



IEA Energy Efficiency in Emerging Economies Training Week for South East Asia

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MALAYSIA'S EXPERIENCE : Energy Data Compilation

MS. AZNI MAZHANA ABDUL MANAB
DEPARTMENT OF STATISTICS, MALAYSIA

 www.dosm.gov.my

 [@StatsMalaysia @DrUzirMahidin](#)

  [@StatsMalaysia @Dr_Uzir](#)

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i. CLASSIFICATION

ii. DATA SOURCE

iii. STATISTICAL UNIT

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v. DATA PROCESSING

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ISSUES & CHALLENGES

1. INTRODUCTION



Malaysia @ a Glance



	2013	2014	2015	2016	2017
Area (km ²)	330,396	330,323	330,345	330,345	
Population (million)	30.21	30.71	31.19	31.63	32.05 ^e
Average Annual Population Growth Rate (%)	2.4	1.6	1.5	1.4	1.3 ^e
Gross Domestic Product (GDP)					
GDP at current prices (RM billion)	1,019	1,106	1,159	1,231	1,353
GDP at constant 2010 prices (RM billion)	955	1,012	1,064	1,109	1,174
GDP Growth (%)	4.7	6.0	5.1	4.2	5.9
GDP per capita at current prices (RM)	33,714	36,030	37,123 ^e	38,887 ^p	42,199 ^p
Primary Energy Supply (ktoe)					
Natural Gas	39,973	40,113	39,364		
Crude Oil, Petroleum product & Others	33,003	33,978	29,836		
Coal & Coke	15,067	15,357	17,406		
Hydropower	2,688	3,038	3,582		
Final Energy Consumption (ktoe)					
Petroleum product & Others	29,379	29,817	29,087		
Electricity	10,590	11,042	11,375		
Natural Gas	10,076	9,641	9,566		
Coal and Coke	1,539	1,709	1,778		



Energy Statistical Agencies



Energy Commission

- Custodian and focal point for Malaysia's energy data
- Regulating the energy sector particularly the electricity supply and piped gas distribution industries
- EC are responsible to give feedback by local and international parties related to energy data and statistics
- Data source: from various Ministry/Agency via **The Malaysia Energy Information Hub (MEIH)** . www.meih.st.gov.my
- Energy data compilation:
 - **National Energy Balance**
- <http://www.st.gov.my/>

Department of Statistics Malaysia (DOSM)

- DOSM collect data from primary/secondary sources relates to energy i.e:
 - coal, petroleum & petroleum products & natural gas
 - electricity, chilled water for air conditioning
 - biomass
 - imports/exports of energy commodity & products
- Energy data compilation
 - Malaysia SEEA PSUT Energy Account
- <https://www.dosm.gov.my/>

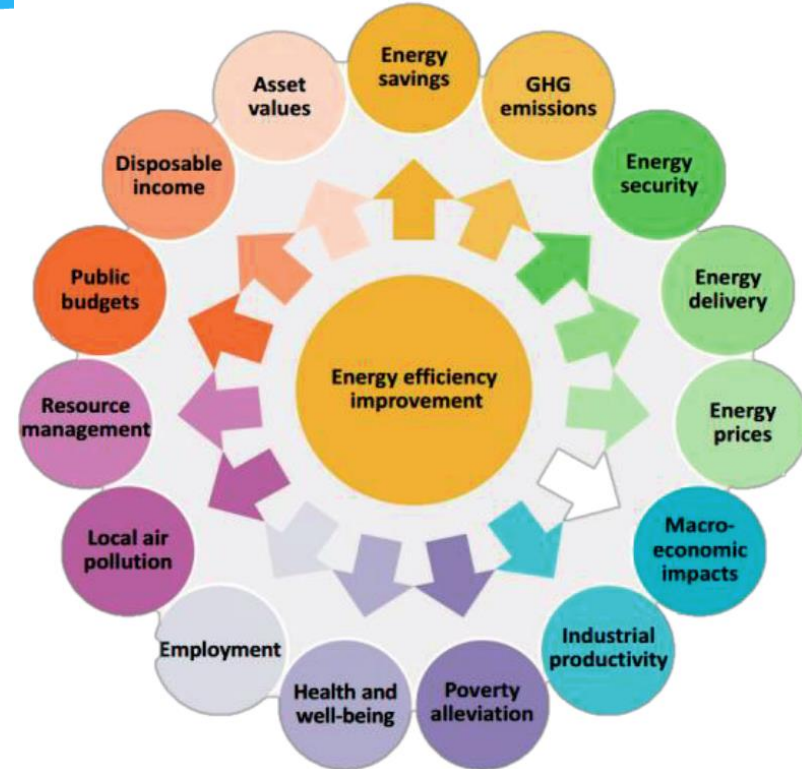
Sustainable Energy Development Authority of Malaysia (SEDA Malaysia)

