SOSIO ECONOMIC IMPACT OF GEOSPATIAL INFORMATION AND TECHNOLOGIES

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"Geospatial information has application in many fields including humanitarian, peace and security, environmental and development challenges facing the world, such as climate change, natural disasters, pandemics, famines, population displacement and food and economic crises, according to the report.

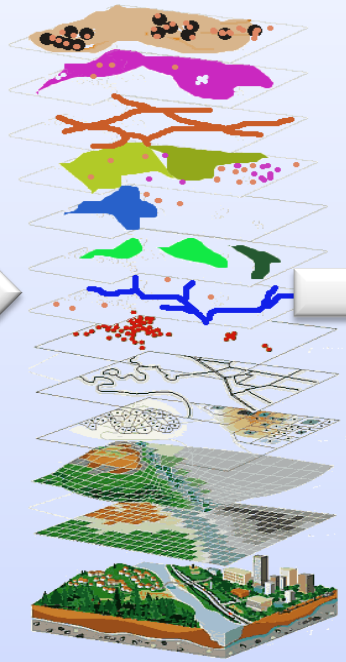
Building the infrastructure for the gathering, validation, compilation and dissemination of geospatial information is therefore as important for countries as the building of roads and telecommunications networks".

27 July 2011 – The United Nations Economic and Social Council (ECOSOC)

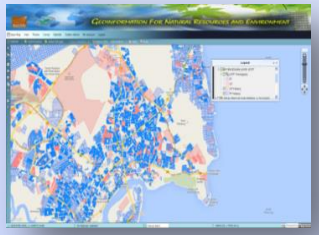
Sosio-Economic Impact of Geospatial Information and Technologies

Spatial Data Acquisition using Geo-technology

Geospatial Data



GeoInformation Product /GIS application



Impact

Social, Economic & Environmental Benefits

Business Applications Services

Location …Location…Location

Why Location Matters?

