

Promoting the Removal of Environmentally Harmful Subsidy

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Flow of Presentation

1) Introduction

2) What's subsidy?

- Economic effect
- Environmental impact

3) Social Purposes

- Poverty reduction
- Maintaining employments
- Energy security

4) Conclusion

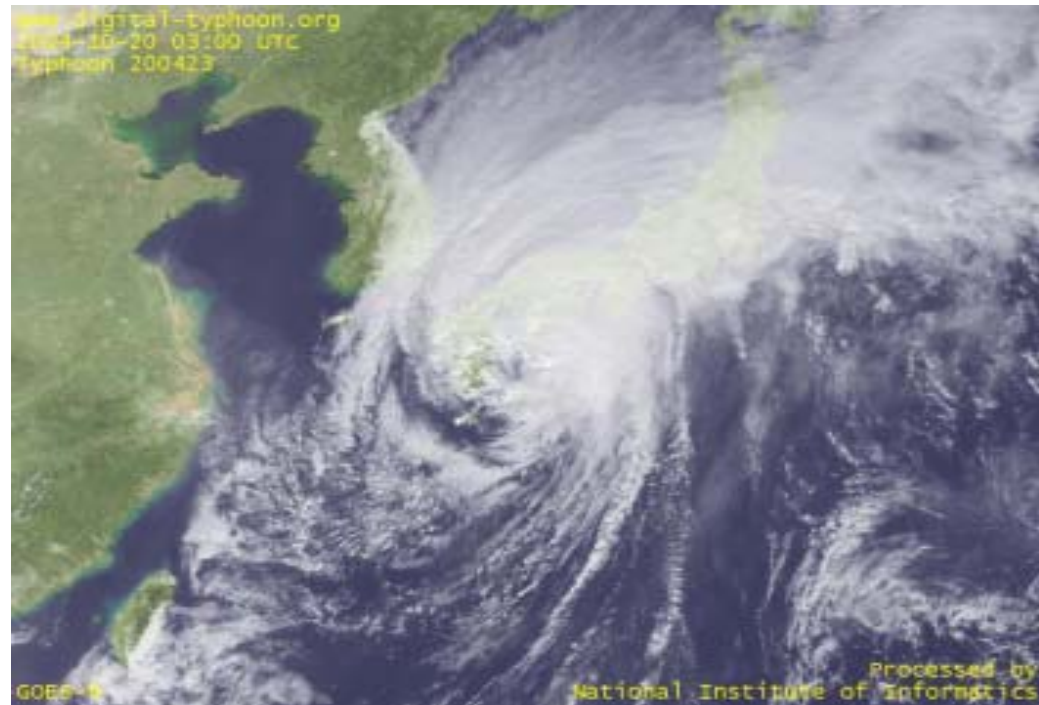
Symptoms of Climate changes

- **Typhoons in Japan this year**

***10** typhoons attacked Japan islands.

(It is a **NEW** Record.)

* And especially **23rd** one was huge and killed almost **90** people and the total damage was the **biggest in the last 20 years**



How about China??

- **Most Powerful 14th Typhoon in Seven Years called Rananim hit China and Killed 115 People and Injures More Than 1,800**

abcNEWS.com August 13, 2004



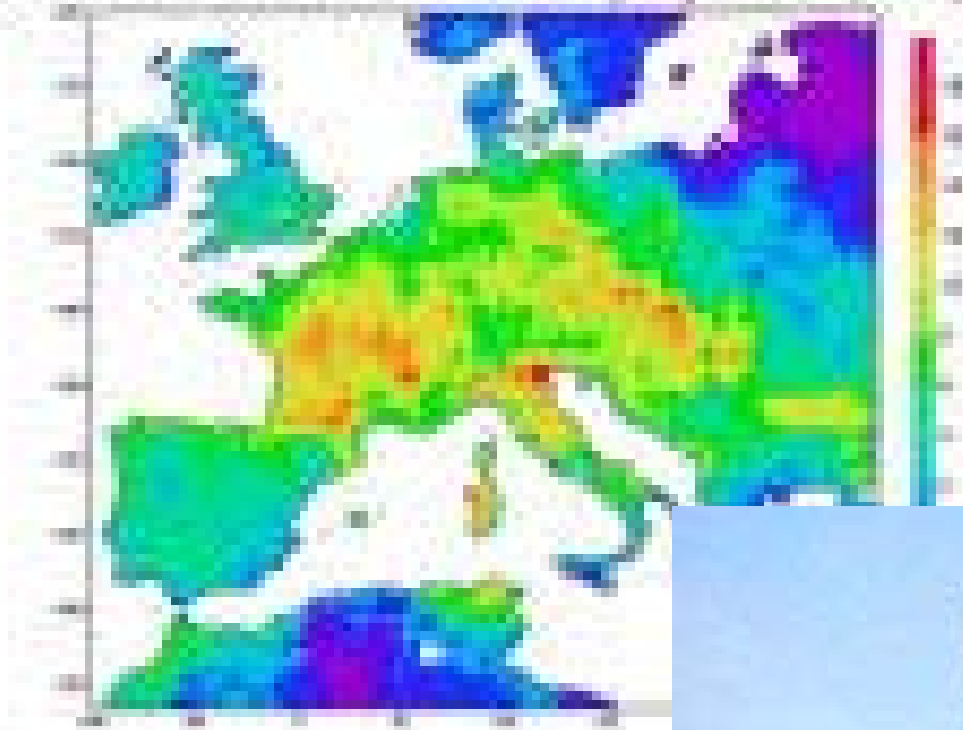
Typhoons are getting more
severe, violent.

**Climate Changes cause
more severe rainstorms.**

*These threaten people's life.

*And also cause huge economic damages to
insurance companies.

AM50-E. 100 2003 versus 2003 during Aug. 10-15 (Kotani)