- SEDA has all the functions conferred on it under the Renewable Energy Act 2011, and any other sustainable energy laws
- <http://www.seda.gov.my/>



Energy Scenario in Malaysia

	2013	2014	2015
Reserves			
Oil (billion barrels)	5.850	5.792	5.907
Natural Gas (tscf)	98.320	100.662	100.413
Coal (million tonnes)	1,938.37	1,938.37	1,938.37
Production			
Oil (thousand barrels per day)	575.300	602.870	661.620
Natural Gas (MMscf/d)	6,730.54	6,592.63	6,472.71
Coal (metric tonnes)	2,893,962	2,687,764	2,559,444
Consumption			
Sales of Petroleum Products (thousand barrels)	229,559	236,761	224,726
Natural Gas (MMscf)	1,013,798	968,222	943,154
Coal (metric tonnes)	23,899,128	24,360,002	27,609,444



Prime Minister of Malaysia

"...Malaysia is adopting an indicator of a voluntary reduction of up to 40 per cent in terms of emissions intensity of GDP (gross domestic product) by the year 2020 compared to 2005 levels..."

15th Conference of Parties (COP-15)
17 Dec 2009



- ✓ Electricity Supply Act 1990
- ✓ Energy Commission Act 2001
- ✓ Efficient Management of Electrical Energy Regulation (EMEER) 2008
- ✓ National Renewable Energy Policy and Action Plan (2009)
- ✓ Renewable Energy Act 2011
- ✓ Sustainable Energy Development Authority Act 2011
- ✓ Minimum Energy Performance Standard (MEPS)
- ✓ National Energy Efficiency Action Plan (NEEAP) 2016-2025
- ✓ Energy Efficiency Program under 11th National Plan 2016-2020
- ✓ Building Code on Energy Efficiency: Section 38 of the Uniform Building by Laws (UBBL)

2. GOVERNANCE OF OFFICIAL STATISTICS

FUNCTION OF DOSM

- Under the “**Statistics Act 1965 (Revised 1989)**”, the main functions of the Department are:
 - i. To collect and interpret statistics for the purpose of formulation or implementation of government policies in whatever fields as needed by the government or for fulfilling the requirements of trade, commerce, industry, agriculture or others;
 - ii. To disseminate statistics which have been collected or interpretation based on statistics collected, not only to government agencies but also to authorities or persons where the information is useful to them.

POLICY NEEDS



4 Pursuing green growth for sustainability and resilience

Green growth refers to growth that is resource-efficient, clean, and resilient. It is a commitment to pursue development in a more sustainable manner from the start

5 Strengthening infrastructure to support economic expansion

Infrastructure development ensures that the rakyat have access to essential amenities and services such as transport, communications, electricity and clean water. Better integration

