



**5<sup>th</sup> Malaysia Statistics Conference**

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Sasana Kijang, Bank Negara Malaysia

**2017**



From Data to Knowledge : The Journey

# **SYSTEM OF ENVIRONMENTAL-ECONOMIC ACCOUNTING AS A TOOL IN MONITORING SUSTAINABLE DEVELOPEMNT**

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**5<sup>th</sup> Malaysia Statistics Conference**

# **PRESENTATION OUTLINE**

**BACKGROUND**

**ROADMAP SEEA MALAYSIA**

**MySEEA PSUT ACCOUNT**

- **Energy**
- **Water**

**ISSUES & CHALLENGES**

**WAY FORWARD**

# THE SEEA CENTRAL FRAMEWORK

## Physical & Monetary

### I. Supply & Use Table (SUT)

- i. Energy
- ii. Water
- iii. Emission (Air, water, waste)

### 2. Asset Account

- i. Mineral & energy resources
- ii. Land
- iii. Soil resources
- iv. Timber/forest resources
- v. Aquatic resources
- vi. Water

### 3. Functional account

- i. Environmental Protection Expenditure Account (EPEA)
- ii. Environmental Goods & Services Sector (EGSS)

### 4. Sequence of economic account



Framework that describe the interactions between the economy and the environment

SEEA CF 2012 was adopted by the United Nations Statistical Commission, at its 43rd Session in 2012, as the international standard for environmental-economic accounting.

Production Account  
(elaborated in SUT)

Distribution and Use  
of Income Accounts

Capital Account

Financial Account

Less depletion of  
natural resources

Add back depletion of  
natural resources

**Note:** (i) SEEA applies the accounting concepts, structures, rules and principles of the SNA (i.e. Production boundary, definition of products and territory/residential approach.)

(ii) For more information, refer to : SEEA CF 2012, SEEA for Energy, SEEA for Water, SEEA for Ecosystem, SEEA Agriculture, Forestry and Fisheries (draft version) and SEEA- Applications & Extensions.

# BACKGROUND

- United Nations Statistics Division (UNSD) has conducted a development account project “Supporting Member States in Developing and Strengthening Environment Statistics and Integrated Environmental-Economic Accounting for **Improved Monitoring** of Sustainable Development” for the period of 2016 - 2017 :
  - ❖ To strengthen the regular and sustained **production of environment statistics**
  - ❖ To strengthen the **compilation of environmental-economic accounts** and supporting statistics by integrating environment and economic statistics and linking it to policy demand – **Malaysia as a pilot country**
- Objective: To measure the effectiveness of environmental policies/programmes
- Project's outputs: **Roadmap SEEA Malaysia** and **SEEA Water Account**
- National consultant: Dr. Mohd Yusof Saari from UPM

