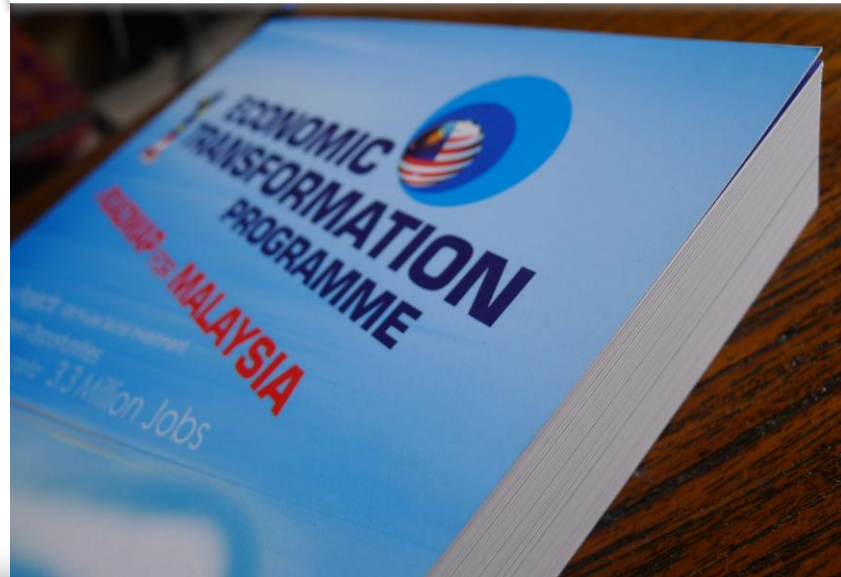# LEVERAGING E-CADASTRE FOR NATIONAL ECONOMIC TRANSFORMATION

Sr Dr Teng Chee Hua
Cadastral Division, JUPEM
Malaysia

INTRODUCTION

Malaysia has progressed from an economy dependant on agriculture and primary commodities to a manufacturing based, export driven economy.

To move the country forward the Government has crafted a framework comprising four (4) pillars to drive the change

VISION 2020
Aspiring to Achieve Developed and High-income Nation Status

1 NATIONAL TRANSFORMATION PROGRAMME

GOVERNMENT TRANSFORMATION PROGRAMME

ECONOMIC TRANSFORMATION PROGRAMME

NATIONAL KEY RESULTS AREAS (NKRAs)

- REDUCING CRIME
- FIGHTING CORRUPTION
- ASSURING QUALITY EDUCATION
- RAISING LIVING STANDARDS OF LOW-INCOME HOUSEHOLDS
- IMPROVING URBAN PUBLIC TRANSPORT
- IMPROVING RURAL DEVELOPMENT
- ADDRESSING THE RISING COST OF LIVING

NATIONAL KEY ECONOMIC AREAS (NKEAs)

- OIL, GAS & ENERGY
- PALM OIL & RUBBER
- FINANCIAL SERVICES
- TOURISM
- BUSINESS SERVICES
- ELECTRONICS & ELECTRICAL
- WHOLESALE & RETAIL
- EDUCATION
- HEALTHCARE
- COMMUNICATIONS CONTENT & INFRASTRUCTURE
- AGRICULTURE
- GREATER KUALA LUMPUR / KLANG VALLEY

STRATEGIC REFORM INITIATIVES (SRIs)

- COMPETITION, STANDARDS AND LIBERALISATION
- PUBLIC FINANCE REFORM
- PUBLIC SERVICE DELIVERY
- NARROWING DISPARITIES
- REDUCING GOVERNMENT'S ROLE IN BUSINESS
- HUMAN CAPITAL DEVELOPMENT

The 12 NKEA's

Oil, Gas and Energy

Palm Oil & Rubber

Financial Services

Tourism

Business Services

Electronics & Electrical

Wholesale & Retail

Education

Healthcare

Communications Content and Infrastructure

Agriculture

Greater Kuala Lumpur/ Klang Valley

Geospatial Initiatives

1983 — Quit Rent System Peninsular Malaysia

1985 — Computer Assisted Land Survey System

1986 — National Forestry Information System

1988 — Computer Assisted Mapping System

1989 — Property Assessment System

1991 — Valuation Information System

1993
- 3) Demographic Information System
- 4) Coastal Erosion Monitoring System
- 1) Forest Information System Sabah
- 2) Land Use Information System

1994
- 2) Public Work System (SUTRA)
- 1) Penang GIS (PEGIS)

1995 — Computerized Land Registration System

1997 — National Infrastructure for Land Information System (Nalis)

1999 — Cadastral Data Management System (CDMS)

TOWARDS A SPATIALLY ENABLED GOVERNMENT

SPATIALLY ENABLED TECHNOLOGY	SPATIALLY ENABLED PLATFORM	SPATIALLY ENABLED SYSTEM	SPATIALLY ENABLED GOVERNMENT
GPS/GNSS	National Geospatial Data Centre (NGDC)	Utility Information System	Economic Development
Total Station	State Geospatial Data Centre(SGDC)	Land Administration System (eTANAH)	Land Administration
Ground/Airborne Laser Scanning Technology	Local Geospatial Data Centre (LGDC)	G4NRE, MyLIIS, G4E	Public Works
Ocean Mapping Systems	National Digital Cadastral Database (NDCDB)	Planning Information System	Urban & Regional Planning
Satellite Imagery	Multi Purpose Cadastre	GIS System For Local Authorities	Real Estate And Facilities Management
Airborne Sensors (Radar/Gravity/ Magnetic)	PADU	Environmental Management System	National Security
Space borne Sensors (Radar /Altimetry/Etc)	Marine Geospatial Data Centre (MGDC)	Defense GIS System	Public Safety
		Coastal And Marine Geoinformation System	Tourism
			Integrated Coastal Zone Management (ICZM)
			Sustainable Development

BASE MAP (NDCDB/Utility/Mapping)
NATIONAL GEOSPATIAL REFERENCE FRAME (MyRTKnet/MyGeoid)

Leveraging eKadaster for boosting the economy of Malaysia via the National Economic Transformation Programme