3. COMPILATION AND PROCESSING

- i. CLASSIFICATION**
- ii. DATA SOURCE**
- iii. STATISTICAL UNIT**
- iv. DATA & MEASUREMENT UNIT**
- v. DATA PROCESSING**

i. CLASSIFICATION

SIEC

CPC

ISIC

**MSIC 2008
VER 1.0**

CORRESPONDENCE BETWEEN SIEC & MSIC 2008 VER 1.0

For energy statistics compilation, the available standard classifications are:



1. Malaysia Standard Industrial Classification (MSIC 2008 Ver.1.0). MSIC is based on International Standard Industrial Classification of All Economic Activities, ISIC UNSD)
2. Malaysia Classification of Products by Activity (MCPA), 2009 (Based on CPC)
3. HS and SITC code – Trade data
4. COICOP (Household consumption for energy)

i. CLASSIFICATION

No.	ISIC	MSIC	Description MSIC 2008
1.	0510	05100	Mining of hard coal
2.	0520	05200	Mining of lignite (brown coal)
3.	1910	19100	Manufacture of coke oven products
4.	1920	19201	Manufacture of refined petroleum products
5.	3520	35201	Manufacture of gaseous fuels with a specified calorific value, by purification, blending and other processes from gases of various types including natural gas
6.	3520	35202	Transportation, distribution and supply of gaseous fuels of all kinds through a system of mains
7.	0892	08921	Peat digging

i. CLASSIFICATION

No.	ISIC	MSIC	Description MSIC 2008
8.	0610	06101	Extraction of crude petroleum oils
9.	0610	06102	Extraction of bituminous or oil shale and tar sand
10.	0620	06201	Production of crude gaseous hydrocarbon (natural gas)
11.	2011	20111	Manufacture of liquefied or compressed inorganic industrial or medical gases
12.	2011	20112	Manufacture of basic organic chemicals
13.	2011	20113	Manufacture of inorganic compounds

i. CLASSIFICATION

No.	ISIC	MSIC	Description MSIC 2008
14.	2029	20299	Manufacture of other chemical products n.e.c
15.	3510	35101	Operation of generation facilities that produce electric energy
16.	3530	35301	Production, collection and distribution of steam and hot water for heating, power and other purposes
17.	0721	07210	Mining of uranium and thorium ores
18.	2011	20119	Manufacture of other basic chemicals n.e.c.

ii. DATA SOURCE

Economic data:

1. Petroleum and Natural Gas Statistics (Annual Census)
 2. Report on Survey of Electricity, Gas, Steam and Air Conditioning Supply - (Biennial Census)
 3. Report on Survey of Manufacturing Industries (includes manufacture of refined products and biodiesel products) - (Biennial Survey)
 4. Economic Census – Mining & Quarrying – (every 5 years)
 5. Prices (CPI and PPI)
 6. Trade data (import & export)
 7. Administrative data from energy regulators & related agencies
- Primary data from censuses/surveys are to compile the principal statistics such as:
 1. Value of output
 2. Value of input
 3. Value added
 4. Employment & qualification
 5. Salaries & wages
 6. Value of asset
 7. Production (value & quantity)
 8. Stocks
 9. Electricity consumed (quantity and value)
 - Electricity purchased (kilowatt -hour)
 - Electricity generated (kilowatt- hour)

MONTHLY INDEX OF INDUSTRIAL PRODUCTION (IIP) AND MONTHLY MANUFACTURING STATISTICS

- a) **Mining** (Extraction of Crude Petroleum & Natural Gas)
 - Extraction of Crude Petroleum Oil & Condensates
 - Production of Crude Gaseous Hydrocarbon

- b) **Electricity**
 - Production (value & volume)
 - Consumption data is categorised by industries, businesses, residential and domestic lighting

- b) **Manufacturing**
 - Manufacture of refined petroleum products
 - Production data for LPG, fuel oil, diesel/gas oil and gasoline (unit: tonne)

ENERGY DATA-HOUSEHOLD

Household Income and Consumption Survey (HIES)

Statistical Unit : Household (Sample)

Frequency: Twice every 5 years

**DOSM also compile energy data for household
consumption as follows:**

Energy Consumption (COICOP)

