INTELLECTUAL PROPERTY RIGHTS AND ENTERPRISE DEVELOPMENT: SOME POLICY ISSUES AND OPTIONS IN ASEAN

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Intellectual property (IP) is a form of knowledge or intellectual activity embodied in various ways in the production and marketing of goods and services of an industrial, scientific, literary or artistic nature. At the micro level IP has been a significant source of growth and a major driver of competitive strategies virtually across the globe. This paper analyses the divergence between enterprise development and IP creation in the ASEAN region. The paper highlights the fact that most IP assets, particularly patents, are not formally registered in the ASEAN group of countries. This is due to the complexity and high transaction costs of registering IP assets. The paper indicates the strong need for more research into the nature and characteristics of technological progress at the enterprise level and how best to adapt formal IP registration systems so that enterprises can be encouraged to register their technological innovations and derive benefit from them.

The Millennium Development Goals, as set forth by world leaders in 2000, embody a powerful message on the crucial importance of reducing poverty and hunger, improving health and education, and ensuring environmental protection and sustainability. There are also specific timelines for achieving these goals, including a targeted decrease by one half in the proportion of people living in poverty by 2015. The World Trade Organization (WTO) negotiations, meanwhile, had yet to reach a consensus on several significant areas under the Doha (Millennium) Development Agenda before the Fifth WTO Ministerial Conference in Cancun, Mexico, during 10-14 September 2003. These areas include a reduction in agricultural subsidies, and better access for developing countries to agricultural and non-agricultural markets in the developed countries.

Additionally, negotiations had not been completed as planned by end-December 2002 on developing countries’ access to essential (but patented) drugs in

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the context of paragraph 6 of the Doha Declaration on the Agreement on Trade-Related Intellectual Property Rights (TRIPS Agreement) and Public Health; a last-minute consensus on the above issue was reached only on 30 August 2003. These intractable impasses and the collapse of the WTO Ministerial Meeting at Cancun have bought closer to home the intimate relationship between intellectual property rights (IPRs) and the fight against hunger and diseases and, by extension, day-to-day development efforts in the third world.

Intellectual property (IP) is a form of knowledge or intellectual activity embodied in various ways in the production and marketing of goods and services of an industrial, scientific, literary or artistic nature. Once successfully registered, the creators or owners of IP assets are assigned (by society at large) with specific rights which prevent others from making unauthorized use of such (protected) goods and services for a limited and specified period of time. IP is traditionally divided into two categories – namely industrial property (patents, trademarks, industrial designs, geographical indications, trade secrets and protection against unfair competition), and artistic and literary property (copyrights and related rights). However, technological advances have clouded somewhat the traditional distinction by giving rise to some hybrid *sui generis* (or of its own kind) systems such as integrated computer circuits, plant breeders’ rights, and database protection.  

IP has assumed an unprecedented significance in the information markets and knowledge-based society of our times and as such, national and global IPR regimes have a profound influence on the social, economic and technological progress of interdependent economies, firms and communities of people across the globe. At the micro level, IP has been a significant source of comparative advantage of business enterprises and a major driver of their competitive strategies. In the commercialization process, moreover, IP assets are a key determinant of the conditions and circumstances of entry of business partners or competitors into national and global markets for goods, services and IP as well (Shapiro, 2000:9).

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1 World Intellectual Property Organization (WIPO) provides a comprehensive discussion on IP – including technological and legal developments in IP, international treaties and conventions on IP, administration and teaching of IP, and enforcement of IP rights (IPRs). This publication (WIPO 2001), first appeared in 1995 and updated in 1998, is very useful for reference purposes.

2 The impact and implications of IPRs on developing countries, in particular on their socio-economic development and modernization, are examined at great length by the United Kingdom Commission on Intellectual Property Rights (CIPR). The outcome is a comprehensive piece of work, (CIPR 2002), which consists of a 172-page main report and a series of supporting papers of some 500 pages in length. This publication is highly useful for reading and reference by all persons interested in the above subject. At the same time, the ELDIS network, accessible at <www.eldis.org/guides/index.htm>, contains extensive bibliographic information on IPRs, among many other research areas.
To date, however, there has been little systematic research and few publications on the nature and characteristics of IP creation as well as on the relationships between IPR systems and instruments and the IP-driven growth and competitiveness of business firms within the enterprise sector in the Association of Southeast Asian Nations (ASEAN). The following discussion thus serves to highlight some of the old issues of concern which are becoming the new agenda for further research and policy action. The first section provides a brief note on the increasing importance of IPRs in various fields of human interaction. It is followed by an analysis of constraints and bottlenecks behind the revealed divergence between enterprise development and IPR creation in ASEAN. A number of issues and options are then discussed in the concluding third section, which also contains various suggestions for policy attention as well as further research.