The Correlation
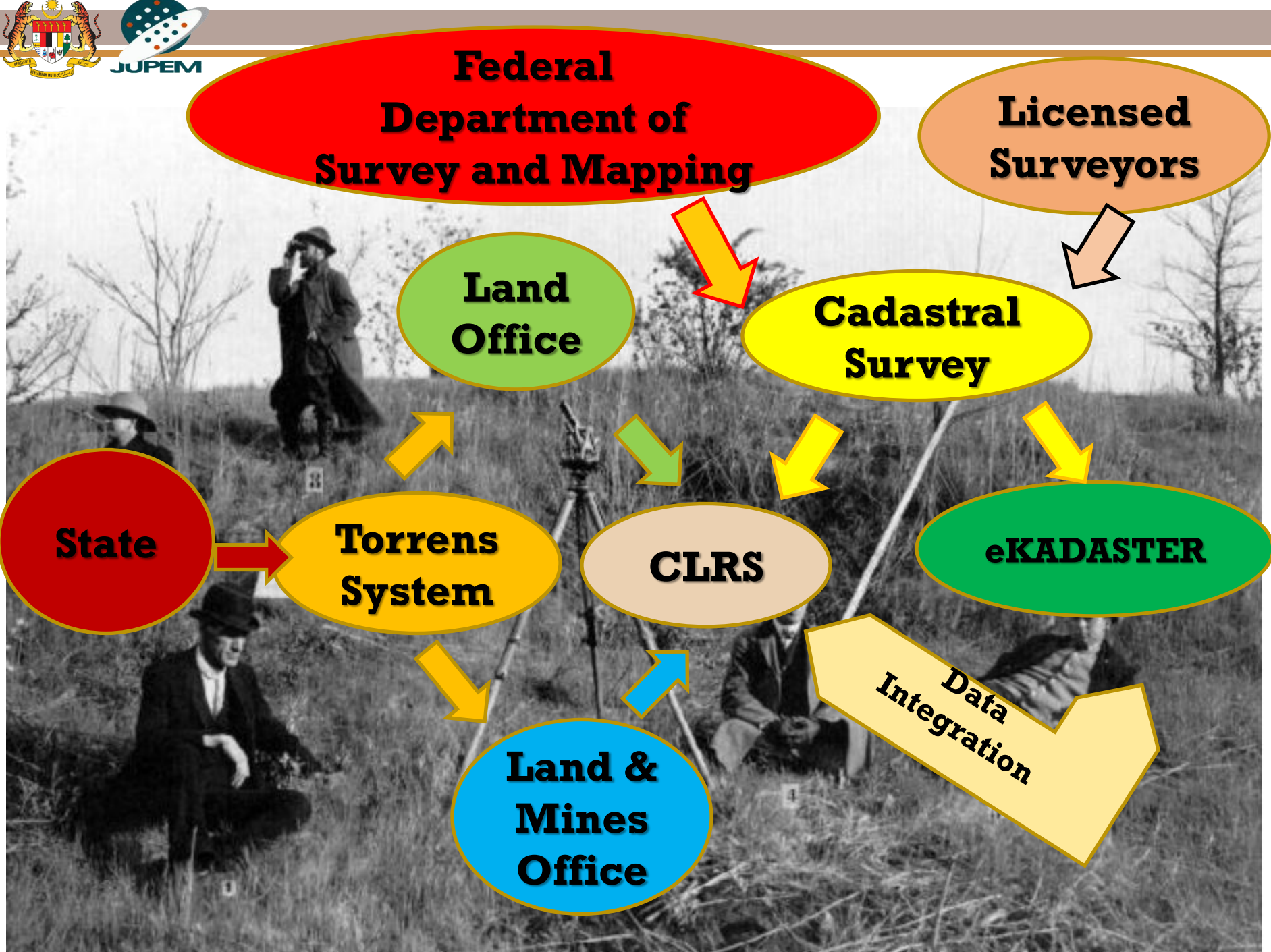
Benefits of Cadastral & Land Survey to the nation

Guarantees an indefeasible title to those included in the register

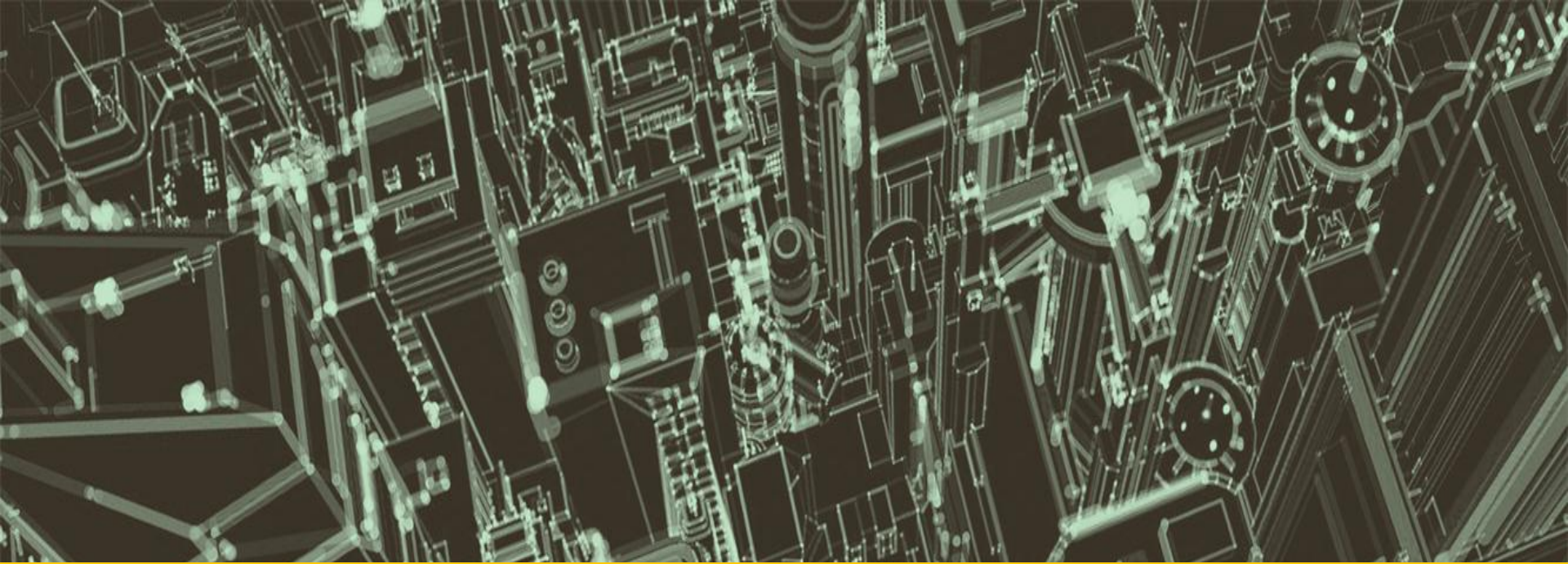Conclusive proof that the person mentioned in Title is the owner of the land