0451 ELECTRICITY

0452 GAS

0453 LIQUID FUELS

0454 OTHER FUELS

0722 FUELS & LUBRICANTS FOR PERSONALTRANSPORT
EQUIPMENT

ii. DATA SOURCE

SECONDARY DATA (MONTHLY & ANNUALLY)

- **Electricity** : National, Regional Power Producer and Independent Power Producers
- **Mining**: Oil & gas companies and Department of Mineral and Geosciences
- **Trade Data** (Value and volume of Import & Export) from Royal Malaysian Customs Department (RMCD)
 - via online system



iii. STATISTICAL UNIT

- Establishment, and Enterprise (Energy Industries & Energy Consumers)
- Household (Energy consumers)

No.	Statistics	Statistical Unit	Frequency	Coverage
1.	Petroleum and Natural Gas Statistics	Establishment	Annual	Population
2.	Survey/Census of Electricity, Gas, Steam, Air Conditioning Supply	Establishment	Biennial / Every 5 years	Population
3.	Survey/Census of Manufacturing Industries	Establishment	Biennial/ Every 5 years	Sample/ Population
4.	Census of Mining & Quarrying	Establishment	Every 5 years	Population
5.	Household Income and Consumption Survey (HIES)	Household	Twice in 5 years	Sample

iv. DATA & MEASUREMENT UNIT

No.	Products	Unit	Production
1.	Coal	tonne	Value and quantity
2.	Petroleum	tonne	Value and quantity
3.	Natural gas	mscf	Value and quantity
4.	Electricity	kWh	Value and quantity
5.	Refined petroleum products	tonne	Value and quantity
6.	Trade data Eg. Crude Oil, LNG & Petroleum Products	tonne	Value and volume
7.	Type of fuels : <ul style="list-style-type: none"> • Diesel (litre) • Petrol (litre) • Furnace oil/ Fuel oil (litre) • Liquified petroleum gas (tonne) • Natural gas/ Natural gas for vehicle • Other fuels (e.g bio-mass, solar, battery hybrid etc.) 	Litre Litre Litre Tonne Tonne tonne	Establishment's consumption by quantity and value

V. DATA PROCESSESING

Completed questionnaire from respondent will be processed and validated by using Intelligent Recognition Character (ICR) machine:

Stages in data processing :

1. Integrate data
2. Codes & Classifications
3. Data review & validation
4. Editing & imputation of missing data
5. Estimation of population characteristics
6. Derive variables & unit
7. Weights calculation
8. Calculate aggregates data
9. Finalise data files