フランスの熱波

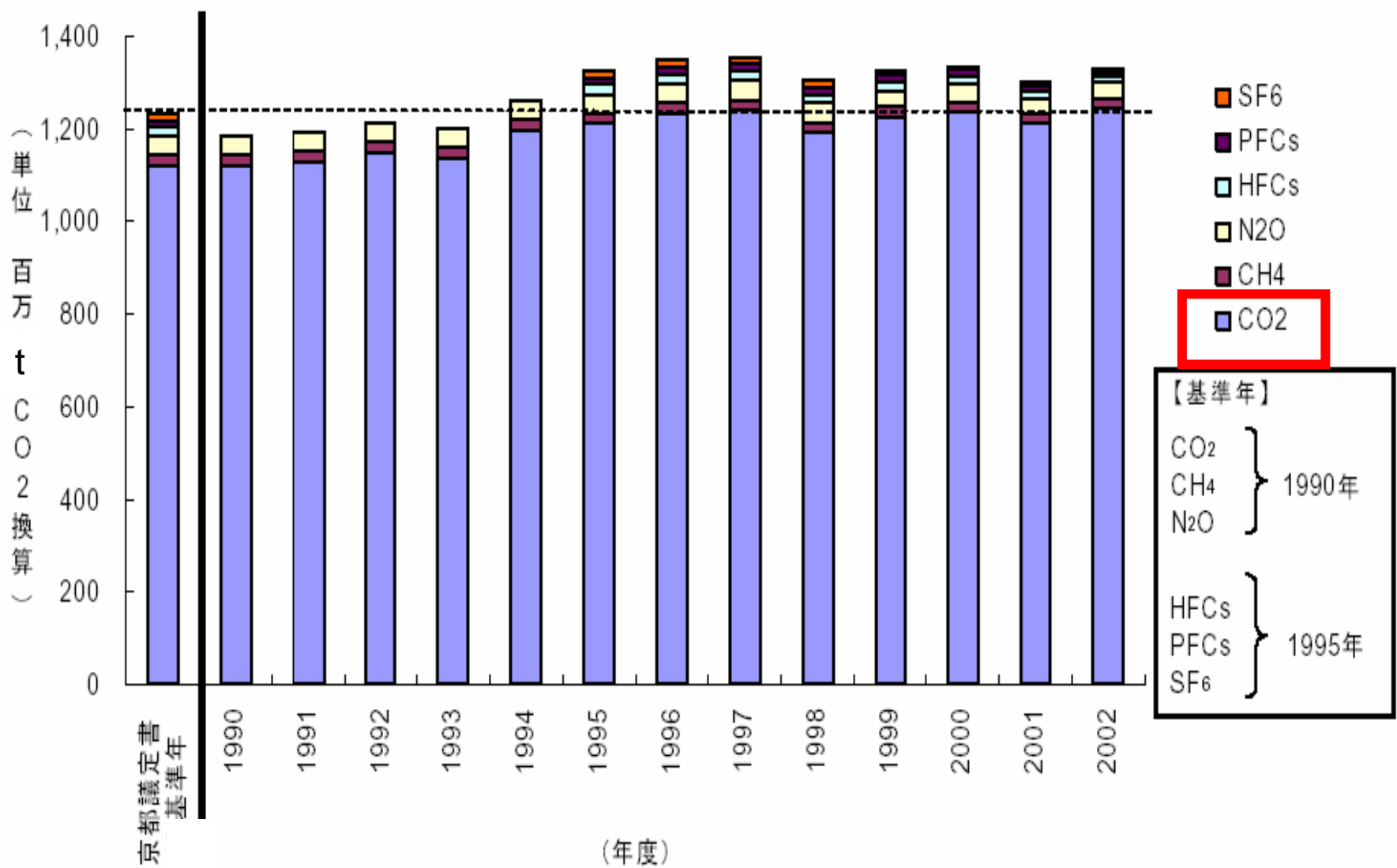


We have to catch the signals from the nature and recognize these more seriously....



Global Warming

- It is caused by **GHGs**
- GHGs(CO₂) are mainly Caused by **Fossil Fuel burning** (6 billion tons CO₂)
and
Deforestation(about 1.5 billion tons CO₂)



GHGs Breakdown transition in Japan

Global Warming

- Is caused by **GHGs**
- GHGs(CO₂) are mainly Caused by
Fossil Fuel burning (6 billion tons CO₂)
and
Deforestation (about 1.5 billion tons CO₂)

Huge Effect of Fossil Fuel on Global Warming

From Working Group 1 SPM

(IPCC Third Assessment Report

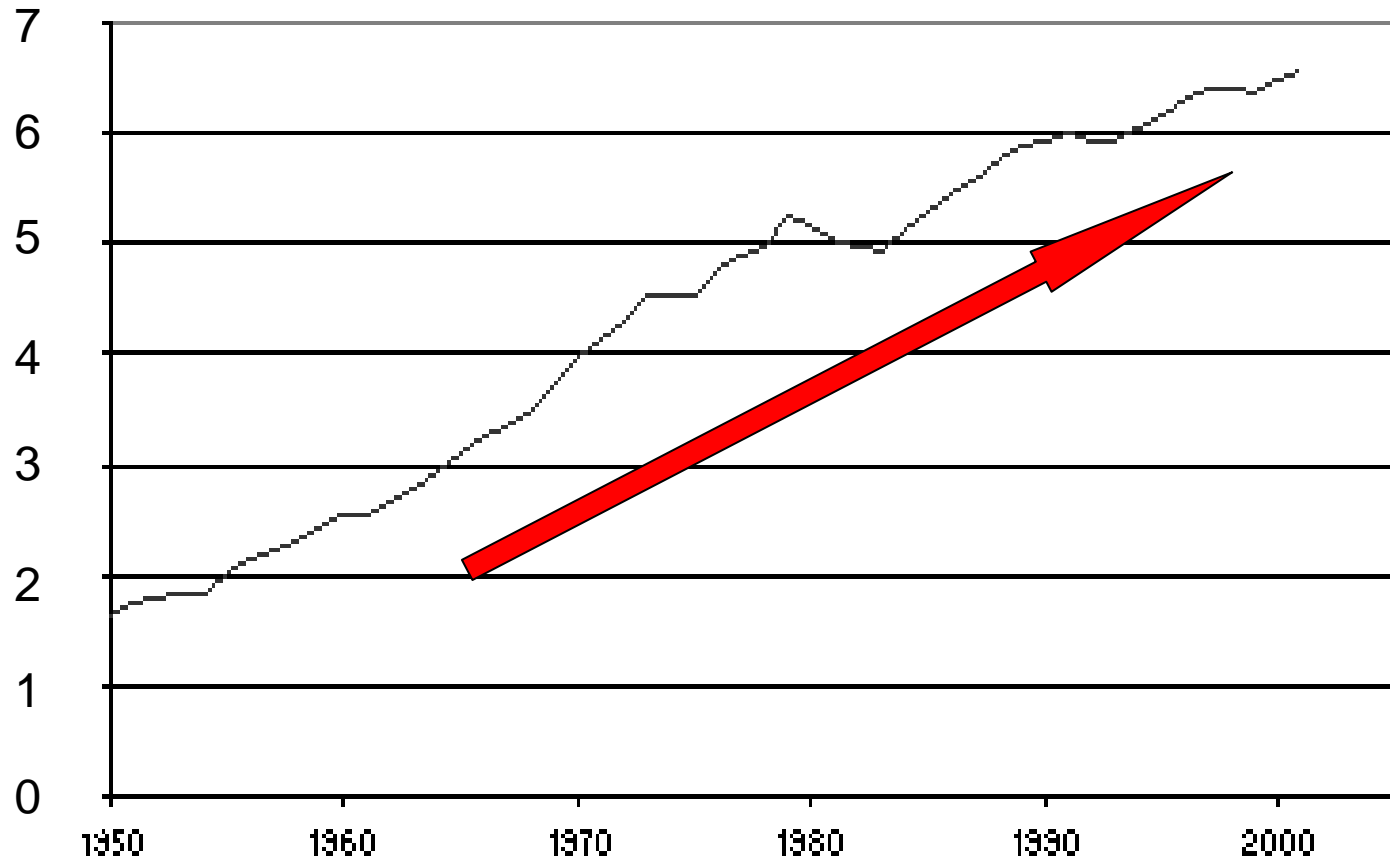
- Climate Change 2001)

About **three-quarters** of the anthropogenic emissions of CO₂ to the atmosphere during the past 20 years is due to **fossil fuel burning**.

The rest is predominantly due to land-use change, especially deforestation.

Carbon emission transition by Fossil Fuel burning in the world from 1950 - 2001

(1billion)



Worldwatch Institute

SO,

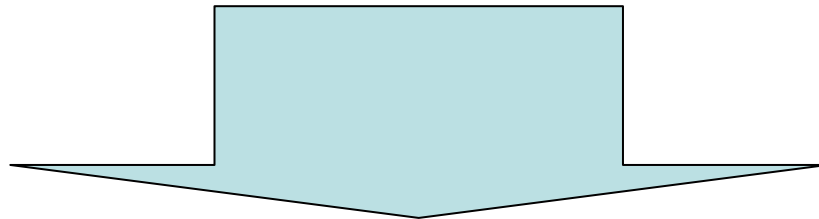
The Energy Issue

(Especially,

CO2 emission from Fossil Fuel)

is at the core concern of

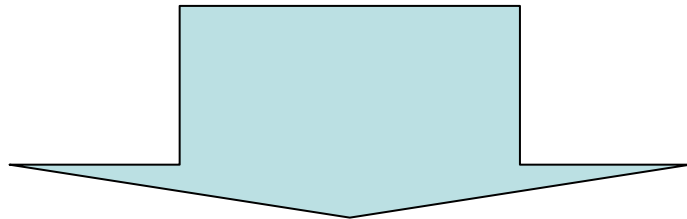
Global Warming problems.