Reduces disputes and confirm quality by survey and demarcation

Lowering the risk of investment

Facilitate development of new township
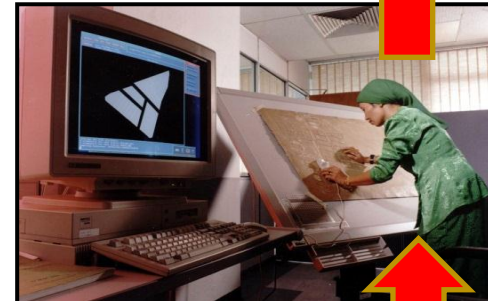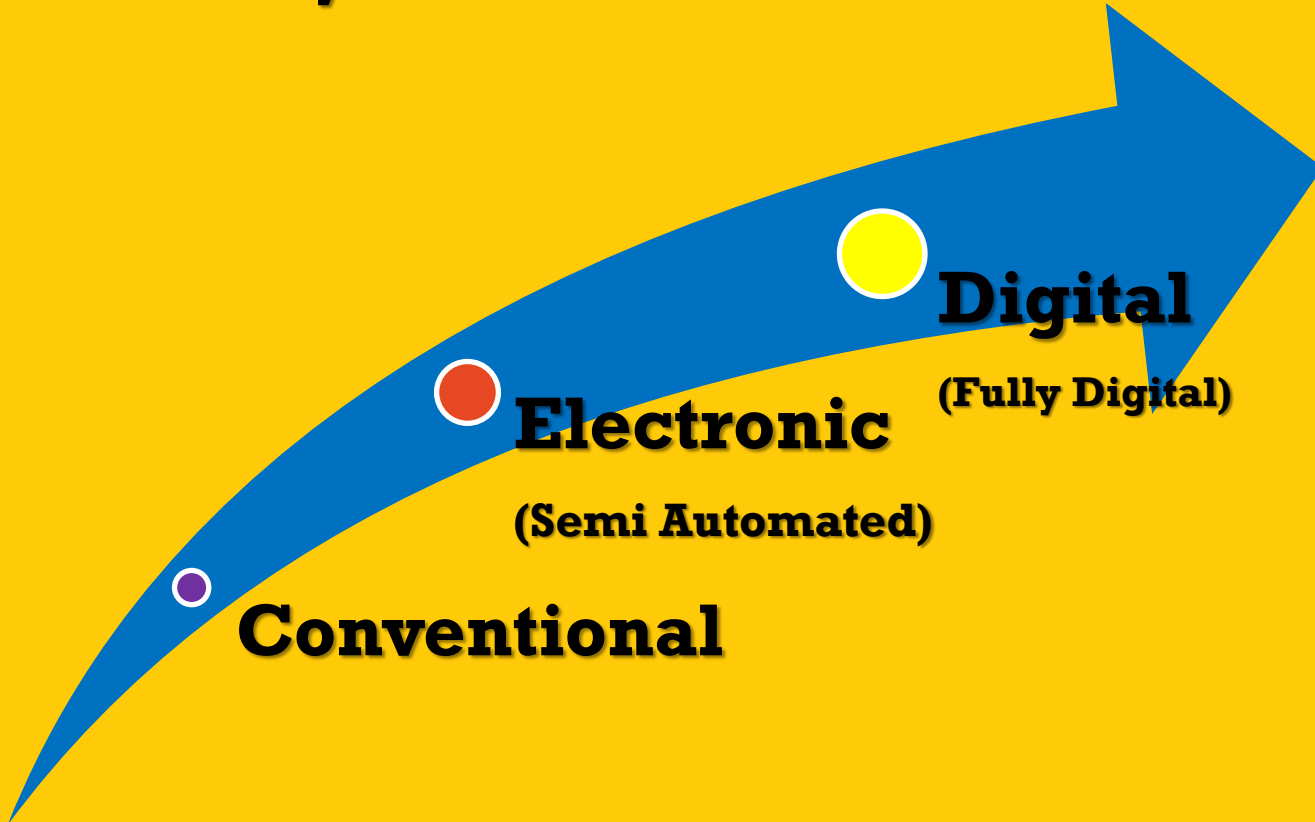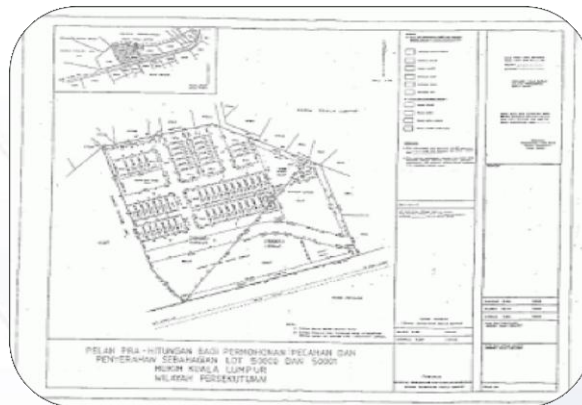
Increase business and investment

U STOLE MY LAND

It's my land

No it's mine

The Cadastral Survey Reform

The System Reformation

Digital

(Fully Digital)

Electronic

(Semi Automated)

Conventional

Objective Reformation: Expediting Cadastral Services

Qualified Titles

- Introduced in 1965
- To cater Cadastral Survey rising demands
- Issuance of title in advance of final survey
- Supports vibrant land market
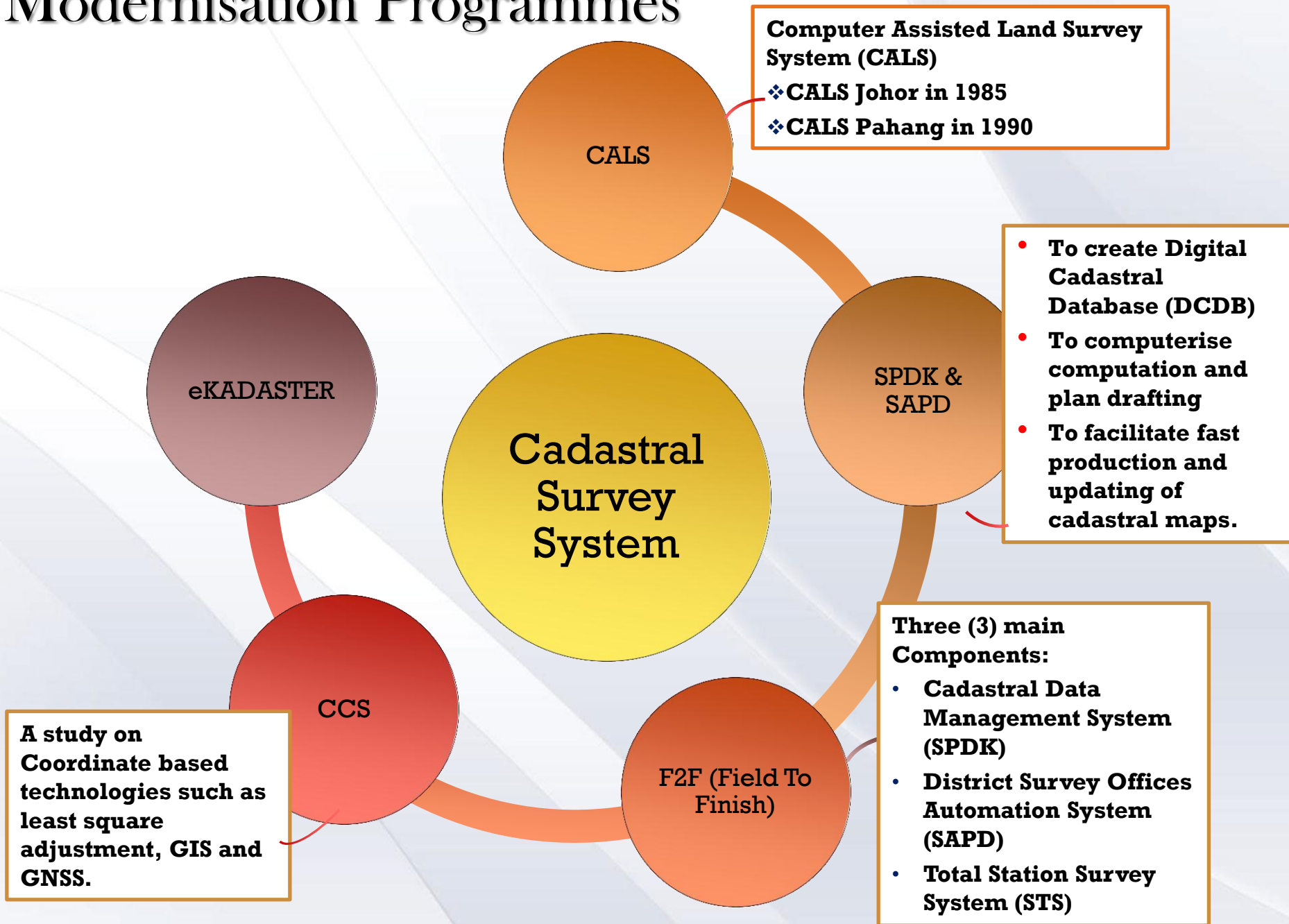- Instigating more land ownership units (QT) than surveyed land parcels (FT)

