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<th>Information highways: policy and regulation in the construction of global infrastructure in ASEAN - Brunei Darussalam</th>
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<tr>
<td>Author(s)</td>
<td>Koh, Wallace H. A</td>
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Information Highways: Policy and Regulation in the Construction of Global Infrastructure in ASEAN – BRUNEI DARUSSALAM.

By: Wallace H.A. Koh
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Brunei Telecommunication Department
Ministry of Communications
BRUNEI DARUSSALAM

15th August, 1998
Information Highways : Policy and Regulation in the Construction of Global Infrastructure in ASEAN – BRUNEI DARUSSALAM.

A. Introduction

Computer hardware development has eventually evolved to a mature development state over the last 30 years. This has enabled the information revolution to spread across from the academic institutions to hobbyists and has finally reached the commercial sectors before entering every household in every part of the world as long as there is a phone connection either through wire line or wireless. Incumbent telecommunication operators in each ASEAN country have long invested vast amount of financial resources into submarine fiber optic cables and satellite transponders reservation in order to build up this global information infrastructure awaiting for the great demand of information traffic. The picture of Information Highways has become clearer to everyone through the advancement of Internet Usage.

With the blessing of great wealth gathered through the oil and gas production, Brunei Darussalam population can enjoy one of the highest living standard amongst ASEAN countries as well as benefiting from the introduction of advance technology in broadcasting, telecommunication, computers and satellite communications. Policy and Law on these advance technologies in Brunei Darussalam have been slow to adapt to the fast changes as in many other countries in the world.

B. Social economic profile of Brunei Darussalam

Brunei Darussalam is a small monarchy country with an estimated population about 305,100 persons in 1996 as shown in Appendix 1. This comprises of 161,500 males and 143,600 females. The largest racial group is Malay comprising of 204,000 persons (66.9%), followed by Chinese 46,300 persons (15.2%), Other Indigenous 18,100 persons (5.9%) and Other 36,700 persons (11.9%). About 126,500 persons (41.5%) is below the age of 20 years and 20,600 persons (6.8%) age 55 years and above. Annual rate of increase is 3.1%. Brunei Darussalam has 4 districts. Brunei/Muara district has the largest population of 201,100 persons (65.9%), Belait and Tutong districts with 61,800 persons (20.3%) and 33,500 persons (11.0%) respectively. Temburong district has the smallest population of about 8,700 persons (2.9%).

The Government of Brunei Darussalam provides free education to all Brunei Citizens who attend government schools/institutions. Tuition, textbooks, transport where necessary and accommodation in hostels for students from rural areas are provided free to all citizens. At present, there are 164 government schools/institutions and 51 non-government schools/colleges. The government schools/institutions comprise 1 University, 2 Institutions, 1 Nursing college, 1 Teacher Training college, 7 vocational or technical colleges and others which include pre-school, primary and secondary schools.
Total number of students enrolled in government schools is about 62,000. Malay and English languages are used as the media of instructions except for schools under the Ministry of Religious Affairs, where Arabic language is used instead. There are about 26,000 students in the non-government schools using Malay, Chinese and English as the media of instructions. The University Brunei Darussalam was established in October 1985 to offer degree courses to citizens. Scholarships to study abroad are only offered for courses that are not available at the university. Achievement of the decades of Human Resource Development in the past Development Plans is the high percentage of the population with tertiary qualifications as in Appendix 2. In 1991, out of 17,396 with tertiary qualification, 38 percent had a university degree and the other 62 percent having some other form of tertiary qualifications. Out of this total, local residents numbered almost 10,300 (about 2,500 having university degrees) and temporary residents, about 7,000. With the completion of the new campus for the University Brunei Darussalam, the establishment of ITB, vocational schools, continuous scholarship programmes and in-service training schemes, the number of locals with tertiary qualification will certainly continue to increase.

