GIS IMPLEMENTATION : SHAPING MALAYSIA DEVELOPMENT

National Geospatial Information Symposium (NGIS 6)
17 Mac 2014

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- **Overview of GIS and National Development**
- **Sectors where GIS is being used**
- **How GIS applications have contributed to the development of the nation**
- **Way forward**

THE NATIONAL DEVELOPMENT

- **Demand for analysis and modelling to support resource management and planning**
- **Embedding GIS in all aspects of planning and development at national/state/local levels – decision making, monitoring development and identifying “gap in development”**
- **Provide much needed support for R&D**
- **Promote training and education programs**
- **Accelerating development of enterprise-GIS solution**
- **Serving as basic needs of citizens by providing access to nation-wide map/image/geo-spatial information**

HOW GIS IS USED

- Information system for analyzing, modelling and displaying community vulnerability

- Cataloging of GIS data and services

- Understand the current circumstances and to monitor the event

- Getting accurate information from fields back to command centre

GIS : WHO'S WHO

Organisations that have implemented GIS strategy :

- Ipoh city Councils - Sistem GIS Majlis Bandaraya Ipoh (MBI GIS)
- Minerals and Geoscience Department Malaysia –MinGeoDat (Minerals and Geoscience Database) system is an integrated systems centralized database that consist of 10 other different systems.
- *Pusat Sistem Maklumat Geografi Pulau Pinang (PEGIS) - Sistem Maklumat Geografi*
- Malaysia Remote Sensing Agency (ARSM) - equipped with computer system for satellite data image processing, geographic information system and global positioning system
- Malaysian Meteorological Department Malaysia

There are overlap in roles and they have emerged from the ground up without a vision of the bigger picture

Case Study 1

GIS IN EMERGENCY AND DISASTER

THE HISTORY OF SEARCHING

Smoke signal

Hello operator, this is Ana. Can you get me the Police!

The Operator

Do you know where you are?

Or, run to the nearest phone booth!

CALL 999

ANI. We know what is your number!
ALI. We know where you are!

VOIP. We know your location

PDRM JBPM KKM JPAM APMM

First responder - dispatched to the site to deal with emergency situations

And you know where you are!

THE NEED FOR GIS

WE CAN'T REACH YOU IF WE DON'T KNOW WHERE YOU ARE…

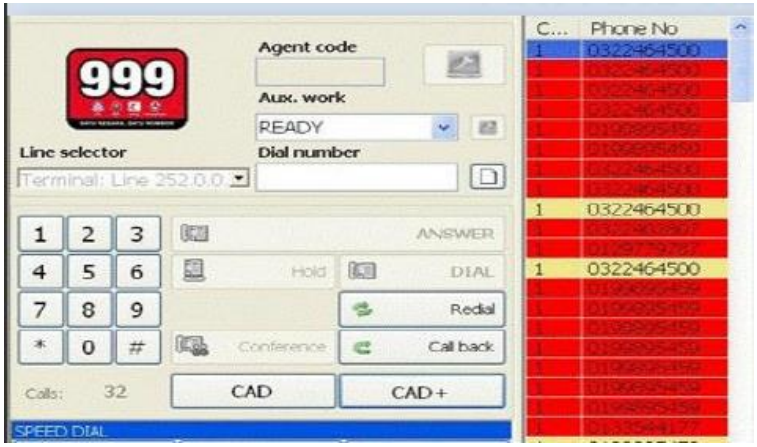
GIS datasets will provide the emergency location

Speed is of the essence in emergency response because many types of severe injury and illness require immediate attention or they could result in disability od death

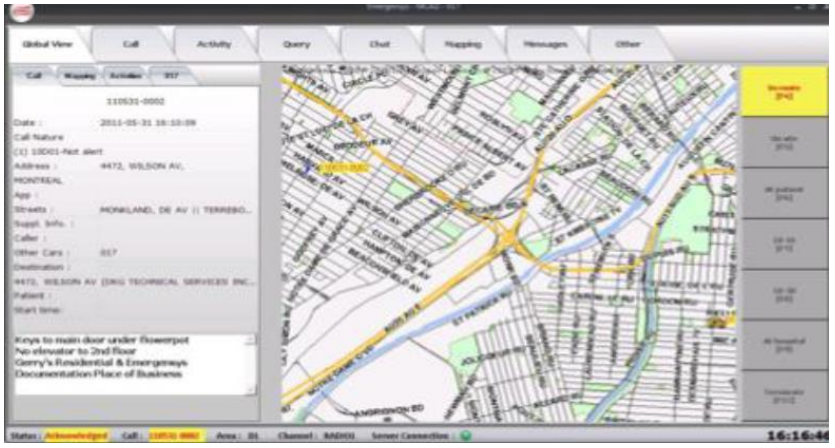
Speed is of the essence in emergency response

