

# eCommerce Infrastructure in Thailand and Its Neighboring Countries

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## **Abstract**

*This paper presents the state of eCommerce infrastructure in the Greater Mekong Subregion (GMS). The state of eCommerce is comprised of factors not only technological, but also economic, social, commercial, legal, and regulatory. The deficiencies in the eCommerce infrastructures are being addressed gradually as the countries in the region pursue information technology (IT) development goals aimed at creating knowledge-based economies. Business-to-business eCommerce could take root in some of the countries in the region that have a relatively better eCommerce infrastructure.*

Keywords: Greater Mekong Sub-region (GMS), eCommerce, infrastructure

## **Introduction**

eCommerce reduces transaction costs and offers cost-savings to businesses and consumers. It reduces entry barriers and increases competition thereby improving market efficiency. It increases the productivity of businesses by improving the production process and the way the businesses are managed. For developing and least developed countries, eCommerce offers an important vehicle for local businesses to

access international markets for their exports, with little marketing or market development cost [1].

Despite the fact that eCommerce offers these important benefits, businesses in the developing and least developed countries, such as those in the GMS, are still far from adopting eCommerce. Their full participation in eCommerce and the realization of its benefits depend upon the readiness of the country in terms of a number of key infrastructures. The infrastructures encompass factors ranging from technological, policy and regulatory to human resources. Collectively, these factors are referred to here as 'eCommerce infrastructure'.

This paper aims to assess the present state of eCommerce infrastructure in the GMS countries. It also aims to project the future state of eCommerce infrastructure in the countries.

## **Background on eCommerce in the GMS**

eCommerce in Thailand is projected to be 1.35 billion US\$ in 2003 and 2.3 billion US\$ in 2004 [2]. Initially, e-businesses in Thailand were dominated by aggressive and small start-ups. Large businesses have started to enter the market as they realize the cost-savings from eCommerce. The business-to-business segment dominates the

eCommerce market in the country [3]. According to a survey of commerce-oriented websites (“co.th” domain), a majority of the websites were from computer, tourism, hotel, food, health, construction and entertainment industries [4]. Only 8 percent of these websites had fully implemented eCommerce transactions. The government is also beginning to participate in eCommerce by using the Internet as a medium for offering some of its services to the public [5] and for procurement in some of the ministries and departments [6].

In Vietnam, around 600 of the 40,000 small and medium-sized enterprises had their own websites by the end of 2000 [3]. The websites were mainly for advertising and information providing, though some book and magazine sellers allowed online order placement. Online shopping malls and online education and training are at early stages [7]. Online payment is being experimented with by a few banks. Given a limited user-base due to high cost of Internet access, it is anticipated that the development of eCommerce in Vietnam will center on the business-to-business rather than the business-to-consumer segment [3]. The government is initiating a number of projects for using the Internet to offer its services, such as issuing of investment licenses [8].

A survey of eCommerce oriented websites (“com.mm”) from Myanmar shows that most of the websites from Myanmar are in the business-to-consumer segment. The websites mostly sell gems and jewelry, handicrafts, and travel and tour packages. A few online shopping malls are also available. A limited number of websites, in the business-to-business segment, also take orders for local agricultural, forest, and some industrial products. Online payment through credit cards is rare.

A similar survey of websites from Cambodia and Laos (“com.kh” and “com.laopdr”) shows that Internet presence is gaining popularity among the businesses

in the countries. However, the websites are mostly 'static' and offer company information only. The websites are mostly from travel and tour, handicraft, and garment industries. Though a few websites are eCommerce oriented, providing product and price information along with contact details, they do not support online payment.

While most of the eCommerce oriented websites from Vietnam, Myanmar, Cambodia and Laos with country domain names do not provide online transactions, there are websites from these countries with international domain names (“.com” or “.net”) providing full Internet transactions. These websites sell products from the countries either to overseas nationals or international customers. Most of these websites are hosted in developed countries. It indicates the fact that even if eCommerce infrastructure in these countries cannot support full implementation of eCommerce transactions because of its availability, affordability or quality, businesses from the least developed countries in GMS are not completely held up from adopting eCommerce.