# ROADMAP SEEA MALAYSIA

# ROADMAP SEEA MALAYSIA



1

Policies/Programmes/Plan/Initiatives



2

Development Plan for SEEA Account

• 2016-2020



3

Governance structure

- Membership - Agencies involve
- Term of reference



4

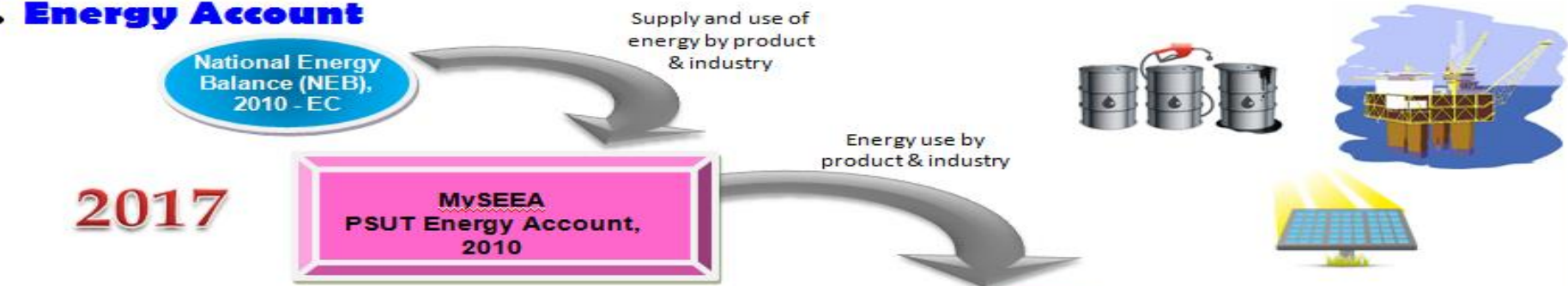
Data requirements/sources/references



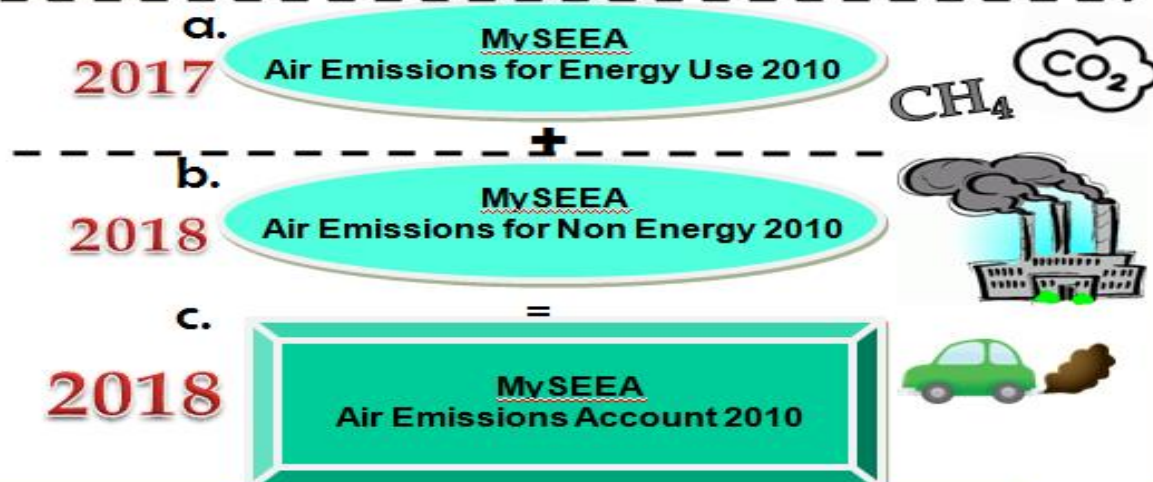
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# SEEA ACCOUNT DEVELOPMENT PLAN 2016 - 2020

## 1. Energy Account



## 2. Air Emissions Account





# SEEA ACCOUNT DEVELOPMENT PLAN 2016 - 2020 (cont'd)

## 3. **Water Account**

**2017**

MySEEA PSUT Water Account,  
2010



## 4. **Environmentally Extended Input-Output**

**2018**

Input-Output  
2010

+ Air emissions statistics



Environmentally  
Extended  
Input-Output  
2010

## 5. **Land Account**

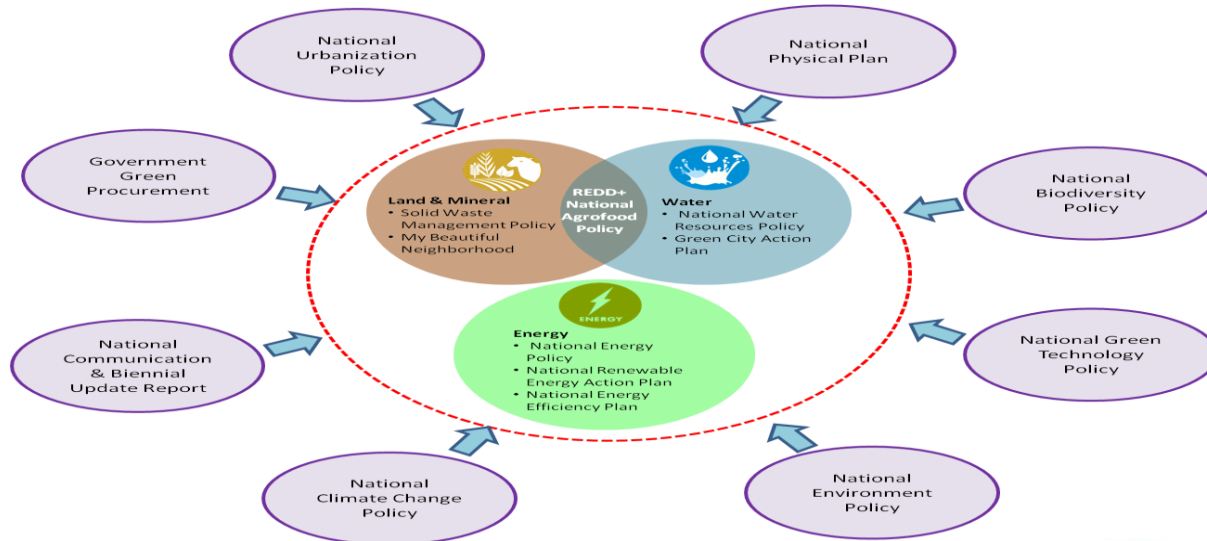
**2019**

MySEEA Land Account  
(Focus on the agriculture land  
use)





# NATIONAL POLICY & PRIORITIES



## 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, rather than a more conventional and costly model of 'grow first, clean up later'. A reinforced commitment to green growth will ensure that Malaysia's precious environment and natural endowment are conserved and protected for present and future generations.

