

**DEVELOPMENT OF ENABLING POLICIES FOR
TRADE AND INVESTMENT IN THE IT SECTOR OF THE
GREATER MEKONG SUBREGION***

CHAPTER 1: INTRODUCTION

* This study has been prepared by K J Joseph, Professor, Centre for Development Studies Trivandrum, and Visiting Senior Fellow, Research and Information System for Developing Countries (RIS), New Delhi, India. As provided for the Terms and Conditions of Use of United Nations Web Sites, the opinions expressed in the paper are those of the authors and do not necessarily reflect those of the United Nations or its Member States.

This study has been issued without formal editing.

The mention of firm names and commercial products does not imply the endorsement of the United Nations.

Chapter 1

Introduction

Today the world is in the midst of a new technological revolution driven by the Information communication technology (ICT). The new technology is so ubiquitous and the accompanying innovations qualify it as a general-purpose technology and hence there is hardly any field of human activity wherein ICT could not have its profound influence. In general, it has been argued that ICTs; are key input for economic development and growth; offers opportunity for global integration while retaining the identity of traditional societies; can increase economic and social well being of poor people and enhance the effectiveness, efficiency and transparency of the public sector, including the delivery of social services. (World Bank, 2002). No wonder, the potential of the new technology for increasing productivity, competitiveness and growth on the one hand, and creating new employment opportunities, enhancing the quality of life and over all human welfare on the other, has by now been recognized by policy makers all over the world.

Unfortunately, however, if the available empirical evidence is any indication, ICT induced growth and human welfare is confined mostly to the developed world (Pohjola 2001a). The point may be further elaborated; although the average OECD country has roughly 11 times the per capita income of a South Asian country, it has 40 times as many computers, 146 times as many mobile phones and 1036 times as many internet hosts. Hence, given the fact that the developing countries have invested much less in information technology, there is a concern that the access to ICT is becoming yet another factor contributing to the mounting polarization between rich and poor countries. The multilateral organizations like OECD and UNDP also share the same view. OECD (2000) states that the affluent states in the cutting edge of technological change have reinforced their lead in the new knowledge economy but so far the benefits have not yet trickled down to the Southern, Central and Eastern Europe, let alone to the poorest areas in the Sub-Saharan Africa, Latin America and South Asia. In the similar vain, UNDP (1999) warns that the productivity gains from information technologies may widen the gulf between most affluent nations and those that lack skills, resources and infrastructure to

invest in the information technology. At the same time, it has been argued that unlike the earlier technologies, the ICTs have certain unique characteristics that provide the opportunity for the developing world to harness the power of this new technology and leapfrog (Joseph 2002). Thus the challenges of attracting new investment in the ICT infrastructure and the promotion of the use and production of ICT in ways appropriate to developing country contexts notwithstanding, there are real opportunities for promoting ICT production and use by involving public and private sector organizations, NGOs and other stakeholders (Mansell 1999). Against this background the present study intends to develop the broad contours of enabling policies that accelerate trade and investment with a view to promote the production and use of ICT in the GMS economies.

The Greater Mekong Sub-region comprises of following five countries; Thailand, Vietnam, Lao PDR, Cambodia, Myanmar and the Yunnan province of China. The mid eighties witnessed major policy reforms in these economies, which implied a move away from central planning to greater focus on market forces and external orientation¹. Yet these countries vary significantly in terms of overall development and integration with world economy. While Thailand has a long history on integrating itself with the world economy and Yunann Province being a part of Peoples Republic of China has a more liberal trade and investment regime than ever before, other countries are still in the process of transition to a liberalized trade and investment regime. The decision taken by the Fourth ASEAN Summit in 1992 to establish the ASEAN Free Trade Area (AFTA) by the year 2008 has had the effect of increased regional economic integration of Cambodia, Lao PDR, Myanmar and Viet Nam (CLMV) with other countries in ASEAN. The AFTA treaty was signed in Singapore by the original six founding members: Indonesia, Malaysia, Philippines, Singapore, Thailand and Brunei. In mid 1995, Vietnam gained admission as the seventh member of ASEAN: Lao PDR and Myanmar followed suit in 1997 and Cambodia joined in 1999.

