Knowledge Society and the Knowledge Gap[1]

Hans-Dieter Evers
Dept. of Southeast Asian Studies
University of Bonn, Germany

Abstract

Knowledge has been widely recognised by economists as the most important factor of production in a "new economy". The production and utilisation of knowledge is therefore essential for development. Some countries, Malaysia among others, have embarked on an ambitious plan to use knowledge as a base for economic development, by-passing earlier stages of industrialisation. Some commentators have, in contrast, asserted "that it is doubtful that the knowledge revolution will let developing countries leapfrog to higher levels of development" as "the knowledge economy will actually expand the gap between rich and poor" (Avinash Persaud in Foreign Affairs 80, 2, 2001:108). The paper will discuss this controversy by showing that the development of a knowledge society and an epistemic culture is a precondition for knowledge-based economic growth. Socio-economic indicators will be used to investigate whether or not the existing knowledge gap is widening between Southeast Asia and the OECD countries. Factors explaining the situation will be outlined.

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Knowledge Society and the Knowledge Gap

1. Defining the Knowledge Gap (K-Gap)

Since the World Bank published the 1998/99 World Development Report on Knowledge and Development (World Bank 1999), narrowing the knowledge gap between and within countries has become a prime target of international development agencies as well as of some national governments.

The World Bank report distinguishes two types of knowledge: knowledge about attributes leading to information problems and knowledge about technology (i.e. know-how), including knowledge gaps. "Typically, developing countries have less of this know-how than industrial countries, and the poor have less than the non-poor. We call these unequal distributions across and within countries *knowledge gaps*" (World Bank 1999). The international knowledge gap is thus defined in terms of the knowledge achieved in the OECD countries, in particular the USA. The meaning of knowledge is never clearly defined, but from the discussion on the k-gap we can deduce that education, expenditure for research and development and ICT infrastructure are seen as the crucial variables.

"The debate about the welfare implications of the information revolution for developing countries has given rise to diametrically opposed views. Some believe that information and communication technologies (ICT) can be mechanisms enabling developing countries to 'leapfrog' stages of development. Others see the emerging global information infrastructure as contributing to even wider economic divergence between developing and industrialized countries"[2] (Braga 1998).

In any case, closing the k-gap is regarded as a necessary step towards economic development. Knowledge is the most important factor of production and its growth is essential to propel a country into self-sustained growth. Development agencies have been the most outspoken proponents of the gap-closing strategy. World Bank President James Wolfensohn,

[2] http://www.unesco.org/courier/1998_12/uk/dossier/txt21.htm This is an article by Carlos Braga, The World Bank. It appeared in the December 98 issue of the UNESCO Courier.

commenting on a massive study “Voices of the Poor”, has again emphasized this view with the following words: “Poor people know as well as anybody else that what keeps them poor is lack of competitiveness and lack of knowledge” (in the Far Eastern Economic Review, June 27).

Whenever a point of view is authorized by the World Bank, it advances to the status of an ultimate truth. But exactly at this stage we should sit back, take a closer look and re-think and re-search the issue at hand. Can and should a knowledge gap be closed to achieve development?

2. A Counter-Thesis

For the sake of argument I should like to propose a counter-hypothesis, which runs as follows:
1. The k-gap is widening with the growth of a k-based economy and
2. the existence of a k-gap is a pre-condition for economic growth and development.

First we shall examine some evidence to investigate whether or not the advance of ITC has reduced the k-gap and secondly we shall analyse the k-gap itself.

2.1. The Widening K-Gap

Knowledge gaps occur

1. between nations or groups of nations,
2. between regions, classes or communities within nations.

A k-gap denotes a significant difference between indicators, measuring the properties of knowledge societies. These indicators measure usually averages of IT infrastructure, human resources development, investments in research and development (R&D), and related fields. Indicators just “indicate” much more complex structures and institutions and have therefore to be supplemented by qualitative, analytically descriptive data.

