Summary of ERIA Research Projects

in 2011-12

Major Findings

Policy Recommendations

Summarised By

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ERIA Research Projects 2011-12

1 Dynamics of Firm Selection Process in Globalised Economies

Abstract

This study is fourth in the series of ERIA Microdata Research Project of Fiscal Year 2011-12. The project is part of the broader research pillar of ERIA on Deepening Economic Integration. The project in this fiscal year examines firm- or plant-level adjustments in response to globalization, or trade and investment liberalization, utilizing micro data on seven East Asian countries. The study enhances our understanding of the various dimensions of the causes, as well as the consequences, of the international trade and investment flows.

This report is a contribution to the growing literature on firm level analysis based on experiences of seven East Asian countries: Japan, China, Korea, Indonesia, Malaysia, Philippines, and Vietnam. The East Asian experience on the causes and consequences of trade and investment is particularly revealing, not only because East Asia is a region that was most successful in terms of economic growth and development, but also because the process of economic integration within East Asian region and between East Asia and other regions have been one of the most rapid for the past decades. The diversity of countries included in this study in terms of the level of development, allows examining and understanding issues from both developing and developed country's perspective.

The topics addressed in each paper try to empirically assess the causes and/or the effects of international trade and investment and clarify the adjustment mechanism of firms or plants along various dimensions. While some papers employ explicit measures of trade liberalization policies and others leave these aspects in the background, the results from all papers are appropriate for understanding the causes and/or the effects of trade and investment liberalization.

The study includes examination of linkage between export market dynamics and finance, including the information provision role of banks. It studies the forward spillover effects of FDI for firms at the downstream. The other aspects of the research include study of MNE's decision to shut down overseas affiliates, effect of the changes in actual trade policy measures on firm exits, effect of exporting on markup and Total Factor Productivity (TFP), effects of exporting as well as R&D on the within-firm skill intensity and relationships exiting among exporting, productivity, innovation, and measures of organization.

Major Findings

Export Market Dynamics, Finance, and Intermediaries

Financial constraints, proxied by liquidity and leverage ratios, matter for firm's export participation and country extensive margin. An understanding of this linkage reveals how the aggregate economy responds to trade liberalization or other macroeconomic shocks, contributing to a better policy response to such events or shocks.

The measure of lending bank's information on export market is positively related to firm's export participation. This information probably reduces the fixed cost of export market entry. Thus, it may be effective to involve banks in the export promotion campaigns or business matching events.

Trade intermediaries play an important role in export market participation. Firms tend to make a transition from indirect to direct exporters over time, and report a more frequent use of imported materials and equipment and skilled workers.

FDI Spillovers and Adjustment of Production Network

Foreign firms operating locally produce higher-quality and lower-cost inputs, increasing the availability of inputs. This benefits the downstream firms that source these inputs locally.

MNEs are more likely to shut down affiliates which could potentially be more easily replaced by other affiliates. This indicates that a consolidation of MNE's affiliates is expected as countries' markets are more integrated with each other.

Plant Exit, Mark-up, and Labor Market

Study reveals an inversely U-shaped relationship between export intensity on the one hand and markup and TFP on the other, questioning the hypothesis that exporters with higher export intensity experience faster productivity growth than exporters with lower export intensity.

Trade and skill-biased technical progress are not competing, but complementary explanations for the growing labor market disparity. Plant level data shows that both exporting and R&D contribute to within-plant skill upgrading. Further, exporting causes innovation and organizational changes, such as decentralized decision making in the firm.

Policy Recommendations

The studies conducted in this project highlight the importance to focus on detailed and targeted policies, either those of services sectors or those which are specifically targeted to a group of firms.

First, it is important to develop financial sector, at the same time when a country liberalize its investment and trade regime, especially the banking sector. A re-examination of the functions of banks to support exports is needed as many 'capable' firms (i.e., high productivity firms) are not able to export because they do not have sufficient funds to pay the (expensive) upfront fixed cost for exporting. Governments also need to take banks on board to its export promotion policy with the perspective to reduce the information asymmetry.

Second, it is important to keep promoting policy to encourage export, because it facilitates firms to increase their productivity. Exporting firms experience much faster skill upgrading than non-exporters and this process is accelerated when the firms' export participation is accompanied by more intensive innovation activities.

Third, the policy to invite FDI should be narrowly targeted, especially towards firms in upstream industries. There are FDI spillover through forward linkages that gives more availability of high quality inputs locally, which in turn helps local firms to procured these inputs at much lower costs. It is further indicated that countries should encourage creation of more industrial agglomerations in order to increase the survival chance of affiliates in setting of regional production networks.

Fourth, clear and measured strategies, or policies, are needed to mitigate the adverse impact of trade and liberalization. As the benefit of liberalization usually occur only in medium or longer term, countries are better off when policies are directed at facilitating adjustments, especially adjustments in labor market, and addressing information asymmetry as well as market entry that may inhibit the creation of new firms and growth.

2 Achieving Sustainable Growth in East Asia

(ERIA-Australia Collaboration)

Abstract

"Achieving Sustainable Growth in East Asia" is one of the flagship projects jointly undertaken by ERIA and the AusAID. The research is the result of the financial contribution made by the Australian Government to ERIA. The underlying purpose of the research was that the findings are of value to the member countries.

Since the Asian Financial Crisis (AFC) of 1997–98, large current account surpluses have accumulated in the countries of Asia and the Pacific with corresponding deficits elsewhere. These surpluses are a result of a complex mix of factors that result from rapid economic growth with an increasing dependence on export-oriented industries in the countries of the region. The studies in this volume consider the East Asian side of the equation. The 17 papers in this study look at the economic structures and policies that give rise to current account surpluses and consider what policy adjustments could change them. Taking up the major causes of the build-up of current account surpluses in the East Asian region, commonly referred to as the problem of "global imbalances", the study notes that the external surpluses are matched by domestic imbalances of savings and investment. There are broadly two types of policies available to the countries on the surplus side of the global imbalances – changes to the domestic economy to give different savings-investment outcomes and changes to relative prices between home-produced and foreign-produced good. Adjustments are expected to come only from both the sides of the imbalance equation. While the study does not explicitly address the policies that might help the deficit side, it takes a look at the policies that would benefit both the Asian surplus economies and also help address global imbalances. It studies the international capital flow which is an important dimension of international financial integration and covers the unintended consequence of policy liberalisation in the region. The study is uniquely placed to provide fresh perspectives to understand the increasingly complex, dynamic nature of the integration process in Asia.

Major Findings

Financial market liberalization and reform, greater openness and more flexible exchange rates will be important policy tools to enable the structural changes that will support a gradual reduction of surpluses and a redirection of resources to the non-traded sector that will absorb employment and allow an orderly rebalancing. The current account surpluses can be reduced significantly, or even reversed, and unemployment and other social costs that would otherwise result from an unanticipated economic crisis can be avoided by reallocating resources away from production for the export market and towards production for the domestic market.

Imbalance between savings and investment seems to be the result of constraints on the investment side, rather than incentives to build up excessive savings. A policy focus on the drivers, determinants and impediments to investment will be a more productive way to respond to global imbalances than a narrow focus on corporate savings.

It is more important to focus on policies that increase investment than on those that reduce savings since the former will promote growth which will, in turn, allow consumption growth. More open economies have greater reliance on external financing and have lower levels of retained earnings. In addition to improving the general support of investors and creditors rights, policies that remove financial constraints would impact on investment.

There is no support for the notion that countries on a more flexible exchange rate regime exhibit a faster convergence of their current account to the long-run equilibrium. However, there is evidence that governments resist exchange rate change not for promoting exports only but for a number of reasons. These underlying motivations will need to be addressed before policies will change.

In the context of China, given its combined role of importing parts and component and exporting assembled final products, a bilateral exchange rate change of the RMB alone will have less than the expected impact on the volume of China's exports and thus will contribute less to correcting some of the growing trade imbalance with China.

Improving financial market development within developing countries will reduce the incentive to build surpluses and accumulate foreign reserves. Governments play a role in supplying additional liquidity due to underdeveloped financial markets. There is also much evidence that opening financial markets and more closely cooperating in financial activities in the region can bring benefits but the fears about increased instability have some basis and

need to be addressed. However, policy makers need to be mindful of the possibility of any crowding out in designing financial liberalisation policies.

The increasing interconnectedness of domestic banking liquidity to the global funding environment enhances the links between domestic financial stability and external shocks. International banks lending act as a channel of shock transmission from home countries to host economies. Furthermore, the common lender effect—whereby movements in international banks' claims on one country can be transmitted to other countries that owe claims from the same international banks—underscores the spill-over effect.

There is evidence that Asian-owned Foreign Banks (FB) played a distinctive and stabilizing role during the recent GFC compared with their non-Asian counterparts and local banks in the host countries. Asian-owned FBs showed the slowest credit reduction during the crisis, which helped counterbalance the contagion effect from the GFC and stabilize the credit markets in Asia.

Banks tend to diversify and manage their risk better with higher capital requirements. There are positive impacts on bank performance from foreign ownership and participation. Thus, the financial openness of the financial markets will be important for their development and regional integration.

Policy Recommendations

Improve Investment Climate

The study recommends that the main policy focus should be on improving the investment climate. Reducing savings could be counter-productive as it could bring rising interest rates globally. More investment, directed to the right industries and activities, will be growth enhancing as well as helping imbalances.

Coordinate Exchange Rates

Exchange rate realignments play only a supporting, not the main role. Even in China the effect of revaluation is tempered by the possible cost-reducing impact on imported components if revaluation changes relative exchange rates in the region. The exchange rate effect therefore needs to be coordinated with others in the region. They, in turn, will resist relative revaluations of their own currencies against China, so a coordinated approach is the only option. This is unlikely unless the other reasons, due to which governments manage

exchange rates and accumulate reserves, are addressed. The policy implication is that the use of the exchange rate tool is more complex and less predictable for countries that take part in supply chains than for those that export goods containing mainly a high proportion of domestic value added. In future policy dialogue, instead of another push for more flexible exchange rates, it would be more productive to consider social policies—including family planning policies and women's social status in particular—in the context of national savings and current account imbalances.

Integration with External Financial Markets

Improving access to the potential risk-reducing functions of the international financial system will enhance welfare and remove impediments to adopting better policies. Greater integration with external financial markets can improve welfare by reducing consumption volatility and by reducing the need to accumulate foreign exchange reserves. Working with well-chosen partners to develop safe and well-sequenced financial opening measures will achieve the largest gains. There is less to be gained by trying to forge region-wide financial agreements from the outset if these are politically and administratively difficult.

