

Key Issues for Policy:

- Focus on stimulating technological upgrading of firms through upgrade of innovation capabilities in sectors where there are existing and potential endowments;
- Promote technology dissemination, foster R&D collaboration, promote clustering and business networks, and attract financing to support innovation and R & D activities;
- Develop a common IPR framework for ASEAN that is in harmony with global IPR agreements

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Stimulating Innovation in ASEAN Institutional Support, R&D Activity and Intellectual Property Rights

By RAJAH RASIAH

The *Policy Brief* suggests initiatives that poorer ASEAN member governments should take to stimulate technological upgrading of firms at the bottom with a focus on innovation, and discusses the governance framework of intellectual property rights (IPRs) in ASEAN. With an emphasis on technology as the driver of economic growth, typologies of taxonomies and trajectories are used to evolve a policy framework to coordinate the relationship between macro-institutions, meso-organizations and micro-agents (firms) for ASEAN members to transform from developing nations to join Singapore as developed nations. Recognizing the varying capacities of ASEAN members, the paper recommends that a common platform of IPRs be developed with the more developed members assisting the least developed ASEAN members to quicken the development of a technologically more egalitarian region.

Introduction

Empirical evidence suggests that countries that developed technological capabilities have performed better economically than countries that did not. Hence, efforts to transform the Association of Southeast Asian Nations (ASEAN) into an open vibrant economic region that will benefit continuously from increasing globalization will require the development of technological capabilities in all member countries. Empirical evidence also shows how it is possible for countries at the bottom of the technology ladder and enjoying very low per capita incomes to catch up technologically and eventually develop into high-income economies.

Singapore has become a developed economy, while Malaysia, Thailand, Viet Nam, Indonesia and the Philippines are ahead economically of the least developed countries (LDCs) of Cambodia, Lao

PDR and Myanmar. While the focus on innovation capability building is central to stimulating economic development in ASEAN's LDCs, strategic targeting is important to take account of Cambodia, Lao PDR and Myanmar's particular economic and spatial structure.

Stimulating Innovation Activities

Efforts to stimulate innovation activities in ASEAN require an understanding of the position of member economies on the technological ladder, the endowments they enjoy and the innovation capabilities that could be developed. Their technological capabilities can be assessed on the basis of their trade structure as well as the registration of intellectual property rights (IPRs). As trade figures appear to mask the technological capabilities of ASEAN countries because of the dominance of import-based exports of intermediate goods, patenting capabilities may be a better measure of technological capabilities. While patents are not viewed as a major route to stimulating innovation in the LDCs and in some industries such as semiconductors, it is generally regarded as one proxy of technological sophistication.

Table I demonstrates the wide disparity in innovation capabilities among ASEAN countries based on registration of patents in the United States. (These data are used as they represent the most stringent patent filing system, and to avoid double counting.) Singapore shows the highest take up of patents in the United States, followed by Malaysia. Thailand and the Philippines occupy distant third and fourth places. Indonesia is much further behind, in fifth place. The numbers for Indonesia are low and

those for Viet Nam and Brunei even lower. The LDCs of Cambodia, Lao PDR and Myanmar did not manage any over the period 2006-2012.

While the selection of sectors for promotion by individual countries should depend on the specificity of the ASEAN economies, government strategy to formulate technology development must take account of macro-institutions, meso-organizations and micro agents (firms and individuals) (see Katz, 2006). The right regulatory environment (macro institutions) must be created with a focus on the development of meso organizations (such as universities, standards organizations, training centres and incubators) to interact with firms to solve collective action problems. A set of typologies specific to each country should be developed by government planners—one targeted at firm-level upgrading to the technology frontier, and another to coordinate policy in line with the evolutionary underpinnings critical to coordinate technological catch up by taking account of timing, location and industrial specificity.

The focus of government policy should be to coordinate the interface between the typologies of firm-level and policy taxonomies and trajectories leaving room for contingent flexibilities. In doing so, the four aspects of technological upgrading that policymakers should look at when creating or strengthening the meso organizations, and the relationship between them and firms are the following: (1) promote technology dissemination; (2) foster technology cooperation to support R&D based on knowledge commercialization; (3) promote clusters and business networks; and (4) finance technology development. While all these four focal

Table 1. Filing of Patents in the United States by ASEAN Economies, 2006-2012

Countries	2006	2007	2008	2009	2010	2011	2012
Malaysia	113	158	152	158	202	161	210
Singapore	412	393	399	436	603	647	810
Thailand	31	11	22	23	46	53	36
Philippines	35	20	16	23	37	27	40
Viet Nam	0	0	0	2	2	0	2
Indonesia	3	5	5	3	6	7	8
Brunei	0	0	0	1	0	1	0
Cambodia	0	0	0	0	0	0	0
Lao PDR	0	0	0	0	0	0	0
Myanmar	0	0	0	0	0	0	0

Source: US Patent Office (2013).

areas require simultaneous promotion, the extent of emphasis will vary with the level of development of the ASEAN country involved.

