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Cambodia ICT Development and International Cooperation



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National ICT Development Authority (NiDA)

Royal Government of Cambodia

1. Country Background

1.1 Country Overview

The Kingdom of Cambodia is located in Southeast Asia with Vietnam on its Eastern border, Laos to the North and Thailand to the West, is recovering and rebuilding after three decades of warfare and foreign intervention. Cambodia covers a land area of 181,035 square about five percent of Cambodia's land area consists of rivers and lakes, with the Mekong River and the Tonle Sap Lake linked at Phnom Penh city. Cambodia is rich in natural resources, particularly gems, rubber, timber and fisheries, and has vast areas of land for agricultural development and an abundant supply of cheap labour. In recent years there has been an increase in interest in offshore oil exploration. Cambodia is also famous for its cultural heritage and the impressive Angkor temples represent the country's major tourist attraction, with some one million visitors expected in 2003. The temples were built between the 9th and the 13th century in the religious and administrative center of the Khmer Empire.

Cambodia's economic stability is improving at a rapid rate. The local currency, the riel, has been stable in the range of 3,800 Riel to 4,100 Riel to the US Dollar from 1998 through to the end of 2005, and inflation has been minimal in recent years.

The Government is continuing to introduce new legislation to provide a modern legal and commercial framework, and numerous laws have been, and are being, implemented. The Government is also committed to passing additional legislation to facilitate Cambodia's accession to the World Trade Organisation. Cambodia at present is the first LDC (least-developed country) to achieve membership of the WTO.

Priority Sector

The priority sectors for Foreign Direct Investment are agriculture and agro-processing, tourism and infrastructure, including in particular hydropower.

According to the Investment Law of Cambodia the incentives are granted in the following fields:

- Agriculture and agro-processing industries;
- Environmental protection;
- Export-oriented industries;
- Industries that create substantial employment;
- Investments in special promotion zones (SPZs);
- Physical infrastructure and energy;
- Pioneer and/or high-technology industries;
- Provincial and rural development;
- Tourism and related industries.

Cambodia has a good climate for investment according to the Prime Minister's speech the economic growth in 2005 is estimated to reach 9.7%. This continuously positive outcome has lessened approximately 1% per annum of the poverty rate for the last decade as what the government expected. The strong economic growth in 2005 and the total value of investment in Cambodia in 2005 was 1,048 millions US dollars comparing with only 216 millions US dollars in 2004. Therefore, we can see that in only one year the investment growth in Cambodia increased by almost 5 times.

The labour market

The special demographic phenomena of Cambodia since 1970 give its labor market unique characteristics. The very high birth rate after the Pol Pot years causes a rapid increase in the labor force – and in youth unemployment – twenty years later, from year 2000 and on. The unemployment rate according to international definitions is still very low (under one percent) but this does not describe the character of the Cambodian labor market. The vast supply of underemployed young adults in the low-productivity rural agricultural sector, ready to migrate to the urban areas to work in modern manufacturing or services is the dominant feature. The pool of young adults will continue to grow in the coming years. The first big cohort from 1980 will reach age 30 in 2010¹.

The labor force

Labor force age in Cambodian statistics includes all persons 10 years and older, of which 75 percent are economically active (79 percent of all men and 71 percent of all women). The activity rate peaks at around 95 percent for men in ages 25-49 and at 80-83 percent for women of the same ages. One third of the labor force has completed primary school (grade 6) or higher but the terrible depletion of higher educated people during the Pol Pot years can only slowly be replenished. Only 4 percent of the labor force in 2004 has upper secondary or postsecondary education.

Industry and occupation

The share of the labor force in the primary sector, mainly agriculture, has decreased from 75 percent in 1999 to 55 percent in 2004 giving room for an increase of employment in higher productivity modern manufacturing, notably the garment industry, and in urban services. A majority of households still take part in crop production, 83 percent in the wet season and 34 percent in the dry season. The average yield per square meter measured in riels is about 1,200 (30 US cents) in the wet season and riels 800 (20 US cents) in the dry season. Paddy rice is by far the most common crop.