Opening Banking Markets

Global financial shocks are transmitted to the region by cross-border banking flows but foreign-owned banks operating within the region, and particularly other Asian-owned ones, have been a stabilising influence. Thus, opening banking markets and removing behind-the-border barriers to market entry can be helpful. These measures should be accompanied by the implementation of international standard bank regulations, which can improve bank performance, and by careful management of the use of external, wholesale funding by banks. The study lends support to opening up to foreign banks and especially opening up to Asian-owned foreign banks' participation in the local banking market, which not only benefits local banks in terms of the transfer of technology and healthy competition but also reduces the risk of instability.

3 ASEAN+1 FTAs and Global Value Chains in East Asia

(ERIA-Australia Collaboration)

Abstract

"ASEAN+1 FTAs and Global Value Chains in East Asia" is the second project jointly undertaken by ERIA and the AusAID utilising the financial contribution made by the Australian Government to ERIA. The purpose of this research was once again to establish valuable research findings that are of practical value to the member countries.

ASEAN economies as a group have signed free trade agreements with China, Japan, Korea, India and Australia/New Zealand. There is now an interest in forming a larger regional agreement, where ASEAN prefers to build up from the '+1' agreements into a new 'ASEAN++' structure. This renewed structure is based on the reasoning that gains from integration are greater across wider areas with deeper coverage – there is also an interest in deepening the commitments to integration. The second reason is that there is a concern that the proliferation of trade agreements adds to the costs of decision-making in international business. The goal is therefore to achieve wider and deeper integration with lower costs to business. The ultimate goal is to operate economies more efficiently and achieve higher growth but the immediate task is to attain a higher level of integration.

This research considers a bottom-up process that will contribute to wider and deeper integration with lower costs to business and works out a set of principles which are important to manage the risks that accompany the process of integration under a larger regional agreement. It mainly deals with the aspects of trade facilitation, rules of origin, services and investment using the supply-chain framework. The study pays great attention to the design and operation of production supply chains in the East Asian region in order to help in designing a low risk path to wider and deeper integration and to lower costs of doing business in the region.

Major Findings

There is a significant risk that any attempt to adopt a top-down approach (initiated by the leaders, e.g. CEPEA, EAFTA) based on a new region-wide agreement could add yet another agreement to the existing 'noodle bowl'. It could also be less liberal, given the difficulty of reaching agreement over the larger number of participants.

Manage the Risks to Consolidation of FTAs

There are some advantages in the bottom-up approach of ASEAN++ that allow a dialogue partner to propose to connect existing +1 agreements, given the degree of common membership of the agreements under consideration. However, the bottom-up process is not without risks either, and a set of principles is important to manage them. Managing these risks adds to the incentives to participate in regional consolidation.

Global Value Chains have Resulted in Economic Growth of East Asia

A key feature of the region is the presence of supply chains. East Asia has achieved economic growth through the formation of global value chains by multinational firms, and the desirable region-wide economic integration should be a system which provides opportunities and captures benefits from the regional global production and sales networks.

Reforms in Trade Facilitation, Services, Investment and Rules of Origin

The supply chain framework draws attention to the significance of the costs of trade in this system. Items change locations a number of times so the costs of managing trade become important determinants of supply chain design. There are substantial gains from reform which focus on trade facilitation, which results in real resource savings. Services also make a critical contribution to trade facilitation and the operation of production networks, through transport, logistics, information and communication services and finance. Foreign Direct Investment (FDI), especially those arising out of FTAs, is also one of key drivers in the development of regional supply chains. And finally, the nature of the Rules of Origin in ASEAN+1 FTAs and how they are implemented, affect the value chain considerably. Reforms in these four areas will greatly influence the future of the consolidation of ASEAN+1 FTAs.

Policy Recommendations

There are challenges in the bottom-up approach and progress on the different components of a consolidated ASEAN++ approach. However, there are some recommendations that could be applied generally towards managing the consolidation of ASEAN++.

Priority on Trade Facilitation

From supply chain perspective, there is a clear priority on areas such as trade facilitation where there are 'gains all round' from reform. An agreement involving ASEAN and '+1 partners' which incorporates a set of key principles of trade facilitation would be valuable and it should include commitment to timelines and monitoring implementation. The agreement should also have linkages to other regional (APEC – Asia-Pacific Economic Cooperation) and global (WTO – World Trade Organization) processes.

Simplify Rules of Origin

Regional integration can be accelerated by removing rules of origin in goods at the lower tariff rates, and otherwise simplify them and then adopt a liberal benchmark or reference rule (for goods, services and investment) before moving to consolidate existing agreements. The benchmark is expected to provide a cap on the degree of restrictiveness of the rules in any new agreement. The choice of the benchmark may be a matter for negotiation.

Liberalise and Reform Investment and Services

Investment must be included in the coverage of a new agreement, given its role in the construction of the supply chains. The recommendations must document actual policy in any new consolidated agreement, which avoids back-sliding on that policy at least with the trading partners. The agreements must include commitment to further liberalization, with schedules for reform in key sectors. There is high degree of complementarily between services and investment as international investment is more likely to be attracted by the efficient provision of services, such as logistics, which is particularly important in relation to supply chains. Commitments could be made on a group of sectors which are especially important to the operation of regional supply chains. However, in order to build the environment towards that agreement, a focus on capacity building in services is very important.

4 Comprehensive Mapping of FTAs in ASEAN and East Asia

(In Progress)

Abstract

The aim of this study is to construct comparable and comprehensive database on FTAs in this region by investigating articles of concluded agreements of ASEAN FTAs with the dialogue partner countries and bilateral FTAs between ASEAN countries and other East Asian countries in order to serve as a knowledge base of mapping for efficient FTAs strategy and the region-wide FTA architecture in this region. This study is distinguished from several existing FTA stocktaking studies by providing comparable and quantitatively-analyzable database of commitments and indices of the liberalization of FTAs. By constructing such intensive database based on a common framework of each issue enables us to conduct comparative and multidimensional analysis which offers persuasive and strong policy implications for construction of efficient region-wide FTA system. This study will complement the existing studies on FTAs by offering powerful and intensive measures to compare various characteristics of all FTAs at once.

This study covers ASEAN+N FTAs as well as AFTA, bilateral FTAs among ASEAN members and the dialogue partners. For the first step, the following four chapters; 1) Tariff Components; 2) Rules of Origins; 3) Trade in Services, and 4) Investment are covered. Using the database, several analyses on FTA convergence have been conducted. The findings of the study are proposed to be used to develop the template of the Regional Comprehensive Economic Cooperation (RCEP) or the ASEAN++ FTA.

Major Findings and Policy Implication

Tariff

Tariff reduction and elimination will be one of the key components in FTAs. The six FTA partners have committed to eliminate more than 90% tariff lines vis-à-vis ASEAN countries with the exception of India, i.e., 78.8%. However, if the 95% thresholds is adopted in the possible ASEAN++ FTA, even China, Japan, and Korea also need to make further efforts. Moreover, while the potential economic gains will be immense, it is probably even more challenging for an FTA partner to open its goods markets to other FTA partners with 95% threshold even if there is a bilateral FTA between the two countries, such as in the cases

of China-New Zealand and India-Japan. Further, if tariff elimination schedule for ASEAN++FTA is much longer than current ASEAN+1 FTAs, most users in ASEAN countries cannot enjoy the fruits of ASEAN++FTA until its completion.

Most ASEAN+1 FTAs require 'common concession' approach to the members where a country should open up the same product markets to all the members. Thus, a country should strategically focus its policy discretion, for its sensitive industries, on a more limited number of products. ASEAN++ FTA would allow a country to choose up to 5% of products to protect (roughly 250 tariff lines at HS 6-digit level), while opening up the rest.

With the exception of Singapore, the shares of "eliminated to all" tariff lines committed by ASEAN member states are less than 95%, and eight countries score even lower than 80%. This suggests that under the 95% ambition of ASEAN++, all the ASEAN member states except for Singapore need to make extra efforts to increase their respective shares of "eliminated to all" products. However, ASEAN countries consistently protect only 0.9% on average of tariff lines vis-à-vis all the FTA partners and opened up 99.1% of product markets to at least one dialogue partner. The challenge is how ASEAN can reduce the number of "depends on FTA" products, which currently occupy 25.8% on average.

Rules of Origin

The ROO is integral to any FTAs. Nonetheless, the ROO should be designed not simply to prevent trade deflection but to be as trade-friendly as possible if the FTA preferential treatment is to be useful. The various ASEAN+1 FTAs use four basic rules to determine origin: Wholly-Obtained (WO). Regional Value Content (RVC), Change in Tariff Classification (CTC), and Specific Process Rule. These rules could be used singly or in some combination, whether as options (so-called co-equal rules) or jointly (all rules to be satisfied). The agreements would provide for a General Rule (GR) and product specific rules (PSRs) are negotiated and usually spelled out in an Annex to the Agreement. There are two key observations about the features and characteristics of ROOs of the ASEAN+1 FTA as follows:

ASEAN +1 FTAs use many types and combinations of ROOs. A lot more variations exist within each grouping. RVC40 or CTH is the general rule for ATIGA, AANZFTA, AJCEP and AKFTA. For ACFTA, the general rule is RVC40. For AIFTA, the general rule is the dual rule, RVC35+CTSH, considered the most restrictive as both rules need to be complied with. ATIGA is undertaking ROO reforms, coming up with more HS lines using 'RVC40 or CTSH', which is more liberal than the general rule 'RVC40 or CTH'.

ROO divergence is highest in the textile and garments chapters (Chapters 50-63), with many specific process rules, followed by agriculture (Chapters 1-27) as these are commonly considered 'sensitive' sectors for all. Outside these product groups, however, substantial ROO convergence could be discerned. There is convergence for 4 FTAs at "RVC40 or CTH" or better for more than 78% of HS lines in the other subgroups.

There also is convergence of ASEAN+1 FTAs in terms of operational certification procedures (OCPs). All ASEAN+1 FTA allow back-to-back certificate origin, third country invoicing as well as cumulation of inputs from parties provided inputs pass origin criteria. ATIGA further allows partial cumulation, if at least 20% of the regional value content comes from the member countries. As for CTC criterion, *de minimis* rules are used with slight variations across the various FTAs.

Services

The services chapters of existing ASEAN+1 FTAs adopt a GATS-style reporting, which enables direct comparison among GATS commitments and other ASEAN+1 FTAs. By using the Hoekman Index, it is seen that most countries have the commitment levels of less than 0.5, meaning that the "unbound (no commitment)" is dominant overall. With the patterns of commitments differing greatly across the signatory countries, there is an obvious policy recommendation that more commitments can be made in the foreseeable future.

