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Maldives

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OVERVIEW

The Republic of Maldives is an archipelago stretching over 820 kilometres north–south and 128 kilometres east–west and spanning the equator in the Indian Ocean. There are 1,190 small islands, of which only 200 islands are inhabited and 80 have been developed into tourist resorts. The islands are clustered into 26 natural atolls that, for administrative purposes, are grouped into 20 atolls. The population is scattered throughout the country. But the capital, Malé, has a population of 100,000 in an area of two square kilometres.

The Maldives is a democratic republic led by a president. The People's Majlis (Constitutional Assembly) or the parliament is composed of 50 members who are directly elected by the people. However, the president appoints another eight members. In mid-2005, the People's Majlis voted unanimously in favour of introducing political parties, paving the way for a multi-party system. The People's Special 'Majlis' of the parliament was assembled through an election for the sole purpose of amending the Constitution of the Maldives to pave the way for a modern democracy.

As part of government-wide efforts to increase openness and accountability, the decision was made to telecast nationwide the proceedings of the Majlis and the Special Majlis. The government has also put extra effort into strengthening its capacity to ensure an effective and organized transition to a more open democratic and pluralist multi-party economy.

The various political developments have given rise to a wave of online content from bloggers and others freely exchanging ideas online. Government organizations have also increased the type of content posted on government websites to include

Total population	298,968 (as of 2006)
GDP per capita	USD 2,674 (as of 2006) (exchange rate: 1 USD = MVR 12.75)
Key economic sectors	Tourism, fishing
Computers per 100 inhabitants	NA
Fixed-line telephones per 100 inhabitants	11
Mobile phone subscribers per 100 inhabitants	103
Internet users per 100 inhabitants	30
Broadband subscribers per 100 inhabitants	4
Domain names registered under .mv	1,430
Internet domestic bandwidth	NA
Internet international bandwidth	NA

(Sources: Ministry of Planning and National Development 2006b, 2008)

Note: All indicators are based on 2007 statistics, unless otherwise specified.

Internet users are estimated by adding subscription customers and casual users consisting of users of open access dial-up, users who share home or office connections, and cybercafé users.

information on tenders and employment opportunities. The Maldives Police Service and other law enforcement agencies update the content of their websites on a real-time basis. Most of these websites have content in English and the local language.

The economy of the Maldives is growing at a rapid pace despite many challenges posed by the lack of natural resources and the unique geography of the country. Tourism accounts for almost 20 percent of the Gross Domestic Product (GDP). Fisheries and trade follow close behind. From being one of the world's poorest countries in 1978 the Maldives is now considered a Least Developed Country (LDC) on its way to becoming a Developing Country. GDP growth averages seven percent annually. More resorts have been opened in the farthest South Atoll of Seenu and there is a new international airport. There has been much growth in the ICT sector, especially in terms of mobile coverage. Moreover, the e-government project has extended its network connection to the atoll capitals.

TECHNOLOGY INFRASTRUCTURE

There are two major telecommunication networks. One is the network established by the incumbent operator Dhiraagu to provide fixed, mobile, broadband, leased circuits, and other telecom services. The second network was established by Wataniya Telecom Maldives, the mobile operator introduced in 2005. Both provide comprehensive services nationwide via digital microwave technology. In addition, there are two international gateways established via submarine optical fibre.

Comprehensive communications services, including telephone on demand and Asymmetric Digital Subscriber Line (ADSL) broadband Internet, are now available in Malé and the major population centres in 13 islands, reaching over 40 percent of the population. All inhabited islands have access to fixed-line telephones and cellular telephone services are available throughout the country. The teledensity as of end 2007 was 11 percent for fixed telephones and 103 percent for mobile telephones.

Besides ADSL, broadband Internet is also available via cable TV networks (CATV) in Malé and a few other islands. In the islands that do not yet have broadband access, the Internet is accessed primarily through small telecentres and through mobile phones. Both cellular phone networks have Enhanced Data Rates for GSM Evolution (EDGE) technology nationwide.