Substantively, the emphasis in the discussion is on industrial property assets which are a good indicator of technological capabilities as well as a cornerstone of productivity growth in the development process. The geographical focus is on ASEAN, a grouping which includes several high-growth, industrializing economies, although the issues and implications discussed are relevant to other developing countries, too. Due attention is given to small and medium-sized enterprises (SMEs) because these firms are the backbone of most economies in the world. In addition, the 1997-1998 financial and economic crisis in East and South-East Asia has induced a return to “the fundamentals” through a renewed policy focus on, plus higher budget allocations and external aid for, SMEs virtually across the region. Thus, the 2000s may well turn out to be a decade of SMEs in this part of the world (Lam, 1999).

3 In particular, the European Charter for Small Business, which was signed by European Union (EU) leaders at the Feira European Council on 19-20 June 2000, explicitly acknowledges that “(s)mall enterprises are the backbone of the European economy” (European Union 2000a:1). SMEs in the EU (with 250 workers as the threshold for medium-sized businesses) account for about one half of the total value added and two thirds of the domestic workforce (European Union 2002b:118). Comparatively, companies with less than 100 employees in the United States are the source of about one third of both domestic employment and sales value (Velasco and Cruz 2001:19). SMEs contributed between 40-50 per cent of manufacturing output in Japan, the Republic of Korea and Taiwan Province of China in the mid-1990s (UNCTAD 1998:17-19). These enterprises account for the bulk (70-90 per cent) of domestic employment in ASEAN although their relative share in value added, at 25-30 per cent, is disproportionately smaller (Harvie and Lee 2002:9).

4 The so-called New Mizayawa Initiative, launched by Japan in October 1998, amounted to $30 billion with some one half allocated to the promotion of economic recovery through investment expansion and employment creation, notably in the SME sector of South-East Asia in the immediate aftermath of the crisis. Indeed, for a variety of pressing reasons, the promotion of SME growth and competitiveness is no longer an option in ASEAN (Wattanaputtipaisarn 2002:57-67).
I. INCREASING SIGNIFICANCE OF IPRs

Notably in the context of IPRs, the TRIPS Agreement concluded at the end of 1994 under the Uruguay Round of multilateral trade negotiations extends, for all practical purposes, the minimum standards for IPR protection across the globe. There has also been a worldwide trend leading toward both stronger and broader IP protection, or the so-called TRIPS-plus regime in most bilateral or plurilateral free trade agreements concluded since the mid-1990s. Among other things, the intensity and scope of protection has been increased so that, firstly, living things and materials found in nature, including geographical indications, can now be patented. Previously, such protection was accorded mostly to products and processes invented and innovated by humans.

Secondly, laws and regulations on literary and artistic property (copyrights and related rights) are now modified to accommodate and protect new technologies, especially those relating to biology, and information processing and dissemination. For example, software sources and codes, and computer programmes are regarded as literary expressions for the purposes of IP protection. There are also the widening of exclusive rights, an extension of the period of protection, and the strengthening of related enforcement mechanisms. In line with European practice, in particular, copyrights are now prolonged in the United States from 28 years (renewable for another 28 years) to 70 years after the death of an author or 95 years from publication.

Thirdly, new technical areas and new substantive fields under IP protection include software and business methods, and *sui generis* regimes for semiconductors, databases, plant (and animal) breeders’ rights and so on. Meanwhile, genetic resources and traditional knowledge and folklore (e.g., inventions and innovations specific to a certain location or a certain group of persons) are currently under consideration for IP protection. A greater emphasis is also given to the protection of new knowledge and technologies originating from the public sector, including from research and development (R&D) and tertiary institutions. Thus, the possible restrictions on global access to publicly-funded research and its results have important implications for developing countries because universities and research institutions in the developed world are by far the overwhelming source of cutting-edge knowledge, technologies and innovations.

The stronger and broader protection of industrial and artistic property has combined with wide-ranging advances in science and technology plus the rapid globalization of trade and investment to exert a pervasive influence on the patterns
and processes of human relationships across many sectors and industries.\textsuperscript{5} It is well appreciated that IPR regimes can play an important role in codifying and diffusing knowledge, for example, by placing the underlying principles and operations of the innovated or invented products and processes as public domain information. However, it is also well known that IPRs have built-in limitations as a mechanism for knowledge creation and dissemination. This applies, in particular, to the long lifetime of some IPRs and the extension of IP protection to dynamic sectors and technical IP (such as database, computer circuits, business processes etc.). Besides, the cost of use of patent information can be considerable, especially when a consultant or information service has to be relied on for the necessary access, interpretation and advice.

