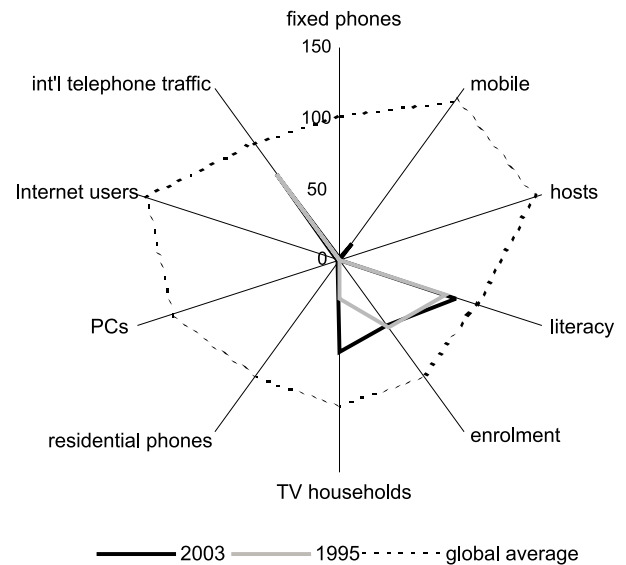


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Cambodia

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Source: *Monitoring the Digital Divide*. © Orbicom 2004

The state of ICT in Cambodia has not changed significantly since the previous edition of this volume, but some remarkable events – both positive and negative – did come to pass during this period.

Local online content

The King of Cambodia, Norodom Sihanouk, before his retirement and the election of his son Norodom Sihamoni on 14 October 2004 to succeed him, was probably the only head of state who used the Internet almost daily to communicate with people within and outside of the country. His website (<http://www.norodomsihanouk.info>) has been online since 2003 and had received more than 470,000 hits by the end of 2004. A link to His Majesty Norodom Sihamoni's homepage has been added. It has sections to be expected of a royal website: biography, schedule of royal activities, and information about the royal family. But such content alone would not have attracted the 1,000 or so visitors per day to the website since the latter part of 2003. The visitors include the international media, who are drawn especially to the royal messages in which the king comments frankly on historical events and the constitutional crisis brought about by difficulties in the formation of a new government only in July 2004 following the national elections held in July 2003. These frank commentaries led the king to engage in a regular and wide-ranging public political discourse that would not have been possible without the Internet. The royal website provides an email address which renders the king accessible to the public, thereby putting in practice the concept of a "Kingdom with a King who shall rule according to the Constitution, and to the principles of liberal democracy and pluralism".

On 1 April 2003, the first portal in the Khmer language (<http://www.CambodiaCIC.org>) with local access points in all 20 provinces in the country was launched as a channel to distribute news to community information centres. Each centre is equipped with three, five or ten computers

depending on the demography of the province. The centres also serve as collection points for news, which is gathered daily and redistributed through the portal. This two-way flow of information between the centres and the portal helps to facilitate, for the first time, prompt communication between the provinces.

Apart from this historic achievement, there has also been an increasing number of websites about Cambodia, hosted within and outside of the country, in Khmer, English and French. These websites can be broadly grouped into three categories: government institutional information outlets (in Khmer and English), commercial websites relating mainly to the tourism sector, and websites of the development community including NGOs and UN agencies. Some of the websites in Khmer still suffer from the absence of a common standard for the use of the Khmer script in communication. Some of them present their Khmer content in the form of scanned graphics, which are slow and expensive to download. Others use one of the more than 20 different and mutually incompatible Khmer font families, often without specifying the font used. The more effective method of automatically prompting users to download fonts required to read a particular set of pages coded in HTML is being used increasingly by webmasters. Unfortunately, this procedure works only for browsers running on Microsoft Windows; a general solution for the Apple and Linux platforms is not yet available.

Despite the awareness that the digital divide can only be addressed with the creation of more local content, this did not happen as local content requires the use of a common Khmer script. The country did not have the resources needed to create software applications in Khmer until 2004.

Online services

The only field where an increasing number of services are offered online is tourism. Hotels, travel agencies and tour operators are the principal users of these services. Businesses

dealing with ICT products have also developed and adopted their own online services. Local online services are unlikely to grow significantly in the absence of a standardised Khmer-based information processing system which determines how data are entered and displayed on computer screens and how they are stored, shared and retrieved by users.

Industries

The computer industry in Cambodia continues to be dominated by ISPs and computer retailing and services companies. The latter sell imported branded products and clones manufactured locally using imported components.

A unique enterprise is DigitalDivideData, a not-for-profit company that reinvests its profits in activities that benefit poor local communities. The company gives preference to employing and training young people with physical disabilities to undertake data entry for clients overseas. It received a special award at the ICT for Development Platform during the World Summit on the Information Society in December 2003 in recognition of its work.

