and sustainable development; and is people-centered and participative.
- c) ***A Strong, Outward-Looking and Globally Engaged ASEAN*** – wherein ASEAN Member States (AMSs) help to strengthen ASEAN's institutions and mechanisms to enable ASEAN to realize its vision; and the ASEAN community plays a pivotal role in the global community of nations, with ASEAN being the fulcrum of deeper regional integration in East Asia.

Targets

The proposed targets for ASEAN for 2025/2030 are as follows:

- Eliminate dire poverty (i.e., people living below \$ 1.25 PPP at 2005 prices per day per capita) by 2030.
- Reduce expanded poverty rate (i.e., people living below \$ 2 PPP at 2005 prices per capita per day) from around 42 percent in 2010 to around 12.5 percent by 2030.
- Eliminate illiteracy and serious malnutrition in ASEAN by 2030.
- Sustain high growth rate of per capita income of the low and lower middle income AMSs: average of between 5.2 and 7.3 percent per year until 2030.
- Engender more equitable growth in ASEAN with a reasonably good target to have a Gini Index of less than 40.
- Significantly raise ASEAN share to total trade, GDP and FDI of all developing countries and of the world by 2030.

- Dramatically raise the international standing of the AMSs in ease of doing business, logistics performance, and global competitiveness indices by early 2020s.
- Raise intra-ASEAN trade share to total ASEAN trade from the current 25 percent to say, around 30 percent by 2030.
- Ensure robust system for food security outlook, with prevalence of undernourishment reduced to less than 5 percent by 2030 and AMSs’ rice bowl index increased to at least 60 percent by 2030.

Framework

To achieve the Leaders’ vision and the targets discussed above, the Study proposes a framework consisting of four pillars and a foundation toward the attainment of an “ASEAN Miracle” of ASEAN RISING. The four pillars are similar to, evolved from, and deepen the four pillars of the AEC Blueprint: namely,

- Integrated and Highly Contestable ASEAN
- Competitive and Dynamic ASEAN
- Inclusive and Resilient ASEAN, and
- Global ASEAN

In addition, the proposed framework includes “Responsive ASEAN” as the strong foundation of the four pillars.



Source: Authors

The four pillars are not independent of each other and are highly interrelated. Thus, a key challenge for AMSs and ASEAN is to find the balance and virtuous cycle among them, given that the measures needed to realize the four pillars are not easy at all. And precisely because the measures are tough, each AMS and ASEAN need to be responsive, bringing in the various stakeholders in the process of regulatory improvement and institution building needed to effect the ASEAN Miracle.

2 ASEAN Economic Community Scorecard Phase IV: Monitoring the Implementation of AEC Blueprint Measures

In Progress

Abstract

ASEAN Economic Community (AEC) goals and agenda of an equitable, fully integrated globally, and competitive single market and production base is a continuing and evolving challenge and driver for ASEAN Member States (AMSs). Nonetheless, the successful realization of AEC 2015 would be a landmark achievement and milestone for ASEAN integration. The concerted region-wide implementation of priority policy actions and reform initiatives under the AEC Blueprint is expected to put well in place the solid foundations towards an integrated, globally connected, and equitable economic community in ASEAN. At the same time, ASEAN can be expected to start discussions and negotiations on the successor AEC Blueprint beyond 2015 to map out the concerted regional efforts in deepening further regional economic integration and community building in the ASEAN beyond 2015.

Effective monitoring is a central support element in ASEAN's drive towards, and management of, deeper integration in the region. This is especially critical in the context of the "*the ASEAN way*" of regionalism and integration based on shared aspirations, interests and values; mutual trust and accepted procedures; frequent interaction and consensus building; as well as flexibility and pragmatism.

In support of the realization of AEC 2015, ERIA has undertaken the monitoring and analysis of key priority AEC measures in 2010 and 2011, in part in response to the task out from the ASEAN Economic Ministers. In preparation for AEC 2015, through AEC Scorecard Phase IV, ERIA proposes to undertake again a major effort at monitoring the implementation of key priority AEC measures in early 2014. This new monitoring effort is expected to have the following benefits, among others:

- *Determines progress in the implementation of the key AEC measures as compared to the first monitoring effort in 2010-2011.* Given that the implementation of AEC Blueprint is a continuing effort, it is expected that this new monitoring exercise will allow to measure and showcase progress. The measurement of progress using a common methodology can be useful in ASEAN's *messaging to the public* of both the successes and challenges of AEC 2015.

- *Determines the gap between liberalization rate in terms of commitments and liberalization rate in terms of actual policies.* There is likelihood that actual policies may be more liberal than what is committed in the AFAS or ACIA in AMSs. It is useful to determine this gap in AMSs to help indicate areas for possible acceleration of implementation or for informing the pace and extent of liberalization in the negotiations for the successor AEC Blueprint beyond 2015.

Objectives

The AEC Scorecard Phase IV project will have the following objectives:

1. Update the AEC Scorecard scores in Phase I and II for 2014 to determine if there is some significant progress and in which area. The updating will include refinements in the survey questionnaires and scoring systems.
2. Comparison of commitments with actual policies.
3. Explore greater partnership with or engagement of the private business sector in the AEC Scorecard Phase IV.

Key Areas for AEC Scorecard Phase IV

The major areas and issues to be considered in AEC Scorecard Phase IV are tariff, NTMs, services, trade facilitation, standards and conformance, investment liberalization, investment facilitation, transport facilitation, MRAs on professional services and regulatory improvements.

The above list includes the following improvements, expansion and/or enhancement of AEC Scorecard Phase II:

1. Comparison of commitments with actual in selected services industries and in investment liberalization
2. Expansion and possible refinements in the scoring and survey questionnaires in NTM, services liberalization, MRAs on professional services, standards and conformance.
3. Generation of private sector views in a more systematic way.

Approach

The implementation of the study will rely on the participation of ERIA RIN (Research Institutions Network) members for the country studies. In addition, the project will also include participation of ASEAN Business Advisory Council (ABAC), especially on the following areas:

1. Mechanisms to address NTB effects of NTMs—standards and conformance, core NTMs and SPS; streamlining procedures in getting certification
2. Private sector views on trade facilitation (including import permits clearance and COOs procedures), investment facilitation, service liberalization

The Study is expected to be submitted to the ASEC and ASEAN bodies in October 2014.

3 Globalization and Performance of Small and Large Firms

Abstract

In the past decades, growth performance of many East Asian economies has been far above the international standards. There is a growing consensus that one of the key factors behind the relatively strong growth performance of these economies is that they were increasingly integrated with the global market, *de facto* and *de jure*.

However, in many East Asian economies, there is also a growing concern that the growth performance has been very uneven across firms. This is true not only in developed countries such as Japan and Korea but also in developing countries such as Indonesia and Vietnam. In policy debate, this is often translated into the view that there is an increasing performance disparity between *small* and *large* firms. While whether or not this view has a sound factual basis is an empirical issue, the perceived divergent performance between small and large firms has, in reality, become an important economic or socio-economic policy issue.

This study, which is the sixth in ERIA Microdata project series since 2008, attempts to shed light on this issue, with an objective to better understand whether and how *globalization* has affected the performances of small and (or versus) large firms, as well as identifying policy issues which need to be addressed in order to achieve a stronger and resilient economic growth and development in East Asian economies.

The study has 10 papers which cover the following countries: Japan (two papers), China, South Korea, Indonesia (two papers), Thailand, Malaysia, the Philippines, and Viet Nam. The papers examine various issues within the broader topic indicated by the title of the project, utilizing rich firm- or plant-level data set from all of the countries covered. The empirical exercises in the papers were done using careful descriptive analysis as well as robust econometric exercise.

Major Findings and Policy Recommendations

While the results coming out from the papers are interesting, they provide no uniform answer on whether globalization widens or narrows performance gap between smaller and larger firms in a country. Based on the evidence, although it seems to be a stylized fact that globalization tends to widen the performance gap – such as that observed in the case of Indonesia and Thailand, few countries such as China and Japan have revealed that the gap is smaller for China and could

potentially be narrower in the case of Japanese SMEs. This is observed at least in terms of firm-level productivity.

Some of the country papers also underlined that scale disadvantages of SMEs could be the key factor that could explain the divergent performance gap between smaller and larger firms.

In terms of policy implication, therefore, governments need to be careful in applying a policy on globalization when it comes to the welfare effect of smaller firms in an economy (i.e. the SMEs). Policies need to be carefully crafted such that SMEs gain from the globalization while at the same time the detrimental effect coming from globalization could be minimized as much as possible. Some papers reveal that providing access to finance and information (about global market) seem to be a policy that could definitely assist smaller firms to perform better in a more globalized environment, and which should narrow the performance gap.

4 Regional Comprehensive Economic Partnership Related Studies

In Progress

Abstract

Regional Comprehensive Economic Partnership (RCEP) is critical to the deepening of economic integration of East Asia.

RCEP has taken the initiatives on regional economic integration to a higher level. First, in contrast to the ASEAN+1 Free Trade Agreements (FTAs) where individual ASEAN member states (AMSs) had essentially bilateral commitments with the Dialogue Partners, AMSs would likely need to have common commitments vis-à-vis the partners (with perhaps 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 need to be substantially better than those under the ASEAN+1 FTAs; in short, RCEP should not merely be a consolidation of the ASEAN+1 FTA commitments for the simple reason that mere consolidation is only feasible at the lowest common denominator that delivers far less than a number of the ASEAN+1 FTAs. RCEP would need to be a high quality agreement in order for it to be credible and worthy of the resources and time expended for the negotiations and related activities. Moreover, given that RCEP effectively includes an implicit FTA agreement among China, Japan and South Korea which results in trade and investment diversion from ASEAN as compared to the ASEAN+1 FTAs, only deeper facilitation and liberalization commitments would provide additional benefits to ASEAN Member States as compared to the current ASEAN+1 FTAs.

With these objectives in view, ERIA has undertaken a number of studies to support the RCEP negotiations towards a high quality trade and investment agreement with a greater emphasis on economic cooperation.

The ERIA support studies cover:

1. Trade in Goods: Analyses on tariff structure of ASEAN+1 FTAs, rules of origin, non-tariff measures, and other issues related to trade in goods
2. Trade in Services: Analysis of liberalisation in commitments in ASEAN Framework Agreement on Services (AFAS) and ASEAN+1 FTAs
3. Investment: A set of studies comprising mapping study on ASEAN Comprehensive Investment Agreement (ACIA) and ASEAN+1 investment agreements, an analysis on investment policy

including an analysis of foreign direct investment restrictiveness index and an analysis on modalities on ACIA and ASEAN+1 investment agreements

4. Apart from the three studies above, ERIA is also supporting other equally important issues such as the design of economic cooperation among member countries, accession issues, implementation and monitoring including dispute settlement mechanisms, competition policy and IPR through its studies. Other areas can also be included in the list of studies in future.

5 ASEAN+1 Free Trade Agreements: The Use of FTAs in ASEAN

In Progress

Abstract

Economic Research Institute for ASEAN and East Asia (ERIA) in collaboration with ASEAN Business Advisory Council (ASEAN BAC) and national think tanks conducted surveys on the usage of free trade agreements (FTAs) by the private sector. The surveys cover 630 exporting or importing manufacturing firms and 182 services firms that use imported goods in their business operation across ASEAN countries. The surveys were complemented by interviews and focus group discussions with firms, business associations, chambers of commerce and government officials. Considering the relatively small number of manufacturing and services firms in Brunei, focus group discussions were organised instead of surveys. The surveys started in April 2013 throughout August 2013.

Key Findings

The survey and focus group discussion findings reveal a moderate usage of FTAs in ASEAN. In the manufacturing sector, ASEAN Free Trade Agreement (AFTA) has the highest usage of 32% for exports, while ASEAN China Free Trade Agreement (ACFTA) has the highest usage of 33% for imports. In the services sector, AFTA has the highest usage of 36% for imports. This translates to an overall relatively low usage of FTAs, and the main reasons are twofold.