Health care services for Brunei citizens and those in the government services and their dependents aged 12 years and above are charged only a dollar for each consultation and medication can be obtained free of charge. While those aged below 12 years are provided free of charge. Others are only charges a nominal fee for consultation. For medical services which are not available in Brunei, citizens and those who are eligible, are treated overseas at government’s expense. The public health programme is focused on achieving the target of “Health For All by the Year 2000”.

Brunei Darussalam issued its own currency in 1967 replacing the Malaya British Borneo money which was previously shared with Singapore and Malaya. The Brunei and Singapore currencies were pegged under a so-called interchangeability agreement since 1967. Hence the Brunei dollar is at par with Singapore dollar and is used interchangeable in both countries. Gross circulation of Brunei Currency at the end of 1996 amounted to 601.1 million. Exchange rates of currencies are subjected to daily fluctuation.

Brunei Darussalam’s economy is heavily dependent on oil and gas production. The government has outlined measures to reduce this dependency by diversifying the economy through the establishment of future industries and development of other natural resources under each Five Year National Development Plan. Under an oil conservation policy in 1981, to rationalize the oil output, the production was reduced from an average of 261,000 barrels a day in 1979 to the level of 150,000 barrels a day by 1989. Gas production in 1996 is 11,097 Million Cu. Meters. The majority of which are exported to Japan and South Korea as LNG.

In 1995, Brunei Darussalam has a surplus balance of trade of B$839.3 million. Exports including re-exports was B$3,893 million while imports was B$3,053.7 millions. The GDP per capita in 1996 is B$25,188. A sum of $7,200 million has been allocated to seven sectors of the economy over the next five years starting from 1996 as shown in Appendix 3.
C. Description of the communication infrastructure in Brunei Darussalam

The following Table 1, shows the summary of basic data as of 1996: The 13 years of historical data are shown in Appendix 4 and 5.

Table 1: Data summary as of 1996.

<table>
<thead>
<tr>
<th>1996 data</th>
<th>TV sets</th>
<th>Radio sets</th>
<th>Newspapers</th>
<th>Cinemas</th>
<th>Telephones</th>
<th>Computers</th>
<th>Fax machines</th>
<th>Internet subscribers</th>
<th>Satellite broadcast access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>190,300</td>
<td>310,105</td>
<td>5</td>
<td>78,794</td>
<td>8,000</td>
<td>-</td>
<td>8,000</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Remark</td>
<td>No license is required</td>
<td>No license is required</td>
<td>Borneo Bulletin, Salam, Permata, Pelita Brunei, Brunei Darussalam</td>
<td>Borneo, Hassanal Bolkiah, Marina</td>
<td>1994 estimate</td>
<td>No license is required</td>
<td>May, 1998</td>
<td>Star TV satellite feed and rebroadcast locally, Astro from Malaysia</td>
<td></td>
</tr>
</tbody>
</table>

Other communication related data is obtained from the ITU’s yearbook of statistics as in the Appendix 6 for the last 11 years.

D. Description of laws, rules, regulations and practices relating to both national and international communication in Brunei.

1. Information and Media

(a) Broadcasting.
The Broadcasting Act was drafted and introduced in 1997 which covers all aspect of Broadcasting. A new Broadcasting department under established in 1997 under the Prime Minister’s Office headed by a department director to undertake the regulatory function of Broadcasting.

Media Organisations:

i) Government Media:
- Radio Television Brunei
  - Radio Stations/Networks
    - National Network 92.3FM / 93.8FM
    - Pelangi Network 91.4FM / 90.0FM
    - Pilihan Network
    - Harmoni Network 94.1FM
    - Nur Islam Network 93.3FM
- Television Station
  - Channel 5
ii) Private Commercial Media:
  - DST Communications Pte Ltd
  - Radio Stations/Networks
    - Capital Gold 98.7FM
    - Capital Radio 101.1FM
    - These two channels are London based and have been re-broadcasted for local audiences.
  - Television Station
    - Star Televisions – 13 channels (BBC, CNN, Star Movies, Star Sports, Star World, HBO, V channel, ESPN, Cartoon Networks, Discovery Channel, ZEE Cinema, MTV, Phoenix.)
    - Viewers are required to purchase decoder in order to view these channels for free.

