

What are the barriers to overcome the carbon emission (intensity) reduction by 2020?

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Table 1: Significant Environmental Impacts Caused in Asia

GLOBAL WARMING EFFECT	
Use of Fossil resources such as fuels, materials	70%
Use of materials/minerals for industry	10%
Use of wood as fuel and material	8%
Use of agricultural products, food materials and fuel	25%
Source: IPPC 2007, FAO 2003 in Anbumohzhi (2009)	

Measures of CO2

- My first question is that if **CO2 intensity** were to drop, will that mean that **CO2 total emissions** will drop too?
- My second question is that will this drop be significant in mitigating climate change?
- To a certain extent yes to both, but to what extent?
- Not clear of the drop on CO2 TOTAL EMISSIONS.
- Let us look at some figures.

Measures of CO2

- In this discussion, carbon dioxide emissions are those stemming from the **burning of fossil fuels** and the **manufacture of cement**.
- They include carbon dioxide produced during consumption of solid, liquid, and gas fuels and gas flaring.

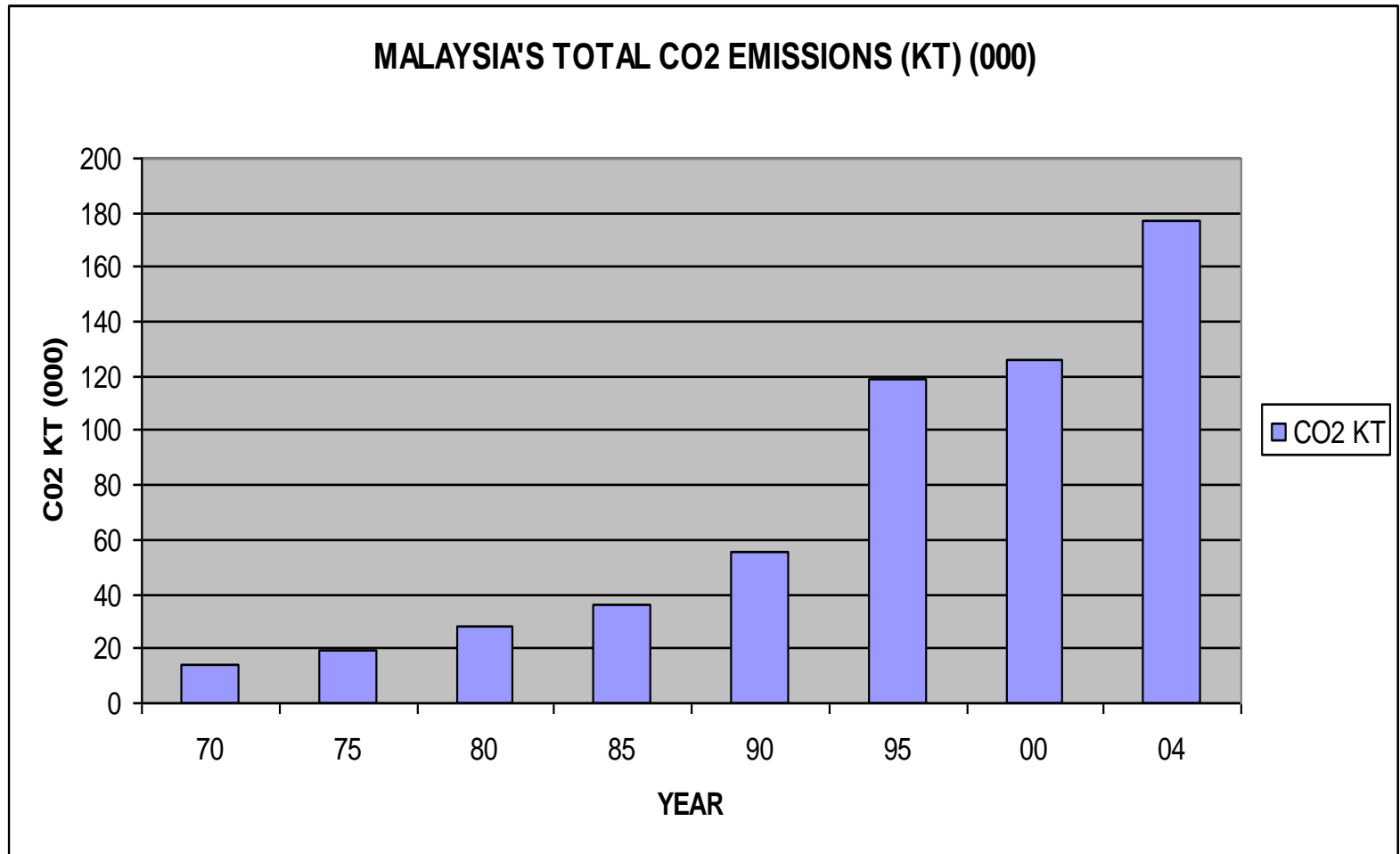
Measures of CO2

- The data does not represent the rise from **deforestation**.
- Does not measure **atmospheric CO2** by an instrument.