1. Small Benefit Margins of FTAs:
 - a. Small differences between applied most favoured nations (MFN) tariff rates and preferential tariff rates. Moreover, as tariff rates are getting lower, the number of non-tariff measures (NTMs) is perceived to be increasing
 - b. While the official costs of obtaining an FTA certificate of origin (COO) are perceived to be reasonable, the procedure to obtain COOs is perceived to be quite cumbersome
2. Limited information about FTAs.

Key Recommendations

Based on the survey findings, focus group discussions, and discussions among ERIA, national think tanks and ASEAN BAC, we propose the following quick win actions to increase the use of FTAs by the private sector.

1. Raise Benefit Margins of FTAs:
 - a. – Set a target of 95% tariff elimination
 - Design a mechanism to ensure the lowest tariff rates applied
 - Set up country-level regulatory-oversight agencies to carry out NTM reviews
 - b. Adopt a common rules of origin (ROO)
2. Improve the quality of government websites and help desks; raise the knowledge and skills of officials responsible for implementing FTAs; and increase the use of other means of communication, apart from government websites (e.g. mobile phones) to disseminate the information about FTAs.

In conclusion, businesses indicate that they will be better off with FTA preferential tariffs than without. However, it is for the governments, in collaboration with chambers of commerce and business associations, to increase benefits of FTAs and to increase the use of FTAs by the private sector.

6 Trade in Value Added of Southeast Asia

Early Stage

Abstract

East Asia Pacific (EAP) economic growth has outperformed the world growth for the last two decades, except from 1997 to 1999 due to the Asian Financial Crisis. Most East Asian economies are well-positioned to weather any renewed volatility. As the drivers of global economic growth shift towards East Asia and Emerging East Asian economies, we find them well-positioned to benefit from the growing power of Asian economies.

After a decade of China's accession to WTO, no one can afford to not trade with China. But export performance of China was anemic in 2011 and has weakened further in early 2012. As China's growth pattern changes as it moves up the income stages, and is likely to rely more on consumption and less on investment and exports, and more on services and less on industry, opportunities for Southeast Asia to expand their economies through trade and investment emerge. Much of East Asia's production is through production networks. Imports are largely used as inputs for exports. Many countries are engaged directly and indirectly in producing final products.

Given this scenario, this study aims to provide a framework on globalization's second unbundling related to trade and industrialization in Southeast Asia. The study will cover the following issues:

- How does the slowdown in trade in China affect Southeast Asian trade?
- How does Southeast Asia manage to level up its product value added and improve trade competitiveness?

The study will provide rigorous analyses on:

- Southeast Asia's value added and trade competitiveness, and
- product development, product variety, quality upgrading, export market concentration and new market creation of its manufactured export products

Expected Policy Contributions:

- To provide inputs in improving Southeast Asia's value added and trade competitiveness
- To provide lessons learned towards building or joining production network

The study is in early stages and is expected to be completed in December 2015.

7 ASEAN Regional Integration and the Automobile and Auto Parts Industry

In Progress

Abstract

ASEAN has created a highly developed a free trade system that is unique in Asia. In this, the automotive sector has been prioritized. The free trade system began with the Brand to Brand Complementation (BBC) scheme of 1987 followed by the ASEAN Free Trade Area (AFTA) in 1993. Subsequently, ASEAN established ASEAN Industrial Cooperation (AICO) in 1996, which was replaced by Common Effective Preferential Tariff (CEPT) in 2010 accompanied by the creation of ASEAN Trade in Goods Agreement (ATIGA). These preferential business environments promoted intra-regional trades and investments from automotive OEMs and auto parts suppliers.

The automotive and auto parts industry is one of the key sectors for ASEAN to actualize AEC. This is proven by official trade statistics in which automotive parts account for more than 20% of the total intra-regional trades in ASEAN. The AEC blueprint, which illustrates a roadmap toward realizing ASEAN single market and production base, schedules harmonization of standards and technical regulations for automotive sector. Such arrangements will also facilitate intra-regional automotive trade.

There still remain some issues to be improved such as infrastructure (soft and hard) provision, mobility of skilled workers, and connectivity. The objective of this study is to observe the progress of AEC establishment and its expected impact on industrial development, focusing on auto parts industry. Case studies have been conducted to investigate the current business conditions faced by automobile OEMs and parts suppliers. The study includes current state and issues of ASEAN's automobile and auto parts industries in ASEAN 5, AEC and Japan, ASEAN automotive parts logistics, workers mobility in ASEAN, automobile and auto parts industry in CLMV, India-ASEAN supply chain relations and automotive industry in Indonesia.

Expected Findings and Policy Implications

Firstly, agglomeration and economy of scale are crucial for the sector to realize operational efficiency. On basis of these sectoral characteristics, assemblers will develop the optimal intra-regional division of labor in ASEAN. Secondly, policy measures should be designed to support just-in-time systems. It is urgent to fine-tune the combination of hard and soft infrastructure, including the development of ASEAN Single Window customs clearance system. Thirdly, CLMV

should eliminate tariffs on auto parts and materials without exceptions by 2018 at the latest. Fourth, there still remain serious issues of NTBs including various taxes on motor vehicles. Fifth the increase in domestic sales of automobiles can cause air pollution and other environmental issues. ASEAN needs to formulate a cooperative framework to address environmental problems together with firms in the automobile and auto parts industries. Finally, it is indispensable to develop and publish statistics related to liberalization of trade of goods and services, investments, and mobility of skilled workers, especially the last stated, to formulate concrete policies for regional integration.

8 Analysis of Competition Laws in East Asian Countries

In Progress

Abstract

As the East Asian region grows rapidly in economic activities, enactment and improvement of competition policies and laws will play a critical role in this growth by providing critical legal infrastructure to realize market-based economic environments and thus, further accelerate the economic growth. Convergence of competition policy and law is another important aspect in order to minimize the potential risk of contradictory enforcement of competition laws on the same cases. Existence of different sets of competition laws in a region will burden businesses by adding extra burden of compliance.

Introduction of National Competition Policy in all the ASEAN member states by 2015 is one of the policy measures adopted in the ASEAN Economic Community (AEC) Blueprint to realize a competitive ASEAN. What is more, the RCEP negotiations cover competition policy as one of the important chapters. This ERIA study will conduct a comprehensive comparative research on the competition policies and laws in East Asia (namely, Indonesia, Malaysia, Singapore, Thailand, Vietnam, China, Japan and Korea). It is intended to shape common understanding on the elements required in effective competition law system as well as promotion of harmonization with international standards. The framework of this study will be based on the features that are unique to East Asia.

The study is expected to be completed by the end of 2014.

9 FDI Policies and Performance in ASEAN Region

In Progress

Abstract

Foreign direct investment (FDI) is an important driver of industrialization and growth in many developing countries, including those of the member states of ASEAN. The extent of FDI flowing in to these countries has increased tremendously in the past two or three decades and this also coincides with the rapid growth of these economies. While the general positive impact is clear, the literature is still incomplete in documenting the policy issues surrounding the rapid investment flow. The dynamics of the economy post the 1997/98 economic crisis, including the rise of China and the acceleration of the regional ASEAN economic integration are likely be few of the key factors behind the rapid FDI inflows to many Asian, including ASEAN, countries. Moreover, previous studies have noted that there could be great deal of variation in FDI inflow between countries and across industries within a country.

This study addresses this issue in selected ASEAN member states (AMS). It has a general objective of examining the role of FDI policy in explaining the variation in the FDI inflows between the AMS covered by the study. The implementation of this study will be completed in two fiscal years of research. The specific objective of the research for the first year (or ERIA Fiscal Year 2013-14) is to make a rigorous documentation of FDI Policy in all countries covered by the study i.e., Indonesia, Thailand, Malaysia, the Philippines, Viet Nam, and Cambodia.

In the documentation, discussions are made to align the FDI policy with other policies that are often linked to policies governing FDI. Examples of these policies are trade policy, labour policy, education policy, infrastructure policy (hard and soft infrastructure), technology development, and regional economy within a country.

Expected Findings

The discussions in the country papers suggest that other policies, either at sectoral level or related policy (e. g. labour, education policy, general policy on infrastructure development) affect the decision of the foreign investors. The Vietnamese case demonstrates that inadequate public investment in telecommunication sector seems to have slightly deterred the FDI moving in to the country.

The country papers also underline the significance of a country's level of development. The Malaysia country-paper, for example, shows that one of the key challenges to attract FDI is the ability of the country to develop a strong human capital base and to have a critical mass of domestic enterprise with indigenous technology. This, of course, is completely different with the case of Viet Nam where FDI is affected by the presence of rent-seeking model that creates inefficiency.

10 **Study and Survey on Intra-ASEAN Non-Tariff Measures on Trade and Foreign Direct Investment**

In Progress

Abstract

During the last decade ASEAN countries have been active in mutually reducing tariff barriers to trade. This has been achieved mainly through various trade agreements. These agreements have been concluded both bilaterally and at a regional level. Although this process has led to important reductions in barriers to trade, important non-tariff measures (NTMs) remain.

With the rising importance of global and regional production chains and international firms, NTMs constitute an increasingly important impediment both to trade and foreign direct investment (FDI). Trade and FDI that are freed from NTMs would potentially benefit all ASEAN countries. Unlike tariffs, regulation cannot just be removed. However, regulatory differences between countries and trade and investment costs that they create, can be reduced. To understand the extent of these impediments and the potential for their reduction in the ASEAN region, the first step is to measure these NTMs.

This survey study aims to identify and analyze existing NTMs and regulatory divergence at the sectoral level in the ASEAN countries. The survey and the report will focus on at-the-border and behind-the-border costs that emerge from regulatory divergence. The results of this survey will provide insights into the extent of NTMs and regulatory divergence that exist within the ASEAN countries and how large or diverse effect they have on both trade and FDI.

Scope of the Study

The Centre for Strategic and International Studies (CSIS), Jakarta, will provide a complete survey dataset together with a summary of existing surveys on the NTMs in the ASEAN region. The survey aims to observe the importance of NTMs between each trading country for each industry. The survey will be representative of exporting firms in each country. It will cover representative exporting/importing firms considering geography, industry, size, ownership, state of being in an export zone and other firm characteristics.

Firms to be Included in the Survey

A distinction between local and multinational firms will be made in terms of the survey coverage. Local firms will be included in the survey if they export goods and services from the ASEAN six

countries (Indonesia, Singapore, Thailand, the Philippine, Malaysia Vietnam). While multinational will be included in the survey not only when they operate an affiliate in the six ASEAN countries, but also in Brunei, Cambodia, Laos and Myanmar.

CSIS will undertake surveys for the firms operating in both manufacturing and services sectors and located in ASEAN countries and primarily owned by ASEAN countries. Multinational firms owned by non-ASEAN countries would be covered by parallel surveys undertaken by JETRO and the European Commission.

