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# Human Resources, Innovation, and Harmonization of Standards

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ASEAN is moving toward the creation of an ASEAN Community by 2015. Industrialized countries such as Japan can play an important role in narrowing the development gaps that persist in the region and supporting the development of the community. ASEAN-Japan cooperation will certainly support an ASEAN economic integration platform. ASEAN is more than just a source of cheap labor and natural resources, and collective efforts between ASEAN and Japan can be used to enhance the competitiveness of East Asia as a whole. More value creation can be fostered through human resource development and innovation. A single production base and market can be realized through harmonization and conformity of standards. Corporate investment from Japan can encourage ASEAN members to eliminate non-tariff measures and barriers caused by different standards and levels of conformity. The benefits of ASEAN economic integration will certainly spill over to the other parts of East Asia and will constitute an important economic pillar of the region. Ultimately, ASEAN will be less dependent on any single country in the long term but will be a bridge to connect East Asian countries through East Asian economic integration based on the "ASEAN Plus Plus" model.

ASEAN and Japan have had a close economic and political relationship for many decades. The Tokyo Declaration for the Dynamic and Enduring Japan-ASEAN Partnership in the New Millennium was signed at the Japan-ASEAN Commemorative Summit in Tokyo in 2003 to celebrate 30 years of the relationship between ASEAN and Japan. The ASEAN-Japan Plan of Action (POA) in 2003 was approved to set the direction for cooperation between ASEAN and Japan from 2004 to 2011, and the ASEAN-Japan POA 2011–2015 was approved at the 14th ASEAN-Japan Summit in 2011. ASEAN and Japan signed the ASEAN-Japan Comprehensive Economic Partnership

(AJCEP) agreement in April 2008. As a part of ASEAN-Japan cooperation, such Japanese agencies as the Japan Overseas Development Corporation (JODC), the Association for Overseas Technical Scholarship (AOTS), the Japan Bank for International Cooperation (JBIC), the Japan International Cooperation Agency (JICA), and the Japan External Trade Organization (JETRO) also play important roles in economic and social development in ASEAN at the regional and national levels.

While there are many dimensions of ASEAN-Japan cooperation that can assist the process of ASEAN community building, this chapter focuses on only three areas, namely, human resource development, private sector innovation, and mutual recognition arrangements and harmonization of standards.

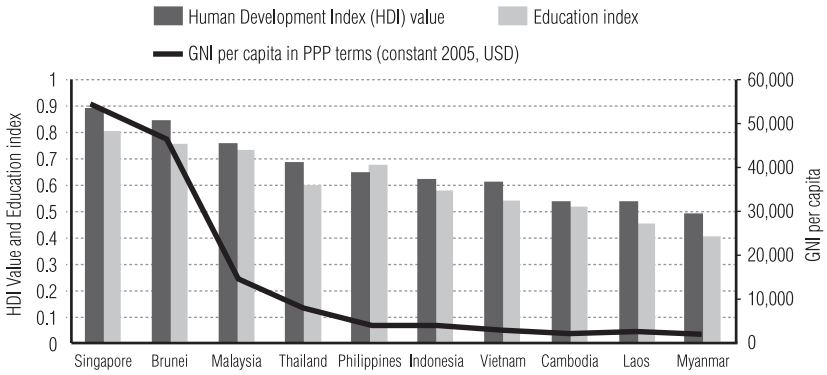
## Innovation and Human Capital in Economic Development

### Human Capital and Innovation in ASEAN: Current Assessment

Human resources can be transformed to human capital through education, training, healthcare, and encouragement of moral values. The idea of human capital was introduced to the economics field in the 1960s and 1970s during the modern neoclassical economic period. Expenditures on education, training, and medical care should be seen as forms of investment in human capital that can improve people's knowledge, skills, health, and values. Higher income and living standards will result from productivity improvements. Not only does formal education improve productivity, but workers also learn from job training. New technological advances can increase economic growth where there are adequately skilled workers who know how to employ them. Education and training, together with advances in technology, will contribute to significant economic growth.