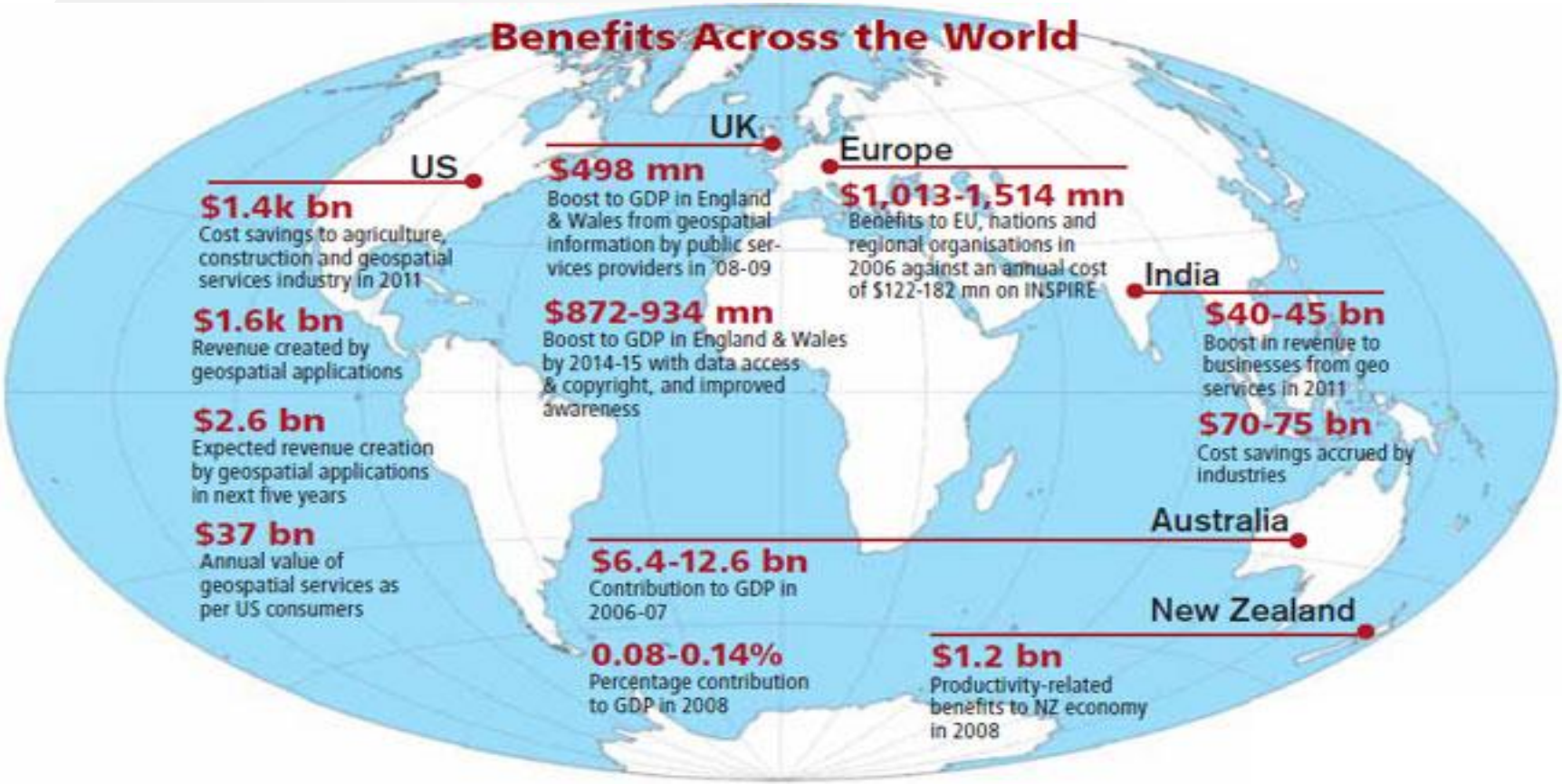
THE RELATIONSHIP

Decision Making

Spatial Data

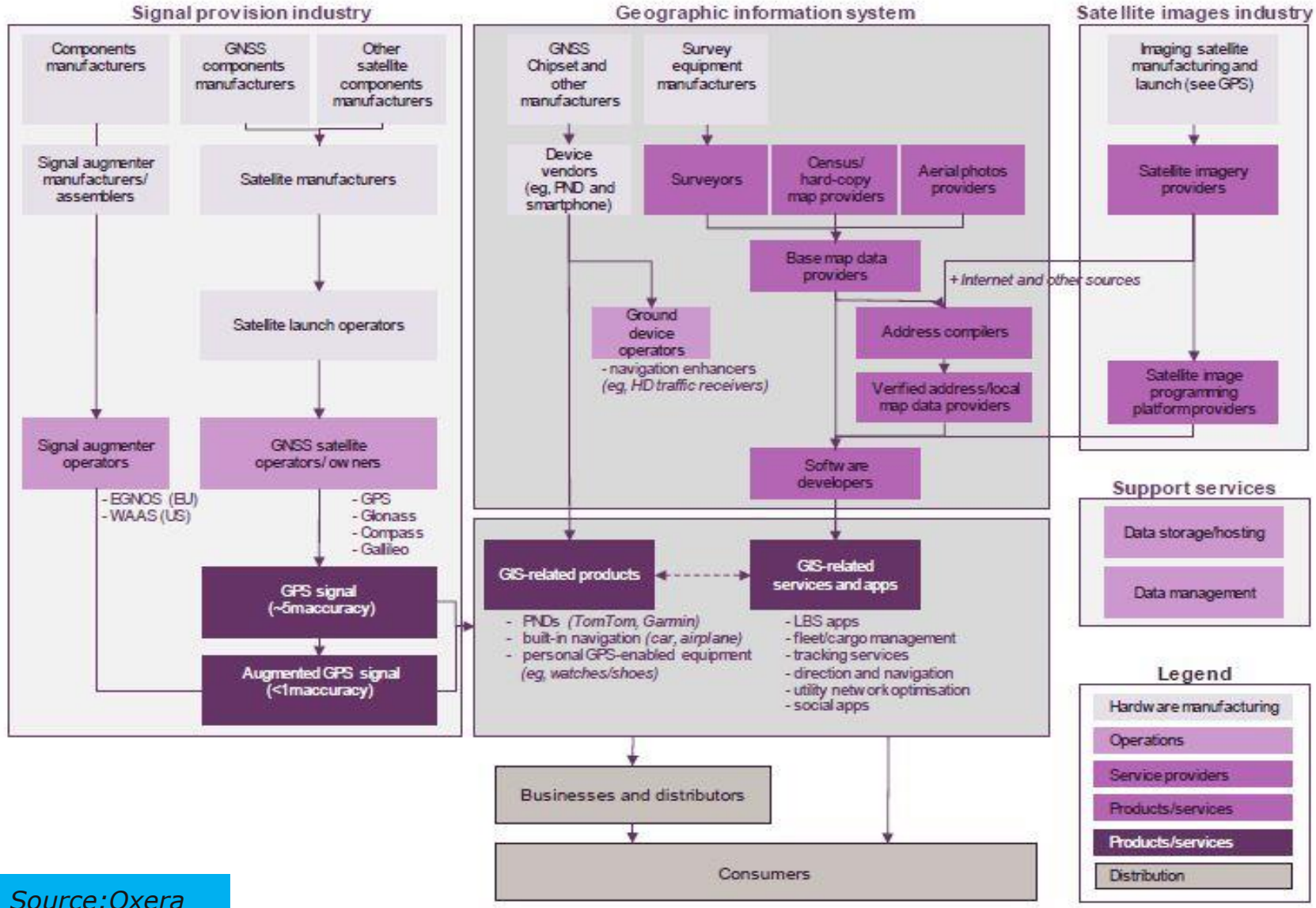
Spatial Information

Benefits of Geospatial Information and Technologies Across the Globe



Source : Geospatial World Magazine May 2013

Across the Globe: Economic Impact of Geo services



Source: Oxera

Economic Transformation Programme (ETP)

To achieve an average economic growth of 6.0% a year over 2010 – 2020.

Strategic reform initiatives:

- **Strengthening of the public sector**
- **Building the knowledge base infrastructure**
- **Enhancing the sources of growth**
- **Ensuring sustainability of growth.**
- **National economic activities to be the engines of growth, including oil & gas, electronics, electrical, tourism, agriculture and financial services**

THE MANY USES OF GEOSPATIAL INFORMATION: LOCAL AUTHORITY

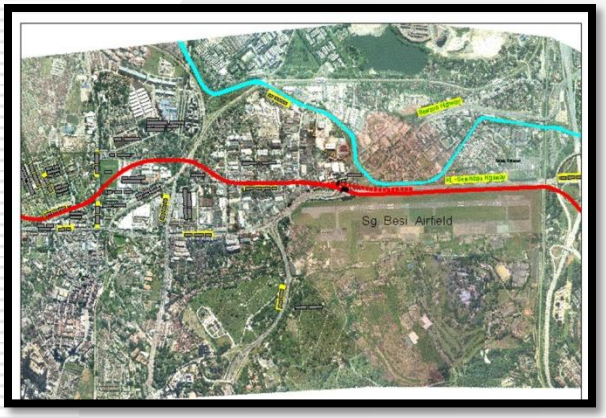
- Urban planning
- Services provision
- Recreation facilities
- Property tax collection

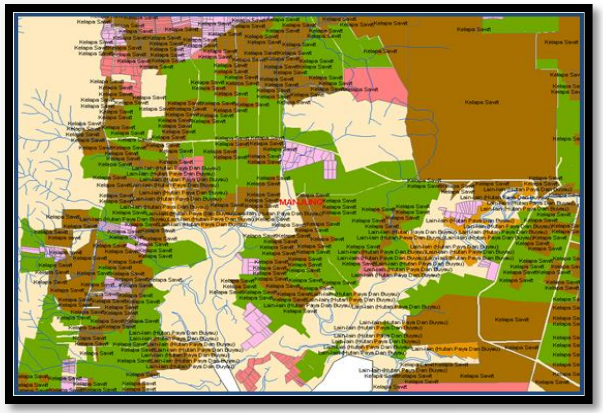
Increasing Efficiency and Collaboration

- Modelling risks
- Tracking diseases
- Facility security
- Vulnerablity analysis
- Buffer zone protection

Modernising workflows and Providing Access

THE MANY USES OF GEOSPATIAL INFORMATION: MANAGING NATURAL RESOURCES,BUSINESS AND TRANSPORT





- Water quality
- Pollution levels
- Environment degradation
- Coastal zone management

Providing visualisation and understanding

- Financial and insurance services
- Manufacturing goods distribution
- Retail site selection
- Real estate services
- Property investment

Providing the geograpic advantage

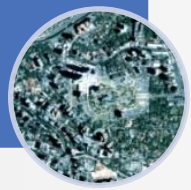
- Roads networks
- Railways systems
- Air routing
- Sea navigation

Lowering costs, saving energy and improving traffic flows

THE MANY USES OF GEOSPATIAL INFORMATION: MINIMISING ENVIRONMENTAL RISKS , MANAGING SECURITY AND SUPPORTING EDUCATION

- Promoting spatial literacy
- Raising geographic awareness
- Developing skills
- Increasing understanding

Creating the next generation of users



- Modelling risks
- Tracking diseases
- Facility security
- Vulnerablity analysis
- Buffer zone protection

Creating a safer society

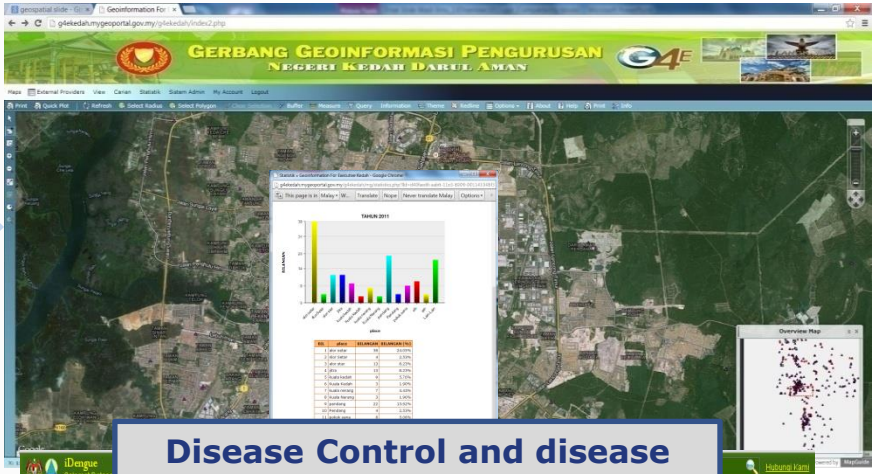
- Environmental monitoring
- Emergency management
- Natural environment hazards
- Global warming

Saving lives and properties

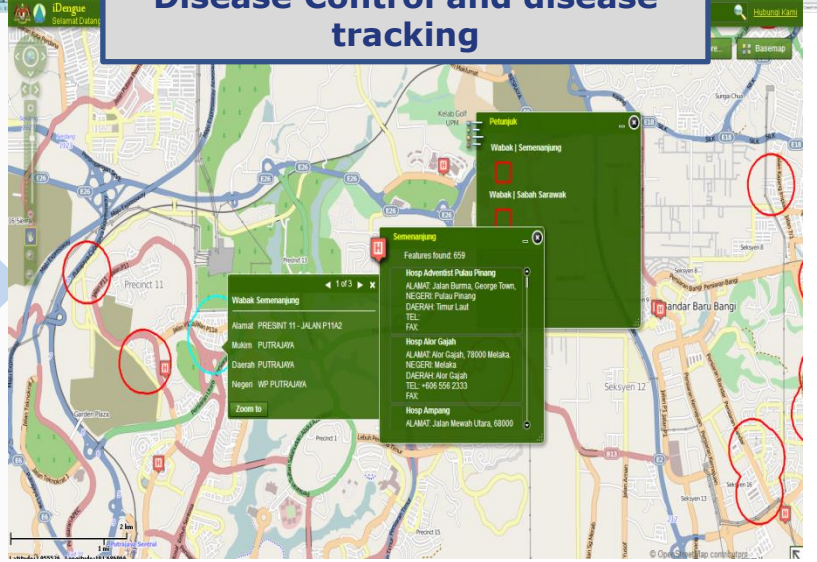
Health Management

Health aspects becomes one of the main aspects since it helps in socio economy development.