In the long term....

We have to reduce CO2 emission
(=reduce Fossil Fuel consumption)
and use any energy efficiently
(=distribute Fossil Fuel efficiently)
to mitigate the global warming.

**Nevertheless,
Some Wrong
policies are
being exercised.**



Nevertheless,

there are some wrong policies that

INCREASE Fossil Fuel consumption

and,

DISTORT Fossil Fuel efficiency

to mitigate the global warming.

These are
Energy Subsidies.



distort the Price and Efficiency
of Fossil Fuel



It makes CO2 emission bigger.



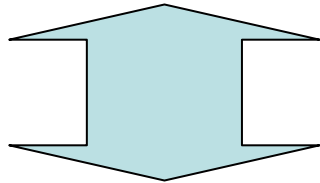
Environmental Harmful Subsidies

What 's Subsidy ?

Effective Economic method

- Public Acceptance
- Various methods

(such as tax cuts · duty exemption)



Though...

Decrease the economic welfare

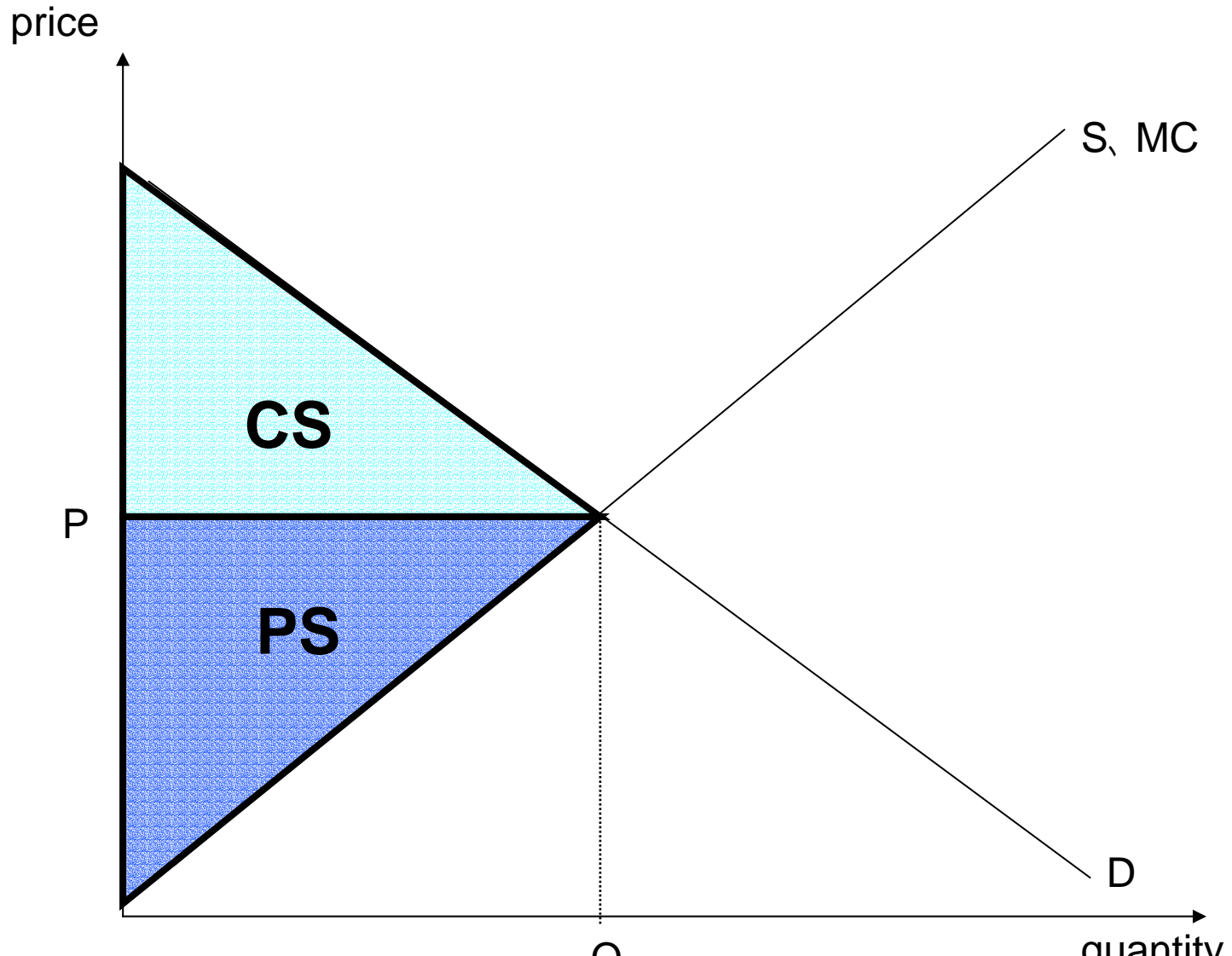
Environmental Harmful Subsidies

What 's the Theory of Subsidy ?