## **Framework**

To analyze the current state and future prospects of eCommerce infrastructure in the GMS, a simple framework consisting of four broadly defined components or building blocks that together define the eCommerce infrastructure in a country is adopted here [9]. The four components are technological infrastructure; social and cultural infrastructure; commercial infrastructure; and policy and regulatory infrastructure.

The technological infrastructure consists of hardware, software, and telecommunications deployed to provide the essential functional platform that supports eCommerce. The social and cultural infrastructure refers to factors such as literacy, education, language and

innovativeness. The institutions, value systems and beliefs embedded in the culture shape these factors. The commercial infrastructure comprises of eCommerce supporting services such as electronic payment services, logistic services, and eCommerce related information technology services. The policy and regulatory infrastructure refers to policy, regulatory and legal frameworks for conducting eCommerce in a country.

### **Technological Infrastructure**

The technological infrastructure provides connectivity for participating in eCommerce. The level of connectivity provided depends upon the penetration of network access points such as personal computers (PCs); the penetration of links for accessing the network such as fixed telephones lines, mobile telephone lines, leased lines, ADSL; the penetration of network hosts such as those provided by Internet service providers (ISPs); the availability of national and international telecommunication networks such as domestic telecommunication backbone, Internet exchanges, international gateways and their bandwidth.

The penetration rate of personal computers in the GMS countries, apart from Thailand, is the lowest in the Asia-Pacific region. Only one to three people in 1000 have a computer in Myanmar, Cambodia and Laos (Table 1). Given less than 400 US\$ per capita GDP in the countries (Table 2), an investment in a personal computer may represent one to two year's total earnings of an average person. It is clear that affordability is an overriding factor in the penetration of personal computers in the GMS.

The situation in Myanmar, Cambodia, Laos and Vietnam is no better in the case of fixed-line or mobile telephones. It is said that there are not enough telephone lines

available in Cambodia for accessing Internet [10]. Fixed-line telephones are used for accessing Internet through dial-up services. There are just 1, 2 and 4 telephone lines per 400 inhabitants in Cambodia, Myanmar and Laos, respectively. Moreover, the availability of fixed-line telephones is concentrated in the urban centers only. Ironically, it is the rural areas where most of the population lives - more than 69 per cent (Table 3). The quality of the fixed-line telephones is another concern. In Laos, it is often over-extended making Internet connections slow [11]. In terms of affordability, fixed-line telephones are priced very high in Cambodia. The total cost of subscription for a year, excluding usage charges, is more than one third of the annual income of an average person (Table 2). Mobile telephones have played the role of a substitute for scarce fixed-line telephones. The penetration rate of mobile telephones has even surpassed that of fixed-line telephones in Cambodia and Laos.

Cheaper prices and prepaid-card schemes have made mobile telephones affordable to a wider population in the GMS. Unlike the Philippines where a variety of data applications for mobile telephones have become popular [12], data applications for mobile telephones in the GMS are limited. Apart from Thailand and Vietnam, where GPRS services are available, other countries in the region either provide only SMS services or none. The use of mobile telephones for eCommerce in the region is yet to begin. The unavailability of keypads for entering local scripts in the mobile telephones and the difficulties in displaying the scripts are some of the reasons why the use of mobile telephone for eCommerce in the region will take some time to take-off.

Wireless local loop (WLL) technology has been used in Cambodia and Laos to circumvent the scarcity of fixed-line telephones. However, it is limited to certain localities in the capital cities. It has been used even to provide broadband access to

limited users in Laos [13]. ADSL and Cable-modem services are not available in the countries, except in Thailand. Similarly, leased lines are common only in Thailand; a few are available in Vietnam [14].