Optimistic commentators argue that the fast expansion of ICT (information and communication technology) has improved the access to knowledge. Especially the spread of personal computers and the internet has connected millions of people to the knowledge

resources of the world-wide-web. In Malaysia e.g. the number of computers has risen from 37,3 per thousand people in 1995 to 103,1 in the year 2000[3] and the number of internet users has risen from 40 thousand to 3,7 million in the same period. As the late Professor Ishak Shari has argued, general development policies implemented under the New Economic Policy have had a major impact on reducing income inequality in Malaysia from the late 1970s. However, since 1990 there is a trend towards rising income inequality, both overall and with inter-ethnic as well as urban-rural income disparities. He suggested that the government policy reversal towards liberalization, deregulation and privatization since the late 1980s has contributed to this trend of increasing inequality" (Ishak 2000).

More and more people gain access to global knowledge resources and a fair proportion is probably making use of them. Comparing countries critical commentators are, however, not convinced that "the knowledge revolution will let developing countries leapfrog to higher levels of development…. In fact, the knowledge gap is likely to widen the disparities between rich and poor, imprisoning many developing countries in relative poverty" (Persaud 2001) . It is equally uncertain that the new knowledge technologies will bolster democracy just on the basis of better access to information and improved knowledge of political issues.

The k-gap is widening, because some regions within countries develop faster than others and some countries are on a faster track towards a knowledge society than the less endowed.

There are several arguments to back up this view:

1. When it became apparent that knowledge is the major factor of production, rich countries, the US in particular, have broadened protection of intellectual property rights, especially patents. Late-comers in the race towards a k-economy are barred from using essential knowledge or have to pay a high price for its use. In fact, "the knowledge-intensive and militarily strong developed nations have been exploiting their power to promote their economic interests beyond free-market outcomes" (Persaud 2001). The so-called "US-led war on terror" has increased this tendency.
2. Big multinational corporations have absorbed local knowledge, especially in the field of medical plants. The resulting products are patented and sold, thus devaluating local

[3] For comparison: in the whole region (East Asia and the Pacific) the ratio was 21,7 people in 2000, putting Malaysia far above the average. Source: Development Data Group, World Bank.

knowledge in developing countries. Big development agencies, among others the German GTZ, are packaging the knowledge gained in development cooperation into products that will then be sold to customers, mainly governments and international development agencies. There are no provisions to share proceeds with local experts or countries in which the experience was gained, that forms the basis of the products.

3. In an article in "Foreign Affairs" Persaud (2001) has argued that forward trading in financial markets have shown that the k-economy will increase the gap between industrialised and developing countries. From 1990 to 1994, when the k-economy had not yet started to arise, emerging stock markets yielded returns of 117 percent on invested capital. During the same period, US investors would have lost about 2 percent on their investment in markets of industrialised countries. In contrast, emerging market stocks fell 27 percent between 1995 and 2000, and those in developed markets rose 43 percent, mainly driven by technology stocks. The emerging markets, particularly the so-called tiger economies, yielded high returns during the early 1990s due to their successful industrialization, whereas the already industrialised countries gained from the increased use of knowledge as a factor of production and collected a "productivity and innovation rent" during the second half of the 1990s, while the k-gap widened. But knowledge also creates ignorance as well as virtual economies based on trust and belief. When trust is withdrawn, virtual k-economies crash, as happened in 2001-02.
4. Statistical indicators show that the knowledge gap has been widening, if we take the measurements for granted. This holds true for comparisons within as well as between countries.

We shall now have a closer look at the k-gap and its creation.

2.2. The Construction of the K-Gap

During the debate on the emergence of knowledge societies, knowledge-based economies and the widening knowledge gap, the "GAP" has become essentialised. In other words, the existence of a gap between those that possess knowledge and those that are less endowed is taken for granted, and is not deconstructed into its components or succumbed to critical evaluation. We shall therefore have a closer look at the concept itself and analyse its meaning.

First of all we have to recognise that k-gaps are not evil by themselves. In fact, k-gaps are a precondition for any development of knowledge, science, research and HRD. It is obvious that adults are supposed to know more than children, a university student should know more than primary school pupils, a physicist can be expected to know more about nuclear fission than a sociologist, and an expert should know more than a laymen. These categories of people are all separated by k-gaps regarding their respective fields of specialisation. Often new knowledge is created out of the cooperation between specialists without closing the k-gap between them. In fact all interdisciplinary research makes sense, if a k-gap exists between the co-operation scientists. Without k-gaps there is no progress in research and development.