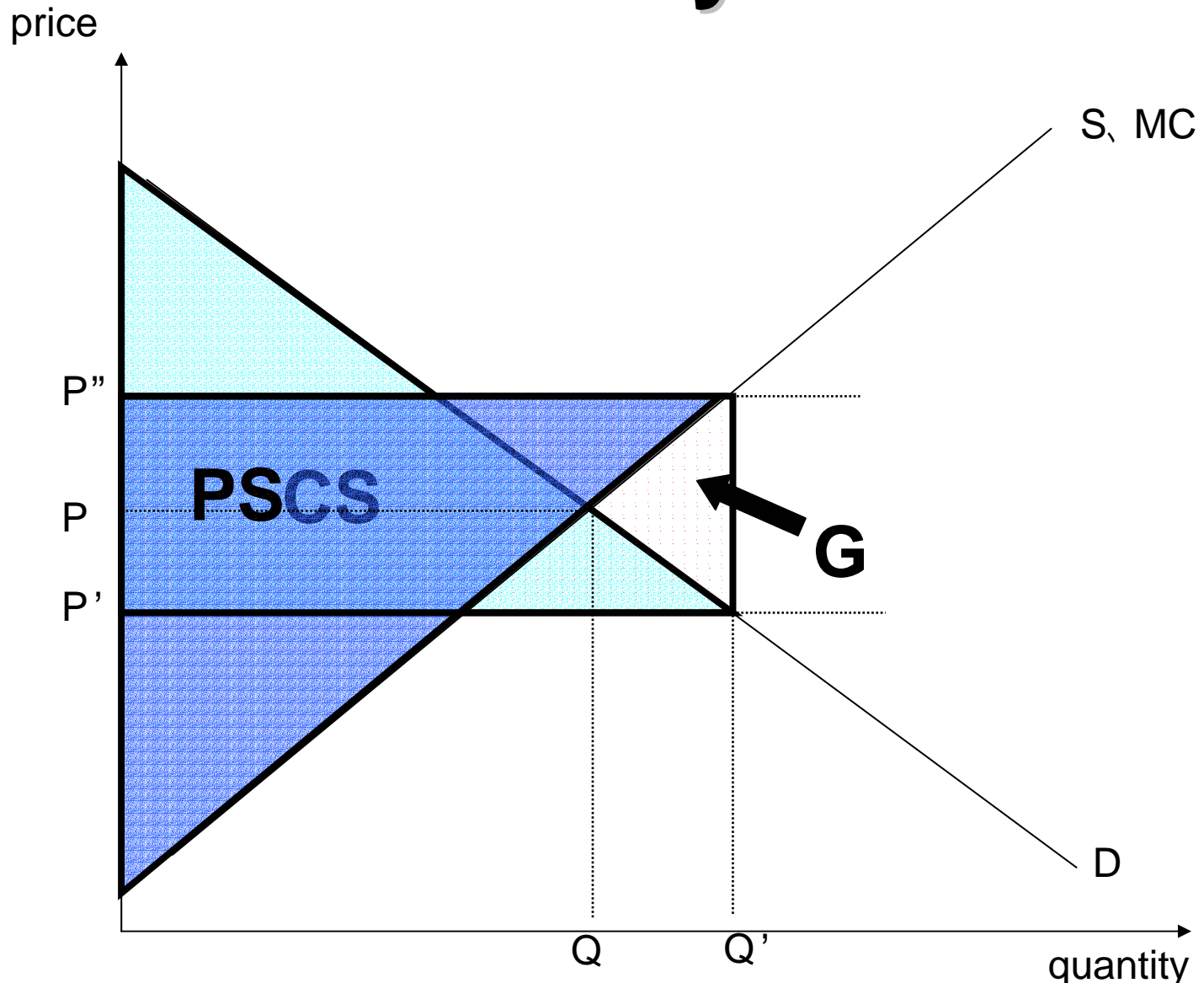
Nature of subsidy

- 1) Loss of economic welfare
(Dead Weight Loss)**
- 2) Subsidies to polluting sectors with
external costs**