Geospatial technologies and information can be used to monitor and control diseases.



Disease Control and disease tracking



REDUCING CRIME

Peace and harmonized Malaysia

HOTSPOT ANALYSIS

- Population Density
- Average Income

HOTSPOT IDENTIFICATION

- Visualize Criminal Location
- Analyze Explain Criminal Activity

TOOL

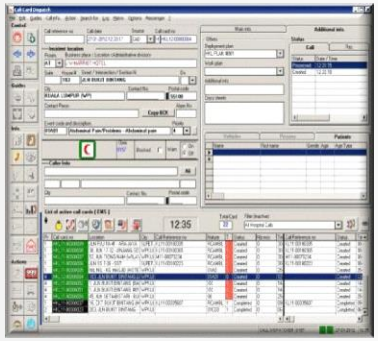
- Identified Offender Behavior
- Identified Pattern In Crime

GEOSPATIAL IN CRIME PREVENTIVE

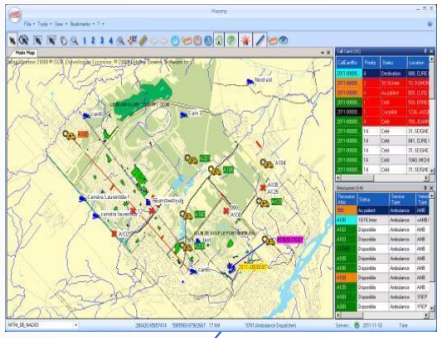
DISASTER MANAGEMENT : MERS 999 SYSTEM

Computer Telephony Interface (CTI)

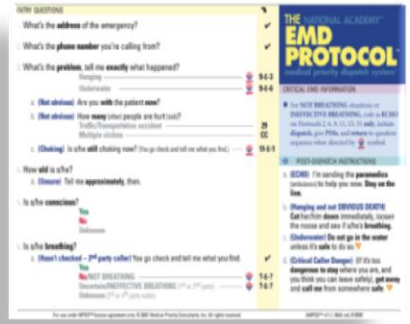
Computer Aided Dispatch



GIS (2D & 3D Panoramic Street Level View Imagery Map)



Call Taking Protocol



Management Dashboard

TRANSPORTATION MANAGEMENT IMPROVING URBAN PUBLIC TRANSPORT

LOGISTIC
- Routing
- Scheduling
- Route analysis
- Depot management

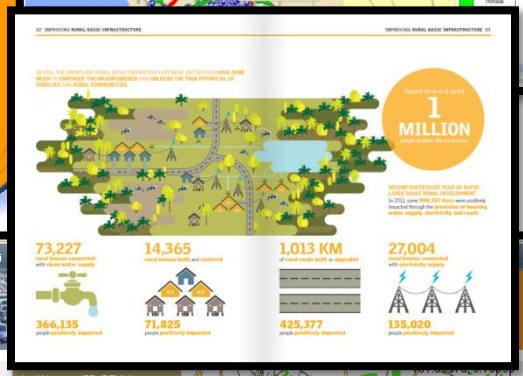
GEOSPATIAL IN TRANSPORTATION

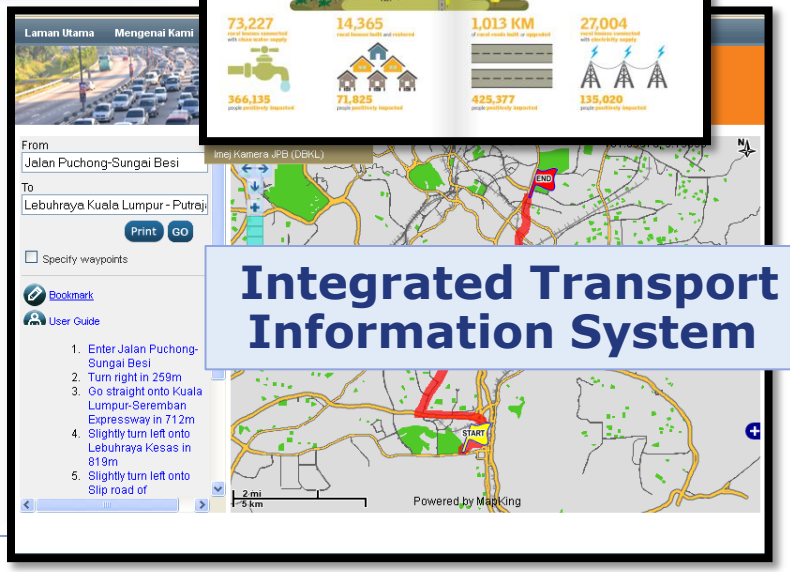
RAIL ROAD
- Operation
- Planning
- Maintanance
- Forcasting
- Desition Support System

AVIATION
- Noise Monitoring
- Route Planning
- Facilatate Enviromental Compliance