List of Sectors to be Included in the Survey

Scheme I

List of Sectors	ISIC Classification
1 Agro forestry fisheries	ISIC 01-05
2 Other primary sectors	ISIC 10-14
3 Processed foods	ISIC 15-16
4 Chemicals	ISIC 24-25
5 Electrical machinery	ISIC 30-32
6 Motor vehicles	ISIC 34
7 Other transport equipment	ISIC 35
8 Other machinery	ISIC 29,31,33
9 Metals and metal products	ISIC 27-28
10 Wood and paper products	ISIC 20-22
11 Other manufacturing	ISIC 15-37,all remaining
12 Water transport	ISIC 61
13 Air transport	ISIC 62
14 Finance	ISIC 65,67
15 Insurance	ISIC 66
16 Business services	ISIC 70-74
17 Communications	ISIC 64
18 Construction	ISIC 45
19 Personal services	ISIC 91-93
20 Other services	ISIC 40,41,50,51, 52,63,75,80,85,90

Scheme II

List of Sectors	ISIC Classification
ISIC 01: primary agriculture	ISIC 31-32: Electrical machinery, equipment
ISIC 02: forestry	ISIC 33: Medical and precision instruments
ISIC 05: fishing	ISIC 34: Motor vehicles and parts
ISIC 10-12: primary energy	ISIC 35: Other transport equipment
ISIC 13-14: mining	ISIC 36: Other manufactured goods
ISIC 15: processed foods	ISIC 37: Recycling
ISIC 155: beverages	ISIC 40: Electricity, gas, steam
ISIC 16: tobacco	ISIC 41: Water supply
ISIC 17: textiles	ISIC 45: Construction
ISIC 18: clothing	ISIC 50-52: Wholesale, retail, distribution
ISIC 19: leather products	ISIC 55: Hotels, Restaurants
ISIC 20: wood products	ISIC 60: Land transport
ISIC 21-22: paper and publishing	ISIC 61: Water transport
ISIC 23: petrochemicals	ISIC 62: Air transport
ISIC 24-25: chemicals, rubber, and plastics	ISIC 63: Other transport and storage
ISIC 26: non-metallic minerals	ISIC 64: Post and communications
ISIC 27: metals	ISIC 65,671: Financial services
ISIC 28: fabricated metal products	ISIC 66,672: Insurance and pensions
ISIC 29: Mechanical machinery & equipment	ISIC 70-74: Business and ICT services
ISIC 30: Office machinery, computers	ISIC 75, 80, 85: Public services
	ISIC 90-93: Consumer services

11 Meaning of Indian Economic Dynamism for the East Asia Economic Integration Process

Abstract

India's recent economic performance is a success story. This economic dynamism needs to be harnessed by increasing its presence in the East and South-east Asian region in a mutually beneficial manner. Given that East Asia is characterized by developmental asymmetries and a lack of any pan-Asian comprehensive economic integration agreement, this objective of this study is to demonstrate what does Indian economic dynamism bring to the ASEAN+6 process, including its developmental implications. The study highlights the economic significance of India's integration within Asia and also how India's soft power has both cultural and ethical dimensions to this integration.

A detailed analysis is undertaken in the study to conceptually and empirically assess mutually beneficial potential in the realms of trade in goods, trade in services, FDI, demographic complementarities, development partnership etc. The projected growth in the size of India's market and the potential for cooperation in terms of reciprocal market access in areas amenable to creating regional value chains and knowledge-intensive sectors are also dovetailed in the study. Based on the findings, the study makes some broad preliminary recommendations towards creating a pan-Asian comprehensive economic integration framework, which could address developmental asymmetries in the region, through a pro-active Indian commercial presence, along with other ASEAN+5 countries.

Major Findings

- Analysing the macro level trade and FDI linkages between India and ASEAN+5 countries, the study shows potential for further export-augmentation between India and ASEAN+5 region in sectors such as food products, minerals and machinery & electrical. India's FDI outflows have been greater than inflows and in both respect the flows are concentrated primarily vis-à-vis Singapore and Japan.
- The study compared the strategies of growth in all the EAS countries, including India, as a component of their overall development paradigm and the Indian case brings out important lessons for adopting growth strategies which are especially relevant for the LDCs and other developing countries of the ASEAN+5 region.

- Estimates of Computable General Equilibrium (CGE) modelling for different scenarios and alternative configurations of regional economic integration suggest that an ASEAN+6 - based efforts towards RCEP would fetch greater welfare and trade gains for ASEAN+6 countries as compared to TPP. If India's economic presence in the East Asian region is to be viewed in a dynamic setting, the study makes projection of gains for the years 2025, 2030, 2040, and 2050 in mutual trade between India and ASEAN+5 countries in a partial equilibrium framework by using the augmented gravity model in a partial equilibrium set up.
- The country pairs with maximum potential for trade complementarities (Cosine Index) for exports from India to a partner (μ) include Indonesia, Singapore, Cambodia, Australia and the Philippines. Complementarities of exports from ASEAN+5 region to India (λ) are high in the case of Japan, Philippines, Myanmar, Vietnam, among others.
- A more detailed disaggregated level analysis of identifying trade potential that is mutually beneficial, based on RCA methodology at HS 6-digit level identify a large range of products. This potential is identified for country-wise bilateral pairs for two-way trade. Identification of items at Hs 6-digit level are based on three conditions of feasibility, consistency and dynamism in RCA index.
- Using Intra-Industry trade (IIT)-based complementarity measured by Grubel - Lloyd (GL) index at HS- 4 digit classification, the study identifies enormous potential for bilateral country-pair-wise intra-industry trade for a large number of items and industry, pronouncing India's trade-relevance both as a demander and supplier of products.
- The study finds an inverted-U type relationship between IIT and RCA. To determine the policy response to address this situation, whereby horizontal IIT type trade flows could be sustained, the study explored the determinants of IIT, with the help of Tobit model, and found that one of the most important determinants of IIT is an RTA among ASEAN+6 countries in which India's RTAs play an important role. India has the potential to contribute to trade augmentation by becoming an integral part of the regional production networks, facilitated by a region -wide FTA under RCEP.
- The study finds huge potential for tapping two-way FDI complementarity between India and the ASEAN+5 region. Sectors amenable for India's outflows include all the segments of agriculture, industry and services. For FDI inflows, these are primarily in various services such as construction, telecommunications, software, hotel and tourism and manufacturing such as computer hardware, drugs and pharmaceuticals, chemicals, automobiles, and metallurgy. The study also amplifies India's needs of investment for infrastructural upgradation.

- India's geographical location can make it a hub for ASEAN+5 countries for accessing the market of South Asia, Central Asia, West Asia and especially the Eastern Cost of Africa from north to south. It can also be the potential hub in knowledge-intensive and hi-tech sectors like the IT, Automobiles Designs, Chip designing, Chemicals and Pharmaceuticals, Bio-informatics, Refined Petroleum etc.
- India has potential to contribute through its 'soft power' in Audio-Visual services, traditional medicines, yoga and other dimensions of the Indian way of life.
- The demographic dividend in India can be utilized through two-way human resources flows, i.e. the Temporary Movement of Natural Persons (TMNP) through Mode 4 of trade in services, vis-à-vis aging economies in the East Asian region and also those countries that are expected to face skill shortages.

Policy Recommendations

- Broadening and Deepening Regional Economic Integration in Asia:** The study proposes an Asian Economic Community by bringing together all major sub-regions of the continent following a building bloc approach. These may cover trade and investment liberalization, cooperation and facilitation across sectors under the RCEP process of ASEAN+6 within an agreed timeline.
- According Special and Differential Treatment to Less Developed in Trade Liberalization:** A regional economic integration scheme bringing together highly advanced economies and least developed countries together has to recognize the differences in the capacities of partner countries and incorporate special and differential treatment (S&DT) to enable the lesser developed countries to participate in the regional economic integration according to their capacities.
- Cooperation in Appropriate Technology and Human Resources for Bridging Development-Gaps:** Besides trade liberalization, cooperation in the domains of information and communication technologies (ICTs), educational services and R&D to bridge digital and knowledge divide could be given greater emphasis in Asia to bring about development convergence under an FTA.
- Harnessing Indian Economic Dynamism and India's Soft Power:** The advantage of Indian economic dynamism from both the angles of India being a demander and supplier of goods, services, FDI, technology or knowledge-intensive products and services and human resources should be harnessed.

12 Entrepreneurship and Local Technological Capacity in the East Asian Natural Resource-based Production Network

Abstract

Previous researches of ERIA have emphasized the importance of participation in international production networks in order to benefit from technology transfer. But evidences show that beneficiaries in the manufacturing sector are mostly limited to Multi-National Companies (MNCs) and a handful of local firms which are capable of meeting requirements from MNCs. On the other hand, natural resource based (NRB) industries account for significant portion of exports for most of the ASEAN member states. There are indigenous big enterprises in the member states which are already internationalized and have created international networks which are governed by themselves, through which technology could be transferred within the region. However, little attention has been paid to the NRB industries for establishing a clear relationship between technology and network.

The main objective of this research project is to get a deeper understanding of technological upgrading and production networks in the NRB industries. To this end, two methodologies were adopted: case study and survey.

For the case study, one leading industry enjoying comparative advantages was selected from India, Indonesia, Lao PDR, Malaysia, the Philippines, Thailand, and Vietnam. The selected industries for each country are the following: rubber processing (India and Thailand); seafood processing (Indonesia and Vietnam); fruit processing (Lao PDR); palm oil (Malaysia); and furniture (Philippines). For each country case study, three firms with different characteristics (size, ownership, market orientation, age) were selected to evaluate their technological capabilities using the Bell and Pavitt' taxonomy of technological capabilities which classifies level of capabilities into three levels: basic, intermediate and advanced. For this study, as most case studies being processing firms, emphasis was placed on production capabilities (process and production organizations and product-centered) with lesser attention paid to investment and supporting activities. Each country study made cross-firm comparison in terms of level of capabilities, technological efforts, and outputs to find similarities, differences and lessons learnt.

In tandem with the case studies, the questionnaire surveys were conducted in five geographical areas that cover main industrial districts within four ASEAN countries: Jabodetabek in Indonesia,

Calabarzon in the Philippines, Greater Bangkok Area in Thailand, and Hanoi and Ho Chi Minh Areas in Vietnam. This year's survey asks firms about product safety, in addition to the existing questions like respondent's business profiles; innovation and upgrade activities; sources of technologies and information; and business tie-ups with customers and suppliers. In addition to these four countries, the survey was also organized in Lao PDR, focusing on firms supporting NRB industries. As of the end of February 2014, the dataset is in cleaning process. Analyses based on the new dataset will be conducted after cleaning up the dataset. To supplement the quantitative study under development, the dataset constructed in FY2013 project has been used to make a comparison of the innovation process between natural-resource-based industries and other processing industries.

Major Findings and Recommendation

Role of Downstream Industries in Upgrading Upstream NBR Industries

- The role of downstream industries as providers of sophisticated demand is very crucial in technological upgrading of upstream natural resource processing industries.
- National government should support local firms and MNCs to set up locally downstream industries and more technologically sophisticated activities, which create a more sophisticated demand inducing technological upgrading of the upstream industries.
- At the ASEAN+6 level, special attention should be paid to AEC and FTAs within ASEAN+6 to link upstream industries in less developed countries with downstream industries in developed countries.

Sectoral Innovation System and Sector-specific Support Mechanism

- Technological development and innovation of firms depend on sectoral innovation systems in which they operate. Sector-specific actors should have enough capabilities to perform their roles and interact with each other to create, diffuse and exploit new and existing knowledge.
- National governments can set up sector-specific activities for: (1) research and diffusion of specialized knowledge; (2) HRD program through collaboration with university and industry; and (3) networking and trust building among actors in the sectoral innovation systems. Sector-specific sources like tax collection from those specific sectors can be introduced to fund the aforementioned sector-specific activities.
- Lessons learnt from successful and failure cases should be jointly studied and shared among ASEAN+6.

Industrial Cluster

- Geographical clusters do matter. Successful collaboration between farmers and firms and among each of them in closer geographical proximity was illustrated in case studies.
- National governments should have cluster policies and local government, business associations and universities should be strengthened and empowered.
- At the ASEAN+6 level, cross-country clusters like food cluster in the Thai-Laos border area can be encouraged.

Local Entrepreneurship

- Local entrepreneurship makes a difference. More successful firms in innovation, technological capability development and internationalization rely on entrepreneurship.
- National governments should incubate opportunity-based entrepreneurs (as opposed to necessity-based ones). Second-generation entrepreneurs can move from necessity-based to opportunity-based ones, if they have adequate education and support.
- Projects such as networks of venture capitals, angel investors, and business mentors at the ASEAN+6 level should be initiated to support opportunity-based entrepreneurs.

13 Cross-border Soft Infrastructure Improvement in the Inland ASEAN

In Progress

Abstract

Transport facilitation is one of the essential measures for ASEAN to deepen the economic integration, to strengthen ASEAN's competitiveness and to enhance people-to-people connectivity. ASEAN Economic Community (AEC) Blueprint, Master Plan on ASEAN Connectivity and Brunei Action Plan clearly emphasized the importance of transport facilitation and specified the prioritized transport facilitation measures.