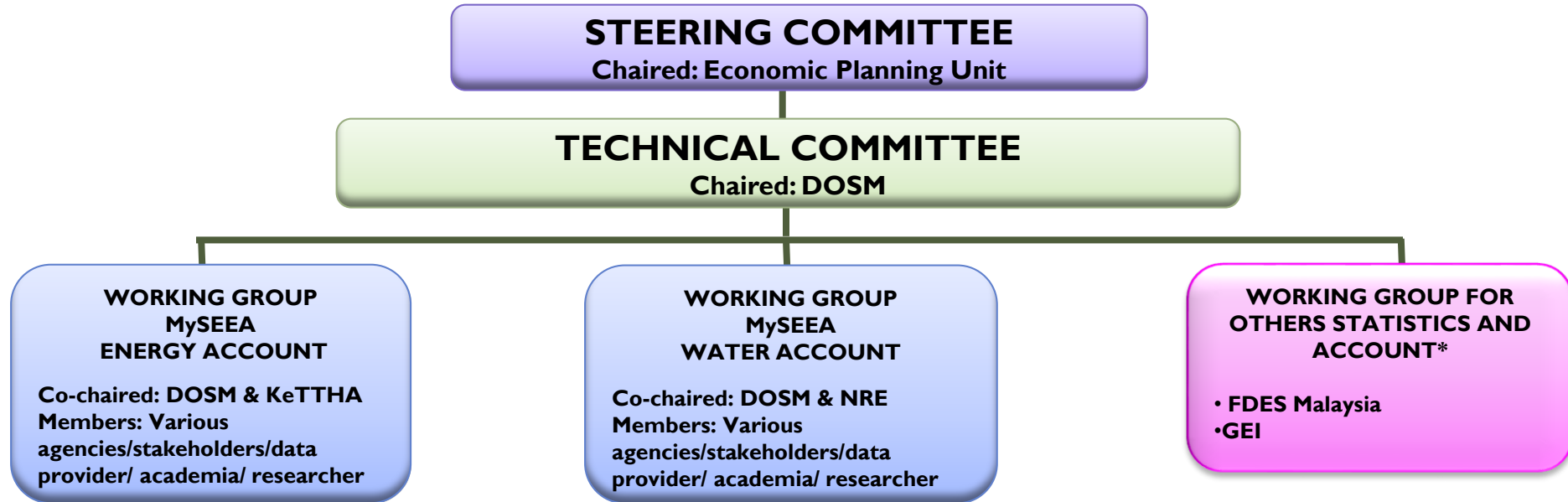


## 5 Strengthening infrastructure to support economic expansion

Infrastructure development ensures that the *rakyat* have access to essential amenities and services such as transport, communications, electricity and clean water. Better integration of different transport modes will create seamless movement for people and goods. Moreover, an efficient infrastructure lowers the cost of doing business, which in turn improves national competitiveness and productivity. Good infrastructure is therefore the foundation of social inclusion, economic expansion, and growth.

# GOVERNANCE STRUCTURE

## PLANNING & DEVELOPMENT OF ENVIRONMENT STATISTICS COMMITTEE



### NOTE:

- \* New environment statistics:
  - Latest UNSD's manual
  - Project received from international organization
- Membership will be reviewed from time to time

# MySEEA PSUT - ENERGY

# JOURNEY OF SEEA MALAYSIA

**2010**

Parliamentary question related to Green GDP

**2012\***

Study the Handbook of SEEA 2003<sup>1</sup> & NAMEA<sup>2</sup>

**23 – 27 Sept 2013**

The 1<sup>st</sup> Sub-Regional Course on SEEA

- Collaboration with UNESCAP/UNSIAP/UNSD

**30 Sept – 1 Oct 2013**

Assessment Mission on SEEA by UNESCAP/UNSIAP/UNSD

**2014**

Parliamentary question related to Green GDP

**3 April 2014**

SEEA Awareness Workshop with agencies

**9 July 2014**

Proposed to Main User Committee (MUC)

i. PSUT Energy (2014-2015)

ii. PSUT Water (2015-2016)

**2015 – 2016**

Compilation of MySEEA PSUT-Energy

- Set up Technical Working Group (inter DOSM & inter agency)

**19 – 23 Sept 2016**

Assessment Mission on SEEA by UNSD and UNESCAP

**March - Nov 2017**

Present MySEEA PSUT-Energy

- Executive Talk to Statisticians in DOSM, March 2017
- 2<sup>nd</sup> APES Week Bangkok Thailand, May 2017
- Inter-regional Workshop on Strengthening Statistical Capacities for Building Macroeconomic and Sustainable Development Indicators in Latin America, the Caribbean & Asia-Pacific Countries, July 2017, Santiago, Chile
- Research Colloquium INTAN, Sept. 2017, Malaysia
- Statistics Colloquium DOSM, Sept. 2017
- MyStats Conference, Nov. 2017
- Regional Closing Workshop on SEEA, Nov. 2017