At the same time, developing countries and technology-sensitive sectors in both developing and advanced countries, have diverse capabilities and requirements in terms of IP generation and protection, and related competition policies. Equal treatment will not produce equality in outcome among countries and sectors alike.\textsuperscript{6} It also does not necessarily speed up the emergence of private sector players and actors as the dominant source of IP generally or in priority sectors. Such a trend has been a historical development among both developed and developing economies, including those which are technologically “emerging” at present. Indeed, striking a judicious balance in IPR regimes to provide for special and differential treatment to developing countries has been among the more difficult and contentious issues currently as well as in the context of development and globalization over time. Pertinent cases in point include the present impasse and missed deadlines in multilateral trade negotiations under the auspices of the World Trade Organization as regards, for example, better applications.

\textsuperscript{5} Some manifestations of the multi-sectoral influence of IPRs include in the case of (a) agriculture: genetically modified organisms and food supply and security, local bio-integrity and consumer safety; (b) environment: access to genetic resources and indigenous knowledge (and folklore) and the mutual sharing of benefits, the protection of local biodiversity; (c) health: epidemics and compulsory and voluntary licensing, pricing and the availability of essential pharmaceutical products; (d) industrialization: adequate and affordable access to modern technologies in the upgrading and diversification of priority industries, especially those in IPR-sensitive sectors such as chemicals, pharmaceuticals, biological and genetic engineering etc.; (e) international trade: high prices on and narrower access to imported products such as medicines, agricultural chemicals, and software; and implications of IPRs on competition policy; (f) IPRs: suitable protective regimes for developing countries over time; availability of institutional capabilities, expertise and infrastructure for promoting, monitoring, protection and enforcement; (g) R&D: limited public domain for (private and publicly-funded) external research efforts and scientific discoveries; bio-technologies and human genome patenting (including ribonucleic acid and deoxyribonucleic acid sequences); and limited opportunities for acquiring capabilities through technology transfer, imitation (copying) and reverse engineering.

\textsuperscript{6} Filed and granted patent applications are commonly used as an indicator of technological capabilities. In 2001, for example, less than 7 per cent of United States patents (184,857 in total) were granted to applicants from developing countries with 5.6 per cent accruing to residents of Taiwan Province of China (6,545 patents) and the Republic of Korea (3,763 patents). Other technologically advanced countries included China (266 patents), India (179), South Africa (137), Brazil (123) and Mexico (87). For further details, see CIPR (2002:12 and 27).
access for developing countries to agricultural and non-agricultural markets, and to essential drugs in the context of paragraph 6 of the Doha Declaration on TRIPS and Public Health (noted earlier).

II. ENTERPRISE DEVELOPMENT AND IP ASSET CREATION

Entrepreneurs are agents of innovative change and invention because of their ability to identify and take risk in response to current or emerging business opportunities under the market economic system. Such a response, in turn, determines how well their own enterprises and, by extension, their own industries perform and compete. Start-up firms are most frequently small businesses. Meanwhile, enterprise-level innovation does not necessarily mean a discrete or fundamental discovery of new scientific knowledge or technological capability. Often, it has more to do with a gradual process by which entrepreneurs master or improve on various elements in production, marketing and management. Such a process is new to the firms and entrepreneurs concerned, irrespective of whether they are also new to their competitors or competing enterprises.

The limited number of formally registered IP assets originating from ASEAN can be seen in table 1, especially in relation to filed and granted patents. There is, however, a notably higher number of applied and approved trade and other marks but this is a trend common in many other developing countries. In addition, the turnover rate in the case of patents filed by residents is rather low, in the range of 10 per cent although there are a few exceptions such as Singapore and Viet Nam. Moreover, the volume of IPR filings and approvals appears to bear little relation to income per head of population (an indication of socio-economic development and effective domestic demand). Meanwhile, in terms of approved IP assets by residents, the Republic of Korea, Taiwan Province of China and, to a much lesser extent, China are the emerging sources of technological dynamism in East and South-East Asia. This reflects the successful performance of their knowledge-intensive exports and their large pool of technical human resources.

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For a concise description of the main characteristics of an entrepreneur as perceived by development economists and business management experts from 1730 to the early 1990s, see Timmons (1990:163) and Tan (2002:11).

Notwithstanding his somewhat nuanced perspectives and interpretations, Yoshihara (1988, pp. 153-263) provides an interesting account of the stellar rise and transformation into large enterprises and transnational corporations (TNCs) of formerly small and family-owned or controlled firms (with many being SMEs) in South-East Asia. In a related context, many famous TNCs – including such well-known enterprises as Microsoft, Apple, Sony, Honda and so on – also started out as small companies in their own countries.
Table 1. IPR applications filed and granted in selected countries in 2000 or 2001