- Data sourced from World Bank Development Indicators (2008)and represents estimates of the burning of fossil fuel via man-made activities.

MALAYSIA'S CO2 TRENDS

- Malaysia's CO2 total emissions' trend is rising.
- In 1970 - 14.4 KT
- In 2004 - 177.4 KT
- Represents an increase of 12 times over a period of 35 years.(>1000%)
- **Source: World Bank Indicators (2008)**

MALAYSIA'S CO2 TRENDS



MALAYSIA'S CO2 TRENDS

- **CO2 (Kg) per GDP** is an intensity measure.

More econ lit is devoted to CO2 (metric ton) per capita and less to total emissions and CO2 Per GDP.

Impression only and does not represent any systematic study or accounting of the lit.

What is CO2 intensity really?

- The trend of CO2 emission intensity is determined by energy intensity (J. W. Sun, 2003).
- The reason for this is that energy-related CO2 emissions result from fuel combustion (J. W. Sun, 2003).

What is CO2 intensity really?

- With regard to the social property of CO2 emission intensity, **the role of energy and environmental policy** is important in accelerating the decrease of CO2 emission intensity or decelerating the increase of CO2 emission intensity.
- In other words, **the fuel mix** between the use of **fossil and non-fossil fuel** is important in reducing CO2 intensity (J. W. Sun,2003).