**August 2017**

Released of Report on MySEEA PSUT-Energy 2010

**22 Feb 2017**

Present findings of MySEEA-Energy to MUC

**24 – 27 Jan 2017**

Technical Assistance from UNSD & Statistics Denmark

- Evaluation on MySEEA PSUT-Energy

**26 – 30 Sept 2016**

Regional Course on SEEA Water by UNSD/ UNESCAP



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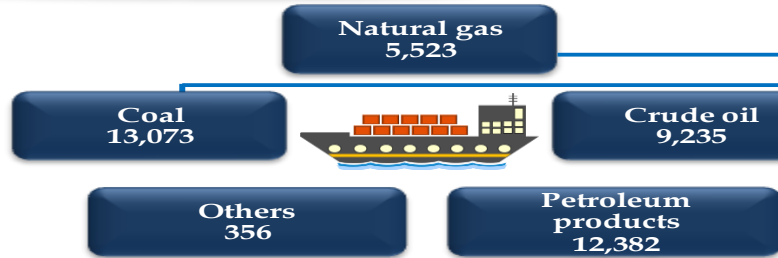
# ENERGY PHYSICAL FLOW 2010

## ENVIRONMENT

**Total energy from natural input**  
**105,728**

Natural gas	69,504
Crude oil	33,136
Coal	1,511
Hydro power	1,577

Imports 40,569



## Supply of energy product

Natural gas	62,165
Crude oil	33,136
Coal	1,511

## ECONOMY

Unit: ktOE

Mining & quarrying  
96,811

Services	9,160
Electricity	8,620
Electricity	540

Manufacturing	54,654
LNG	29,839
Petroleum products	24,428
Electricity	387

**Total supply of energy products: 201,194**

## Use of energy products

Agriculture, forestry & fisheries  
1,292 (1%)

Mining & quarrying  
1,302 (1%)

Manufacturing  
81,960 (41%)

Construction  
752 (0%)

Services  
46,669 (23%)

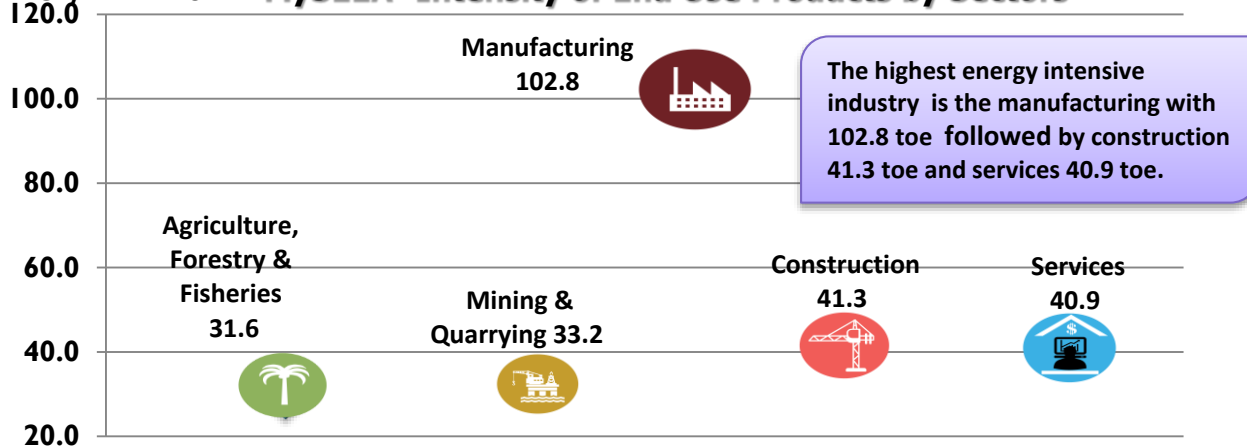
Household  
9,047 (4%)

Exports  
60,171 (30%)

**Total use of energy products: 201,194**

# INTENSITY

TOE/RM Million **MySEEA- Intensity of End Use Products by Sectors**



## NEB –Energy Intensity

Item	Energy Intensity
Final Energy Demand [toe/GDP at constant price 2000 (RM million)]	74.1

Item	Agriculture, Forestry & Fisheries	Mining & Quarrying	Manufacturing	Construction	Services
End use of energy products (TOE)	1,291,549	1,302,102	15,898,917	752,205	13,182,751
GDP by kind of economic activity at constant price 2000 (RM million)	40,916	39,270	154,640	18,220	322,611
Energy intensity (toe/value added)	31.6	33.2	102.8	41.3	40.9

MySEEA – Energy Intensity	
Total end use incl. household (TOE)	41,475,000
GDP at constant price 2000 (RM million)	559,554
Energy intensity (toe/GDP)	74.1

# MULTIPLIER EFFECT

## Final Demand

Sector	Energy use (TOE)	New energy use (TOE) - by increasing of 10% Final Demand for the manufacturing sector	Growth rate (%)
Agriculture, Forestry & Fisheries	1,291,549	1,362,733	5.5
Mining & Quarrying	1,302,102	1,365,935	4.9
<b>Manufacturing</b>	<b>80,982,854</b>	<b>87,932,713</b>	<b>8.6</b>
Construction	752,205	757,348	0.7
Services	49,041,751	49,910,455	1.8

Increase of 10% in Final Demand in the manufacturing sector *will give a direct effect on the growth rate of energy consumption in the manufacturing sector 8.6%*. In addition, it also gives the indirect effect to the growth rate of energy consumption for agriculture, forestry & fisheries (5.5%) and mining & quarrying sector (4.9%).