<table>
<thead>
<tr>
<th></th>
<th>Patents Filed</th>
<th>Patents Granted</th>
<th>Trademarks Filed</th>
<th>Trademarks Granted</th>
<th>Industrial designs Filed</th>
<th>Industrial designs Granted</th>
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<td>South-East Asia</td>
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<td>n.a.</td>
<td>24</td>
<td></td>
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<tr>
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<td>n.a.</td>
<td>1 370</td>
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<tr>
<td>Indonesia ($570)</td>
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<tr>
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<tr>
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<td>1 403</td>
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<tr>
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<td>n.a.</td>
<td>26</td>
<td></td>
<td>n.a.</td>
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</tr>
<tr>
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<td></td>
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<td>749</td>
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<td>1 403</td>
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<tr>
<td>Malaysia ($3,380)</td>
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</tr>
<tr>
<td>Resident</td>
<td>206</td>
<td>24</td>
<td>6 303</td>
<td></td>
<td>84</td>
<td>75</td>
</tr>
<tr>
<td>Non-resident</td>
<td>6 021</td>
<td>381</td>
<td>12 500</td>
<td></td>
<td>120</td>
<td>113</td>
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<tr>
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<tr>
<td>Resident</td>
<td>135</td>
<td>10</td>
<td>5 201</td>
<td></td>
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<td>1 082</td>
<td>4 703</td>
<td></td>
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<td>273</td>
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<tr>
<td>Resident</td>
<td>523</td>
<td>170</td>
<td>5 187</td>
<td></td>
<td>1 970</td>
<td>n.a.</td>
</tr>
<tr>
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<td>7 610</td>
<td>7 050</td>
<td>17 062</td>
<td></td>
<td>13 052</td>
<td>n.a.</td>
</tr>
<tr>
<td>Thailand ($2,010)</td>
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<tr>
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<td>45</td>
<td>15 495</td>
<td></td>
<td>1 939</td>
<td>119</td>
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<tr>
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<td>4 488</td>
<td>371</td>
<td>11 560</td>
<td></td>
<td>758</td>
<td>209</td>
</tr>
<tr>
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<tr>
<td>Resident</td>
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<td>12</td>
<td>3 483</td>
<td></td>
<td>1 110</td>
<td>515</td>
</tr>
<tr>
<td>Non-resident</td>
<td>260</td>
<td>218</td>
<td>2 335</td>
<td></td>
<td>97</td>
<td>111</td>
</tr>
<tr>
<td>Other countries</td>
<td></td>
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<tr>
<td>Australia ($159,680)</td>
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</tr>
<tr>
<td>Resident</td>
<td>8 248</td>
<td>588</td>
<td>41 973</td>
<td></td>
<td>2 674</td>
<td>1 872</td>
</tr>
<tr>
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<td>3 775</td>
<td>29 523</td>
<td></td>
<td>1 581</td>
<td>1 236</td>
</tr>
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<td></td>
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</tr>
<tr>
<td>Resident</td>
<td>29 962</td>
<td>5 388</td>
<td>181 727</td>
<td>129 441</td>
<td>56 460</td>
<td>39 865</td>
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<tr>
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<td>10 909</td>
<td>24 623</td>
<td>16 327</td>
<td>4 187</td>
<td>3 731</td>
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<tr>
<td>Japan ($37,415)</td>
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<tr>
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<td>109 375</td>
<td>104 655</td>
<td>78 322</td>
<td>37 176</td>
<td>30 617</td>
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<tr>
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<td>12 367</td>
<td>19 100</td>
<td>12 864</td>
<td>2 247</td>
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<tr>
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<td>86 408</td>
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<tr>
<td>United States ($34,861)</td>
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<tr>
<td>Resident</td>
<td>161 786</td>
<td>83 999</td>
<td>251 220</td>
<td>95 448</td>
<td>11 536</td>
<td>11 285</td>
</tr>
<tr>
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<td>61 189</td>
<td>41 244</td>
<td>14 096</td>
<td>6 756</td>
<td>61 129</td>
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</table>

Source: WIPO (2001); Asian Development Bank (2002); and EIU, Country Forecast (London), various issues.

Note: Figures in brackets refer to GDP/GNP per head of population.
There is no detailed information on the sources or composition of industrial property assets in ASEAN and basic research is required in this connection. Clearly, however, the volume of formally registered IP assets does not mirror the sustained entrepreneurship and enterprise development over the past three decades in the region. The vibrant record of economic growth, industrial diversification and export competitiveness has consequently rendered several ASEAN members to be known as the tiger economies or the second-generation of newly industrializing economies of Asia.\(^9\) There are many reasons behind the revealed divergence between economic performance and the formal registration of IP assets.

Compared to the developed countries, many fewer firms in ASEAN have R&D facilities and capabilities in dynamic, high technology sectors which tend to yield a significant number of patentable results. These sectors include semiconductors and nanotechnology, biotechnology and bioengineering, chemicals and pharmaceuticals, advanced and new materials, information and communications technologies (ICTs) etc. In addition, there is inadequate awareness and familiarity with the IPR systems and instruments among business enterprises and within the general public itself — a constraint attributable to an acute lack of accessible and affordable outreach programmes (Tuteja, 2002:4 and WIPO, 2002a:3). However, advice from broad-based business development services (BDS), such as accountants and general practice lawyers, can be very general in nature and offers little guidance in terms of IP registration, management and commercialization (Kitchenside, 2002a:2-3).