Geospatially enabled technology is essential to improve response operations

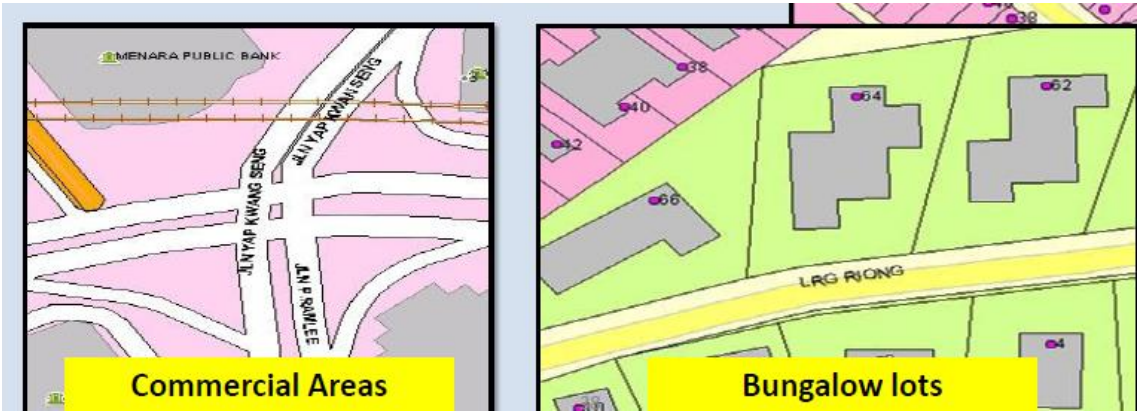
LOCATOR SYSTEMS FOR EMERGENCY RESPONSE



ANI and LI Capabilities



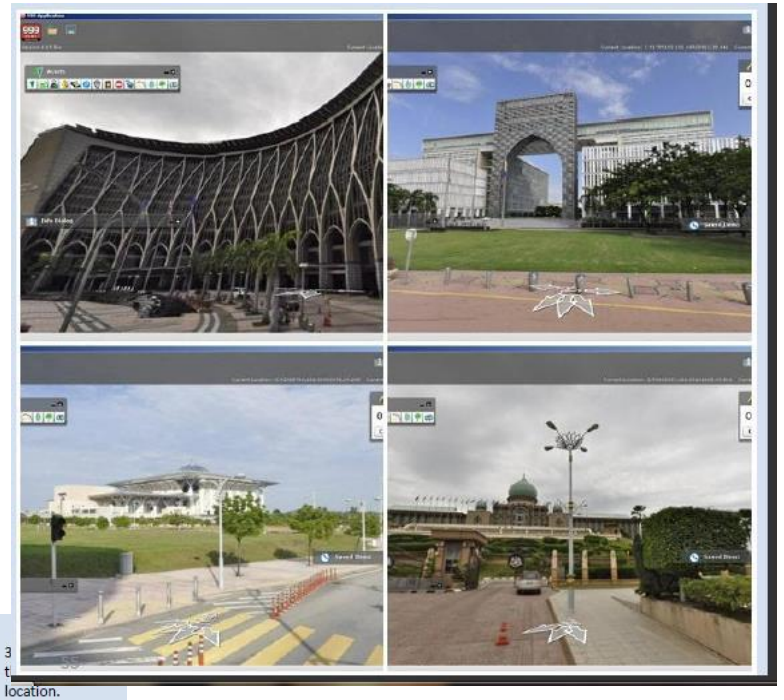
Digital mapping in mobile CAD

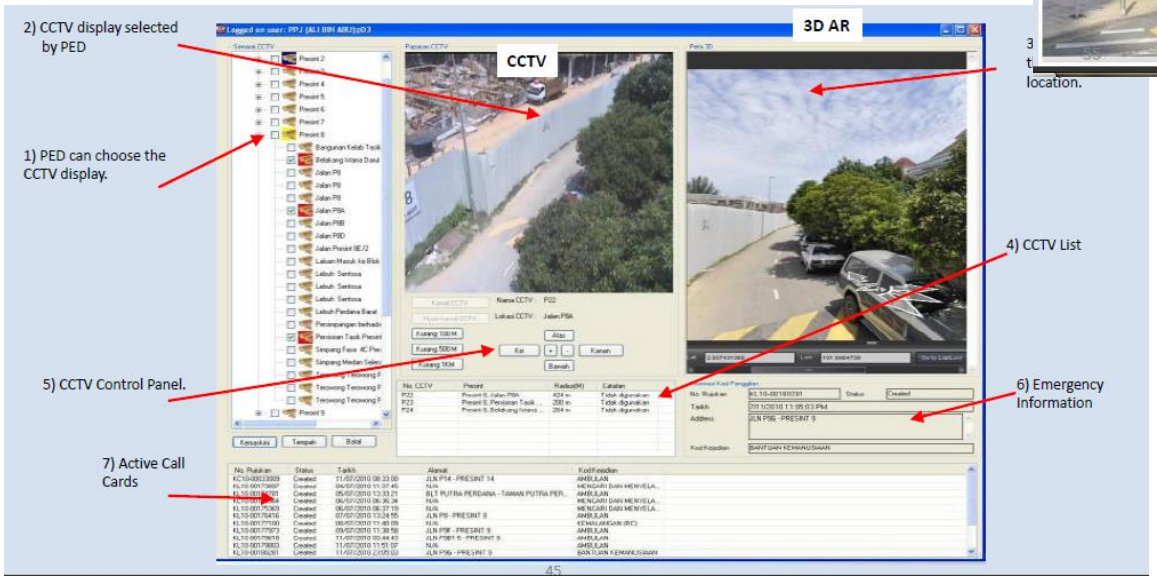


2D Map Features

3-D PANAROMIC VIEW

- Navigating and measuring with 3D 360 degree panaromic street level
- Able to portray the analytical image
- Assist emergency select their resources before dispatching activities