Reference: GSBPM and NQAF



CURRENT DEVELOPMENT OF ENERGY STATISTICS MALAYSIA

INTERNATIONAL MANUAL AND REFERENCE



A. References

1



SEEA –
Central
Framework
2012

2



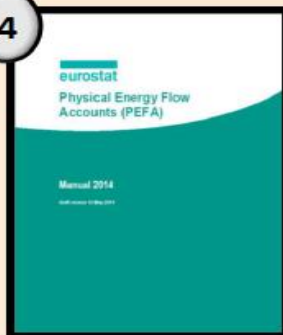
SEEA – Energy

3



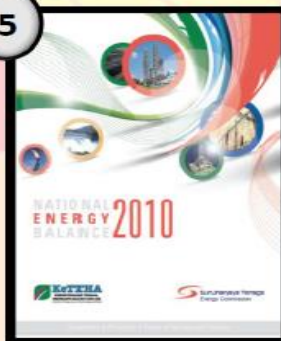
SEEA –
Applications
& Extensions

4



PEFA manual
2014,
Eurostats

5



National
Energy
Balance,
Malaysia
2010

6

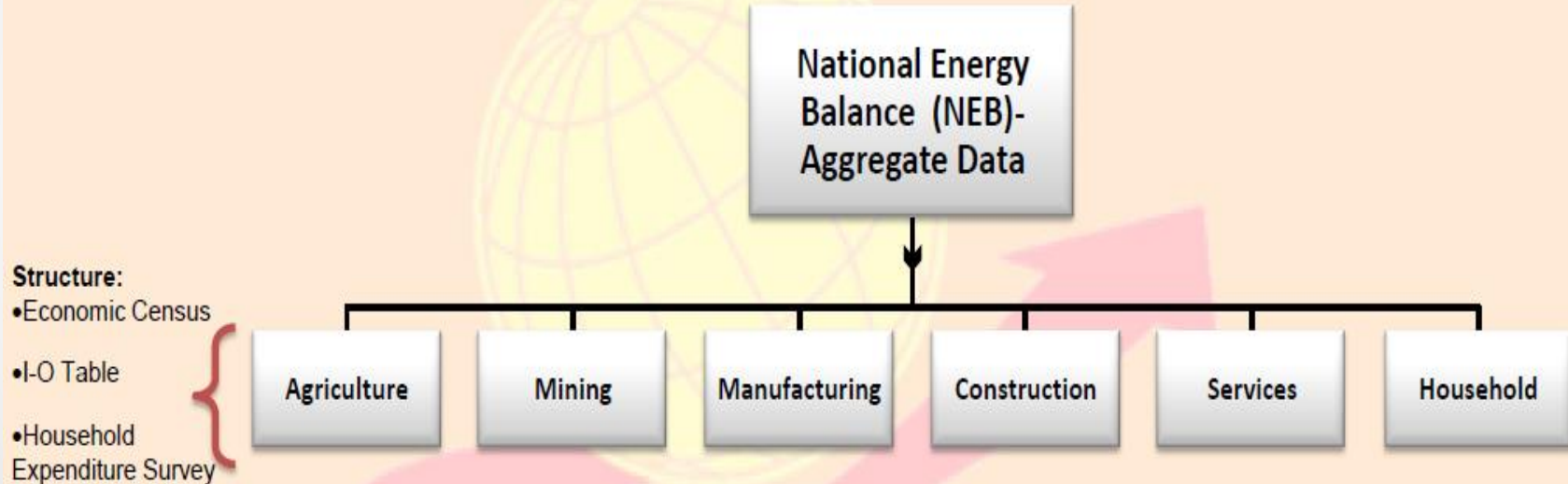


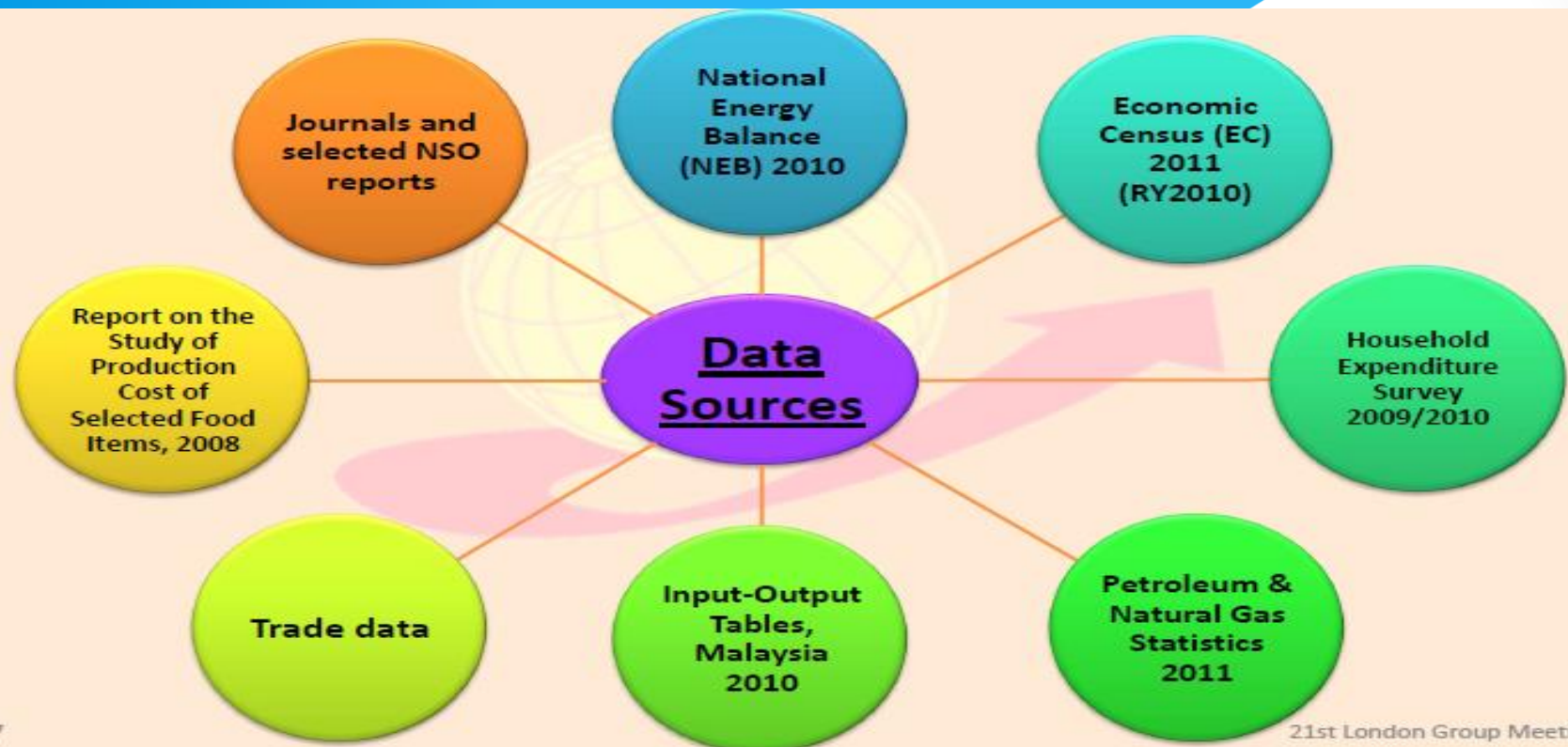
Australians
Environmental-
Economic
Accounts 2014



B. Methodology

Top-down approach





NATURAL INPUT

- Natural gas
- Crude oil
- Coal & coke

RENEWABLE ENERGY

- Hydro
- Bio Mass*
- Bio Gas*

ENERGY RESULTING FROM TRANSFORMATION PROCESS

- LNG
- Petroleum products
- Electricity
- Others**

Note: * will be covered in 2015

**Others refers to the energy imported (*additive material*)



4. ISSUES & CHALLENGES

A. Knowledge

- i. SNA and IO concept
- ii. Biophysical/environment subject and term
- iii. NEB concept, compilation methods & coverage

B. Data

- i. Data scattered at the various agencies
- ii. Different scope, coverage & classification

C. Technical matters

- i. To identified best estimation methods and techniques on:
 - Losses
 - Balancing
 - Rearrange of supply & use data from NEB to SEEA

D. Exchange of focal person in agencies

E. Communication strategy

- i. Convincing the policy makers on the relevance of SEEA for development planning in Malaysia
- ii. How to present SEEA in a simple and informative way to the public/user

ANNUAL ECONOMIC SURVEY 2018

Official count of selected businesses and companies....