There are, too, long delays because of the various filing stages and technical examination procedures involved before grant. Patent applications in ASEAN are published within 18 months of the filing date and the substantive examination can be initiated generally within 24 months from that date.\(^{10}\) It should also be noted that filing an international patent application with the Patent Cooperation Treaty (PCT), administered by WIPO with 115 signatory members, saves the costs of separate country filings under the Convention for the Protection of Industrial Property (also known as the 1883 Paris Convention), currently with 163 signatory members. However, the

\(^9\) Indonesia, Malaysia, Philippines, Singapore and Thailand have managed to sustain very high rates of income growth and export expansion for almost three decades (with the exception of Philippines for most of the 1980s). Income per head of population in these countries (except Singapore), which was in the range of $100-300 in 1965, reached $1,000-4,400 in the pre-crisis year 1996; the corresponding figures for Singapore being around $530 and $30,500. Per capita income for ASEAN countries in 2000 can be seen in table 1. Meanwhile, the value of merchandise exports of Indonesia, Malaysia and Thailand expanded from $2.4 billion in 1960 to $184 billion in 1996. The proportion of manufactured products in such exports also went up from 15 to 70 per cent (UNESCAP 2000:22-27).

\(^{10}\) Similar information is not available for Brunei Darussalam, Cambodia, Lao People’s Democratic Republic and Myanmar. Cambodia and Lao People’s Democratic Republic have announced their own patent legislation although it is not yet known whether their patent offices are ready to receive patent filings and what are the charges for various services.
international stage of a PCT application involves an international “prior art search” and preliminary examination, and the time limit for entering the national phase (and related processes) to obtain country-specific patents under the PCT procedure was raised from 20 to 30 months in May 2002.

Four ASEAN countries are PCT members – Indonesia (since September 1997), the Philippines (since August 2001), Singapore (since February 1995) and Viet Nam (since March 1993). The (exceptionally) large number of non-residents’ applications for patents in these four countries (compared to those recorded by Malaysia and Thailand, which remain outside of PCT to date) is due to the fact that the cost of designating additional countries under the PCT system is minimal. In fact, such a cost will not be applicable as there will be an automatic designation of all PCT members in applications filed under PCT from 2004. Thus, patent applications tend to routinely specify or cover a large number of countries but only a very small volume of such applications enter into a national phase for the necessary examination and processing by national IP offices. The consequent inflation in non-residents’ patent filings is particularly dramatic in the cases of Singapore and Viet Nam. In the former country, patent applications from non-residents had averaged 871 a year during 1975-1995; they went up to 50,255 a year between 1995 and 2001. The corresponding figures for Viet Nam are an annual average of two non-residents’ patents applications during 1975-1990, and 27,114 filings a year between 1990 and 2001.11

Additionally, the complex registration processes and the demanding requirements of IPR regimes mean high front-end costs, those for legal and technical expertise especially.12 Yet, there is no certainty of a successful registration, given the high failure rate noted earlier, and of effective protection from misuse or unauthorized application. Patent expenses are also relatively high in ASEAN, an additional penalty on regional SMEs, and this constraint should be a subject of detailed cost-benefit analysis. Assuming a smooth filing process (with no requests for further explanation in the novelty and inventive examination), the estimated minimum amount of expenses for patent filing, registration and maintenance from the 5th to 20th year range from

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11 Philippines joined the PCT in August 2000, and the number of non-residents’ applications jumped up from 3,482 during that year to 13,589 in 2001. Thus, a steep rate of growth in PCT-originated applications can be expected from the early 2000s.

12 The corresponding expenses for industrial designs (with 15 years of protection) are from $2,700 to $3,600 in these six countries. Translation fee is $15 per page in Indonesia, and $14 and $10 per one hundred words in Thailand and Viet Nam respectively (information supplied by private correspondence with Ms. Prabjote Busdee of Domnern Songiati and Boonma Law Office, Bangkok, Thailand). Comparatively, patent-related expenses are estimated by the Government Accounting Office (GAO) of the United States at around $10,000 for the filing and maintaining of a United States patent for 20 years (GAO 2002:2). Meanwhile, the cost of a patent agent’s services in the United Kingdom is around $16,000 on top of patentability search, filing and other expenses of some $3,300 (for a ten-year protection period). A search for patent infringement may cost from $1,600 to as much as $4,000 (Mulcahy 2003:13-15).
around $11,000 to $12,000 in Indonesia, Malaysia, Philippines, Singapore and Thailand, and $16,000 in Viet Nam. Moreover, maintaining and protecting IPRs overseas are even more expensive while considerable diversity remains in IPR laws, regulations and procedures among countries despite long drawn-out attempts at cross-border harmonization.