The number of Internet hosts in the countries also represents some of the lowest in Asia-Pacific. The price and quality of Internet access depends upon the quality of services provided by the Internet Service Providers (ISPs), which in turn depends upon the competition among them. The countries in the GMS have effectively supported monopolistic positions in the ISP markets until recently. The cost of Internet access in the region (Table 2) shows that for 30 hours access in a month, an average Cambodian would spend more than 30 percent of his or her annual income. The major portion of such a prohibitively expensive costs is ISP services. The telephone costs, though a smaller portion, is more than what an average person in Laos and Myanmar spends for the same duration of Internet access. The cost of Internet access in Laos and Vietnam is lower compared to that in Cambodia (Table 2), however it still represents a major portion of the annual income.

It is clear that the affordability of Internet severely constraints the user-base for eCommerce in the GMS countries. ITU estimates that there are not more than 10 thousand Internet users in each country in Myanmar, Cambodia and Laos [15]. The penetration rate of Internet in Thailand exceeds that of personal computers. It indicates the availability of Internet from work and public places. Internet cafes have become popular among many countries in the region. It used to be mainly patronized by tourists but it is getting more popular with the local population [2, 10, 13, 14].

There are no Internet exchanges in Cambodia and Laos. As a result, access to domestic Internet sites has to go through a third country, consequently using up valuable international bandwidth. This has

negative implications for Internet access costs, which are among the highest in the region.

International gateways provide the link between domestic and international networks. Each ISP in Cambodia and Laos has its own international gateway. In Thailand and Vietnam, international gateways are centralized and they are under state owned telecommunications operators. Access to own international gateways provide flexibility to an ISP for controlling its quality of services, expenses and network growth. On the other hand, the consolidation of international gateways can benefit from the economies of scale. However, any cost savings arising from such consolidation will not get passed on to the end-users, unless it is supported by proper market mechanisms.

The availability and the quality of Internet in different parts of a country also depend upon the state of telecommunication 'backbones'. Laos, Myanmar and Cambodia do not yet have a fully developed nationwide telecommunication backbones [2,10, 13, 14]. The only nationwide backbone in Laos is microwave based. Cambodia has a fiber-optic cable running through the country from the border of Thailand to that of Vietnam. In contrast, Thailand has a well-developed nationwide fiber-optic, microwave and satellite based backbone.

### **Social and Cultural Infrastructure**

Economic, demographic, and social factors influence the penetration of Internet in a country. Gross domestic product (GDP) per capita in Laos, Myanmar and Vietnam are less than one third of that in Thailand, which itself is a developing country (Table 2). Low-income levels in these countries make telecommunication and Internet services un-affordable to a large section of the population. Majority of the population in the region (nearly 74 percent on average) are living in rural areas (Table 3) where

transportation and electricity infrastructures are poor. Further, these areas have a low population density. These factors make the development of telecommunication infrastructure difficult, creating a challenge for improving connectivity. The use of Internet also depends upon the educational attainment and literacy rate of the population. Adult literacy rate in Laos is less than 50 percent and in the case of Cambodia, it is 70 percent. However, the presence of a sizeable young population, below 15 years, in Laos and Cambodia is favorable for the diffusion of Internet in the countries. Younger people are generally considered more receptive to new technologies than older people are.

The shortage of contents in local languages and the lack of knowledge of English among the population can act as barriers to the use of Internet. For example, language has been identified as a major handicap for Cambodia to enter the digital economy [1]. Although English is gaining popularity in the GMS countries, its use is not yet common. The lack of local language scripts for computers, or their standards, is a problem for the development of contents in the local languages. Specifically, Laos, Cambodia and Myanmar currently face these problems. For example, whole documents are scanned and displayed as image objects for Khmer (Cambodian language) web pages due the unavailability of Khmer scripts for computers.