As part of the e-government project, the government has established a computer network connecting the atoll capitals and government agencies. The e-government project includes developing the applications that will run on the network. The government network uses optical fibre network within Malé and very small aperture terminal (VSAT) technology to link the atoll capitals. There are plans to widen the network to include all inhabited islands.

In an effort to be better prepared for emergencies and disasters, the government has embarked on a project to establish an independent network for emergency communications and dissemination of early warnings. The project documents for this were drawn up in 2007, and the tender for the establishment of the Emergency Communication Network and Early Warning System was issued in September 2008.

KEY ICT INSTITUTIONS

The Telecommunication Authority of Maldives (TAM, <http://www.tam.gov.mv>) is charged with the development and regulation of the telecommunications sector, while the National Centre for Information Technology (NCIT, <http://www.ncit.gov.mv>) is responsible for the development, promotion and propagation of information technology (IT). These two institutions are under the aegis of the Ministry of Transport and Communication.

Since the telecom and broadcasting sectors are not converged, information and content are regulated by the Ministry of Information and Arts. Broadcasting licences are also issued by this ministry while infrastructure licences, such as radio station licences and cable TV network licences, are issued by the TAM.

Currently, there are three licenced telecommunications operators in the Maldives, namely, Dhiraagu, Wataniya Telecom

Maldives and Focus Infocom. Dhiraagu (<http://www.dhiraagu.com.mv>) was the sole provider of fixed, mobile and Internet services for about 17 years, until Wataniya (<http://www.wataniya.com.mv>) was given the licence to operate as the second mobile operator in 1999. Consumers have benefited immensely from the strong competition between these two operators. Focus Infocom (<http://www.rol.net.mv/>), licenced in 2003, serves as the second Internet Service Provider (ISP). Its services include high-speed broadband Internet access over CATV Network, Wireless Fidelity (WiFi) solutions for remote islands, peer-to-peer (P2P) fibre connectivity, virtual private network (VPN) solutions, and audio/video streaming services.

ICT AND ICT-RELATED INDUSTRIES

The Maldives does not have an ICT industry. However, it is an avid importer of ICT products. There are a few vendors selling hardware and software. Contributing to the bigger presence of hardware vendors is the low duty (only 5 percent) levied on imported computer hardware and consumer electronics equipment.

In October 2006, the NCIT initiated a program to establish operational modalities and guidelines for an IT Incubator and Strategic Alliance Program, following a feasibility study on the establishment of an IT industry. A set of incentives for developing an IT industry have been formulated, and an IT Industry Implementation and Marketing Plan is being drafted.

A five-year action plan called the IT Industry Blueprint has also been drafted. The plan highlights eight initiatives based on the three flagship areas of ICT infrastructure, ICT usage, and ICT facilitation. The eight initiatives are:

- ICT Precinct (ICT infrastructure) to help provide key infrastructure necessary to enter into joint ventures with offshore firms;
- Applications Development Centre (ICT infrastructure) to provide application development expertise;
- Technology Incubator (ICT infrastructure) to provide a vibrant environment for young people to establish IT ventures and learn valuable business and technical skills;
- Project Loan Support (ICT usage) to provide ready access to development funds and financing;
- Mobile Commerce and Payments Trial (ICT usage) to provide a new baseline of activity and demonstrate the broader benefits and efficiency of electronic commerce;
- Strategic Alliance Program (ICT facilitation) to create the right environment for skill, knowledge and technology transfer and promote partnerships between local enterprises and offshore companies;

- ICT Cadets (ICT facilitation) to enable young people to explore career and entrepreneurial opportunities in the IT sector; and
- Skills Certification (ICT facilitation) to raise the ICT capability, level of professionalism and commercial orientation of the local industry.