But how do we deal with the gap in knowledge between industrialised k-economies and the developing countries? This, after all, is the crucial issue at hand. The concept of a "gap" indicates a hierarchy between haves and have-nots or haves and have-less. If this is the case we have to consider about which type of knowledge we are talking: knowledge about specific branches of science, knowledge about kinship terminology, knowledge about Islamic religious ritual, knowledge about survival under harsh ecological conditions? The value of knowledge is determined by experts, mainly from the industrialised k-economies and by processes in powerful organisations like the big transnational corporations, US state department or the World Bank. They determine what knowledge is essential and what is not. They construct the knowledge gap. The k-gap is a construct in the virtual world of development cooperation (Evers 2000).

The k-gap is deliberately or inadvertently widened by the monopolisation of the application of knowledge through patents and the insistence on securing intellectual property rights by powerful organisations, especially the WTO. The TRIPS Agreement, concluded in 1995, determines rights over IP and grants temporary monopolies for their inventions. Poorer countries and people are excluded from access to vital 'knowledge goods', such as medicines, seeds, and educational materials (Oxfam 2001).

2.3. Value-Added: The Knowledge Market

The market fundamentalism of neo-classical liberal economics decrees that only marketable knowledge with commercial value is useful. The commercialisation of knowledge is not an

inevitable aspect of globalisation, but the result of strategic action (Petrella 2002)[4]. The restructuring of university education and research towards the production of marketable knowledge transfers resources from a basic pursuit of knowledge to the production of applicable knowledge in aid of the accumulation of capital. What kind of knowledge is useful is determined by the managers of large corporations and by helpful bureaucrats. Knowledge gains in value by being sold and bought. Knowledge without market value is reduced to insignificance while other forms of knowledge may be raised to prominence ("Inwertsetzung"). The resulting k-gap is the result of this process of "Inwertsetzung" and degradation of knowledge that does not profit from strong demand.

In short, the k-gap is not a natural, inevitable phenomenon but is constructed by powerful strategic groups in their pursuit of capital gains, profit and wealth.

Whereas the widening k-gap is usually seen as detrimental to development, management experts have constructed another highly valued and esteemed k-gap.

There is a growing gap between stock market value of companies and the book value of their assets. As the "Economist" shows, the gap is biggest for companies that have most rapidly boosted spending on research and development (R&D). "The value of a business increasingly lurks not in physical and financial assets that are on the balance sheet, but in intangibles: brands, patents, franchise, software, research programmes, ideas, expertise" (Economist 1999). Thus in 1999 the pharmaceutical giant Merck had a book value of $ 12,6 billion, a market value of $ 139,9 billion, and a calculated k-capital of $ 48,0 billion. The crash of world stock markets in 2002 and 2003 with a very substantial reduction of the market value of large companies has shown that the k-economy is a constructed virtual world, in which the value of knowledge is determined by market forces.

[4] "Commercialisation signifies that every human expression must have an 'economic value' attributed to it, if it is to have value. Economic value is defined by market price. A market price could not fail to be 'just'. The 'just' market price can be established only on the basis of the recovery by capital of the total price, thus making it possible to obtain the profit that is considered imperative" (Petrella 2002:6).

2.4. Culture and Development: The Knowledge Gap as an Issue of Development

Having said this we hasten to emphasize that there are real and obvious differences between countries and within their populations. Some people own computers, others not, some can read and write, others cannot. Economic deregulation and the spread of a k-economy has, as Ishak has argued for the case of Malaysia, increased income disparities (Ishak 2000).

The crucial questions are: How do we define the k-gap? How deep are the k-gaps? And: when and why are k-gaps detrimental to development?

There appear to be three major issues.