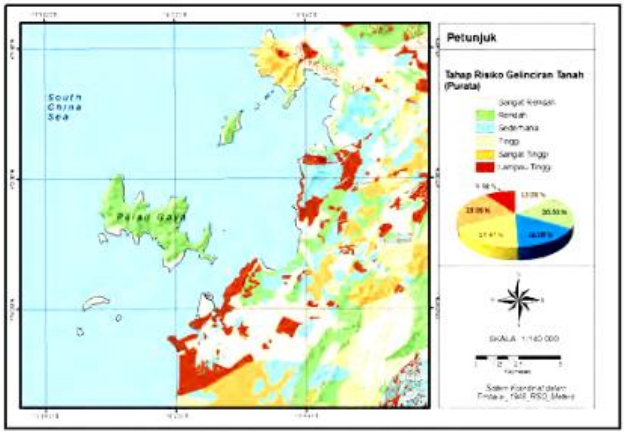
Case Study 2

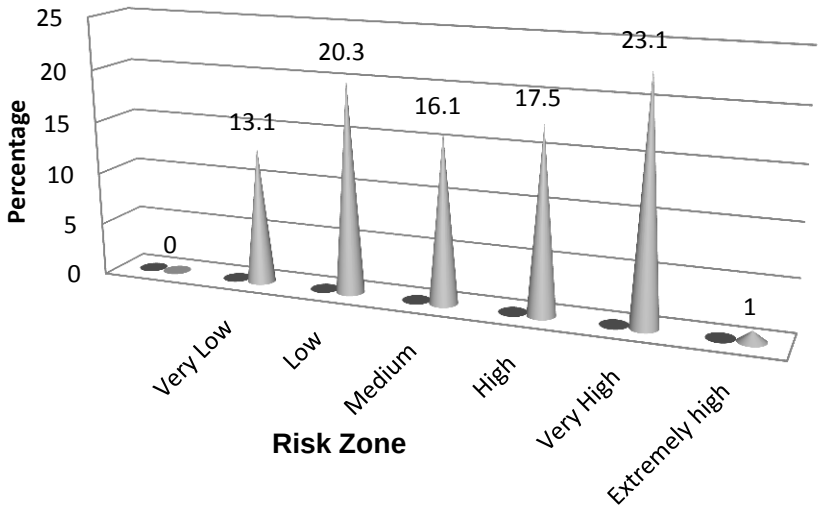
GIS IN LAND AND AGRICULTURE

A Case Study of Kota Kinabalu area, Sabah: Application of GIS in Land Slide Risk Management

Establish criteria for landslide hazard evaluation. 7 parameters were taken into account: geology, geodynamic features, slope condition, hydrology/hydrogeology, land use, engineering characteristics of soils and engineering characteristics of rocks.