All the dialogue partners analyzed in this study have committed higher liberalization than AFAS package 5. As such, ASEAN can gain very little or none if AFAS package 5 sets a standard for ASEAN++ negotiation. Levels of liberalization in AFAS package 7 are much higher than the one in package 5. The four FTA partners who have services chapter in their respective ASEAN+1 FTAs can enjoy a higher level of services trade liberalization when AFAS package 7 sets the standards.

The ASEAN-Australia-New Zealand FTA has the largest number of limitations with its most dominant limitation being D (limitations on the total number of natural persons). An overall common observation among other FTAs, is the dominant use of D (limitations on the total number of natural persons), E (measures which restrict or require specific types of legal entity), and F (limitations on the participation of foreign capital). Narrowing the types of limitations with these three measures and reducing the frequency and restrictiveness of them as the main convergence pillars could serve as a feasible policy option.

Investments

The FDI activities in ASEAN countries were assessed by creating the FDI Restrictiveness Index. The restrictiveness of FDI were evaluated in six areas: foreign ownership or market access, national treatment, screening and approval procedure, board of directors and management composition, movement of investors, and performance requirements. The study shows that developing economies tend to have a higher openness for FDI as compared to more mature economies. Cambodia and Vietnam have higher score for openness to FDI as compared to Indonesia and Malaysia. It is likely that economies with more developed domestic industries tend to protect their domestic firms. The only exceptions are Singapore and Brunei where the former relies heavily on FDI to augment its domestic industries in terms of technology and capital. Comparatively, Brunei is a resource based economy that has lower reliance on FDI to develop it industries.

A comparison of ACFTA and AKFTA reveals that the former tends to put more emphasis on construction and related engineering services, environmental services, education and tourism related services. In contrast, AKFTA tends to be broad based possibly due to production networks established by Korean firms in Asia. Both communication and transport sectors have high FDI restrictions in both FTAs. Across countries, Indonesia, Philippines, Malaysia and Thailand have very restrictive FDI policy in ACFTA and are marginally liberal in construction and engineering related services and tourism services sectors.

5 ASEAN-India Connectivity: The Comprehensive Asia Development Plan, Phase II

Abstract

Connectivity has been a key concept in the policy debates on economic integration in ASEAN and East Asia, particularly since the adoption of the Master Plan on ASEAN Connectivity (MPAC) in October 2010. Although the primal objective of the MPAC is to enhance connectivity among ASEAN Member States, ASEAN's connectivity with neighbouring countries such as other members of the East Asia Summit is another issue to be addressed. As the second phase of the Comprehensive Asia Development Plan (CADP), Economic Research Institute for ASEAN and East Asia (ERIA) has conducted a series of research on the issue of ASEAN-India connectivity, based on the understanding that the issue has not been explored enough relative to its huge potential benefits to the region.

As stated in the MPAC, ASEAN put an explicit emphasis on the connectivity with the neighboring countries including China, India, and other EAS member countries. Although both China and India are emerging economic superpowers in the region and the immediate neighbors to ASEAN, the extents of the connectivity with ASEAN differ significantly. The exposure of India to ASEAN is rather limited, reflecting the weaker physical connectivity with ASEAN. In view of the potential benefits for both ASEAN and India, this study was undertaken to develop a basic strategy to enhance the connectivity between ASEAN and India.

The study proposes a regional framework to consider the issue of ASEAN-India connectivity and discusses the current status, opportunities, and challenges of key infrastructure projects for that purpose. Two main routes are proposed, namely, a sea route along the Mekong India Economic Corridor and a land route along the Trilateral Highway, or Asian Highway No.1, connecting Thailand, Myanmar, and India. The study also fills up the gaps in concepts such as the Mekong-India Economic Corridor, which was part of the first CADP. The study consists of three different chapters from India, Myanmar and Thailand sharing the perspectives on connectivity. A separate chapter summarises the findings of 4th version of the Geographical Simulation Model (GSM), displaying the effects of connectivity infrastructure on the respective countries and the region.

Major Findings and Policy Recommendations

While the validity of Mekong India Economic Corridor (MIEC) was demonstrated in the CADP, this study completes the significant missing links in the MIEC, including the lack of a Mekong bridge in Neak Leoung (Cambodia) and the lack of the gateway port in Dawei (Myanmar). The study also recommends enhanced connectivity between Thailand and Myanmar through the construction of a highway between Dawei and Thai border (physical connectivity) and various trade and transport facilitation measures (institutional connectivity).

The Geographical Simulation Model (GSM) findings are summarized as follows: 1) Better connectivity between ASEAN and India will benefit ASEAN newcomers and Bangladesh in terms of percentages of each country, and mainly benefit India and Thailand in terms of absolute value of GDP. 2) For India, the developments of Golden Quadrilateral (GQ) road link and North South East West (NSEW) road project have larger positive impacts than the additional alternative scenarios, meaning that connecting the domestic market is crucial. 3) For Myanmar, both the development of highways and reduction of Political and Cultural Barriers (PCBs) are essential. 4) For Thailand, Dawei port development, PCBs reduction and other connectivity to India will benefit the regions surrounding Bangkok and Lamphunand Kanchanaburi, where main beneficiaries will be large and multinational manufacturing companies. 5) In South Route scenarios, connecting large cities such as Bangkok, Yangon, Dhaka and Kolkata will make the largest impact.

The lower positive impact of MIEC on India is mainly due to the fact that India has higher preference for domestic products. It reflects India's lesser participation in the production networks in Asia. It suggests the need for greater integration with the production networks through improved institutional connectivity.

In the Trilateral Highway connecting India, Myanmar and Thailand, development strategies for Myanmar and Northeast India can be the core of the regional strategy to enhance ASEAN-India connectivity. The Trilateral Highway is expected to connect to mainland India through the existing national highway network in India via "chicken neck," through the multimodal transport corridor being developed under the Kaladan Multimodal Transit Transport project, or through Bangladesh using its highway network or inland waterway.

ASEAN-India Connectivity requires a design which is based on a multi-modal approach, a multi-functional approach, and a multi-tier approach. All modes of transportation, namely, land (including road and railways), maritime (including inland waterway transport), and air will be part of this design.

In land transport, the completion of the ASEAN Highway Network (AHN) is a priority. In addition to the Singapore Kunming Rail Link (SKRL), which is a prioritised project in the MPAC, this study recommends establishing a rail link from India to Ho Chi Minh City crossing the Indochina Peninsular. In maritime transport, besides studying the impact of ongoing construction of new ports in Dawei, Kyaukphyu, and Pakbara, the study also recommend expansion or upgrading of existing ports, such as Yangon, Sittwe, and Chennai. Inland waterways along the Kaladan River and Ganga are also expected to play important roles in enhancing the connectivity between the mainland and Northeast India via Myanmar and Bangladesh respectively.

The study briefly recommends plans to construct or upgrade airports in Chennai and Dawei and expects the ASEAN Single Aviation Market (ASAM) and the ASEAN's air transport agreements with its Dialogue Partners including India, China, and Korea to enhance connectivity in the region.

Enhanced regional connectivity must be complemented with removal of restrictive institutional arrangement.

With the development of physical connectivity, existing industrial agglomerations such as Bangkok and Chennai (Tier 1) are expected to lead the regional economy by providing large markets of final and intermediate goods and raw materials for neighbouring Tier 2 and Tier 3 regions, such as Kolkata, Dhaka, Kunming, Yangon and Mandalay. The connectivity will be a source of economic dynamism in the region by attracting production processes from neighbouring Tier 1 or other places through fragmentation, which are suitable to the location advantage of the region. This process of fragmentation would benefit not only Tier 2 by providing new economic activities which includes new employment opportunities, but also Tier 1 by allowing them to focus more on innovative economic activities.

6 ERIA Study to Further Improve the AEC Scorecard - Phase 2

Abstract

The study is a continuation of the Phase 1 project in FY 2009-10, which is a response to a request from the ASEAN Economic Ministers to ERIA to help improve the current official scorecard for the ASEAN Economic Community. In Phase 2, the activities consist of (a) determine the core measures (the major measures included in the Pillar 1 of the AEC Blueprint (i.e., Towards a Single Market and Production Base) are all considered as 'core measures') in the AEC Blueprint using the results of a survey of the private business sector as well as economic analysis; (b) develop alternative scoring system for the core measures; the scoring system can indicate the degree of implementation of the AEC measures, (c) score and analyze each ASEAN member state on each of the core measures using data and information submitted to the ASEAN Secretariat and used in the official AEC Scorecard (for comparability), results of interviews with government officials and private sector, and secondary data (d) generate recommendations, primarily through consultations with stakeholders, on actions that need to be taken by the ASEAN member states in order for their implementation scores to increase, and (e) recommend a mechanism for the institutionalization of a continuing monitoring and dialogue among the key stakeholders at the national level and at the regional level.

The study includes a survey of the private sector in order to determine the core measures among the measures in the AEC Blueprint.

The study has designed the alternative scoring system to determine the degree of implementation of the AEC Blueprint measures. The scores and the analyses of the scores of the implementation of the AEC core measures for each ASEAN country were presented to the AEC Council during the 19th ASEAN Summit in Bali in November 2011. The usefulness of this study lies in that the alternative scores crafted in the study will allow the ASEAN member states to know the true situation on how far they have gone towards the objective of having an ASEAN economic community by 2015.

Major Findings and Policy Implications

The aggregated scores of the listed measures show that the private sector in the ASEAN, on the whole, gives more importance to facilitation measures (trade, investment and transport facilitation) than liberalization measures, with special emphasis on:

- Streamline and expedite import and customs procedures, documents, etc. as well as improve import and customs administration, efficiency and integrity through greater use of ICT, linked clearance system, etc. This is in effect the National Single Window and the ASEAN Single Window.
- Harmonize rules and regulations for much improved ICT connectivity within the ASEAN
- Flexible and business friendly rules of origin
- Harmonize conformity assessment and strengthen certification bodies
- Implement the ASEAN transport facilitation framework agreements to expedite cross-border and multimodal transport of goods in the ASEAN.

In investment and trade facilitation, the top performing Member States are near or at "best practice". CLMV countries have lower scores than the other ASEAN Member States, but Viet Nam is worth mentioning for moving forward in in customs modernization with clear and specific outcome targets that are worth emulating by other Member States. Significant resources and technical expertise may need to be extended to CLM especially for customs modernization and the establishment of the National Single Window.