Few ASEAN enterprises have an extensive overseas presence and adequate expertise in foreign IPR regimes for enforcement purposes. Yet, information search for industrial property R&D or to monitor infringement is not cost free despite the availability of free services and databanks, such as WIPO Patent Information Services. Subscription and search costs are definitively high for a small business (Lee, 2002), while language remains a barrier in itself as well as through costly translation charges (see footnote 12). All these constraints and bottlenecks account for the low number of patents filed in the United States from the technologically “emerging” countries themselves (footnote 6 above). As such, the creation of patents may prove only incidental to the large bulk of ASEAN companies, especially SMEs because of their limited capital and expertise, carrying capacity, and access to resources (technical, legal and financial).

More generally, the problems and constraints discussed above are inherently systemic and almost universal in nature. For example, only a small minority of EU enterprises file patent applications. In Norway, in particular, large companies apply for patent 20 times more often that small business and eight times more often than medium-sized firms (WIPO, 2000b:2). Cost clearly is a binding constraint for most SMEs, and the cost burden multiplies with overseas registration and enforcement.

13 Panavision took out a patent from an Australian who had been working on the invention for a decade. The process cost about US$ 1 million, one of the most expensive patent ever taken out by the company but the payoff has been huge (Kitchenside 2002b:3).

14 According to GAO, about 83 per cent of small businesses (defined as those employing 500 workers or less) in the United States indicate that they seek foreign patent protection to avoid divulging information about their own invention prior to filing a patent application in the United States (GAO 2002:67). However, concerted efforts at harmonization of 179 signatory members’ patent laws have been made at WIPO for at least 20 years with limited success. Meanwhile, the European Patent Office, created under the 1973 European Patent Convention, sets up a single procedure for filing and processing purposes in 24 member countries but the granted applications become separate patents for maintenance and enforcement purposes at the national level. The introduction of uniform protection rights across EU has been constrained by several major harmonizing issues – including the question of fees, the establishment of an European Community (EC) court to settle disputes and infringements, and the cost of translating patents into all the EC languages (European Union 2002b:112 and GAO 2002:3 and 15).

15 It would cost between $160,000 and $360,000 to obtain and maintain a 20-year patent in nine other foreign countries (namely Canada, France, Germany, Ireland, Italy, Japan, Republic of Korea, Sweden and the United Kingdom). A GAO survey reported that almost two-thirds of small businesses in the United States viewed overseas patenting expenses as the most important impediment in the process. More details on estimated expenses and estimation methodologies are provided in GAO (2002:88-103).
Indeed, it has been observed that, for example, “the patent system must under no circumstances act as a further brake on the competitiveness of (enterprises). Ease of obtaining patents, legal certainty, and appropriate geographic coverage: these are all essential criteria for the effective protection of innovation.” (European Commission, 2002b:112). These remarks were made not in the context of Asian business firms but in relation to the difficulties encountered in the patenting process by companies in EU, long a bastion of IPR systems and instruments.16

As a response, simplified systems have been introduced in many developed and developing countries, for example, in the form of second-tier or sub-patentable instruments known generally as a patent for a utility model or a petty patent. These instruments provide a shorter period of protection but they are cheaper to obtain because they require a lower inventive step and are not subject to substantive examination before grant. Utility model patents are intended to address the needs of SMEs which typically do not have the resources, capabilities and even the desire to use the normal patent process and other IPR systems. They are also particularly suitable for technical or industrial discoveries which do not rise to the level of novel and non-obvious inventions, or of original and creative works of authorship that still dominate current thinking and practice as regards IP assets and their registration and protection. Such discoveries often occur in such (technologically mature) activities as toy manufacturing, clock and watchmaking, optics, mechanical devises and micro-mechanics etc. Further research, however, is needed on the success (or otherwise) of simplified systems in encouraging innovation and its formal registration as IPRs.

III. “LEARNING BY USING” AND IPR REGIMES

The very low number of industrial property registrations implies that the IP assets thus far generated by the enterprise sector in ASEAN are largely tacit and incremental, rather than discrete, in nature. Nevertheless, against the backdrop of rapid economic development and export growth for most of the past three decades, such IP creation must have resulted in better enterprise management and organization techniques, improved grasp of complex scientific principles and demanding engineering operations, and the on-going adaptation of cumulative knowledge and capabilities to suit local conditions and circumstances. The process has been closely backstopped by a rising rate of physical capital accumulation and labour force participation (including that of female workers) in most parts of ASEAN. All these inputs are necessary to

16 Notably, the granting of patents had been made by reigning European monarchs way back in the Middle Ages while copyright instruments, deployed in Europe from the early 1700s (Mulcahy 2003:3). An international framework was subsequently achieved with the Paris Convention on the Protection of Industrial Property, signed in 1883, and the Berne Convention for the Protection of Literary and Artistic Works, adopted three years later.
absorb more fully a substantial rise in imported technologies (both hard, as embodied in machinery and equipment, and soft in terms of blueprints and methods), and the continuous transfer of ever more advanced knowledge and technologies.  

