

Brunei

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Overview

Brunei Darussalam is a small Islamic sultanate on the northeast coast of Borneo island. The country is situated within latitudes 5°05'N and 4°00'N and longitudes 114°04'E and 115°22'E. It is bounded on the north by the South China Sea and on all the other sides by the Malaysian states: Sarawak and Sabah.

The country is one of the most ancient sovereign states in Southeast Asia and was often referred to as *Poli*, *Puni*, or *Bun-lai* by Chinese historians since the 6th century. Documented evidence from the 5th century indicates that Brunei existed as a Hindu-Buddhist city-state in the year 414. The first sultan, Muhammad Shah, became a Muslim during the middle of the 14th century.

Brunei then gradually grew to be one of the greatest empires of the Malay archipelago. During the 16th century, its sovereignty extended throughout Borneo and other surrounding islands.

European influence in the region started in the 17th century. In 1906, the country became a British Protectorate. The *Anglo-Brunei Treaty* of 1959 gave Brunei Darussalam its first written constitution, which was subsequently revised and brought up to date in 1971. On 1 January 1984, with the declaration of full independence by His Majesty Sultan Haji Hassanal Bolkiah Muizzadin Waddaulah, Brunei Darussalam became a sovereign state with a Malay Muslim monarchic government.

Since then, the nation has established strong political and/or socioeconomic relationships with various international and regional organisations, particularly the Association of Southeast Asian Nations (ASEAN), the Organisation of Islamic Conference, the United Nations, and the Asia-Pacific Economic Cooperation (APEC).

With a land area of 5,765 square kilometres and an estimated population of 344,500 in 2001, Brunei Darussalam is one of the world's smallest nations. Before the Second World War, population growth was largely attributed to natural increase; but subsequently with the expansion of the oil and gas industry, immigration has come to play an important part in the total population growth.

The country can be divided into four districts: Brunei/Muara (69 percent of the population), Kuala Belait (17 percent), Tutong (11 percent) and Temburong (3 percent).

The population is made up of indigenous Malay (67.9 percent), other indigenous races (5.6 percent), Chinese (15.2 percent) and others (11.3 percent). The age group of 0–19 years comprises 42 percent of the total population and forms the largest segment. Those 20–39 years old take the second place, making up 38 percent. Only 14.7 percent of the population is made up of people 40–59 years old.

Despite its small population size, Brunei Darussalam has a relatively high labour force participation rate, estimated at 69 percent. However, the employment figures indicate that 150,800 people (44 percent) are employed, while nearly 7,200 people (2 percent) are currently unemployed.

The government is the largest employer in the country, providing employment to 39,671 people (nearly 12 percent). In the private sector, the top three largest industries in terms of employment are construction (26,300), mining, quarrying and manufacturing (18,127) and wholesale and retail trade (13,611). The numbers in the private sector are growing fast, indicating the concerted efforts of the government to expand its diversification programmes aimed at reducing its dependence on oil and gas activities which are now the main contributors of the nation's GDP.

The GDP, at constant price in 2001, was B\$4,206 million. The oil and gas sector contributed 53.45 percent, while the non-oil private sector contributed 22.45 percent and the government sector 24.1 percent. The crude oil export target within these few years was set at 200,000 barrels per day. Liquefied natural gas export is also set to increase over the next few years, starting at around 900,000 million British thermal units per day.

ICT infrastructure

Building a reliable and progressive infrastructure has always been difficult as technology is constantly and rapidly changing. The government undertook a series of initiatives to strengthen the network backbone and telephone lines across the country throughout the late 1990s. One of these initiatives is RAGAM21. It includes the fibre optic cables laid from Brunei/Muara district to Kuala Belait and the international gateway connectivity of around 60 Mbps through submarine fibre optic cables to Singapore and the USA.

Putting this technology and infrastructure to good use is more challenging. Users need to first acquire the skills and capacities to make use of the new technologies. They also need to accept the cost accessing the technologies and the infrastructure.

Jabatan Telekom Brunei (JTB), being the only ISP and a government agency, had to play the multiple roles of regulator, promoter and ISP until 1999. DST Sdn. Bhd., which began its core operations as a mobile phone service provider, launched its ISP services, Simpura Net, in 2000.

Three new ISP licences were also awarded to private enterprises in 2001. However, they have not launched their services at the time of writing.

JTB will be fully corporatised in April 2003 and renamed TelBru. It will serve only as an ISP. Its regulatory role will be taken over by the newly established Authority of Information Technology Industry.

People's access to technology

Brunei Darussalam is a dynamic and progressive society. The official literacy rate is above 92.5 percent. Most of the people speak good Malay (the official language) and English (which is used very widely).