Majority of the private business sector members surveyed for the report **do not support nor consider it important enough** to be implemented by 2015 the measures that will allow at least 70% foreign equity in industries except for a limited number of sensitive industries as well as the measure that requires national treatment of foreign investors. The weak support to and low priority for investment liberalization (market access and national treatment) is most evident in Indonesia, Brunei Darussalam and Thailand. The challenge lies in that the weak support will have implication on the implementability of measures for Mode 3 under AFAS as well as the liberalization measures to fully implement ACIA.

The survey results bring out a very clear and decided strong preference of the private business sector for investment facilitation and promotion measures over investment liberalization measures.

There is a strong political support across the AMS to liberalize logistics sector, especially in Brunei Darussalam and Viet Nam. The survey also added the measures to (a) strengthen and implement effective pro-competitive rules and regulations in the ASEAN and (b) strengthen and implement effective intellectual property rights, rules and regulations in the ASEAN. There are positive responses from the majority of the private sector in the ASEAN, except Indonesia, in terms of importance, urgency and political support for the measures on competition policy and intellectual property rights.

There seems to be moderate political support from business sector for financial services sector liberalization, except for Indonesia. The score for this is about 55 (out of 100) for the whole ASEAN. Private sector in Indonesia, Thailand and Vietnam do not find it urgent, beneficial or important for the liberalization of the financial services sector by 2015. In effect, the private sector in the three countries prefers that the full liberalization happens after 2015.

Implementation of ASEAN transport facilitation framework to expedite cross-border and multimodal transport of goods in ASEAN receives a strong political support from the business sector in Thailand, Philippines, Viet Nam, Brunei Darussalam, and Cambodia. A weaker political support, however, is suggested to have come from business sector in Indonesia and Lao PDR.

The business sector in the ASEAN is generally supportive towards harmonizing rules and regulations for much improved ICT connectivity within ASEAN. The scores are high, in terms of benefit, urgency, prioritization, and political economy support across all of the member states with the exception of Indonesia.

ERIA has recommended to the AEC Council to mandate the establishment of an AEC coordinating –cum-monitoring commission or committee and to establish a regular track 1.5 monitoring mechanism, and to invite donor community to support monitoring system at the national and regional level.

7 The Mid Term Review (MTR) of the Implementation of the ASEAN Economic Community (AEC) Blueprint

Abstract

The key objectives of the Mid-term Review of the ASEAN Economic Community (AEC) Blueprint can be broken down into three (3) major tasks; namely:

- Assess the implementation and effectiveness of AEC measures
- Examine AEC Blueprint's contribution to economic growth, employment, competitiveness and social welfare within ASEAN
- Recommend measures to enhance the implementation of the AEC Blueprint

The MTR will also look into the strong and weak points of the implementation of the commitments, reasons for the successes, failures or shortcomings of the implementation, and draw lessons from these and explore how such challenges could be addressed. The Mid-Term Review covers the four pillars of the AEC Blueprint on the following key measures:

1. Single Market and Production Base – Tariff, Non-Tariff Barriers, Trade Facilitation, Standards & Conformance, Services, Investment, Labour and Agriculture
2. Highly Competitive Region – Competition Policy, IPR, Transport, ICT and Energy
3. Equitable Economic Development - SME development and Initiative on ASEAN Integration
4. Full Integration into the Global Economy – FTA and CEP

For the analysis of performance, the implementation approach of the MTR project has relied on the results of the AEC Scorecard Phase 2 (also being conducted by ERIA for the ASEAN) and the questionnaires and interviews undertaken under the MTR project. For outcomes, the project relies on both questionnaires and interviews in the MTR project and on secondary data. For contribution to the economy, the MTR project has used three computable general equilibrium models, one geographic simulation model, two gravity equation models, and 2 industry cases/analyses for each ASEAN Member State.

The study will be submitted to the ASEAN Economic Ministers (AEM) in August, 2012.

Study Findings and Their Implications

Tariff: Tariff elimination and consequent regional economic integration is one of the success stories in implementation of the AEC Blueprint. But the use of preferential tariffs is low. And the share of intra-ASEAN trade to total ASEAN foreign trade has been largely stagnant at around 26.7 percent during 2003 – 2010. However, there are significant commodity changes which suggest the tariff reduction within ASEAN facilitates greater intra-ASEAN trade.

Non-Tariff Barriers: Business men and policy makers are increasingly concerned about Non-Tariff Barriers to trade. In the ASEAN region, most of the core NTMs are in non-automatic licensing and in prohibitions. To reduce the probability of non-tariff barriers, it is preferable to turn the non-automatic licensing to automatic licensing with clear and transparent rules and criteria, as well as to minimize the cases of prohibitions.

Trade Facilitation: Private sector has accorded top priority to trade facilitation among the AEC measures. However, there is extremely wide range of trade facilitation quality among AMSs. Also, the World Competitiveness Report shows that the transparency of border administration index is worse than average for AMSs except Singapore and Malaysia. The challenge is to substantially improve trade facilitation quality of the laggards towards global leaders like Singapore, Hong Kong and South Korea. The key area of reform is dramatic reduction in days for documentation plus reduction in the number of required documents in customs clearance. This is best addressed by customs modernization and by full implementation of the National Single Window and the ASEAN Single Window.

However, the ERIA survey also suggests that AMSs efforts to improve and automate processes and structures, in conjunction with the implementation of NSW/ASW, are bearing fruit. It is worthwhile for the AMSs to push harder towards the full implementation of the trade facilitation initiatives under AEC Blueprint.

Services Liberalisation: There has been progress in service liberalization under AFAS especially in Mode 1 and 2 under both AFAS 5th and AFAS 7th. However, Mode 3 liberalization rate has declined. This is because some countries have problems raising the allowable foreign equity participation to 50 percent and up (i.e., at least a majority foreign ownership). Further reforms in key selected service sectors are worthwhile indeed. The gains from service sector come mainly from domestic reforms rather than reforms in other ASEAN

member states. Thus, it is imperative for the AMSs to undertake service sector reforms for their own sakes, and not primarily for the AEC (region) per se.

Investment Liberalisation and Facilitation: Investment is central to effective adjustment to deeper economic integration. Excluding Singapore and Brunei, CLMV countries were found to be more liberal than ASEAN-4 in liberalisation, but lag behind them in investment facilitation. This suggests that despite deficiencies in investment facilitation, their greater openness to foreign investment, low labor cost and natural resource advantage, and improved investment climate have successfully lured significant foreign investments. ERIA survey show that many firms consider access to ASEAN is a significant factor in their decision to invest in the future operations in the country, especially those located in smaller countries like Lao PDR.

Transport Facilitation: A major reduction in the time and cost of moving goods and people at all the borders along the ASEAN Highway Network would have substantial impact on the region's output, especially in Lao PDR and Cambodia as well as Myanmar. Maritime connectivity with production hubs in East Asia has large economic impact on the Philippines and archipelagic sections of ASEAN. This facilitation would include further efforts on "behind the border" issues that underpin effective transport facilitation.

SME Development: With few exceptions, all ASEAN SME initiatives have shown no or little impact on AMSs. In view of the sobering results on the ASEAN SME initiatives, one key way forward suggested by ERIA and being supported by the SME Working Group, is the development and implementation of an ASEAN Policy Index. The Policy index will conduct structured monitoring of and targeted support to SMEs in the region.

FTAs and Regional Integration: Simulation studies have shown that the biggest positive impact on ASEAN economies are the FTAs for ASEAN + 3 and ASEAN + 6 where they include tariff elimination as well as reduction in service barriers and logistics and time costs to trade. Comparing these FTA results with those of the AEC alone shows that the benefits of economic integration for ASEAN countries are much greater under ASEAN + 3 and ASEAN + 6 than ASEAN Economic Community alone.

8 Geographical Simulation Analysis for Consistent Development Policies in East Asia

(In Progress)

Abstract

Logistics improvement in East Asia is an essential part of the policy agenda for both national governments and international development organizations. There are huge gaps in the current status of logistics infrastructure among countries and even within single countries. The importance of implementing various trade- and transport-facilitation measures (TTFMs) to achieve higher economic growth with less economic inequality is well understood. However, although TTFMs are important, there is no adequate tool for evaluating the economic impact of various TTFMs quantitatively. The geographical simulation model (GSM) provides for this need for a quantitative tool.

This model is based on new economic geography (NEG), an approach that makes it possible to manage agglomerations in economic activities. It is well known that NEG is one of the most suitable tools for explaining why and where industries agglomerate and how changes occur in the structure consisting of people, firms, industries, cities, clusters, regions and countries. This IDE/ERIA-GSM 5.0 study aims to improve upon the previous versions of IDE/ERIA-GSM and to study the development related policies in the East Asia region, including Chinese Taipei. Japan was formerly included in the model as the rest of the world but is now fully incorporated by integrating its 47 prefectures.

Major Findings

Simulations are conducted on the impact of economic corridors (such as MIEC), disasters (i.e. Great East Japan Earthquake and Flood in Thailand) and China-Japan-Korea FTA with refined assumptions. Parameters have been introduced in the GSM model which defines the overall productivity of a region, at any given time. A manipulation of a single parameter enables some experimental simulations to see the GRDP differences with and without ‘disaster’. It is also

possible to see the effects of overall improvement in the business environment for a region.

Similarly, tariffs are manipulated by industry and by country. Formerly, tariffs and NTBs were combined into policy and cultural barriers (PCBs). Now, the simulation model can show the effects of FTAs and RTAs or reduction of tariffs for a specific industry. In a similar exercise, non-tariff barriers (NTBs) are reduced for specific countries at any time in the simulation and examine the importance of NTBs among various TTFMs.

In the current model, the route data used in the simulation has been revised significantly compared with the previous version of IDE/ERIA-GSM. In particular, the route data for China is significantly improved, and major train routes are also included for China. Routes that are designated as the Asian Highway are also refined to better replicate them in the simulation. The number of routes included in the simulation has now grown to 7,044 (land: 5,454, sea: 895, air: 235 and train: 460).

This version can also make it possible to prohibit ‘transit trade’ for specific countries. Thus it is now possible to transport goods between Thailand and India without going through Myanmar and Bangladesh, which effectively means using the sea route. This makes it possible to replicate the actual logistical situation among ASEAN, China and India better.

It is also now possible to set ‘freight only’ routes. This makes it possible to replicate cargo flight routes and freight train routes.