MALAYSIA'S CO2 TRENDS

1970- 1.20 Kg per GDP

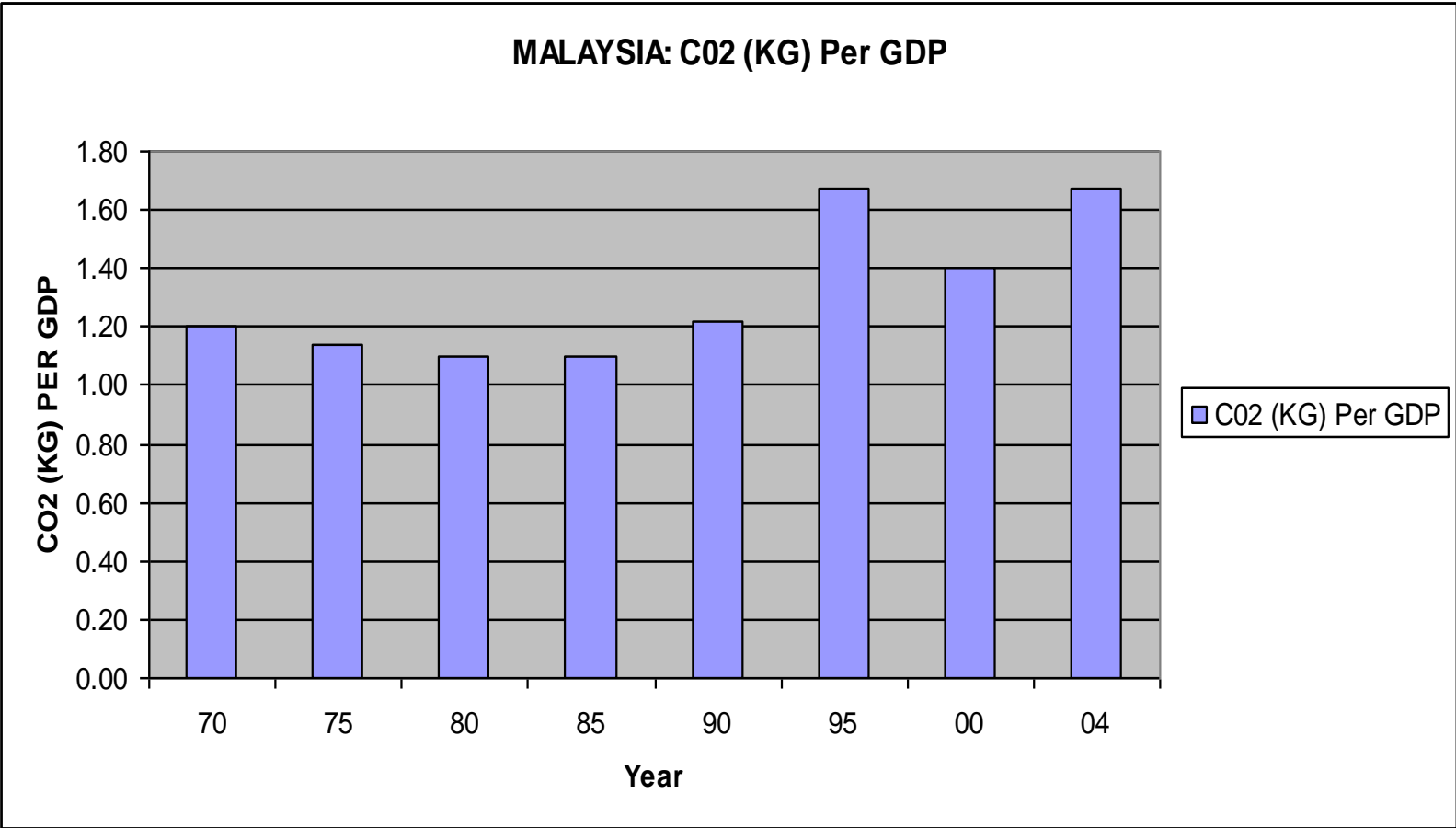
2004- 1.67 Kg per GDP

Source: World Bank Indicators (2008)

What is CO2 intensity really?

- Represents an **increase** of 1.4 times (39%) while according to the OECD (2008) there was an **overall decline of 20%** in the carbon intensity of the world economy (OECD, 2008 in Anbumozhi, 2009).

MALAYSIA'S CO2 TRENDS



What the economic lit says

- In economic lit., regardless of how CO₂ is quantified, income is the NO ONE determinant of CO₂.
- According to the inverted U KUZNET's hypothesis: When income (GDP Per Capita) rises, so will CO₂ (per capita) and after income reaches its maximum point, CO₂ (per capita) will start to drop.

What the economic lit says

- High levels of GDP per capita is thought to be associated with **cleaner technology** and having **environmental consciousness** that is associated with developed countries.
- This is known as the **Environmental Kuznets' hypothesis** that is rhetorical in the econ lit. on the determinants of GHG including CO₂.

What the economic lit says

- But we are unlikely to reach this high income level in the near future and hence, using energy inefficient production processes and maintaining our uncaring attitude towards the environment are two barriers that need to be overcome.
- There must be incentives and penalties given to firms to adopt cleaner technologies and their implementation monitored.

What the econ lit says

- What we know of many multinationals from the developed world is that their publics demand that they minimize their pollution.
- Ditto when these firms are operating in developing nations.
- The pollution-haven hypothesis (PHH):

What the econ lit says

Foreign direct investment (FDI) via multinationals are pushed from their countries of origin to invest in developing nations with lax environmental standards.

PHH has only anecdotal evidence in the literature.

Multinationals adopt cleaner technology than domestic firms in many instances.

What the econ lit says

- Will Malaysians demand that organizations operating in Malaysia emit low amount of CO₂?