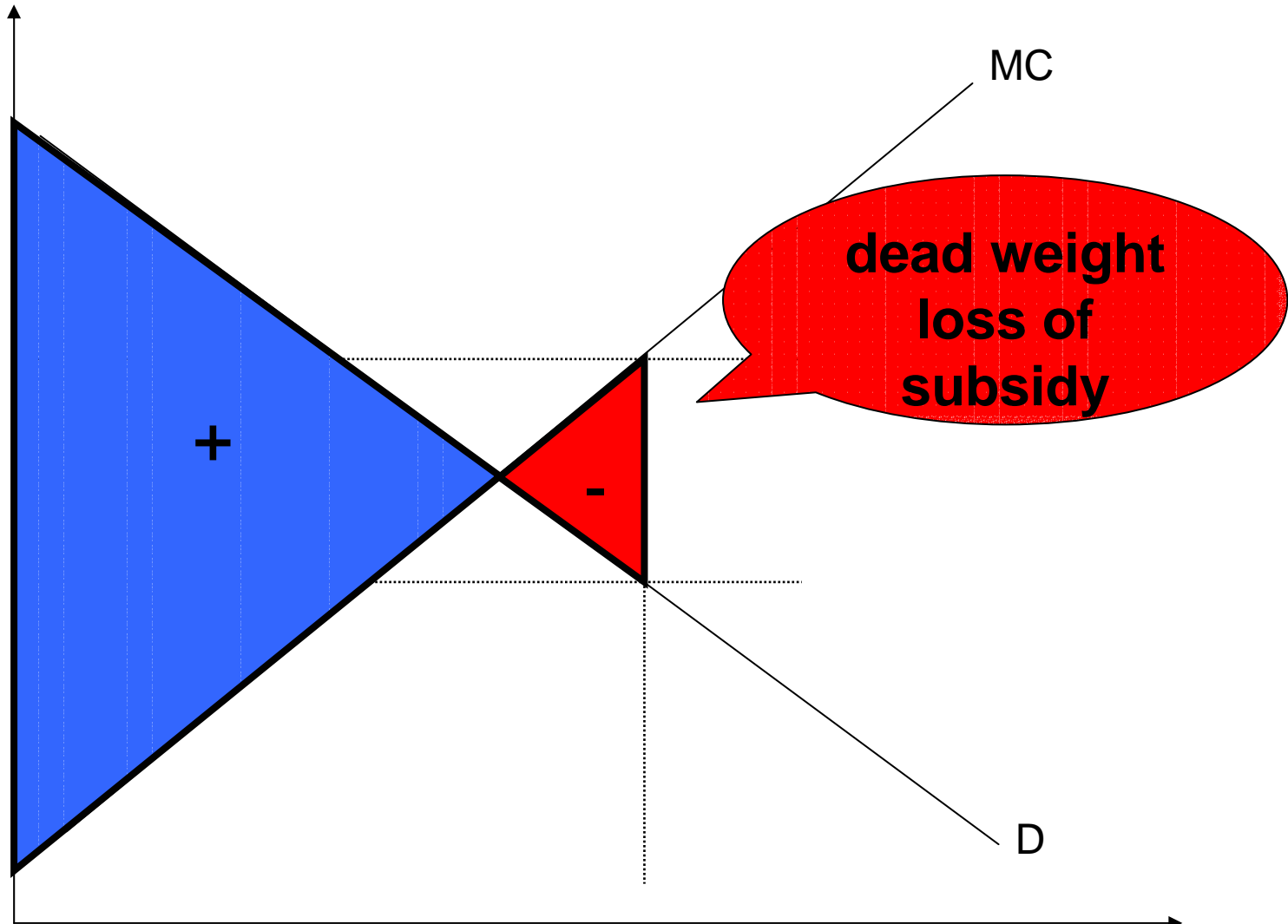
Economic theory of social welfare



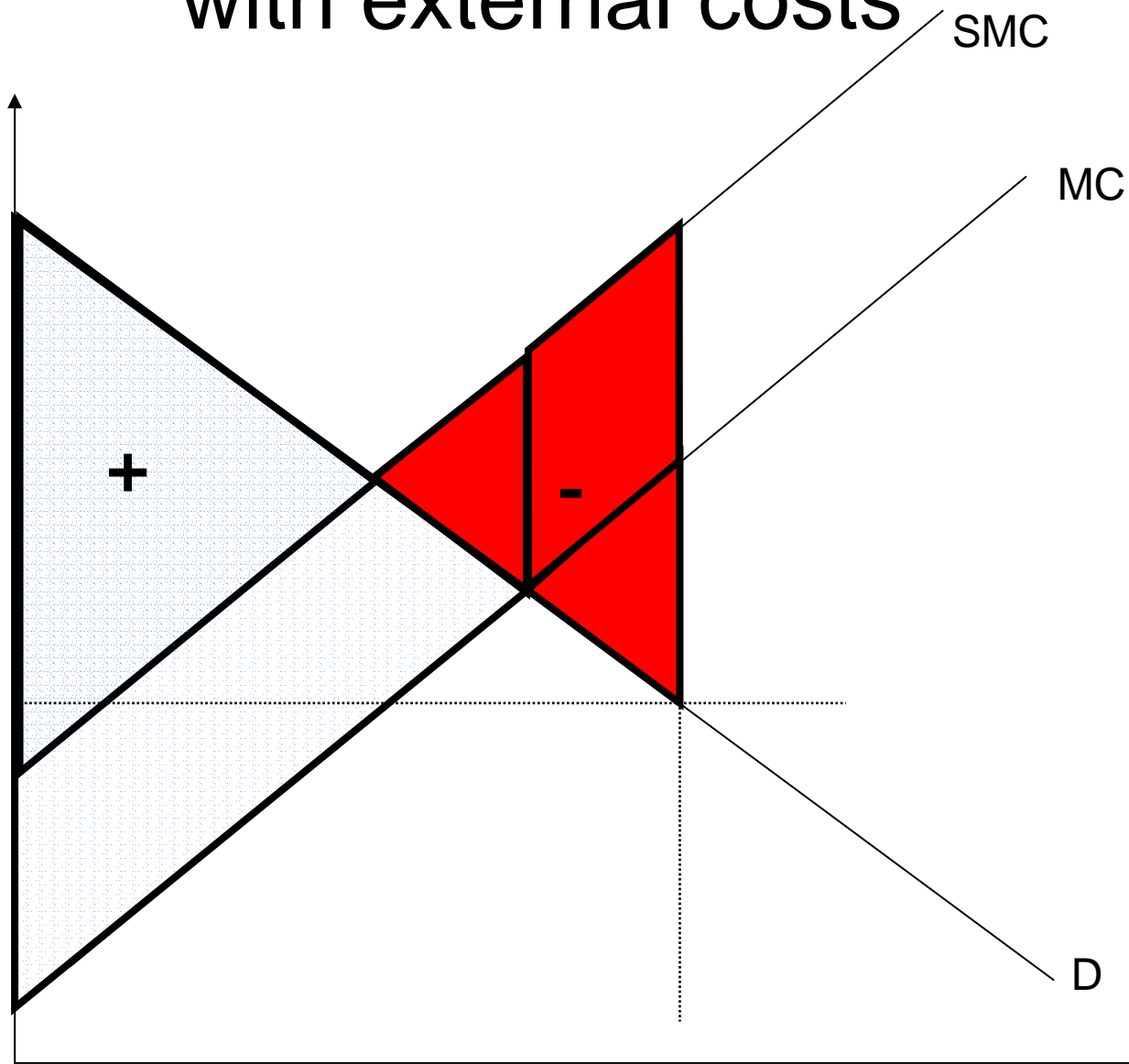
Economic theory of subsidy

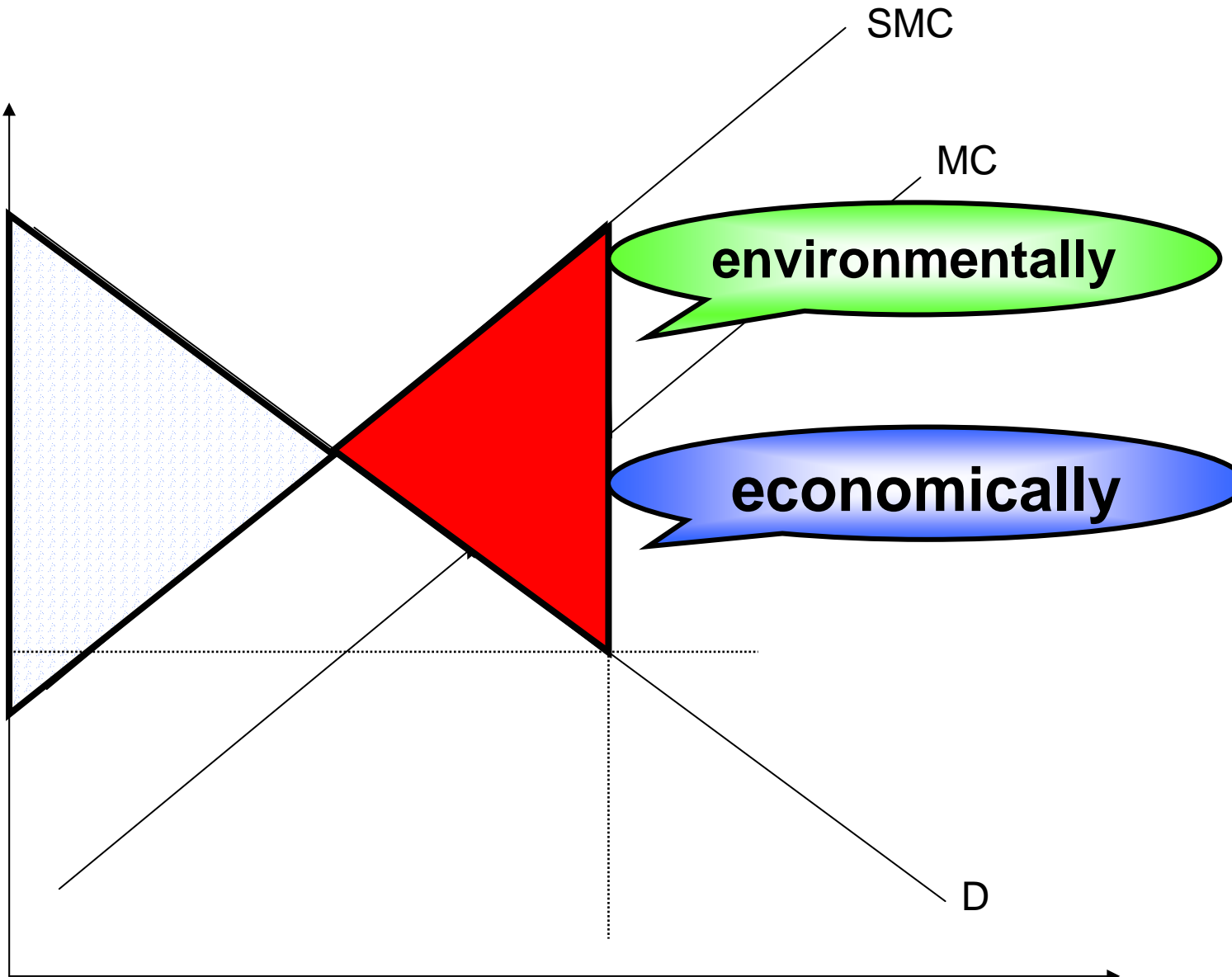


Dead Weight Loss



Subsidy in polluting sectors with external costs





SMC

MC

environmentally

economically

D

Double Benefits

- Removal of EHS



Subsidy current condition

**How much money is spent as
subsidies??**

Estimates of World Subsidies (USD billion)

	OECD	Non-OECD	World
Agriculture	335	65	400
Water	15	45	60
Forestry	5	30	35
Fisheries	10	10	20
Mining	25	5	30
Energy	80	160	240
Road transport	200	25	225
Manufacturing	55	Negligible	55
Total	725	340	1065
Total as % GDP	3.4	6.3	4.0

Subsidy current condition

Many of subsidies are

Environmental Harmful.