While AEC measures have been not fully implemented yet, production networks are expanding and becoming more sophisticated using new and existing trade and transport facilitation measures. With ongoing transport facilitation between Laos, Cambodia, Vietnam and Thailand, the Mekong region has been the forerunner of ASEAN in terms of transport facilitation.

Simulation analysis by IDE/ERIA-GSM revealed that development of the Mekong-India Economic Corridor (MIEC) had a larger impact on the Mekong region than the other GMS economic corridors. While MIEC is promising, there are two missing links in MIEC: (1) Dawei deep seaport and link between Dawei and Kanchanaburi and (2) Transit transport between Bangkok and Ho Chi Minh City. IDE/ERIA-GSM suggests that firms would want to utilize these links as they will boost the economic activities in the Mekong region.

Given this background, this study raises the following research questions:

- What are the real bottlenecks in the missing link of Bangkok-Ho Chi Minh City transit route, among several soft and hard infrastructure issues? What are the differences between Bangkok-Ho Chi Minh City transit route and Bangkok-Hanoi route?
- Bilateral MoUs, instead of the Cross-Border Transport Agreement (CBTA), have been operated at most of the borders in the Mekong Region. The difference and the gap between the MoUs and the CBTA can affect the transport facilitation during the transition period. What are the gap between them?
- What transit transport measures should be implemented for the Dawei-Kanchanaburi route and full-fledged utilization of MIEC?
- What are differences between the East-West Economic Corridor (EWEC) and MIEC? How can the potential benefit of EWEC be maximized?

- Will coming AEC transport measures help solve the issues? What are the potential gains of AEC transport measures, and if potential gains are significant or marginal? Will AEC measures benefit small and medium enterprises or just empower large multinationals? How do AEC measures affect domestic logistics firms? And how do AEC measures contribute to reformation of production networks?
- What areas need addressal after the AEC measures are in place?

This study will cover both passenger and freight transport and will conduct comprehensive stocktaking among domestic regulations, bilateral MoUs, sub-regional initiatives, and possible AEC measures.

Research Methodologies:

- Conduct stocktaking study on transport facilitation measures in Inland ASEAN countries, i.e. Cambodia, Laos, Myanmar, Thailand and Vietnam, including translation of domestic legal documents on transport facilitation for passenger and freight transport
- Conduct interview government officials at the borders, local and central governments, manufacturing firms, logistics forwarders and related organizations
- Conduct simulation analyses by IDE/ERIA-GSM
- Conduct case studies in specific borders along MIEC and EWEC
- Identify possible impacts of AEC measures, and
- Identify difficulties in implementation of AEC measures.

Expected Policy Recommendation:

- Share the problems of current schemes in MIEC and EWEC with policy makers and existing/potential users of transport facilitation measures
- Harmonize and simplify policies on transport facilitation among countries
- Examine the possibility of starting from specific borders like the Initial Implementation of CBTA
- Facilitate the dissemination and the capacity building programs
- Apply the best practices to Dawei deep seaport project, regardless from AEC measures, sub-regional initiatives or bilateral agreement to allow Thai container trucks to come directly to the Dawei port, and
- Explore applying the best practices to IMT and BIMP areas.

This study will be a major component of ERIA's forthcoming integrated study on connectivity in ASEAN and East Asia.

14 Innovation, Technology Transfers, Finance and Internationalization of Small and Medium Enterprises' Trade and Investment Policy: Best Practices for ASEAN

In Progress

Abstract

The results of the ASEAN Small and Medium Enterprise (SME) Policy Index scoring on 8 policy areas (i.e., institutional framework; access to support services; cheaper and faster start-up and better legislation and regulation for SMEs; access to finance; technology and technology transfer; international market expansion; promotion of entrepreneurial education; and more effective representation of SMEs' interests) show that there is a lot to be done in order to move towards the best practice in each of these policy areas. The most significant gaps and low regional standing are on technology and technology transfer, access to finance, promotion of entrepreneurial education, cheaper, faster start-up and better regulations, and access to support services.

There is a distinct need to fast track the processes in support of narrowing policy gaps in ASEAN Member States, especially in the areas of technology development and transfers, access to finance, and regional strategy to boost SMEs' participation in trade and investment in ASEAN and East Asia. For this, identifying and sharing policy best practices in these areas are critical in fostering regional SMEs' policy cooperation and providing practical policy implementations. The project would focus on the following policy areas:

- a. Best practices in SMEs' support policy for innovation, technological development, diffusion, and transfers
- b. Best practices in facilitating SMEs' access to finance
- c. Best practices in promoting SMEs' participation in trade and investment in the region

15 **Financing Infrastructure in ASEAN Member States: Fiscal Landscape and Resources Mobilization**

Abstract

ASEAN Connectivity becomes a central issue to integrate and consolidate ASEAN member states (AMS) towards realizing ASEAN Economic Community 2015 and beyond. To materialize the connectivity, ASEAN still faces several obstacles, in all three pillars of connectivity, *i.e.* physical, institutional, and people-to-people connectivity. Physical connectivity is mainly directed through Master Plan of ASEAN Connectivity (MPAC) document that listed several prioritized projects.

The ASEAN Connectivity Coordinating Committee (ACCC) is the body tasked to coordinate and oversee the effective implementation of the MPAC. One of main problems of implementation of MPAC is finance. This study maps the current infrastructure development and the fiscal condition and policy in all AMSs and available financial sources at regional level. It also look at the fundamental challenges towards utilization of funds and recommends a regional mechanism which has major role for ACCC's to push forward financing infrastructure in the region. With a short supply of public financing to meet the demand for infrastructure, there has been an increasing need for private participation. One important aspect in this study is to look at possible avenues to increase the role of Public-Private Partnership (PPP) in financing infrastructure and ASEAN Connectivity.

Major Findings and Recommendations

ASEAN member states have different stages of infrastructure policy, financing method, and financial capacity:

- a. Singapore and Brunei have abundant domestic financial resources to build infrastructure.
- b. Malaysia, Indonesia, Thailand, and Philippines have been adopting PPP quite progressively to fill financing gap and tap private sector's competence.
- c. In Cambodia and Vietnam, even though PPP has not yet been formalised, private sector participation is becoming increasingly important in infrastructure development.
- d. Laos and Myanmar are still facing multiple challenges: lack of fiscal resources, low capacity, lack of regulatory framework, and challenging fiscal sustainability.

Regulatory Framework

Indonesia, Philippines, Thailand, and Vietnam have issued specific regulations on PPP. Singapore, Malaysia, and Brunei have applied PPP without having specific regulations. In Singapore, PPP is

part of Best Sourcing Framework, a policy that requires public sector to market test its services and opt for the most efficient and effective way of procurements including engaging private sector. Singapore, Malaysia, and Brunei may not need to enact a special law on PPP due to solid foundation of regulations as a basis for PPP policy. Other countries in ASEAN, *i.e.* Cambodia, Lao PDR and Myanmar have not yet developed a PPP system. Therefore private sector participation is there in practiced but without any specific framework for PPP.

Potential Financial Sources

1. Domestic (owned financial sources): Significant only for Brunei (government), Singapore (government and private), Indonesia, Malaysia, Philippines, and Thailand (private). The role of capital market as an intermediary to channel the funds is important.
2. Intra-ASEAN: Potential is high for all members but still has limited channels.
3. Extra-ASEAN: Potential is high especially from long-term funds including pension funds, insurance funds, sovereign wealth funds, etc. Problems lie in attracting the investment.

Policy Recommendations

1. To move forward, PPP in ASEAN should be directed towards improvement and strengthening several aspects of regulatory framework, process, and capacity building, as well as in private sector development, effective mobilization of financial resources, and enhancing regional coordination.
2. Several issues need greater attention. These include increasing the certainty for and confidence of potential investors especially those investments which come through regulatory framework, managing optimal risk sharing between public and private sector, providing well-prepared and sustainable projects, functional PPP Unit well-connected with PPP Centre in the region, systemized capacity building and effective evaluation, as well as opening for and channelling of larger financial resources.
3. In developing PPP in the region, the differences in development and policy stages across the member states must be borne in mind. These differences pose a condition that cannot be addressed by adopting uniform PPP tools as practiced in advanced economies. ERIA will start with providing PPP Guidelines tailored for ASEAN economies that features the uniqueness of the region. These special characteristics are attributed as “PPP in ASEAN Way”.

16 Intellectual Property Policies for Investment Promotion

In Progress

Abstract

This study was requested by the ASEAN-Japan Heads of Intellectual Property Offices (IPOs) to examine IP policies for investment promotion.

ASEAN adopted ‘ASEAN Intellectual Property Rights (IPR) Action Plan 2011-2015’ in 2011. The Action Plan recognizes that to encourage foreign direct investments (FDI) in the region, ASEAN needs to ensure the protection and enforcement of IPRs of trading partners. In order to support this recognition and promote FDI, there is a need to identify the protection and enforcement measures pertaining to IPRs which are essential for FDI.

This study investigates the current status of IP regime and IP policy in the ASEAN Member States (AMS) and how the AMSs should develop their IP-related policies in order to promote the investment from MNCs. The main tool of this investigation is through interview survey. Selected MNCs that are considering expansion into the AMSs and those already in the AMS are to be interviewed with a common set of questionnaires so as to identify the opportunities and challenges of the IP landscape in the AMSs.

Expected Findings and Policy Recommendations

The survey interview will mainly produce the following outcomes:

1. Factors which were given importance in determining direct investment in the ASEAN countries
2. Relative importance of IP elements in determining direct investment in the ASEAN countries
3. Particulars of those IP elements which were given importance in determining direct investment in the ASEAN countries
4. Problems and challenges faced after expanding into the ASEAN countries
5. Expectations for robust and satisfactory IP systems and policies in the ASEAN countries

17 Development Potential of the Content Industry in East Asia and ASEAN - Phase II

In Progress

Abstract

This project is in the second phase of the study on development of content industry in the ASEAN and East Asia Region. . In the Phase I, the study made the following findings:

The total market size of the content industry (TV broadcasting, Film, Animation, Games and Music) is 191 billion USD (2011). The audiovisual content industry (TV broadcasting, Film and Animation) is 140 billion USD (2011). The market growth of the content industry for five countries, namely China, Korea, Thailand, Malaysia, and the Philippines were higher than their GDP growth, indicating the growth potential of the industry. This growth also leads to a large scale labor absorption. The current direct economic contribution of the audiovisual content industry, which is the value added by the industry to the whole economy (eight countries in total), is 0.41%. The total economic contribution is 0.96%.

The audiovisual content industry in the five countries can reach 200 billion USD at a GDP growth scenario. In addition to the GDP growth, it has the potential to reach 257 billion USD at a potential scenario. While all the countries recognize the key policy issues and adopt relevant policy measures, these factors are not well organized enough to establish a strong industry and the government support measures are inadequate. Growing international demand calls for stricter countermeasures against piracy, and global competition requires more aggressive governmental involvement. The competition between domestic and foreign companies is becoming keener, along with increasing international demand for content. The problems of piracy and copyright infringement are the most serious problems in the content industries. These problems require proper governmental roles, suitable organizations, enough budgetary provision, etc.

Following the Phase I study, and inviting the same members from semi-government institutions, the second Phase of the study firstly updates the key data (especially the content market size) and policy information by using the same methodology. Second, this study examines the implementation status, policy impacts, as well as perceived policy needs by utilizing survey questionnaires to the private sector and aims at verifying the policy recommendations presented in the Phase I study.

The findings and recommendations of the Phase II of the study will be published in July 2014.

18 Social Security System and Fiscal Policy in India, China, Japan and Indonesia

Abstract

This research project builds upon the previous ERIA research on Social Security Systems with three main objectives. The first is to review the modeling techniques used in the literature to project pension related old-age expenditure, and examine the quality and policy relevance of the projections, particularly for the four most populated Asian countries: China, India, Indonesia, and Japan.

The second objective is to assess the additional fiscal resources likely to be required by these four countries as they address challenges of rapid ageing. Conventional projection techniques with appropriate modifications are found to be suitable for Japan and China, but not for India and Indonesia for whom only rough projections on various components of social security system are found to be relevant.

