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Brunei

Darussalam

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Introduction

The 8th National Development Plan (NDP) of Brunei Darussalam came to an end in the first quarter of 2006. However, the implementation of unfinished development projects will continue well beyond 2007. While the details of the next NDP have not been officially released, the primary objectives are likely to remain the same. These include diversifying the economy to become less dependent on oil and gas resources, enhancing the quality of life of the people, and strengthening the capacity for greater foreign direct investment (FDI).

The per capita GDP in 2006 for the population of 383,000 was BND 48,000 (USD 1 = BND 1.54). As the country enjoys the surge in oil prices and numerous associated opportunities, it also faces new challenges in moving towards diversification, improved living standards and increased FDI. The urgency and importance of meeting these challenges may be somehow sidelined when the dangers of depleting revenues from natural resources, in particular oil, are temporarily being turned around. But the young and new generations will have to become more prepared in order to continue to enjoy peace and prosperity. People between the ages of 20 and 54 comprise 54.3 per cent of the total population while the in-school population (between ages nine and 19) comprises another 26.7 per cent of the total population. The new NDP will unravel a roadmap for harnessing this young and dynamic workforce.

Meanwhile, the 12 ministries and the Prime Minister's Office (PMO) have been quick to formulate new strategic plans and roadmaps to lead the country into the new era. For one, the investment environment will be strategically enhanced by leveraging the opportunities provided by the improved communication infrastructure, innovative technologies and a highly

educated workforce. More innovative approaches and strategic development programmes will be introduced to steer the country toward more peace and prosperity, with a strong national identity and a greater role in regional development.

These were some of the expected outcomes of the e-government initiative defined in the 8th NDP. More than BND 850 million (about USD 555.9 million) was set aside for the e-government initiative. Despite the sluggish pace of implementation, the majority of the requested projects have already been awarded or tendered out. However, at the beginning of 2007 many of these projects are just at the initial phase of implementation. Thus, the overall impact of e-government is not yet visible or significant.

Technology infrastructure

For a small population density of only 66 persons (less than 20 households on average) per square kilometre, the challenges of providing high quality technology infrastructure can be slightly daunting. The economic returns on investment from household subscriptions alone do not look attractive enough for more than two service providers to compete. Some governmental interventions may be required to ensure sustainable quality services. One way to look at the situation is the implementation of government-wide EG-Bandwidth which is a Virtual Private Network (VPN) Line connecting all government agencies via several data centres.

TelBru Sdn Bhd (Brunei Telecom privatized as of 1 April 2006) took up the Internet service provider role. In the last quarter of 2006, a Next Generation Network (NGN) at the back

office was successfully installed and commissioned. Domestic broadband services of 512 kb/s now cost BND 98 (about USD 63) per month. Currently, the telecommunication industry is driven by two major providers, DST (the first GSM provider) and B-Mobile (offering 3G services).

The number of Internet subscribers in 2006 was 131,141 (34 per cent of the population) while the number of mobile subscribers rose to 281,704 (74 per cent of the population). The landline subscriptions remained steady at 23.2 per 100 inhabitants.

Key institutions

The Ministry of Communications (MoC) is the central agency leading and shaping ICT development in the country. The Minister of Communications, Pehin Abu Bakar, is also the Chairman of the Brunei IT Council. During his three-year ministry, he has initiated several collaborative initiatives with international players such as Microsoft, Oracle, SAP and the various IT centres in Canada and India. The Ministry is also pressing for the rapid acceleration of the local ICT industry, and the establishment of an Innovation Centre managed by the Brunei Economic Development Board (BEDB).

Reporting to the MoC is the Authority for Information Technology Industry of Brunei Darussalam (AiTi), another important agency regulating the ICT industry. It grants industry players one of two principal licenses: the Infrastructure Provider for the Telecommunication Industry License (InTi) and the Service Provider for the Telecommunication Industry License (SeTi). An InTi License is required of any operator who owns and provides infrastructure, systems, networks, facilities and other related equipment for telecommunication services. The SeTi License is meant for operators who sell services to consumers or corporate customers. The operator does not own any infrastructure outside its premises, but uses the infrastructure provided by the InTi Licensee.