Pre Comp Plans

- Under NLC, Pre Comp Plans is prepared to show the intended new boundaries and areas of those lots which are based on computation from existing survey
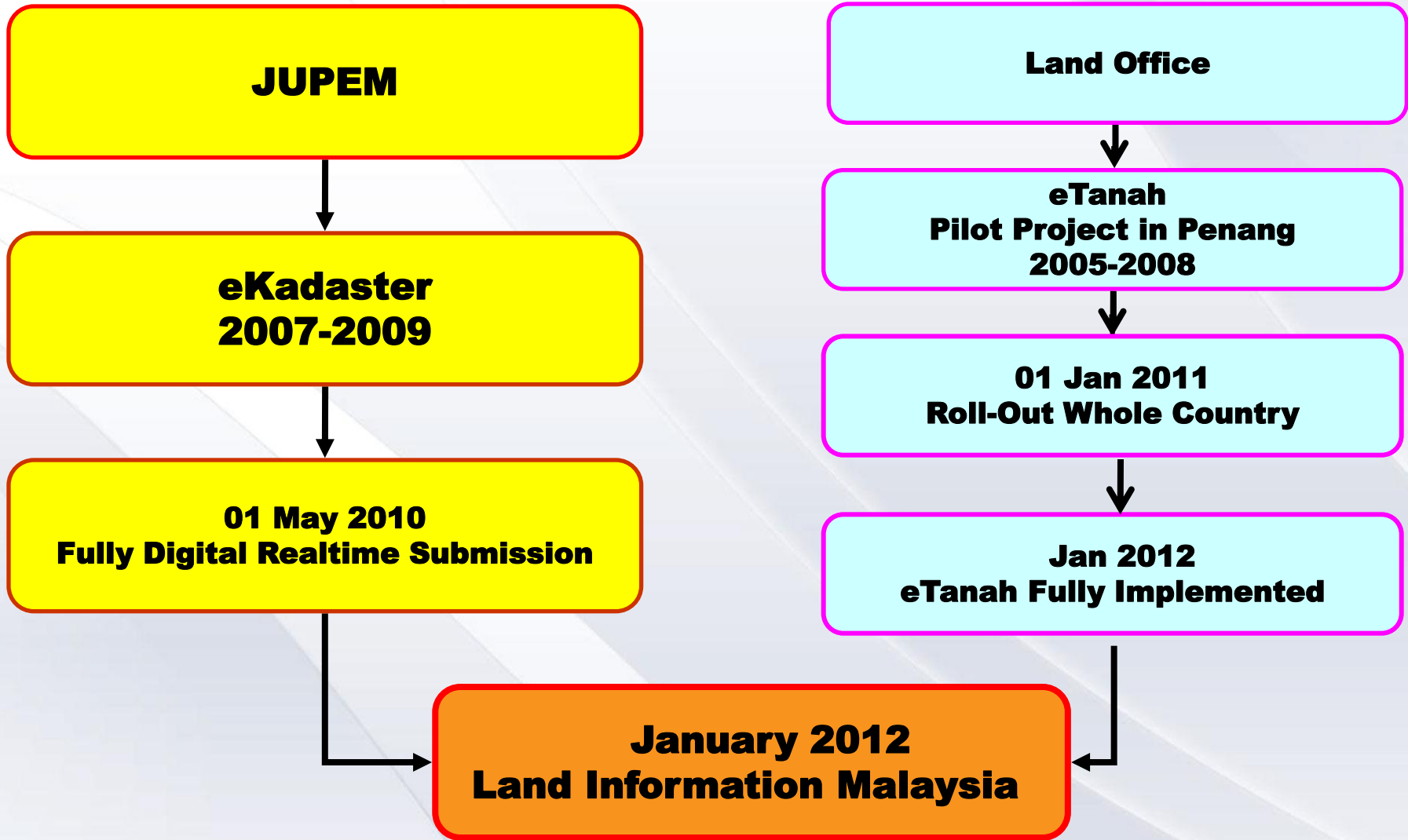- Promote Land development planning, land dealings and prevent encroachment

Digital environments

- Replacing conventional processing method phase by phase as early as 1985
- The digital environment concept gradually extended from Field to Finish

Modernisation Programmes

Cadastral Survey System

CALS

Computer Assisted Land Survey System (CALS)
- ❖ CALS Johor in 1985
- ❖ CALS Pahang in 1990

SPDK & SAPD
- To create Digital Cadastral Database (DCDB)
- To computerise computation and plan drafting
- To facilitate fast production and updating of cadastral maps.

F2F (Field To Finish)

Three (3) main Components:
- Cadastral Data Management System (SPDK)
- District Survey Offices Automation System (SAPD)
- Total Station Survey System (STS)

CCS

A study on Coordinate based technologies such as least square adjustment, GIS and GNSS.

eKADASTER

INTEGRATION WITH eTANAH

```
JUPEM
   ↓
eKadaster
2007-2009
   ↓
01 May 2010
Fully Digital Realtime Submission
```

```
Land Office
   ↓
eTanah
Pilot Project in Penang
2005-2008
   ↓
01 Jan 2011
Roll-Out Whole Country
   ↓
Jan 2012
eTanah Fully Implemented
```

**January 2012
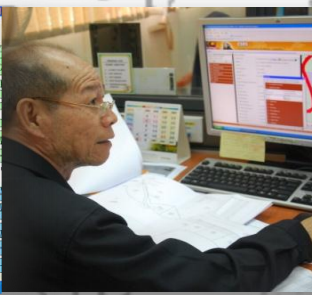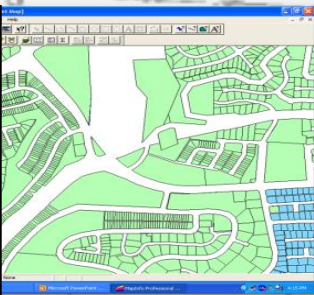Land Information Malaysia**

Requisition for Survey   **Survey Registration**   **Field Tracing Preparation**   **Field Survey**   **Survey Data Verification**
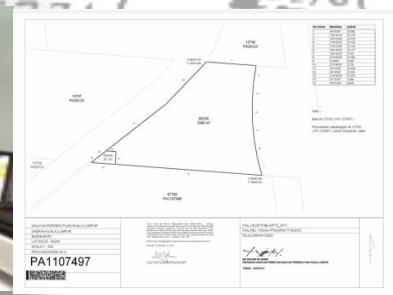
Updating Cadastral Survey Database   **Certified Plan Approval**   **Certified Plan**

# Cadastral Survey Workflow (Digital)

Impact of eKadaster in boosting Malaysian economic growth by:

- Expedite the Cadastral Survey delivery system
- Increasing FT registration;
- Crown Jewel : National Digital Cadastral Database;
  - Planning tool for land or property development
  - Accurate base maps for asset investment