9 Moving toward a New Development Model for East Asia - the Role of Domestic Policy and Regional Cooperation

(In Progress)

This research project intends to conduct a comprehensive study and to provide high level research results and policy recommendations. There are 2 parts and coverage as follows:

Part I. Evaluation of East Asia Economic Development Model: Problems and Challenges – Singapore, China, Viet Nam, and Australia

This part will analyze the problems and challenges for the East Asian economic development relating to the export oriented strategy, imbalance of the domestic development (with a focus on the imbalance of the social distribution and social demand), and the problems of environment, resource, energy and water supply. The study will not just raise the questions, but also analyze the causes, especially those relating to the policies.

Part II. Moving toward a New Development Model-Feasibility and Policy – China, India, Thailand, Indonesia, Viet Nam, Cambodia, Korea, Japan, and New Zealand

This part will analyze the new thoughts, strategy and policies to meet the challenges. The focus will be on new approaches and policies to develop the alternative economic development model which is different from the export led growth and the traditional industrialized model. It will also look at the new challenges from environment, resource, energy and climate change.

10 Economic and Welfare Impacts of Disasters in East Asia and Policy Responses

(In Progress)

Given the socio economic costs of disasters which are faced by the countries, this study intends to address the impacts of prevailing disasters on varied aspects of a country's economy such as productions, demands, and welfares (income, consumption, health, education, and poverty) in the East Asia region. The study draws economic policy implications at national and regional level, addressing the following:

(i) conduct ex post and ex ante analysis of the past and potential impacts of disasters on productions, demands, regional development, and welfares (income, consumption, health, education, and poverty)

(ii) in depth analysis on economic policy implications at national and regional level, and;

(iii) provide policy recommendations for reforms at the national level and explore the prospects for regional cooperation framework.

There will be 10 country papers consisting of two parts. Part One is a brief review of disaster risks and highlights the most imminent disasters. Part Two deals with analysis of the impacts of disasters and policy responses, or the special topic of interest for the country. The country papers and topic papers can be grouped by theme, as follows:

1. Impact of Disasters on Households and Poverty Reduction – Cambodia and Vietnam
2. Impact of Disasters on Agricultural Development and Food Securities – Indonesia and The Philippines
3. Impact of Disasters and Disaster Risk Management – Singapore and Malaysia
4. Impact of Disasters on Health, Education, and Regional Development – China and India
5. Impact of Disasters on Production Networks and Urban Management – Japan and New Zealand

There are also 5 independent papers. The first paper lays down economic rationale for regional wide impacts of disasters to set a context for country's paper and the need for regional cooperation. The second paper synthesizes policy responses appropriate to the country's stage of development and propose regional cooperation framework for disaster risk management and financing. The Third Paper covers wider regional issues of disaster risk management in the Pacific-Rim. The fourth paper explores specific instrument of risk pooling and financing and it wider application for East Asia. The last paper deals with the role of social capital in post disaster recovery.

11 Developing ASEAN SME Policy Index

(In Progress)

The primary focus of this project is to develop a framework for ASEAN SME Policy Index to serve as the monitoring tool for SME development in the ASEAN region. It complements and strengthens the ASEAN Policy Blueprint for SME Development and the ASEAN Strategic Action Plan for SME Development, 2010-2015. It draws inspiration from the OECD SME Policy Index as a monitoring tool as well as a tool for facilitating policy dialogue, program coordination and the promotion of good practices in the region. The index allows a comparative independent evaluation of SME's progress against a set of policy dimensions which will help to identify the way forward and to further strengthen SME's capacity to participate actively in the regional production network.

The framework will be finalized and take into account the appropriateness, measurability, and applicability of sub-dimensions, indicators, and levels of policy reforms for each of the following 8 policy dimensions:

1. General SME policy and business environment
2. Cheaper and faster start-up and better legislation and regulation for SMEs
3. Access to finance
4. Technology and technology transfer
5. Market access and getting more out of the single market
6. Entrepreneurial education and training
7. Information and communication technology (ICT) and information access; and
8. Developing stronger, more effective representation of small enterprises' interests.

12 Wiring Innovation Networks: How Networks Upgrade Innovation Capacity in East Asia

(In Progress)

Abstract

Developing countries in East and Southeast Asia have attracted FDIs with cheap and ample labor forces for labor-intensive assembling processes. Such FDIs, together with imported intermediate and capital goods, have helped these countries to industrialize relatively quickly. However, Southeast Asian developing countries have been dependent entirely on product and technologies brought in by MNCs. Therefore, these countries have had difficulties in understanding and absorbing such technologies and acquiring capabilities to develop unique technologies on their own.

The previous ERIA studies on production networks suggested the importance of purchasing new machinery to introduce new products and refine secondhand ones to improve production processes. In addition, it suggested that fostering capital goods sector is crucial for enabling their user sectors to develop unique products and production technologies. These research projects also focused on supply-chain collaborations for product and process innovations mostly in the manufacturing sectors, which are users of industrial machinery.

This year's study is highlighting the sources of machines and related technologies necessary for product or process innovation and to identify areas where innovations related to machinery are occurring. The main goal of this research project is to make policy suggestions necessary for enhancing capabilities in process improvements and innovations and development of machinery industries, and interactions between users and producers of such capital goods.

Structure of the Study

Internal Resources for Capability Formation: The study aims to understand how internal resources should be developed and extended within and across firms. It aims to identify the capability and its formation.

Integrate Innovation, Capacity, and Network using Panel Data: The study will connect capacity with networks to formulate a firm's innovation. It will focus on endogeneity of production linkages or network formation between downstream and upstream firms. It will also examine the causal effect of capacity and network on innovation.

Firms' Evolution of Supplier-Customer Networks and Functional Specializations: The evolution of the production network and functional fragmentation has been divided. The study integrates these two important research lines in terms of product differentiation and quality improvements.

Major Findings

Based on more than 700 firms' self-reported main customer and supplier data from Indonesia, the Philippines, Thailand, and Vietnam, the econometric analyses have found the following:

1. There are sorting suppliers within and across production chains.
2. Manufacturing firms are more likely to achieve innovation if firms have MNC or JV customers.
3. Manufacturing firms are not likely to have skill-intensive investment in capital if firms have MNC or JV customers.
4. Producers are likely to achieve product innovation when they interact among firms learning with organizational capacity.

Case studies were conducted to reaffirm the implications from the econometric analyses. Firms in the capital goods industry in Japan and, to a lesser extent India, have high technological and innovative capability because of interactive learning between these firms and their customers/users, especially during a phase of maintaining global leadership of the industry through continuous product innovations. As the industrialization process continues, there have been continuous demands for new and better machines from various manufacturing industries. These demands were closely linked to technological capability development and innovation of the local capital goods industry in these countries.

On the contrary, most local firms in ASEAN are far behind in terms of development of

technological and innovative capability due to insufficient interactive learning with their customers and users. Manufacturers in these countries tend to import general purpose machines from cost-effective producers like China and import specific and high-quality ones from advanced countries.

Though the relationship between users/customers and producers is the most important source of learning and, hence, innovation, the 'strategic intent' of producer firms to enhance their technological capability themselves is also important. Some case-study firms from Malaysia, Thailand, Indonesia, and Vietnam demonstrate that these 'active' learners try to increase technological and innovative capabilities by developing design skills internally. Some tried to forge linkages with customers, both domestic and foreign, and other knowledge sources, such as universities and research institutes, and to gain outside knowledge by attending conferences and trade/technical international fairs. It is found that locally-owned firms are more active in doing these activities than subsidiaries of transnational corporations as they can have a more 'independent' technology strategy and there are no parent companies and headquarters to rely upon. In addition, their successes depend extensively on commitment from top management/owners to passionately pursue a technological development path. These findings have been reiterated by econometric analysis of ASEAN countries.

The role of suppliers in subsequent process improvement (e.g. Kaizen) is also crucial. In some cases, relationships between suppliers and producers were started by the introduction of final customers. This signifies another important role of customers in the technological development process.

13 Transforming AEC into A Global Services Hub: Enhancing the Competitiveness of the Health and Wellness and Creative Services Sectors

(In Progress)

Abstract

The services sector plays a critical role in the economy as it makes available to other productive sectors an environment to be more efficient by providing inputs in their production and distribution activities. The expansion of global trade in recent years has seen a phenomenal rise in trade in services due to the prominence of the services as an economic sector, and also due to the liberalization measures brought about by the General Agreement on Trade in Services (GATS) and the ASEAN Framework Agreement on Services (AFAS).

This research has chosen to study the healthcare and medical services, and the creative services partly because of their potentials for income, employment and foreign exchange earnings generation but more importantly in contributing to regional integration. The study was undertaken with an aim of understanding the conditions for transforming the ASEAN Economic Community (AEC) into a global services hub which will further expand trade in services and reap the opportunities in global and regional trade in services. This would also offer an avenue that will link the economies in the ASEAN region in realizing the goal of regional integration and eventually the formation of an economic community.

The study analyses the two sectors to determine their competitiveness. The analysis of strengths, weaknesses, opportunities and threats was made for the healthcare and medical tourism in Malaysia, Singapore and Thailand. The creative services sector was represented by animation and design (fashion and interior) in Indonesia, animation and digital publishing in the Philippines, and fashion and interior design in Vietnam. The study puts forth the economic potential of the two sectors along with their strengths, opportunities and exposure to differing weaknesses and threats.

Major Findings

Opportunities

The healthcare industry is generates a huge tourism industry in the region. Changing demographic landscape, aging population, rise of chronic and non-communicable diseases, rising income and the growth of the middle class also add to the opportunities. In the creative services the opportunities are numerous due to emergence of a knowledge-based economy, phenomenal development in ICT, enormous potential and actual demand in creative industries brought about by rising prosperity in the region and the varied applications of creative services.

Strengths

The medical tourism sector is a mature industry while the creative services sector is a developing industry in terms of scope and depth of their current contributions to the domestic economy as well as in regional trade in services. While medical tourism is a capital-intensive industry utilizing complex facilities, an incipient component of the healthcare and medical travel industry is relatively labor-intensive and competitive including wellness and alternative medicine. The creative services sector, on the other hand, is composed of small firms in a highly competitive market. Although the industry uses information and communication technology including modern computer hardware and software, it is relatively labor intensive employing skilled technicians, artists and writers which are a major component of its strengths.

Challenges

In transforming the AEC into a global services hub, the challenge for the countries and for the region is to respond to these opportunities by enhancing the strengths of the sectors and mitigate their weaknesses and threats. Given the differences of the two sectors, governments must take different approaches for promoting the sectors through formulation of regulations, provision of regulatory environment, and extension of institutional support. The regional cooperative measures for the two sectors will also differ.