The awareness about ICT and its applications, particularly, that of Internet and eCommerce is low among the population in the GMS countries. Laos and Cambodia also lack vibrant academic communities, which often act as a source of sustainability and growth of Internet [2, 10, 13, 14]. Moreover, the countries face a shortage of human resources in the ICT sector, posing a serious problem for the adoption of ICT by the government and the private sectors.

In addition to the above economic and social factors, cultural factors also affect the development of eCommerce. eCommerce provides economy and comfort to consumers as shopping can be done without having to physically visit shopping outlets. However, such comfort and economy may not be important to the consumers as they often consider shopping as a leisure or entertainment activity (for example, in Thailand). The physical inspection of products and price bargaining, face-to-face with sellers, are important confidence building activities in making purchases. Further, eCommerce may require the use of credit, which may not be a preferred form of payment. The use of credit cards is not common in the GMS countries [2, 10, 13, 14]. High value transaction may not be conducted through credit, or even local currency (for example, in Vietnam), as the public may not have confidence in it or the banks (for example in Cambodia).

### **Commercial Infrastructure**

Apart from Thailand, credit cards are not common in the GMS countries. None of the banks in Laos provides credit card services. Only two banks in Myanmar and one bank in Cambodia provide the services. They were recently introduced in Cambodia and Vietnam. The use of credit cards in these countries is limited as not many people have them and they are not widely accepted. They are mostly accepted in large establishments only, such as hotels in the urban areas; and tourists are the main users.

Online banking services in the GMS countries have only started recently and in some countries, they are still not available. In Laos and Cambodia, none of the banks offers online banking services. A number of banks in Vietnam were experimenting with online banking services [3]. In Myanmar, one of the banks has started offering online banking

services, recently [16]. In contrast to these countries, a number of banks in Thailand offer online banking services. Similarly, except Vietnam, where development of an electronic payment settlement system was started [3], among the GMS countries, only Thailand has real-time online transaction clearing facilities. Automatic teller machines (ATMs) are also popular only in Thailand. They are now being introduced in other countries in the region, such as Vietnam and Cambodia.

Postal and delivery services offered by the domestic service providers in the GMS countries are generally considered to be slow and inefficient, and expensive in some cases. Several of the major international delivery services (e.g. DHL, Federal Express, TNT, UPS) have presence in the countries. These international delivery services are seen as thriving on the inefficiency of the domestic service providers.

The development of custom services in the region is considered as inadequate to provide efficient support to the development of eCommerce in the region. The services are often termed as bureaucratic and unreliable [3]. The modernization of the services through the application of ICT and offering these services online have been considered in Vietnam and Thailand.

The presence IT companies that provide consultancy and support services for the implementation of IT or eCommerce in enterprises also plays an important role in the adoption of eCommerce by the private and the public sectors in a country. The presence of such companies in Laos, Cambodia and Myanmar is minimal. Mostly, ISPs provide such services. Vietnam has a number of companies offering IT consultancy and 'web-development' services. As the presence of multinational companies in Thailand is the strongest in the region, so is the presence of IT companies providing the supporting services for IT and eCommerce implementation.

## **Policy and Regulatory Infrastructure**

The policy frameworks of the countries in the GMS are gradually deviating from active support of state monopolies in the telecommunication sector to that of liberalization. However, Myanmar is an exception to this policy shift [1]. In Laos, a law was passed in 2001 allowing competition in the telecommunication sector. Private investments in telecommunication sector are allowed in joint venture with the government in Cambodia. A new telecommunications act in Vietnam introduces liberalization of the telecommunication sector. In Thailand, private investments in the telecommunication sector were allowed as early as 1990 under licenses for build-transfer-and-operate (BTO) projects for developing telecommunication networks. The accession of Vietnam and Thailand to the World Trade Organization (WTO) could further open the telecommunication markets in the countries to foreign competition.