The third objective is to explore avenues for each of the four countries for finding fiscal space needed to finance age-related expenditure. The focus on understanding and evaluating modeling techniques for age-related pension expenditure, and then linking the projected needs to reforms in fiscal systems so that additional fiscal resources can be generated, fills an important gap in the pension literature for these countries. This is because pension reforms and fiscal reforms are usually analyzed separately in the four countries. The study's premise is that an integrated approach to both is needed and essential link between the two should be recognized. It is expected that such a linkage will assist policymakers in taking a broader view of pension system reforms. The study will also have policy implications for other countries.

Major Findings and Recommendations

On the modeling, the study reviewed the adopted methods used by IMF (2011) and Standard and Poor's (2010) for large emerging countries. It is shown that the magnitude of estimates depends significantly on the assumptions underlying the projection. Several aspects that should be noticed in a broader context for making and using projections are pointed out. Some of the country specific findings are as follows:

China

Current Basic Old Age Insurance System (BOAI) for urban employees in private sectors is unsustainable, the annual deficit of the system will be 5% of GDP in 2030 and the accumulative

deficit in 2030 is to be as high as 32%. Expanding coverage to rural migrant workers will improve the dependency ratio in BOAI system and could improve the financial balance by a large margin. Increasing retirement age by 5 years in 20 years period of time since 2014 will significantly improve the financial situation of BOAI system in the next 30 years. Cutting contribution rate does not necessarily reduce the revenue in pension fund. Instead, it provides incentive for participation and could increase collection rate. If increasing retirement age and inputting subsidies of 1% of GDP at the same time, BOAI system will maintain surplus till 2040.

BOAI scheme is the core program in Chinese public pension system. The reform tendency of the system is to provide a uniform scheme with broad coverage to all employees in industry and service sectors. It is unrealistic to provide a uniform system with a contribution rate as high as 28%. The paper's core suggestion is reducing the contribution rate.

It also argues for the need to provide additional fiscal expenditure to pension system based on the requirement for financing the transition costs. The current high contribution rate is largely due to the fact that part of the contribution is used to cover part of the transition costs. Instead, fiscal funding should be used for this purpose in order to alleviate the pressure of the contributors. The study simulation shows that if the retirement age is raised to 65 and 60 for male and female respectively, the coverage is extended to as many as the 80% of the urban employees and 1% of the GDP is put in as fiscal subsidies annually then a contribution rate of only 20% could ensure the balance. The policy implication of this study is in line with some future reforms identified by the China government. The third plenary session of the 18th Communist Party of China (CPC) central committee in 2013 set out several important reforms related to the sustainability of public pension. China will loosen the one-child population policy, allowing couples to have two children if one of them is an only child. The new policy is expected to increase future fertility rate. Government will greatly increase spending on medical services, social security and environmental protection, and at the same time, start to think about cutting down the contribution rate of social insurance. Another important policy is to increase the dividend rate submitted by SOE to 30% by 2020.

India

The Indian case study examines potential increases in age-related expenditure on pension in India. The paper argues that the approach to such estimation should be based on examining dynamic trends of each of the components of India's social security system. Accordingly, the civil service pensions, private sector mandatory pensions, and informal sector pension component, and social pension schemes are examined separately. The paper estimates that for pensions alone, between 2 and 3 percent of additional GDP will need to be spent by 2030. The paper however finds that fiscal risks

and contingent liabilities of current and prospective pension proposals could impact on the estimates, and their management should be an essential part of addressing the challenge.

The analysis of India's fiscal system and fiscal and public debt sustainability sets the context for analyzing avenues for fiscal space to fund additional pension expenditure. An important insight emerging from the discussion is that as India's is a federal country with 29 states and 7 Union Territories, and as each state has its own pension arrangements for civil servants and for social pensions, fiscal capacities of the state governments would be crucial in securing the fiscal space, and in delivering on the pension promises.

Indonesia

This study looked at the fiscal implication of adopting various pension schemes (civil servants pension and possible basic pension) with regards to demographic changes. The reform of Indonesia social security system will be fully implemented in 2029, when Indonesia will be likely entering its ageing phase. There are three scenarios examined: a) Central Government will be liable to pay the basic pension benefit for the poor pensioners, b) Central Government will be responsible to pay the basic pension benefit for those who have never been working in the formal sector, c) Central Government will pay the basic pension benefit for all population at pension age (other than civil servants). The Central Government pension expenditure in 2030 is projected to be in the range of 0.90-2.6% GDP depending on different scenarios and assumptions. The projection shows that the future public pension liabilities will depend very much on the design of future pension system. If the Government chooses to contribute only for the poor and the disabled population, the future liabilities will be much smaller than to contribute to all informal workers and to the whole pensioners. Nevertheless, the future burden for the informal sector pensioners may still be a part of the system since they are very large in Indonesia. There are several ways in which the future liabilities can be met. The first is by increasing the tax effort. However, this choice will result in uncertainty for pension fund since such resources could be used for other state expenditures. Second is to introduce a new tax of which the revenue is earmarked for pension fund. An alternative would be the payroll taxes. Other alternative is by enforcing more contribution from the civil servants and the workers of informal sector in line with the increased salaries. Last alternative, especially for the local civil servants is the burden-sharing between the Central and Local Governments. Moreover, this research suggests that the Government should change the age of retirement from 55 to 60, which was also suggested by ADB (2007).

Japan

This study examines how macro-economy indexation system –that was introduced in the 2004 public pension reform in Japan– works under several scenarios and shows the future trend of pension expenditure GDP ratio. With a simplified model where the macro-economy indexation might be executed any time, it could be easily observed how the indexation performs. It is shown that the macro-economy indexation fully works only when the growth rate is higher than about 2%. Moreover, if the economy grows at 2% in a long term, the pension expenditure GDP ratio will become 11.7% in 2060, and 5.8% in 2110.

19 **Public Private Partnership in ASEAN Countries- Phase II: Institutional Assessment to Develop Public Private Partnership System in Cambodia, Laos PDR and Myanmar**

Abstract

Implementation of a PPP system requires an existing set of preconditions. The establishment of a PPP system itself requires several stages to be completed—to wit, the government should establish a public sector auditor for economic and social infrastructure projects so as to assess value for money to the community for a PPP model; have a clear strategic plan with priority infrastructure projects in the pipeline; understand project risk and risk allocation between the public and the private sector; formulate the objectives of PPP and develop clear and transparent guidelines for private sector participation; assess the prerequisites and requirements including the legal framework; establish the system; monitor PPP projects from pre-feasibility to procurement to implementation and evaluate so as to achieve collective learning and making any re-adjustments to policy.

CLM are, however, countries that will be mature in not so far future; international aids and investment will flow into the countries if institutional reform is successful. They have opportunities to adopt PPP into their development strategies, given that international financial resources might be accessible for bankable schemes. Therefore the first task on hand is that CLM must develop a feasible and lucid PPP policy and framework, and to do so, it needs a background study and gap analysis of making appropriate PPP in respective countries.

This study assesses current development of private finance initiative in CLM and the stage of PPP policy maturity. It provides analytical review of regulatory and institutional frameworks and suggestions to move forward private participation in infrastructure development.

Major Findings and Recommendations

Experience in Infrastructure Development

The Lao Government has considerable experience with build-operate-transfer (BOT) transactions across a number of sectors, including at the provincial level. Lao has progressively implemented laws to facilitate private investment and has adopted sector-specific priorities. Even though a regulated and standardized PPP is still absent in Lao, the country has, however, chosen a high growth path to achieve its development aspirations and has high levels of state investment in infrastructure, particularly in the hydroelectric power sector.

In Cambodia, the PPP approach has been adopted in the development of economic infrastructure, most notably in the power and telecommunications sectors, and on a limited scale in the transport, sanitation and water supply sectors. Backed by strong political commitment and a positive investment climate, PPP projects driven by using the common legal platform as conventional private investments have shown commendable results.

The Myanmar government, through its Privatization Commission, has already begun privatizing a number of state economic enterprises, including many buildings; factories that produce textiles, consumer goods, and electronic and electrical goods; warehouses; and cinemas. Further privatization and deregulation of public utilities can be considered given the government's limited resources and capacity. This will also facilitate foreign investment in these segments of the economy. As in Cambodia and Lao, Myanmar has experience in BOT types of project, such as roads and airport.

Evidence suggests that foreign direct investment (FDI) is greater in countries with effective institutions than those without. In particular, a sound governance framework, the development of local capital markets, an accessible dispute resolution mechanism, improved procedures for doing business, and greater certainty in commercial law will improve the country's competitiveness as a private investment destination in the region. Comparative international data suggest that Lao's formal institutional performance is low to middle-ranking within ASEAN and low by global standards. Myanmar faces similar situation, especially the absence of a credible infrastructure planning and procurement framework, insufficient capacity for project design and implementation and poor accountability, performance and contract management.

In Cambodia projects are issued on a reactive and unsolicited basis. This brings into question the transparency of the process and hence whether the whole award process optimises value for money to the Government. But similar to Lao and Myanmar, the requirement to have enough bidders is not easy to fulfil. These countries have to overcome lack of clear process to ensure that the PPP process is fair and transparent to all parties.

General suggestions for the three countries, include:

- (i) to define PPP framework with adequate and sound regulatory framework
- (ii) to establish a dedicated PPP Center under which the process of PPP is handled smoothly through one institution, and
- (iii) systemized capacity building in PPP starts from core officials and later reach out to wider stakeholders

20 Disaster Risks, Social Preferences and Policy Effects: Field Experiment Studies in Selected East Asia Countries

In Progress

Abstract

A number of devastating natural disasters have hit both developed and developing countries in the recent times. Disasters can have serious negative effects not only on lives, but also on the survivors' livelihoods in the aftermath. To identify effective policies to facilitate livelihood recovery of the victims of a disaster, it is imperative to clarify whether the disasters affect the poor disproportionately. Works have begun recently to investigate the welfare impacts of natural disasters as well as man-made disasters such as economic crises through price changes.

The objectives of this project are:

- (i) to fill in the remaining large gap in the literature on behavioural impacts of disasters. Such a study is also indispensable in terms of designing and implementing appropriate post-disaster policies
- (ii) to identify effective reconstruction and rehabilitation policies by quantifying people's behavioural responses to each policy in order to negate impact of such policies, and
- (iii) to provide policy recommendations at community, national, and regional level.

21 Preparing for Natural Disasters: ASEAN Perspectives

Abstract

Disaster, as a phenomenon impacting the economic activity, is quite different from other crises, like a global financial crisis, in many ways. It is characterized by sudden occurrence of the event, loss of lives, negative externalities, non-uniform distribution of damages over space and a dynamic trend change from large negative shocks to a positive demand injection for recovery and reconstruction. As such, the impact estimate of disasters entails a delicate exercise methodologically. This ERIA study is a support towards serious endeavors of Asian nations to prepare for natural disaster. It focuses on the methodology of impact assessment, the cases for impact on poor households, and on disaster-linked financial instruments. The study also reviews current insurance systems of natural disaster and proposes improvement therein for ASEAN.

Major Findings

The improvement and advancement of both stock impact (damages) and flow impact (losses and higher-order effects) estimations are still desirable with the careful presentations of assumptions and of limitations of the methodologies. The estimation of distributional impact of disasters is a more important issue in many developing countries, rather than in developed countries, since only limited financial and/or technological resources for both post-hazard reconstruction and pre-hazard countermeasures are available in developing countries, and, as Albala-Bertrand (1993) pointed out, most of the disaster casualties have been in the poorest countries or regions and among their weakest socio-economic groups. It is not necessarily true but most likely that the public policies (countermeasures) against disasters based on the impact estimation at macro level inevitably emphasize efficiency, *i.e.* protecting more valuable assets and properties, because the impact estimation is derived through evaluating the value of damaged assets or of lost goods and services.

In the context of improving regional resilience, the study found that the region still lacks reliable data and insurance coverage. Therefore, it recommends to establish a regional center for disaster risk data, modelling and insurance that would be a critical first step for regional cooperation in natural disaster risk financing and transfer. The empirical results from West Sumatera case also support the idea that ex-ante insurance scheme, even though the coverage is rather small, can have a positive effect on short-term recovery.