ENABLING POLICIES AND PROGRAMS

Since 2005 there has been no significant change in the institutional setup. The prevailing telecoms and IT policies are the key drivers of ICT programs. The Maldives Telecommunications Policy 2001–2005 enjoyed a successful five-year term during which most of its provisions and action plans were implemented. The aims of the policy were to reduce prices, improve accessibility, open up selected segments of the market, and strengthen the institutional capacity of the regulator. In 2006, the Maldives Telecommunications Policy 2006–2010 was issued. It aims to expand the national telecom infrastructure to provide broadband services to all parts of the country without any discriminatory charges.

The National Centre for Information Technology has been working with the United Nations Development Programme (UNDP) on the development of a National ICT Policy since 2003. Lack of project personnel and the change in government structure in July 2005 caused the delays. Initially, the National ICT Policy was an initiative of the Ministry of Communication, Science and Technology. The draft was circulated for comment among several government agencies such as the Ministry of Planning and National Development and the Public Services Division of the President’s Office. The following thrust areas were identified:

- ICT for Employment Creation
- ICT for Bridging the Digital Divide
- ICT for Human Resource Development
- ICT for Good Governance

However, as of September 2008, the final National ICT Policy has not been released.

LEGAL AND REGULATORY ENVIRONMENT FOR ICT DEVELOPMENT

A draft telecommunications act was completed in 2007 and is now awaiting approval by the Citizen’s Majlis. The bill will be taken up during the 1st or 2nd session of the Citizen’s Majlis

in 2009. In the meantime, the Maldives Telecommunications Regulation 2003 is being implemented.

There are also no cyber laws. However, the issue of cyber-crime has been taken into account in other laws being drafted. The current telecom policy cites the need for cyber laws.

DIGITAL CONTENT INITIATIVES

To address the low level of published content in the local language both in print and digital formats, the government has started awarding special prizes to authors of books and CDs for children in Dhivehi, the Maldivian language. The special prizes are awarded annually by the President at a ceremony marking Republic Day.

To provide easy access to the archive of memorandums (Dhennuvun) issued to government offices, the President’s Office has digitized all memos issued to date and distributed these on Compact Disc-Read Only Memory (CD-ROMs) to all offices. The National Centre for Linguistic and Historical Research (NCLHR) has also begun developing digital content in Dhivehi.

There has also been a boom in radio information and entertainment content with the liberalization of the broadcasting sector in 2007.

ONLINE SERVICES

The Government of Maldives has been trying to establish an e-government service platform for some years now. The NCIT, which is overseeing the project, is working hard to develop the application infrastructure and portals required to provide online information and services to the public. The applications to be developed include the following:

- Vehicle and vessel registration, including being able to make annual fee payments over the Internet.
- Birth and death registration and certification and a health database, to facilitate the electronic registration of births and deaths and the centralized management of the Vital Statistics Database.
- Expatriate employment, allowing expatriates to pay fees for work permits and check employer status.
- Companies and licences management, enabling businesses to register businesses and apply for import licences online.
- Government mail management to track incoming and outgoing mail to and from government organizations, monitor related action and provide better information to citizens about the processing of their mail to the government.

- Scheduling of government meetings, to facilitate the booking of meeting rooms and improve communication between government organizations.
- Data collection, particularly of statistical data, including data processing and sharing between government organizations.

The Maldives Police Service website (<http://www.police.gov.mv/>) has gained popularity as it offers very useful information and services to the general public in Dhivehi and English, including various applications forms, online leaflets and posters on crime prevention, useful statistics and the latest news.

There are currently 50 government websites, including those of state-owned public enterprises and diplomatic agencies. Very few of these websites offer interactive services to citizens. However, almost all have various forms that can be downloaded, filled in, and mailed or faxed to the relevant organization. There are also frequently asked questions (FAQs) sections that direct users to useful telephone numbers.

In August 2007, the Bank of Maldives launched the Maldives Internet Banking (MIB) service, which allows customers to pay utility bills and do other bank transactions online.