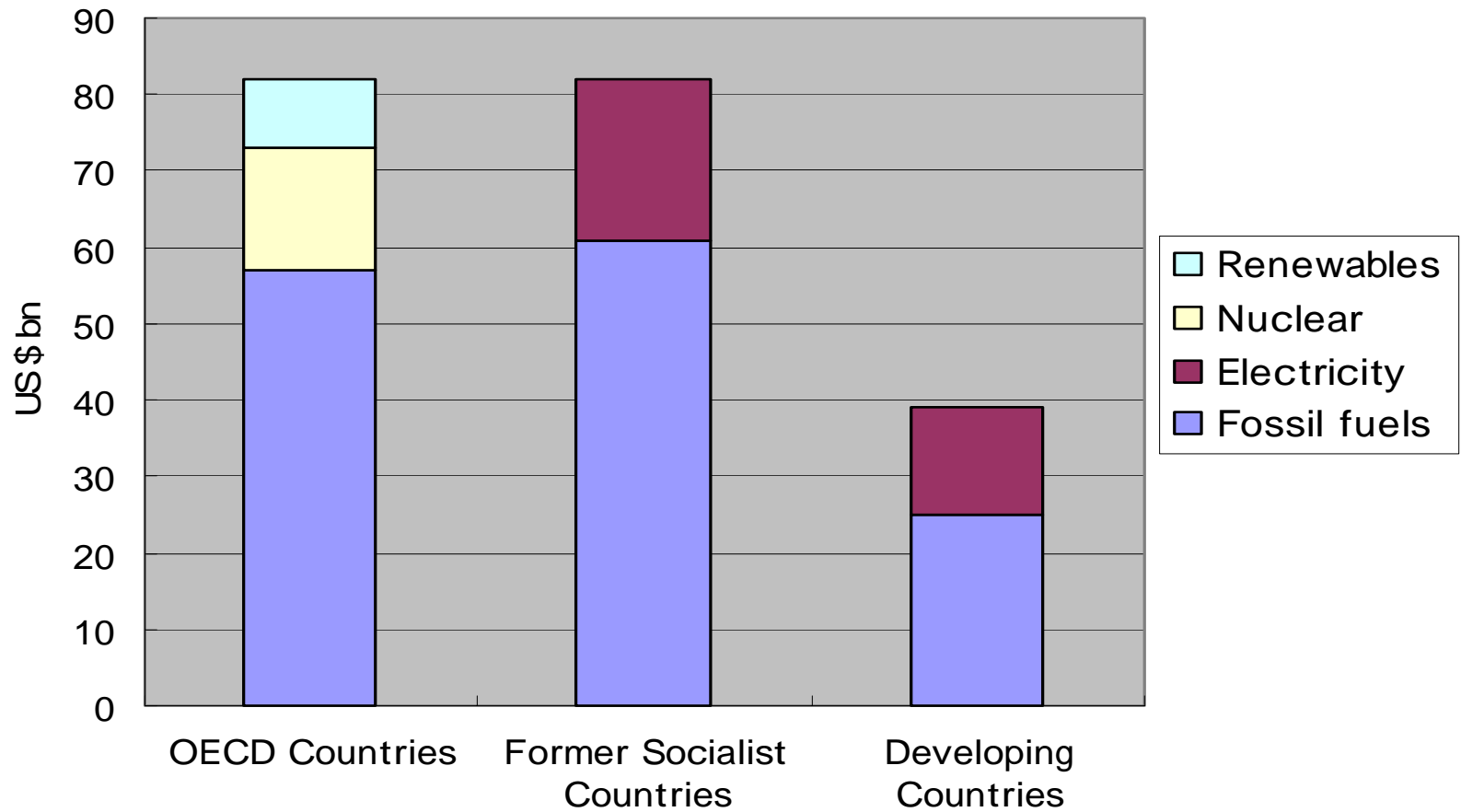
»Agriculture

»Fishery

»Energy

etc...

Energy Subsidies

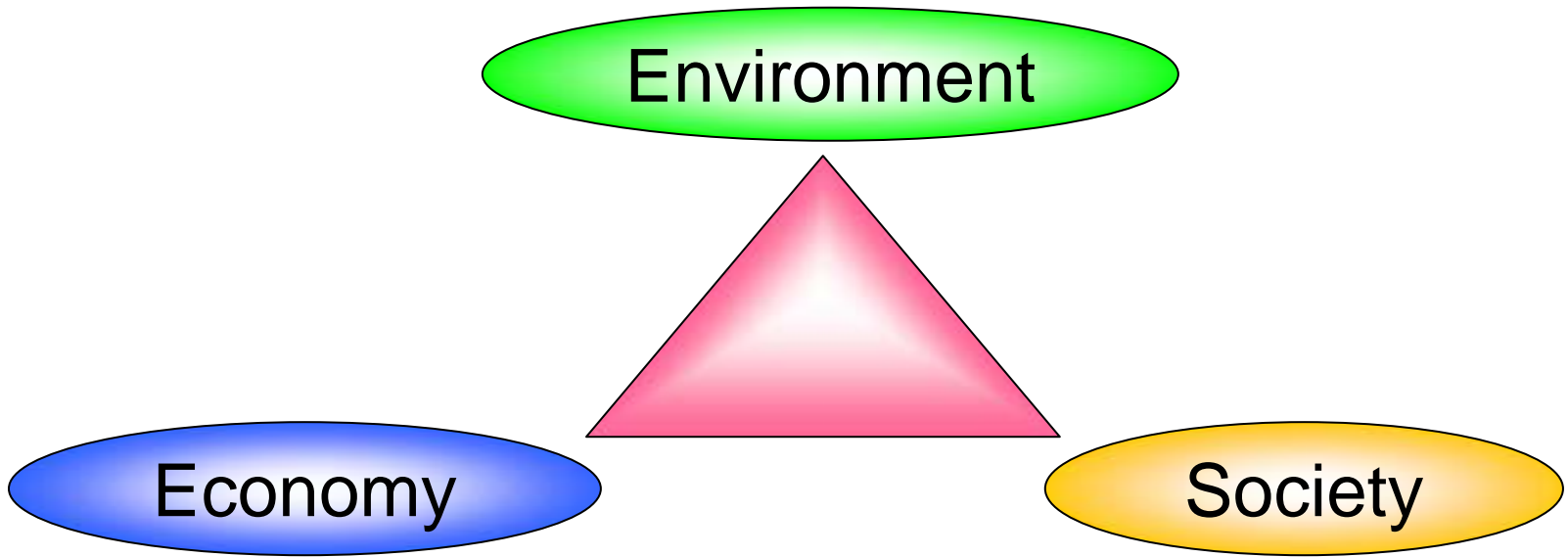


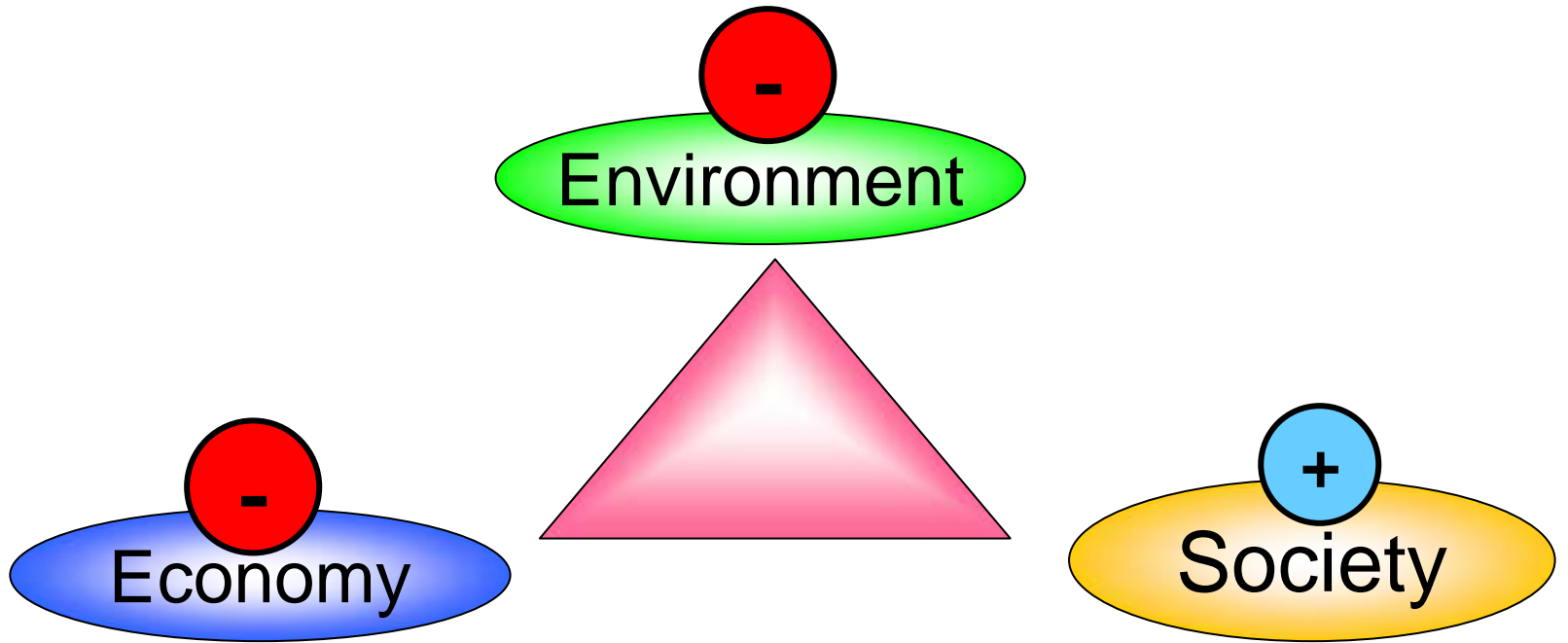
A great number of subsidies to fossil fuels