Some of the other findings, in country case studies, are as follows:

Indonesia

This study found that households living in the rural area/working in agriculture sectors are most vulnerable to natural disasters. Nevertheless, around 30% of household are better off since their experience with disasters as they received assistance which were more than the cost of damages. The econometric models confirmed that the earthquake is the most destructive disaster affecting the household welfare, while drought, forest fire, floods and other disasters affect the household welfare only to a lesser extent. Earthquakes can easily send household into poverty condition. All econometric models appear to consistently support the hypothesis of the Schumpeterian “creative destruction” of disasters. Disaster mitigation preparedness can reduce the devastating impacts and the vulnerability of household when disasters occurred. This study suggests several policy recommendations to protect households from the adverse impacts of natural disasters through promoting life and health insurance, distributing cheap rice, promoting food buffer (*Lumbung Desa*) and widening the access of households to formal credit institutions.

Philippines

The case study found that a) there are existing analytical frameworks for the study of the interactions between natural disasters, household poverty and household coping strategies; b) some empirical studies have been done in the Philippines analyzing the aforementioned interactions; c) relevant past studies generally point to the negative effect of natural disasters on household income and subsequently on household poverty; and d) past studies also showed that households practice several coping mechanisms to address the effects of natural disasters. Furthermore, based on its own estimation, the study found that the occurrence and frequency of typhoons and/or floods in Pasay City, Metro Manila have significant and negative effects on household per capita income. It concluded that for Pasay City and other similarly situated urban areas in the country, natural disasters have a negative impact on household income and consequently on household poverty.

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

In Progress

Abstract

In response to the Cebu Declaration on East Asia Energy Security in 2007, which emphasized that energy efficiency & conservation would be one of the ways to maintain energy security and mitigate climate change, Japan proposed to undertake a study of the energy savings and CO₂ emission reduction potential in the EAS region. The study would quantify the total potential savings under the individual energy saving goals and action plans of each country. The potential saving was defined as the difference between the primary and final energy demand in the Business-As-Usual (BAU) scenario and Alternative Policy Scenario (APS) – Energy Efficiency and Conservation (EEC) promotion case - of the energy outlook. In addition, the 6th EAS Energy Ministers Meeting (EMM 6), which was held in Phnom Penh in September 2012, requested ERIA to prepare appropriate energy outlook and to analyze it. Consequently ERIA started to write and analyze an appropriate energy outlook of all EAS countries from 2013.

This study would provide insight to national energy ministers for establishing goals and action plans to improve energy efficiency in their respective countries. The project also aims to prepare a methodology for the monitoring and implementation of energy saving goals and action plans of each of EAS countries.

In addition, this year's study will include several other studies which are related to energy efficiency and saving potentials. The additional studies include energy price elasticity in selected ASEAN and East Asia Countries, impact of energy subsidies in Indonesia, application of bottom-up approaches in road transport and household sectors, among others.

Expected Policy Recommendation

The outcome of this research project will be reported to the Eighth EAS Energy Ministers Meeting in 2014. The key messages coming out of the study that will have policy implications will include:

- Effective and consistent energy efficiency and conservation policies in both energy demand and supply sides
- Energy efficiency action plans in the final energy consumption sector, especially industry and road transport sectors, to reduce electricity and oil consumptions

- Technology development to support shifting from oil & gas to non-fossil energy, to increase energy security and mitigate CO₂ emissions
- Rationalizing energy pricing mechanism to promote EEC and low carbon energy & technologies, and
- Statistical capacity building for energy consumption survey across sectors to be implemented by national administration.

23 Energy Efficiency Improvement in the Transport Sector through Transport Improvement and Smart Community Development in the Urban Area

In Progress

Abstract

Smart urban traffic is a research topic endorsed by the 6th EAS Energy Ministers Meeting (EMM 6) in 2012. The initiative is in view of the rapid growth of passenger vehicle ownership in the urban centers of Asia. The phenomenon has been causing a number of socio-economic issues, including chronic traffic congestion. With respect to the transport sector, smart community aims to simultaneously achieve the efficiency improvement in the transport sector and lowering environmental burden through the optimization of transport infrastructure – such as road and rail, introduction of the next generation vehicles (hybrid, PHV, and EV), and transport demand management.

This study identifies that infrastructure investment and traffic demand management are the focus issues in transport improvement for Asian cities. Accordingly, the study in the previous year (2012-2013) shows that with small amounts of investment for road infrastructure improvements, a maximum of 2% travel time reduction and 15% of fuel saving could be achieved, in a 2 km section of Kuningan road of Jakarta.

The study of this year (2013-2014) will analyze how to attract private car users for a modal shift into using the Bus Rapid Transit (BRT) system and assess the impact on the transport system in urban areas. Travel time reduction is identified to be one of the most critical factors, especially for major cities like Jakarta. A field survey in Jakarta is being conducted to reveal the possible percentage of modal shift. The study will not only draw relevant policy recommendations but also apply analysis to the other cities of EAS countries.

The study will be carried out with the following three steps:

1. Impact Analysis of Public Transport on the Urban Transport in Asia

This step analyzes the effect of a selected public transport for reducing car traffic flow and consequent oil consumption. Jakarta city of Indonesia will again be selected as a model city of simulation analysis. This simulation analysis will provide quantitative materials to be considered in a following step.

2. Policy Analysis and Recommendations

This step analyzes the policy including mass transit measure which could contribute to enhance improving energy efficiency in transport sector. The study will try to assess an effectiveness of policy in a quantitative manner based on the outcome from the previous step.

3. Apply Analysis Applications to the Other Cities in EAS countries

This step analyzes how to disseminate policy recommendations to other EAS countries. The study will propose measures to apply recommended policies derived from previous steps of the study into other countries, with consideration to the outcomes of previous steps of the study and differences in transport situation in each country.

Expected Policy Recommendations

The study will deliver following key messages for policy makers:

- Provision of urban transport measure is to be an integral part of the transport sector energy efficiency improvement
- Traffic demand management within a city will ease congestion, which in turn contribute to oil demand savings, and CO₂ emissions reduction
- Introduction of public transport systems will be able to further assist the city's efforts towards traffic demand management
- It is important to consider benefits and costs from the infrastructure investment for road, rails and buses since the utilities obtainable from the additional urban transport infrastructure investment would face limitation at certain level
- The benefits obtainable from the urban transport measures would be different from city to city as they differ in terms of economic development, infrastructure development level and population density
- Aside from the transport infrastructure development, economic measures such as imposition of various taxes on passenger vehicle ownership/usage may need to be considered to manage road traffic.

24 International Cooperation for Nuclear Safety Management in East Asian Countries

In Progress

Abstract

The importance of international collaboration in nuclear emergency preparedness and responses in the EAS (East Asia Summit) region has become imperative after the Fukushima accident. The urgency is further emphasized by the planned nuclear power development in the region, especially in China, India, Thailand, and Vietnam, according to ERIA's energy outlook. Therefore, it is necessary to review appropriate nuclear security and nuclear safety management measures and to establish a shared awareness, in the context of energy situations, infrastructure, technological levels and other related circumstances of emerging countries in East Asia.

This research targets emerging countries in East Asia that plan to introduce or expand nuclear power generation or consider the possibility thereof, and compares the present situation in these countries with regard to safety regulations and nuclear security systems in order to identify problems in establishing an information sharing system for accidents and in considering desirable cross-border cooperation. Through these efforts, this study aims to achieve the 3Ss - enhancement of nuclear safety standards and nuclear security and establishment of nuclear non-proliferation safeguards - in East Asia.

In the current project (2013-2014), this study will share (1) information on and learning from the accident at the Fukushima Dai-ichi Nuclear Power Plant, (2) information on the safety standards and safety regulation systems in East Asian countries which utilize nuclear energy, and (3) information concerning safety regulation systems among East Asian countries that are considering the introduction of nuclear power generation.

These activities will focus on delivering perspectives on the following issues in the region:

- Outlines of nuclear safety regulatory bodies (names, number of staff members, organizational structures, etc.)
- Nuclear safety regulation standards (including information sharing systems and countermeasures in the event of an accident)
- Relationship between administrative agencies and business operators of nuclear power plants

- Establishing nuclear security management system

In 2014-2015, the study will focus on establishing a cross-border collaboration framework on nuclear safety and security management, with a special focus on large-scale radioactive hazard. This includes discussing concrete methods for the telecommunication and the transporting infrastructure in case of radioactive emergency, and establishing a guideline for an appropriate support and collaboration between developing countries which are considering introduction of nuclear power and countries with nuclear technologies.

Expected Policy Recommendations

Effective and practical means of planning and implementing measures to develop and enhance safety regulation systems in countries that are considering the introduction of nuclear power generation.

25 Development of Energy Security Index and Assessment of Energy Security for East Asia Countries

In Progress

Abstract

Following the Cebu Declaration for Energy Security in East Asia, ERIA has been conducting Energy Security Index (ESI) assessment for EAS (East Asia Summit) countries to reflect the current status of energy security and accordingly, identify the most effective policies.

In many East Asian countries, energy demand is expected to grow in the long run due to their high economic growth and social development. It is also projected that energy production, particularly fossil fuel production, in East Asian region will not be able to meet the growing energy demand and that the region will have to face rising energy import dependency. At the same time, it is important to note that there are emerging challenges in energy supply in the world energy market which include geopolitical risks, market power risks, natural disaster/accidental risks, under investment, resource nationalism, etc. With these factors, enhancement of energy security is becoming one of the top priorities policy issue for each EAS country as they all need to achieve sustainable economic growth and development.

The first objective of the study is to develop Energy Security Index which helps policy planners in the region to accurately understand their energy security situation. The second objective is to assess the impact of energy security policy by using newly developed Energy Security Index. Energy security policy development will be analyzed with comparison to historical changes of Energy Security Index. The third objective is to draw policy recommendation for energy policy planners in the region from the above analysis.

In a past two years of studies, the following outcomes have already been achieved.

- Development of Energy Security Index
- Data Collection and Calculation of Energy Security Index for each EAS country
- Assessment of impacts of past and incumbent energy policies, using the Energy Security Index
- Drawing useful policy implications from the past experiences

In the current year of the study (2013-2014), future ESI will be estimated by using outlook of energy balance of each EAS country. The outlook is expected to be provided by another ERIA study “Analysis of Energy Saving Potential in East Asia Region”. Furthermore, by analyzing the calculated future ESI, the study will draw out recommendations to improve future status of energy security.

Expected Policy Recommendations

This study will recommend policy for enhancing regional cooperation in energy policy formation and implementation so as to improve energy security of the region as a whole, with the following emphasis:

- It is important to have accurate understanding of current energy security situation in each country, which will be the basis for policy planning and implementation for energy security enhancement for the future
- Each country will be required to identify the strength and weakness of its energy security situation and the effectiveness of the policy decisions taken in the past from the analysis of the Index (international and historical comparison)
- It is necessary to draw a lesson from the past policy experiences in the East Asian countries as to what would be the most effective approach or best practice of policy measure to improve energy security
- It is important to utilize and adopt, where possible, the best practices identified in the study to address the energy security challenges in the East Asian countries
- Regional cooperation should be prioritized to compliment policies implemented by countries to enhance energy security in the region as a whole
- Energy security policy development will require significant action from private sector, through their active investment in and commercialization of advanced technology. Appropriate role sharing between government and private sector and encouragement of private sector investment and involvement will be a key

26 Sustainable Development of Natural Gas Market in EAS Region

In Progress

Abstract

EAS countries have a growing energy demand, especially for natural gas due to factors like economic efficiency, diversification of energy, effective use of domestic resources and reducing environmental burden. Since the share of natural gas in Total Primary Energy Supply in EAS countries is relatively low except for a few countries, there remains much room to expand the use of natural gas.