# MySEEA PSUT - ENERGY INPUT TO GEI & SDG



## GREEN ECONOMY INDICATORS

### THE ENVIRONMENTAL AND RESOURCE PRODUCTIVITY

- Carbon emissions
- Energy

### THE NATURAL ASSET BASE

- The renewable resources
- Land & agriculture

### THE ENVIRONMENTAL DIMENSION OF QUALITY OF LIFE

- Environmental health & risk
- Environmental services and amenities



## SEEA

### SOCIAL DIMENSION

- Energy use per household
- Household income spent on fuel and electricity

### ECONOMIC DIMENSION

- Energy use
- Energy intensities
- Efficiency of energy conversion and distribution
- Water use
- Water productivity
- Forest area
- Land cover

### ENVIRONMENTAL DIMENSION

- Co2 emissions
- Air pollutant emissions
- Wastewater generated
- Municipal waste collected



Total indicators related to SEEA in each goals



1/14 indicator



10/11 indicators



5/15 indicators



5/14 indicators



4/6 indicators



1/12 indicator



3/13 indicators

- 2 Indicators Under Goal 7:  
7.2.1 Renewable energy share in the total final energy consumption  
7.3.1 Energy intensity measured in terms of primary energy and GDP
- 1 Indicator Under Goal 9:  
9.4.1 CO<sub>2</sub> emissions per unit of value added

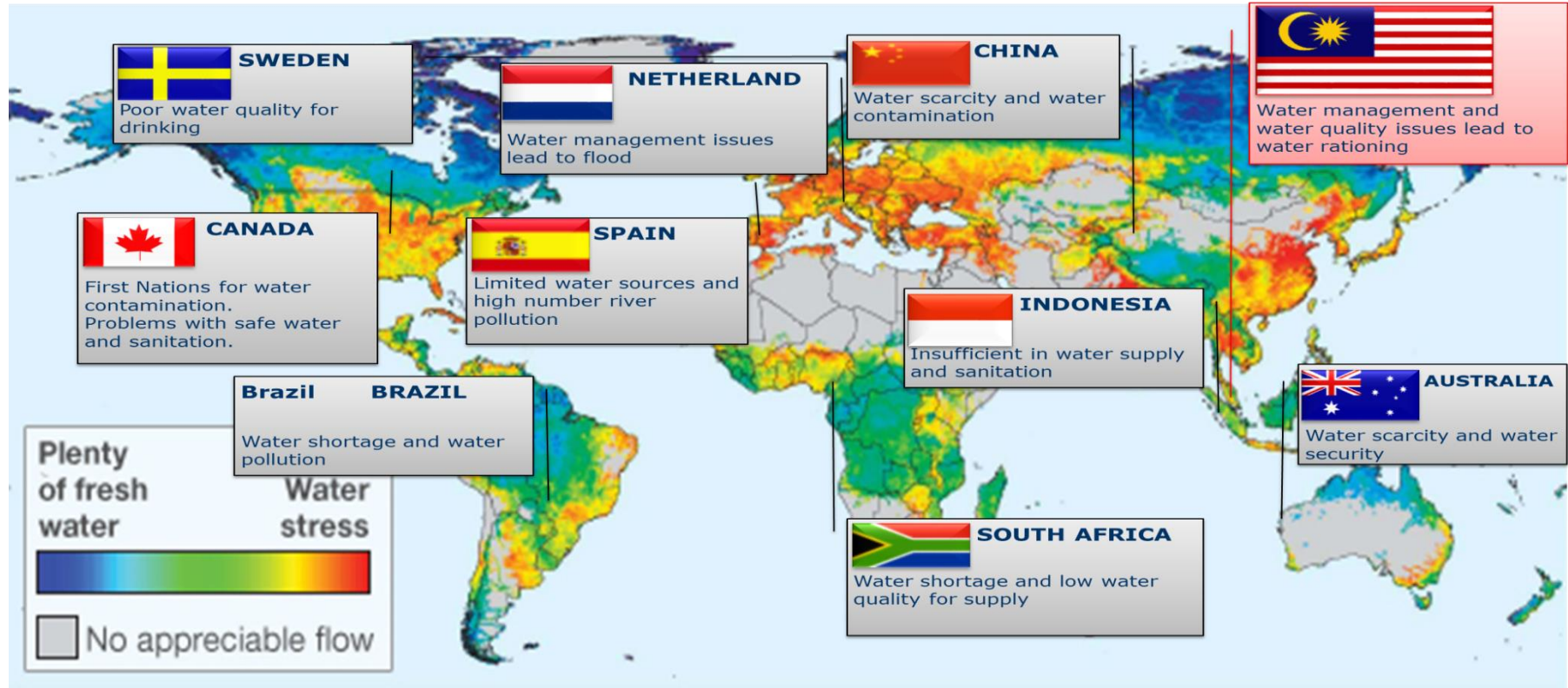
- 1 Indicator Under Goal 12:  
12.c.1 Amount of fossil-fuel subsidies per unit of GDP (production and consumption) and as a proportion of total national expenditure on fossil fuels



