



# Emission Trading/GHG Accounting

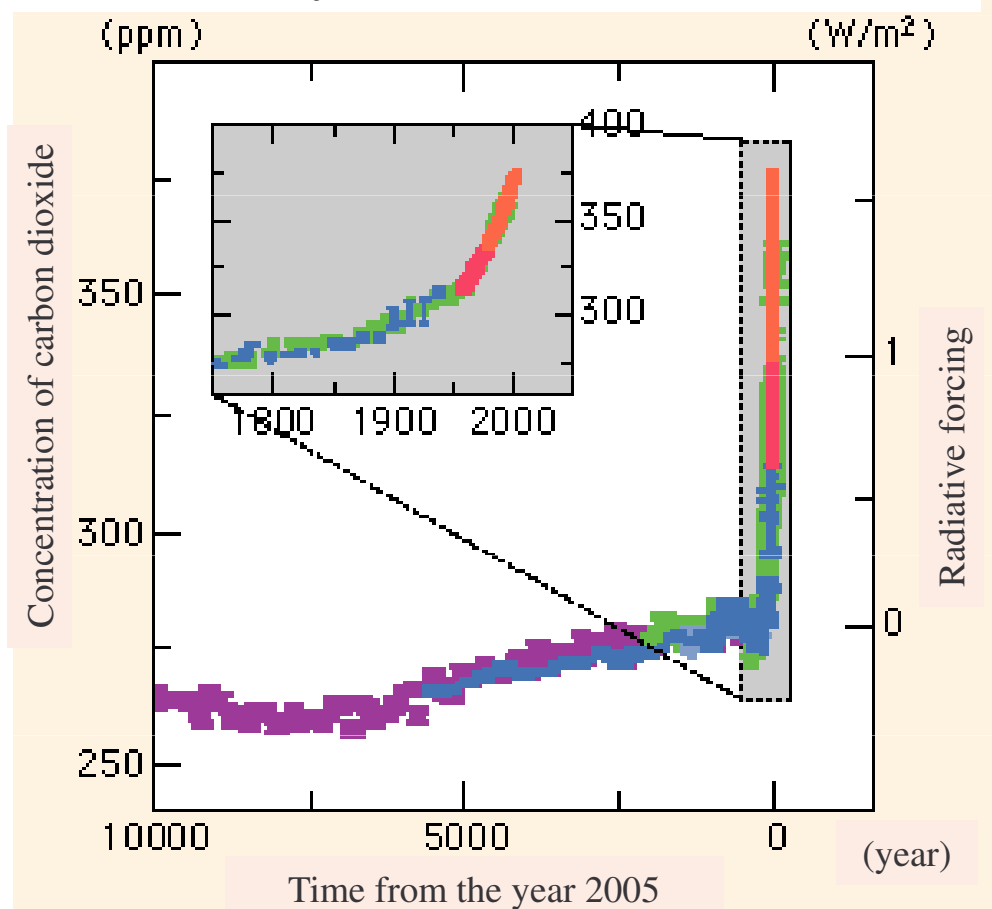
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# CURRENT STATUS: SICK EARTH

The concentration of airborne carbon dioxide increased about 31% by 1999 in comparison with the level of 1750; such a rate of increase has been unheard of over the past 20,000 years—the concentration is the highest it has been in the last 420,000 years.