To make the natural gas use sustainable, appropriate actions need to be taken through a supply chain such as exploration and production, necessary import, transmission, distribution and consumption. This would also include attracting investment for developing gas field to enhance natural gas supply, increase efficiency of natural gas use to avoid waste of resources and develop required infrastructure for natural gas supply. At the same time, strengthening existing capability and enhancing transparency of gas markets by improving liquidity of natural gas market is important. This study aims to draw policy recommendation to address the above-mentioned issues for sustainable use of natural gas in EAS region.

The first phase of the project (2013-2014) analyzes the potential of natural gas demand as well as the supply potential of natural gas in EAS countries. The study will then formulate supply-demand outlook of natural gas. The outlook will be prepared in different scenarios. Based on this outlook, the study will analyze the possible changes in natural gas supply-demand situation and accompanying future opportunities and risks. Finally, based on all these outcomes, the study will present preliminary policy recommendation for sustainable development of natural gas market. The second phase of the project (2014-2015) will analyze the possibility of natural gas trading in the region and potential of and challenges to supply infrastructure.

The study will cover the countries in EAS region that are currently exporting or importing natural gas, namely Australia, Brunei Darussalam, China, India, Indonesia, Japan, Korea, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. A working group comprising of experts from the countries targeted in the study, and coordinated by IEEJ research team, has been established to conduct this study.

Expected Policy Recommendation

- Continuous growth of natural gas demand is expected in the EAS region. However, latent risks such as slow down of production, lack of infrastructure capacity, price surge, will reduce the potential for demand.
- Rising developing cost will also become a factor which will push down the supply potential in the region. Adversely, rise of international price or increasing investment for unconventional natural gas may become factors which will push up supply in the region.
- Several new field development or new liquefying projects are coming up outside the region e.g. in Russia, North America and East Africa. With additional supplies, EAS countries will be able to balance their supply-demand in the future.
- Some EAS countries have surplus and the others have deficit in supply-demand balance of natural gas. The region can practice intra-regional trading. Moreover, EAS region can further enhance natural gas supply security by strengthening connection / trade with supply sources outside the region.
- Adequate infrastructure capacity will be required to achieve above mentioned trading which will require multi-national coordination of functions and resources.
- These measures require long gestation period and large capital investments. Therefore, it is important to set up a long term and region wide plan, and initiate action using its varied resources, technology, and human capital. International cooperation will further enhance effective use of these regional resources to create sustainable natural gas market in the region.

27 Effective Investment of Power Infrastructure in East Asia through Power Grid Interconnection

In Progress

Abstract

In the EAS countries, electricity demand is steadily expanding due to population increase and economic growth. Moreover, as improving the electrification rate is an important policy task in many countries, electricity demand appears certain to increase in the future in line with a rise in living standards. Meanwhile, as income is relatively low in many countries, it is necessary to supply electricity at minimal possible cost. Therefore, developing large-scale power infrastructure in an economically efficient way is an urgent task for the EAS countries.

Usually, a country develops power infrastructure on the premise of self-sufficiency. This comes from the perspective of energy security, and is a rational approach when demand growth is moderate and the country can implement economically efficient power programmes on its own to meet the demand. However, when demand growth outstrips the capacity to supply necessary domestic resources (manufacturing, human and financial resources) or when economically efficient power infrastructure development is difficult due to some constraints like high fuel transportation costs and power loss during transmission, importing electricity from neighboring countries should be considered as an option. This would allow to optimize or improve the efficiency of power infrastructure investments in terms of supply stability, economic efficiency and reduction of the environmental burden if power infrastructures (power sources and grids) are developed on a pan-regional basis.

In the ASEAN region, the Heads of ASEAN Power Utilities/Authorities (HAPUA) are implementing initiatives related to intra-region power grid interconnections, and bilateral power imports and exports are ongoing. However, individual countries are still placing priority on optimization of investments at the domestic level. Besides, power imports and exports are not brisk enough to contribute to “power grid interconnection,” and movement toward pan-regional optimization has been slow.

This study will quantify the possibility and benefits of optimization of power infrastructure investments in the EAS region. Through this, the research will provide way forward for policy decisions toward the development of optimal power infrastructures and investment decisions.

Expected Policy Recommendation

The key policy implications coming out of the study will underline that:

- It is possible to reduce the amount of power infrastructure investments and the CO₂ emission amount in the future by optimizing infrastructure development within East Asia as a whole.
- Impact of each power grid interconnection is different in terms of total investment cost reduction and CO₂ emission reduction. Therefore, it is possible to improve the efficiency of investment by giving priority to some specific interconnections.
- Power grid interconnection will enhance the energy security of East Asia region as a whole, and contribute to stabilize power supply by diversifying power supply sources.
- To facilitate the grid interconnection in the region, it is important to harmonize institutional and technical framework related to grid connection and power transaction.

28 Strategic Usage of Coal in the EAS Region: A Technological Potential Map

In Progress

Abstract

As electricity demand in the EAS region is increases rapidly, coal and gas fired thermal power generation will continue to play a central role in meeting this demand. As coal is cost competitive compared with gas, it is anticipated that coal-fired power generation will increase. In the EAS region, Australia, Indonesia, China, India and Viet Nam produce large quantities of coal, and compared with other energy sources which are largely imported, an increased intensity of coal usage in the EAS region has the merit of enhancing energy security.

However, with the increase in demand for coal, notably in China and India, the supply demand relationship of coal has become askew in recent years. In order to facilitate the economic development within the region, a cost effective and sustainable electricity supply system should be promoted. In addition, the dissemination of Clean Coal Technology (CCT) for clean and efficient usage of coal in the EAS region is of pressing importance. While the necessity for the dissemination of CCT has been recognized, inefficient technology is still being widely used and valuable coal resources lay wasted and also impacting the environment adversely.

The first phase of this study has been completed which focuses on the economic return from investments in different types of coal technologies. Its major findings were that investments in clean coal technologies with high efficiency will bring higher return including savings in coal utilization. However, the upfront cost of investment in clean coal technologies remains a barrier for the developing countries.

The second phase of the project will focus on updating the information from the earlier study and lay out technological potential map to facilitate the deployment and dissemination of the CCT.

The study will suggest a feasible efficiency level, environmental performance and maintenance criterion for each technology so that countries in the region are able to select and introduce the best technologies which suit their specific demands. On completion, this research will provide a technological potential map which is practical for the policy makers to introduce them swiftly in their countries.

Expected Policy Recommendation

- Quantification of the effects of CCT
- Development of technological potential map for CCT dissemination in EAS region
- Policy recommendations for CCT dissemination

29 Energy Market Integration in East Asia Region: Deepening, Understanding and Moving Forward

In Progress

Abstract

Since the inception of EAS Energy Cooperation Task Force (ECTF) Work stream on Energy Market Integration (EMI) in 2005, the research has been actively promoted by East Asia Governments to better understand matters impacting on energy trade liberalization and investment, energy infrastructure, pricing reform and deregulation of domestic energy markets.

From the first through to the sixth EMI study, the theme was selected each year to have a key focus. Past EMI studies focused on the review of the regional commitment of EAS countries, the benefits from EMI, the electricity market, theories, and subsidies and the renewable energy (RE). This Fiscal Year EMI was chosen to again look into gaps in the EMI in general and also provide focus on the energy trade in ASEAN & East Asia Countries.

The 12 selected studies in 2013-14 are:

1. The Welfare Impacts of Price Equalization in Energy Market Integration

This study will focus on the status of ASEAN countries' comparative advantage in energy products. This study will also examine price equalization in energy products in ASEAN under the assumption of perfect competition. Therefore, regionalism and market integration in ASEAN will postulate the existence of energy price equalization. Finally the study will also examine the potential welfare impacts of the ASEAN energy market integration.

2. Energy Trade Practices in India: Review of Tariff and Non-Tariff Barriers in Relation to ASEAN

This research aims to review the current energy trade practices in India and various tariff and non-tariff barriers to energy trade. The research also aims to assess the energy trade policies of India with other countries, including ASEAN members. This paper will consider the factors that are responsible for various shortcomings that hinder the energy trade and how they can be addressed to ensure harmonious and beneficial trade relations for all concerned.

3. Energy Market Integration and Energy Trade Efficiency in EAS Region: An Application of Malmquist Index to Analyse Multi-products Energy Trade

This research proposes to apply the Malmquist index estimation method to estimate the gravity model with existing detailed bilateral trade data of energy products and examine trade flow and its efficiency of energy products among the East Asia Summit (EAS) countries between 1960 and 2010, from an empirical perspective. The aim is to measure potential trade creation effects on energy products and its efficiency when the energy market is more integrated between countries in the region.

4. Enhanced Measurement of Energy Market Integration in East Asia - An Application of Dynamic Principal Component Analysis and Information Tree Technique

This study aims to assist policy making to promote energy market integration and provide information on the status of individual country vis-a-vis EMI. This study proposes to use some newly developed statistical methods, namely the dynamic principle component analysis and the information tree technique, to analyze the progress of energy market integration across countries and over time and link the EMI with prevailing policy initiatives.

5. Deregulation, Competition and Market Integration in China's Electricity Sector: Implications for Energy Market Integration in East Asia

This study presents an updated and expanded investigation of issues associated with deregulation, competition and market integration in China's electricity sector. The findings may have implications for other EAS economies which are undergoing a similar process of restructuring in their power sectors and will also propagate the need of promoting EMI in East Asia.

6. Best Practice Measures to Mitigate Electricity Price Impacts of Feed-in Tariff Policies: The Case of Malaysia, the Philippines and Thailand

Some ASEAN member countries such as Malaysia, the Philippines and Thailand, have recently introduced feed-in tariff schemes to promote private sector investments on grid-connected renewable energies. The main objective of this study is to analyze, given the diversity of electricity market structures and regulatory frameworks in these countries, specific policy and regulatory measures and mechanisms undertaken by each country to reduce the impacts of RE deployment policies to electricity tariff rates.

7. Case Studies of the Greater Mekong Sub-region

A pioneer of regional integration in power trade and hydropower development, this study will provide better understanding on power development plan, transmission expansion plan, and energy demand projection scenario and power interconnection master plan in GMS region. The study will also examine the costs-benefit analysis of both bilateral and regional power integration and energy market integration. The results from study will assist in projects ranking and prioritization of interconnection projects.

8. Connecting South and Southeast Asia via Myanmar: Prospect for Natural Gas

The physical linkage between two energy sub regional markets (South & Southeast Asia), Myanmar is likely to play an important role in the coming days. The main objectives of this study are: (1) to investigate the potential hard linkages (physical energy infrastructure projects) of energy markets of the two regions; (2) to investigate the strategic importance of Myanmar and its huge resources of natural gas in the regional energy market in terms of gas supply and demand stability and price rationalization; (3) to identify regional demand for investment in gas sector and impacts on environmental condition; and (4) to identify policy framework to improve the regional energy market trade in natural gas sector.

9. International Oil Price Shocks and the Impact on Consumption Expenditure --the Case of ASEAN and East Asia Countries

The primary objective of this project is to empirically study the impact of international oil shock to the selected ASEAN's household consumption. The study will use dynamic analysis to find evidence of how consumption in the households is affected by international oil shocks, and also identify the time line of this relationship.

10. Energy Commodity Trading in Singapore

This study reviews the status of oil and oil products that are exported from and imported in Singapore and examines the current oil-hub related capacity and expansion plans in the future. It also reviews oil and oil products spot and futures markets in Singapore and analyzes how Singapore has become successful in energy trading and what had attributed to the success. Finally this study draws some lessons learned from the successful story.

11. Infrastructure Investments for Power Trade and Transmission in ASEAN: Costs, Benefits, Long-term Contracts and Prioritized Developments

This study assesses the financial viability of transmission lines proposed mainly by GMS and APG by considering all the above factors, namely the costs of establishing and operating transmission lines, long-term contracts, and future power trade patterns. This will deliver two main results. One is the financial viability of each proposed transmission line and the other is the priority of these proposed transmission lines. Policy implications would be drawn based on these quantitative assessments.