# MySEEA PSUT - WATER

# WHY WATER ACCOUNT?

## - Policy Priorities



# WHY WATER ACCOUNT? (cont'd)

## - Current Issues



### Syabas: Fewer grouses over rationing

"Water supply delays faced by multi-storey buildings addressed and resolved"

**PELALING JAYA:** Syarikat Bekalan Air Selangor Sdn Bhd (Syabas) has continuously acted to resolve public complaints, saying there are fewer grouses related to water rationing systems would be thoroughly checked for water pressure, air locks in the pipeline and other factors that might cause disruption. "If there are delays while the water supply is cut off at several apartment blocks in Flora Damansara, she said for high-rise premises, Syabas had to get cooperation from the building's joint management on conducted water rationing in the area." She said the disruption could have been caused by internal piping problems. On allegations that Syabas had not conducted water rationing in the area, she said the company had been working on it since the problem was first reported. Syabas state government (Shah Alam), Kuala Lumpur City Centre, Kuala Lumpur International Airport (KLIA), Subang airport, the Port Klang Free Zone (PKFZ), free trading zone and other areas.



INVESTIGATION UNDERWAY Part of the River Tyne between Morfe and the enterprise park that has turned orange.

### River turns orange in pollution mystery

AN investigation is underway into pollution which has

been reported in the River Tyne, between Morfe and the enterprise park that has turned orange.

### Najis babi cemar dua sungai

Oleh Salina Abdullah

**KUALA SELANGOR:** Satu kajian mendapati paras pencemaran di Sungai Sembah dan Sungai Selangor meningkat dipercayai berpunca daripada kumbahan najis babi dari ladang ternakan berdekatan.

Kajian oleh sekumpulan ahli kimia dalam sebuah syarikat pada September 2002 itu, mendapati paras ammonia dan bakteria di sungai berkenaan meningkat sejajar dengan terakui babi bersempena di kawasan itu, berbanding kawasan berdekatan.

Ammonia dan bakteria T Coliform penunjuk yang digunakan bagi menentukan mutu air. Pencemaran paras ammonia dan T Coliform menunjukkan air mengandungi pencemaran. Ammonia adalah sebatian nitrogen berbau tajam dan boleh menyebabkan kerosakan manusia di sepanjang laluan aliran. Selain najis ternakan, ammonia juga hadir dalam baja nitrat yang digunakan untuk pertanian. Ladang ternakan babi itu dipercayai mula beroperasi lebih setahun lalu, selepas berpindah dari Bukit Pelandok, Rawang yang ditubuhkan berturut-turut oleh beberapa orang pemilik babi itu. Mereka telah memulakan kolam ternakan dan takungan untuk memelihara babi itu.

lalu/tauk berdekatan seterusnya ke sungai yang menjadi sumber bekalan air bersih di Selangor dan Wilayah Persekutuan.

Kajian itu juga mendapati paras ammonia di Sungai Sembah meningkat kepada 1,200 milligram per liter (mg/L) berbanding 0.65 mg/L pada tahun 2001. Ia adalah

jika menggunakan saiz yang tercemar dengan najis.

Sungai Selangor, sumber air untuk 'muf' air minum di Kuala Lumpur, berdekatan dengan kawasan itu. Merupakan satu area yang sangat penting yang tercemar oleh najis ternakan.

### KRISIS AIR LEMBAH KLANG

Hampir 100,000 penduduk di di Kuala Lumpur, Gombak dan Ampang mungkin terpaksa berhadapan dengan masalah bekalan air untuk seminggu lagi berikutan kegagalan kali kedua sistem rumah pam di Wangsa Maju dan Pudu Hulu Baru. 22

Penduduk di Flat Seri Melaka terpaksa beratur untuk mendapatkan bekalan air melalui tangki sementara yang disediakan pihak Syabas, sementara.