The sudden and harsh crackdown on Internet cafés providing VoIP services, after tolerating them for years, has

led to the closure of some of these enterprises. They were providing international telephone calls at only US\$0.05–\$0.08 per minute. The government has since licensed, without public bidding, a company to run an exclusive VoIP gateway reportedly for 25 years, a long time in the fast-changing ICT sector. The company’s promotional material announces that the new service will cost 25 percent less than normal telephone calls to Europe and the USA, which cost US\$1 per minute. However, this service was not yet operational as of mid-2004.

The coverage of the country by mobile phone providers has further improved, increasing the factor by which mobile phones outnumber wired phone connections. New statistics are not available, but in 2001 there were already eight times more mobile phones than wired phones in the country.

Key national initiatives

The Government Administrative Information System¹ has been implemented since 2002 with assistance from South Korea. This e-government initiative presently networks and links the various ministries. The public has not been provided with practical details about the system, such as which

Email delivered by a mailman on a motorbike

Since late 2003, a dozen villages located in the remote north-eastern part of Cambodia that have no running water, no electricity, no telephone, no television and no newspapers have been able to communicate by email. A high-tech experiment is being conducted here using a system developed and installed by graduates of the Massachusetts Institute of Technology. This is how it works:

Early every morning, five motorcycles leave the hub in the provincial capital of Banlung where a satellite dish links the provincial hospital and a special skills school to the Internet for telemedicine and computer training. The motorcycles are equipped with a small device and an antenna at the rear for downloading and relaying email to computers via a WiFi card. The motorcycle riders begin their day by quickly downloading email at the hub. They then head out to the villages; and as they pass each participating school and health centre, they transmit the messages they have downloaded earlier to the respective computers and at the same time retrieve any outgoing mail queued in the school or health centre computers, which are equipped with similar devices. At the end of the day, the riders return to the hub to transmit all the collected email over the Internet to any point on the globe.

All schools involved in the experiment are equipped with solar panels to supply electricity to their computers. The teachers are trained to operate the system, and the school children are shown how to exchange information in the Khmer language with children in other schools. Students who can use a foreign language can access other information and contacts on the Internet. Local health workers have been trained to send patients’ medical reports and digital images not only to a hospital in Phnom Penh but also to the Massachusetts General Hospital and Harvard Medical School. The American Assistance for Cambodia and the Japan Relief for Cambodia are the prime movers behind this experiment.

While the results achieved are impressive, replicating this experiment in other locations will not be easy. The main obstacle is the enormous financial investment required. This is obvious from the list of donors who made the experiment possible: a Thai company which provided the satellite dish and connection, a manufacturer which donated the five new motorcycles, an airline which sponsored air transportation, two international foundations which provided the necessary financial backing, and a US bank which contributed the 100 computers installed in the villages.

Source: <http://www.cambodia.net/kiri/news/motomanlaunch.html>.

services will be offered and when. It is envisaged that such plans will face various obstacles at different levels. Huge financial investments will be required to fulfil hardware and training needs. A fundamental change in attitude is also needed. At present, some government agencies do not even permit the public to photocopy official forms but insist on the use of forms issued and stamped by the agencies, for which a modest fee is charged.

This e-government initiative will also require applications which use the Khmer script, especially in the management of databases. The present effort in applying the finalised Unicode standard for Khmer to software applications is progressing along two different tracks: the first by a government group working on Microsoft applications, and the other by an NGO initiative using open source instruments.

Enabling policies

In July 2003, a National Meeting on the Formulation of National ICT Policies and Strategies was held with the support of the Asia-Pacific Development Information Programme (<http://www.apdip.net>) of UNDP. At the opening session of that meeting, the Prime Minister, who also chairs the National Information Communications Technology Development Authority, announced the following goals:

As I have mentioned many times, the formulation and implementation of ICT policies and strategies is crucial to keeping Cambodia firmly on the development track...

The formulation of the ICT policies and strategies that we discuss today is important for improving efficiency, reducing work time and the overall costs to meet our everyday needs as well as the needs in management, business and the government's operation...

... Success in this regard will ensure that Cambodia will no longer be isolated or left behind the mainstream of the ICT revolution.

... This should be undertaken by promoting free and fair competition and preservation of the principles of the free market, which are the prerequisites for low costs and high quality of service...

At the same time, we should note with pride that our liberal policies in education and the strengthening of partnerships with the private sector, from both within the country and overseas, which I launched a decade ago, have been quite fruitful. Today, many educational institutions have been built in Cambodia, consistent with the rights, freedom and capacity of the Cambodian youth. All Cambodians have open access to information from overseas for study and general knowledge, through the Internet and email without any restrictive controls as is the case in some countries in the region.²

Regulatory environment

In spite of such goals, the regulatory environment has not evolved significantly beyond the situation raised by a World Bank consultancy some years ago, which predicted that “doing nothing is not an option, the Ministry of Post and Telecommunications as it is cannot long survive”.³ The prediction has been wrong, but it can be assumed that the national ICT plan as well as the telecommunications law, which has been in the drafting stage for several years, will bring about the many changes advocated by experts from abroad and echoed by the leadership in the country.⁴

Open source movement

An online mailing list for active users and others interested in using Linux has been in operation since 2003, but this alone does not confirm that an open source movement exists in Cambodia. There continues to be instances of college graduates of ICT-related courses who are unaware of open source software. On the other hand, local retailers are selling the latest open source software including the most recent versions of Debian, Mandrake, Red Hat, SuSE, TurboLinux and other Linux releases. There is obviously a growing demand for open source solutions.