Human capital is directly related to human development. The UN Human Development Report illustrates the rate of human capital formation.[1] The Human Development Index (HDI) is a composite index measuring nations' average achievement in three basic dimensions of human development—a long and healthy life, knowledge, and a decent standard of living. Figure 1 shows HDI, education index, years of schooling, and gross national income in the 10 ASEAN member states in 2012. According to the report, the ASEAN members can be classified into three groups: (1) those enjoying high HDI ratings, such as Singapore, Brunei, and Malaysia; (2) those with mid-level

**Figure 1. HDI, educational index, and gross national income (2012)**

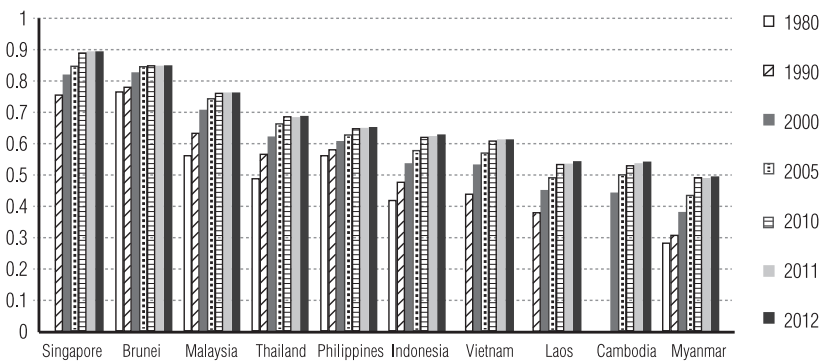



Source: United Nations Development Programme (UNDP), "International Human Development Indicators," http://hdrstats.undp.org/en/indicators/default.html.

HDI ratings, such as Thailand, the Philippines, Indonesia, Vietnam, Laos, and Cambodia; and (3) one with a low HDI rating, Myanmar. There are some correlations among HDI, education index, and per capita income, which implies that investment in education is needed to raise the national income level. Such investment will also help to narrow development gaps among the ASEAN members, as shown in figure 2.

The World Economic Forum Global Competitiveness Index's human capital indicators for 2012–2013 are shown in tables 1 and 2. The tables show the linkage between human capital and education and training on the one hand and between human capital and innovation on the other.

**Figure 2. Trends in HDI**




Source: Ibid.

**Table 1. Education ranking of the ASEAN members and Japan (2012–2013)**

| | Linkage with education and training | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Education rank | Education Score | Quality primary | Primary enrollment | Secondary enrollment | Tertiary enrollment | System quality | Quality math & science | Quality management | Internet access | Research and training | Staff training |
| Brunei | 57 | 4.4 | 20 | 75 | 12 | 98 | 25 | 23 | 58 | 34 | 109 | 52 |
| Cambodia | 111 | 3.3 | 87 | 45 | 118 | 118 | 58 | 90 | 96 | 83 | 78 | 74 |
| Indonesia | 73 | 4.2 | 60 | 44 | 95 | 85 | 47 | 45 | 70 | 56 | 57 | 39 |
| Malaysia | 39 | 4.8 | 24 | 46 | 103 | 61 | 14 | 20 | 26 | 38 | 17 | 7 |
| Philippines | 64 | 4.3 | 86 | 101 | 81 | 76 | 45 | 98 | 39 | 73 | 62 | 32 |
| Singapore | 2 | 5.9 | 4 | 1 | 15 | 19 | 3 | 1 | 6 | 5 | 16 | 3 |
| Thailand | 60 | 4.3 | 83 | 97 | 92 | 54 | 78 | 61 | 62 | 63 | 66 | 49 |
| Vietnam | 96 | 3.7 | 80 | 26 | 94 | 87 | 72 | 58 | 125 | 41 | 126 | 116 |
| Japan | 21 | 5.3 | 21 | 2 | 22 | 36 | 43 | 27 | 80 | 43 | 12 | 5 |

Source: "Global Competitiveness Report 2012–13," http://reports.weforum.org/global-competitiveness-report-2012-2013/.

**Table 2. Innovation ranking of ASEAN members and Japan (2012–2013)**

| | Linkage with human capital | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Innovation rank | Innovation Scores | Capacity | Research institute quality | Private spending on R&D | R&D collaboration | Government procurement of advanced technology | Scientists & engineers | Patents |
| Brunei | 59 | 3.3 | 68 | 82 | 60 | 50 | 18 | 95 | 55 |
| Cambodia | 67 | 3.2 | 65 | 68 | 52 | 71 | 24 | 109 | 119 |
| Indonesia | 39 | 3.6 | 30 | 56 | 25 | 40 | 29 | 51 | 101 |
| Malaysia | 25 | 4.4 | 17 | 28 | 16 | 18 | 4 | 20 | 34 |
| Philippines | 94 | 3.0 | 86 | 102 | 58 | 79 | 107 | 91 | 83 |
| Singapore | 8 | 5.4 | 20 | 12 | 8 | 5 | 2 | 13 | 13 |
| Thailand | 68 | 3.2 | 79 | 60 | 74 | 46 | 98 | 57 | 72 |
| Vietnam | 81 | 3.1 | 78 | 87 | 75 | 97 | 39 | 70 | 97 |
| Japan | 5 | 5.5 | 1 | 11 | 2 | 16 | 48 | 2 | 5 |

Source: "Global Competitiveness Report 2012–13," http://reports.weforum.org/global-competitiveness-report-2012-2013/.