iii) Private Home
 Unsolicited broadcast of television programmes by multinational satellite broadcasters to the air space of Brunei reaching each private home via private Satellite dish receiver. Telecommunication Department issues the ownership license of private satellite dish receiver at B$25 per annum. The maximum diameter that a private home can own and use is limited to 12 ft.

iii) Production House
 There are at many as 7 production houses that have recently sprang up to provide certain programs to the Radio Television Brunei namely:
  - PHAB Production House
  - Telescreen Production
  - Filmagic Production
  - Meditron Production
  - Hanipun Production
  - Dasmin Studio Production
  - RGB Production

Radio Television Brunei (RTB)

RTB has the following functional objectives:
  - To increase the public knowledge and understanding of Brunei Darussalam Government Policies.
  - To increase the competitiveness of RTB in the field of quality entertainment.
  - To increase the awareness and participation of the public in the socio-political, socio-economic arts and culture of Brunei Darussalam.
  - To increase the cost effectiveness of RTB for the provision of these services.
  - To improve international broadcasting relationship as a contribution to the achievement of the above goals.
a) Television

Television Format
Television service began as an all color network in 1975 on the Pal 625 system. It broadcast programmes in English and Malay everyday from 6.00 a.m. until midnight. Local programmes constitute of 35% while 65% are imported programmes. Broadcast are received on channel 5 in Brunei-Muara, Tutong and Temburong District and channel 8 in Belait District.
Radio Television Brunei participates in the Asian vision news exchange program arranged by the Asia Broadcasting Union. This enable regional news from neighbouring countries can be viewed. RTB also obtain visual materials on current affairs from UPITN and subscribes to Reuters,UPI and Visnews.
1995 Statistic shows that there are 173,000 television set and at a recent survey almost 95% of the population were watching Radio Television Brunei.

Television Programmes
- Local:
  - Rampai pagi
  - Liputan Semasa
  - Tunas Mekar
  - Juara
  - Jambangan Muzik
  - Drama
  - News and current Affairs
  - An Nur
  - Potret Video
  - Jendela Keluarga
  - Dimensi Muzik
  - At Taufik

b) Radio

Radio transmission in Brunei Darussalam goes back to May, 1957 when programs were transmitted only two and quarter hours each day.
But today, there are over thirty hours of transmission daily on two radio networks, one broadcasting in Malay and the second in English, Chinese and Nepali. Around Kuala Belait, the British Forces Broadcasting Services can also be received.
Most of the Malay language programs are produced locally, while much of the English language entertainment is obtained from the British Broadcasting Corporation in London.
Profile of Station/Network

National Network 92.3 FM / 93.8 FM

Station Format:
As of 1st July, 1996, this network was upgraded to be a 'heavy duty' network. It was as a catalyst and channel for the nation's development policy, infrastructure, livelihood of the society, to publicize the movement and economic growth through current information, disseminate political issue, religious, news and current affairs, information and culture. The network also promotes international relations through joint programme productions under 'Memorandum of Understanding in the field of Broadcasting' especially among the ASEAN region.

Programme Contents:
The network produces programmes in the format as follows:-
- Magazine
- Current Affairs
- Forum
- Religious Package
- Discussion
- Developmental Quiz
- Music, Contemporary and Current Entertainment
- Educational and Community Knowledge

Percentage of Content:
- Information, Current Affairs and Magazines - 70%
- Music - 30%

Language:
Malay

Transmission:
19 hours 30 minutes daily (4.30 am until 12.00 midnight)

Target Audience:
Above 25 years

Theme:
Information Channel for all level of society

Pelangi Network 91.4 FM / 90.00 FM

Station Format:
This network is specially for the broadcast of programmes for youths and teenagers, and to create a more pragmatic and pro-active attitude in enhancing progressive mental development as a contribution in the national development.