The open source movement in Cambodia became more organised with the creation of the KhmerOS Initiative (<http://www.KhmerOS.info>). It aims to develop and deploy an end-user computer system and applications that can operate solely in the Khmer script which conforms to the Unicode standard. The user interfaces of popular open source applications, such as the Mozilla browser and mailer and the OpenOffice suite, which can be used in both Windows and Linux environments, are being localised in the Khmer script before they are released to the public. These releases will be accompanied by promotional and training activities at ICT educational institutions and local computer companies. The goal is to make open source instruments freely available for creating more software applications in Khmer. One major contribution of these efforts is the creation of sortable databases in the Khmer script, a facility which previously was rarely available.

This effort is not conceived as one closed project but as an open initiative. In a relatively short time, ICT-savvy Cambodians, locally and abroad, have come forward to contribute their efforts and achievements on a common platform. The KhmerOS Initiative shares its results with users as it finalises new applications for release.

Research and development

No high-level R&D projects in ICT have been reported in the country. The Computer Department of the Royal University of Phnom Penh and other institutions of higher learning such as the Norton University, are mainly engaged in education.

First steps in localising software in Cambodia

When the Open Forum of Cambodia (<http://www.forum.org.kh>), a local NGO, started the KhmerOS Initiative “to create software based on the Unicode standard for the Khmer language which can satisfy 80 percent of the needs of 100 percent of the users”, it was clear they were moving into uncharted ground. They did not only want to adapt software so that it could be used to write in the Khmer language, display on screen what is written, print it on paper and send it by email, they also wanted to translate all program commands, such as Attach, Edit, File, Format and Insert, as well as common computer terms such as *floppy*, *keyboard* and *mouse*.

These tasks, which seemed simple at first, have turned out to be complex. For example, they have yet to agree on whether to use a phonetic Khmer approximation of the English word *mouse* or to adopt the Khmer word *kondol* for this little creature. Proponents for both approaches think their choice is the best. In the case of the symbol @, they are divided between the artificial expression *swaa* and *monkey*, as this sign is often called in some languages.

The first phase of this initiative aimed at compiling a basic glossary of computer terms. Two persons were assigned full time to read through the monthly issues of the Khmer-language *PC World Cambodia* published over two years to pick out all relevant terms used. The same was done with a dozen books on ICT published in Khmer. The result of this effort was a 60-page document containing a list of terms sorted by the English version. It is not surprising that Cambodian authors and translators have used different Khmer terms for the same English terms.

In the second round, the 60 pages of terms were reviewed by a group of Cambodian computer specialists and Khmer linguists to arrive at a common set of terms in Khmer. The finalised glossary will be used in translating the computer commands, help files and manuals of the software to be localised.

The process involves a lot of work. For example, to localise the Mozilla browser and mailer program, about 9,000 instructions will have to be translated. Some of these instructions comprise a single word such as “Save”; others involve two words as in “Save As”, yet others a phrase such as “Mail & Newsgroup Account Settings”.

The next and rather challenging task is to localise the OpenOffice suite, a set of open source programs that runs on Windows and Linux. The task will require the translation of about 21,000 instructions. More information about this initiative can be found at <http://www.KhmerOS.info>.

Though not a research organisation in the proper sense, the Cambodia One-Click Communication fellowship (<http://www.cocc.biz>), “created under a philosophy of Khmer to Khmer”, merits mention here. It is an initiative of lecturers and graduates from the ICT field to facilitate the exchange of information on ICT and to link international and national experiences in the sector. Information and knowledge gained in this way is being shared through regular training events on basic to advanced skills, as well as through the facilitation of international scholarships and the preparation of students for studies abroad. The initiative maintains institutional links with the Center of the International Cooperation for Computerization in Japan (<http://www.cicc.or.jp>). Its long-term aim is to create original software customised to local needs.

Trends

The vision expressed by leaders of the government to usher in a new era of the information society in Cambodia has so far not been realised. It is hard to imagine its actualisation with the existing backward-looking policies hampering economic progress and technological advancement. An

example is the restriction of VoIP services; such services have helped to bring about significant cost reductions in other countries.

The progress achieved by the open source movement in many countries of Asia shows that an enabling and encouraging environment for praxis-oriented experimentation, research and production will release creative talent that helps to bring about economic and technological benefits to society. As the Cambodian leadership is anxious that the country is not left behind, present constraints are expected to be removed.

Notes

1. http://www.nida.gov.kh/activities/opening_gais/com_speech.asp.
2. http://www.nida.gov.kh/activities/summit/PMSpeech_English.pdf.
3. <http://www.dba.org.nz/PDFs/Cambodia%20Final%20Report.PDF>.
4. <http://www.itu.int/ITU-D/ict/cs/cambodia/material/KHM%20CS.pdf>.