- Ease of registering property
- Ease of doing business in Malaysia
- Competitiveness in economy performance
- Boost property demand and value
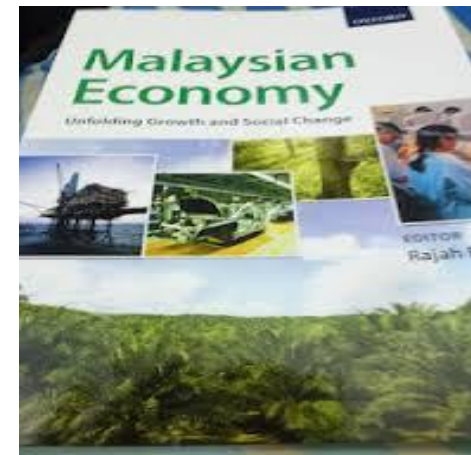
How ?
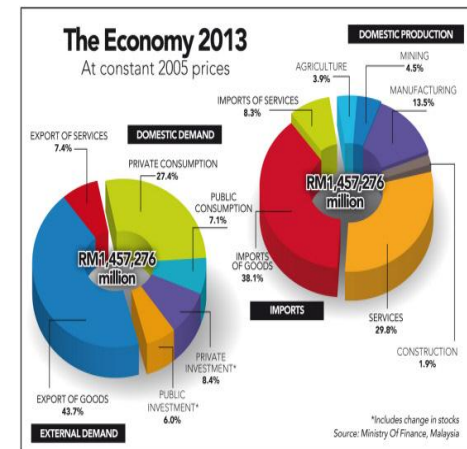
eKadaster

- **Expedite the Cadastral Survey delivery system**
  - Innovation in Cadastral Survey dealings
    - Increased Issuance of Final Titles
      - Improved and support the ease of doing land business and dealings i.e property registry
  - Survey Accurate Coordinate
    - Seamless and homogenous Cadastral Survey information
      - Accurate base maps

- **National Digital Cadastral Database (NDCDB)**
  - Base maps for GIS system
    - Survey Accurate Spatial Analysis
      - Proper enforcement
      - Better management
  - Facilitates High Impact Projects
    - Mass Rapid Train (MRT)
      - Assist train alignment
    - Double Track Railway
      - Facilitate the design, actual work and as built work
    - 2nd bridge Penang
      - Accurate spatial planning
    - Iskandar development Region
      - New land developments and township planning

Numbers of Surveyed Lots with eKadaster environment

STATES	YEAR				
	2010	**2011**	**2012**	**2013**	**2014**
	(Lot)	(Lot)	(Lot)	(Lot)	(Lot)
Johor	5,462	6,406	9,775	8,560	10,000
Kedah	5,778	7,412	5,976	5,939	6,250
Kelantan	1,539	2,838	5,976	6,490	6,580
Melaka	7,557	9,796	1,086	2,107	1,600
N. Sembilan	4,813	4,814	2,847	3,441	3,104
Pahang	4,175	4,847	5,158	5,757	4,600
Perak	765	1,539	5,942	7,248	7,200
Perlis	451	749	2,298	2,219	2,200
P. Pinang	5,861	5,723	1,807	692	632
Selangor	4,322	7,593	5,673	3,919	4,220
Terengganu	320	155	8,049	8,990	9,200
WP KL/Putrajaya	1,012	2,130	352	253	243
WP Labuan	2,512	728	68	149	140
TOTAL	**44,567**	**54,730**	**55,007**	**55,764**	**55,969**

DCDB / NDCDB users (Government Agencies)

No	Government Agencies Users
1	Department of Irrigation and Drainage Malaysia
2	Ministry of Health
3	Election Commision of Malaysia
4	State Land and District Office
5	National Solid Waste Department
6	Valuation and Property Services Department
7	University Technology MARA
8	University Putra Malaysia
9	Department of Town and Country Planning Peninsular Malaysia
10	Department of Agriculture
11	Kuala Lumpur City Hall
12	Malaysian Remote Sensing Agency
13	Ministry of Federal Territories
14	Local Authorities
15	Department of Environment
16	Prime Minister's Office
17	Ministry of Rural and Regional Development
18	Ministry of Home Affairs
19	Malaysia Centre of Geospatial Data Infrastructure
20	Department of Director General of Land and Mines
21	Department of Mineral and Geoscience
22	Ministry of the Federal Territories and Urban Well-being
23	Public Work Department
24	Forestry Department Peninsular Malaysia
25	University Technology Malaysia
26	And others

Year	Waived (RM)
2006	482,032.00
2007	156,696.80
2008	3,112,969.50
2009	3,060,088.00
2010	1,912,051.00
2011	1,602,880.00
2012	3,165,502.20
2013	674,859.10
Total	14,167,079.60

Source: JUPEM

Waived charges are given to Government Agencies for public-based development
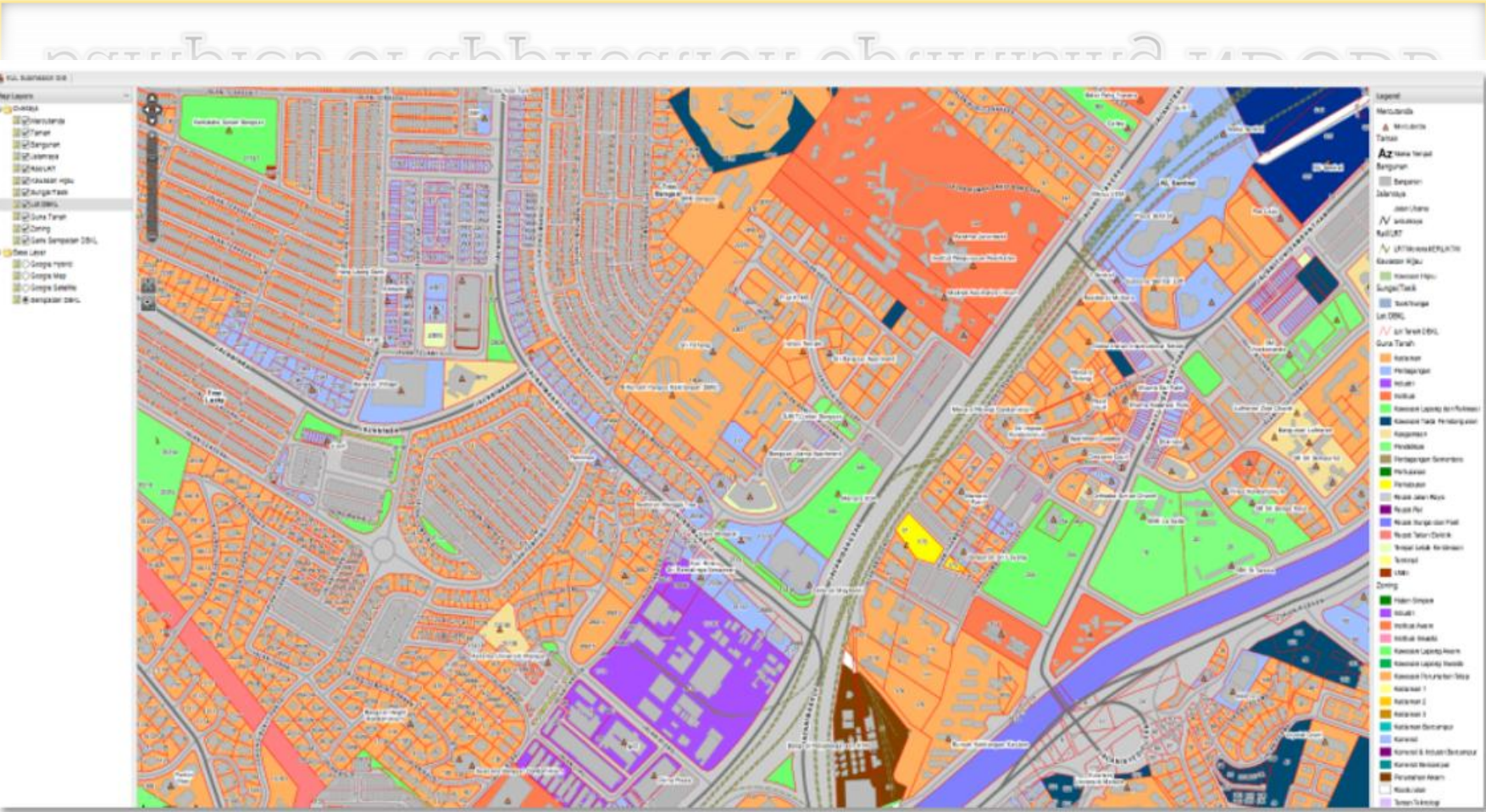
Significant of NDCDB