The Internet markets in the GMS countries are at various levels of liberalization. In Myanmar, there are only two ISPs, which are under the control of the government; no ISP licenses have been issued [1]. The entry into the ISP markets in Vietnam and Laos is currently not possible, though it may change later [13, 14]. In Cambodia, the government ended duopoly in the ISP market in mid 2001. In Thailand, the issuing of ISP licenses has been frozen for sometime pending the creation of an independent telecommunications regulator [2]. In Vietnam and Thailand, ISPs are not allowed to provide their own international connectivity. They have to obtain it through state-owned providers. Except in Vietnam where ISPs are not allowed to price their services below that of a state-owned provider, price regulation is generally not present in the GMS countries.

Existing legal frameworks may be inadequate to govern commercial transactions in the context of eCommerce. A number of legislations or laws such as the acceptance of electronic signatures, the validity of electronic documents, taxation, copyright and intellectual property rights will be necessary to support eCommerce transactions. Except Thailand, the GMS countries are in the process of developing such legal frameworks. National Information Development Authority (NiDA) in Cambodia has drafted an eCommerce law [17]. Vietnam is in the process of developing such a framework including electronic signatures and certification authorities [7]. In contrast, Thailand has already enacted the electronic transactions act [2]. The rules governing the taxation of eCommerce are yet to be defined in most of the GMS countries [3]. This could be a reflection of the fact that eCommerce is still not a significant part of the economy.

Some of the countries in the GMS do not yet have copyright and intellectual property laws, and among those that have, the enforcement is considered weak. Copyright laws in Thailand and Vietnam protect computer software, however the piracy rate is very high [3]. The existing intellectual property rights codes do not have any reference to eCommerce or to the electronic transmission of information or services protected under such laws. Cambodia is in the process of developing copyright and related rights laws [18].

Since majority of the population in GMS countries live in rural areas with poor telecommunication and other infrastructure, universal access policies are crucial to make sure that a larger section of the population participates in eCommerce. No formal policies on universal access of Internet exist in Laos and Cambodia [10, 13]. Vietnam targets to reach world average in terms of Internet penetration, though no specific policies exists to reach rural population [14].

In contrast, Thailand has several specific programs for expanding access to Internet nationwide. For example, a project named 'Tamboon Net' is being implemented to expand the access of the Internet in the rural areas [19].

### **Future Prospects for eCommerce**

It is essential that since government is a prime mover for ICT and eCommerce adoption in a country, it should maintain clear vision, strategies, plans and activities for the development of ICT and eCommerce. The governments in the GMS countries have increasingly shown commitment to developing information and communication technologies in their countries. These commitments are being expressed through various master plans for ICT development. Clear policies for the development of eCommerce has also been outlined within such master plans. Various departments and committees have been formed to realize those goals. Thailand already has such a master-plan covering until 2010. Vietnam has also produced a master plan and it is currently under consideration by the state assembly [7]. Laos is preparing a master plan with the help of a international donor organization [7]. Cambodia and Myanmar are in the process of developing master plans, however specific departments and committees already exist to carry out ICT and eCommerce development objectives [20].

Another positive step is the work initiated by the governments toward developing legal frameworks for eCommerce. Thailand has already enacted a spectrum of laws related to the conduct of eCommerce. Vietnam is expected to enact eCommerce related laws soon, work in this respect has been already started [3]. Cambodia has already produced draft eCommerce and copyright laws. The presence of legal framework is essential for

the development of eCommerce as it contributes to developing confidence among the participants in the market.

Many of these government initiatives that directly or indirectly support the development of eCommerce in the countries have been carried out as their commitment to a broader regional initiative to develop knowledge-based economy in the region such as e-ASEAN. The regional initiative has in essence provided specific development objectives for ICT and eCommerce and a coordination mechanism at the regional level. Such regional initiative not only supports development of eCommerce within individual countries but also in the region as a whole.