On overall education, Singapore scores higher than the rest of the ASEAN members, with a score of 5.9. Ranking 2nd in the world, Singapore outperforms Japan, which ranks 21st. Malaysia ranks highest of the second group, which also consists of Brunei, Thailand, the Philippines, and Indonesia. Vietnam and Cambodia are at similar levels. There are no data available for Laos or Myanmar, but they are expected to be at the same level as Vietnam and Cambodia. Regarding innovation, Singapore and Japan are nearly equivalent in rank and score. While Indonesia and Malaysia are not far from each other in innovation rank, Thailand is far behind, and its innovation rank is similar to that of Brunei, Cambodia, and Vietnam. The Philippines ranks last in innovation, given that no data are available for Laos or Myanmar. Innovation in the ASEAN members can be improved by learning from Japan. Therefore, ASEAN should cooperate more actively to improve education as well as innovation in order to promote sustainable development.

There are linkages among innovation, investment, technology transfer, and firm performance. Firms that have closer communication between engineers and customers demonstrate higher levels of innovation than firms that do not.[2] Investment in information and communications technology (ICT) has also been found to increase manufacturing performance.[3] The exchange of engineers that occurs with technology transfer also appears to stimulate the upgrading of firms and industries through face-to-face communication at the various stages of product and process innovation.[4] The impacts of public-private alliances on innovation are also sizable compared with the impacts of vertical linkages found in the automobile-related industry. Japanese investment in the Greater Mekong Subregion (GMS) also has implications for the ASEAN production networks, as foreign direct investment (FDI) tends to flow to countries that have the capacity to absorb new technology.[5]

## ASEAN-Japan Cooperation Initiatives on Human Capital and Innovation

### Tokyo Declaration for the Dynamic and Enduring Japan-ASEAN Partnership in the New Millennium (2003)

The main purpose of the 2003 declaration is to encourage ASEAN-Japan economic integration by minimizing trade and investment barriers, reducing business costs, improving economic efficiency, creating a production base and a larger market, and enhancing the use of capital and human

resources. Accordingly, Japan should provide official development assistance (ODA) to ASEAN member countries to enhance its cooperation on human resource development. The people-to-people connectivity should be supported in particular for the younger generation and future leaders by reinforcing partnerships and mutual assistance in education and human resource development. The interaction among people should occur through networks of research institutes, universities, and educational institutions and through youth exchanges. As far as innovation is concerned, the declaration mentions wide-ranging areas of mutual benefit in science and technology, research and development, intellectual exchange, ICT and related networks, transfer of expertise and technologies to strengthen industrial bases and infrastructure development, and cooperation in technology development.

### The ASEAN-Japan POA (2003)

The first ASEAN-Japan POA, announced in 2003, covers three areas of cooperation: (1) cooperation in reinforcing ASEAN integration by narrowing the gaps among member countries through the Initiative for ASEAN Integration (IAI); (2) regional cooperation such as in the GMS and in the Brunei-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA), improvement in infrastructure, and cooperation to enhance economic competitiveness of the ASEAN member countries including promoting investment, education, human resource development, and institutional capacity building; and (3) cooperation to address terrorism, piracy, and other transnational issues. At least four Japanese agencies, namely, JICA, AOTS, JODC, and JBIC, support the POA.

There were seven major issues under the Japan-ASEAN Total Plan for Human Resource Development: policymaking and public administration, industry and energy, education, global issues (e.g., environment and infectious diseases), community empowerment, minimization of regional disparities (South-South cooperation), and ICT. Some of these areas of cooperation are described below.

Consider the areas related to human resource development and innovation. On international trade, the plan called for institution building for intellectual property rights (IPR), standards, logistics, and capacity building regarding the World Trade Organization (WTO) measures. In the areas of industry and energy, the plan aimed at the development of highly skilled human resources in the industry and trading business by strengthening the training center and trade promotion institutions. There were programs for executives to foster ASEAN entrepreneurs. On global issues, the plan consisted of human resource development for sustainable development of the maritime environment, fishery and forest resource conservation,

environmental protection, civic education and environmental information, and economics and environmental controls, as well as assistance programs to deal with infectious diseases. To reduce regional disparities, Japan has promoted South-South cooperation through its partnership programs. As a result, the Centers of the Human Resource Development were established in Vietnam and Laos to promote the market economy. Another important issue was developing ICT to create infrastructure and apply ICT to e-business, eliminate the digital gap among the ASEAN members, draft policies for information technology (IT) and human resource development for IT engineers, and promote markets for IT products and services.