### 50 tahun tanpa bekalan air bersih

Insani mahu masalah dihadapi enam keluarga diselesaikan segera

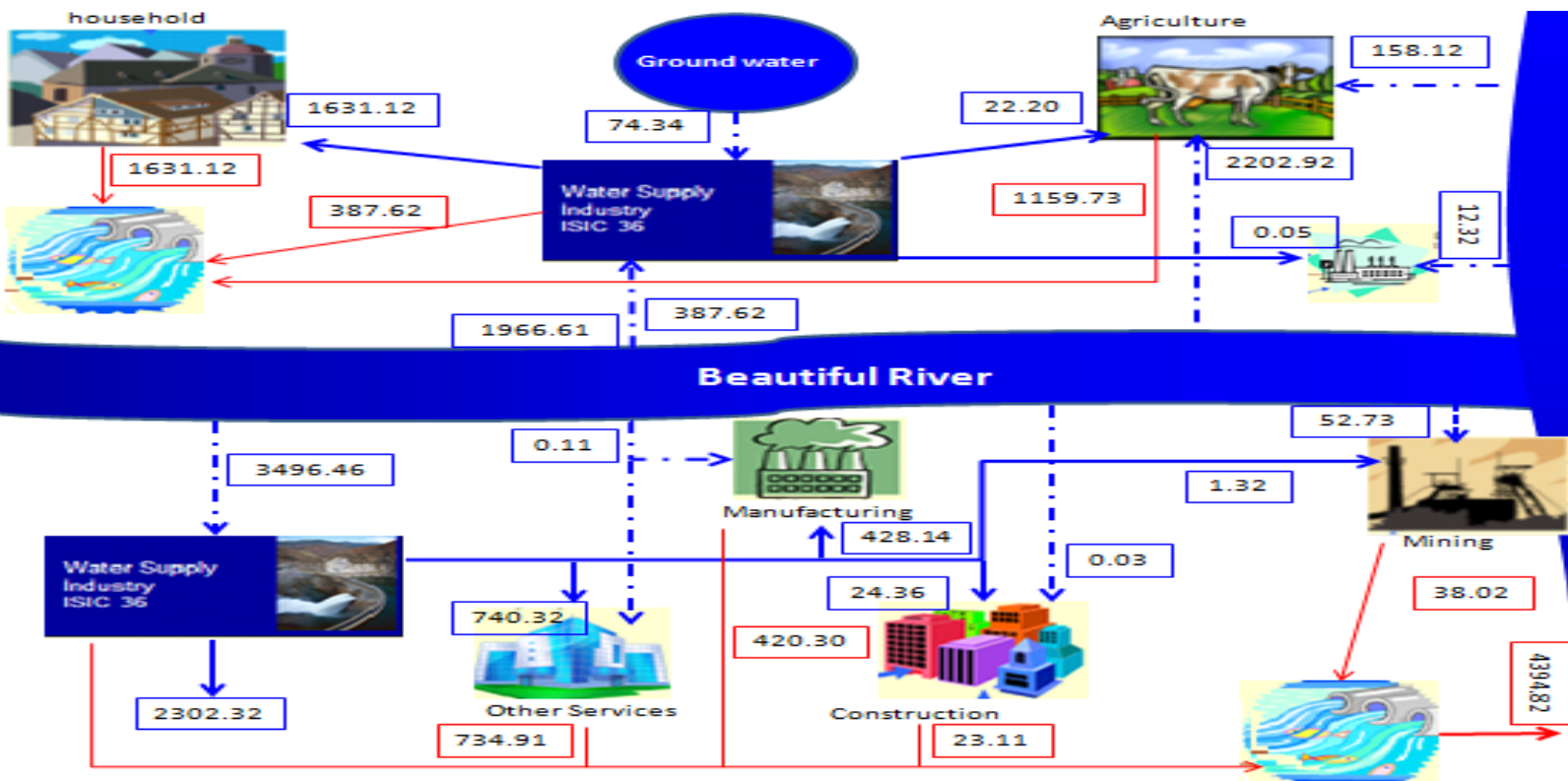
SUNGARANG

Masalah mendapatkan bekalan air yang bersih





# WATER PHYSICAL FLOW 2010



Cloudy Sea

# Analysis

	Total consumption		Domestic demands		Exports	
	Distributed (1)=(3)+(5)	Abstraction (2)=(4)+(6)	Distributed (3)	Abstraction (4)	Distributed (5)	Abstraction (6)
Agriculture	22.20	2,202.92	9.17	910.23	13.03	1,292.69
Manufacturing	428.14	0.11	117.82	0.03	310.32	0.08
Mining & quarrying	1.32	52.73	0.23	9.31	1.09	43.42
Construction	24.36	0.03	20.94	0.02	3.43	0.00
Water collection	0.00	387.62	0.00	246.31	0.00	141.32
Other services	740.32	12.37	496.45	8.30	243.86	4.08

# Analysis

	AGR	MAN	MIN	CON	WAT	OTH
Distributed water	0.46	0.87	0.12	0.74	0.33	1.34
Abstraction for own-use	19.50	2.35	0.66	0.96	44.46	0.73

Notes: AGR = Agriculture; MAN = Manufacturing; MIN = Mining & Quarrying; CON = Construction; WAT = Water Collection; OTH = Other Services