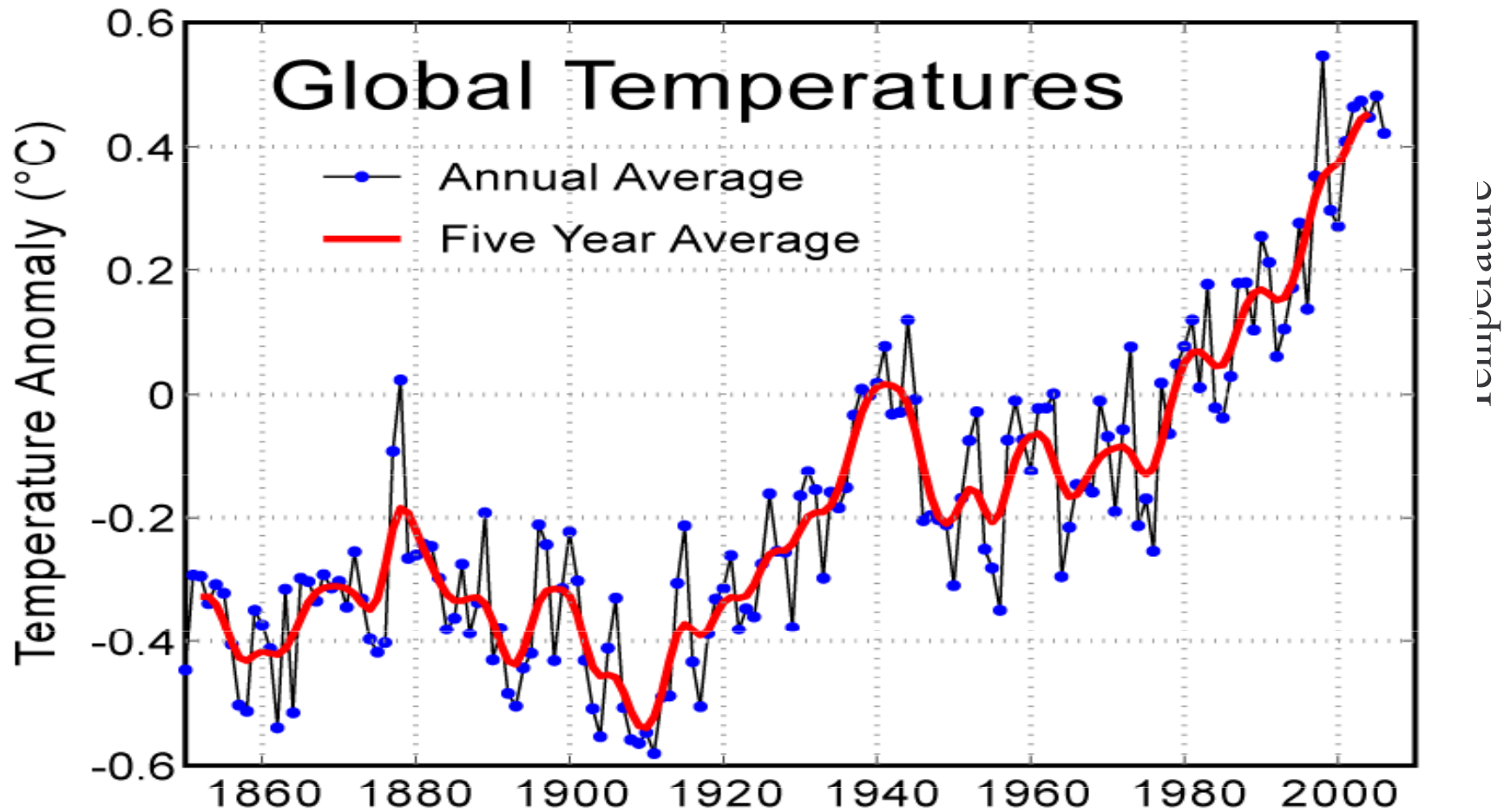
**Diagram 1**  
Changes in carbon dioxide density by observing ice sheet core and by current observation