GIS Basemap

Empower user's existing GIS system

Decision Making Tool

Analysis Tool

Spatially Enabler

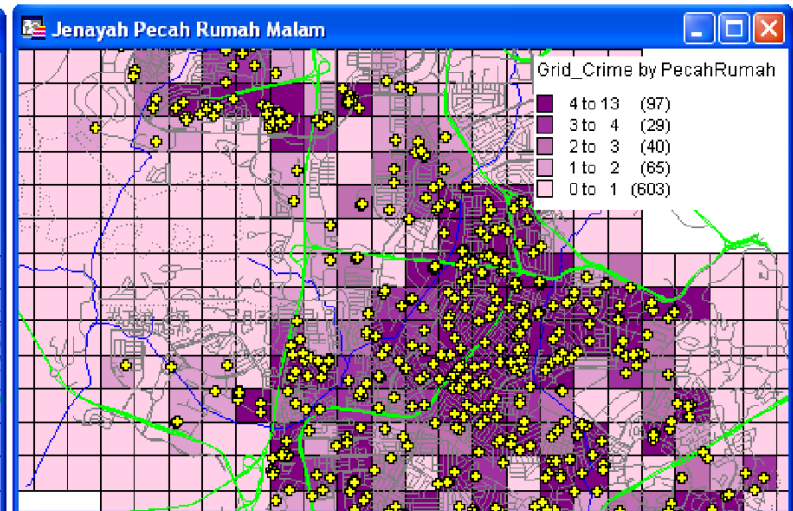# Samples of application optimising NDCDB

Source: DBKL GIS

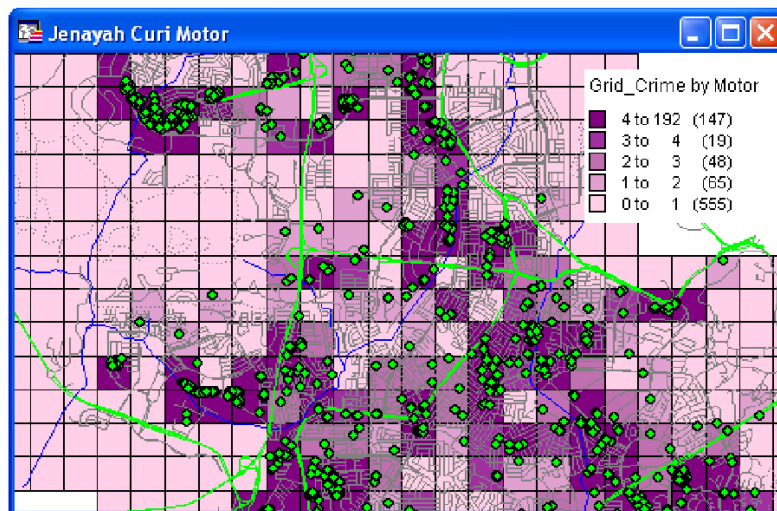# Samples of application optimising NDCDB

Safe City Monitoring System

Safe City Monitoring System: A Malaysia First in Crime Prevention
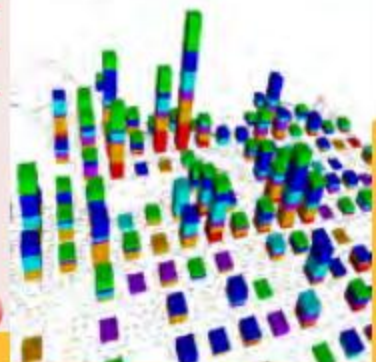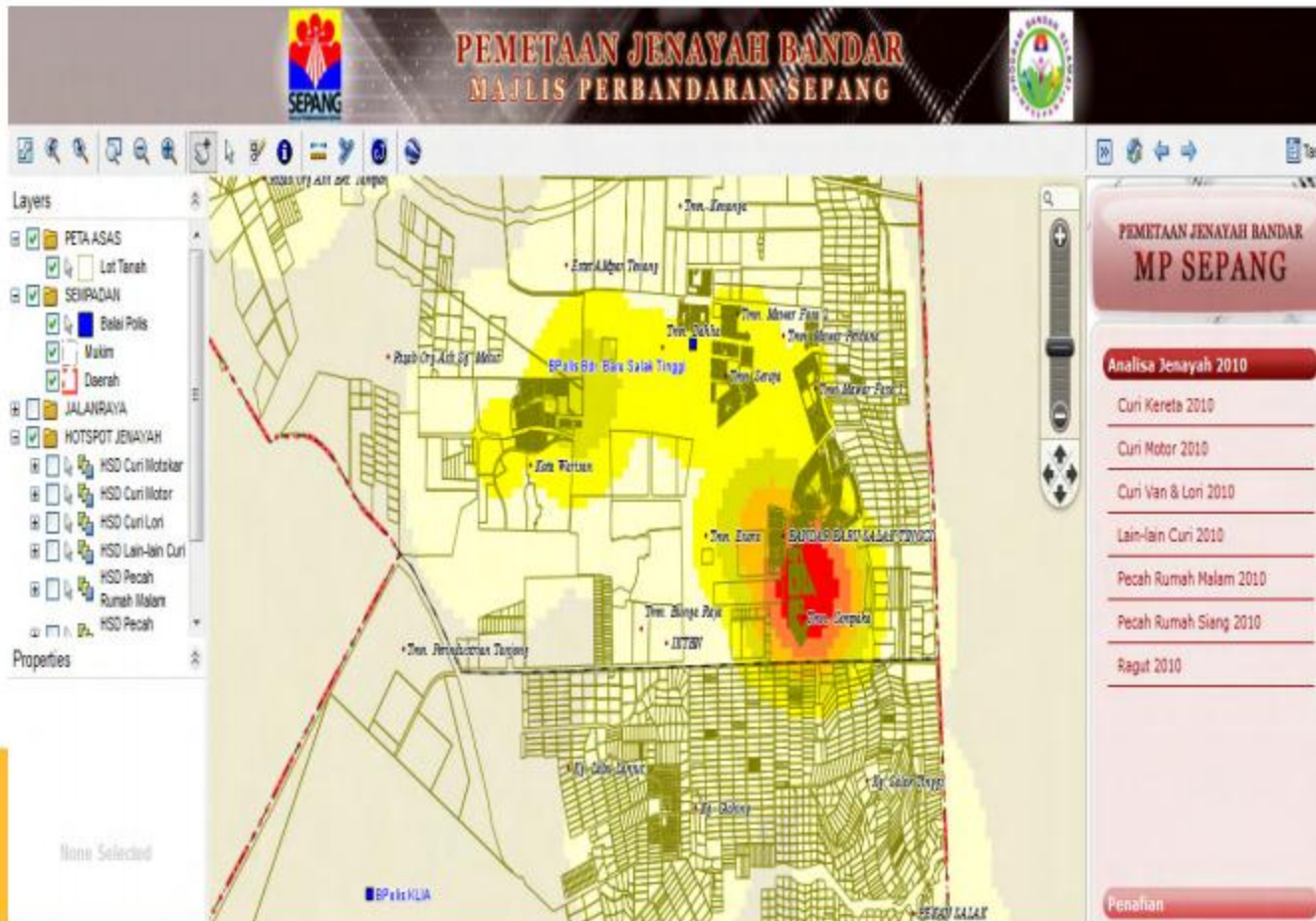
PUTRAJAYA, 1 APRIL 2011 - Despite seeing street crime and the overall index crime dropped by 35percent and 15percent respectively in 2010, efforts are still on-going to ensure that crime prevention initiatives under the Government Transformation Programme (GTP)'s National Key Results Area (NKRA) are on track and sustainable.