HIGHWAY AND STREET
- Route Planning
- Route Restructuring
- Accident Analysis

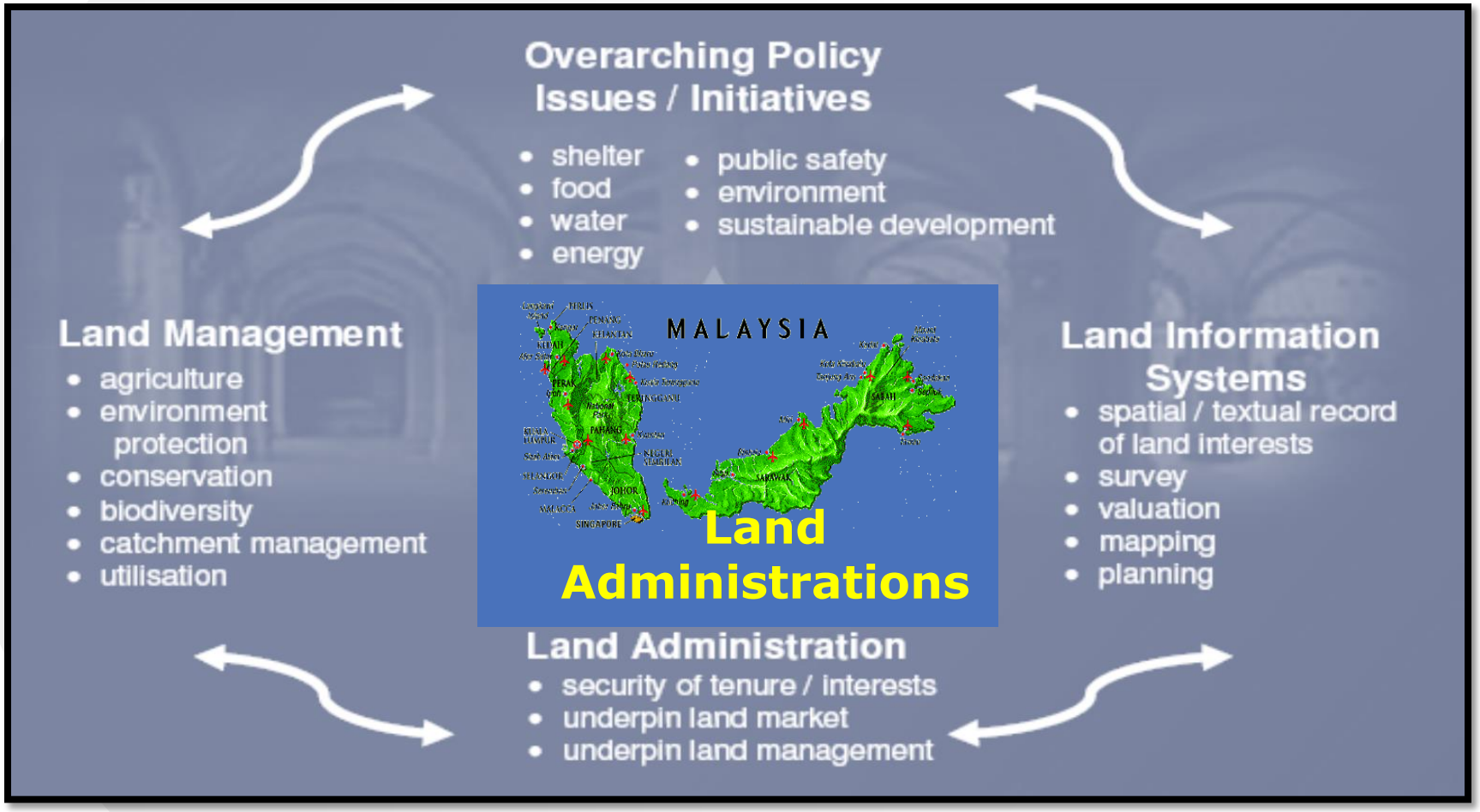
LLM – Trafic Information





Integrated Transport Information System

Land Management



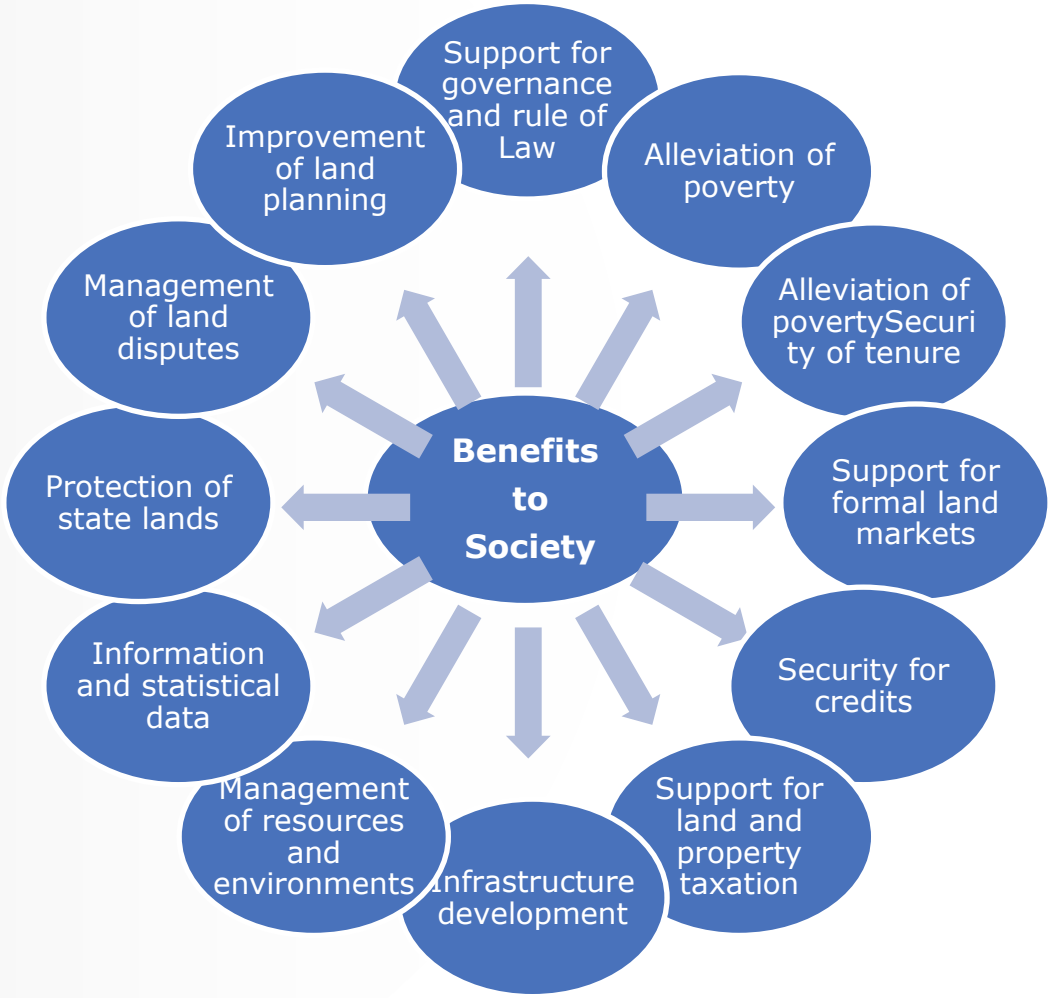
Good Land Governance which is dependent on many factors including the rule of law, civil service, etc etc….. & reliable spatial data - "AAA" – accurate, authoritative, assured. (AAA – Williamson, 2011)

Benefits to Society

- When incorporated into land registry system, high quality spatial data fascilitates greater efficiency in land markets. Define property boundaries, area and locations

- In areas where the demand for land is high, the demand for spatial data is also high, cadastre provides fundamental spatial data for land registry system

- Role of land development stimulates and sustaining economic development



Geoscience Management

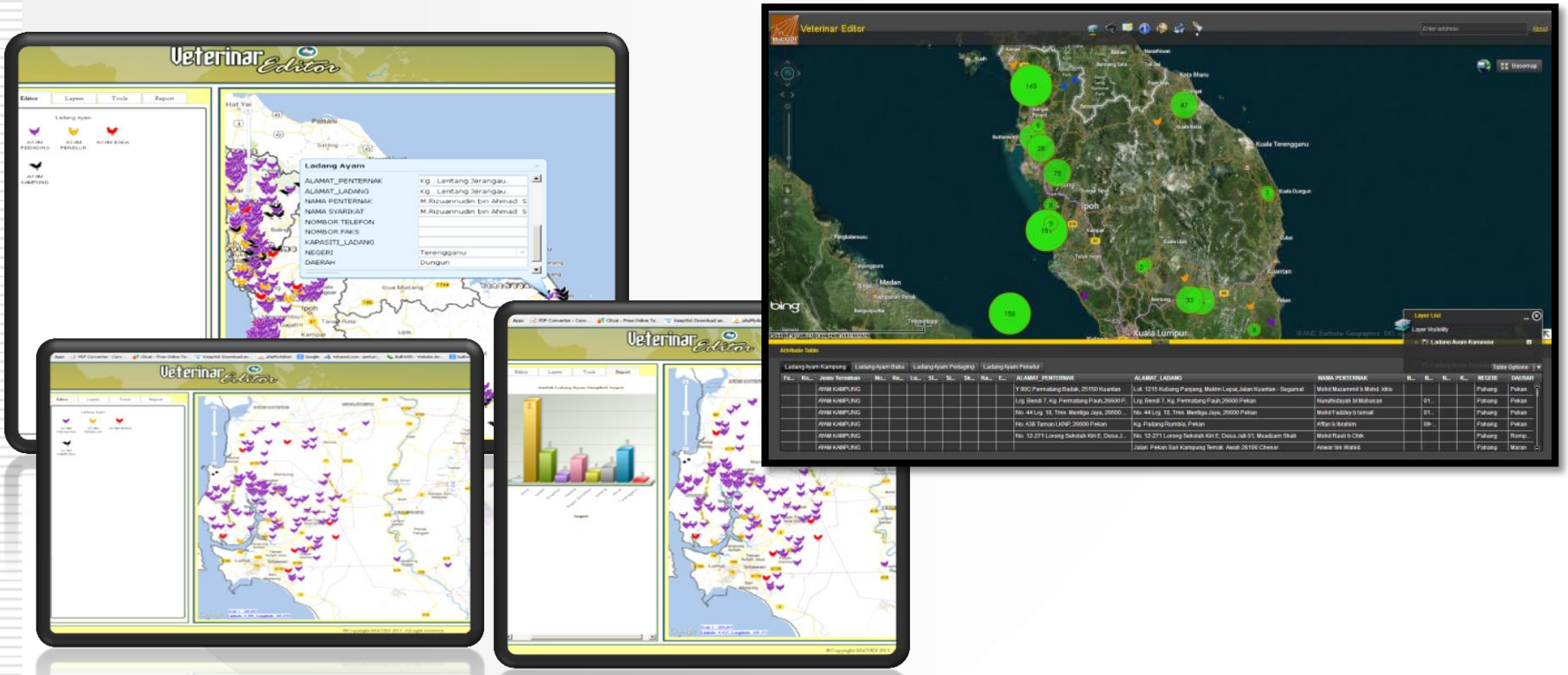
- Geological terrain mapping has been employed as an effective tool in development planning and in the management of geohazards in an area.
- Basic information were collected in the field, involving geology, topography and landform as well as geodynamic features such as landslides and severe erosion.

