

**Challenges and Opportunities in Information and Communications Technologies
(Excerpts from the Report of the ASEAN Secretary-General to the 33rd ASEAN
Ministerial Meeting, July 2000)**

Today, regionalism has to take on a larger meaning and scope than market integration alone. The ASEAN countries must work closely together in other ways in order to strengthen their nations' and the region's competitiveness. In no other area is this more vital than in the endeavor to acquire the technological prowess without which the ASEAN nations cannot hope to move forward economically, much less flourish, in today's globally competitive world.

The advanced countries are, with great intensity, developing and using technology to sharpen their competitiveness at a faster and faster pace. Nowhere is this more dramatically evident than in information and communications technology.

ASEAN countries must similarly embrace technology, its development and use, if it is to remain competitive - not even to catch up with the industrialized world but simply to stay in the running. This is a call not for ASEAN necessarily to undertake basic, pioneering scientific research but to adapt, develop and utilize science and technology to strengthen the region's economies and improve the lives of its people.

Some figures show how much catching-up ASEAN countries, with the exception of Singapore, have to do in this respect. Table 4 compares financial resources devoted to science and technology by the original five ASEAN members with those mobilized by some of ASEAN's neighbors for science and technology purposes.

Table 4. Gross expenditure on R&D (GERD) by selected Asia-Pacific countries

Country	Year	GERD (in millions)	% GERD to GDP	GERD/GDP (%) in previous survey period
ASEAN				
Indonesia	1994	Rp 623,149.7	0.16	Not available
Malaysia	1998	RM 1,127	0.39	0.22 (1997)
Philippines	1992	Peso 2,940.5	0.22	Not available
Singapore	1999	S\$ 2,800	1.94	1.76 (1998)
Thailand	1996	Bt 5,528.13	0.12	0.13 (1995)
Non-ASEAN				
Australia	1996-97	A\$ 8,769	1.65	1.60 (1994/95)
China	1998	RMB 52,600	0.71	0.63 (1997)
New Zealand	1997-98	NZ\$ 1,107.4	1.10	0.98 (1995/96)

Japan	1995	Y 14,408,235	2.98	Not available
ROKorea	1998	Won 449,509,000	2.52	2.69 (1997)
Taiwan	1995	NT\$ 125,031	1.81	Not available

Sources: National data

GDP figures for China are from *Economic Intelligence Unit Country Report*, 4th quarter, 1999.

Data for Japan and Taiwan are from *OECD Main S&T Indicators 1997*(1995 data).

Data for the Philippines and Indonesia are from *S&T Indicators in ASEAN*, ASEAN Secretariat, 1997.

The comparative figures are just as stark in the increasingly vital area of information and communications technology. Table 5 shows data for telecommunications facilities, while Table 6 has figures for Internet hosts and users. Again, Singapore is the ASEAN standout.

Table 5. Telecommunications data for selected Asia-Pacific countries, 1999

Country	Main telephone landlines per 100 inhabitants	Cellular phone subscribers per 100 inhabitants	% of digital cellular mobile services (1998)	Cellular mobile subscribers annual growth rate. % (98-99)
ASEAN				
Brunei Darussalam	24.68	15.60	N. A.	N. A.
Cambodia	0.25	0.81	71.3	45.3
Indonesia	2.91	1.06	88.3	108.4
Lao PDR	0.65	0.12	N. A.	N. A.
Malaysia	20.31	10.11	72.7	N. A.
Myanmar	0.55	0.03	92.4	33.7
Philippines	3.70	2.38	46.6	N. A.
Singapore	57.70	47.50	98.7	39.9
Thailand	8.35	3.25	30.1	N. A.
Viet Nam	2.58	0.24	95.2	N. A.
Non-ASEAN				
Australia	52.12	34.38	86.8	21.7
China*	8.59	3.41	72.3	81.2
Hong Kong	55.77	54.91	100.0	19.1

India	2.20	0.12	100.0	N. A.
Japan	52.17	44.94	99.2	20.2
ROKorea	45.72	50.44	96.0	67.2
New Zealand	49.03	23.01	100.0	11.5

Source: [ITU Web Site](#)

* China excluding Hong Kong

The digital divide is here - between most of ASEAN and others in the Asia-Pacific, within ASEAN itself, and within most ASEAN countries. The e-ASEAN Task Force is taking this reality into account, as it works out recommendations for measures to advance information and communications technology in ASEAN in terms of the legal and policy environment, the encouragement of e-commerce, and the skills necessary to both develop and use the technology.

Science and technology are supremely important in the light of the growing complexity and efficiency of products and services. The more advanced ASEAN members have to rise higher on the value-added ladder if they are not to lose their competitiveness to lower-wage countries. The newer ASEAN members must climb up the same ladder if they are to catch up with the older ones in productivity and living standards. Beyond productivity and competitiveness, science and technology, in most cases, help to improve people's quality of life.

Table 6. Internet data for selected Asia-Pacific countries, 1999

Country	Internet hosts per 10,000 inhabitants	Internet users per 10,000 inhabitants	Estimated PCs per 100 inhabitants
ASEAN			
Brunei Darussalam	43.49	317.46	N. A.
Cambodia	0.14	0.67	0.09
Indonesia	1.01	14.54	0.82
Lao PDR	Negligible	Negligible	N. A.
Malaysia	27.03	367.82	5.98
Myanmar	Negligible	N. A.	N. A.
Philippines	1.66	20.56	1.51
Singapore	459.72	2,945.92	45.84
Thailand	6.60	33.17	2.16
Viet Nam	0.02	1.29	0.64
Non-ASEAN			

Australia	576.63	2,643.94	41.11
China*	0.57	70.25	0.89
Hong Kong	166.89	1,000 (1998)	25.42
India	0.23	5.09	0.27
Japan	208.41	1,323.42	23.72
ROK	60.99	668.32	15.68
New Zealand	707.86	1,575.42	28.88

Source: ITU Web Site

* China excluding Hong Kong

Biotechnology is a new frontier of science, where applications promise untold benefits for humanity in terms of food security, health and the environment - and pose unknown dangers in the same terms. ASEAN has to acquire the scientific capacity, for example, both to exploit the promise of genetically modified organisms and to assess the possible risks in their use.

As the figures in Table 4 imply, no ASEAN member can undertake by itself all the research and development that it needs. Resources - human, financial and technical - are too limited. The obvious recourse is to pool resources in some cases and, in other cases, coordinate activities that are already going on or are being planned in order to avoid duplication and waste and achieve an efficient regional division of labor.

And, of course, e-ASEAN has to be pursued at full speed, with full regard for the need to help the laggard countries to catch up but not necessarily waiting for them.