Table 2 shows the policy dimensions governments should follow as they evolve from the bottom to the top of the development ladder (see also Oyeyinka and Rasiah, 2009). Basic infrastructure is developed first as people seek physical access (road, railway, sea and air networks), utilities (power and water), schooling, housing and security. The demand for high tech infrastructure rises as further economic growth requires a structural shift to higher value-added activities. Increasingly, human capital, universities, broadband support, laboratories and grants to support such activities become important. Finally, integrating with the global economy expands the market for exports and imports, investment flows and knowledge flows.

Governing Intellectual Property Rights in ASEAN

While it is the responsibility of the individual countries in ASEAN to stimulate innovation activities in their countries, the establishment of the AEC will require the streamlining of intellectual property rights (IPR) across the region—a common IPR framework that is in harmony with global IPR agreements is pertinent.

An enabling IPR environment will be important in stimulating innovative activities in ASEAN. The ASEAN Economic Community (AEC) must pursue the recommendations advanced by the ASEAN IPR Action Plan of 2011-2015 to address the varying positions of member countries on the development trajectory to harmonize the coordination of IPR issues in the region.

Table 2. Typology of Policy Framework for ASEAN

Phases	Basic Infrastructure	High Tech Infrastructure	Network Cohesion	Global Integration
Initial Conditions (1) Cambodia, Lao PDR, Myanmar	Political stability and efficient basic infrastructure	Emergence of demand for technology	Social bonds driven by the spirit to compete and achieve	Linking with regional and global markets
Learning (2) Thailand, Philippines, Indonesia, Viet Nam	Strengthening of basic infrastructure with better customs and bureaucratic coordination	Learning by doing and imitation	Expansion of tacitly occurring social institutions to formal intermediary organizations to stimulate connections and coordination between economic agents	Access to foreign sources of knowledge, imports of material and capital goods, and FDI inflows
Catch-up (3) Malaysia	Smooth links between economic agents	Creative destruction activities start here through imports of machinery and equipment, licensing and creative duplication	Participation of intermediary and government organizations in coordinating technology inflows, initiation of commercially viable R&D	Licensing and acquisition of foreign capabilities. Upgrading synergies through technology imports. Emergence of strong technology-based exports
Advanced (4)	Advanced infrastructure to meet demands of economic agents	Developmental research to accelerate creative destruction activities.	Strong participation of intermediary and government organizations in coordinating technology inflows, initiation of commercially viable R&D	Access to foreign human capital, knowledge linkages and competitiveness in high tech products
Frontier (5) Singapore	Novel infrastructure developed to save resource costs	Basic research. R&D labs to support creative accumulation activities	Participation of intermediary organizations in two-way flow of knowledge between producers and users	Connecting to frontier nodes of knowledge, and competitive export of high tech products

Source: Developed by Author.

ASEAN members must look at IPR governance as a vehicle to stimulate national and regional participation in innovative activities, and as an instrument to attract value adding foreign direct investment. ASEAN needs to craft a governance mechanism that takes account of the diverse

demands, varying capacities and capabilities among the member countries.

With the acceleration of ASEAN economic integration and the impending formation of the AEC in 2015, the ASEAN Working Group on Intellectual Property Cooperation (AWGIPC)—set up in 1995 with a mandate to develop, coordinate, and

implement all IP-related regional programmes and activities in the ASEAN region—has started work on developing an AEC blueprint that is targeted at establishing an ASEAN IP System taking account of the different levels of capacity of the member countries to address problems associated with access and protection of IPRs, and to meet existing needs and demands of the global IP system. The AWGIPC should be supported closely by ASEAN members to eventually provide a common institutional environment for the establishment and functioning of R&D operatives as well as other innovation activities in the ASEAN region.

Given that the role of government will still be important, the AWGIPC cannot be expected to go beyond its coordination role to engage in the promotion of structural change. However, the more developed members should provide support to the less developed members when help is sought to strengthen the capabilities of the latter. The spirit of cooperation through constructive engagement should be used to fortify the processes of technological upgrading in the less developed ASEAN members.

Conclusion

Government policy in ASEAN's developing economies should focus on stimulating technological upgrading of firms from the bottom to the top of the technology ladder with a focus on innovation, evolving and upgrading innovation capabilities in sectors where they show existing and potential endowments. As countries upgrade to transform from developing to developed status, to engender the conditions to achieve rapid economic growth,

they should promote technology dissemination, foster research and development (R&D) collaboration, promote clustering and business networks, and attract financing to support innovation and R&D activities.

A common intellectual property rights (IPR) framework that is in harmony with the global IPR agreements of the world is crucially important. Instead of seeking a two speed framework to differentiate the LDCs from others, it is better that a common platform IPR be developed and that the more developed members assist the ASEAN's least developed countries to quicken their technological progress. ■

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