Programme Contents:
The Pelangi Network broadcasts the following programmes:
- Musical
- Interactive with listeners through topics of discussion
- Students' Note
- Various aspects of youths' development message
- Discussion regarding youths' development
- Current quiz/Religious/Educational/General Knowledge
- Music and Entertainment of the 90's
- Educational Affairs, Community, Religion and Youth's Self-development
- ASEAN In Action

Average Composition:
- 60% Music, 40% Quiz, Counseling and Interactive with listeners

Language:
Malay and English
Pilihan Network 95.9FM / 96.9FM

Aims
Pilihan Network (English) RTB exists to cater for the English speaking public including expatriates in Brunei Darussalam. It seeks to be an alternative channel to other channels of Radio Brunei, providing local programmes of information, education, entertainment and a few selected programmes with an international flavour.

Channel Format
With a general spectrum of programming formats, the programmes broadcast, echo the Malay Islamic Monarchy philosophy and the international relations of Brunei Darussalam while continuously reflecting the national cultural heritage. The network offers a selected choice of programmes designed to cater to the needs of the English speaking adult and children audience.

Format Content
Pilihan Network English broadcasts programmes in the format as follows:
- Magazine for Current Affairs
- Short programme capsules
- Forum
- Documentary
- Music - oldies and contemporary
- Quiz
- Sports
- News 6 times daily

Percentage Composition (Magazine)
- 60% material
- 40% music

Language
English

Transmission
12 hours daily
- 06.00 am - 09.00 am
- 11.00 am - 16.00 pm
- 20.00 pm - 24.00 pm (midnight)

Target Audience
Adults and children

Theme
Pilihan Network - Your Ultimate Choice

Harmoni Network 94.1FM

Station Format
The Network specializes in family programmes in an effort to instill and strengthen the spirit of respecting each other, happy and strong family institutions with reference to humanity development.
Harmoni Network broadcasts programmes in the following format:-

- Religion
- Sports
- Family Forum
- Religious Package
- Family development discussion
- Family Quiz
- Music, easy listening and evergreen entertainment
- Educational, Societal and Family Knowledge

**Percentage of Content**
- Information, Current Affair, Magazine and Sport - 50%
- Music - 50%

**Language**
- Malay

**Transmission**
- 18 hours daily (06.00 am - 24.00 pm (midnight))

**Target Audience**
- Above 20 years

**Theme**
- Symphony of Harmonious Family

**Nur Islam Network 93.3FM**

**Station Format**

The Network acts as a catalyst to the development and steadfastness of the religious way of life in Brunei Darussalam. Towards this, programmes broadcast are wholly religious which enable audience of all levels to understand Islam, its thinking, education, civilization, history and the philosophy of being a Moslem (Muslim).

**Objectives**

- Understanding Islam as Ad-Din (religion) and not as culture or tradition in life.
- Understanding the teachings of Islam according to the Sunnah Wal Jemaah doctrine.
- Promoting Islam for the non-Moslems to understand better.
- Enhancing the religious understanding among Moslems in the country, as guide to a correct way of life, good family up bringing and social harmony.
- Avoiding religious misconceptions by increasing intensive religious education programmes.

**Target Audience**
- All levels of audience

**Theme**
- Knowledgeable, Worshipped and Faith

(b) **Print Media.** At present there is no Press Law in Brunei Darussalam. However the Print media is covered under the Newspaper Act Chapter 105 and the Printing and Publication Act Chapter 25 of the Laws of Brunei. These Acts are to safeguard the interest of the country and the public against undesirable elements. As well to safegurad people against racketeers whose primary objective was just to make a quick profit from advertisements. Errant publishers, printers and distributors of unlicensed journals, periodicals and magazines will face stringent legal action.
Media Organisations:

i) Government Media:

- **Information Department**
  - *Pelita Brunei (Weekly)* with 45,000 copies in circulation
  - *Brunei Darussalam Newsletter (Fortnightly)*
  - *Brunei Darussalam News Digest*

ii) Private Media:

- *Brunei Press Sdn Bhd*
  - *The Borneo Bulletin (Daily - 18,000 /weekend - 15,000)*
  - *Media Permata (weekly)* with 8,000 copies in circulation

iii) Foreign Based Media:

- *International Times*
  - *International Times* with 55,000 copies in circulation
- *See Hua Daily News Bhd*
  - *See Hua Daily* with 7,500 copies in circulation
- *Miri News Company, Miri Daily* with 23,000 copies in circulation

(c) Film and Video

Cinema

There are only three private cinemas left operating now namely:

- **HASSANAL BOLKIAH CINEMA**
- **BORNEO THEATRE**
- **MARINA THEATRE**

2. Telecommunication

Jabatan Telekom Brunei (JTB) was established as a government department in 1952. Prior to this establishment, the service was administered under the Post and Telegraph Office. Since then telecommunication systems and infrastructure had undergone gradual modernization. Drastic transformation had become more obvious especially after Brunei Darussalam achieved its independence in 1984. Its operation is guided by the Telecommunication Act under the Laws of Brunei.

Today, JTB is one of the six departments under the Ministry of Communication and offers a wide range of domestic and international telecommunication services in voice, message and data communications. Being a national telecommunication services provider, JTB has been committed to play a leading role in facilitating the development of info-communications in the country.
Anticipating potential privatization of JTB, its regulatory functions are being gradually transferred to a newly established 'Regulatory Unit' in the Ministry of Communications. JTB's mobile phone service was privatized in 1994 and operated under DST communication Sdn Bhd. Both AMPS and GSM systems are used for the mobile phone service which has a total of about 45,000 customers by end of 1997.

JTB has a mission to provide a full range of high quality telecommunication services at competitive prices to meet the social and economic aspirations of the Government and people of Brunei Darussalam. JTB's ultimate vision is to become a world class telecommunication services provider by the year 2000.

(a) Telephone
Provision of fixed lines is the core business of JTB. JTB has also privatized its internal wiring, customer premises equipment (CPE) like telephone sets and PABX equipment. Fax machines are not regulated any longer and no statistical data is available. Fax machine has become a consumer item and some are available in modem cards. Many other value added services are added over the years as classified below:

- **Voice**
  - Telephone
  - Public Payphones
  - PhoneXtra
  - Electronic Lock
  - PABX / KTS
  - National Toll Free
  - FonBox

- **International Services**
  - Brunei Direct
  - Home Country Direct
  - International Direct Dialing / STD
  - Operator Assisted Calls
  - Gold Global Calling Card
  - Hallo Kad

- **Bureau Services**
  - Telephone
  - Bureau Fax
  - Telegram
  - Videophone

- **Data Communications**
  - Leased Lines
  - BruNet (Internet Services)
  - Frame Relay
  - ISDN
• Conferencing Services
  - Audio
  - Video

• Text
  - Telex
  - Facsimile
  - FaxBox

• Radio
  - Trunked Radio
  - Wireless Local Loop
  - Walkie-Talkie

3. Internet

JTB has started its Internet Service back in October 1995 and has brand name called BruNet. Current BruNet is the only Internet Access Provider as well as Internet Service Provider. Currently Internet Service is covered under the Broadcast Act which has just being introduced in 1997. The internet codes of practice and guidelines have been drafted by Prime Minister's Office awaiting for final approval. The content cover issues pertaining to defamation, obscenity, hate speech and other areas undermining public morals, political stability and religious harmony.

University Brunei Darussalam, Institute Technology Brunei and Sultan Saiful Rijal Technical College have been linked to BruNet to provide their students access to the Internet. More other education institutions, colleges and corporates are planning to be online as well. Internet subscription has grown tremendously globally and BruNet is of no exception. BruNet has grown from a mere 500 subscribers in the first month of launching in October, 1995 to 8,218 subscribers by June, 1998 as shown in Appendix 7. There are currently about 8 leased line subscribers and with many more applications in the pipelines. BruNet is currently linked to SingNet on a 2 Mbps link and has plans to link to USA directly on multiple 2 Mbps linkage.