Because of its high GDP per capita (B\$22,500), its people are very receptive to telecommunications technology. When the first ISP, Brunet of Brunei Telecoms, started its operations in 1995, there were only 816 individual Internet subscribers (0.3 percent of the total population). In 2002, the number of subscribers climbed to more than 15,540 (4.6 percent of the total population). An additional 8,000 accounts (2.3 percent) were subscribed through the second ISP DST Sdn. Bhd.

The rapid growth in the telecommunications sector was also reflected by the increase in direct exchange lines. The total number grew from 48,110 lines (18 percent of total population) in 1992 to 83,310 (24 percent) in 2001. DST also enjoyed an encouraging uptake of mobile phone services, amounting to 131,246 subscribers (38 percent of total population) in 2001.

Over the last decade, Brunei Darussalam experienced not only rapid flows of information but also of tourists. Inbound passengers using air transportation totalled just over 390,000 in 1993. In 2001, the figure was reported to have increased to 530,600.

A good indication of the growing popularity of e-mail is the reduction in postal mail going in and out of the country. In 1993, inward mail was about 349,000 kilograms and outward mail was 78,700 kilograms. But in 2001 the post office saw a massive drop in inward mail to just 222,900 kilograms and outward mail to 37,300 kilograms.

Almost 90 percent of home users make dial-up connections via 56 Kbps modems. An ADSL service called e-Speed was introduced to the country in 2001 with varying bandwidths from a basic 128 Kbps connection for B\$98 per month to 256 Kbps for B\$150 per month. Corporate rates

Brunei facts

- Total population:** 340,800 (2002)^a
- Rural population as a percentage of total population:** 33.4%^b
- Key economic sectors:** Oil and gas^b
- Literacy in the national language(s):** 92.5%^a
- Literacy in English:** 92.5%^a (the education system is bilingual with English and Malay)
- Computer ownership per 100 inhabitants:** 10^c
- Telephone lines per 100 inhabitants:** 24.7^a
- Internet cafés/telecentres per 10,000 inhabitants:** 1^c
- Internet users per 100 inhabitants:** 5^a
- Cell phone subscribers per 100 inhabitants:** 42^a
- Number of websites in the national language(s):** Less than 12^c
- Number of websites in English and other languages:** Less than 20^c
- National bandwidth within the country:**
A fibre optic backbone across the country capable of delivering 133 Mbps.
- National bandwidth to and from the country:** Less than 70 Mbps (14 Mbps to Singapore and 45 Mbps to the USA)

Sources:

- (a) *Brunei Darussalam Key Indicators 2002*. Department of Statistics, Department of Economic Planning and Development, Prime Minister's Office, Brunei Darussalam.
- (b) *Brunei Darussalam Statistical Yearbook 2000/2001*. Department of Statistics, Department of Economic Planning and Development, Prime Minister's Office, Brunei Darussalam.
- (c) Author's estimate; no official data available.

are almost twice the domestic rates. A new broadband ADSL service capable of delivering up to 2 Mbps is being introduced on a trial basis to selected individuals, and it is expected to roll out commercially in early 2003.

A small number of institutions and organisations are connected through leased lines. Notably, Universiti Brunei Darussalam (UBD) (2 Mbps), Institute Technology of Brunei (ITB) (2 Mbps), Royal Brunei Airline (2 Mbps + 512 Kbps), Brunei Shell Petroleum Companies, and banks are leased-line users with their own data centre providing LAN services to their staff.

The two existing ISPs are providing a very competitive and high-quality service in the country. The consumers can obtain better services at lower costs. For example, the recently revised Brunet dial-up pricing has brought local prices closer to regional ISPs' pricing and services. Student subscriptions start at B\$8 per month, while personal accounts cost B\$15 monthly with 650 minutes of free usage. Family accounts include three free e-mail accounts and cost only B\$45 per month with 2,215 free minutes.

The rapid proliferation of cell phones and the popularity of short message service (SMS) among cell phone users are creating a new wave of communication, particularly among the young. However, WAP and MMS are not picking up as fast as in Japan, South Korea and Hong Kong. Similarly, wireless and direct satellite-based technologies for Internet connectivity are not popular as the whole country has been wired up, with the exception of a few isolated villages. The use of microwave technology is limited to Brunei Shell Petroleum Companies for onshore-offshore transmission.

Content

Local content providers have only recently begun to make serious attempts at publishing their material online. <<http://www.brunet.bn>> is one of the most popular websites in the country. It provides local and international news extracted from *Borneo Bulletin* <<http://www.brunet.bn>>, the only local English daily, *Pelita* (the government weekly newspaper published in Malay) and *Media Permata* (a local Malay daily).