***What are the reasons of
the persistence?***



Policymakers' decision-making factors

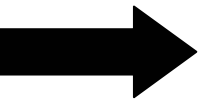




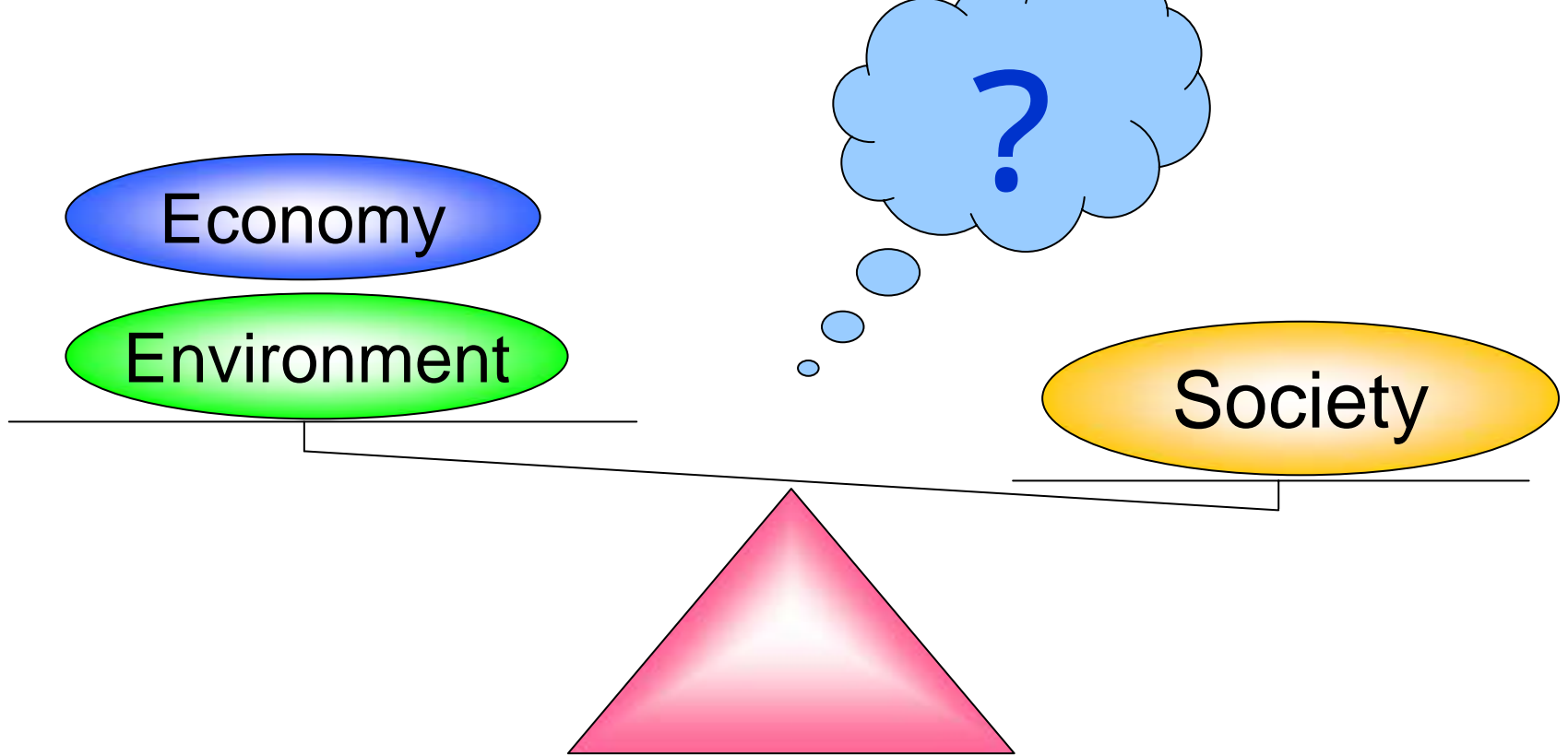
Social Purposes

- Secure employment
- Poverty reduction
- Energy security
- etc

These are important issues but



These do not immediately
justify the existence of EHS



environment + economy > society

EHS: shall be removed immediately

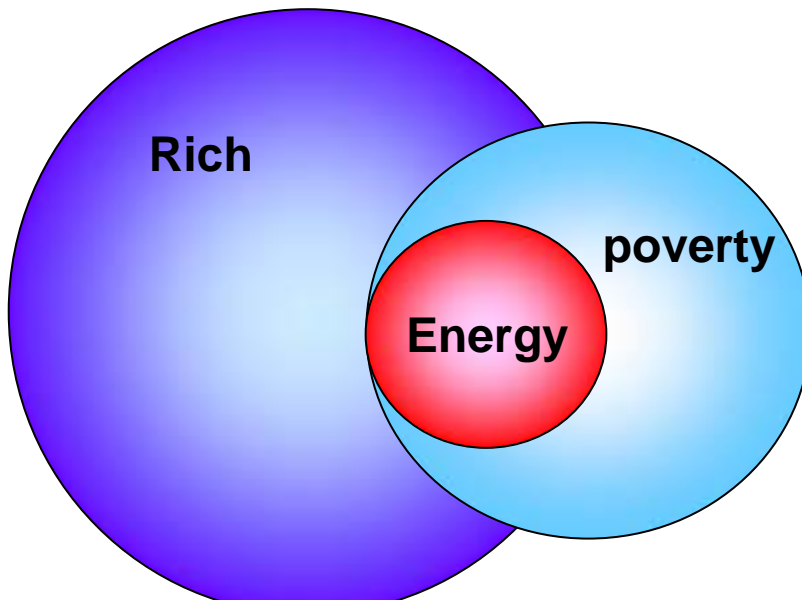
environment + economy < society

?

Poverty reduction

Energy essential for life

Share of energy expenditure in income of poor households is larger than those in the richer.



actually...

Share of energy expenditure in household budgets(%)

	Uganda	Ethiopia	India	South Africa	UK
Poverty	15.0	10.0	8.5	7.2	6.6
Wealthy	9.5	7.0	5.0	5.5	2.0

Sources: African Energy Policy Research Network, Tata Energy Research Institute(2001), Davis(1998); Department of Trade and Industry(2002)

Subsidies are given for reducing poverty

But...



Subsidies actually do not solve poverty problems.