It may be noted that GMS countries have shown great interest in promoting the production and use of ICT, but with varying levels of success. For example, Thailand has been head and shoulders above other GMS countries in terms of ICT production and use

¹ Here it may be noted that Thailand is an exception, which has a longer history of market-oriented policies.

yet lags much behind the OECD countries. Vietnam shows high level of dynamism and catching up, whereas Cambodia, Lao PDR and Myanmar are countries with very low levels of overall economic development as well as IT production base and use. Hence the major challenge faced by these countries to find ways and means to increase the ICT use and production base. The central message of the present study is that linkages between trade and investment are much stronger in case of ICT and there is also an equally strong link between ICT production and use. Therefore trade and investment policies play a central role not only in developing an ICT base but also in promoting its use. Such policies are to be devised by taking into account the country specificities and no single package of policies can be applicable to all countries concerned.

Rationale of the Study

The current unequal access to IT notwithstanding, it has been argued that in the current era of globalization, the ability to harness this technology improves the capability of developing country-firms to withstand competition from multinational corporations or to build partnership with them. At the same time, IT poses a potential threat. If countries are unable to harness this new source of wealth, they will fall even more behind the developed countries (Pohjola 2001b) resulting in an additional digital threat to development (Parayil 2004). Moreover, developing countries are expected to gain substantially through ICT spillovers (Mohnen 2001). Drawing from the new growth theories, it may be argued that ICT could be instrumental in breaking the vicious circle of idea gap and object gap (Romer 1993) that lies at the root of persisting poverty and underdevelopment. No wonder, the developing countries have shown great interest and high hopes are pegged on to information technology as a short cut to prosperity (UNDP 1999, World Bank 1999).

With the entry of CLMV countries, ASEAN today comprises of a heterogeneous group of countries with high level of economic and digital divide among the countries (Joseph and Parayil 2004). While the old members of ASEAN have been highly successful in achieving higher growth performance facilitated, *inter alia* by greater integration with the rest of the world, the new members of ASEAN, namely Cambodia, Laos, Myanmar and

Vietnam (CLMV countries), with the possible exception of Vietnam, exhibit the characteristics of least developed economies. Not only their per capita incomes are at a much lower level as compared to ASEAN-6 but also their performance in the social sector may require improvement. The Vision 2020 of ASEAN and the subsequently adopted Hanoi Plan of Action envisions a concert of Southeast Asian nations, outward-looking, living in peace, stability and prosperity, bonded together in partnership in dynamic development and in community of caring societies. Given the lower levels of development of CLMV countries, ASEAN vision for 2020 underlines the need for bridging the development gap between the old and new members. In this process leaders of ASEAN countries have underlined the key role of information technology. Initiative for ASEAN Integration (IAI) - ASEAN program for narrowing the development gap between the older and the newer members, focuses on Information Technology – as manifested in the e-ASEAN Framework Agreement adopted by the ASEAN leaders in November 2000.

The last decade witnessed various institutional interventions and policy initiatives by the GMS economies to develop an ICT base as well as to harness the new technology to bring about socio-economic transformation. While there is a strong link between trade and investment on the one hand and production and use of ICT on the other, a perusal of the IT policy in initiatives in most of these countries tends to suggest that trade and investment are yet to receive the attention that they deserve. Incidentally, countries like Thailand and Vietnam, which had some success in integrating trade and investment into the IT policy, have been able to record relatively better performance. Hence the rationale of the present study is to highlight the role that trade and investment could play in developing an ICT base and promoting ICT use in different sectors of the economy.

ICT and Development

Analytically, the contribution of ICT towards development could be viewed at two, different but interrelated, levels; (a) on account of the growth of ICT sector and (b) on account of ICT diffusion/use. The former refers to the contribution in output, employment, export earning etc on account of the production of ICT related goods and

services. The effects from ICT production are often more visible than those from use (Kramer and Dedrick 2001). The latter refers to ICT induced development through enhanced productivity, competitiveness, growth and human welfare on account of the use of this technology by the different sectors of the economy and society. Studies on technology diffusion have shown that greater domestic availability of technology acts as a catalyst in the process of diffusion (Stoneman 1995). As Ernst (2001) rightly remarked, enhancing the diffusion of ICT however does not imply a neglect of ICT production. Both hang together and need each other. The relevance of the present study, which seeks to evolve enabling policies for enhanced trade and investment for promoting both production and use of ICT in the GMS countries, has to be seen in this context.