Educational attainment and enrolment

43 percent of women aged 25 and over have none or only some education (not completed first grade). The corresponding figure for men is 20 percent. Only 0.4 percent of women have post-secondary education, and 1.8 percent of men. Adult literacy rate, population aged 15 and over, is 60 percent for women and 80 percent for men. Some 3.7 million (55 percent) of the population aged 5-24 years were enrolled in the formal school system in 2004. The share has increased from 46 percent in 1999. Of the 20-29 year old in the labor market in 2004 some 17 percent have completed lower secondary school.

Special promotion zones

The Government has established a number of special promotion zones (SPZs) in Cambodia and attracting domestic and foreign investment into these zones. Industrial zones are to be developed at Phnom Penh, Sihanoukville, Koh Kong, Poipet and Pailin which will include export-processing zones and free-trade zones. At Sihanoukville, an area of 50 ha has already been designated for this purpose and will become available for private investment in due

¹ Cambodia Socio-Economic Survey 2004

course. Harbour facilities have also been developed at Sihanoukville and “dry ports” (warehouses with customs inspection facilities in which cargo can be stored before paying tax) in Phnom Penh.

Cambodia Hub in ASEAN

On 30 April 1999 Cambodia became the 10th member of ASEAN, the Association of Southeast Asian Nations, further signaling Cambodia’s re-integration into the global economy. In January 2003 Cambodia also became the 10th member of the ASEAN Federation of Accountants. By becoming the member of ASEAN Cambodia can be grouped together with 10 countries with a total population of about 550 million and a GDP of something under \$600 billion - at purchasing power parity, \$1.8 trillion. In addition, the ASEAN Free Trade Area (AFTA) will reduce most tariffs on Cambodia’s exports to its neighbors to between 0 and 5% by 2010 (or earlier) and will abolish them altogether by 2018. The China–ASEAN Free Trade Area (CAFTA), to come into effect in 2010, will create a trading block of 1.7 billion people. In addition Cambodia is a member of a number of other regional and global organizations:

- Asian Development Bank (ADB)
- International Monetary Fund (IMF)
- United Nations Economic and Social Commission of the Asia Pacific (ESCAP)
- International Finance Corporation (IFC)
- World Intellectual Property Organization (WIPO)
- World Trade Organization.

National Strategic Development Plan (NSDP) 2006-2010

After the election in 2003 the new government had established a country’s Rectangular Strategy and National Strategic Development Plan 2006-2010. The NSDP is the country’s comprehensive five year plan at the highest level, based on the Rectangular Strategy of the government. It includes all aspects and sectors of the nation’s development including ICT.

The government has given a certain attention to ICT in the NSDP, by placing “development of information and communication technology” in the Rectangular Strategy, under the “Future Rehabilitation and Construction of Physical Infrastructure”. In Chapter IV, as key strategy and actions, two paragraphs are taken for ICT. One paragraph mentions the infrastructure expansion, with reducing the cost of telecommunications as an immediate priority. The second paragraph refers to the use of ICT in all aspects of governance and the government.

Information Communication Technology (ICT) Sector

For short and medium-term from 2006 to 2010, the priority needs of Cambodia in ICT sector are clearly stated in NSDP. The top priority is the “Rehabilitation and Construction of Physical Infrastructure”, as indicated in the Rectangular Strategy of Cambodia, with reducing the cost of telecommunications as an immediate priority. Next to infrastructure development is e-government, the use of ICT in all aspects of governance and the government. Those priority areas require capital intensive projects.

According to a report by UNDP² in terms of the growth of the Cambodian ICT sector in the long run, what Cambodia needs are the ICT projects that employ Cambodian nationals, be it civil servants, IT consultants, web designers, system engineers, hardware technicians, etc. It requires projects that generate income to these professionals, and more importantly, that give

² Miyata M, UNDP 2006 “Situational analysis of ICTD in Cambodia”

opportunities to learn, experience and experiment, even with mistakes, in developing, deploying and using ICT, regardless of theme of the projects. In the absence of such projects, there is no way that these professionals can be nurtured and continue to grow into a critical mass when economic and political conditions are ready for the ICT sector to take off. Even in developed countries, governments spend a lot on public ICT projects in order to develop the private sector in ICT.