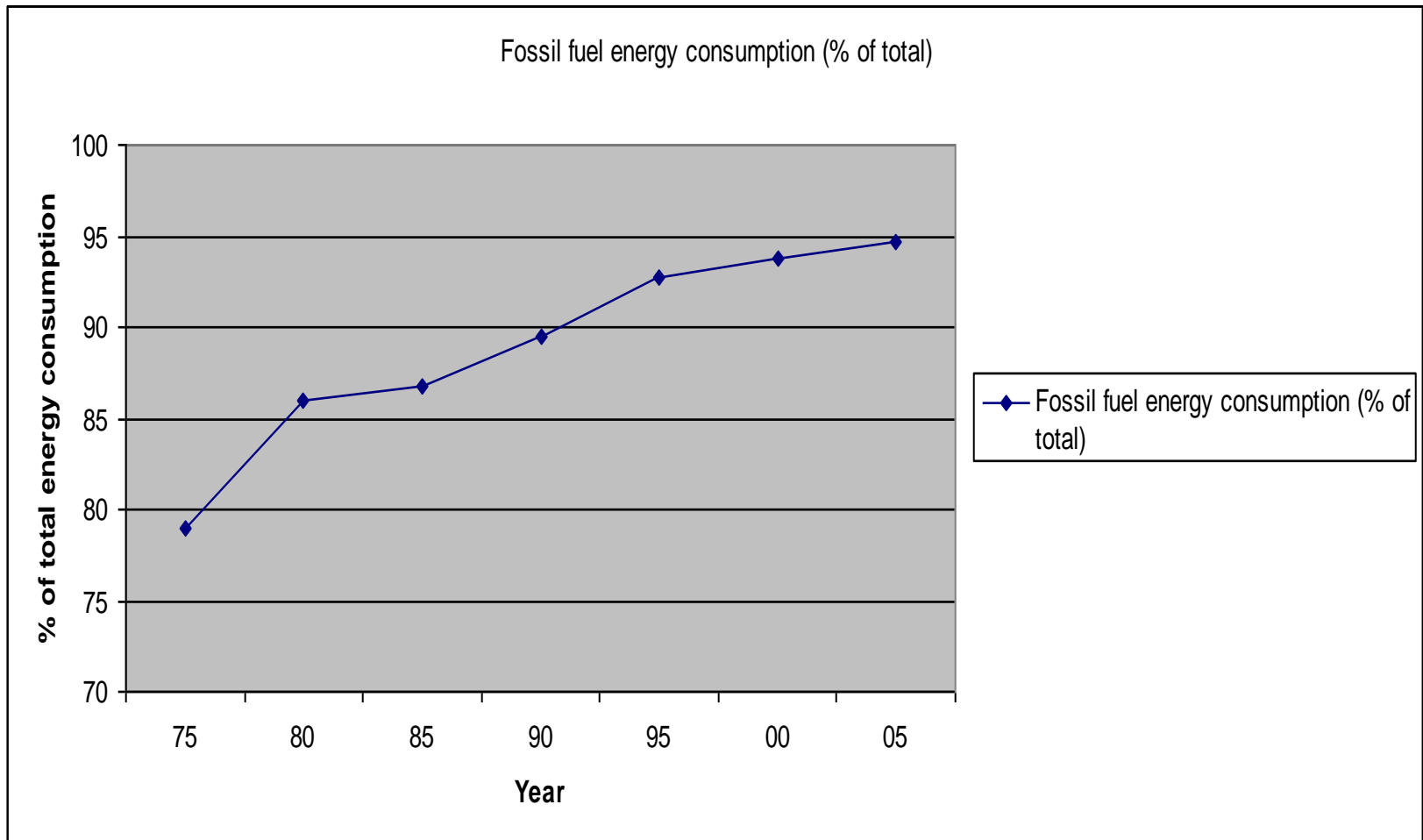
What the economic lit says

- Coming back to the EKC curve, we cannot generalize that the inverted U Kuznet's hypothesis exists for every nation.
- Always exceptions to the case.
- There is also emerging scholarship to debunk the Environmental Kuznets' Curve.

What the economic lit says

- The other major determinant of CO₂ is the use of fossil fuel.
- Let us look at the trend is fossil fuel use, combustible renewables and waste as well as clean energy alternatives in Malaysia.

Malaysia: Energy Consumption Trend



Malaysia: Energy Consumption Trend

- 1975- 79 %
- 2005-96.64 %
- **Source: World Bank Indicators (2008)**
- This represents an increase of 1.22 times (23%).