Returns to IT Use

While there were apprehensions about the return to productivity enhancement on account of ICT use, the evidence from the recent cross-country studies shows that the returns to investments in information technology in terms of productivity and growth are substantial (Pohjola 2001a, Kramer and Derick 2001). Pohjola finds the output elasticity of IT capital as high as 0.31 for the full sample of 39 countries and 0.23 in the OECD sub sample. Another cross-country study by IMF (2001) also has similar conclusions to offer. Country specific studies like the one for Singapore (Wong 2001) finds that the net return to IT capital (37.9 per cent) is about two and a half times higher than that for non-IT capital (14.6 per cent). These studies also show that that IT induced productivity and growth still remains a phenomenon of developed OECD countries and that the developing countries are yet to catch up. However, it has been argued that less developed countries can benefit from increased access to information as much as the rich countries. The less developed countries have a number of information needs that can be met using ICT as was revealed by a study on the use of ICT in four villages in northern Thailand (as quoted in World Bank, 2002, NECTEC 2002). The experience of *Gyan Doot* programme in Madhya Pradesh, India, Internet Kiosks set up by MSS foundation in Tamil Nadu and *Bhoomi* Project implemented in Karnataka and various other rural IT projects implemented in India stand as a testimony to the positive benefits that ICT could impart to poor countries (Singh 2002, India, Planning Commission 2001).

Pillars of Information Technology

Production and use of ICT, however, stands on the pillars of information infrastructure, human capital, and an innovative system. These however, do not fall like manna from heaven. Hence, the central pillar is an appropriate policy regime which *interalia* include those relating to trade and investment that not only promotes the production and use but also facilitates the creation of needed human capital base, information infrastructure and innovation system. Let us now briefly deal with each of them.

Information Infrastructure

The information infrastructure consists of telecommunication networks, strategic information systems and policy framework affecting their deployment. The development of strong information infrastructure calls for mobilization of different stakeholders involved in its deployment and use like the government, business, individual users telecommunication and information service providers etc. To build up a national information infrastructure, there is the need for devising an infrastructure strategy, which includes an assessment of the existing information communication system in the economy, identification of the constraints, opportunities and finding ways and means to overcome the constraints and above all the facilitation of needed investment into the sector.

Human capital base

Unlike most other technologies, ICT is more skill intensive and therefore the presence of skilled manpower is a prerequisite for the promotion of its production and use. As has been argued by Quah (2001) training and education is important not only to provide skills for work and production but also for providing a sufficiently strong demand base. Quah warns that unless a demand side can be cultivated that appreciates and exploits sophisticated and advancing technology economic growth can slow or, ultimately, fail to continue. Basic education increases people's capacity to learn and use information. But this can only be a beginning. Basic education has to be supplemented with technical secondary level education as well as higher education in engineering and scientific areas

so that emerging technological changes are monitored and an assessment and selection is made with respect to the needs of the economy. But given the fact that less developed countries face severe constraints in their ability to develop needed human capital base, the role of appropriate investment policies that attract investment for human capital formation cannot be over emphasized.

National Innovation System

In its ultimate analysis, an economy's ability to harness a new technology for development in a sustained manner depends to a great extent on the national system of innovation. NSI is an interactive system of existing institutions, private (both local and foreign) and public, universities and government agencies aiming at the generation and diffusion of technology (Freeman 1987, Nelson 1993, Lundvall 1992). The interaction among them may be technical, commercial, legal social and financial as much as the goal of interaction may be development, protection, financing or regulation of new S&T (Neosi et al 1993). But the literature on innovation in developing countries shows that in order to facilitate technological capability building, the national system of innovation should facilitate not only interaction among different actors but also the transfer of technology, both embodied and dis-embodied from abroad. In addition, it should facilitate the adaptation of imported technology to local conditions through adaptive and innovative R&D. Hence the need for a trade policy regime that facilitates free inflow of technology into the country.

Trade and Investment Policies

As already stated, promoting the use and production of IT and also the creation of the information infrastructure, human capital and an innovation system calls for targeted policies which *interalia* include those relating to trade and investment - the focus of the present study. Analytically, it could be argued that the trade policy reforms play a dual role; it is instrumental in promoting both use and production of IT by operating from both demand and supply sides. From the demand side, as Kraemer and Dedrick (2001) argued one of the best ways to promote IT use is to not create barriers to use. Needless to say, any government policy that makes IT goods more expensive will discourage its use and

reduce the possible benefits from ICT. Thus trade policy reforms in the form of lowering taxes and tariffs and dismantling non-tariff barriers could have the effect of promoting demand and use through reduced prices and increased access. Trade policy reforms also have the effect of easing the domestic supply constraints and creating a more competitive environment. This leads to lower prices and better quality service and products, thus promoting the use of IT. Another way in which trade policy reforms influence supply of IT goods arises basically on account of the very nature of the process involved in the production of IT goods as dealt in detail in the next chapter. The production process in IT industry essentially involves the assembling of large number of components. Since no country can afford to be fully self reliant in the production of all these components, there is the need for appropriate trade policy reforms, which make easy availability of needed components at a lower cost. To promote IT production base, there is also the need to supplement the trade policies with appropriate investment policies that encourage a) inflow of Foreign Direct Investment both in the form of joint ventures and subsidiaries, b) promoting private sector including the small and marginal enterprises (SMEs) by creating an appropriate climate and providing financial and other support. Much could be learned from India, wherein technology parks have been set up to provide the firms with the state-of-art infrastructure coupled with built-up space and special incentives in the form of lower taxes and tariff (Joseph 2002).