Source: IPCC fourth evaluation report; report by the Working Group 1

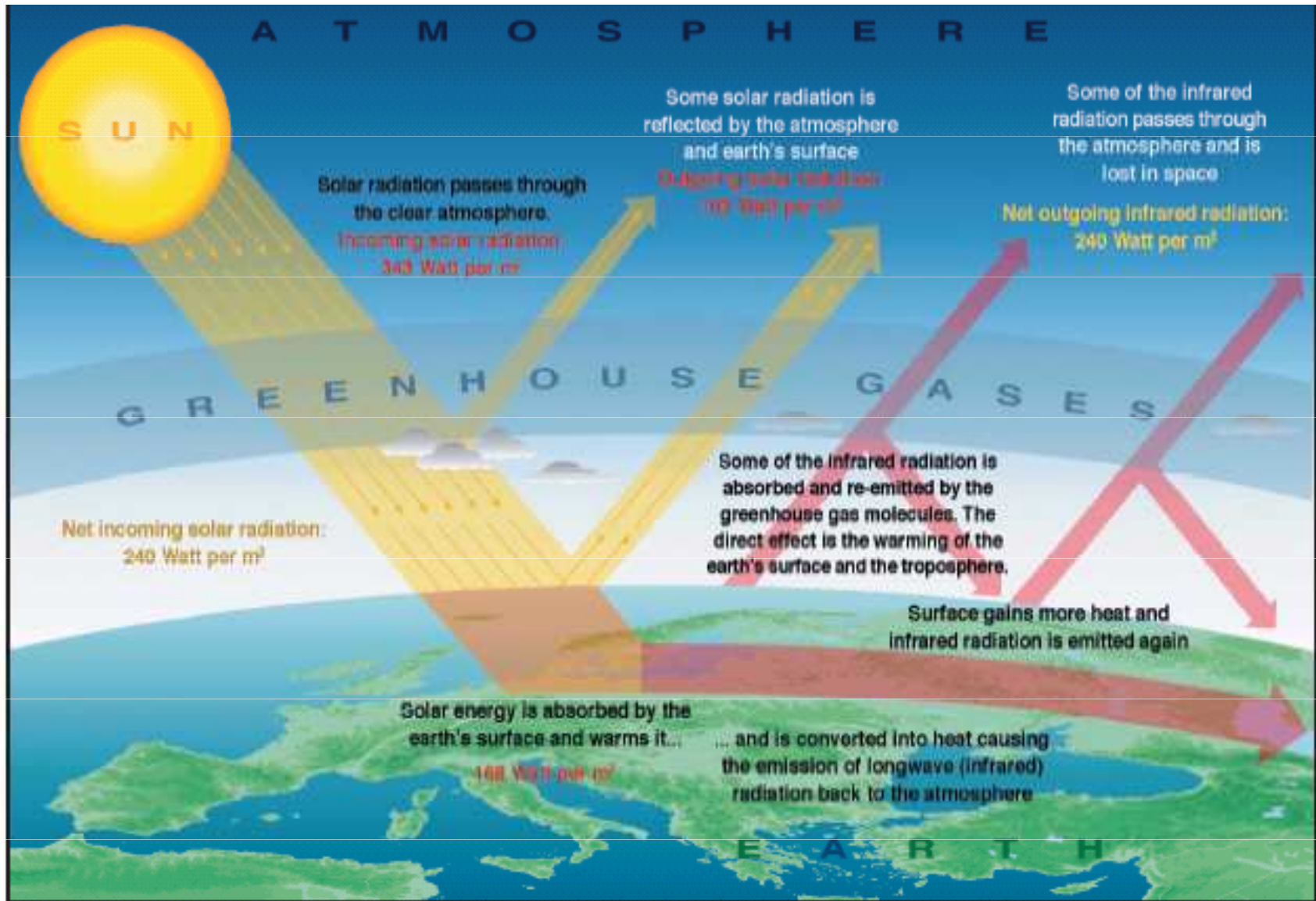
PPT. from LCI/LCA Waste Management, Kenmorishita, 2007