Besides its regulatory role, AiTi is also the agency that looks after the Brunei Computer Emergency Response Team (BruCERT), which is the nation's first trusted one-stop referral agency dealing with computer-related and Internet-related security incidents. BruCERT also coordinates with local and international Computer Security Incident Response Teams (CSIRTs), network service providers, security vendors, government agencies and other related organizations to facilitate detection, analysis and prevention of security incidents on the Internet. The roles of AiTi were expanded recently to include management of e-government development and leading the growth of the ICT industry.

The Prime Minister's Office (PMO) plays a crucial role in the implementation and monitoring of e-government initiatives. The Deputy Minister of the PMO chairs the E-Government

Leadership Forum (EGLF) which meets regularly to provide policy directions on e-government development. The members of EGLF are the Permanent Secretaries of each Ministry; they lead the campaign for various e-government flagship applications and policy changes.

Although its role in coordinating and monitoring e-government has been shifted to AiTi, the Department of IT and State Store (ITSSD) of the Ministry of Finance still functions as the primary coordinator for procuring or outsourcing major government-wide IT hardware, software and services. ITSSD recently signed an agreement with Microsoft to procure Microsoft-related products for government use.

Digital content initiatives and online services

The official language of Brunei Darussalam is Malay, but English is widely used in the country. The education system is bilingual. From Kindergarten to Primary 4 (Year 9) classes, all of the subjects except English are taught in Malay. However, from Primary 5 (Year 10) onward, all of the main subjects are taught in English. Therefore, most of the government websites are in English or Malay, or both.

The major initiatives for developing digital content are driven by the Ministry of Education under two main projects, namely, the e-Curriculum and Knowledge Management Systems. The first project involves the digitization of English, Science, Mathematics, Malay, ICT and Islamic Religious Studies for primary classes. The digital works are to be uploaded to a new Learning Management System (LMS) that will be accessed by students and teachers. The first phase of the e-Curriculum project will be completed in October 2007, while the LMS project will be tendered in 2008. The Knowledge Management System project aims to collect information on crisis management, conferences and asset maintenance, among others. Various communities of practice and staff members of the Ministry of Education are involved in the development of the content to be made available later at the ministry portal.

Since most of the e-government projects implemented to date are related to back office applications and automation, there are many notable online services offered by government agencies. The much talked about next wave of e-government is about the integration of these back-office systems and the implementation of online services.

ICT industries

As the number of mobile telecommunication subscribers increases steadily, Brunei society gradually becomes more ready

to adopt new technologies and move away from landlines. A natural progression from letter to e-mail, voice and digital telephony is beginning to take place in some major corporations in the country. Sales of mobile handsets are promising, and an unofficial study reveals that more than 75 per cent of young executives (aged between 21 and 30) have changed their handsets over the last 12 months.

Another promising growth industry is the sale of computer notebooks and desktops. The ratio of computer notebooks to desktops sold is nearly 5:1. There are many PC exhibitions where discounted computers and accessories can be bought. These exhibitions are popular because although consumers can buy computers tax-free, all electronic components or accessories are subjected to a 5 per cent tax.

Locally assembled PCs are being heavily squeezed by the influx of major international brands such as Acer, Dell, HP, Asus, Apple and Lenovo. There is no sign that any of the hardware manufacturing or assembly plants will be established or located in the country despite some competitive advantages, such as having the lowest tariffs on electricity, fuels and factory rentals in the region. The limited local market consumption and the lack of highly skilled human resources, coupled with the absence of major supporting services, appear to be the external inhibiting factors. However, although these factors were critical during the industrial age, they have been gradually suppressed by opportunities offered in an increasingly globalized society. The flow of people and capital across borders is addressing the problem of lack of skilled human resources. Also, the expected 70:30 ratio of local consumption versus the export market is becoming obsolete as the cost of supply chains and logistics are now insignificant compared to production costs.