The technological infrastructures in Myanmar, Laos and Cambodia are some of the lowest developed ones in the Asia-Pacific region. The state of technological infrastructure in the countries can constrain the development of eCommerce. Though the present state of the technological infrastructure is poor, the rate of growth of some of the connectivity infrastructures is at par with the average in the Asia Pacific region [15]. A notable example is the rate of growth of mobile telephones. In Cambodia, the penetration rate of mobile telephones has overtaken that of fixed-line telephones. However, high growth rates may also be representing the present underdeveloped state of technological infrastructure. The underdeveloped nature of technological infrastructure also presents an opportunity for the GMS countries to leapfrog into advanced state-of-the-art technologies. Given economic, demographic and geographic nature of the population in the GMS countries, wireless telecommunication infrastructure provides a good opportunity to leapfrog [21]. Some limited evidence of the application of wireless technology is already available from Laos and Cambodia. In Cambodian capital city Phnom Penh, where there is a shortage of even telephone lines for

dial-up access, a mobile operator has entered the ISP market with broadband services using wireless technology [10]. Similarly, in Laos, an ISP has been providing broadband wireless services to several dozen customers [13].

The digital divide is a reflection of economic divide also. There is a good correlation between technological infrastructure in a country and its GDP. Myanmar, Laos, Cambodia and Vietnam have poor technological infrastructure and these are also some of the poorest countries in the region. The lack of affordability of Internet, computing, and telecommunication facilities to the general public poses a serious hindrance to the development of eCommerce. The capacity of the private sector and the government to invest in expensive technological infrastructure development projects is just another aspect of the same problem. As an example, much of the fixed-line network in Cambodia has been developed through grant assistance from donor countries [10]. However, the development of wireless networks has been able to attract private sector investments through foreign involvement. With the continuing liberalization of the telecommunication markets, there is hope that private or foreign investment will be available to fund the development of technological infrastructures in the region.

Various factors, such as low educational attainment, poor literacy rates, poor knowledge of English, low awareness of ICT and eCommerce among the general public in the GMS countries, pose as obstacles to the development of eCommerce. Many efforts from the governmental and non-governmental organizations to improve awareness of ICT and eCommerce among school and college students and government officials have been widely reported. There are specific programs to bring ICT and Internet to schools and universities in the region. The learning of English language is

also gaining popularity, for example in Thailand and Vietnam. In this respect, the presence of a large section of young population in Laos and Cambodia present an advantageous position.

## Conclusions

A huge disparity in eCommerce infrastructure exists between countries in the GMS, with Thailand having relatively better infrastructure compared to Vietnam, Cambodia, Laos and Myanmar. The disparity is not only in terms of technological infrastructure, which tends to correlate well with national incomes, but also in terms of commercial, legal and regulatory, and social and cultural infrastructures. The state of eCommerce in the countries also projects a similar kind of pattern with Thailand having already recorded modest eCommerce revenues and other countries in very early stages of eCommerce development. In addition to the lack of technological infrastructure, its affordability and coverage are some of the other key problems. The countries also lack supporting services for eCommerce, and their quality is a serious concern. The use of credit cards is limited and online payment systems are yet to be available in all countries. Logistic services are also not efficient. Apart from Thailand, other countries in the region are yet to enact legal framework governing eCommerce. Without such legal frameworks, the development of eCommerce may be restricted. The abolition of monopolies and the deregulation of telecommunication sectors in the countries could contribute in reduction of prices, improving availability and quality of the services. These changes may be able to contribute positively in solving the affordability problems. The availability of human resources to develop eCommerce and supporting ICT industry is another important area where the countries face hurdles. In addition to this, the lack of

knowledge of English and general lack of awareness about eCommerce and ICT also pose serious problems for the development of eCommerce in the region.