# Global mean surface temperature anomaly 1850 to 2006 relative to 1961–1990

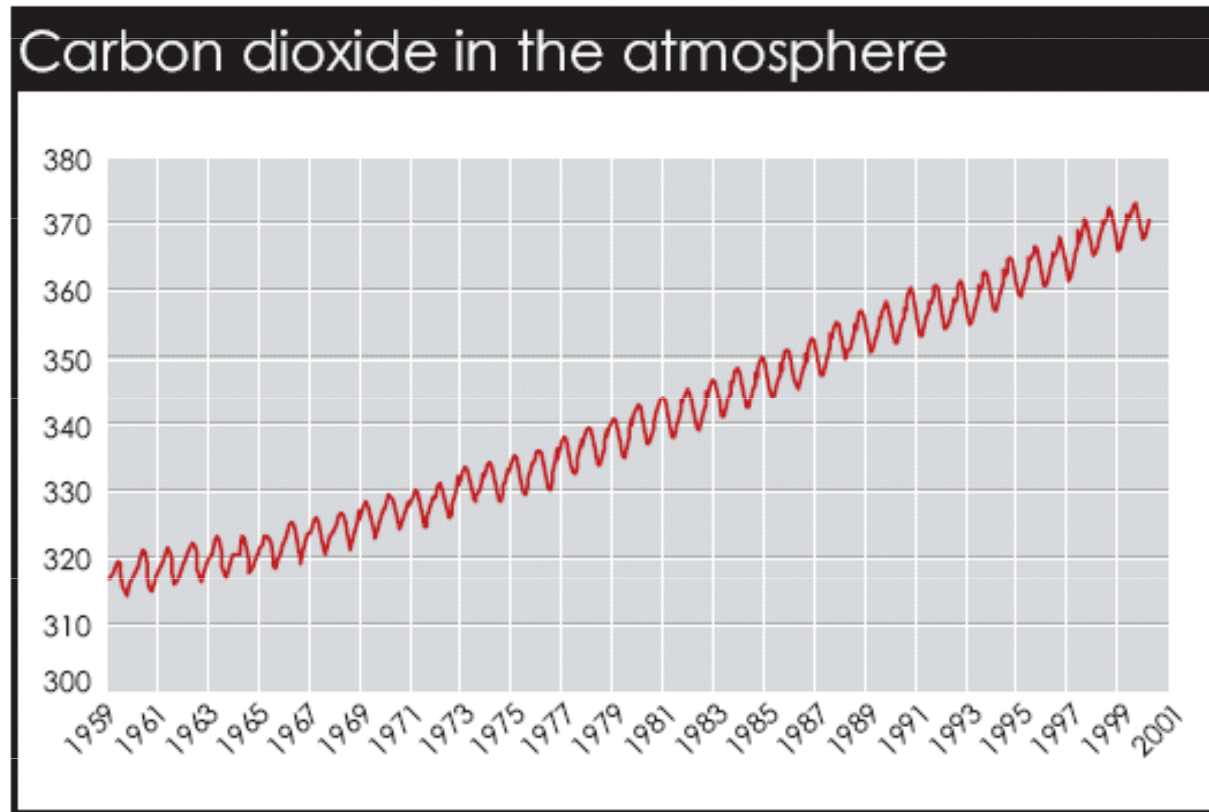


PPT. from LCI/LCA Waste Management, Kenmorishita, 2007

# Green House Gas Effect



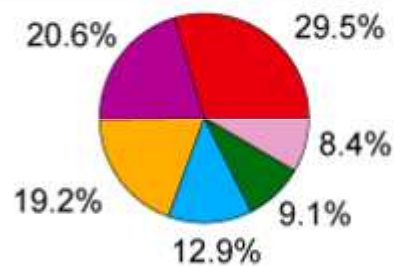
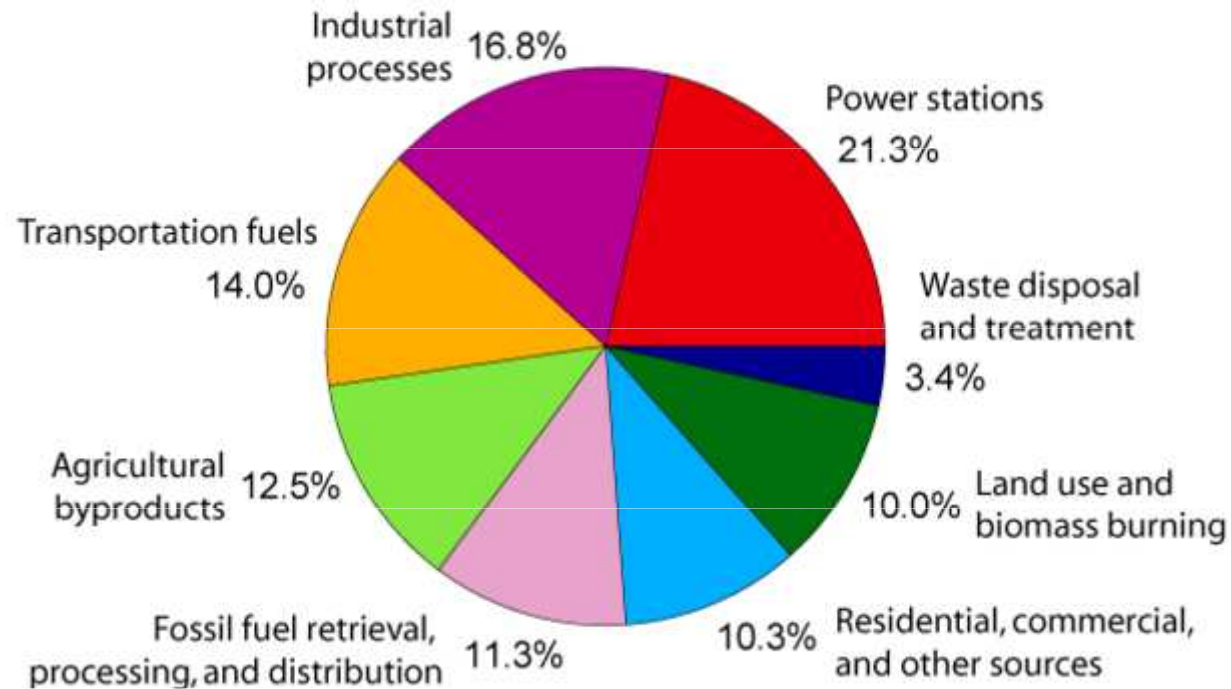
# the greenhouse effect



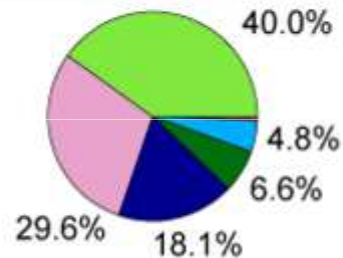
Records from Mauna Loa, Hawaii (in parts per million by volume) show how CO<sub>2</sub> concentrations in the atmosphere have increased since accurate records began.