Utilities

- Inventory of utilities assets location, status, and other attributes improved performance, customer satisfaction, growth in client base and revenue.
- Asset tracking
- Resources fixed at locations that require constant management

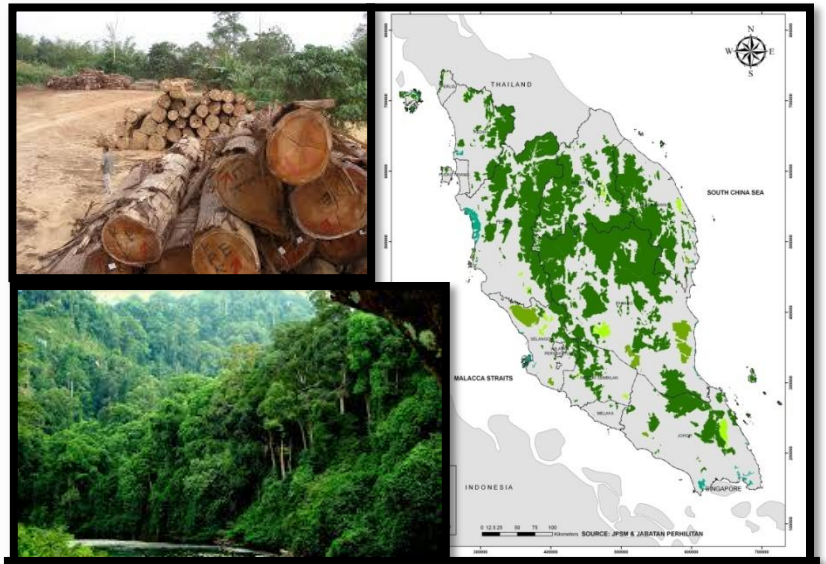
Agriculture and Aquaculture Management

- Spatial information contributes to the agriculture, fisheries and forestry sectors.



Forest Management

- Innovative airborne technology (LIDAR)
- Advancement in satellite imagery processing
- Usage of GIS software enhanced more-effective management of forests for commercial use and environmental preservation
- To yield forest estimation
- Spatial technology facilitates sustainable management of forest resources.
- Support Reduction of Emissions in Deforestation and Forest Degradation (REDD) program AND other forest carbon projects



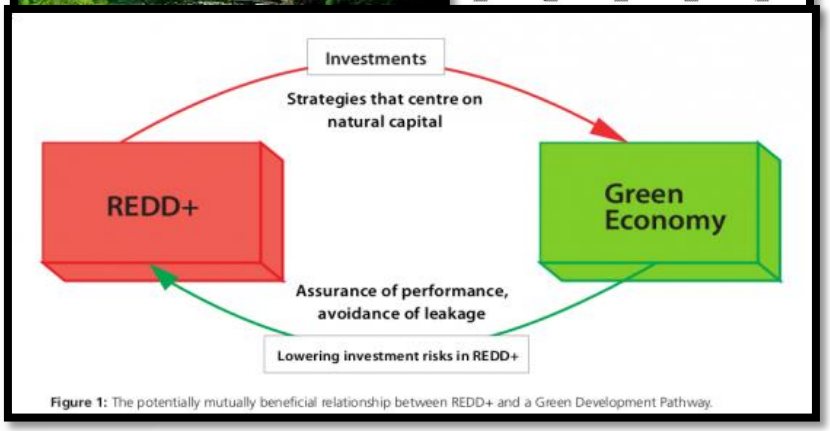
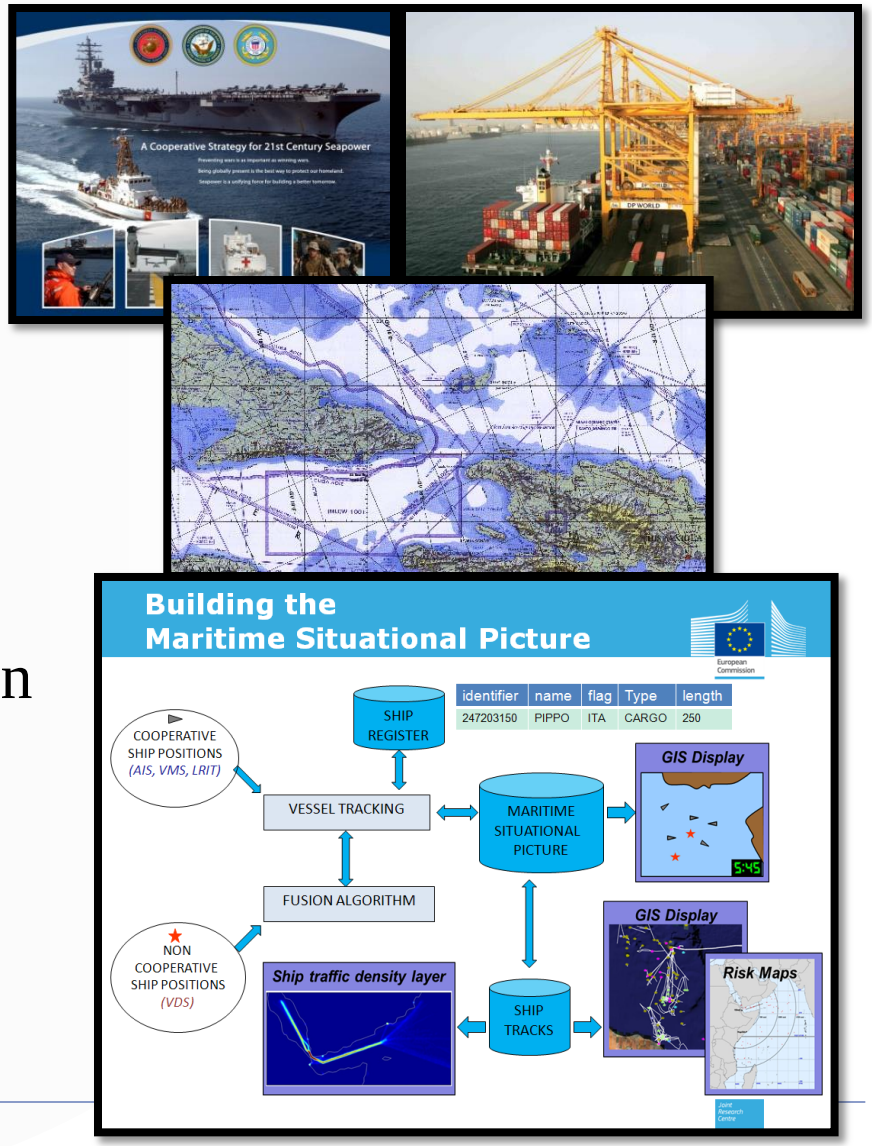


Figure 1: The potentially mutually beneficial relationship between REDD+ and a Green Development Pathway.