Policy Recommendations

Government responses in healthcare travel industry must be comprehensive and crafted in a manner to encompass the inconsistencies arising from trade and public service perspectives of medical tourism, inequities from the dual delivery system and varied financing schemes, imbalances and subsequent migration of doctors and other health professionals from the public to private hospitals resulting from compensation gap, the regulatory frameworks for healthcare provision, and the differentiated services in medical tourism.

In creative services the government can assist in addressing the sector's major concern by enhancing its contributions in the value chain. Linkages of the various industries can be explored by revisiting the rich cultural heritage of the country for product development, discovering the global market for niches, exploring information and communication technology (ICT) for applications, and improving skills of its human talents..

National government and the regional bodies can undertake three categories of measures, namely, investment in physical capital, investment in human capital and exploration of market niches to enhance the competitiveness of the sectors. These specific recommendations will address productive capacity, human resource development and market expansion will also address the modes of services that are supplied. They are also linked with the policies, regulatory environment, and institutional support needed to enhance the competitiveness of the healthcare sector and the creative services and realize the goal of transforming the region into a global hub in services.

14 Public Private Partnership in ASEAN Member Countries: Its Role and Expectation in Transportation, Energy, and ICT Development

Abstract

Infrastructure is vital both for developing national economy and also for realization of the ASEAN Economic Community (AEC) goals. Infrastructure is a necessary condition for pushing economic activities and providing support to enterprises. Specifically, infrastructure in transport, energy, ITC etc provides connectivity and mobility, increase productivity and lowers cost for cross-border activities, across regions and countries.

Access to finance and capacity are two inherent problems of infrastructure development. Infrastructure development requires huge amount of funds over a long-term period, and has low rate of return in the short term period. There also is a general perception of treating infrastructure as public goods. Regardless of its challenges, infrastructure through PPP can be developed and managed fully or partially by private entities without infringing upon the role of governments. Flexibility of government to work with private sector to provide public services has made Public-Private Partnership scheme feasible and workable.

The research aims to map the status of infrastructure development in 5 ASEAN countries (Indonesia, Malaysia, Philippines, Thailand, and Vietnam), their policy of adopting PPP scheme for infrastructure, the problems and lessons learned and key findings. The Working Group aims to provide appropriate policy recommendations for PPP in infrastructure development in ASEAN countries through the findings of this study. The research project is expected to be complete by June 2012.

Major Findings

Transportation is found to be most progressive sector to utilise the PPP schemes due to the urgency and low level of complexity of the schemes.

Unsupportive regulations and economies of scale are the two most important problems with PPP. Many infrastructure projects cannot estimate positive return unless supported by relevant fiscal policies. This complexity increases when the project requires deeper (and direct) fiscal support.

Transparency and standardization of contracts are other important issues. Current approach to PPP is on a project-to-project basis which addresses the uniqueness of projects but increases complexity and time to finalise the contract. There is also a need for defining the role of SOEs in PPP scheme and to standardize risk management.

Of the 5 countries covered, Philippines has booked largest number of PPP projects, particularly transportation and energy. Vietnam is the new comer making significant progress on regulatory framework during the last two years.

Policy Recommendations

Countries in ASEAN need to develop a more robust scheme to evaluate PPP projects which includes the need for a mechanism to determine Value for Money (VFM). There is also a need to set up transparent systems for improving the financial viability of well-prepared PPPs.

Countries need to build private sector's trust through model transactions and to increase project's bankability through appropriate support/guarantee. Also important is an increase in regional government participation in PPP, through capacity building and supportive regulation. There is also a need to increase the number of capable PPP players to eliminate monopoly.

Strengthening of institution is needed to clearly mandate the appropriate authority to execute the PPP programs.

15 Analyses on Energy Saving Potential in East Asia

(In Progress)

Abstract

This study is a support study for the EAS Energy Ministers Meeting (EMM) and the EAS Energy Conservation Task Force (ECTF), and is the fourth in the series of studies on energy saving potential in East Asia. The results of the previous three studies have been reported to the past three EMMs and have been highly appreciated by ministers.

Based on social, economic and technological assumptions which are exogenous to the modeling, this research develops a Business as Usual (BAU) scenario for each EAS country outlining future sectoral and economy-wide energy consumption, assuming no significant changes to government policies. An Alternative Policy Scenario (APS) is also designed to examine the potential impacts of additional energy efficiency goals, action plans or policies that have been committed by the governments. The difference between the BAU and APS represent potential energy savings.

The current study is extending and enhancing the analysis of energy saving potential undertaken in the past four years with new data and additional policy targets from the member countries.

In 2010-2011, two additional and supportive research studies were conducted by the Working Group and its Special Working Group on Energy Efficiency Design. These are the pilot residential end-use energy consumption survey and the analysis of energy saving potential using the bottom-up approach. Both these studies are complementary to the main research on energy saving potential in East Asia.

Major Findings

In the EAS region, growth in energy consumption and greenhouse gas emissions is driven by increasing population, sustained economic growth, increasing vehicle ownership, and increasing access to electricity.

Thermal efficiency in the EAS countries is expected to improve considerably over time in the BAU as well as APS scenario as more advanced generation technologies such as natural gas combined cycle and supercritical coal plant are implemented.

Throughout the region there exists potential to increase energy efficiency and reduce the growth in energy consumption and greenhouse gas emissions. Relative to the BAU scenario, by 2030 the implementation of energy efficiency goals, action plans and policies proposed in the study could lead to additional reductions in the APS of 18.1 percent in primary energy demand, and 25 percent in energy derived CO2 emissions across the EAS region. The technical approach ensures that there may be larger saving potential than what the governments have committed.

Policy Recommendations

The working group have identified policy implications and aggregated them into three major categories. The identified policy recommendations are based on a shared desire to enhance promotion of energy efficiency and conservation policies, increase low carbon energy such as biomass, monitor energy saving goals and action plans, and prepare accurate energy consumption statistics. However, appropriate policies will differ between countries based on differences in country circumstances, policy objectives, and market structures.

1. ***Energy Efficiency and Conservation and Renewable Energy Policies***

- Policymakers should set and continuously improve the energy saving goals and action plans for each sub-sector to have a basis in setting the target saving potential such as promoting mass transport system.
- Policy mechanisms, which include incentives, to promote the use of renewable energy and implementation of energy efficiency and conservation programs are needed to be established.
- Policies to remove subsidies to fossil fuel energy and provision of incentives will

encourage further development of energy efficiency and conservation programs and renewable energy.

2. ***Low Emissions Technologies***

- Technology development supporting improvements in energy efficiency and reducing CO2 emissions is needed.
- Measures to reduce CO2 emissions would include provision of subsidies for the application of low emission technologies such as PV and high efficient vehicles.

3. ***Enhancing Reliable Energy Statistics for Monitoring of Energy Saving Goals, Action Plans and Policies***

- Reliable sectoral energy statistics are necessary for understanding the current characteristics of energy consuming sectors and to qualify and quantify energy efficiency and conservation policies and action plans.
- Detailed surveys are required to acquire information and data on energy saving policies and current energy consumption.
- Monitoring will be necessary using reliable energy consumption data.
- Capacity building on data collection and modelling will be important to analyse the policy options for promoting EEC programs.

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

Abstract

The Energy Market Integration (EMI) study is planned to be a continuous work of the 2007 and 2009 EMI. For the current study, ERIA recalls the EMM4's request of "how to reap the benefits from EMI and to assess the collaborative measures to improve the market regulatory framework and to establish a conducive environment for flourishing of the energy industry". Also, the fifth East Asia Summit (EAS) leaders emphasised "the need for greater regional cooperation on energy and welcomed the efforts to address market barriers and promote more transparent energy trade and investments and enhance dialogue and communication between energy producers and consumers".

In line with these instructions and past studies, 10 research proposals were accepted for this edition. Considering the consequences of the triple disasters in Japan, one existing study was diverted to study the impact of shifting away from nuclear energy. Another study was added to estimate the economic and environmental impact of such policy change in Japan. Part of the studies further deepen our understanding about the impact of EMI; while the other part explore ways to move the EMI forward, which echo the instructions from the Leaders and the energy ministers.

The original proposals have been reported to the East Asia Summit Energy Cooperation Taskforce (ECTF) EMI work stream chair, co-chair, and other stakeholders at the early stage. The final research plan, including the study on nuclear energy issues, was reported to the 15th EAS ECTF meeting held on 7 April 2011. The results of the eight policy related studies have been reported to the 16th ECTF meeting on 25-26 August, 2011 and the fifth Energy Ministers Meeting on 24 September, 2011.

Policy Recommendations

ERIA has recommended the following policies to the EAS policy makers:

EMI in East Asia should be pursued in an incremental manner since a region wide overall structure cannot be established at this moment. It can start at a sub-regional scale with small steps. Some concrete cooperation activities can be started now, such as emergency gas stocks, sea-lane security, emergency response teams, and pollution clean-up capacity.

East Asian countries may consider institutionalizing an energy policy cooperation framework, or establishing a single high level regional organisation, similar to IEA, to coordinate activities in the energy sector and delivery of certain services across the whole region. ASEAN can form the basis of such organisation in Southeast Asia, but steps need to be taken to establish a coordinating organisation for Northeast Asia and the whole of East Asia .

Different technical, legal, and institutional systems among the member countries should be harmonized, and transparency of laws and regulations must be improved so as to support the EMI. The quality and timeliness of energy data and statistics need to be improved to enable transparency in the energy market.

It is recommended to explore and establish multilateral and applicable financing approaches, such as regional infrastructure fund and regional development banks. Further, governments can promote and nurture the development of gas markets in member states and phased sectoral reforms in relatively mature markets through multilateral agreements.

Although having a systematic and well planned subsidy reduction policy is a big challenge for the countries in this region, a timely plan to act prudently and reduce such policies may be imperative to make the countries prosperous in future.

Countries with interests in nuclear energy need to carefully review nuclear energy policy considering the revealed additional risks and uncertainties, as well as the costs and benefits that have been identified in this study. Individual and cooperative actions on improving safety operation and dealing with accidents should be considered.