Source: Keeling and Whorf 2001 in Global Environment Outlook 3 (UNEP/Earthscan Publications 2002)

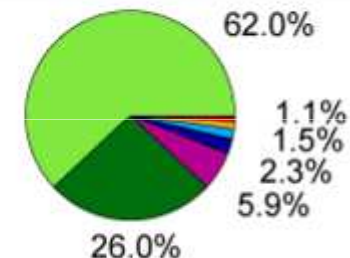
## Annual Greenhouse Gas Emissions by Sector



**Carbon Dioxide**  
(72% of total)



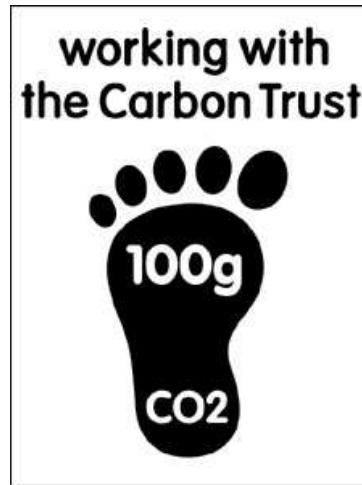
**Methane**  
(18% of total)



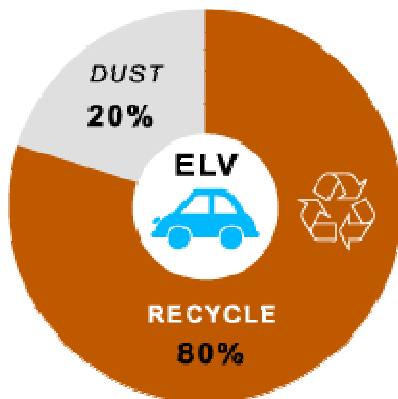
**Nitrous Oxide**  
(9% of total)

# Kyoto Protocol

- Legally binding targets for Annex I Parties:  
Japan -6%, U.S. -7%, EU -8%, etc.
- GHGs: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>.
- Base year: 1990 (Any Annex I Party may use 1995 for HFCs, PFCs and SF<sub>6</sub>)
- Commitment period: 2008 ~ 2012.
- Use of GHG removals by LULUCF activities.
- Introduction of flexible mechanisms: Emissions trading, CDM, Joint implementation (JI).



## Environmental Commission & Competition





## Benefits from Voluntary Emission Reduction (VER)

- Low Carbon Society
- Decrease of GHG emission and GWP
- Public Awareness
- Goodwill for Company
- Corporate Social Responsibility of Private Company
- Lead to Carbon Neutral Business

# Carbon Footprint Products in Japan



## プロセス別算定結果

- 原材料調達 ..... 52%  
(うち容器包装(大日本印刷) 24%)
- 生産 ..... 13%
- 流通・販売 ..... 16%
- 使用 ..... 1%
- 廃棄 ..... 18%