Maritime Management

- Maritime monitoring
- Enhance maritime monitoring,
- Increased safety
- Improved port logistics
- Aided emergency response
- Facilitated protection of ocean resources from over-exploitation
- Biodiversity surveys
- Protection of marine resources



Economic Value (s)

Economic Value(s) of Geospatial Information and Technologies

Direct Use Value

Location Based services

Outputs:
- ✓ Petroleum and mineral
- ✓ Transport
- ✓ Communication
- ✓ Property and construction
- ✓ Agriculture
- ✓ Fishing
- ✓ Forestry
- ✓ Tourism
- ✓ Public administration

Ecological Value

Modelling,mapping

Benefits:
- ✓ Flood control
- ✓ climate
- ✓ Sustainable water resources
- ✓ Sustainable natural resources
- ✓ Biosecurity
- ✓ biodiversity

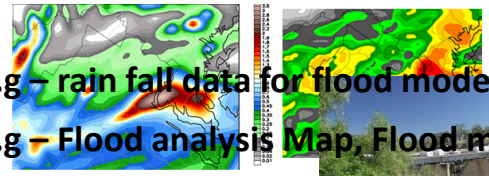
Option Value

Benefits:
- ✓ Proctection from fires, floods and natural disasters
- ✓ Improved management of climate change
- ✓ Insurance
- ✓ defence

Public Interest

Benefits:
- ✓ Satisfaction that resource is there
- ✓ Environment and conservation values
- ✓ Natural security
- ✓ Long baseline for historical analysis
- ✓ Preserving national assests for the next generation

e.g - Mineral location in Malaysia



e.g – rain fall data for flood modelling

e.g – Flood analysis Map, Flood mitigation

Preservation of flora and fauna

Socio-Economic Impacts

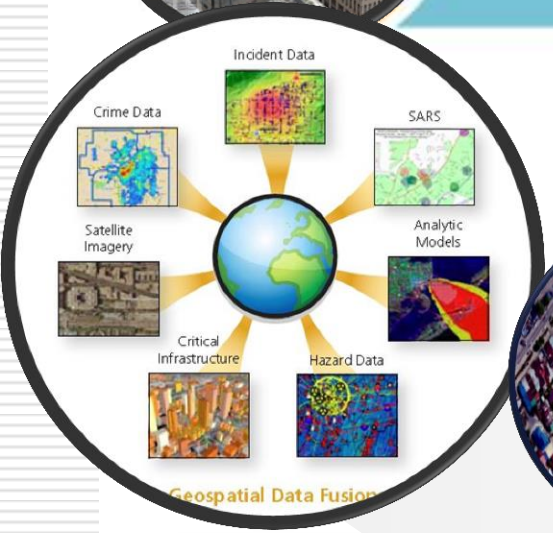
- Socio-economic development is measured with indicators, such as GDP, life expectancy, literacy and levels of employment

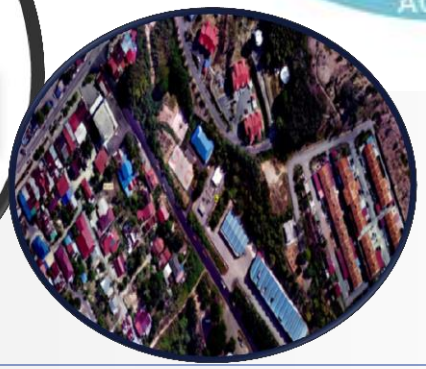
- Causes of socio-economic impacts - new technologies, changes in laws, changes in the physical environment

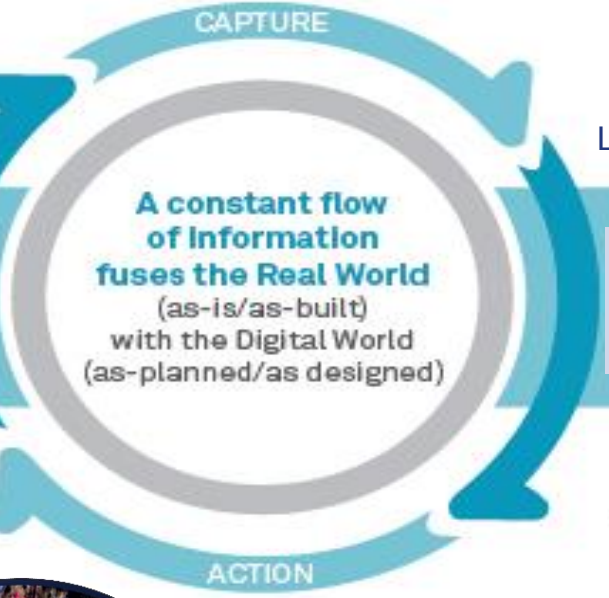
SDI Supports the Transition to the Real World

Spatial Data Infrastructure

Digital World Models







Landscaping

Roadworks

Real World Events

Real World Model

SDI translates models prepared using technology to the real world environment such as road works, building construction, land management, precision farming,natural resource managemet

.....

MyGDI Driving Factor : Co-operation and Collaboration

The availability of consistent and accurate detailed geographic information is a key enabler for the growth of national economies.

Geospatial data are fundamental to effectiveness and productivity in sectors including government, utilities, building, construction, emergency services, defense, primary industry, mining, energy, transport and tourism.

Co-operation and Collaboration of Stakeholders

to provide Accurate geospatial data will drive Economic growth

MyGDI and Economy

- Offers investment-led growth in project areas designed by participating governments
- Investors are invited to develop business opportunities that have been identified in locations with the resources to support modern industries and in which focused planning and rapid implementation creates an investor-friendly environment
- geographic location of economic activity
- Firms thus choose locations that maximize their profits and individuals choose locations that maximize their utility

Components of SDI supports the Economy

MyGDI AND ECONOMY

MyGDI to Fascilitate Spatial Enablement of Government and Society and support the **SOCIO-ECONOMY DEVELOPMENTS**

The Basic Driving Forces for Malaysian NSDI Development while **PROMOTING GOOD GOVERNANCE, ECONOMIC GROWTH AND SUSTAINABLE RESOURCE MANAGEMENT**

A Geospatially Enabled Government is one that has ready access to the Geospatial, or geographic or location-based information and associated technologies it requires and is applying these productively to all areas of government endeavour. Geospatial enablement leads to:

- **Improve Decision Making**
- **Reduction of administrative costs**
- **Whole of government outcomes**
- **Enhanced research and industries**
- **Development Opportunities**

MyGDI and Economy The way Forward

Businesses rely on geospatial services to create new efficiencies in their core operations, find ways to better target their customers, create leaner operations, and make smarter strategic decisions

Logistics & operations


Optimizing transportation, warehousing, facilities management, and operations

Example:

- Transportation company increasing utilization rates and load-factors of truck fleet
- Manufacturer minimizing supply-chain costs and efficiently managing inventory

Sales & marketing


Targeting of customers based on location to increase sales and marketing yields and reduce costs

Example:

- Chain retailer designing an app that lets customers locate nearest storefront
- Salespeople dividing territories to balance potential and create an equitable sales plan

Strategic decision making


Leveraging geo-data to drive core business decisions to most effectively deploy resources

Example:

- Agribusiness company determining optimum fertilizer application from the air
- Retailer choosing the next set of store sites based on where its target customers live