The report states that besides above short/medium and long term priority needs, some other specific needs can be identified from the situational analysis, such as, but not limited to:

- standardization, inter-connectivity and inter-operability
- wider distribution of the Khmer Unicode and development of local contents and applications
- IT security awareness and protection from viruses, unlawful attacks, etc.
- increased computer literacy through offices and the education system
- affordable last mile solutions to reach out to rural villages

Some of them are already supported by donor agencies. Others need to be addressed in each ICT-related project, rather than putting them into a single project.

1.2 Current ICT Status

According to Readiness Assessment conducted in 2001 by the Association of Southeast Asian Nations (ASEAN), Cambodia ranked eighth out of the 10 ASEAN countries in terms of e-infrastructure, e-society, e-commerce and e-government. As such, it was classified as an “emerging” readiness country, characterized by the need to build basic ICT infrastructure and ICT literate workforce.

In term of telecommunication sector Cambodia has very small number of user of fixed line telephones and it is currently at approximately 40,000 Subscribers. There are three operators provide these fixed telephone services where MPTC (Ministry of Posts and Telecommunications of Cambodia) is the largest operator. However, Cambodia is the first country in the world where mobile telephone subscribers surpassed fixed ones. In 2004, 96% of telephone numbers were for mobile subscribers which comprised of 900,000 subscribers. Due to the mobile penetration, the tele-density has reached nearly 6.4% for 14 millions populations, which is a significant number for a Least Developed Country (LDC).

There are four mobile phone operators as summary below. Two international gateway facilities are in operation, (001) is operated by the government and (007) by a private company. A VoIP (Voice over Internet Protocol) service is provided through the Business Cooperation Contract (BCC). This ViOP service is operate with access code 008.

Telecommunication Service Providers³:

- **MPTC**: Ministry of Posts and Telecommunications of Cambodia, Fixed Phone, International gateway
- **Casacom (1992)**: 900 GSM - Mobile Phone. Also known as Samart (about 100,000 subscribers)
- **Camtel (1992)**: Analogue Mobile Phone (about 1,000 subscribers)
- **Camintel (1995)**: Fixed Phone and Wireless Local Loop (WLL) (9,000)
- **Camshin (1993)**: Wireless local loop (WLL). Future will be CDMA fixed wireless,
- **Camshin (1998)**: GSM 900 – 1800 Mobile Phone (about 200,000 subscribers)
- **CamGSM (1997)**: GSM 900 - 1800 Mobile Phone (about 600,000 subscribers)

³ Moa Chakrya, 2006 MPTC

Cambodia has 10 Internet Service Providers (ISP) plus one Email service provider with the total Internet bandwidth is around 115Mbps (for up and down link). It is estimated that the total internet subscribers is around 15,000 at year 2005. The internet user penetration is very low and most of users are in major city like Phnom Penh city, Siemreap, Battambang and Sihanoukville. Most of the subscriber is using Dial-up connection accounted to about 11,000 subscribers, Broadband Internet with 3,280 subscribers, ADSL/SHDSL (Cogetel, Camintel, Camnet) 1,300 subscribers, BWA (Camnet, Camshin and Telesurf offer Broadband Wireless Access) 1,800 subscribers, SBI (Camnet offers Satellite Broadband Internet service by using iPSTAR system) 80 subscribers and Leased Internet (Camnet and Cogetel)100 subscribers.

Most of the high cost and low users are due to the limitation of infrastructure. The telecommunication infrastructure consists of local exchanges in Phnom Penh area, and there is only one optical fiber line from Poipet border of Thailand to Bavet border of Vietnam and crossing the country east-west, and from Banteay Meanchey to Siem Riep. Also expensive international gateways result in high access cost and narrow bandwidth. The bandwidth connecting to outside Cambodia is limited to 160Mbps both up and down links.

2. ICT Development in Cambodia with International Cooperation

2.1 Cooperation in public sector

In August 2000 the government has set up the National ICT Development Authority (NiDA) to be in charge of: 1) formulate ICT promotion and development policy for the short, medium and long term, 2) ICT policy implementation to ensure maximum economic growth, 3) monitoring and auditing all ICT related projects in the government.