At the same time, however, there has arisen a matter of significant policy concern. This relates to the lack of an established and sustained track record of locally developed, discrete technological advancement across a wide range of critical activities and services among most high-growth, “tiger” economies in Asia. R&D activities are persistently under-funded, for example, at an average of just 0.25 per cent of gross domestic output in a large part of South-East Asia in the early 1990s, a level much below that in East Asia. In addition, the gulf between R&D institutes (and productivity enhancement centres) and the enterprise sector remains to be bridged and rendered more commercially interactive. Technologically, therefore, the vibrant performance of ASEAN in terms of economic growth, structural diversification and value-adding appears to be largely “derived” or “learning by using” in nature.

On the other hand, the scope and significance of incremental IP creation by ASEAN enterprises cannot be underestimated because the acquired reservoir of tacit knowledge has led to the gainful development of new and innovative business strategies, models, and practices in technology choice and adaptation, and enterprise organization and management. The consequent gains in efficiency and flexibility have resulted in better compliance to shorter product cycles and smaller (production) batches of

17 It should be noted that most developing countries do not possess the necessary volume and quality of special and sophisticated inputs (especially those of a technological nature) needed to initiate and sustain their development and transformation. Thus, the most readily accessible bridgeheads to attaining domestic and external competitiveness are normally mediated through business ventures with foreign investment participation or through subcontracting relationships. Such arrangements provide the necessary transfer of technology, market access and marketing expertise. ASEAN has been a major host of foreign direct investment (FDI) and business firms in the region, including SMEs, have played an important role as direct and indirect participants in cross-border supply chains, production networks and outsourcing circuits all of which have multiplied rapidly in the last two decades. See Wattanapruttipaisan (2002:78-84) and the references cited therein.

18 (UNESCAP 2000:50). There is strong evidence that R&D investment outlay in developed countries yield private returns of 20-30 per cent and social returns in excess of 50 per cent. These rates of payback are far higher than those obtainable from investment in education generally (Stiglitz 1998:16).

19 Indeed, it has been questioned whether such a transformation process is able to sustain the historical record of high growth in ASEAN in the longer run because of a variety of economic, financial, demographic and environmental limitations. In this connection, the (limited) gains in total factor productivity among the tiger economies became a controversial issue in East and South-East Asia in the pre-crisis mid-1990s after a provocative exposition by Krugman (1994) who had based his observations largely on the research results from Young (1994 and 1995). The debate has spawned a series of research and publications which have provided a sharper perspective on the substantial contribution of technological capabilities and technical change in the endogenous process of macroeconomic growth and growth accounting in this part of the world. See, for example, Eichegreen (2002) and Chen (1997).
high-quality goods and services (or mass customization), to improved quality uniformity and assurance, and to greater punctuality in distribution and short-notice delivery. Additionally, higher productivity has facilitated the pursuit of business practices which were traditionally not observed or expected by many enterprises, especially SMEs. Among these practices are the provision of extended product guarantees and after-sales services, acceptance of penalties for under performance in subcontracts and of payments after delivery or use, and just-in-time and more frequent delivery.20

As a result, ASEAN business competitiveness has been sustained and, often, enhanced despite fiercer external competition because of global trade and investment liberalization, the increasing sophistication of processing and high value added manufacturing activities among the regional enterprises as well as the more exacting market requirements and tighter specifications regarding quality, cost and delivery.21 Indeed, the subcontracted and outsourced products and services from several ASEAN economies now cover full-package production, original equipment manufacturing and original design manufacturing, and specialist high-end services. The industries so involved range from consumer electronics, car and trucks, chemical and pharmaceuticals, to bioengineering.

Furthermore, the process of IP creation has also conferred on many ASEAN firms a variety of proprietary advantages. These have been successfully externalized by a large number of them through FDI and the formation of joint ventures in other economies both inside and outside Asia, especially since the late 1980s. In fact, many ASEAN members have emerged as new and important sources of third-world FDI and TNCs in their own right. For example, FDI outflows from Indonesia, Malaysia, Singapore and Thailand averaged $4.7 billion a year during 1990-1995, and reached $10.8 billion in 2001. These amounts were equivalent to just over one third and as much as 73 per cent of the annual inflows of FDI during the respective periods. In comparison, inward FDI averaged $2.8 billion a year in India during 1997-2001 (UNCTAD, 2002:305 and 309). Singapore and Malaysia are the dominant overseas investors from ASEAN.

20 For a more detailed discussion on a variety of prerequisites on suppliers and subcontractors, see (Wattanaprutipsaon 2002a:82-84, and 2002b:63-64; Momoya 2000:160-161; and Altenburg 1999:32-34).