The development of websites by various government ministries has also made a strong government presence on the Web. The content offered appeals to both local and international surfers.

Newsgroups and mailing lists are quickly becoming popular, particularly those related to hobbies and cultural activities. Tourism and hospitality-related sites are mushrooming, a trend that latches on to the national initiative to promote Brunei as a tourism destination and hub.

Websites related to agriculture, rural development, business and NGOs are few and seem unlikely to become popular with users.

Important national sources of content

Brunei Government <<http://www.brunet.gov.bn>>

The official government website provides links to various ministries and departments. Its content is not updated very frequently.

Brudirect <<http://www.brudirect.com>>

This is probably the most widely known locally produced site and provides a glimpse and links to almost all known sites in the country. Its main features are the *Borneo Bulletin* news (with archives) and government sites.

Bruneipage <<http://www.bruneipage.com>>

This website shares many of the characteristics of the successful Brudirect pages. More detailed information on the Internet, e-commerce and communications technology is available here.

HSBC <<http://www.hsbc.com.bn>>

The local branch of the Hong Kong and Shanghai Banking Corporation (HSBC) is perhaps the most active bank in promoting ICTs and e-commerce in the country by providing an online payment gateway and e-banking facilities.

Bruneihome <<http://www.bruneihome.com>>

A popular site for anyone interested in buying or renting houses, or who simply wants to know more about real estate and properties throughout the country.

Simpur Net <<http://www.simpur.net.bn>>

This site is maintained by the single wireless phone service provider in the country. It provides e-billing for DST's accounts.

Resource and Standard Centre

<<http://www.bsment.org.bn>>

This site is the brainchild of the Ministry of Industry and Primary Resources, and it aims to encourage local small and medium enterprises (SMEs) to enhance their ICT capacity.

Brubiz <<http://www.brubiz.com>>

This website prides itself on being one of the few active sites that thrive on Brunei's business and leisure activities. Most of the key items are, however, extracts of foreign news.

Bruclass <<http://www.bruclass.com>>

This increasingly popular website tends to attract a lot of local students and teens to voice their opinions and post messages.

Livewire <<http://www.livewire-brunei.com>>

This site is a result of Brunei Shell's initiative in promoting young entrepreneurs and local SMEs. It is a "business programme for young people".

Online services

Both the public and private sectors seem to follow the general trend of progressing initially from having a Web presence to customer interactions, then to online transactions and services, and finally on to organisational transformation.

Only a few government websites have upgraded to include online services. The recently launched e-government initiative will include online billing, applications and services.

The Ministry of Education is working on the deployment of e-learning facilities in UBD, ITB, technical colleges and schools. This is likely to kick off in early 2003. The Ministry

of Health, likewise, is also tapping into the e-government initiative to provide more comprehensive health care through e-health. Its implementation is likely to come in the middle of 2003.

HSBC and other international banks in the country are perhaps the pioneers in launching e-banking services. Brunei Shell Petroleum Companies appear to lead the way in e-bidding, e-procurement and other e-business services.

ICT industries and services

When the Asian economic crisis erupted in mid-1997, ASEAN member countries were quick to undertake an in-depth review of their economies. They soon realised the importance of deploying more innovative, cost-saving and productive operations and more focus on strategic and sustainable use of resources.

IT was inevitably brought up as the key driver for implementing changes. The knowledge economy is envisaged to play a new role in defining the way these countries strive to become competitive.

It should be borne in mind that what Brunei is experiencing is just the beginning of an ICT evolution coupled with a knowledge-based economy. The only constant is change. ICTs are literally changing the dynamics of business. Paradoxically, the business arena is demanding greater innovation and strength in technology to enhance its competitive advantage. On the other hand, many of the ICT achievements have yet to find meaningful applications in the commercial world. Sometimes, the adoption of such technology requires huge capital outlay, which leads to negative returns-on-investment and disastrous consequences when plans go wrong.

While cyber business is causing an upheaval that is shaking the foundation of conventional business, new business models are constantly being defined and tested. The traditional wisdom of “wait and see” may no longer stand up to the pervasiveness of the new economy. Speed, pioneer status and leadership are some of the new buzzwords.

Business game plans need to switch to a new paradigm and adopt innovative ways to harness the benefits from such changes.

Enabling policies

Several banks in Brunei Darussalam were already offering Internet banking facilities and Internet clearinghouse by 2001. While some private sector organisations were quick to deploy IT effectively, the main driving force has to come from the government. In the drive to realise the National IT Vision (i.e. to exploit IT to its full potential for national prosperity), the Brunei Darussalam Information Technology (BIT) Council was formed to assist the government in making an e-Brunei in the years to come. More up-to-date information on the e-government programme can be found at <<http://www.bit.gov.bn>>.