Meanwhile, the Maldives Monetary Authority is promoting mobile phone banking. The Mobile Phone Banking Project consists of two components. The first has to do with setting up the infrastructure required for the payment system, which includes the mobile payment system, a settlement system, a clearing house and a front end processing system. The second component is institutional strengthening, which includes developing an

appropriate legal and regulatory framework for the mobile payment system, capacity building for project stakeholders and partners, establishing a network of banking agents to provide easy access to the system in all inhabited islands, and creating awareness of the service through educational campaigns. The project, which started in 2008, aims to make the service available in 2009.

ICT EDUCATION AND CAPACITY-BUILDING PROGRAMS

The government’s developmental objectives and policies put much emphasis on the utilization of IT and IT skills training at all levels of education. However, although the application of information technology is spreading rapidly in the Republic of Maldives, particularly in business and government where big investments are being made to promote efficiency and productivity using IT, the use of IT as a tool in teaching and learning is still relatively uncommon in the general education system except for the post-secondary education sector.

Many factors contribute to this phenomenon. Computers are relatively new in many islands and island-based schools. Very few schools use even audio-visual resources to support teaching and learning. Also, access to the Internet is expensive and beyond the reach of a vast majority of the population. This is not surprising as some 40 percent of the population still live on less than a dollar a day, despite the GDP per capita of the Maldives being among the highest in South Asia.

Maldives Internet Banking

The most significant service provided to Bank of Maldives customers by the Maldives Internet Banking facility is the BillPAY service. The bills that can be paid via the MIB website include those for electricity, water, Internet, credit cards, and many other services. The MIB also allows its registered customers to do bank transactions 24 hours a day. Customers can view their financial statements, their credit card history for the last 12 months, and the status of issued cheques online. If necessary, they can stop payments of a cheque, transfer funds between their accounts, and make loan payments.

The MIB is particularly useful for customers who are travelling. For the Bank of Maldives, the MIB is a cost-effective way of dealing with numerous customers at once. Previously the bank had problems with limited physical space and one could see its customers queuing outside the bank building during peak hours.

The Bank of Maldives offers two different service plans for individuals and businesses. The Standard Package consists of the services mentioned above, including sending and receiving messages from MIB Support, activating a new credit card and debit card, reporting lost or stolen cards, and printing a receipt of every transaction. The Premium Package, which is targeted at the bank’s business customers, allows making payments to accounts held at other local banks as well as accounts held at overseas banks, arranging for standing orders, and uploading the payroll file.

(Source: Bank of Maldives 2007)

Another factor is the lack of a clear policy on the use of IT in teaching and learning. In the post-secondary education sector, the IT education initiative has come mainly from the institutions themselves. At the primary and middle school levels, IT literacy classes are optional. Consequently, attention to IT-supported teaching and learning is diluted. This problem is aggravated by a massive shortage of skilled personnel who can support the development of IT-supported learning and teaching systems.

However, a Ministry of Education project called Teacher Resource Centre and funded by the United Nations Children’s Fund is underway to provide training for teachers in island-based schools. The project aims to facilitate the professional development of teachers using high-quality audio-visual equipment and Internet-based resources. Under the project one centre will be established in each atoll to support the professional development of teachers serving in the general education sector.

While this is the case in the non-post-secondary education sector, IT use and multimedia-based teaching and learning systems are prevalent in the technical and vocational education sectors. The Maldives College of Higher Education (MCHE), the only publicly funded higher education institution in the country and which accounts for some 95 percent of the post-secondary sector, is leading the effort with initiatives in online instruction and testing. Most of the classrooms in its six faculties (health sciences, law, education, management and computing, engineering technology, and hospitality and tourism studies) and two centres (Open Learning and Maritime Studies) are equipped with audio-visual and IT resources.