1. The moral issue: People have a right to know, and education is a basic human right. If people are deprived in absolute or relative terms, it is morally wrong. In terms of a specific value set common in democratic nations, a large gap in access to knowledge is not acceptable. Access to primary education and the acquisition of reading and writing skills is regarded as a basic human right and usually enshrined in a country's constitution.
2. The economic or developmental issue: As knowledge is an important factor of production, nations or regions with a low level of knowledge cannot develop or at least face a crucial obstacle to alleviate poverty, reach political stability, democratise their political system and move ahead on the path of civilisation.
3. The cultural issue: A civilisation needs "meta-narratives" as a common ground, an anchorage for basic cultural values, to avoid being torn apart by dissent, fundamentalisms of various kinds and alienation. These meta-narratives and the basic cultural values have ideally to be "known" and accepted by all members of a society. Furthermore an epistemic culture is a precondition for the production of new knowledge (Evers 2000).

3. The K-Gap in Southeast Asia

3.1. Constructing a K-Gap for Asian and European Countries

Several of the ASEAN countries have been singled out for their success in promoting economic development through stringent development policies, including support for the growth of a knowledge-based economy. Our data show, however, that the k-gap has deepened, both within ASEAN and between single ASEAN countries and the EU, the US, and Japan.

The gap is measured by indicators, selected by development professionals and large organisations. By constructing these indicators, they also define the k-gap. The Malaysian Economic Planning Unit of the Prime Minister's Department has followed this trend. In the Third Outline Perspective Plan 2001 the knowledge gap between Malaysia and the USA is measured by these indicators and a strategy to close the gap described. Of course it does not make much sense to compare one of the largest countries with the much smaller Malaysia without taking the specific Malaysian requirements for a k-society into account. We have therefore opted to compare Malaysia (and Indonesia) with countries of similar population and geographical size (Evers 2001). We should, however, never forget that the gap is constructed by interested parties and depicts a virtual world of development.

3.2. Knowledge Society Indicators

There are many indicators that may be used to describe a knowledge society. We shall look at a few of them and then try to locate Malaysia's and Indonesia's position in comparison to selected industrialised and knowledge-based economies. The Malaysian Economic Planning Unit has calculated a Knowledge Development Index to monitor Malaysia's position in relation to other countries. The ranking list is topped by the USA and Japan. Looking at the five countries under consideration in this paper, Malaysia and Indonesia take the 17th and the 21st place out of 22 countries in the year 2000.

Table 1
Knowledge Development Index, 2000
Indonesia, Malaysia, South Korea, Germany, Netherlands Compared

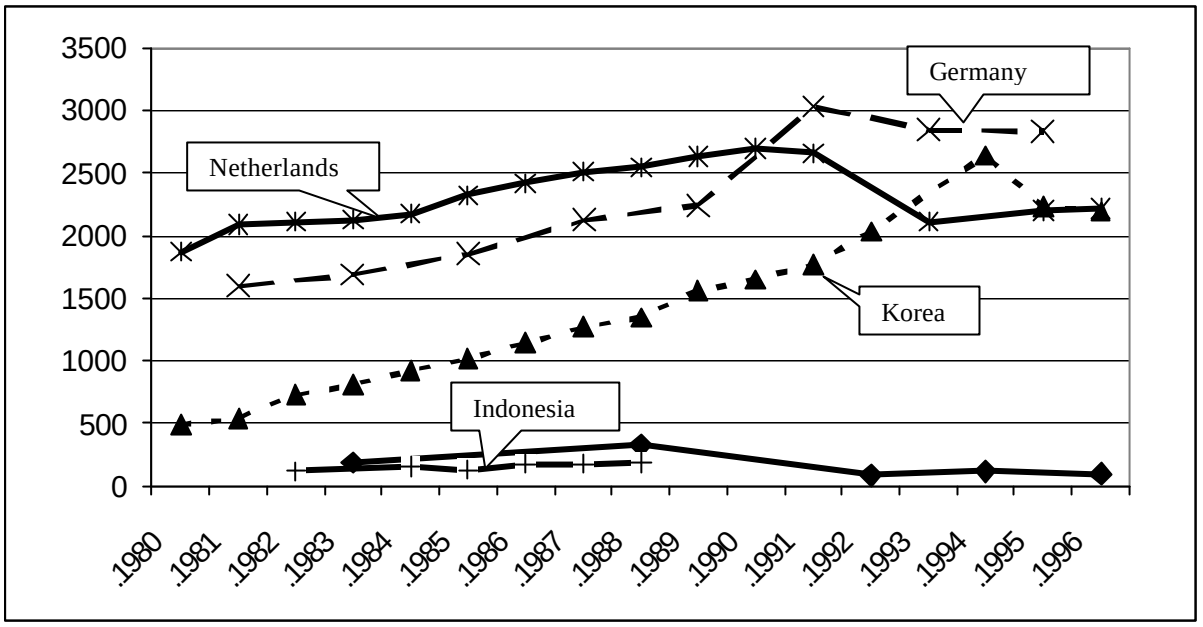
Country	Knowledge Index Score	Knowledge Index	Computer Infra-structure	Info-structure	Education and Training	R&D and Tech-nology
Indonesia	1,518	21	21	20	21	21
Malaysia	2,645	17	17	17	17	16
South Korea	4,053	15	16	11	16	13
Germany	4,615	12	12	13	12	7
Netherlands	4,777	10	10	9	13	8