Parameters were compiled and analysed with the landslide distribution map (LDM) to generate a landslide hazard map (LHM).





Source: http://geology.um.edu.my/gsmpublic/BGSM/bgsm57/bgsm2011009.pdf

Case Study 3

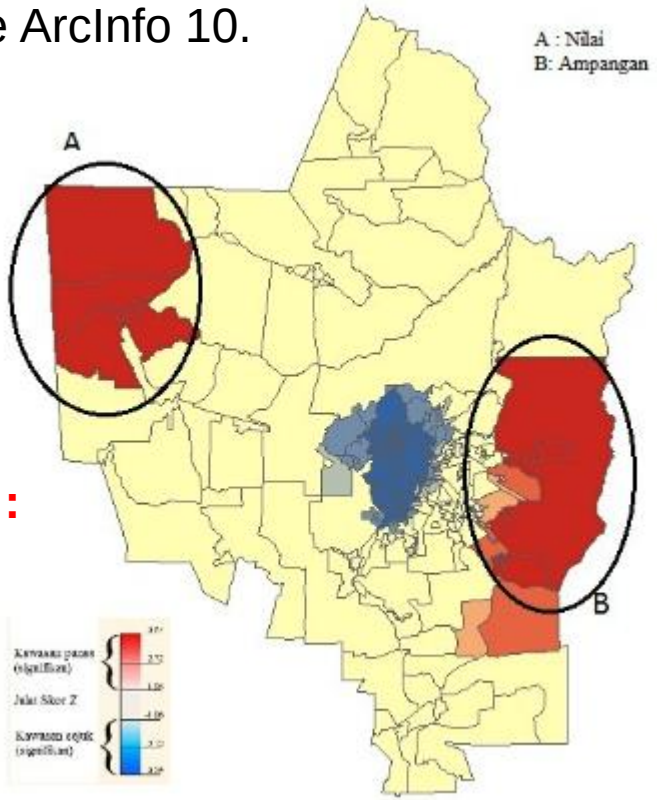
GIS IN HEALTH MANAGEMENT

A Case Study of Dengue Cases in Seremban, Negeri Sembilan : Application of Geographical Information System for Spatial-temporal Mapping:

- Seremban is situated in Negeri Sembilan with latitude $2^0$43'U and longitude $101^0$57'T . Geographical area of 95189.36 hector

- The mapping method using ArcGIS software ArcInfo 10.

- Prevalence data Dengue fever is clinically confirmed in the county Seremban taken for a period of **7 years from the 2003 to 2009** from the Vector Control Unit Seremban District Health Office.



The main focus areas of the dengue cases :
A - Nilai and B- Ampangan

Source: http://www.ukm.my/jsm/pdf_files/SM-PDF-42-8-2013/06.%20Mohamad%20Naim.pdf

GIS CHALLENGES

- **"Integrate" all the efforts by many agencies to a national goal of a National GIS**
- **The need for strong foundation of a Decision Support System – how it is presented/served to the prospective users - always updated and establish a mechanism for this to happen regularly**
- **How to make GIS data/information and applications easily available and comfortable – service ready and customer centric focus**
- **How to support real time situation – if there is a fire in a city, then the GIS should be able to provide the insights of a city area, road, building structure etc**

THE CASE FOR GIS INTEGRATION

- **Avoid duplication, mistake and false start**
- **To integrate many of the planning information so that they can utilised effectively**
- **Could become a fundamental component of Malaysia's panning and development infrastructure**
- **Providing visibility into various aspects of the national economic and governance process, development process**
- **Bringing value to enterprise commerces and citizen services**