Some constraints to the use of multimedia and IT in the education system are the following:

- While the Maldives enjoys one of the highest mobile phone ownership rates in South and East Asia, there is no nationwide infrastructure that would give the vast majority of the population affordable access to the Internet and IT resources. However, it is worth noting that access to IT is likely to change in the near future through community-based telecentres.
- The growth of the economy and the associated rapid expansion of the various economic sectors have created a tremendous demand for IT professionals in the public and private sectors. However, the supply is insufficient to meet this demand. Additionally, compensation for IT professionals in the public sector is far below market rates. Thus, it is almost impossible to attract sufficient IT talent into the education sector. The alternative is to import skills, but this would have some economic and social costs.
- There is a shortage of IT-savvy teachers with the passion to engage in designing and developing multimedia and IT-based

teaching and learning systems. As most schools in Malé run on two shifts, academic staff simply do not have time to devote to such efforts.

- The school infrastructure was severely damaged by the December 2004 tsunami, and the government is still working to rehabilitate damaged school infrastructure particularly in the outer atolls.

RESEARCH AND DEVELOPMENT AND OPEN SOURCE INITIATIVES

There are few research activities within the ICT sector. However, to promote research and development (R&D), the NCIT is developing incubator facilities and the new telecom policy is calling for the establishment of a think-tank for wireless and mobile technology innovations.

In the absence of organized R&D activities in ICT, the development of open source software is not significant. Open source software is also not very common in the general consumer market due to the availability of low cost unlicensed proprietary software. An exception is the use of the open source Firefox browser. Firefox is increasingly popular especially among young people, and Web developers are taking care to make websites fully compliant with Firefox.

Service providers also use a number of applications and backend software based on open source systems. Both Dhiraagu and Focus Infocom use Linux/UNIX-based applications.

Some individuals are working to promote open source applications, occasionally developing small applications such as instant messaging in Dhivehi and application add-ons.

CHALLENGES

One of the biggest challenges for the Maldives is the difference in population densities across the dispersed island nation. Few islands have populations of more than 5,000; in most islands, the population does not even reach a thousand. Still, the government has a policy of making all basic services, such as health and education, available in all inhabited islands. Needless to say, these services differ greatly in their quality in comparison to what is being offered in Malé, the capital island.

According to the 7th National Development Plan of Maldives, the key challenges that constrain sustainable development in the Maldives are:

- The devastation caused by the Asian tsunami of 2004
- The vulnerability of low lying islands and the fragility of the reef ecosystem

- The smallness, remoteness and wide dispersal of island communities
- Over-reliance on tourism
- Extreme dependency on imported fuel
- Disparities in income and access to infrastructure and services
- High levels of female and youth unemployment
- Drug abuse
- A poorly developed financial market
- A weak legal framework for development
- Eroding moral values and social norms

However, on a more positive note, the Maldives has seen tremendous growth despite the many challenges confronting it. With the exception of achieving gender equality and ensuring environmental sustainability, the Maldives has been successful in moving toward meeting the Millennium Development Goals (MDGs). The country needs to eliminate gender disparity in primary and secondary education and integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources. Achieving environmental sustainability is also one of the three pillars of progress identified by the Country Assessment Report of the World Bank. Thus, national development efforts are now focused on achieving environmental sustainability.

Prior to 2000, the Maldives government completed the project to provide telephone services to all inhabited islands. But telephone access is not sufficient for the ever increasing needs of the public. Universal service or residential telephone on demand is needed in very island. Due to the lack of economies of scale, this need has not been fulfilled except in 13 islands. But mobile telephony is now available across the nation. The next hurdle is how to provide broadband services to all islands in the absence of a wide band backbone network.

The country needs to prioritize the promotion of human development and social development. In the past, the government focused its attention on developing skills in the education and health sectors. However, since ICT has been integrated in the school curriculum, interest in ICT education is growing.

As it systematically addresses the many challenges confronting the nation, the Maldives might soon graduate from its status as an LDC to Developing Country status.

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