Source: Third Outline Perspective Plan, Malaysia 2001, Chapter 5, pp.131-130. For a calculation of the index see p.129 of the plan

As our disaggregated data in table 2 shows, Malaysia is doing well on some indicators, like mobile phones per 1,000 people[5]. There are (or were around 1998) more mobile phones per inhabitant in Malaysia than in Germany[6]. On two other indicators, namely R&D researchers per million inhabitants or patents filed, Malaysia still trails far behind Korea, Germany, the Netherlands and other OECD countries. The more important question would be, however, whether Malaysia is catching up. Looking at time series data, this does not seem to be the case at present. The gap, in fact, is widening.

[5] See also Ng and Jin 2000 on the importance of teleworking in Malaysia.
[6] In March 2001 there were 254 mobile phone subscribers/1000 population in Malaysia (Malaysian Communications and Multimedia Commission),

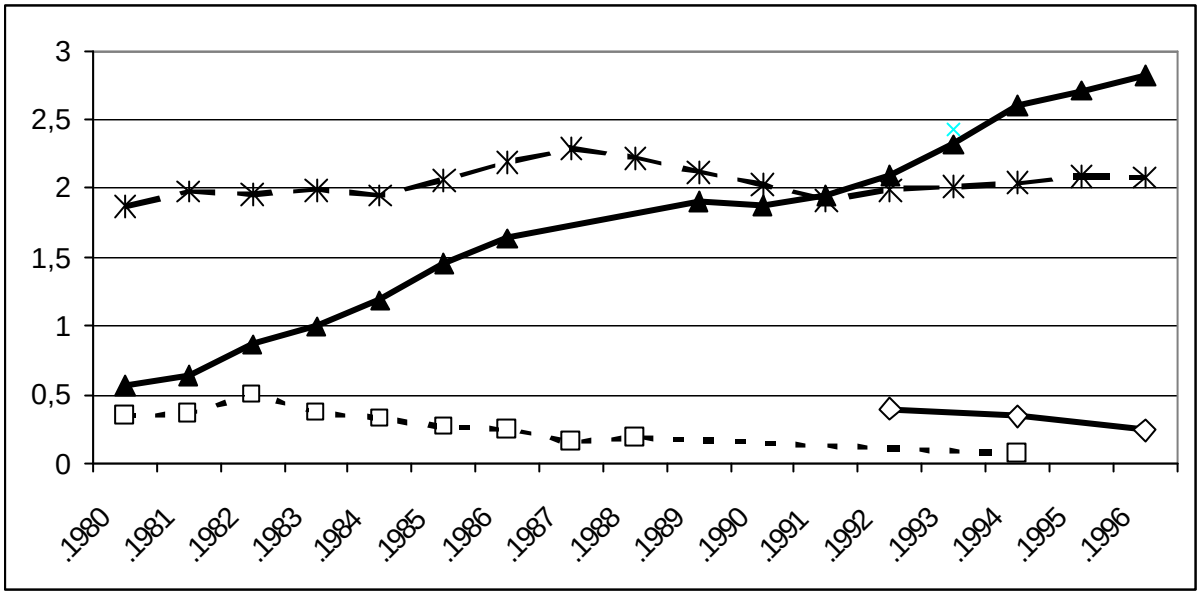
Diagram 1
Researchers per Million Inhabitants, 1980-1996:
Malaysia, Indonesia, Korea, Germany, Netherlands