エコプロダクツ2008出展  
カーボンフットプリント暫定表示

# Carbon Footprint & CDM in Thailand



จากลดคาร์บอน

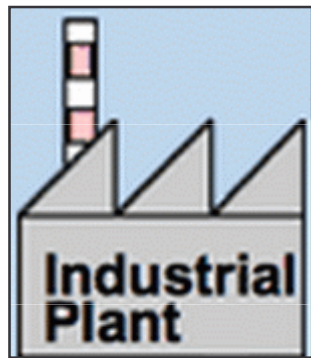


Carbon Footprint

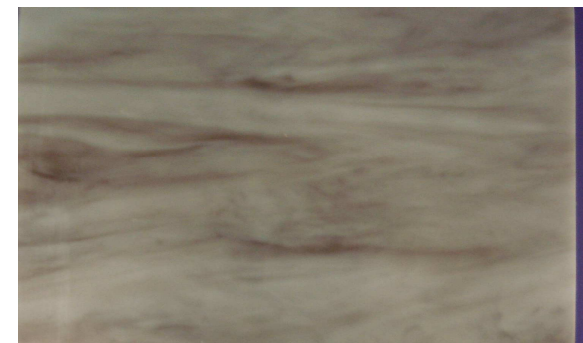


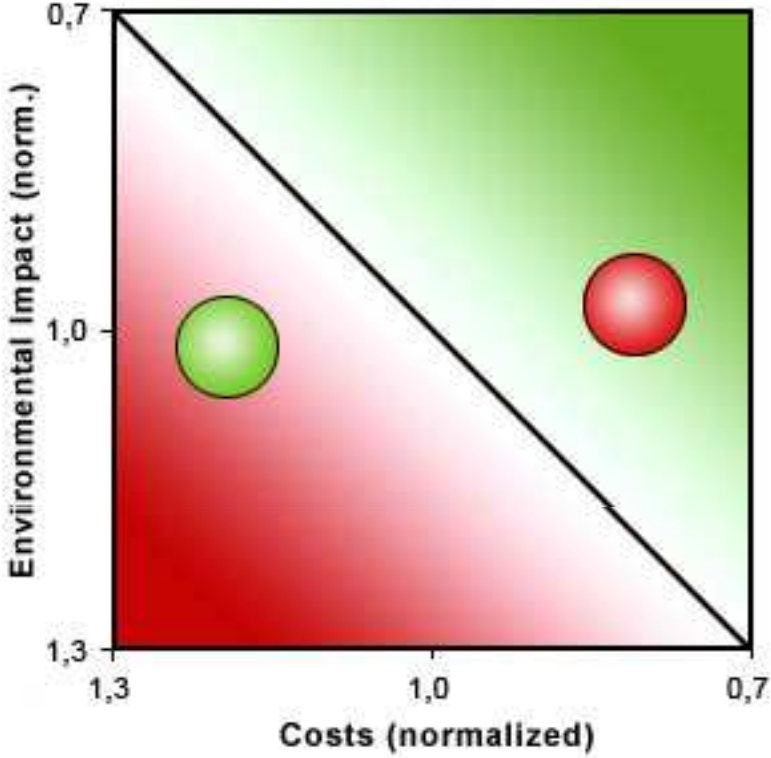
เสีฟ้าลโลกร้อบ