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**Table 1. Tele-usage and information infrastructure in the ASEAN countries**

Country	Fixed telephone lines per 100 inhabitants, 2001	Cellular mobile subscriptions per 100 inhabitants, 2001	Internet hosts per 10,000 inhabitants, 2001	Electronic Post per 100 inhabitants, 2001	Internet users per 1,000 inhabitants, 2001	Number of ISPs, 2001	Number of e-commerce, 2001	Percentage, 2001	Internet Bandwidth, 2001
Myanmar	0.91	0.03	-	0.14	2.07	1	4	-	2
Cambodia	0.29	1.00	0.40	0.15	7.44	2	5	-	0
Lao PDR	0.98	0.99	0.91	0.30	19.94	2	2	-	2
Viet Nam	3.78	1.44	0.00	1.17	124.45	4	202	-	34
Thailand	9.87	13.33	11.75	2.78	977.32	18	1900	2	642
China	13.81 (Urban, 10.87)	11.03	0.89	1.30	299.72	920	17394	203	7998

Source: Asia-Pacific Telecommunications Indicators 2002, 2002, International Telecommunications Union, "Asian Development Bank, 1999, <http://www.asia-pacific.org/Documents/Development/Development%20Indicators/Development%20Indicators%20in%20Asia%20-%202002%20update.htm>

Table 3. Demographic and human development indicators for the GMS countries, 2000

Country	Total population (million)	Population growth rate	Population density (per Sq. Km)	Female population (%)	Rural population (%)	Population below 15 years (%)	Population between 15-64 years (%)	Adult literacy rates* (% age 15 or above), 2000	Combined primary, secondary and tertiary gross enrolment ratio* (%), 1999	GDP per capita* (PPP 2000 US\$), 2000	HDI*, 2002
Myanmar	49	1.8	72	50.3	72.3	33.1	60.1	84.7	55	1,027	1.27
Cambodia	13.1	2.6	69	51.8 (98)	84.5(99)	42.8 (98)	53.8 (98)	67.8	62	1,446	1.30
Laos, P.D.R.	5.3	2.4	22	50.6	76.5	43.6	52.9	48.7	58	1,575	1.43
Viet Nam	77.7	1.4	236	50.9 (99)	80.3	33.4	59.2	93.4	67	1,996	1.09
Thailand	61.8	0.3	120	50.8	68.9	24.1	69.8	95.5	60	6,402	1.70
China	1265.8	0.5	132	48.4	63.8	22.9	70.2	84.1	73	3,976	0.96

Source: Statistics Division, UN ESCAP, <http://www.unescap.org/stat/statdata/pinfo.htm>; \*Human Development Report 2002, <http://www.undp.org/hdr/2002/>

Table 2. Tariff for telephone and Internet access in the GMS countries

Country	GDP per capita (US\$), 2000	Telephone tariffs (US\$), 2001					Prepaid cellular tariffs (US\$, 3 minutes local call) 2002					Dial-up Internet access prices (US\$, 30 hrs per month) October, 2002		
		Connection	Monthly subscription	3 minutes local call	Subscription as % of GDP per capita	Peak	Connection	Peak	Off-peak	Total charge*	ISP Total call charge	Total telephone costs as % of GDP per capita		
Myanmar	148	1	0.1	0.01	1.0	0.03	0.03	0.03						
Cambodia	257	68	7.8	0.03	37.1	0.42	0.30	0.30	67.40	18.00	33.23			
Laos, P.D.R.	325	34	1.1	0.02	4.7	0.23	0.23	0.23	33.00	9.05	12.93			
Viet Nam	393	111	1.8	0.02	5.8	0.71	0.71	0.71	15.89	7.21	5.88			
Thailand	2018	75	2.3	0.07	1.5	0.41	0.41	0.41	5.40	2.03	0.37			
China	834				4.3	0.22	0.22	0.22	9.78	4.35	1.69			

\*ISP sign-up fee, monthly fee, and excess time fee; Source: Asia-Pacific Telecommunication Indicators 2002, 2002, International Telecommunication Union