In line with the IAI commitment to narrow the development gaps in ASEAN, JICA will provide support in technical cooperation schemes to assist Cambodia, Laos, Myanmar, and Vietnam (CLMV) as well as host seminars and training courses on enhancement of the human resource development (HRD) system for the CLMV countries.[6] To strengthen Mekong regional development, Japan supports GMS programs such as the Mekong Institute's HRD, and promotes trade and investment activities with the Japanese private sector in the region.

In addition to GMS regional development, BIMP-EAGA is included in Japan's HRD plan. Industrial HRD was introduced, with Japanese cooperation, to increase domestic productivity by developing highly skilled human resources such as engineers and middle-level managers in the areas of occupational safety and health, ICT, and production of automobiles, electrical appliances, and electronics. The HRD programs also cover skills and management know-how for international business, trade-related procedures, and trade finance and marketing for business people in the CLMV countries. There are also HRD programs dealing with education; knowledge networks with the ASEAN University Network; exchanges of students, officers, and scholars; and exchanges aimed at social and cultural cooperation.

Japan also supports other activities, such as seminars and training programs aimed at improving science and technology, increasing joint research, exchanging information, and sharing experience and best practices. For the agricultural sector, Japanese training courses also provide programs for young ASEAN farmers to learn new techniques, farm management, and farm working ethics through hands-on learning with Japanese farm families.

The 2003 ASEAN-Japan POA also addressed innovation by including facilitation and cooperation in areas of ICT and technical cooperation on projects dealing with the environment, automobile production, biotechnology, science and technology, and sustainable forest management.

### The ASEAN-Japan POA 2011–2015

The most recent POA covers eight areas dealing with human resources: (1) health and social welfare services sectors; (2) development of highly skilled and semi-skilled human resources in occupational safety and health, ICT, production of automobiles, and electrical appliances and electronics through technical cooperation and other schemes; (3) Japanese language training; (4) implementation of model projects to enhance traceability of distributed goods and to hold seminars to disseminate know-how and information from the model projects; (5) infrastructure development; (6) science and technology; (7) information sharing on labor market trends to match the needs of ASEAN and Japan; and (8) capacity-building programs for ASEAN government officials to enhance their technical knowledge for industrial development.

ICT is the main area related to innovation. There are medium- and long-term plans for ASEAN to upgrade its ICT capacity with support from Japan to bridge the digital divide and promote ICT services and make them more available in ASEAN communities. Japan will also support the promotion of professional exchange, capacity building, and HRD programs to upgrade the skills and knowledge of ASEAN ICT technicians in the fields of new and advanced ICT, creative multimedia, innovation, and green ICT. Public-private partnership is also encouraged in the areas of information exchange and e-services.

In addition, the automobile and auto parts industry is singled out for cooperation at the industry level. Cooperation in this area aims at enhancing the competitiveness of the ASEAN automobile industries and promoting the integration of ASEAN automobile markets. The standards and conformity assessment procedures should be developed together with mutual recognition arrangements for the automotive sector working toward ASEAN integration.

### AJCEP (2008)

The AJCEP touches broadly on HRD and ICT in the fields of economic cooperation, which should be further explored with an eye toward future cooperation activities.

### Bilateral Japan-Thailand Economic Partnership Agreement (JTEPA)—Cooperation on HRD and Innovation

The Japanese and Thai governments have established the Steel Industry Cooperation Programme along with the Thai Steel Industry Association to strengthen the technological knowledge of the Thai steel industry on

environmental technology and to develop the skills of field technicians in Thai steel mills and of Thai steel engineers. The Japanese and Thai governments have also proposed establishing an Automotive Human Resources Development Project and a Thailand Automotive Industry Institute to transform Thailand into a world-class sustainable production base for the automotive sector, to solve the problem of skilled labor constraints through HRD, and to improve the Thai automotive industry's competitiveness in the international market. Japan-related manufacturing companies in Thailand will develop a plan for energy conservation and transfer their know-how to their Thai business partners. The government of Japan will also provide energy experts to improve know-how among local Thai producers, including small and medium enterprises (SMEs).

## An Assessment of ASEAN-Japan Cooperative Initiatives

There is limited information on which to assess the ASEAN-Japan POAs. According to the executive report, "The Third Executive Report on Progress of Implementation of the ASEAN-Japan Plan of Action,"[7] some progress on innovation and human capital has been made. Japan has extended assistance to ASEAN in various sectors in industrial development, such as training courses in the energy and ICT sectors for all ASEAN member countries. Japan also extended assistance to IAI projects covering human resource development in the areas of energy, transportation, vocational training, industrial relations, environmental protection, irrigation system management, and management programs for senior officials of the CLMV countries.