The Minister of Communications, Pehin Zakaria, chairs the BIT Council, which consists of members from public and private sector organisations. Two major programmes were initiated: e-government (paperless governance and information exchange through multimedia technology in the public sector) and e-business (effective and competitive deployment of IT in the private sector).

The Permanent Secretary of the Prime Minister’s Office, Dato Hazair, chairs the E-Government Programme Executive Committee. The committee members are the respective permanent secretaries of the ten ministries in the government. The mission of the BIT Council is to lead and facilitate the strategic development and diffusion of the state of the technology for the entire nation. Ten major action plans were crafted:

- 1. IT Leadership:** Through relevant agencies, provide national leadership and innovation in IT and manage the strategic use of IT in the country.
- 2. IT Needs:** To coordinate and examine the IT needs of the public sector and provide relevant guidance to the private sector.
- 3. IT Literacy:** To enhance the level of IT literacy among all members of the society.
- 4. IT Manpower:** To ensure a continuing supply of the required IT experts and other IT personnel in the country.
- 5. IT Applications:** To promote effectively applications of IT, facilitate best practices in the public sector and reduce the cost of doing business with the government.
- 6. IT R&D:** To scan strategic and leading edge IT and to promote its effective diffusion through R&D and dissemination.
- 7. IT Links:** To establish and facilitate, with other agencies where necessary, the development and maintenance of the IT infrastructure with IT links to regional and global infrastructures.
- 8. IT Economy:** To establish, where appropriate, interactive online information and services for all members of the society, including the use of multimedia and multi-networking in government, education, health, finance, business, trade, and other primary and secondary sectors of the economy.
- 9. IT Businesses:** To promote the establishment and growth of IT-linked businesses and services.
- 10. IT Relevance to Brunei Darussalam:** Through the relevant agencies, formulate, where appropriate, policies and establish the framework, measures and activities for

promoting the strategic development and use of IT in line with the national values and interests of Brunei Darussalam to deal with relevant domestic, regional and global agenda.

The government has allocated B\$1 billion for the development of e-government over the period 2002–2005. Every ministry and its respective departments and units need to identify their IT requirements and strategic business and then develop an IT plan and a business plan in order to mobilise the funds for project implementation.

Regulatory environment

Noting the rise in Internet and electronic transactions, the government was quick to put up relevant legislation in order to instil user confidence and promote IT development in the country. The following four laws were passed:

1. *Broadcasting (Class Licence) Act 2001*, which deals with the licensing of ISPs and content providers and the liabilities of these providers

2. *Internet Code of Practice Notification 2001*, which gives guidance on the roles and responsibilities of users and providers

3. *Computer Misuse Order 2000*, which protects against the abuse, intrusion, hacking and attack of electronic devices and information

4. *Electronic Transaction Order 2000*, which recognises the legality of electronic transactions

All the four cyber laws parallel those adopted in Singapore. The characteristics of these laws and acts are available in the chapter of this publication on Singapore.

Open source movement

The use of open source software is on an ad-hoc basis and found mainly in non-critical applications. Microsoft products prevail and are used almost as the default systems. A few research activities are underway to investigate the potential use of open source software in desktop productivity tools, servers and connectivity utilities.

Research into ICTs

Several ICT-related research projects are ongoing at UBD and ITB. The Library of UBD <<http://www.ubd.edu.bn>> keeps an up-to-date collection of the publications on these projects. Most of the projects are funded by their respective institutions. Others are funded jointly with local ICT vendors.

Future trends

The B\$1 billion allocated for e-government will spur unprecedented spending on ICT hardware, software, applications and consultancies in the next couple of years. The primary target will be realised in terms of enabling government services to be more productive, electronically enabled, and successful in building ICT capacity and enhancing SMEs. Many ICT vendors in partnership with foreign firms are growing and are capable of providing substantive inputs. Online services offered by the private sector will grow and lead to some organisational transformation and greater competitiveness.

However, there are several challenges ahead. Local content development will be hampered by incumbent content providers, except for educational e-learning materials. ICTs will become increasingly popular among the young because of its social and entertainment values.

Sustaining and maintaining the large ICT capital expenditure would require a continuous injection of money. There must be positive return on investment that is convincing enough for senior management to agree to continue to support the programme.

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Dedication

The author dedicates this chapter to the late Dato Paduka Seri Setia Professor Dr Awang Haji Mahmud Saedon bin Awang Othman who inspired many in Brunei Darussalam to embark on their digital journey.