The internal factors are becoming the key considerations of major ICT investors. One of the most crucial questions raised is how to increase investor confidence in sustainable business growth. The lack of non-oil and gas plants and the limited success stories from the current small pool of investments do not communicate the right message to investors. All locally incorporated companies are required to have at least 50 per cent local directors. Since foreigners are not allowed to own land, investors ask their local directors or local friends to purchase property. Government does not interfere in the business arrangements of private sector organizations. When conflicts occur among the directors, foreign partners tend to feel threatened by the insecurity of land ownership. This becomes one of the weak links in the effort to boost investor confidence in sustainable growth. It is even more difficult to attract assembly plants that require heavy capital investment with rates of return lasting longer than a decade.

While assembly plants for ICT hardware require heavy capital investments, the software development industry requires a

constant influx of innovative human resources. An internal factor that may dampen the growth of the software development industry in Brunei Darussalam is the uncertainty of being able to employ highly skilled workers and support staff. For example, the issuance of work permits/quotas for engaging accountant clerks is being suspended as the Labour Department puts more pressure on companies to hire unemployed accountants. The employment of foreigners is subjected to scrutiny and a lengthy processing time. Nevertheless, many software development companies have expressed interest in setting up branch offices in the country in order to enjoy the amenities, the light traffic and the clean environment.

Enabling policies and programmes

As noted by Naseem (2003), Kaname Akamatsu’s ‘Flying Geese Theory’ is still relevant in explaining the behaviour of ICT vendors (manufacturers, developers, suppliers) who tend to follow the relocation/investment moves of key industry players. For this concept to become a reality, three aspects need to be addressed:

1. The intra-industry aspect that looks at product development in terms of Import, Local Production and Export: In a highly successful IT-driven economy, these three elements—import, production and export of IT-related products/services—are very active and proportionally higher than for other products. Consider the case of Korea and Finland (the two early adopters of communications technology) where the overall figures of local consumption of ICT components, local production and value-added services, together with export of technology to various overseas manufacturing plants, are relatively higher than for agricultural products. In the case of Brunei Darussalam, the rollout of e-government projects in the 8th NDP has created a surge in the local demand for ICT products and services together with a rise in the importation of these products. Note that prior to the e-government projects, the ICT industry could not have taken off simply because of the limited ICT adoption by the private sector.
2. The inter-industry aspect that looks at the sequential appearance and development of industries in the country moving towards diversification and upgrading of industries: The late adopters generally go into developing relatively newer products instead of starting with less sophisticated products. Brunei Darussalam is going in the right direction in terms of diversification of the oil and gas-based economy into downstream and service industries. In this effort, IT can play the role of an enabler as well as a competitive differentiator. The

government is on the lookout for potential collaboration with players who can help develop niche products (for example, educational content, health care system, etc). Various ICT-related promotions and competitions such as the Brunei ICT Award (BICTA) and Inforama are heavily funded by the MoC and the Ministry of Education, respectively.

3. The international aspect that looks at the relocation (migration) process of industries from advanced to developing countries: Currently, there are several clusters of IT industries geographically distributed across Asia Pacific. Many of the manufacturing plants have been relocated to less expensive locations such as China and Indo-China, while the technology and intellectual property rights are retained by the companies in the advanced countries. The emergence of globalization and of superpowers such as China and India (and possibly Indonesia) has drastically affected the industry landscape. Most countries take advantage of largely populated countries by outsourcing low-cost and low-value services and supplying them with valued-added goods and services in volume (low margins). In this regard, the Brunei Darussalam Ministry of Trade and Foreign Affairs has been lauded for maintaining a very cordial relationship with all international partners, including China.

Open source and R&D initiatives

Although the government through various ministries and initiatives has allocated funds for R&D in technology advancement, there are no significant takers. Activating the funds requires several bureaucratic processes and information about the funds is not well published. The Innovation/Incubation Centre managed by BEDP is opening the floodgate for local 'technopreneurs' to focus on R&D work instead of merely playing the role of system integrators or customizing applications. This landscape may therefore be turned around within a few years.

