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SPEECH BY ASSOCIATE PROFESSOR HO PENG KEE.

MINISTER OF STATE FOR LAW AND HOME AFFAIRS

AT THE OPENING CEREMONY OF THE 5th ANNUAL GEOGRAPHICAL INFORMATION SYSTEMS (GIS) ASIA-PACIFIC CONFERENCE AND EXHIBITION ON

31 AUGUST 1999 AT 9:30 AM AT THE RAFFLES CITY CONVENTION CENTRE, SINGAPORE

gives me great pleasure to welcome you to the 5th Annual GIS Asia Pacific Conference and Exhibition.

I understand that the first GIS Asia Pacific conference and exhibition was held in Singapore. Thereafter, over the years the conferences and exhibitions have been held in various cities in Asia Pacific. This is the first year where the GIS Asia Pacific conference and exhibition have been combined with the GIS for Infrastructure Planning and Management Conference. Singapore is pleased to host this event. We hope that you will take this opportunity to share knowledge, ideas and experiences in the development and implementation of GIS.

"Singapore makes good use of GIS Technology"

- Singapore has adopted GIS technology early. Many of our government agencies have implemented GIS applications. These range from land parcel management to physical and land transportation planning. We have made good use of GIS technology to transform the physical and urban landscape of Singapore through efficient planning and development activities. More recently, the Ministry of Law integrated GIS with Internet and e-commerce technologies to deliver a range of useful and timely land information services to the public. With this implementation, the public can now purchase map-based documents from the comfort of their homes or offices, without the need to make a trip to the various land departments. All these are done via the Internet.
- The rapid development of these crucial GIS applications in the Civil Service is greatly facilitated by the establishment of the Singapore Land Data Hub. As early as 1990, we recognised that geographical data in digitised form are precious and vital IT resources in the Civil Service. The Land Data Hub established under the purview of the MinLaw manages a central repository of essential land data integrated from various government agencies. This development has laid the foundation for the effective standardisation and sharing of land data across government agencies. This has also helped the government agencies to save cost and reduce duplication of effort in the creation and capture of land data.

The private sector has also benefited from the establishment of the Land Data Hub. To facilitate the development of map-based commercial GIS services and products, MinLaw took the initiative to release non-confidential digitised land data to the private sector. This has resulted in a range of map-based products and services developed by the private sector such as CD-ROM Street Directory, vehicle fleet management applications, Internet-based traffic information system, real estate property information services, handheld GIS appliances and in-car navigation systems. Some of these innovative GIS applications are being showcased in the Land Data Hub exhibition areas. The release of comprehensive and reliable digitised land data is instrumental in making these developments possible.

With the agreements reached with the Land Transport Authority (LTA), Jurong Town Corporation (JTC), Housing & Development Board (HDB), Building and Construction Authority (BCA) and Singapore Post, I am pleased to announce the release of more digitised land data from these agencies to the private sector. We hope that the release of this new set of digitised land data, via the Land Data Hub, will facilitate the development of more derivative GIS products and services.

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"The Knowledge Based Economy - the need to look beyond GIS technology"

- As we evolve into a knowledge based economy, fueled by technology and innovation, we need to encourage more research and development to discover new knowledge, businesses, markets, products and services.
- 8 In this context, we have to look beyond just GIS technology. The convergence of Information and Telecommunication technologies coupled with the convergence of GIS and GPS technologies are crucial developments. These developments will lay the foundation for the creation of new innovative map-based or location-aware products and services.
- 9 Singapore has an excellent infrastructure in information technology, telecommunication, GIS and GPS to support R&D in GIS-based appliances and services
- In the area of information and telecommunication infrastructure, we have put in place leading edge broadband network for multimedia applications and services. Singapore is amongst the first countries in the world with nation-wide broadband access. Today, about 98 percent of all homes in Singapore are able to gain access to this broadband infrastructure called Singapore One. This infrastructure offers the opportunity to integrate physically distributed geographical information across a high-speed network and the capabilities to integrate geographical information with multimedia content. Singapore One will provide the impetus for development of broadband GIS applications and services.
- 11 For example, innovative applications could be deployed in the real estate sector to allow users to perform a geographical search for properties on sale and to allow users to perform a virtual walkthrough of these properties.
- We have also made good progress in the use of GPS technology to establish a new network of control points for coordinated survey. The establishment of these control points using GPS technology will greatly facilitate the use of GPS for surveying. As an extension to this project, I am glad to announce that MinLaw in collaboration with the Nanyang Technological University (NTU), with grant from the National Science and Technology Board (NSTB), has initiated a project to position several GPS reference stations in Singapore. These stations will form a network of differential GPS (DGPS) monitors with the capability to transmit via radio or other telecommunication facilities the differential corrections to GPS receivers. With this network of GPS base stations, differential position accuracy within centimeters will be possible for DGPS devices. This increase in accuracy will greatly facilitate the development of location-aware appliances with potential incorporation of GPS and GIS mapping into portable telecommunication devices. For example, at a touch of a button, a person in distress can, through the use of GPS, telecommunication and GIS technologies communicate his location. Emergency services in the vicinity could then be quickly dispatched to the rescue. Handphones of today may be a map and transportation guide with Taxi booking capabilities in the future. The infrastructure and the technologies are ready. Technopreneurs with the right knowledge and expertise are encouraged to develop some of these applications for the

mass market.

- In the area of GIS, the Land Data Hub will play a significant role in making land data more readily accessible for the development of business products and services. Under the Land Data Hub 21 program, the hub will take a more holistic approach in supporting the whole land information value chain starting from the land data originators to the customers and end users of the digitised land data. Land Data Hub will put in place a national spatial information infrastructure called LandNet that will connect heterogeneous land databases from various government agencies into a single logical database for on-line access. I am pleased to announce that MinLaw has awarded the first phase of the LandNet project. The implementation of this phase will be completed by the end of this year. LandNet is working towards compliance with the Open GIS standard as defined by the Open GIS Consortium, an international association to promote GIS inter-operability standards.
- The excellent information and telecommunication infrastructure, the extensive experience in GIS and GPS development coupled with the availability of digitised land data will provide a conducive environment for the rapid development and implementation of new products and services for the GIS market in Asia Pacific. Technopreneurs are encouraged to use Singapore as a hub to test out new and innovative products and services. In this respect, MinLaw is currently working out programmes that will facilitate and accelerate the development of innovative products and services based on the geographical data that are available through the Singapore Land Data Hub.

Concl usi on

As we move into the new millennium, the convergence of information and telecommunication technologies and the convergence of GIS and GPS technologies are of great relevance to the growth of the Asian economies. These will open up opportunities to innovate and create new businesses, products and services for the digital economy. I am sure that this conference and exhibition will provide the catalyst for creative ideas to flow and the sharing of knowledge in the development of GIS-based businesses for the new millenium.

16 It is now my pleasure to declare the 5th annual GIS Asia-Pacific conference and exhibition open.