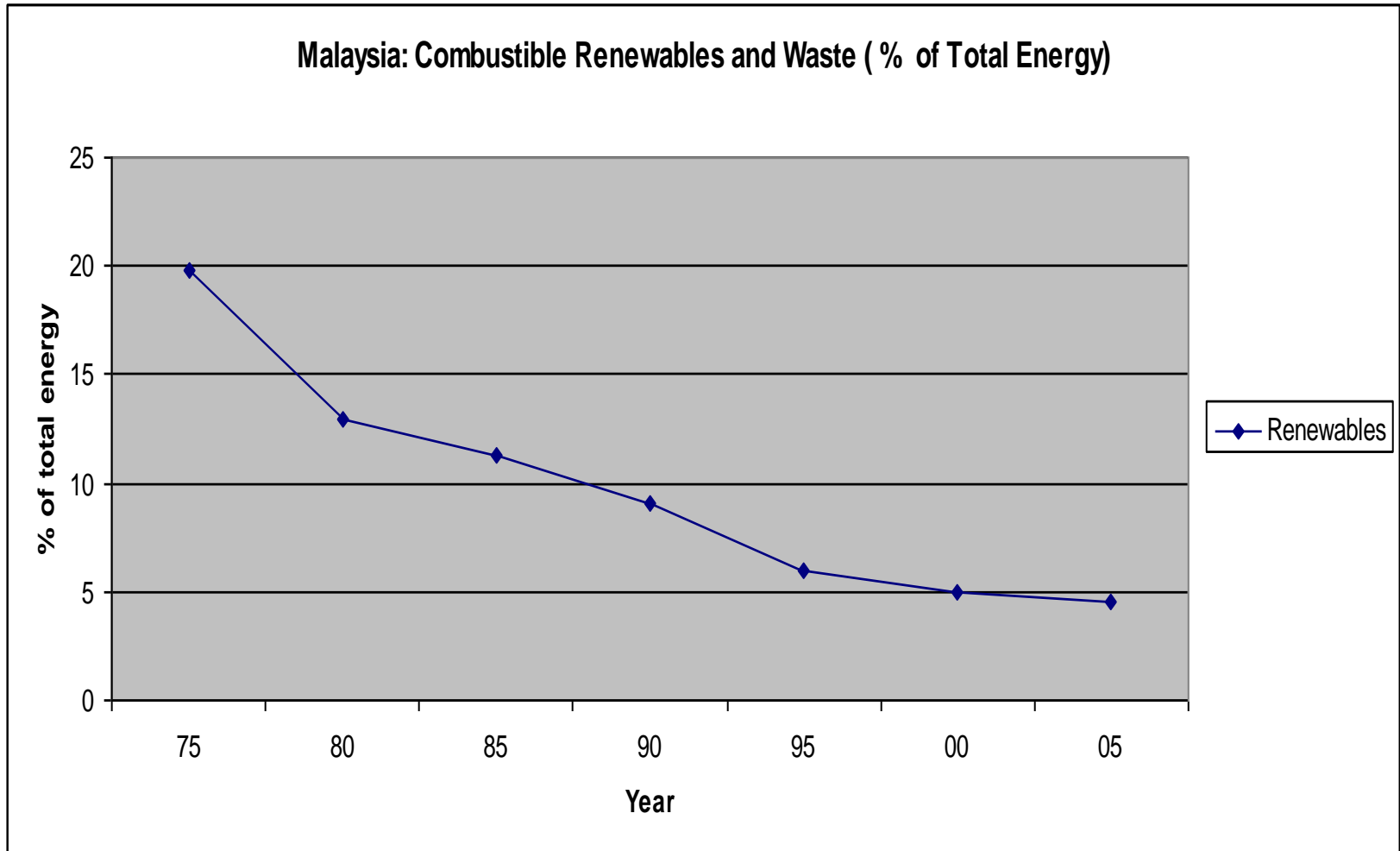
Malaysia: Energy Consumption Trend

- Very obviously, Malaysia needs to stop the rise in fossil fuels as an energy source.
- In fact, Malaysia will have to decrease its dependence and seriously examine adopting more renewable energy and clean energy options.

Malaysia: Combustible Renewables and Waste

- Combustible renewables and waste comprise solid biomass, liquid biomass, biogas, industrial waste, and municipal waste, measured as a percentage of total energy use
- **Source: World Development Indicators, 2008.**

