

Innovation is ASEAN's Achilles Heel by Thitapha Wattanapruttipaisan

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SEVERAL members of the Association of South-east Asian Nations (Asean) have achieved outstanding economic growth in the past two decades, thanks in large part to the accumulation of physical resources and domestic savings.

However, productivity gains from new knowledge and technological progress contributed just a third or less to the increase in income. In contrast, productivity gains were the source of four-fifths of income growth in the United States, and two-thirds in France, Germany and the United Kingdom during the same period.

That Asean needs to move up the innovation ladder is clear. The figures are telling: There were fewer than 1,600 invention patents registered to Asean residents at national Intellectual Property Offices from 1993 to 2002. This number was less than one per cent of all the Asean patents granted by these offices to resident and foreign inventors.

The one exception within Asean is probably Singapore, which is reaping considerable dividends from heavy investment, made since the early 1990s, in research and development (R&D) activities. Singapore had just 50 patents, or 25 per cent of the total owned by Asean residents, during 1995-1996. Since then, the picture has changed dramatically: The country accounted for 140 patents, or 59 per cent of all the patents approved by Intellectual Property Offices in Asean for local inventors during 2000-2001.

Ownership of US patents has substantial importance, technology-wise and commercially. Globally, however, only 0.1 per cent (1,584) of US patents issued to all countries went to Asean residents in the 1991-2001 period. Notably, 1,149 (72 per cent) of those patents belonged to inventors from Singapore. Chartered Semiconductor Manufacturing was by far the dominant inventor, followed at a distance by the National University of Singapore. At 210, Malaysia had the second largest number of US patents in Asean. Thailand was third with 109.

Cost of borrowed ideas

INADEQUATE intellectual property creativity in Asean means costly dependence on imported technologies. Indeed, some technologies may not be available at all. Others are accessible only with expensive licenses and adaptations to suit local conditions.

Licensing fees, for example, absorbed 30 per cent of the revenue of semiconductor firms in the Republic of Korea in the mid-1990s. In absolute terms, they were equivalent to US\$1 billion (S\$1.6 billion) in 1990 and US\$2 billion in 1995.

For DVD players made in China under technology licenses, fees are about 25 to 33 per cent of the retail price of US\$60. Meanwhile, Monsanto's technology fee on 1kg of genetically modified cotton seeds is about 44 per cent of the retail price of US\$8 in China. This fee is equal to 27 per cent of the

estimated value of the harvested crop.

For famous examples of economies that have moved up the innovation ladder, look to South Korea and Taiwan, both major trade and investment partners of Asean. These progressed from being imitators and followers to becoming world-class pioneers in the research and commercialisation of many microelectronics technologies.

With US invention patents as a benchmark, Taiwan was ranked 24th (196 patents) and South Korea 30th (34) during the period 1977-1980. In 2000-2001, the former (12,351) moved up to the 4th position and the latter to 8th position (7,235).

Today, South Korea's Samsung is a world leader in nanotechnology, with global sales of US\$50.2 billion last year. Forbes Magazine ranked it 45th among the world's top 2,000 leading companies in May this year.

Sony Corporation, the inventor of consumer electronics, had a market capitalisation of more than twice that of Samsung in 2000, but this dropped to 52 per cent (US\$38 billion) in February. Sony and Matsushita Electric Industrial, second only to Sony in terms of global sales, were ranked 82nd and 415th, respectively, among the world's top 2,000 companies.

Interestingly, almost 80 per cent of the US patents obtained by South Korea belong to only four business groups (chaebols), with Samsung being the dominant inventor. In contrast, individuals accounted for 42 per cent of US patents registered to Taiwan. That reflects the economic durability and structural importance of technology-driven small and medium-sized enterprises (SMEs) in Taiwan.

Around the world, inventive entrepreneurship and technology-driven SMEs have come of age under the knowledge-based economy. SMEs are now the backbone of most economies in the world.

Within Asean, there is an increasing policy re-focus to remove longstanding biases against SMEs. This has been supplemented by the allocation of additional resources to the SME sector, especially in the aftermath of the 1997 economic crisis.

But there is still a need to boost public spending on R&D, which now averages less than 0.3 per cent of domestic income in the regional economies. This is way below the 2.5 to 3.0 per cent range in, for example, Japan and the Republic of Korea. The exception again is Singapore, which has been successful in hiking R&D expenditure to 1.8 per cent of domestic income from the late 1990s.

Because of under-investment in R&D, the proportion of knowledge professionals and workers in the labour force was only 12 per cent in the Philippines and Thailand, and 25 per cent in Malaysia during 2002. For Singapore, it was 36 per cent, a ratio slightly higher than the OECD average of 31 per cent.

But R&D and technological inventions are not enough by themselves. They must be developed and commercialised in the domestic and external markets. As such, the education and worker training systems in a country must inculcate a habit of risk-taking entrepreneurship and business networking with both local and trans-boundary partners.

Generally, however, education and training for inventive entrepreneurship remains at the infancy stage, even in a technologically dynamic country such as the US.

By contrast, training in entrepreneurship development and business management skills has a much longer history and many proven results in many countries.

There is much scope in Asean industries and enterprises for more extensive training in

entrepreneurship development and business management skills. Ideally, these should be introduced as part of the curricula in secondary schools and in vocational and tertiary institutions. In addition, exchange and internship arrangements will be very helpful to regional entrepreneurs and SME managers.

Information exchanges

TRANS-BOUNDARY collaboration in intellectual property creativity has been spearheaded by the Asean Working Group on Intellectual Property Cooperation (AWGIPC), with effective support from the Asean Expert Groups on Patent and on Trademark.

At one level, there have been regular exchanges of information and policy experiences within Asean, and between Asean and its partners. These include Australia, China, Japan, the European Union, the US, plus the World Intellectual Property Organisation and several private-sector bodies.

Of particular value are those programmes to facilitate the replication of good practices and success stories, from the filing to the enforcement stages. These programmes have sustained the regional 'socialisation' of intellectual property rights, especially in raising public awareness and enforcement standards in a complex and often contentious area.

AWGIPC initiatives have also contributed to greater commonality, thus saving time and expenses in the registration and maintenance of intellectual property assets. One example is the draft common form for trademark applications - the first step towards an Asean trademark filing system.

There are now no regional institutions for intellectual property rights in Asean. Hopefully, these will emerge from the current efforts towards the building of an Asean Economic Community by or in 2020.

-- The writer is with the Asean secretariat in Jakarta. The views expressed here do not necessarily reflect those of the secretariat.