17 Sustainability Assessment Methodology for Biomass Energy Utilisation for Small and Large Scale Initiatives: Lessons Learned from Pilot Studies in Selected East Asian Countries

Abstract

The ERIA Working Group (WG) on "Sustainability Assessment of Biomass Utilisation in East Asia", sponsored by the Economic Research Institute for ASEAN and East Asia (ERIA), started its activity on sustainability assessment of biomass energy utilisation in the East Asian context since 2007. In the first phase (2007-2008), the WG extracted issues of concern for sustainability assessment of biomass utilisation and summarised a WG report entitled "Sustainable Biomass Utilisation Vision in East Asia", which played an important role for scientific backup for the adoption of the "Asia Biomass Energy Principles" endorsed in the "Second Meeting of Energy Ministers of East Asia Summit" held in 2008. In the second phase (2008-2009), the WG developed a methodology to evaluate sustainability of biomass utilisation based on environmental, economic and social pillars and framed the "Guidelines to Assess Sustainability of Biomass Utilisation in East Asia", incorporating the methodology developed and data required for sustainability assessment for biomass utilisation. Consequently, in the third phase (2009-2010), the WG conducted pilot studies in four selected East Asian countries to field-test the methodology developed and presented in the WG report "Sustainability Assessment of Biomass Energy Utilisation in Selected East Asian Countries".

In the fourth phase of ERIA WG on "Sustainability Assessment of Biomass Utilisation in East Asia" in 2010-2011, the WG has summarised the experiences and lessons learned from the four pilot studies in selected East Asian countries (ERIA, 2010) that had been conducted to field-test the WG's sustainability assessment methodology.

Findings and Recommendations

From the lessons learned from the four pilot studies, the applicability of the indicators as environmental, economic and social pillars of sustainability can be summarised as follows:

- Life Cycle Assessment (LCA) is a well established, standard technique for quantifying Green House Gas (GHG) emissions. Life cycle GHG emissions as environmental indicator are applicable for any biomass initiative.

- Total Value Added (TVA) as economic indicator is also applicable for any biomass initiative. However, understanding the components of TVA, namely, net profit, personnel remuneration, tax revenue and foreign exchange earnings will also help decision makers decide whether to proceed or continue with the biomass initiatives or not.

- Human Development Index (HDI) represents the endpoint social impact by employment. HDI can be used for macro scale (national, state or province level) initiatives but is difficult to assess for micro scale (community or project level) initiatives because of data unavailability. Therefore, midpoint indicators that can directly capture the social benefit by implementing biomass energy utilisation initiatives might be suitable for quantitative evaluation.

By reflecting the lessons learned and the latest worldwide discussions for bioenergy sustainability, the WG proposed an upgraded methodology so that the sustainability indicators for each sustainability pillar could be applied to both small and large scale biomass utilisation initiatives, be more scientific and practical for decision makers in the Southeast and East Asian countries.

- Life cycle GHG emissions are applicable for both small and large scale initiatives as an environmental indicator. However, it is recommended that the profile should follow internationally accepted methodologies such as ISO for LCA and IPCC for LULUC emissions. Since the environmental impact caused by biomass utilisation as energy is not only global warming, other impact categories can also be quantified by LCA, according to the environmental concerns of the sites where biomass utilisation initiatives are planned or already implemented.

- TVA can quantify economic sustainability for any biomass utilisation initiatives. For small scale initiatives at the community or project levels, the income approach can be used to add up all the income earned by the project or in the community.

- Although HDI and other indicators can be used as social indicators to evaluate social sustainability at endpoints, they may be only applicable for large scale biomass utilisation initiatives because of the data unavailability at community level.

The final goal of the WG project is to propose a sound and standardised methodology for sustainable biomass utilisation in East Asian countries in line with worldwide trends for biomass sustainability so that it can contribute to policy support on what kinds of biomass utilisations should be implemented in each country.

Since East Asian countries are abundant in biomass resources, the biomass feedstocks to produce energy are not limited to Jatropha, cassava, coconut or sugarcane. Other feedstocks such as oil palm and other oil trees or cellulosic biomass have high potential as energy as well. It is recommended to accumulate the WG research experience by conducting case studies based upon the upgraded WG methodology and evaluate the sustainability of both small and large scale biomass energy initiatives using various kinds of feedstocks in East Asian countries.

The WG recognises the importance of disseminating the WG methodology. Without proper training for the users of the WG methodology, the use of these indicators may lead to unreliable results. It is suggested that hands-on training/seminars on the calculation of these indicators be conducted for East Asian country representatives so that there will be transfer of knowledge. These participants will then conduct a trainers' training to disseminate widely the use of the guidelines for the assessment of the sustainability of biomass utilisation in their home countries.

18 Healthcare ICT Policy for ASEAN and East Asian Countries

Abstract

There are significant disparities in the economies and healthcare services provided among the nations that make up the ASEAN and East Asia. It is important that the people in these regions are able to access appropriate medical services to enjoy quality of life in their personal and working lives. An effective solution is the use of information and communications technology (ICT). The use of ICT is complementary as a healthcare resource. In particular, remote medical care (e.g., telemedicine) and clinical cooperation through the use of ICT can be implemented quickly and efficiently. The use of ICT can prevent medical accidents and incorrect medication dosages that can occur because of a lack of information sharing, and it can also contribute to the delivery of safe and reliable medical care.

The purpose of this research project is to propose healthcare ICT policy, with the aim of providing interoperable healthcare services for ASEAN and East Asian countries. To provide interoperable healthcare services through the use of ICT in the ASEAN and East Asia, healthcare ICT should be promoted in each country under standardized policies and strategies. Schemes for providing interoperable healthcare services through the use of ICT include:

- Telemedicine

  Communication technology enables communication between doctors and patients in remote areas.

- Clinical Cooperation

  Patient medical data can be shared between doctors and medical facilities with respect to privacy and law, ensuring the smooth delivery of medical care.

Major Findings

The disparities in the economies and healthcare services in the ASEAN and East Asia vary greatly in terms of per capita income, standard of living, population density and health status. Health and Healthcare ICT policies and strategies have been formulated in some countries, but the purpose and motivation are different for each. Not every country has a telemedicine policy; there also are big gaps in the adoption of healthcare ICT.

Common rules regarding interoperable healthcare ICT policies for telemedicine were not found among ASEAN countries. Therefore, establishment of standardized rules and policies appears to be necessary for implementing telemedicine beyond national and regional borders. To facilitate interoperable healthcare services in the ASEAN and East Asia, it is necessary that health data be converted to digital data, thus implementing Electronic Health Record System (EHR) in hospitals. In addition, to achieve interoperable healthcare ICT, data formatting also must be standardized so that information can be exchanged beyond borders. Brunei, Thailand, Japan and New Zealand have developed a national health data format based on HL7.

Some economic benefits through the implementation of healthcare ICT, such as reducing medical costs, industry development and job creation in an aging society, are obvious. Implementation of healthcare ICT also will benefit the economy by improving the efficiency of medical service delivery, therefore contributing to the expansion of a new healthcare market. However, to promote healthcare ICT in each country, several issues should be resolved.

- **Policy**—governments should develop policies and strategies for e-Health implementation.
- **Human Resources**—the lack of healthcare ICT personnel is a problem.
- **Technical**—the ICT infrastructure should be sufficiently developed. Rules and regulations, procedures, and data formats should be standardized for interoperable healthcare ICT both in-country and overseas.
- **Finance**—some financial assistance is needed for start-up and operational costs. Moreover, an economically sustainable business model must be developed for the implementation of healthcare ICT.

Policy Recommendations

Two actions must take place simultaneously to achieve interoperable healthcare ICT in the ASEAN and East Asia:

1) **Propose policies and rules at the political level**

- Technical matters such as standardization, security architecture and components;
- Social aspects such as the education and training of ICT professionals;
- Economic issues such as the costs associated with providing services and ICT system development; and
- Legal and regulatory issues, such as the need for standardized rules for information exchange and information usage.

2) **Introducing healthcare ICT in the areas for which it is needed—the point of service approach**

The promotion of healthcare ICT is especially important in countries in which implementation is lagging and in the areas in which healthcare ICT, such as telemedicine, is critically needed. The service will be a sustainable one, so establishing a sustainable service model must be considered. The service model should include stakeholders, as well as service-provider, operations, and financial flow. Healthcare ICT may be initially implemented in an area with one or two simple services, perhaps as a pilot project. Services areas and menus could then be expanded, and then later interconnected so that patient medical data could be shared.

19 Economic Impact Evaluation of Investments on the Energy Savings and Low-carbon Emitting Technologies in East Asia

(In Progress)

Abstract

A policy shift is observed in Asia to promote the energy efficiency improvement, in addition to the use of low-carbon emitting power sources such as renewables (wind, solar, geothermal and biomass), hydro and nuclear power generation due to number of factors:

- **Sustained high energy price and prospects for expanding fossil fuel energy sources:** To reduce energy import dependency, East Asia requires energy efficiency improvement and expansion of low-carbon emitting power sources.

- **Global warming issues and possible impact on climate change:** Countries such as China, India, and Korea have formulated targets for CO2 emissions in compliance with the agreement made at the 15th meeting of Conference of Parties (COP) under the United Nations Framework Convention on Climate Change (UNFCCC).

- **Economic crisis and stimulus measure:** EAS countries such as China, Korea, and Japan are promoting low-carbon emitting sources, and enhance economic development through increased manufacturing of renewable power technologies (including solar, wind and biomass).

This study aims at creating demand and supply outlook for 16 EAS countries through 2030. The business-as-usual (BAU) scenario considers the continued implementation of currently policies and the use of current level of technology application, while the alternative-technology-scenario (ATS) considers potential for energy savings compared with BAU, and estimates the potential of those countries to save CO2 emissions through low-carbon emitting technologies. The study also evaluates the impact on economy from the use of higher efficiency technologies, and low-carbon emitting technologies. The study also conducts the costs and benefits analysis from the use of those technologies.

Expected Findings and Policy Implications

Different countries in Asia will be differently affected by energy savings and CO2 emissions reduction given the diversity in economic development levels, industry structure, technological progress, and resources endowment. Reflecting those diversities, the study classify 16 countries in Asia into several groups, and draws policy implications which are specific to each group.

Positive economic impact is likely to be felt in those countries promoting the export of energy/environmental technologies - such as Japan, Korea, and China. Meanwhile, in countries such as Australia, Brunei Darussalam, Indonesia, Malaysia, and Myanmar, negative economic impact may arise from the reduced exports of fossil fuels although even in these countries domestic energy savings can strengthen the export capacities, causing a positive impact on the economy.

Understanding of these different economic impacts by countries toward energy efficiency improvement and CO2 emissions reduction - in addition to the different level of those impacts- would create basis for policy-making in future. Based on the findings, the study could draw policy implications toward facilitating cooperation among the member countries in the East Asia Summit, and toward achieving regional growth.