Conducted every 2 years



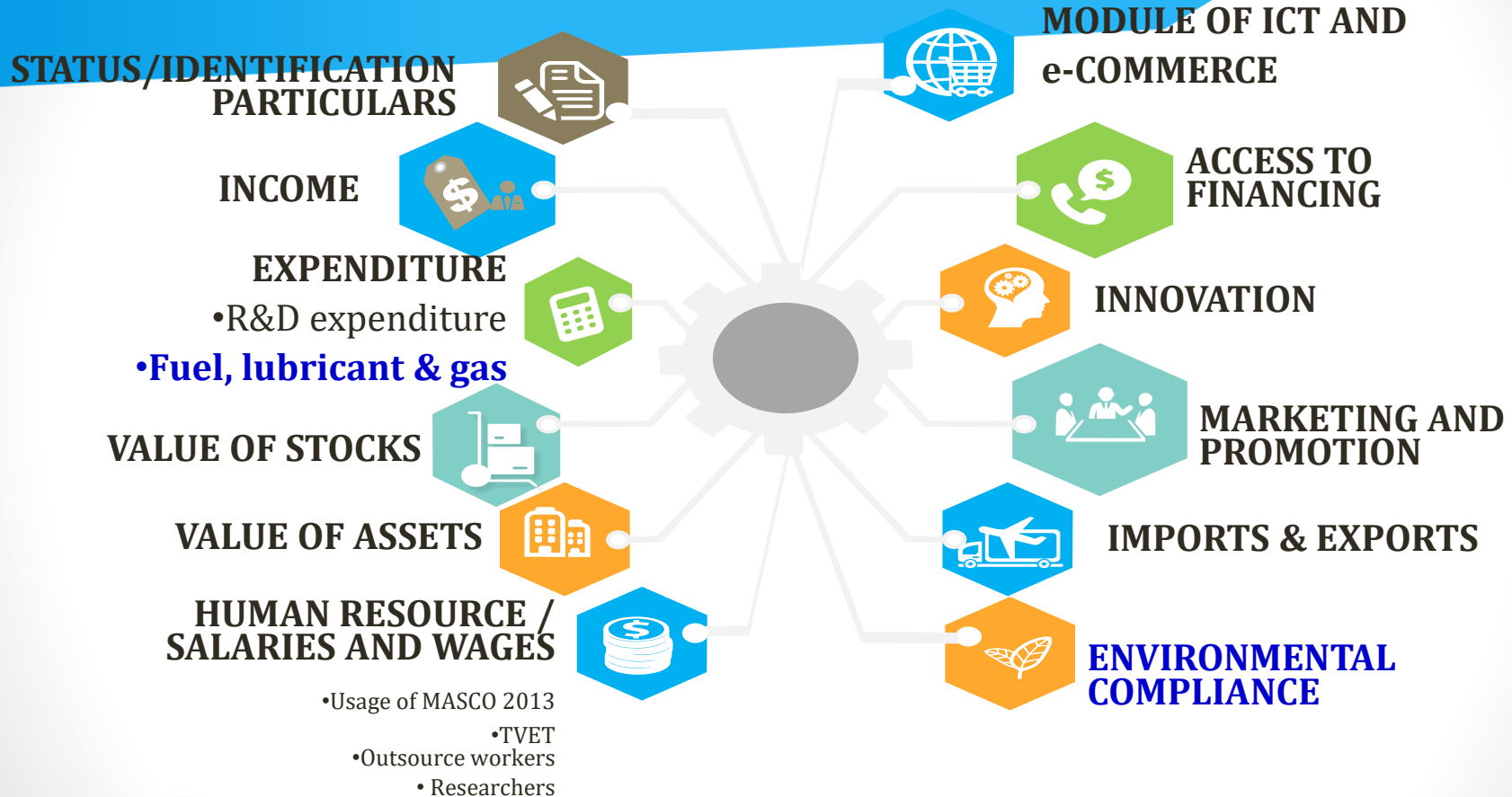
The last Annual Economic Survey was conducted in 2016 for reference year 2015



Covers selected companies/businesses registered with Companies Commission of Malaysia, professional bodies, business associations and local authorities.



INFORMATION REQUIRED





Welcoming 62nd ISI WORLD STATISTICS CONGRESS 2019



18 - 23 AUGUST 2019 | KUALA LUMPUR

THANK YOU