21 In Thailand, for example, all first-rank suppliers (normally joint ventures) and second-tier subcontractors (mostly local SMEs) of automotive parts and components have to comply to a defect ratio of 20 parts per million (ppm), compared to the previous ratio of 100 ppm, thus implying virtually zero defect and 100 per cent quality check. At the same time, supply cost reduction target is set at 20-30 per cent over the medium term of 2-3 years while just-in-time procurement has necessitated up to eight deliveries (instead of two) daily (Tangkitvanich 2002:7-8).
IV. AN AGENDA FOR ACTION

The enterprise sector in ASEAN and elsewhere is an important source of industrial property assets many of which have been successfully internalized to further enhance business competitiveness or externalized in overseas investment as a business development and diversification strategy. However, as is also the case in many other countries, most of the IP assets generated by ASEAN firms are not formally registered as IPRs, patents in particular. This is due to the complexity and high transaction costs of IPR regimes and, on the other hand, the incremental nature of these assets themselves. Extensive research is thus required as regards the nature, composition and sources of technological progress at the enterprise level, and how the formal IP systems and instruments can be adapted to best fit and protect such IP creation, including through cost reduction and process simplification, as well as to promote IP generation at different stages of economic development and technological transformation over time (EU, 2000b:114-116 and CIPR, 2000:18-22).

The need for a systematic, staged approach in IP-related BDS is evident in view of the multi-sided constraints and bottlenecks reviewed earlier. ASEAN certainly can learn from the concrete and replicable good practices and success stories in ICT-based, IPR dissemination and demonstration services in other countries. Given the massive number of business firms, SMEs especially, careful targeting in BDS delivery to businesses in priority sectors and industries will maximize cost-effective outreach. An emphasis on self-reliant capacity building in such delivery will increase ownership and commitment; the targeted enterprises should have sufficient resources, capabilities and interest to be guided through the whole assessment of IP assets, creation potential and registration process with the provision of interlocking, modular toolkits (e.g., simplified manuals, compliance checklists, case studies and illustrations etc.) in a multimedia and user-friendly format, including CD-ROM.

Meanwhile, a focus of IP-related BDS in the near to medium terms can be on trademarks, distinctive or collective signs, and industrial and other designs the registration of which tends to be easier and less costly. These components of IP have apparently not received due attention until quite recently. Yet, they are important for product and service differentiation which itself is a major, non-price determinant of competitiveness (Porter, 1990). But such IPRs also constitute a prerequisite for “branding,” a process which has come of age along with total quality management as

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22 Each country may have its own designated priorities for industrial and enterprise development. By and large, however, such priorities relate typically to activities with higher levels of value added and skilled employment generation, involving extensive inter-firm linkages within and across borders, with a heavy export orientation, and of prospective economies of scale and scope in full operation. For ASEAN as a whole, the 11 sectors which have been designated in 2003 as a priority for accelerated integration in the region are: textiles and apparel, agro-based products, wood-based products, fisheries, motor vehicles and automotive products, rubber-based manufactures, electronics, e-ASEAN, health care, air travel, and tourism.
a prelude to certification under International Standards Organization 9001 series (2000 edition) in many ASEAN enterprises. Malaysia, for example, has just set up a scheme worth $26.5 million to provide matching grants of up to one half of international promotion expenses incurred by business enterprises for branding activities, and for patent and mark registration.23

The public sector has become leaner and meaner in most developing countries and inevitably in the long run, there has to be a closer relationship, more interaction and greater matching between the business sector and R&D institutions and productivity improving centres. This applies especially to the development of IP capabilities and assets needed for technological upgrading and diversification so as to gradually fill up the “missing middle,” a weakness typical in the enterprise structure in most developing countries.24 Ways and means will also have to be in place to leverage technological capabilities as well as to share costs and risks, including through the policy-induced promotion of partnerships and alliances in R&D among local firms and/or with external end-users. Such linkages (backward, forward and lateral) have been of rising importance for IP creation, registration and commercialization in many countries from the late 1980s.

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23 The grant is subject to a maximum ceiling of around $0.5 million (Business Times 2003:9). Taiwan Province of China has, for over a decade, run a series of international advertisements to characterize and distinguish its consumer and producer goods as “innovalue” products.

24 Large firms, rather than SMEs, account for about two thirds of domestic manufacturing output and up to four fifths of direct export earnings in most parts of ASEAN. This is due, in part, to the lack of a dynamic core of SMEs as leading, first-rank subcontractors or joint-venture businesses in their own right. At the same time, parallel efforts have also to be made to eliminate a variety of unintended biases against SMEs, and in favour of large firms, in the policy environment in many countries – including through the so-called “perverse incentive syndrome,” and in the sequencing and timing of various policy measures for economic reform and restructuring (Wattanaputtipaisan 2000b:65 and UNCTAD 1998:18-19).
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