Current IT scene in GMS

According to a recent need assessment study undertaken by the UNESCAP (2002) there is significant variation among the GMS countries with respect to IT investment and IT penetration. These countries also vary significantly in terms of IT infrastructure, availability of skilled manpower and the innovation system. Thailand is a substantive producer in some of the IT sub-sectors, with a world market share of about one per cent and its IT infrastructure has reached an intermediate level, albeit substantially lower than in neighboring Malaysia and Asia's NIE countries. In Vietnam, the size IT sector and the level of IT infrastructure are lower, but fast growing. In Cambodia, Myanmar and Lao PDR, the IT sector is almost negligible and IT infrastructure is very low. Myanmar is reported to be having the lowest Internet penetration rate in the whole of Asia. Though

China has a significant and growing IT sector with an intermediate IT infrastructure, the Yunnan province appears to be lagging behind. The differential performance of these countries/regions with respect to IT production and use, needless to say, has to be seen in the context of varying IT infrastructure, human capital availability and the existing policy environment that govern the investment and trade in IT.

Outline of the Study

As already stated, the present study intends to deal with five countries and one sub region of China – Yunnan Province - which lags much behind the rest of China with respect to IT production, IT infrastructure and IT use. While one could think in terms of explicit policies that promote trade and investment in IT for the five countries under consideration, when it comes to Yunnan province the issue becomes different, as all the provinces in a country need not develop ICT production base. Hence in case of Yunnan we begin with an analysis of the structure and growth of industrial sector in the province and make a case for diversifying the industrial production base where is ICT is shown to be an ideal candidate. As already noted, the five countries under study also vary significantly in terms their IT production capability and IT diffusion. For example, in the case of Thailand which has been successful in attracting substantial investment into the IT sector and developing an ICT production base, the core issue may be how new policies could promote trade and investment to help industrial upgrading and promoting greater linkages. In the case of others like Myanmar and Cambodia, Lao PDR and Vietnam (CLMV) on the other hand, the basic issue may be one of devising imaginative policies to promote trade and investment in IT with a view to create some production base or strengthening the production as the case may be and enhancing the use of IT.

The study is presented in nine chapters including this introduction; the second chapter presents the broad analytical background for the study and the last chapter presents the concluding observations. The chapters from three to eight present the country case studies. As is evident from the discussion above, there are obvious limits to adopting the same approach for all the economies. In general, each of the country chapter begins with a critical analysis of the present IT policy in the respective country followed by an

examination of the present state of IT use and production. Here the study also examines state of human capital availability in the country. This is followed by a critical analysis of trade and investment performance against the backdrop present policies towards trade and investment. The study also explores the areas where ICT could be instrumental in increasing export competitiveness. In case of CLMV countries, the study also explores the implications of advancing the implementation of e-ASEAN agreement. In case of Thailand, we highlight certain challenges being faced by the IT sector In case of Yunann the study begins with an analysis of the structure and growth of industrial sector in the regional economy and makes the case for a regional IT policy that encourages investment in the IT sector to promote the production and use of IT. Against this background an analysis of the present trade and investment policies is undertaken with focus on the IT sector. Certain areas are located where IT could be instrumental in attaining enhanced export performance. Each chapter ends with certain concluding observations and reflections on plausible policy options.