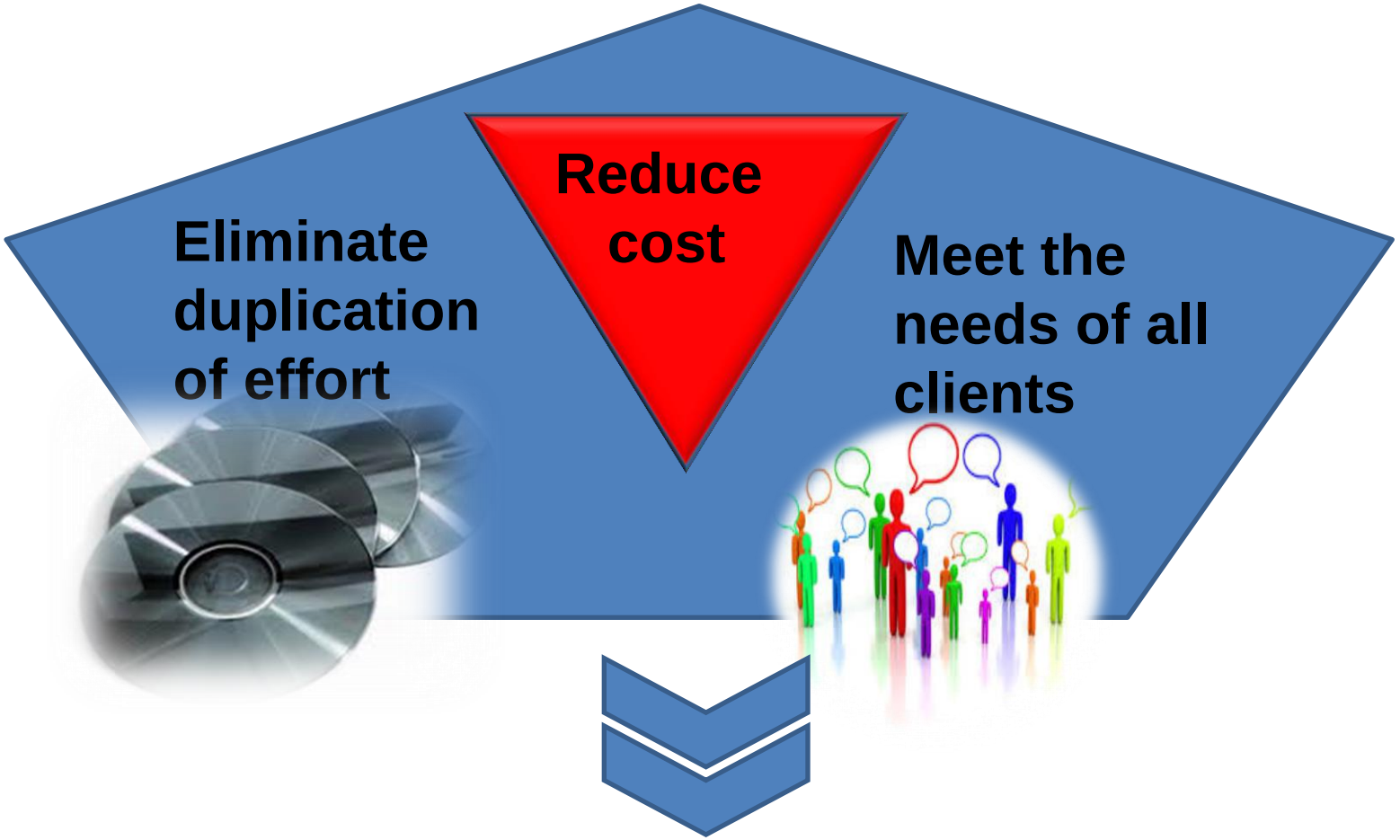
GOVERNMENT METADATA STANDARD

- **Data Dictionary Sector Awam (DDSA)**
- **Linking data sets**
- **Need for further development of data transfer standards**
- **It is impractical to assemble all geographical data in one database – should be to increase access to geographical data through directories , compatibility etc**

PREPARING FOR NATIONAL GIS

- **To understand the user requirements – provide the base of national needs**
- **The availability of different types of data that could be easily organised into a nation-wide GIS – and made accessible, utilised for developing deicision support systems**
- **Looking at what kind of infrastructure – advancement in imaging/mapping, geopspatial databases, applications – a standardised national GIS data/information**

BENEFITS OF COLLABORATION



Establishment of national data set standards

THE FUTURE

- **More common-infrastructure and shared GIS**
- **Increase professionalism in IT/GIS planning and delivery**
- **Unlocking of currently legacy systems to fund new technology**
- **The development of a National GIS Strategy**

- Create an GIS Coordinator position
- Work with all relevant parties
- Capacity building on using geospatial data for operator, administrator, and manager
- Sharing knowledge between countries

THANK YOU

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