To do this, the government through the Federal Department of Town and Country Planning of the Ministry of Housing and Local Government has received an allocation of RM36 million in 2010 from the Ministry of Home Affairs to reactivate and expand the Safe City Programme or SCP (identified as one of the enablers in street crime prevention which was introduced in 2004) in 12 local authorities to reduce street crime.

The twelve local councils have been selected based on the crime rate by area (hotspots) provided by the police (Polis DiRajaMalaysia). The councils are: Dewan Bandaraya Kuala Lumpur (DBKL), Majlis Bandaraya Shah Alam (MBSA), Majlis Bandaraya Petaling Jaya (MBPJ), Majlis Perbandaran Subang Jaya (MPSJ), Majlis Perbandaran Ampang Jaya (MPAJ), Majlis Perbandaran Selayang (MPS), Majlis Perbandaran Klang (MPK), Majlis Bandaraya Johor Bahru (MBJB), Majlis Perbandaran Johor Bahru Tengah (MPJBT), Majlis Perbandaran Pasir Gudang (MPPG), Majlis Perbandaran Pulau Pinang (MPPP) and Majlis Perbandaran Seberang Perai (MPSP).

Jenayah Curi Motor

Grid_Crime by Motor
- 4 to 192 (147)
- 3 to 4 (19)
- 2 to 3 (48)
- 1 to 2 (65)
- 0 to 1 (555)

Jenayah Pecah Rumah Malam

Grid_Crime by PecahRumah
- 4 to 13 (97)
- 3 to 4 (29)
- 2 to 3 (40)
- 1 to 2 (65)
- 0 to 1 (603)

Geospatial Data: Reducing Crime

Samples of application optimising NDCDB
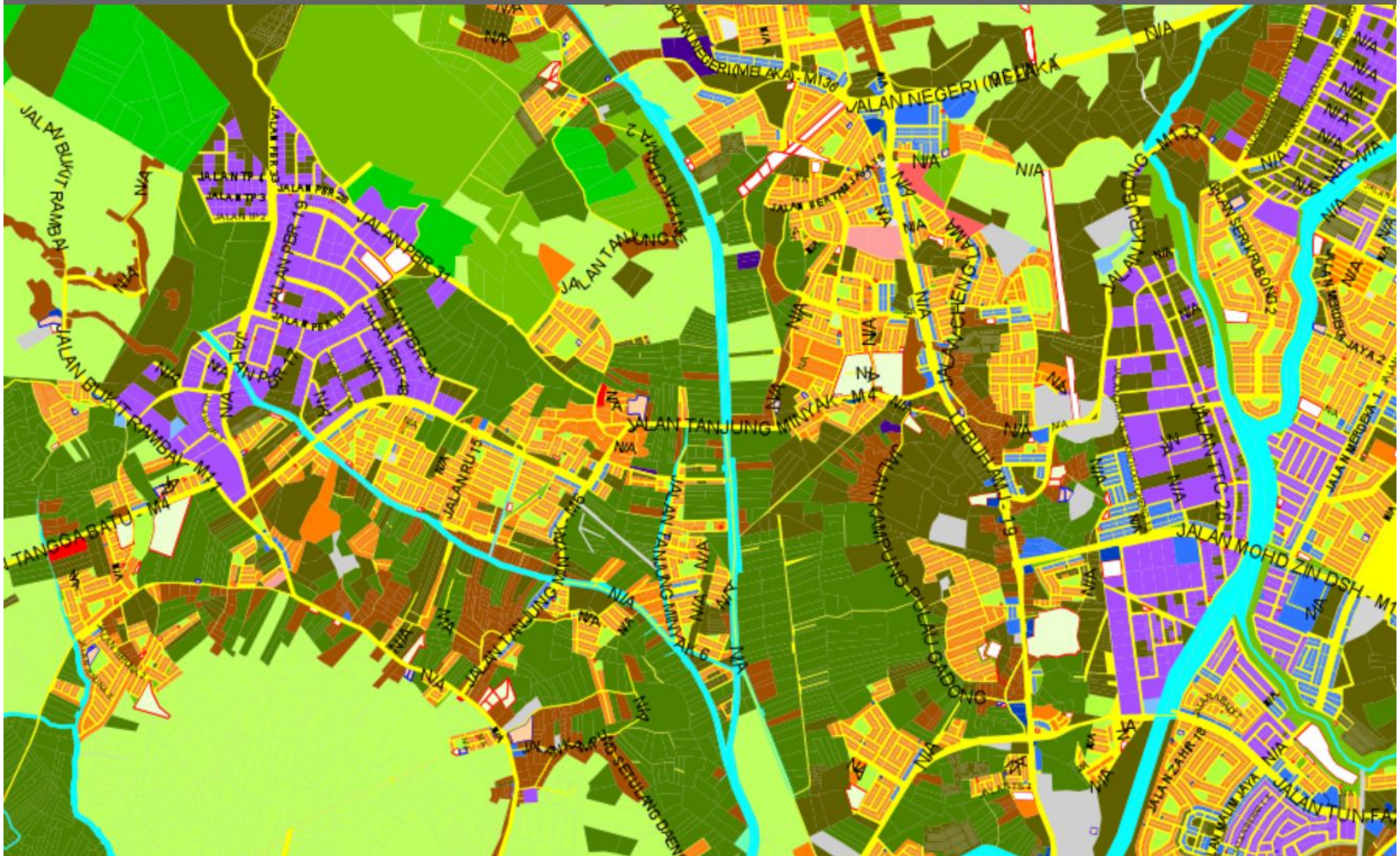
Increased property demand

Existing Space and Occupancy Rate for Commercial Buildings as at Q3 2013				
State	**Total Space (s.m)**		**Occupancy Rate (%)**	
	Shopping Complex	Purpose-Built Office (Private Building)	Shopping Complex	Purpose-Built Office (Private Building)
Kuala Lumpur	2,409,996	7,114,689	83.5	77.8
W.P. Putrajaya	68,503	202,756	77.3	55.9
W.P. Labuan	26,063	49,120	98.3	73.6
Selangor	2,969,057	2,761,078	83.1	71.7
Johor	1,685,457	659,908	71.5	71.8
Pulau Pinang	1,479,114	842,196	68.9	75.8
Perak	723,294	236,241	87.7	88.6
Negeri Sembilan	382,551	124,790	82.9	85.3
Melaka	363,797	208,461	80.7	70.1
Kedah	425,242	153,787	78.3	88.7
Pahang	259,315	179,339	77.3	74.4
Terengganu	106,984	108,315	76.7	96.9
Kelantan	222,854	170,821	89.5	93.9
Perlis	69,605	40,501	94.8	100.0
Sabah	532,782	497,895	88.1	85.3
Sarawak	612,029	414,268	70.5	90.5
Malaysia	12,336,643	13,764,165	79.5	77.1