Government Official Website is being developed right now and will be available by end of 3rd quarter this year. The Government Official Website will consists of information from all the ministries and departments. Dynamic job application and advertisements are also being planned.
4. Satellite Communication

The usage of telecommunications inclusive of Satellite Communication is governed by the Telecom Act 1974. Under the Telecom Act, any radiocommunications or telecommunications requires a licence. The Director of Telecommunications is empowered to give away licences and also has the task of managing the frequency spectrum in Brunei Darussalam.

Provisions are also made under the Act in relation to satellite receive-only dishes. These are made under the Satellite Radiocommunications Apparatus regulations that gives the licencing authority to a Licensing Board for Satellite Radio communication Apparatus. The normal procedures for application for the licence must be made in writing to the Director of Telecommunications who has been appointed as the Secretary to the Board.

Telecommunication Department issues the ownership license of private satellite dish receiver at B$25 per annum. The maximum diameter that a private home can own and use is limited to 12 ft. Importers of any telecommunication or radiocommunication equipments, are required to an import duty of 5% and requires to obtain licenses to import from the Telecommunication Department.

Radio Television Brunei has its Earth Station installed at Subok located at 114 degree E pointing to:
- Asiasat 1 at 105.5 degree E
- Palapa B2R at 108 degree E
- Palapa B2P at 113 degree E
- Palapa B4 at 118 degree E

Brunei Telecommunications Department has its Earth Station installed at Telisai located at 114 degree E pointing to:
- Indian Ocean Region (IOR) at 60 degree E primary
- Pacific Ocean Region (POR) at 174 degree E primary

5. Computer

Currently there is no Computer Misuse Act to govern the usage of Computer in Brunei Darussalam. Brunei Darussalam is a member of the World Trade Organisation (WTO) and has become a member of World Intellectual Property Organisation (WIPO) on 21st April, 1994. Brunei Darussalam is bounded by the Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement. It has become necessary for her to implement the provisions contained in the said Agreement by 1st January, 2000. The TRIPS Agreement is broad in nature and covers such matters as Copyrights and related rights, Trade Makrs, Geographical Indications, Industrial Designs, Patents, Layout-Designs of Integrated Circuits, Protection of Undisclosed Information and Control of Anti-Competitive Practices in Contractual Licences. However, following certain undertaking given within APEC, it is necessary for Brunei Darussalam to accelerate the implementation of the TRIPS Agreement to 1st January, 1999.

Brunei Darussalam does have an Intellectual Property System, albeit limited to trade marks, patents and copyright. The Act pertaining to trade marks was passed in 1953 and that relating to patents (called the Inventions Act) was passed in 1925. Brunei Darussalam does not have a
specific Act on copyright but the opinion is that the UK Copyright Act of 1911 applied by virtue of patents, we have a “re-registration system” in that patents granted in UK, Malaysia and Singapore may be registered here provided the application is made within 3 years of the grant of the patent in those countries.

Brunei Darussalam has taken steps to implement the TRIPS Agreement. A draft Trade Marks Act is being considered by the authorities. Other Intellectual Property laws are also being introduced. Copyright Act is one of them. TRIPS Agreement will have an adverse effect on counterfeit goods such as computer and computer software.

Brunei government has centralised all purchasing for any computer, computer software and peripherals. This purchasing responsibility has been delegated to the Information Technology and State Store Department (ITSSD). Since 1994 till 1st quarter of 1998, a total of 3,111 PCs have been supplied to various government ministries and departments as shown in Table 2 below:

Table 2: Supply of PCs by ITSSD

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<th></th>
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</thead>
<tbody>
<tr>
<td>PCs</td>
<td>500</td>
<td>588</td>
<td>649</td>
<td>1140</td>
<td>234</td>
<td>3111</td>
</tr>
</tbody>
</table>

Computers are exempted from import duty as of April, 1995. But modems are considered as communication equipment and are subject to 5% import duty.