12. Energy Intensity and Economic Growths Trade-off in Selected ASEAN and East Asia Countries: Empirical Evidence and Policy Implications for Energy Market Integration

This study examines the relationship between economic growths and its energy intensity, and especially at what level of economic growths in terms of per capita income will energy intensity likely to fall. The findings will have policy implications for the region in terms of getting ASEAN to achieve economic growth by all means, but keeping energy intensity low. This will require ASEAN countries to get access to better technologies and efficiency through policy supports.

The findings from these reports will have policy implications for:

- ASEAN countries' comparative advantage of energy products & potential welfare impacts of the ASEAN energy market integration
- Factors that are responsible for various shortcomings that hinder the energy trade and how they can be addressed to ensure harmonious and beneficial trade relations
- Potential trade creation effects on energy products and its efficiency when the energy market is more integrated between countries in the region.
- EMI indices for individual country for future policy making toward EMI.
- Analytical evidences for power system reforms and its benefits for the consumers (reform toward single buyer)
- Policy for the RE in selected countries of ASEAN
- Analytical views for the bottleneck to speed up the regional power trade in GMS countries
- Best case of Singapore's energy trade for the ASEAN model
- Empirical evidences to support the theories of energy studies

30 Benchmarking of Renewable Mobility Energy in EAS Countries

In Progress

Abstract

Asian Countries are actively promoting the introduction of the first generation biofuels such as bioethanol and biodiesel fuel due to soaring oil prices and increasing energy consumption. On the other hand, first generation biofuels have some problematic aspects such as indiscriminate harvesting of energy crops and/or conflict with food supply. Therefore these issues have put a brake on large-scale trading of these biofuels. Moreover, the first generation biodiesel fuel FAME (Fatty Acid Methyl Ester) has an essential weak point of low-oxidation stability, which limits its long-term storage. The switchover to next generation biofuels, for example, non-edible feedstock, alcohols, ethers and/or synthetic hydrocarbons made from woody biomass are the next avenue for East Asia and ASEAN countries to establish the Sustainable Mobility Society. Hydrogen, which can be made from electrolysis of water, is an extension of the next generation biofuels.

In this study, feasibility of next generation of biofuels such as non-edible feedstock, synthetic hydro-carbons, ethanol/buthanol, ethers, hydrogen etc. will be evaluated scientifically and economically, and proposals will be made for practical policies for each country's government.

In the previous phase of this study, "EAS-ERIA Biodiesel Fuel Standard: 2008" was published which recommended low level blending of B100 FAME with diesel fuel. Next, "EAS-ERIA Biodiesel Fuel Trade Handbook: 2010" covered the secure use of FAME. In the current study, the target biofuel will be expanded from first generation biofuels to next generation biofuels as renewable mobility energy. A Working Group will be established with energy policy makers, energy engineering scientists etc. from each country. Strategies of renewable mobility energy will be proposed and published as a handbook.

Expected Policy Recommendations

- Common strategy of renewable mobility energy for East Asia and ASEAN countries
- Individual strategy of renewable mobility energy for East Asia and ASEAN countries

31 **Best Mix of Renewable and Conventional Energy Sources for Sustainable Development**

In Progress

Abstract

Most of the countries in East Asia are currently dependent on fossil fuel imports to meet their energy needs, but there is a high potential for renewable energy sources in this region as these are expected to play an important role in bringing in socio-economic benefit as well as improve environment. Availability of renewable energy sources is dependent on the local conditions in the Asian countries. Also, renewable energy initiatives in communities cannot be sustainable without their acceptance by local people. In this joint research, feasibility studies will be conducted on the sustainable energy systems using renewable energy sources suitable for various Asian communities based on environmental, economic and social considerations. The study will be implemented in following phases:

Phase 1: A Screening Method for Sustainable Renewable Energy Initiatives

Based on some community-based renewable energy initiatives that are already being implemented in some Asian countries, a screening method will be developed to find merits and demerits of the initiatives from the environmental, economic and social perspective of sustainability. The target initiatives are picked up from literature and by contacting relevant agencies in these countries. The previous ERIA Working Group on ‘Sustainability Assessment of Biomass Utilization in East Asian Countries’ identified the sustainability indicators suitable for biomass energy utilization in East Asian countries: life cycle CO₂ emissions for environmental pillar, total value added for economical pillar, and employment generation / access to modern energy / HDI for social pillar. The candidate indicators for screening are developed with regard to these indicators for biomass energy and the characteristics of other renewable energy sources.

Phase 2: Development of Guideline for a Sustainable and Workable Energy System

Based on the outcomes in Phase 1 of the study, the WG will conduct sustainable assessment of some target community-based renewable energy initiatives and also identify possible barriers and success factors to establish a guideline. The guideline will include findings from the initiatives reviewed and common practices necessary for sustainable energy systems so that it can be utilized for any renewable energy initiatives in various Asian communities.

Expected Policy Recommendations

- Strategies for private sector operators to establish a workable energy system for various Asian communities
- Regional energy policies for governments to promote sustainable use of renewable energy in various Asian communities

32 Sustainability Assessment of Utilizing Conventional and New-Type Geothermal Resources in East Asia

In Progress

Abstract

Many Asian countries have been attempting development of geothermal resources of their territories. While geothermal resources vary from country to country, countries which rich high-temperature resources have mostly utilized their geothermal resources by conventional steam power generation. Heat extraction from the deeper undergrounds of volcanoes has also been studied in some places.

Geothermal technologies, such as reservoir engineering, monitoring techniques, scale-controlling techniques etc., which are all essential for sustainable utilization of geothermal resources for both power generation and direct use, have some common and universal aspects. This research aims at extracting those common and field depending aspects, finding common/individual solutions and sharing information to improve technology for sustainable geothermal utilization in Asian countries.

The study will make a review to extract common and individual problem related to maintaining sustainability in development areas and installed system for direct use of geothermal energy. Also information on various techniques for resource/reservoir assessment, monitoring, scale-controlling etc. will be collected. The output of this study will be a collection of case studies, and a procedure manual of guideline of sustainable development and utilization of geothermal resources.

Expected Policy Recommendations:

- Local government policies on geothermal energy use under differing potentials and natural systems
- Guidelines for national governments for sustainable utilization of geothermal energy with environmental integrity

33 Energy Efficiency Roadmap Formulation in East Asia

In Progress

Abstract

In the 4th East Asian Summit (EAS) Energy Ministers Meeting held in 2010, the Ministers appreciated the steady implementation of Action Plans to achieve voluntary energy efficiency goals by the EAS participating countries. The Ministers also welcomed the Energy Efficiency Roadmap Formulation Project as a means to accelerate the deployment of energy efficient technologies.

As there are increased uncertainties in terms of economic growth, particularly in the emerging countries, ASEAN and the Greater Mekong Sub-region (GMS) have attracted more attention globally. Given this increased interdependence and discrepancies in the region, particularly in the field of economic activities including energy and electricity transactions, energy efficiency research of Lao PDR was completed in 2013. Another energy study on Myanmar focusing on how to improve energy and electricity access in the rural areas of the country has now been undertaken.

The first report of the study on energy and electricity access in the rural areas of Myanmar, has been prepared and included as a chapter of the Myanmar Comprehensive Development Vision (MCDV) which was reported in 2013. The study consists of three approaches, namely 1) crafting a win-win incentive mechanisms with neighbouring countries and investors for border regions, 2) effectively utilizing local energy potentials for power generation capacities in off-grid regions and analyse the implications for the national energy and electricity policy, and 3) developing the connectivity among the small scale renewable power sources.

Based on the assumption that Myanmar could employ three above mentioned three approaches this study will examine the approaches and understand the ground reality, since the official data and statistics are not sufficient and fully reliable. To this end, the study will conduct fieldwork, comparative study and actor analysis in the neighbouring countries, case studies of good practices of small scale renewables and Independent Power Producers (IPPs) in the region, and grid development simulation. In 2014, a joint study with Chulalongkorn University will be undertaken on the investor and investment environment analysis on the Thailand side of the border. For

fieldwork, 7 - 8 sites will be selected, including the sites on Thailand border and detailed survey on the energy potentials and cost structures will be conducted.

Expected Policy Recommendations

Based on the information and the analyses of the bottom up approach, a plan for improving electricity access in the rural areas will be developed together with different scenarios.

1. Integration of the energy-related ministries is a prerequisite to effectively implement these approaches,
2. As part of the inclusive development plan, the country should review the energy subsidy and its current tariff structure, and take the appropriate steps toward privatizing utilities.
3. Transparency in policy making should be increased in order to get necessary stakeholders involved in the process and human resources development including developing reliable statistics should be continued.
4. Long term plan for electricity grid expansion should be established and shared by the stakeholders.

34 Potential of Biofuel Markets in East Asia

In Progress

Abstract

In Asia, the use of biofuels has been evolved as a policy response to attain energy security and fight global environmental issues. The oil price rise in early 2000s has accelerated the efforts for energy security through the utilization of biofuels. In this background, some of the policy measures which have emerged include “Call for biofuel in Thailand in 2005”, “Jathropa” cultivation order in Myanmar in 2006, presidential instruction for national biofuel team in Indonesia in 2006, and the Biofuel act of 2006 in the Philippines in 2006. The Asian responses were accumulated in the 2nd East Asia Summit in Cebu, Philippines in January 2017 (Cebu Declaration on East Asia Energy Security).

In term of non-fossil energies, the most expected solution was the utilization of biomass as mentioned in the Cebu Declaration, especially in the form of biofuels, which can replace the imported crude oil and/or oil product and can create new industries, which directly contribute to the income generation in rural farmers and the poor. Recognizing the importance and the need, Japan announced an energy cooperation initiative “Fueling Asia – Cooperation Initiative for Clean Energy and Sustainable Growth”. One of its core activities are the cooperation for the promotion of biomass utilization in Asia.

However, the promotion of biomass, especially biofuels, can be in direct conflict with environmental and social sustainability if not planned carefully. Biofuels can be largely categorized in two types. One is bioethanol which can substitute gasoline. Another is biodiesel, which can substitute mineral diesel oil. At current stage of commercially competitive technologies available in Asia, which can produce biodiesel and bioethanol are so-called first generation technologies, which utilize agriculture residue and/or products.

Loss of biodiversity from the increasing plantation areas is an area of concern. Another concern is that the agricultural residue and products for biofuel are also used for food including those for humans and livestock. In fact, most of biodiesel in Asia is from palm oil (Indonesia and Malaysia) and coconut oil (Philippines) and bioethanol from sugarcane (Thailand and Philippines). The fear is that the increased price of biofuel will increase the supply of biofuel, decreasing the land available to supply foods.

In addressing the concerns of CO₂ emission and energy security in East Asia, the policies and measures for the promotion of biofuels has become important. The purpose of this study, therefore, is to survey biofuel promotional measures in East Asia and to address the issue and make suggestion for policies for design and implementation of biofuel market in East Asia. For this purposes, it is important to understand the future biofuel market which is based on current and planned policy and technologies. For developing a healthy biofuel market in EAS, this study will cover following elements:

- a. Study of production and utilization technologies of biofuels literature survey and collaboration of local research institute
- b. Study of policies and program to promote the utilization of biofuels literature survey and collaboration with individual government through IEEJ network-
- c. Study the outlook of supply and demand of biofuels in East Asia. An econometric analysis and forecasting will be conducted using the available data of biofuel production potential and the demand of energy consumption for transport sector.
- d. Study of required policies and program (law & regulation, subsidies, standardization, technology development, technology cooperation and trade market etc.) to nurture and deploy healthy biofuel market in the area of East Asia.

Expected Policy Recommendations

- The potential of biofuel trade within the region is huge, but depends on the future technologies and regional integration.
- It is important to consider energy prices as well as food process to see the interaction of food and energy market.
- Each country has its advantages and disadvantages for specific policy measures for the promotion of biofuel.
- It is crucial to best utilize and adopt, where possible, the best practice identified in the study to address the utilization of biofuels to address CO₂ emission reduction and energy security.
- Regional cooperation should be prioritized to compliment policies taken by country to enhance the advantage of biofuel policies and to reduce the regional and/or bilateral conflict of policies, especially in trade measures.
- Development of biofuels market is related to various governmental agency and private sectors making intergovernmental and public-private partnership important.