Housing Project

Mass Rapid Transit System

# Electrification of Double Track Project (EDTP)

Catering 3D Environment Development
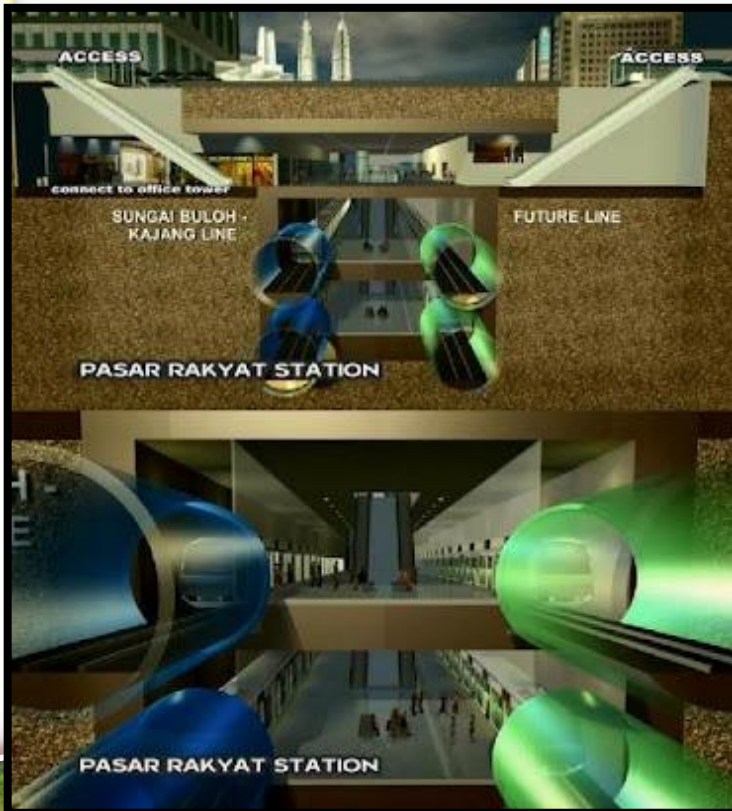
Malaysia's RM50bil Klang Valley public transport plan

RM7bil	Light rail transit extensions
RM36bil	Proposed mass rapid transit (MRT) system construction and design
RM2bil	Proposed MRT land acquisition
RM3bil	Proposed MRT rolling stock
RM2bil	Proposed MRT underground commercial space development

Star GRAPHICS © 2010
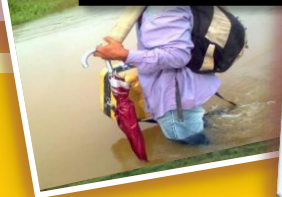
ADDRESSING THE RISING COST OF LIVING
Built to provide fast and cheap basic health services

238 Klinik 1Malaysia nationwide

IMPROVING URBAN PUBLIC TRANSPORT
Greater convenience and accessibility in the public transport system

21% A.M. peak public transport modal share

ASSURING QUALITY EDUCATION
Towards a brighter future for all

Expanded reach to Special Needs students
- 292 Special Needs students enrolled in vocational courses via the SEN Vocational Programme
- 11 schools involved with the Employment Transition Programme

FIGHTING CORRUPTION
Steady improvement in Transparency International's Corruption Perceptions Index (CPI)

5.1   5.1
4.9
50*
4.5
4.4   4.3

Inception of GTP

New Methodology

CPI SCORE

2007 2008 2009 2010 2011 2012 2013
*new methodology
YEAR

IMPROVING RURAL DEVELOPMENT
Laying the ground for thriving rural economies

21ST CENTURY VILLAGE

Private-driven premium fruit and vegetable farms	**2 Sites**
Enhancing economic activities of village co-operatives under the Desa Lestari Programme	**25 Kampungs**
Rural Business Challenge Winners	**11 Winners**

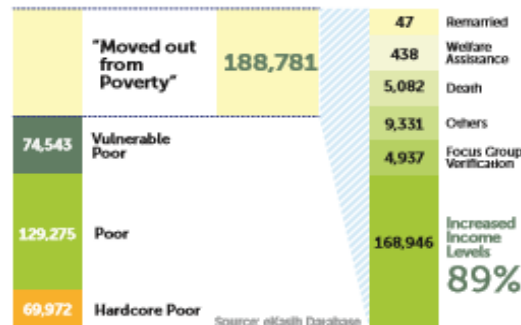## RAISING LIVING STANDARDS OF LOW-INCOME HOUSEHOLDS
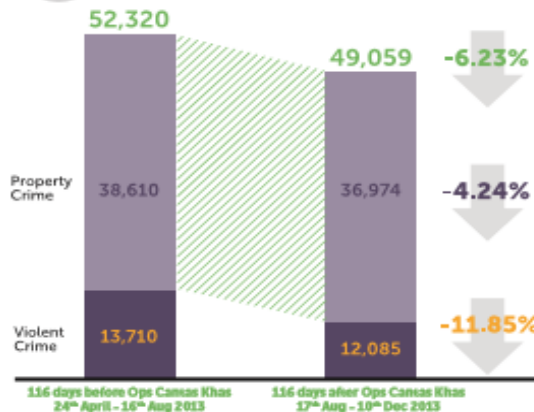Moved more Malaysians out of poverty

eKasih status 2013
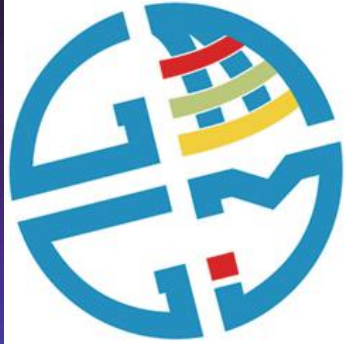462,571

Reasons for "Moved out from Poverty" status
188,781

"Moved out from Poverty" **188,781**

47	Remarried
438	Welfare Assistance
5,082	Death
9,331	Others
4,937	Focus Group Verification
168,946	Increased Income Levels **89%**

74,543 Vulnerable Poor
129,275 Poor
69,972 Hardcore Poor

Source: eKasih Database

REDUCING CRIME
Clamped down on violent crime

OPS CANTAS KHAS AS OF 10TH DECEMBER 2013

52,320
49,059 **-6.23%**

Property Crime 38,610   36,974 **-4.24%**

Violent Crime 13,710   12,085 **-11.85%**

116 days before Ops Cantas Khas
24th April – 16th Aug 2013

116 days after Ops Cantas Khas
17th Aug – 10th Dec 2013

eKADASTER supports NKRA achievements

Proposing:

UN-GGIM-AP

REGIONAL COMMITTEE OF
UNITED NATIONS
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT
FOR ASIA & THE PACIFIC

5th Plenary Meeting, *October 2016,* **Malaysia**

Thank You!

Department of Survey & Mapping
Malaysia
http://www.jupem.gov.my