BENEFITS OF MyGDI

Environment benefits

- Promoting sustainable development
- Better natural resource monitoring and management
- Improve coastal zone management
- Improve river basin and water quality management

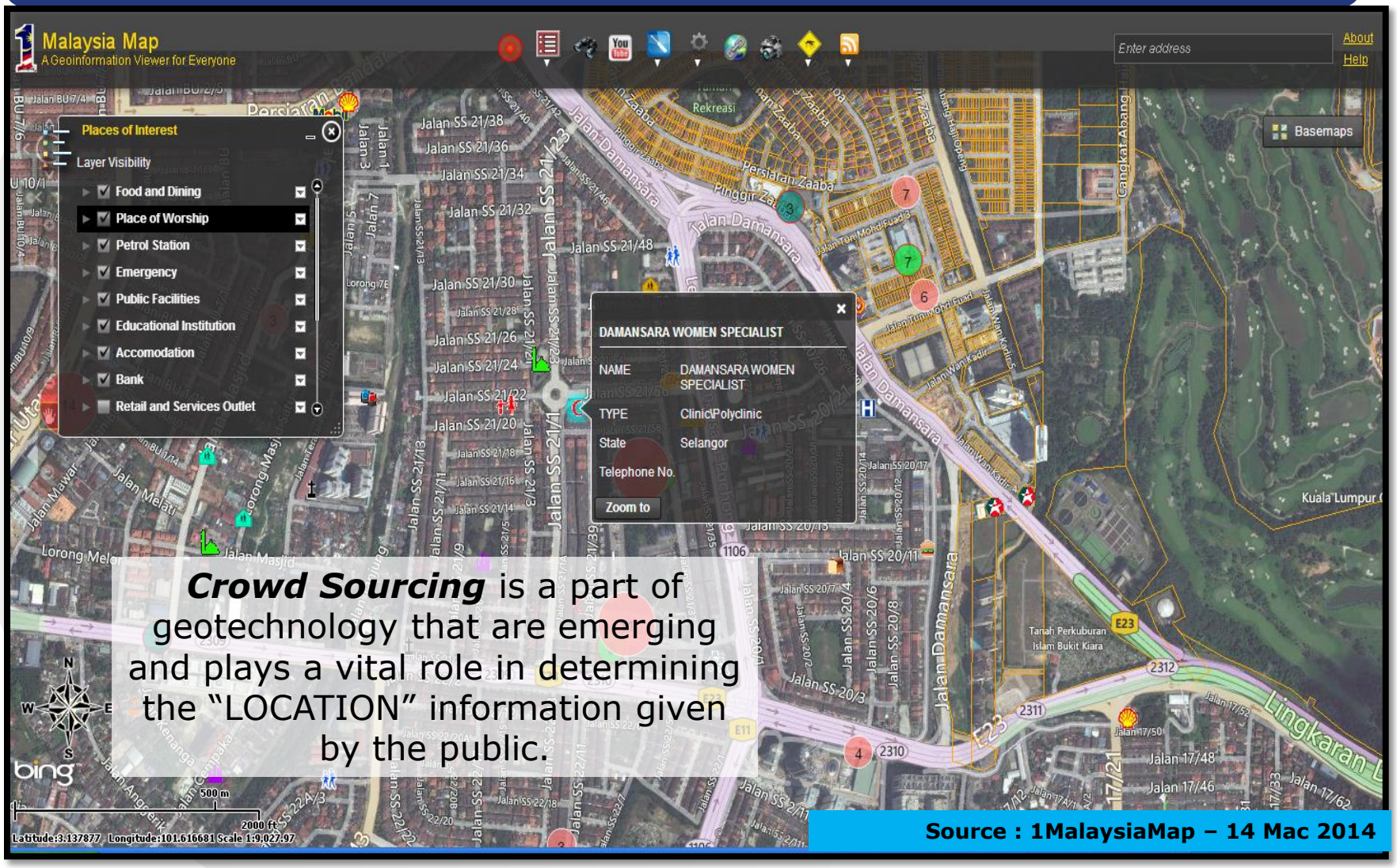
Social benefits

- Improved national and local governance
- More opportunities to engage in the democratic process
- More effective nation security
- Faster emergency response
- Opportunities to target proups and areas with special needs

Economic benefits

- An expanding internal market for GI products and services
- Greater competitiveness, more opportunities for GI businesses and services
- Increased efficiency for both public and private services
- Improve transport and infrastucture management system

Everything happen somewhere
"Where" is the Matter?: Location



Crowd Sourcing is a part of geotechnology that are emerging and plays a vital role in determining the "LOCATION" information given by the public.

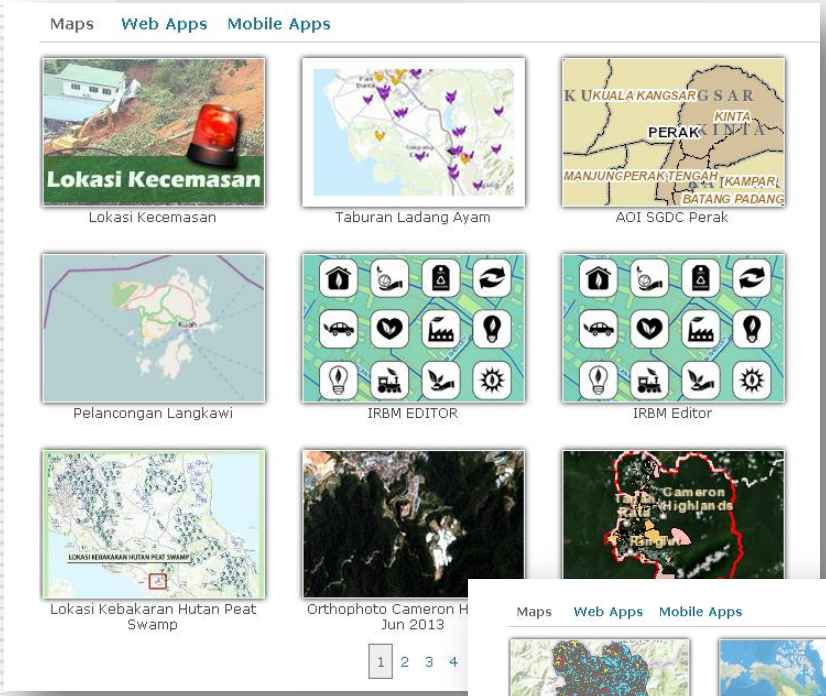
Source : 1MalaysiaMap – 14 Mac 2014

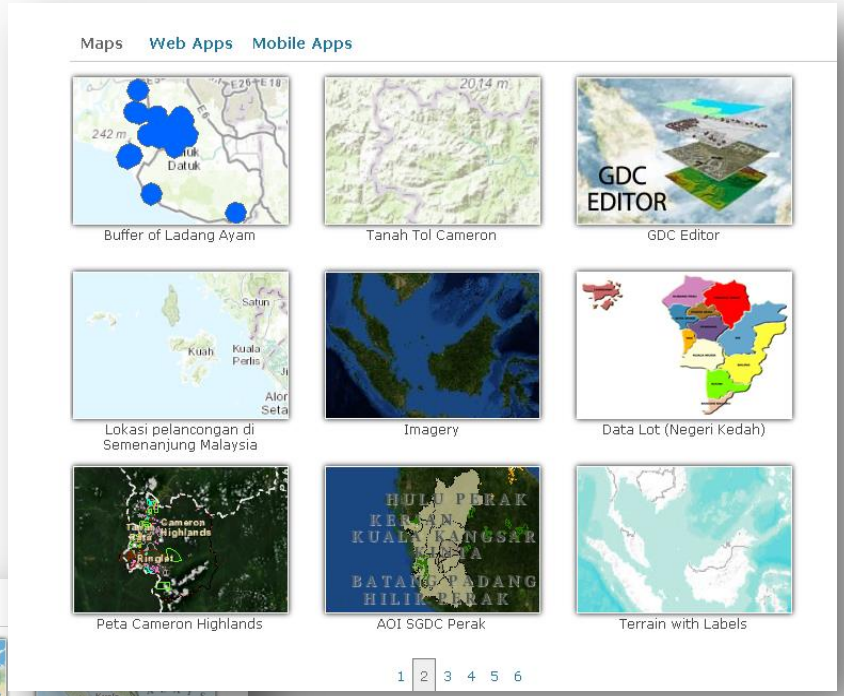
MyGOS

- An Online Geospatial Services;
- **A Content Development Platform**
- A Platform for sharing and collaboration