Source: UNESCO 2001

The picture does not change, when we use other indicators, like the expenditures for R&D. Korea is still increasing its investment in applied knowledge production, the Netherlands remain stable, Germany has settled on an even keel at a high level, but Malaysia is on a downward trend during the 1990s, long before the Asian financial crisis broke. For Indonesia we have not been able to obtain later data, but it is very unlikely that the number of research personnel has increased in recent years.

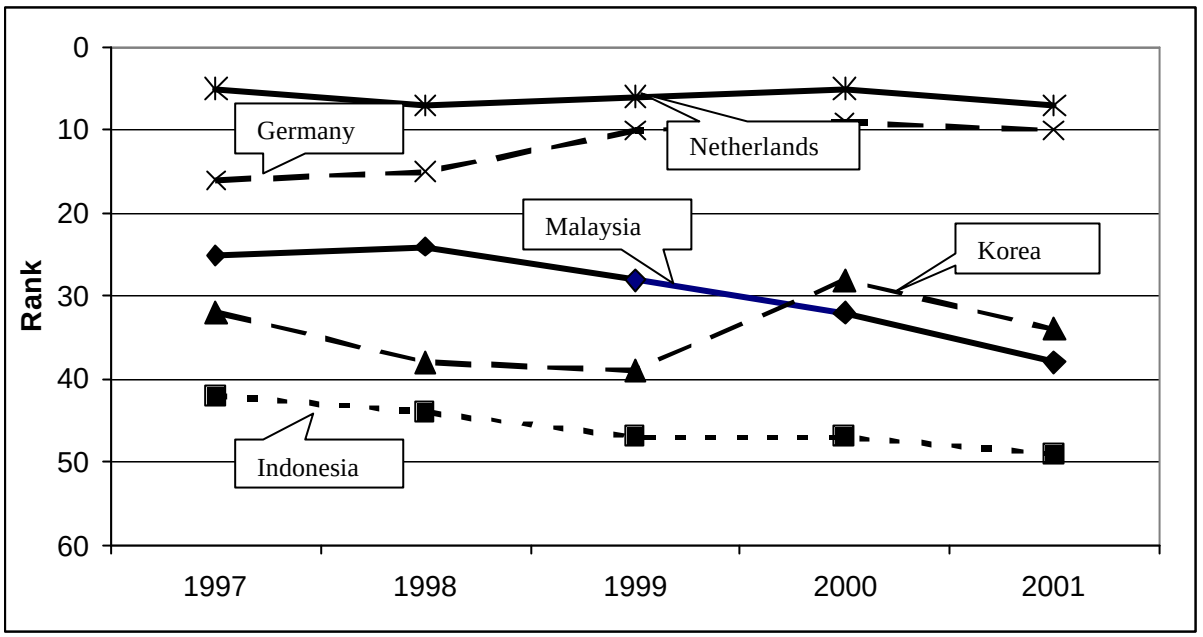
Diagram 2
Expenditure on R&D as Percentage of GDP, 1990-1997



Source: UNESCO 2001

The declining rate of relative R&D expenditure and the number of researchers have, among other factors, reduced Malaysia's competitiveness in relation to other countries. If we follow the rather complex (and admittedly somewhat biased) World Competitive Indicator, Malaysia is sliding back from a knowledge economy, rather than catching up. Malaysia has, despite its efforts to develop ICT especially in the Multi Media Super Corridor, receded from place 25 (in 1997) on a relative competitiveness scale of infrastructure development to place 38 (out of 49 countries in 2001). It has thus lost its competitive advantage over Korea and the gap to the two European countries in our chart (Netherlands and Germany) has in fact increased. The same holds true for Indonesia, that now occupies the last place on the World Competitiveness Index.