E. Description of future plans for the development of communications facilities in Brunei Darussalam.

JTB under the guidance of the Ministry of Communication has planned to build a high degree of sophistication in the domestic network under the 7th Five National Development Plan (RKN-7). This is in preparation for the information age with concrete plans for the construction of a Global Information Infrastructure (GII). This is very much in line with other telecommunication organisations in other countries and especially so with other neighbouring countries in ASEAN. The objective to construct the GII is to connect people to people from all corners of the world and to exchange information which has become an important component in nation building and closing the gap between developed and developing nations.

The technology convergence involves computer and communications, telephony, broadband services, cellular / wireless systems is causing new services and products to evolve which are encouraging the evolution of many new applications. The following services have been identified as being of direct interest and relevance to the people of Brunei Darussalam:

- Telemedicine
- Distant Learning
- Environment Monitoring
- International Trade and Transport
- Cashless Transactions
- Teleshopping
- Entertainment Multimedia such as Video-on-Demand (VOD) etc.
Under RKN-7, the JTB plans to initiate the first step towards the realisation of the Brunei InfoCommunication Infrastructure Interacting Globally (BIIIG). Current national and international network will be enhanced to meet the technology level requirement of the BIIIG through the augmentation and expansion of the present network. The three projects that have been identified as being the most important or relevant to the BIIIG implementation are as follows:

- The expansion of transmission network through the implementation of a high capacity Synchronous Digital Hierarchy (SDH) network based upon a nationwide optical cable network.
- The implementation of an Access Network utilizing SDH technology to the customer premises using primarily optical fiber cable.
- The implementation of an Asynchronous Transfer Mode (ATM) backbone network operating as overlay of the SDH transport network for high speed data communication and high bandwidth Broadcast Video.

The overall planning for this core backbone network emphasizes on availability, reliability and capacity.
## Appendix 1
### AREA, POPULATION AND POPULATION DENSITY BY DISTRICT, 1996

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>AREA (Sq Kilometres)</th>
<th>POPULATION TOTAL (Persons)</th>
<th>Male (Persons)</th>
<th>Female (Persons)</th>
<th>By Race: Malay (Persons)</th>
<th>Other Indigenous (Persons)</th>
<th>Chinese (Persons)</th>
<th>Others (Persons)</th>
<th>Sex Ratio</th>
<th>Population Density (Person per Sq Kilometres)</th>
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<tbody>
<tr>
<td>ALL DISTRICTS</td>
<td>5,765</td>
<td>305,100</td>
<td>161,500</td>
<td>143,600</td>
<td>28,200</td>
<td>1,600</td>
<td>28,600</td>
<td>1,300</td>
<td>1,125</td>
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<td>Brunei/Muara</td>
<td>1,304</td>
<td>8,700</td>
<td>4,500</td>
<td>4,200</td>
<td>6,000</td>
<td>2,000</td>
<td>500</td>
<td>200</td>
<td>1,071</td>
<td>1,094</td>
</tr>
<tr>
<td>Belait</td>
<td>2,724</td>
<td>201,100</td>
<td>95,200</td>
<td>105,900</td>
<td>17,500</td>
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<td>1,500</td>
<td>2,400</td>
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<tr>
<td>Tutong</td>
<td>1,166</td>
<td>33,500</td>
<td>16,000</td>
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<td>28,200</td>
<td>1,400</td>
<td>25,000</td>
<td>10,200</td>
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<tr>
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Appendix 2