# Eco-Label Type II of the PMMA Cast Sheet



eco-industry  
**CO<sub>2</sub>**  
↓  
-7.97%





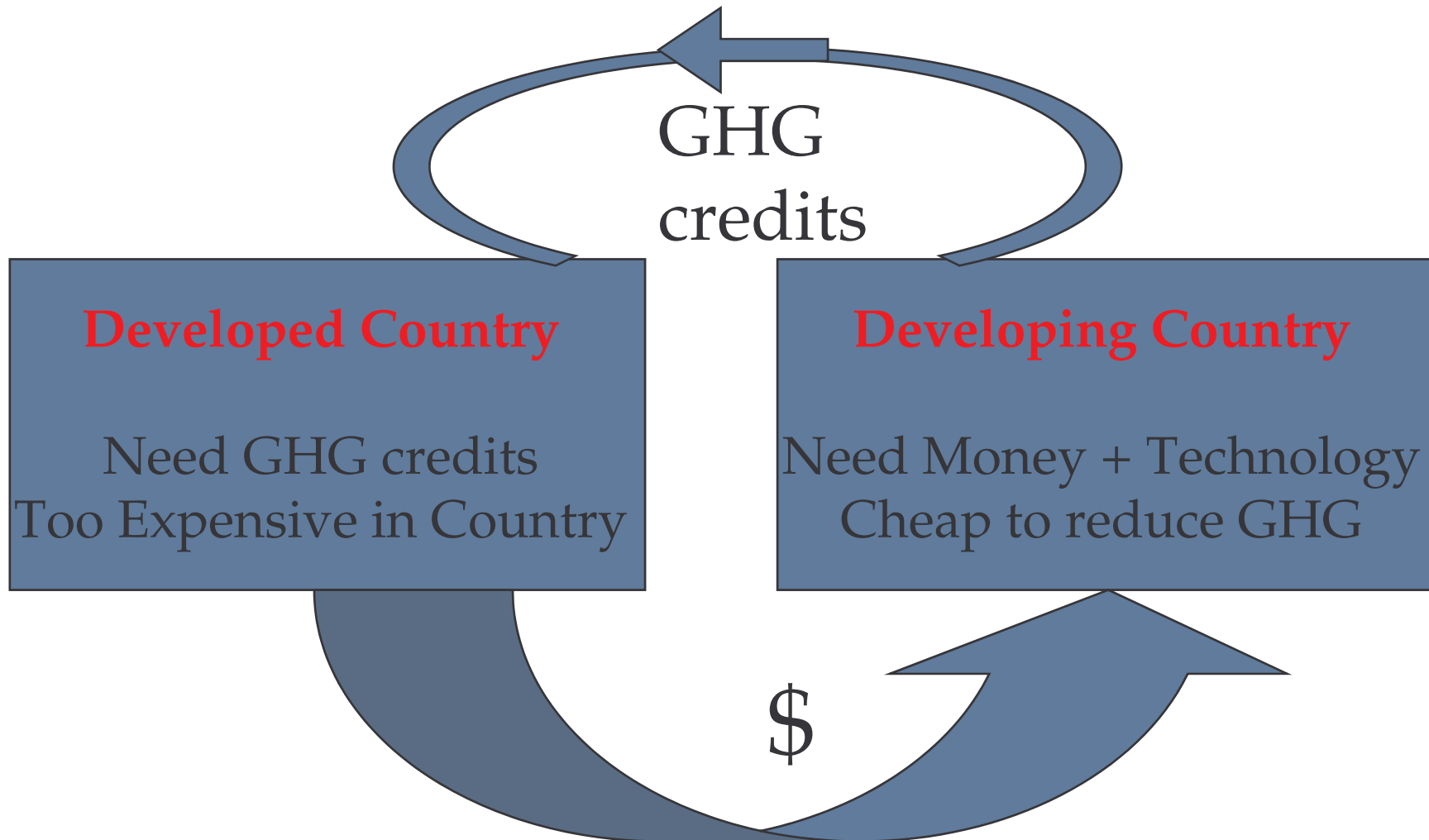
● standard PBT  
● Ultradur High Speed



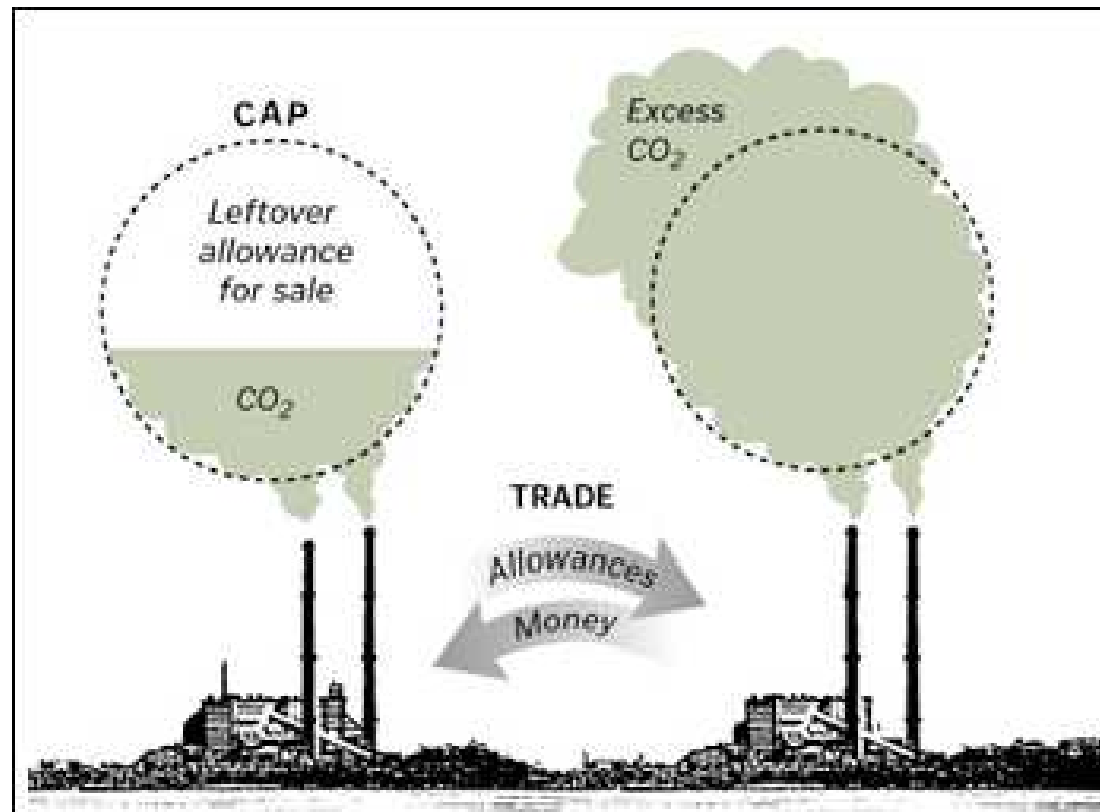
Eco-Efficiency Label, BASF

Source: [www.BASF.com](http://www.BASF.com)