Diagram 3
World Competitiveness Index – Infrastructure (including ICT), 1997-2001



Source: http://www.imd.ch/documents/wcy

	5.1-10
	2.5-5.0
	1.5-2.5
	1.0-1.5

Map 1
K-Gap Measured by % Internet Users, Peninsular Malaysia 1999

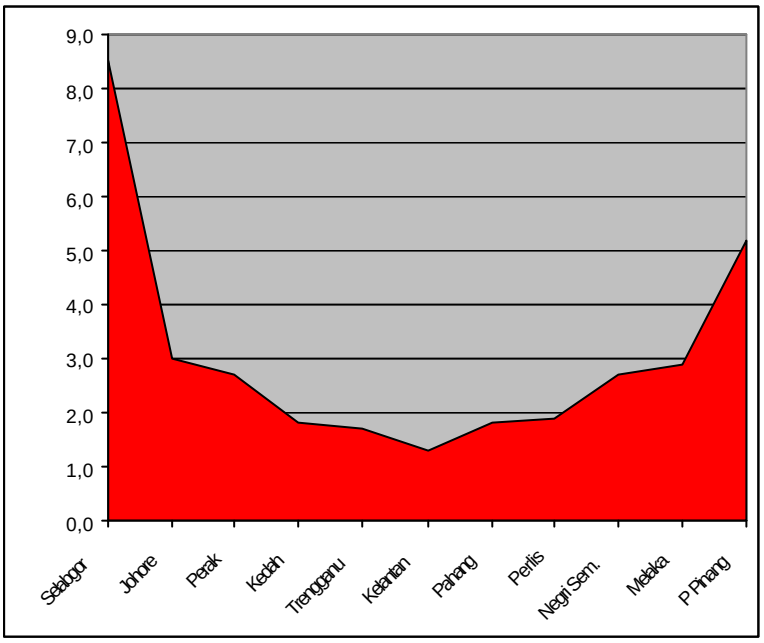
If other aspects, like business and government effectiveness are factored in, the situation looks somewhat brighter for Malaysia. Apparently the slow development of the technology infrastructure, i.e. the knowledge base of the Malaysian economy, accounts for the fact that Malaysia has fallen back in the competitive race towards a knowledge society.

What may be the reasons for this pace of knowledge development in Malaysia? Government policy has been very supportive. The building of the MSC, the founding of new research institutes and universities and various programmes assisting innovation in industries have been important steps towards building a

knowledge economy. Malaysia has a large highly skilled workforce and a good system of public and private higher education. The k-gap is constructed in such a way that local k-factors are undervalued and global ones overvalued. There are global factors encountered on the path towards closing the knowledge-gap that have to be taken into account.

Diagram 4

The K-Gap among States, Malaysia 2000 (per cent of internet subscribers)



The k-gap exists within countries as well. The access to telephone lines is seen as an essential precondition for the development of a k-economy, as data and news transmission and the use of computers depend mostly on telephone technology. In Peninsular Malaysia there is still a wide gap between rural and urban areas and between the West-coast and East-coast states. A similar gap is shown, if we measure the number of internet subscribers (see map1 and diagram 1).

4. Conclusion

Knowledge has been widely recognised by economist as the most important factor of production in a “new economy”. The production and utilisation of knowledge is therefore essential for development. Some countries, Malaysia among others, have embarked on an ambitious plan to use knowledge as a base for economic development, by-passing earlier stages of industrialisation. Some commentators have, in contrast, asserted “that it is doubtful that the knowledge revolution will let developing countries leapfrog to higher levels of development” as “the knowledge economy will actually expand the gap between rich and poor” (Persaud 2001).

We have argued that the k-gap is not a natural phenomenon, but is constructed by experts and organisations. It can be discussed in connection with development ethics and human rights issues: the right to education and information should be safeguarded. Otherwise it was shown that knowledge gaps are a precondition to development and innovation. Standardization of knowledge or total commercialisation of knowledge under the guise of "relevance" is counterproductive to development. Drawing on various sources and data-sets it could be shown that the k-gap is widening even in those countries (like Malaysia), whose governments have embarked on a vigorous programme of supporting a knowledge-based economy. Devaluation of local knowledge by globally operating experts as well as marketing strategies of large corporations are as much responsible for the widening k-gap as other factors of global development and governance.

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