To promote HRD, there are programs, for instance, to train CLMV junior diplomats in the ASEAN Secretariat and to establish the Malaysia-Japan International University of Technology, which has been envisaged as a center of excellence for higher education, research, and HRD for students in East Asia. More funding was also allocated for the Japan Human Resources Development Total Plan (2006).

### An Example of an HRD program

Phase II of the ASEAN-Japan Collaboration Programme for HRD included such activities as a training course in Japan and Thailand that took place between July 28 and August 8, 2008. ASEAN–Japan HRD Collaboration Programme Phase I of the program took place between 2004 and 2007, and the second phase, which began in 2008, aimed to provide assistance for strengthening the foundation for HRD in the CLMV countries and to promote further technical

cooperation between the CLMV countries and other ASEAN member countries. The program analyzes the current situations and identifies issues to address regarding HRD systems in CLMV countries, decides on a theme for the collaborative training each year, draws up a work plan, evaluates the program, and makes recommendations for the future under the theme of Vocational Ability Evaluation Methods with Skills Testing and Certification System.

## HRD and Technology Transfer by the Private Sector

Two industries—the food and automobile industries—are worth considering as entry points for the ASEAN and Japanese governments to promote private direct investment or increased trade as indirect tools for HRD and technical transfers. In considering collaboration, it is important to bear in mind that Japanese business practices are rather different from the more traditional models found in Western countries.[8] The more traditional Western models include partnership, voicing of concerns and sharing of experience, obligational contract relations, collaboration, and joint development and improvement. But the Japanese style of management depends on significant information exchange, high levels of commitment, close long-term relationships, use of numerous suppliers, competition achieved through quality control rather than through price cutting, punctual delivery, and dialogue with existing suppliers to resolve problems.

In the food industry, joint ventures with Japanese firms would transfer knowledge and skills to ASEAN companies on labor productivity, management, technology, production standards, and quality improvement. Japanese procedures that might prove useful to local firms are, for example, performance analysis and controls, total productive maintenance (TPM), kaizen (an emphasis on continuous improvement), and keiretsu (a system of interconnected business relationships). The trade flows would also provide an indirect benefit because of the Japanese customers' sophisticated demand and the quality controls and auditing procedures that would need to be put in place to maintain high standards for food products.

In the automobile and auto parts industry, the private sector can improve its production process, design technology, and management skills through cooperation with Japanese firms. Research and development centers can be set up by Japanese firms to serve as training and design centers. The Toyota Supplier Clubs in Thailand and Malaysia are good examples of networks between Japanese and local firms. In addition,

TPM has been demonstrated to be very beneficial to the Malaysian SMEs in the automobile sector.[9]

Under the JTEPA, the Automotive Human Resource Development Institute Project (AHRDIP) provides an example of a joint project between the Thai and Japanese governments and private sectors. The AHRDIP's activities include the transfer of knowledge in the automotive sector to enhance labor productivity and management skills and to increase the value of products in order to strengthen the competitiveness of the automotive industry in the global market.

## Standards Harmonization as Technical Barriers to Trade

The ASEAN Economic Community (AEC) has set as its goal the establishment of a single market and production base, with free flow of goods, by 2015. Therefore, not only are the tariff rates eliminated, but the following trade measures are also included: the removal of non-tariff barriers, use of rules of origin, trade facilitation, customs procedures, standards and conformance, and sanitary and phyto-sanitary measures.

Mutual recognition agreements (MRAs) are agreements between two or more parties to mutually recognize or accept one or more aspects of one another's conformity assessments such as test reports and certificates of compliance. MRAs are government-to-government agreements and deal with technical bodies such as testing laboratories, inspection bodies, certification bodies, and accreditation bodies. In practice, MRAs help reduce the costs resulting from the differences among ASEAN members' measures regarding product standards, product testing procedures, and in particular technical barriers to trade that tend to be non-tariff barriers. MRAs under ASEAN agreements include the ASEAN Sectoral Mutual Recognition Arrangement for Electrical and Electronic Equipment, signed in April 2002; the ASEAN Mutual Recognition Arrangement of Product Registration Approvals for Cosmetics, signed in September 2003; and the MRA for good manufacturing practice Inspection of Manufacturers of Medicinal Products, signed in 2009.

In dealing with the different standards or technical regulations, the harmonization of standards, technical regulations, and conformity assessment procedures will help to facilitate international trade. ASEAN's approaches to harmonization are based on international standards that are consistent with the WTO. As of 2012, harmonization of standards has been achieved for electrical appliances, electrical safety, electromagnetic components,

rubber-based products, and pharmaceutical products. There are also technical regulations for the cosmetics industry (signed in 2003) and the electrical and electronics sectors (signed in 2005).