NiDA is under the auspice of the Office of the Council of Ministers and chaired by the Prime Minister. NiDA's mission is to play a significant role of regulator as well as promoter of ICT in Cambodia. The structure of NiDA consists of Prime Minister as a Chairman, Deputy Prime Minister/Minister of the Office of the Council of Ministers as Deputy Chairman and one Secretary General.

Government Administration goes Digital with Korea Assistance

NiDA has implemented Government Administration Information System (GAIS) Project with assistance from Korean Government. This project came under the soft loan scheme which is the biggest of its kind through the Economic Development Cooperation Fund (EDCF) with the examination of Korea EXIM bank. The side of the project was amounted to 26.6 millions US dollars and this project is under direction of NiDA.

Government Administration information System (GAIS) network is composed of e-Government and Electronic Approval System (EAS). The e-Government core applications are Vehicle registration, Motorcycle registration, Real estate registration, Resident registration and EAS. NiDA is now starting to utilize the e-Government project in cooperation with the ministries concerned. Besides the e-Government, EAS and government integrated website are configured as the other components of the e-Government. This e-Government is in form of a Government-to-Government (G2G) where the government institutions are connected each other to perform tasks over the common applications.

The GAIS project was to connect and computerize the government with four core practical applications. The infrastructures for the four applications include the Local Area Network (LAN) and Wide Area Network (WAN) for 27 ministries, state secretariats and the Phnom Penh municipality.

According to NiDA's documents⁴ below is the summary of the goal and functions of each application:

Electronic Approval System (EAS)

The purpose of the EAS is to allow ministries exchange document both internally and externally. It incorporated all traditional manual functions to allow users to use the system with ease.

The goals of the EAS include:

- Improves the efficiency of government affairs through Paperless Office.
- Implements administrative affairs management system that is fast and easy to use.
- Apply proven Business Management Rules in short amount of time.
- Establish Government Administrative System using the proven, up-to-date technologies.
- Builds basic infrastructure for web-based National Integrated Information System.
- Provides the opportunities for Cambodian IT engineers to acquire cutting edge technologies

The functions of the EAS include:

- Approval – allow exchange of documents electronically between ministries.
- Mail – allow exchange of electronic mail between users.
- Bulletin Board – allow online posting of relevant information.
- User & Organization Chart – provides ministries and users information.
- Administration tool – provides administrative function.
- Document Management – allow storing and managing approved

Real Estate Registration Management System

The purpose of the Real Estate Registration system is to keep track of the real estate transactions including prices and taxes paid.

The features allow in the Real Estate Registration system include:

- Management of the basic data about the property, such as address or location.
- Management of the change to the property, such as new building or subdivision.
- Management of Ownership Transfer.
- Management of the tax on the property.
- Management of the statistics of the property.

Resident Registration Management System

The purpose of the Resident Registration system is to keep track of the resident, their family composition and their job for the purpose enforcing compulsory education for school age children and for collecting income tax.

The features allow in the Resident Registration system include:

- Management of basic data including address, family composition, children reaching school age.
- Management of change in the family situation, such as birth or death.
- Management of change in the family situation, such as marriage and divorce.
- Management of tax owed or paid.
- Management of the statistics of the resident.

⁴ Presentation of Dr. Leewood PHU, NiDA Secretary General

Vehicle Registration Management System

The purpose of the Vehicle Registration system is to keep track of the vehicle ownership, tax paid and safety inspection. This system is subdivided into two subsystems. One is for automobile and the other is for motorcycle.

The features allowed in the Vehicle Registration system include:

- Management of basic data including ownership information, make, type, year of vehicle and vehicle identification number.
- Management of the registration.
- Management of the ownership transfer.
- Management of inspection information, such as when to have the vehicle sent for safety inspection.
- Management of taxes paid, including import tax and excise (road) taxes.
- Management of the statistics of the vehicles.

Government National Homepage

The government national homepage (www.cambodia.gov.kh) is to provide information about the government on the World Wide Web. The goal is to strengthen national publicity and sightseeing resources to the outside world and to improve public information services reflecting public opinions for Cambodians.