Malaysia: Combustible Renewables and Waste



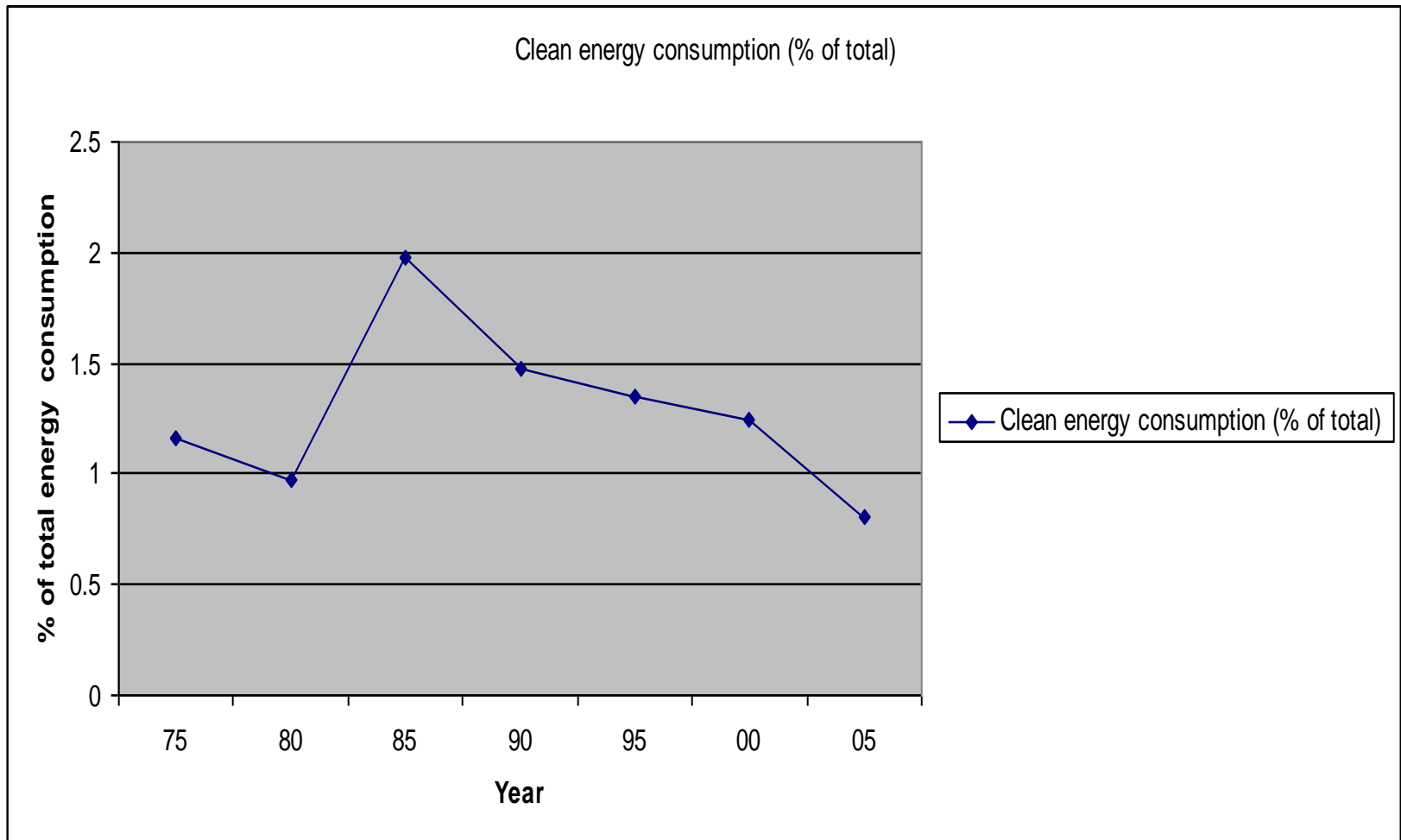
Malaysia: Energy Consumption Trend

- 1975- 19.84 %
2005- 4.55 %
- **Source: World Bank Indicators (2008)**
- This represents a decrease of 4 times
- over (77%).

Clean Energy

- Clean energy is noncarbohydrate energy that does not produce carbon dioxide when generated. It includes hydropower and nuclear, geothermal, and solar power, among others.
- **Source: World Development Indicators, 2008.**

Malaysia: Energy Consumption Trend



Malaysia: Energy Consumption Trend

- Energy consumed from **clean energy sources** is declining.
- 1975 - 1.6 %
- 2000 - 0.8 %
- Decreased by half or 50%
- **Source: World Development Indicators, 2008.**

Malaysia: Barriers to Overcome

The sector which emits the most CO₂ is the **transportation sector**;

The second sector which emits the most CO₂ is the **industrial sector**, and

Malaysia: Barriers to Overcome

The third sector is the **commercial and residential**.

The fourth sector is **agriculture** (but we all know that methane is a GHG that is associated with this sector).

- Source: Pusat Tenaga Malaysia

Malaysia: Barriers to Overcome

- Both the first two sectors will immediately need to reduce their dependence on fossil fuels.

Malaysia: Barriers to Overcome

- Malaysia needs good energy and environmental policies to bring down the CO2 intensity measure.

Policy that is **consultative** in nature is more effective than one that is top down.

Malaysia: Barriers to Overcome

- Challenge will always be the implementation of those policies.
- Corruption will have to be addressed aggressively to ensure that policies are implemented accordingly.

Bibliography

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THANK YOU