References

- Earnst, D., (2001) "From Digital Divides to Industrial Upgrading: Information and Communication Technology and Asian Economic Development", Working Paper No. 36, East-West center, Honolulu.
- Freeman, C., (1987) *Technology Policy and Economic Performance: Lessons from Japan*, Pinter, London.
- Hargittai, E., (1999) "Weaving the Western Web: Explaining Differences in Internet connectivity Among OECD Countries" *Telecommunications Policy*, Vol. 23, No.10-11 pp 701-18.
- IMF, (2001) *World Economic Outlook: The Information Technology Revolution*, Washington DC, October.
- Joseph, K. J., (1997) *Industry Under Economic Liberalization The Case of Indian Electronics*, Sage Publications, New Delhi, Thousand Oaks, London
- Joseph, K. J., (2002), "Growth of ICT and ICT for Development: realities of the Myths of the Indian Experience", Discussion paper No. 2002/78, Helsinki: UNU/ WIDER
- Joseph, K. J., and Abraham, V., (2002) "Moving Up or Lagging Behind in Technology? An Analysis of India's Information Communication Technology Sector", Paper presented in the International Seminar on ICTs and Indian Development, organized by ISS, The Hague and IHD, Bangalore, December 9-11.
- Joseph, K. J. and Parayil, G., (2004) "India-ASEAN Cooperation in Information Communication Technologies: Issues and Prospects", Paper presented in the First

- ASEAN-India forum, ASEAN-India Economic Relations: The Road Ahead. 9-10 February Singapore Organized by the Institute of South East Asian Studies, Singapore.
- Kramer, K. L. and Dedrick, J., (2001) "Information Technology and Economic Development: Results and Policy Implications of Cross-Country Studies", in Pohjola M. (ed) *Information Technology, Productivity and Economic Growth*, Oxford University Press.
- Kumar, N., (2001) "National Innovation System and Indian Software Industry Development", Background paper for World Industrial Development Report, UNIDO.
- Lundvall, B. A., (1992) *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning*, Pinter, London and New York.
- Mansell, R., (1999) "Global Access to Information Communication Technologies", International Development Center, Johannesburg and Canada
- Millar, J. and Mansell, R., (1999) "Software Applications and Poverty Reduction: A Review of Experience, INK@SPRU, University of Sussex.
- Mohnen, P., (2001) "International R&D Spillovers and Economic Growth", in Pohjola M. (ed) *Information Technology, Productivity and Economic Growth*, Oxford University Press.
- Nelson, R. R., (ed) (1993) *National Systems of Innovation: A Comparative Study*, Oxford University Press, Oxford.
- NECTEC, (2002) ICT for Poverty Reduction: Examples of Programs/Projects in Thailand, National Electronics and Computer Technology Center, Bangkok.
- Neosi, J. et al. (1993) "National Systems of Innovation: in Search of a Workable Concept", *Technology in Society*, Vol 15, 207-227.
- OECD, (2000) *Information Technology Outlook*, Paris, OECD.
- Parayil, G. (2004) Digital Divide and Increasing Returns: Contradictions of Informational Capitalism, National University of Singapore. Mimeo.
- Government of India, (2001) *India Knowledge Super Power: Strategy for Transformation*, Planning Commission, New Delhi.
- Pohjola, M., (2001a) "Information Technology and Economic Growth: Introduction and Conclusions" in in Pohjola, M (ed) *Information Technology, Productivity and Economic Growth*, Oxford University Press
- Pohjola, M., (2001b) "Information Technology and Economic Growth: A Cross country Analysis" in Pohjola, M (ed) *Information Technology, Productivity and Economic Growth*, Oxford University Press.
- Quah, D., (2001) "The Weightless Economy in Economic Development", in Pohjola, M (ed) *Information Technology, Productivity and Economic Growth*, Oxford University Press.
- Romer, P. M., (1993) "Ideas gaps and Objects gaps in Economic Development", *Journal of Monetary Economics*, Vol 32, pp 543-73.
- Singh, Nirvikar, (2002) Crossing a Chasm: Technologies, Institutions and Policies for developing a Regional IT Industry, ", Paper presented in the International Seminar on ICTs and Indian Development, organized by ISS, The Hague and IHD, Bangalore, December 9-11 .

- Stoneman, P., (1995) *The Economics of Technological Diffusion*, Blackwell.
- UNDP, (1999) *Human Development Report 1999*, UNDP/Oxford University Press New York.
- UNESCAP, (2002) *Information Technology Needs Assessment and Readiness in the Greater Mekong Sub-region*, UNESCAP, Thailand.
- UNESCAP, (2001) *Greater Mekong Sub-region Business Handbook*, UNESCAP, Bangkok.
- Wong, P. K., (2001) “The Contribution of Information Technology to the Rapid Economic Growth of Singapore” in Pohjola, M (ed) *Information Technology, Productivity and Economic Growth*, Oxford University Press.
- World Bank, (1999) *Knowledge for Development*, World Development Report 1998/99, Oxford University Press.
- World Bank, (2000) *Korea and the Knowledge based Economy: Making a Transition*, World Bank and OECD.
- World Bank, (2002) *Information Communication Technology: A World Bank Group Strategy*, The World Bank Washington DC.