# APPLICATION OF MySEEA-WATER IN MEETING SGDS

Example: Attaining Indicators in Goal 6 (Clean Water and Sanitation)



# ISSUES & CHALLENGES

# ISSUES & CHALLENGES

## Data limitation

- Data @ information are scattered
- Data produced just for specific objectives
- Level of data accessibility especially in the state level
- Estimation methodology

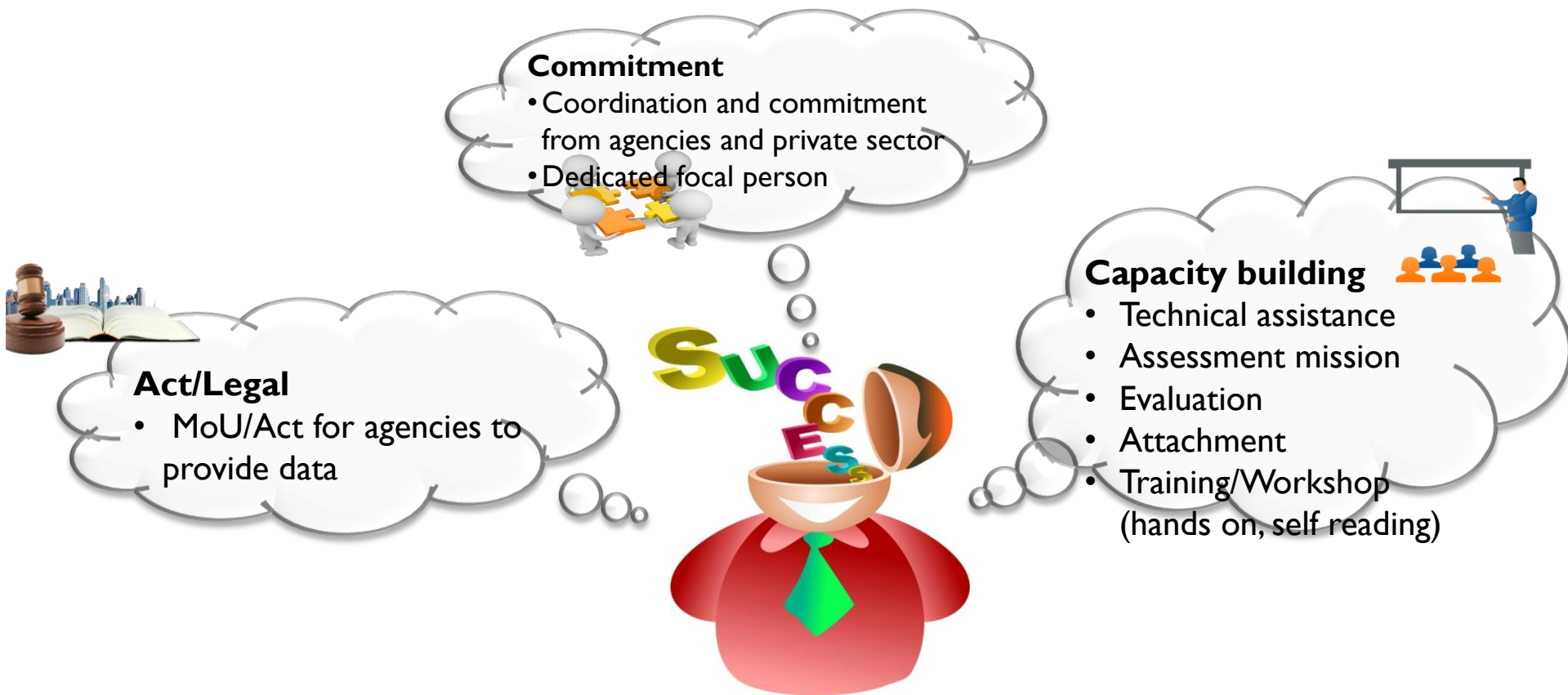
## Coordination and support

- Full commitment and collaboration from all related agencies
- Convincing the policy makers on the relevance of SEEA for development planning in Malaysia
- Support from private sector

## Capacity Building

- Training @ courses
- Technical assistance
- Statisticians less skills to explain to users in layman

# CRITICAL SUCCESS FACTOR



# WAY FORWARD

# WAY FORWARD



## Improving current economic and environmental surveys

1. Capturing ground water by industries and households
2. Capturing precipitation (rain harvesting)
3. Abstraction of water for own-use vs. for distribution
4. The use of seawater



## Development of integrated data system

1. Development of data system SPAN-Water Supply-DOSM
2. Establishment of single data center



## Strategic Communication

1. Capsule
2. Brochure
3. Exhibition booth
4. Statistics talk



“Statistics are the barometer that reflects the pulse of the country”

Dr. Mohd Uzir Bin Mahidin, The Star,  
14<sup>th</sup> July 2016

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