# Clean Development Mechanism (CDM)



# Voluntary Carbon Market in IE of Thailand Project



## Objectives of the Project

- Know the existing GHG emissions from factories, which were located in selected IE
- Voluntary emission reduction network
- Feasibility study of CDM



## Expected Outcomes of the Project

- Existing GHG emissions reporting
- VER network for further activities, such as voluntary carbon market or emission trading
- Suggestion on development of CDM

# Methodology

Selected Company



GHG accounting & reporting



GHG source analysis



Suggestion of GHG reduction at sources



Feasibility study of CDM

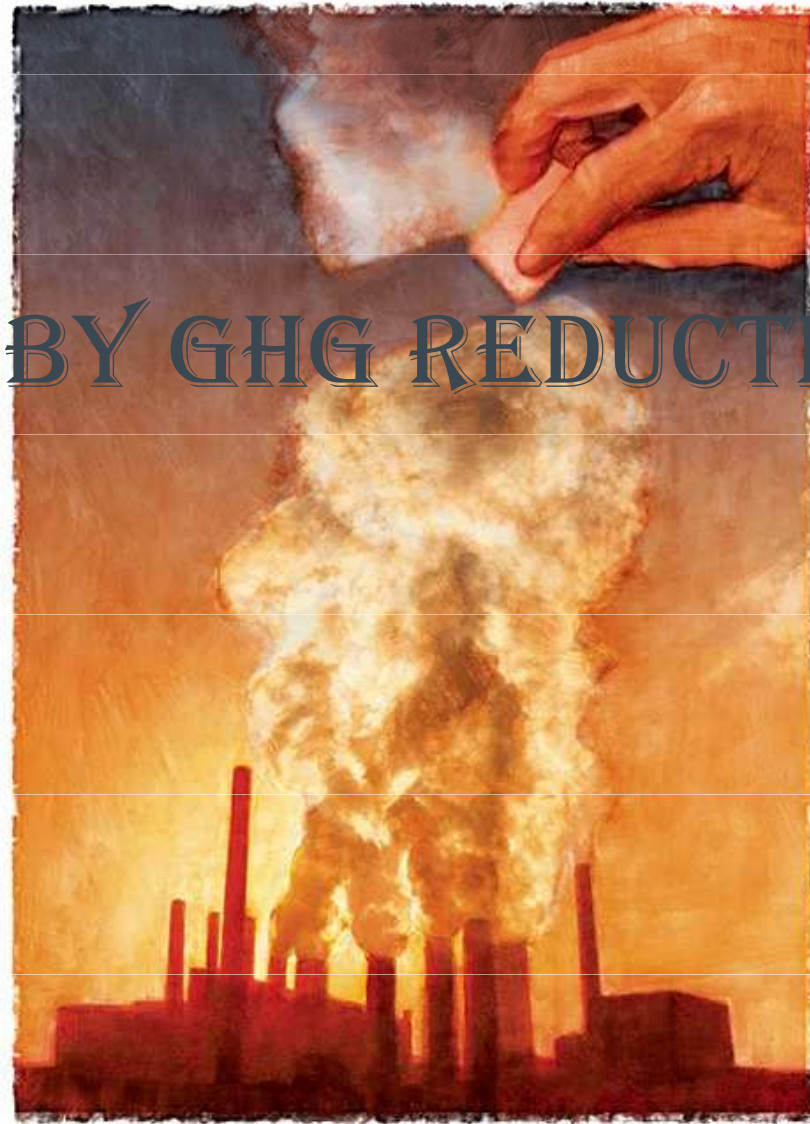
## GHG Accounting and Reporting (WBCSD Guideline)

- Setting the Organization Boundaries
- Setting the Operational Boundaries
  - Scope 1: Direct GHG Emissions
  - Scope 2: GHG Emissions from import of electricity, heat, or steam
- Data Collection
- Calculation of GHG Emissions
- GHG Reporting

## Sources of GHG Emission

- Existing GHG Emission from Factory
- Scope 1: Direct GHG Emissions
  - Production of electricity, heat, or steam
  - Physical and chemical processing
  - Transportation
  - Fugitive emissions
- Scope 2: GHG Emissions from import of electricity, heat, or steam

# SAVE THE EARTH BY GHG REDUCTION



# Automobile Manufacturing Process

Estimate: manufacturing of one car required....

Water 7,940 L

Chemicals 23.3

Coal 400 kg



Emissions

VOC 6 kg

Sulfur dioxide 9 kg

Nitrogen oxide 13 kg

Carbon dioxide 1.5 kg

Waste water 7,250 L

Waste 2.8 kg

Hazardous waste 5.3 kg