In addition to the national homepage, the website of NiDA (www.nida.gov.kh) was also set up to provide public information about the GAIS project.

This project was conducted by *Korea Computer Communication Company* (KCOM) with the tight cooperation with NiDA. There was a joint working group between Korean engineers and Cambodia engineers. Most of the products hardware and software such as servers, network equipments and client PCs implemented in the project are from Korean companies like Samsung, LG among others. For software adapted from Korea products such as:

- Database server: UniSQL from UniSQL Co., Ltd
- Web application server: JWS from Tmax soft
- Firewall: BiMon from Linux Security
- Network Management System: NMS
- EAS package from SsangYoung (SICC) now is ESNT
- Core modules of Vehicle, Resident and Real estate Applications are developed from scratch by Korean and Cambodia developers
- Other development tools

Promoting Access

In 2001 Korea Agency Digital Opportunity & Promotion (KADO) of Korean Government has donated the first **Information Access Center** called "Internet Plaza" which is the place equipped with modern Korean technologies. The purpose of Internet Plaza is to provide a place for the people to access to information and practice their computer skills. Internet, email and basic applications training are being serviced in this Internet Plaza and also seminar hosting. With this facility we can organize the training program on various applications such as Internet and email to government staffs and students. The Internet and email service have provided government personnel the necessary tool to conduct their research and to effectively communicate with their counterpart resulting in better public services. Furthermore, the Internet and email service contribute to regional and international integration, capacity building and human resource development, improved productivity and diversification.

In addition, under the Korea Internet Volunteers Program of KADO some IT professionals and technicians were dispatched to conduct IT training and other IT related volunteering activities with NiDA. These training programs do not only persuade of IT awareness but also promote international friendship and cultural exchange

Korea IT seminar

On November, 2003, the *International Seminar on Internet Resources Management* has been held in Phnom Penh for the purpose of making Cambodia connects to the world network, the Internet policy, including Internet Protocol Addressing, Network Operation for Internet Service Provider and Standard Technology for World Wide Web and other related issues.

This seminar was hosted by the Korea Ministry of Information and Communications, organized by National ICT Development Authority (NiDA), the Korea Network Information Center (KRNIC), the Korean Institute of Communications Sciences (KICS) and the International Cooperation Agency for Korea IT (ICA). This high profile was made possible with the sponsors and companies such as Electronics and Telecommunications Research Institute (ETRI), Telecommunications Technology Association (TTA), Korea Internet Service Provider Association (KISPA), KTF, LG TeleCom, SK TeleCom, Netpia.com, Inc. and KCOM, Ltd

2.2 Cooperation in Private Sector

The number of Foreign Direct Investment by Korea companies in Cambodia is consider significant. Most of the investment are in garment sector, agriculture sector, agro-industry, tourism sector and construction and the number is increasing pretty much day by day. However, there is a limited activity in the field of ICT done by Korea private company. Recently one large company has directed investment from the Republic of Korea invested through the establishment of “*electrical wire and all kinds of electrical cable production factory of KTC Cable Co., Ltd.*,” is another achievement, which reflects a strong relationship between the two nations Cambodia and the Republic of Korea. It should be noted that electrical wires and cables factory invested by *KTC Cable Co., Ltd* at the moment is the first type of heavy industry and through this investment, the company plans to spend up to 25 Million US dollars and employs approximately 420 skilled labors during the first stage of the production and will increase up to 1,215 workers when the factory reaches its full production capacity. This industry will produce about 2,000 different types of products to be sold in domestic markets and for exports to fully respond to the demand of domestic markets.

According to the report by the Center for the Development of Cambodia (CDC), the inflow of investment from the Republic of Korea to Cambodia between 1994 and 2005 is about \$352 millions US dollars. Apparently, one company from the Republic of Korea has decided to invest 2,000 millions US dollars in constructing of a new city in Pong Peay lake region, and it is currently working together with Phnom Penh municipality and other authorities to come up with necessary plans in constructing this new city.