http://mygdi.maps.arcgis.com/home/

MyGOS- Featured Maps





MyGDI – MALAYSIA SDI

Victorian Spatial Council

GeoConnection

INSPIRE

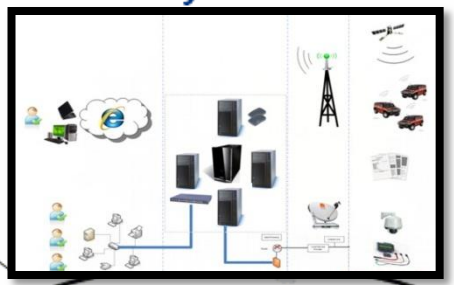
ICT Technology for Geodata Usage

(Nanotechnology) **Geotechnology** *(Biotechnology)*

Geotechnology *is one of the three "mega technologies" for the 21st century and promises to forever change how we conceptualize, utilize and visualize spatial information in scientific research, commercial applications and general usage*

Global Positioning System

Geographic Information Systems



Remote Sensing

GPS / GIS / RS

(Spatial Triad)

Where *is* **What**

Mapping involves ***precise placement*** *(delineation) of physical features*

(Graphical)

Descriptive

Mapping

Prescriptive

Modeling

Why *and* **So What**

Analysis involves investigation of ***spatial relationships***

(Numerical)

ICT Technology for Geodata Usage

Geospatial services

Allow consumers, businesses, governments, and other organizations to make decisions based on geographic data

- The primary ingredients of geospatial services are electronic maps and satellite imagery describing our physical and human environment

Geospatial services industry

Group of companies and organizations providing the tools and technologies for end users to benefit from location-based information.

- There are three primary types of users of geospatial services: businesses, consumers, and government and non-government organizations

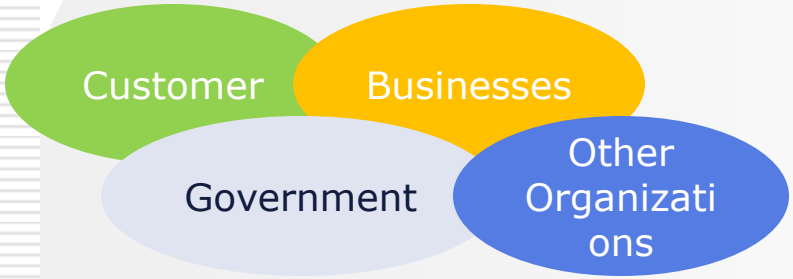
ICT and GEOSPATIAL

- The emergence and use of precise **location information** in social media offers great opportunities and will see it form a core part of information technology infrastructure.
- Easier way to navigate the world

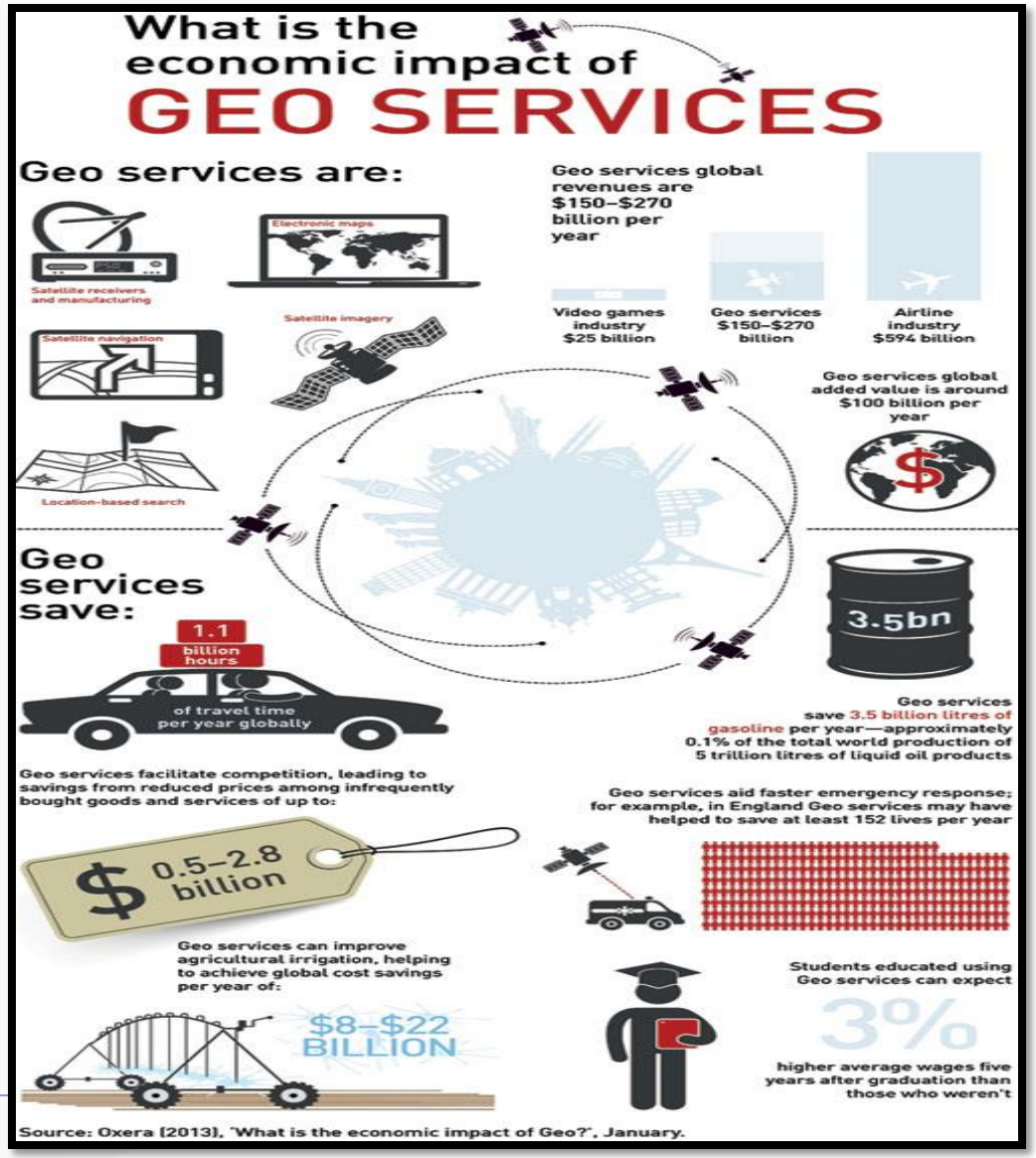
BIG VOLUME OF DATA ,
BIG VOLUME OF CONSUMERS (PEOPLE)……..
BIGGER OPPORTUNITY TO DISSEMINATE GEOSPATIAL INFORMATION

LOCATION INFORMATION VIA THE SOCIAL MEDIA

Malaysia : Impact of Geoservices



Allow to make decision based on **geospatial data**



CONCLUDING REMARKS

As a Concluding remarks ….MyGDI as the driving force of **Malaysia SDI** looking forward the participations, determinations of ALL STAKE HOLDERS towards sharing of Geospatial Information ….together we enforce the economy growth using Geoinformation and Technologies .

THANK YOU

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