## Initiatives for Standards Harmonization

### The ASEAN-Japan POA (2003)

Japan has committed to supporting economic integration by assisting the newer ASEAN member countries in harmonizing their institutions and standards and facilitating movement of goods and persons. Japan will collaborate on bilateral and regional initiatives to develop human resources in both government and private sectors regarding product standards, such as safety of electrical equipment, to support the development and coherence of standards and conformance of each ASEAN member country.

### The ASEAN-Japan POA (2011–2015)

The automobile and auto parts industry was selected for cooperation aimed at enhancing the competitiveness of the ASEAN automobile industries and promoting the integration of the ASEAN automobile markets. Japan will also support the development and operationalization of MRAs and the establishment of the Common Rules for Standards and Conformity Assessment Procedures for Automotives toward ASEAN Integration in 2015.

### AJCEP (2008)

Cooperation consists of joint studies and seminars on technical regulations and conformity assessment procedures, exchange of information on standards, development and implementation of joint programs for building and upgrading capacity in dealing with technical barriers to trade, and encouragement of the bodies responsible for standards.

## Policy Recommendations

The AEC aims at the free flow of goods, services, capital, investment, and skilled workers by 2015 and allows for flexibility for some ASEAN member countries. Community building is based on four ideal characteristics: a single market and production base, a highly competitive region, equity in economic development, and integration with the global economy.

Beyond the achievement of the AEC, the Asian Development Bank Institute, Asian Development Bank, and ASEAN Secretariat issued the ASEAN Vision 2030 to enhance ASEAN's regional centrality and to become a borderless economic community. Recently, the Jakarta Framework was introduced to provide a vision for ASEAN beyond 2015 as (1) a dynamic, resilient, competitive, and sustainable regional economy; (2) a thriving, healthy, equitable, and harmonious regional community; and (3) a globally connected, influential, important, and engaged ASEAN.

Of these, this chapter focuses on HRD and private sector innovation to increase ASEAN's labor and capital productivity and on standards and harmonization to support the single market and production base. Together with the AEC Blueprint, cooperation with an advanced country such as Japan will enhance the quality of the community-building process, the ASEAN Vision 2030, and the Jakarta Framework. Therefore, the policy recommendations below provide ways for ASEAN-Japan cooperation to learn from past experience, including the Tokyo Declaration for the Dynamic and Enduring ASEAN-Japan Partnership in the New Millennium (2003), the ASEAN-Japan POAs (2003 and 2011), and the AJCEP Agreement (2008).

Table 3 summarizes the ways in which ASEAN and Japan have already cooperated and the cooperation envisioned in the ASEAN Vision 2030 and the Jakarta Framework with respect to human capital development, innovation, and standard harmonization. Table 4 draws the broad picture of these policy recommendations.

## Human Capital Development

According to the AEC Blueprint, the HRD plan is an important part of the IAI, with the emphasis on less developed ASEAN members in order to reduce the development gap. It involves basic infrastructure such as ICT, training of workers, job creation, and improvement of the education system. The later phase of the IAI comprises physical connectivity including highways, rail links, air links, and sea transportation, and it reforms the regulations and measures to facilitate international trade and investment.

THE NEEDS OF BASIC INFRASTRUCTURE: Basic infrastructures provides support for human capital development, such as ICT, information centers, and physical connectivity modes. In the past, the Japanese government and Japanese agencies such as JETRO, JICA, and JBIC have provided support programs for basic infrastructure to ASEAN members to upgrade their human resources on both bilateral and multilateral bases. The financial support

**Table 3. ASEAN Vision 2030, the Jakarta Framework, and past ASEAN and Japan cooperation on human resource development, innovation, and standard harmonization**

| ASEAN Vision 2030 | Jakarta Framework | Tokyo Declaration | ASEAN-Japan POA | AJCEP |
|---|---|---|---|---|
| **Human capital** | **Human capital** | | | |
| Workers' productivity | | | | |
| Education | | X | X | X |
| Training (engineering and management) | | X | X | X |
| Labor market improvement | | | X | |
| | Industrial agglomerations for human capital development | | X | |
| | Healthcare system | X | X | |
| **Innovation** | **Innovation** | | | |
| Technological development by learning and imitating | | X | X | |
| Capability improvement to absorb new technology | | X | X | |
| Enhancement of science and engineering knowledge with private sector contribution | | | X | |
| ICT | | X | X | X |
| R&D | | | X | |
| | R&D and Industrial agglomerations for innovation | X | X | X |
| **Harmonization** | **Harmonization** | | | |
| MRAs and Regulatory harmonization | MRAs and harmonization of standards to support international Production networks | X | X | X |
| **Related measures** | **Related measures** | | | |
| Subregional cooperation | | X | X | |
| Movement of skilled and unskilled workers | | | | |
| Connectivity (physical, people, and institutions) | Connectivity (physical, people, and institutions) | X | X | |
| Financial support | Financial support | X | X | |
| | International production networks | | | |