PERSONS AGED 20 AND ABOVE WITH TERTIARY QUALIFICATIONS
BY SEX AND RESIDENTIAL STATUS, 1991,
BRUNEI DARUSSALAM

<table>
<thead>
<tr>
<th>Residential status and tertiary qualification</th>
<th>Males</th>
<th>Females</th>
<th>Persons</th>
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<td>All groups</td>
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<tr>
<td>University degree</td>
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<td>2,495</td>
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<tr>
<td>Total tertiary</td>
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<td>Brunei citizens and permanent residents</td>
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<td>Other tertiary qualification</td>
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<td>Total tertiary</td>
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<td>Temporary residents and others</td>
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<td>Total tertiary</td>
<td>4,374</td>
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Rate per 1000 population

| All groups                                  |       |         |         |
| University degree                           | 52    | 37      | 45      |
| Other tertiary qualification                | 75    | 70      | 73      |
| Total tertiary                              | 127   | 107     | 118     |
| Brunei citizens and permanent residents     |       |         |         |
| University degree                           | 34    | 18      | 26      |
| Other tertiary qualification                | 88    | 76      | 82      |
| Total tertiary                              | 122   | 94      | 108     |
| Temporary residents and others              |       |         |         |
| University degree                           | 77    | 80      | 78      |
| Other tertiary qualification                | 57    | 57      | 57      |
| Total tertiary                              | 134   | 137     | 135     |
Appendix 3

Development Allocation

<table>
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<th>Sectors</th>
<th>Development Allocation ( $ Million )</th>
<th>Percentage Distribution</th>
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<tr>
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<tr>
<td>Miscellaneous items</td>
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<td><strong>Total Allocation</strong></td>
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## Appendix 4

### NUMBER OF RADIO RECEIVERS, TELEVISION SETS AND CINEMAS

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<tr>
<th>YEAR</th>
<th>RADIO RECEIVERS (1)</th>
<th>T.V. SETS (2)</th>
<th>CINEMAS</th>
<th>OPERATION FREQUENCY</th>
<th>NUMBER</th>
<th>PERMANENT MOBILE UNITS (PRIVATE)</th>
<th>PERMANENT MOBILE UNITS (GOVERNMENT)</th>
<th>HOURS / WEEK</th>
<th>SHOWS / MONTH</th>
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**Source:** Radio Television Brunei, Prime Minister's Office.

**Note:**
1. Estimated from figures of imported radio receivers as no radio license is required.
2. Estimated colour sets only. No T.V. license is required.

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Appendix 5
NUMBER, FREQUENCY, LANGUAGE AND ESTIMATED CIRCULATION OF LOCAL NEWSPAPERS

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<tr>
<th>YEAR</th>
<th>FREQUENCY</th>
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<th>MALAY, ENGLISH AND CHINESE</th>
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Source: Information Department, Prime Minister's Office & Brunei Shell Petroleum Co. Sdn. Bhd.

Note: Number of circulation is the average number of copies per issue.

(1) The weekly newspaper are "Pelita Brunei" - a Government published in Malay and issued gratis to the public, "Salam" published by Brunei Shell Co.Sdn Bhd. in Malay, English and Chinese (until 1995 when the Chinese edition was no longer published and starting in March 1997, the newspaper is published become a daily newspaper.).

(2) Brunei Darussalam Monthly Newsletter - a Government Newsletter published in English.

(3) Effective from 1985 - the newspaper "Salam" is published in two media only i.e. Malay and English.

(4) Since September, 1990

(5) Since February, 1992 the newsletter is published fortnightly.
Appendix 6

National currency: Brunei Dollar Area: 5,765 km²

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<td>132c Outgoing telephone (calls)</td>
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<td>143 Faults per 100 main lines per year</td>
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Source: Jabatan Telekom Brunei Ministry of Communications.


Appendix 7. BruNet Users

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REFERENCES:


5. WIPO-EC-ASEAN Seminar on the implications of the TRIPS Agreement for Business Enterprises, held on April, 15th 1996 in Bandar Seri Begawan. Ref: Kbru K1401 A32 A36 W566 1996 C.1 at University Brunei Darussalam Library.