Any research work on open source is encouraged, but there is no specific policy on the use or promotion of open source technology in government organizations. In fact, many of the e-government project proposals that are based on open source applications are not usually lower in cost than those based on proprietary systems. The lower initial cost of open source systems is sometimes offset by the implementation/customization and the long-term maintenance costs.

Relatedly, the use of open source software/applications is generally taken up in operations that are not mission-critical or in experimental activities. Because these operations are not properly budgeted in 'project implementation', they suffer from lack of financial support and they are at the mercy of the few technology-savvy staff for systems maintenance. Thus, the

success stories that can be shared or showcased to others are few and far between.

Making a change in total productivity and research orientation requires a shift in management styles, entrepreneurs' mindsets and business models. Also needed is enhancement of support services, such as outsourcing capabilities, logistics and marketing. While many local companies are not familiar with R&D and innovation, some forms of assistance/facilitation from academic institutions and large corporations are required as the final deal depends on their available technological products. While creating strong Bruneian brands in ICT products may seem far-fetched to many, this process is a prerequisite to taking local products abroad. It also means that these solutions must first be piloted nationally and preferably taken up by government agencies. Success in international business depends on the ability of local companies to form a consortium or partnership with others for sizable projects.

Conclusion

Brunei Darussalam has been blessed with abundant oil and gas resources and the capacity to lead the industry to world-class standards. There are several remarkable breakthroughs in championing new processes or coming out with innovative products in the Brunei Shell Petroleum Company Sdn Bhd. This economic driver is so efficient that it often dwarfs the development of other industries in the country.

Nevertheless, diversifying the economy away from heavy dependence on oil and gas is still a serious priority. There are several paths that the country can take. Some potential clusters of industries in which the country has demonstrated strategic advantages include tourism, health care, education, logistics and services industries. Regardless of any combination of strategic implementation, developing a strong information technology industry is a prerequisite to enable the other industries to take-off.

Developing the ICT industry and using it to strengthen diversification holds much promise. However, although the external factors discussed earlier are very positive, many of the internal factors need to be resolved quickly in order to develop investor confidence. The issues of land ownership, work permits, dependent pass, company registration and sustainable funding for national ICT-related projects must be comprehensively addressed in order to attract and retain foreign investment. Rolling out the e-government initiative in the 8th NDP was a good start. But more needs to be done so that the long-term benefits of ICT can be realized.

The e-government projects are the best hope for developing the ICT industry, with local SMEs taking up the opportunity to

participate in these projects. Although in the initial five-year period there will be a lot of ‘sorting’ among the local SMEs through open bidding for projects, the industry will quickly settle into various categories of players with some forms of specialization in the later years. The categorization of ICT players will become an important process in the pre-qualification of tenders. This will also ensure that the SMEs will not be spread too thinly in many areas of ICT development, but will instead focus on their and their partners’ core competence. The companies can then develop and become more specialized in their expert domain.

Government agencies continue to provide opportunities for local specialized companies to meet their basic growth targets and to foster research, collaboration and innovation. The current e-government projects were designed with so-called Tier-1 standards and requirements, meaning that the solutions sought can hardly be conceived by regional SMEs (let alone local ones). Some forms of project grouping must be introduced, to assist and recognize local innovation. Each ministry should plan and allocate several small-scale projects that are not so mission-critical but which are strategically important for developing a local ICT industry. For example, an exploratory RFID project

and courseware development projects may be good choices for locally incubated solutions.

Fostering rapport between local ICT players and government can create win-win solutions. Some forms of private–public partnership programmes should be introduced. And while government continues to promote local SMEs, the Tier-1 enterprises (such as Microsoft, Oracle, IBM, SAP) should not be made to feel ‘unwanted’. They are, in today’s terms, the leading geese that can influence the other flying geese. Some of the e-government projects should be allocated to these Tier-1 companies to attract large corporations and develop their confidence in building bases in Brunei Darussalam.

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