20 Study on Development of Energy Security Index and Assessment of Energy Security for East Asia Countries

(In Progress)

Abstract

Enhancement of energy security is becoming one of the top priorities for each East Asian country as they commonly need to achieve sustainable economic growth and development. It is also essential to recognize that East Asian countries have a wide range of diversity in areas of energy resources endowment, economic development stage, industrial structure, stage of technology development and deployment, etc. Under the circumstance, it will be required to analyze energy security situation and the policy implications in East Asian countries, with due consideration to the diversity mentioned above. Furthermore, since East Asian countries have already deepened their economic and energy relationship in a bid to explore regional integration, it is very important to promote energy security enhancement not only in each country but also in East Asian region as a whole through regional cooperation.

The first objective of the research is to develop Energy Security Index which allows policy planners in the region help accurate understanding of energy security situation in each country. The second objective is to make assessment of energy security policy impacts in East Asian countries by using Energy Security Index. Energy security policy development will be analyzed with comparison to historical changes in Energy Security Index, country-by-country difference in the Index, etc. The third objective is to draw policy recommendation for energy policy planners in the region from the above analysis, with reference to- what is the best approach/practice to enhance energy security for each country; what is the most effective way forward to enhance energy security for each country with different energy/economic conditions; how the regional cooperation can be best promoted to enhance energy security; etc.

Expected Findings and Policy Implications

The followings are the expected findings and policy implications.

1) It is important to have accurate understanding of current energy security situation in each country, which will be a basis for policy planning and implementation of energy security enhancement in the future.

2) From the analysis of the Index (international and historical comparison), each country will be required to identify the strengths and weaknesses of its energy security situation and the effectiveness of the policies employed in the past

3) The most effective approach or best practice of policy measure to improve energy security can be drawn from the results of past policy experiences in the East Asian countries.

4) Each East Asian country will need to enhance energy security policy by best utilizing the findings in this study. But at the same time, regional cooperation should be prioritized to compliment policies undertaken by countries so that enhancement of energy security in the region as a whole can be best achieved.

5) Energy security policy development will require significant role of private sector, through their active investment in and commercialisation of advanced technology. Appropriate role sharing between government and private sector and encouragement of private sector investment and involvement will be the key.

21 Study on Asian Potential of Biofuel Markets

(In Progress)

Abstract

The oil price bubble in early 2000s was reflected in the 2nd East Asia Summit in Cebu, Philippines in January 2007 (Cebu Declaration on East Asian Energy Security) which drew attention to energy security and also the loss of foreign reserve through increased payment for energy imports. The Cebu Declaration emphasised on non-fossil energies where the most expected solution was biomass utilization, especially in the form of biofuels, which can replace the imported crude oil and/or oil products and can create new industries.

Promotion of biofules has become important in addressing the concerns of CO2 emission and energy security in East Asia. In this background, the purpose of this study is to survey biofuel promotional measures in East Asia and to address policies issues for design and implementation of markets for biofuels in East Asia. The study consists of following elements.

- Study of R&D information on biofuels in major East Asia countries.
- Study of policies and program to promote the utilization of biofuels.
- Study of outlook of supply and demand of biofuels in East Asia.
- 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 East Asia.

Expected Findings and Policy Implications

1) There is expected to be an accurate understanding of transportation sector for biofuel related policy planning and implementation in the future.

2) Country specific advantages and disadvantages from specific policy measures for the promotion of biofuels will be drawn out.

3) A study of past policy experiences in the East Asian countries will be conducted to draw out

the most effective approach or best practice of policy measures in the utilization of biofuels in order to address CO2 emission reduction and energy security.

4) While country specific biofuel policy will be recommended by utilizing the finding in this study, regional cooperation will be given priority to compliment the policies undertaken by countries to enhance the advantages of biofuel polices and to reduce the regional and/or bilateral conflict of policies, especially in trade measures.

5) Policy development of biofuels is related to various governmental agency and sectors, both government and private. The study will recommend intergovernmental and public-private partnership as these are important for a successful biofuel strategy in the region.

22 Study on the Feasibility of an Information Infrastructure for the Future Chemicals Management Scheme in the Asian Region

Abstract

This research is the second in the series of developing an information infrastructure for chemical management in the Asian region. The first research in fiscal year 2010, had analysed the economic impact of two types of risk-based chemicals management systems, namely, the "No-data, No-market" approach (covering all substances for risk assessment, e.g., EU-REACH) and "Prioritization-Led" approach (covering only limited types of chemicals selected on a priority basis, eg., amended CSCL of Japan) it they were to be introduced in each country in ASEAN or the surrounding region where the latter was found to be lower in costs. The study also found the location of chemicals management systems and chemicals risk assessments to be critical for the efficient collection of chemical hazard data and recommended a harmonized chemical management system for Asian countries using common data.

The second and current study in this series analyses the feasibility of establishment of an information infrastructure, including a data center, in Asian countries or region. This study surveys the status of chemicals hazard data in each country (types and numbers, etc.) and existing databases on chemicals and the multilateral databases in other areas. The study also summarizes some conditions (language, operation, data collection method, etc.) to operate the data center efficiently, and estimates its operation cost. Based on such information, the study analyzes the effects, including economic impact for both government and industry in cases where the data center is established and where the chemical management system, in which risk assessment using the database is carried out, is established. The study assumes that each country will introduce a "Prioritization-Led" approach based on the results of trial calculation of the total cost in the study in 2010.

Major Findings

The ASEAN Chemical Safety Database prepared under the study will help to share information on chemical risks and hazards. It will enhance transparency and reduce compliance risks and costs, through providing information on local regulations. The database will facilitate regulatory convergence among ASEAN and East Asian Countries and reduce the cost of duplicative testing and the burden of assessment. It will be made accessible through the Internet, and will have mutual links with databases constructed by ASEAN and databases in other countries so that the data can be used to best effect. The ASEAN Chemical Safety Database will exchange data on chemical risk and hazard with databases constructed by ASEAN and CHRIP in Japan, in order to make use of information on chemical risk and hazard data.

Possible Impact of the ASEAN Chemical Safety Database

For Governments, it will help in reduction of the cost of testing and information gathering, improve the quality of information for risk assessment, increase transparency, harmonise regulated chemicals, converge GHS classification results and improve health and environmental outcomes.

For industry, it will reduce costs for testing and information gathering, increase transparency and reduce entry barriers for SMEs.

For ASEAN as a whole, it contributes to AEC Goals and WSSD targets, facilitate trade and improve health and environment outcomes.

Policy Implications

Constructing the ASEAN Chemical Safety Database is efficient from both quantitative and qualitative aspects. There will be a need to gather information on laws and regulations and information on chemical properties and human health and environmental toxicity of chemical substances in each country. This will be beneficial for both industrial circles and administrative government agencies for trade and decision making activities respectively, and for harmonisation/convergence of regulations in the region, in future.

23 3R Industrial Policies at Industrial Related Ministries in East Asian Countries

Abstract

In order to create a common 3R (Reduce, Reuse and Recycling) policy vision in East Asia, ERIA 3R Working Group (WG) has conducted a series of basic research since FY2008. In FY2008 and FY2009, the WG organised research on comprehending the actual condition of 3R Policies and analyzing industrial standards on recyclable products and its utilization promotion policies in each East Asian country. In FY2010, the WG studied statistics maintaining process that encourages the quantitative analysis of resource circulation.

In the previous three studies, the WG focused on studying the actual condition of 3R policies in East Asia, and figured out the inefficiencies in policy approach of ASEAN countries on 3R. Most of these policies were designed for environmental protection and waste management rather than focusing on creating and strengthening 3R industry itself and improvement of resource efficiency. The WG also pointed out that maintaining infrastructure on recycling and building capacity such as upgrading technology and systems will be essential to promote 3R policy strongly. Reduction and prevention of inefficient and incorrect waste disposal in informal sectors, expansion of proper recycling industry market would be expected, and more efficient resource circulation should be accelerated. 3R policy should be acknowledged not only as environmental and waste management policy but also as industrial development policy.

In the fourth and the current study in this series, the WG aims to develop recommendations for a sustainable recycling society which has well designed resource circulation system utilizing 3R in East Asia, and by promoting 3R as an industrial policy.

Expected Findings and Policy Implications

In order to build up a 3R system, infrastructure development on value chain such as collection, disposal and reuse recycled material is necessary. The study focuses on a range of issues, such as promoting regulation policy, importance of standardization of recycled products, organization of recycling industry, maintenance of recyclable statistics, eco-town projects and tax exemption policy and facilitation of efficient resource circulation in East. Actual policies which need to be improved at the 3R related ministries in each country would be also considered by utilizing the previous research result in FY2010.

The study will recommend the necessity for the countries to recognize 3R as industrial policy toward development of recyclable society in East Asia. The recommendation will be supported by informative knowledge and empirical data analysis from the following:

1) Addressing 3R as industrial policy with reference to Japan's experience on recyclable industry promotion by eco-town project and industrial standard development program.

2) Examining and improving environment and trade regulation for increased resource utilization in the region, with the aim of economic integration.

3) Developing and sharing a framework of 3R statistics for assessing policy effects of trans-boundary resource circulation and 3R industrial policies in each country.

In order to implement the policy recommendation, the WG also recommends the officials of relevant ministries for sharing information through bi-lateral and multi-lateral policy dialogues in forums such as EAS and AEM.

24 Benchmarking of Biodiesel Fuel Standardization in East Asia

This project is continued from FY 2009-10 when it published the "EAS-ERIA Biofuel Trade Handbook: 2010", which includes the EAS-ERIA Biodiesel Fuel benchmark standards and measures to control BDF quality in the real market. Currently, the Working Group is working on further technical and management methods to ensure that the quality proposed in the benchmark standard will be secured. The project is collecting information about test laboratories in each EAS country; comparing test results and considering harmonization the test methods for the benchmark stand; and examining quality control measures at the pump in each EAS country. In the future, the WG is planning to update the BDF standard that was proposed in 2008, investigate other biomass resources and investing fuel/vehicle adaption to reach emission targets.

25 Guidelines to Assess Sustainability of Biomass Utilisation in East Asia

In the FY 2009-10, the Working Group of the project conducted four pilot projects in India, Indonesia, the Philippines and Thailand to test the methodology for assessing sustainability of biomass utilization. This year, the WG is summarizing major findings and policy implications from these pilot projects. This information will be used to modify the methodology in the future. Currently, the project is also disseminating the methodology through seminars, forum and meetings. The future task will be to upgrade and simplify the methodology.