2.3 Tighten diplomatic relationship and strengthening the spirit of cooperation

At the invitation of His Excellency Mr. Roh Moo-hyun, President of the Republic of Korea, Samdech Hun Sen, Prime Minister of the Royal Government of Cambodia, led a high delegation to pay an official visit to the Republic of Korea from 20 to 23 March 2006.

During his visit, Samdech Prime Minister had official talks with His Excellency Mr. Roh Moo-hyun, President of the Republic of Korea.

Both sides signed four documents as follows:

- Arrangement between the Royal Government of Cambodia and the Government of the Republic of Korea concerning a loan from the Economic Development Cooperation

Fund.

- Loan Agreement for Krang Ponley Water Resources Development Project between the Royal Government of Cambodia and the EXPORT-IMPORT BANK OF KOREA.
- Memorandum of Understanding on Tourism Cooperation between the Ministry of Tourism of the Kingdom of Cambodia and the Ministry of Culture and Tourism of the Republic of Korea.
- Arrangement between the Ministry of Labor and Vocational Training of the Royal Government of Cambodia and the Ministry of Labor of the Republic of Korea to conclude a Memorandum of Understanding on the sending of Workers to the Republic of Korea under the Employment Permit System⁵.

2.3 Future Infrastructure Expansion and PAIS project

The Government is considering the request for the assistance from foreign countries to expand the infrastructure nation wide. Expand the national backbone network to all provinces and expand more telephone capacity in the rural area. Develop the current network in to NGN for example using Metro Ethernet in IP platform. Also expand the existing GAIS project to the province and the pilot project will be conducted in important key provinces. Provincial Administration Information System (PAIS) project is include building of infrastructure such as fiber optic cable in order to provide access to the important areas and set up the data centers to support the pilot applications.



(Source: MPTC 2006)

According to the government draft ICT policy (2006), the Government recognizes the importance of a strong, reliable, ubiquitous telecommunications network as being the key to the development of the country in general, and ICT in particular. This network should provide efficient and affordable service for voice, data and video services through the width and

⁵ Ministry of Foreign Affairs and International Cooperation, Cambodia

breadth of Cambodia. All means available for space and terrestrial based systems will be used. Core Infrastructure 'rings' are needed for Cambodia - the capacity for voice, media and data services for the public and commercial sector would increase dramatically. It is expected that once the core infrastructure is in place then the operators are expected to request for access and the result will be a boom in the development of applications that can make use of this infrastructure, such as IP Telephony Services, video conferencing, high speed Internet and distance learning.

3. Conclusion

Korea is one of the important country for noble contribution in the cause of rehabilitation and development of Cambodia. This support is critical for Cambodia to stand up again. We appreciated the Korea Government for providing concessional loan for supporting the Government Administration and Information System (GAIS) in Cambodia, as well as the IT training to Cambodian officials in Korea. Needless to say, the current ICT is an important technological revolution that the world has experienced today in the whole history of mankind. However, what we have seen is an increasing gap between the developed countries like US, Europe and Korea where ICT has been significantly advanced while in developing countries like Cambodia ICT development is still very much lagged behind. I strongly believe that it is imperative for narrow the widening gap between the developed and developing countries through the development of ICT capacity and ICT infrastructure in the developing nations. As we enter into globalization and the growing interdependence, ICT has become in developing countries an indispensable tool for national development and for catching up with regional and global changes.

Cambodia would not be able to move strategically forward without a real ICT development, especially the popularization of ICT in our current thinking and development. In this regard, Cambodia needs to make available for all ICT and at the same time promote the use of ICT actively at all levels of its society as an important basis for national development, poverty reduction, and human resource development. In order to achieve this, the cooperation between advanced ICT countries like Korea is important to transfer the knowledge, know-how and technology to country like Cambodia.

Furthermore, the ICT has become even more critical at regional level today. In fact, one of the pillars of the Initiative for ASEAN Integration (IAI) is the development of ICT in order to empower ASEAN as a whole to move the region together ahead in the current global trends and international relations. The IAI in fact stressed four important elements as the basis for deepening ASEAN integration and for narrowing the development gap between the members of this regional grouping.