Table 4. Policy recommendations

| | Issues | Current plans (TKY Dec, A-J POA, AJCEP) | Responsible parties | Targeted area | Time |
|---|---|---|---|---|---|
| **Human capital** | Basic infrastructure | X | Governments and their agencies | CLMV | 1 |
| | Educational reform and knowledge management | - | Governments | CLMV | 3 |
| | Labor market reform | X | ASEAN governments | ASEAN | 3 |
| | Knowledgeable local markets | - | Governments | ASEAN | 2 |
| **Innovation** | Basic infrastructure | X | Governments and their agencies | CLMV | 1 |
| | FDI promotion | - | Governments and private corporate associations | ASEAN | 2 |
| | Financial assistance | X | Governments and their agencies and private financial institutes | ASEAN | 1 |
| | Utilization of trade and investment liberalization | - | Governments | ASEAN | 3 |
| **Standard harmonization** | Dissemination of information on international standards | X | Governments | ASEAN | 1 |
| | Testing center | - | Japanese government | ASEAN | 1 |
| | Trade policy reform | - | ASEAN governments | ASEAN | 3 |
| | Utilization of trade and investment liberalization | - | Governments | ASEAN | 3 |

Note: Governments refers to ASEAN and Japanese governments, and government agencies refers to agencies such as JBIC, JICA, JODC, and JETRO. X represents presence in the original plans, whereas 1, 2, and 3 mean short, medium, and long run.

can be in the form of ODA, soft loans, or donations by the Japanese government or agencies such as JICA and JBIC. With accurate local information on needs, funding and investment in innovation improvement will be allocated to the appropriate ASEAN countries and industry. The CLMV countries are targeted for initial infrastructure investment. Existing supportive programs, in particular those in the GMS area, shall be continued and extended to lay the foundation for ASEAN connectivity, especially for people-to-people connectivity and later for physical connectivity.

EDUCATION REFORM AND KNOWLEDGE MANAGEMENT: Education reform refers to the long-term fine-tuning of primary and secondary schools and technical colleges to be able to support populations experiencing new socioeconomic situations. The improvement of vocational schools and training camps is a medium-term goal that can be achieved as employees in ASEAN absorb new knowledge and technology via

FDI. Knowledge management is a key strategy for nations and regions to improve their productivity, strengthen their competitive advantage, develop new, innovative ideas, and share experiences and information. The GMS members should be the focal point of reforms so as to reduce the movement of skilled and unskilled workers to the more developed areas. The Japanese government could provide such educational and financial support to the less developed areas. Such a foundation will lead to flows of direct investment, creating the industrial clusters to match job availability and natural resources. Cross-country production networks and labor market efficiency will soon be achieved.

LABOR MARKET REFORM: When workers are well trained, they must have job opportunities and information about available jobs. Reforms should support new business investment to create new jobs in appropriate locations and allow skilled and unskilled workers to mobilize. The labor market should thus adopt a more efficient worker allocation. An information center that provides data on skilled and unskilled workers, worker productivity, regulations and measures, labor costs, and logistics costs should help private corporations to form industrial agglomerations or international production networks in ASEAN, which will be the foundation for community building.

KNOWLEDGEABLE LOCAL MARKETS: Sophisticated local demand for high-quality products will encourage producers to improve the quality of locally made products. To build a strong community, local consumers need to be informed and educated on standards, quality, and consumer protection. This will indirectly improve the production quality to conform to international standards.

## Private Sector Innovation

BASIC INFRASTRUCTURE: Basic infrastructure is required, similar to that discussed above in the context of human capital development.

FDI PROMOTION: Improving innovation in ASEAN relies on science and technology, research and development, creativity, and knowledge that can be transferred from foreign corporations. Sole investment, joint ventures, and shareholding are forms of FDI aimed at resource seeking, market seeking, and efficiency seeking.[10] Whether or not FDI innovation in such areas as management, design, production, and marketing will have a spillover effect on local firms depends on the ability of the local firms to absorb

the knowledge and enforce IPR to protect new innovations. The ASEAN Working Group on Intellectual Property Cooperation works cooperatively with other international organizations, including the Japan Patent Office, to provide information and assist ASEAN members in gaining patents. However, knowledge about and enforcement of IPR varies widely among ASEAN members, particularly between the CMLV and ASEAN-6 countries. The ASEAN-to-ASEAN approach has been introduced for information sharing, but assistance programs from industrialized countries will be beneficial in speeding up the process. The Japanese government should help Japanese corporations seek more trade and investment opportunities and strengthen production networks in ASEAN.

FINANCIAL ASSISTANCE: The Japanese government, its agencies, and private associations and corporations should work collectively to provide financial support for innovation in ASEAN. Financial support should take the form of long-term loans, and it should be implemented as soon as possible in less-developed areas. ASEAN firms will benefit directly, whereas Japanese FDI will indirectly benefit from international production networks in the near future.

UTILIZATION OF TRADE AND INVESTMENT LIBERALIZATION: The utilization of free trade agreements (FTAs) should be promoted for both trade and investment. When firms utilize trade and investment privileges, more active Japanese direct investment is expected. Hence, technology and knowledge transfer to build up ASEAN's strength in innovation should be incorporated into the process. Currently, firms are not aware of the benefits of the FTAs, and some firms find the implementation process as costly as dealing with the rules of origin. Many aspects need to be improved to promote FTA utilization.

## MRA and Harmonization of Standards

The MRAs are agreements between two or more member countries on testing procedures and production standards. ASEAN members take part in the MRAs on a voluntarily basis, and they generate high benefits through lower trading costs and shorter deliverable times[11]. ASEAN has two MRAs on electrical and electronic products and on product registration approvals for cosmetics. MRAs on processed foods and automobiles are in development.

ASEAN also has an ASEAN Marking Scheme, which represents the standards for harmonization. ASEAN members have signed an

agreement on the ASEAN Harmonized Cosmetic Regulatory Scheme and an agreement on the ASEAN Harmonized Electrical and Electronic Equipment Regulatory Regime. As far as the ASEAN Policy Guideline on Standards and Conformance is concerned, several products, including electronics, electromagnetics, electricity safety, rubber products, and pharmaceutical products, are in the process of standard harmonization development. According to the ASEAN report, the priority sectors for standard harmonization are agricultural products, cosmetics, fisheries products, pharmaceutical products, rubber products, wood products, automobiles, construction materials, medical tools, traditional medicines, and food supplements.

To achieve community building, Japan can play an important role by assisting ASEAN on the harmonization of standards in industrial sectors where Japan's FDI dominates in ASEAN. The international production networks and the industrial agglomeration that will be created benefit both parties. Recommendations for the Japanese government and its agencies are as follows.

DISSEMINATION OF INFORMATION ON INTERNATIONAL STANDARDS: Establish a strategic information center related to international standards and measures. Japan should lead a group of dialogue partners to share information and policy directives on the standards and conformances and technical know-how. In some cases, Japanese standards can be applied in ASEAN to ensure food and production safety.

TESTING CENTER: Establish an international testing center. A Japanese financial scheme should provide financial and technical support to ASEAN countries where Japanese firms have already invested. The investment should include the establishment of a testing center, training programs on new technological changes, and training for skills development for competent authorities.

TRADE POLICY REFORM: The Japanese government should provide advice on regulatory reform to eliminate non-tariff measures in ASEAN, as Japan has more experience dealing with international standards and their implications for trade and investment flows.

UTILIZATION OF TRADE AND INVESTMENT LIBERALIZATION: Local firms and FDI firms shall be encouraged to utilize FTAs and investment privileges. Trade and investment flows will increase the demand for the standard harmonization and conformances in growing industries. ASEAN

will then appropriately serve as the production base for industrial agglomeration and benefit from the fragmentation of the production line.

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ASEAN and Japan must prioritize plans and implementation for the short, medium, and long term. Infrastructure and an information center are basic needs for community building and should be implemented in the short term, as soon as possible. Financial support for them should be discussed among the relevant parties with special consideration and flexibility given to the CLMV countries. Strategic policy toward community building should be based on benefit sharing in the long term, and the more advanced ASEAN countries and Japan should share the financial burden at the initial stage. The training center and related programs can be provided through government efforts, public-private partnerships, or Japanese or ASEAN multinational corporations. A training program should also be implemented as soon as possible to enhance the labor productivity and technical knowledge of the local firms. Since national and regional regulatory reforms are needed, the process should be started as soon as possible—although it takes time to negotiate—but results cannot be expected in the short term.

One weakness of the cooperative plans in the past has been the monitoring process and evaluation procedure of the action plans and their impact assessments. ASEAN and Japan should set up a responsible organization and competent authority to follow up on the implementation and to assess the impacts of the action on a regular basis. There should be a risk assessment and consideration of the limitations and conditions that may cause failure of the implementation. The plan should be modified right away to serve the final objectives of the project. The report must be transparent and submitted to the appropriate ASEAN and Japanese authorities.

ASEAN Plus Plus arrangements, such as the Regional Comprehensive Economic Partnership or the Trans-Pacific Partnership, should be closely monitored in order to make strategic changes in collective plans to produce higher benefits from ASEAN-Japan cooperation in the ASEAN community-building process.

## Notes

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