Case study

LPG subsidy in India

Subsidizes to

small cylinder of LPG

for cooking and water heating

The rate of support **31.6%**

(source: IEA World Energy Outlook 1999)

Purposes of LPG subsidy

Expanding access to
modern energy



Wood fuels indoor air pollution



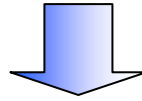
high infant mortality rate

failure to expand access to modern energy

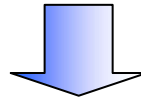
LPG
subsidy



demand for energy



shortage of energy supply



limited sales area of LPG

(only in regions with more than
20,000 inhabitants)

Consequently,

**only richer households benefit.
(causing expansion of income inequality)**

failure to improve Infant Mortality Rate

(per 1000 live birth)

	1998	2000	2002
India	69	68	65
Japan	4	3	3

(source: United Nations HP)

**No substantial
improvement seen**

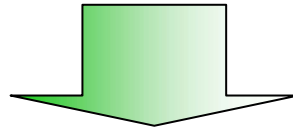


Implications from case study

LPG subsidy does not contribute to...

expansion of access to modern energy

improvement of infant mortality rate



Failure to fulfill social purposes

The cause of these failures

may not be subsidy itself

but the way of targeting poverty group

But

Targeting is difficult

(large monitoring costs)

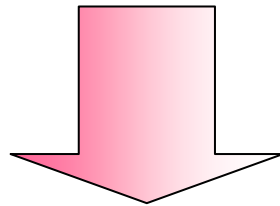
Even if properly targeted

Access to energy can not always
reduce poverty

To reduce poverty . . .

It is essential to

raise the standard of living !!



Policies that raises their income

Policies that raises their income

Policies that boost economy

- Fiscal policy
- Monetary policy

Income support policies

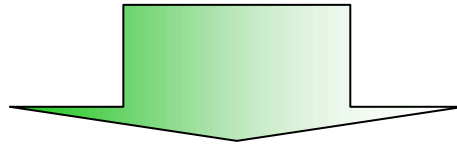
- Basic income guarantee

But

Some governments have no money to carry out such policy.

Protective policies in developed countries (ex. subsidies to agricultural products)

reduce the competitiveness
in developing countries

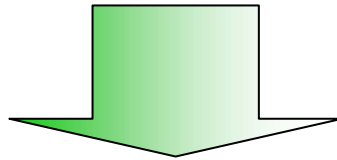


**Reform of protective policies
contributes to reducing poverty**

Poverty reduction

There are policies

that do not damage to { economy
environment

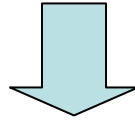


**EHS is not justified
for reducing poverty!!**

Maintaining employments

Unemployment = big public concern

{ leads to poverty
depresses economies



distrust of governments
RIOTS!!

Unemployment issue cannot be neglected!

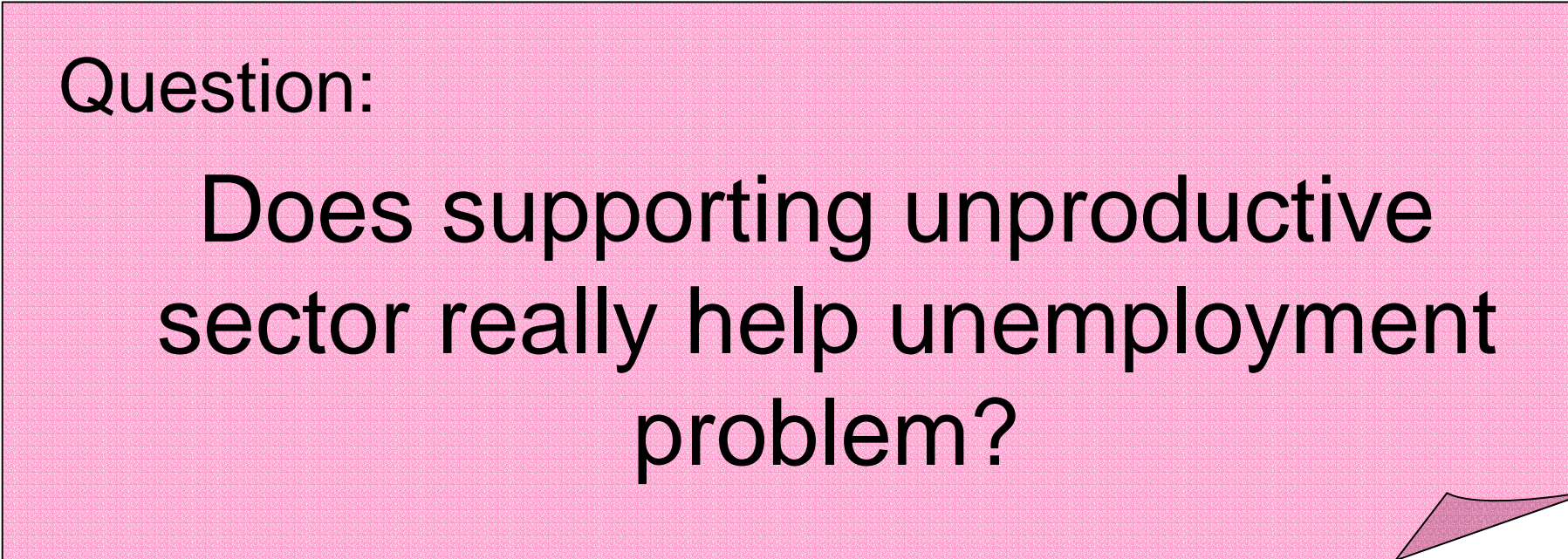
State supports to weakening industries



maintain the existing employment

Question:

Does supporting unproductive
sector really help unemployment
problem?



What is Unemployment?

Internationally agreed definition by ILO

Unemployment is the state of being:

- 1) work less than 1 hour per week
- 2) seeking work actively over the 4 previous weeks
- 3) ready to start working within the next 2 week.

Fit to work and looking for a job but
cannot find one

Causes of Unemployment

2 major causes:

Depression of Economy

Changes in the industrial structure

Depression of Economy

Economy decline

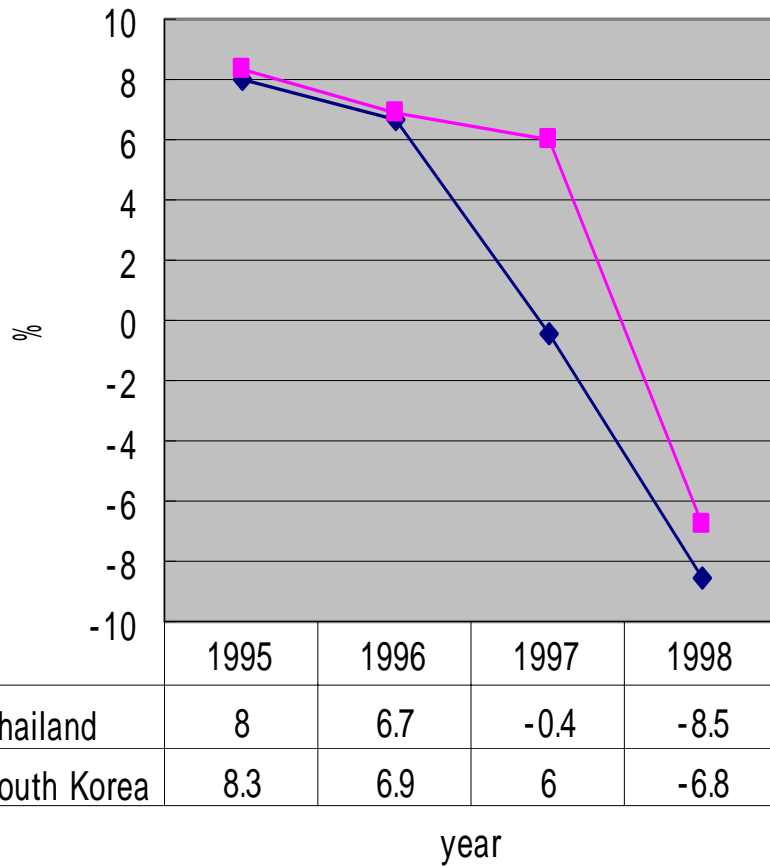
Decreased revenues

Restructuring

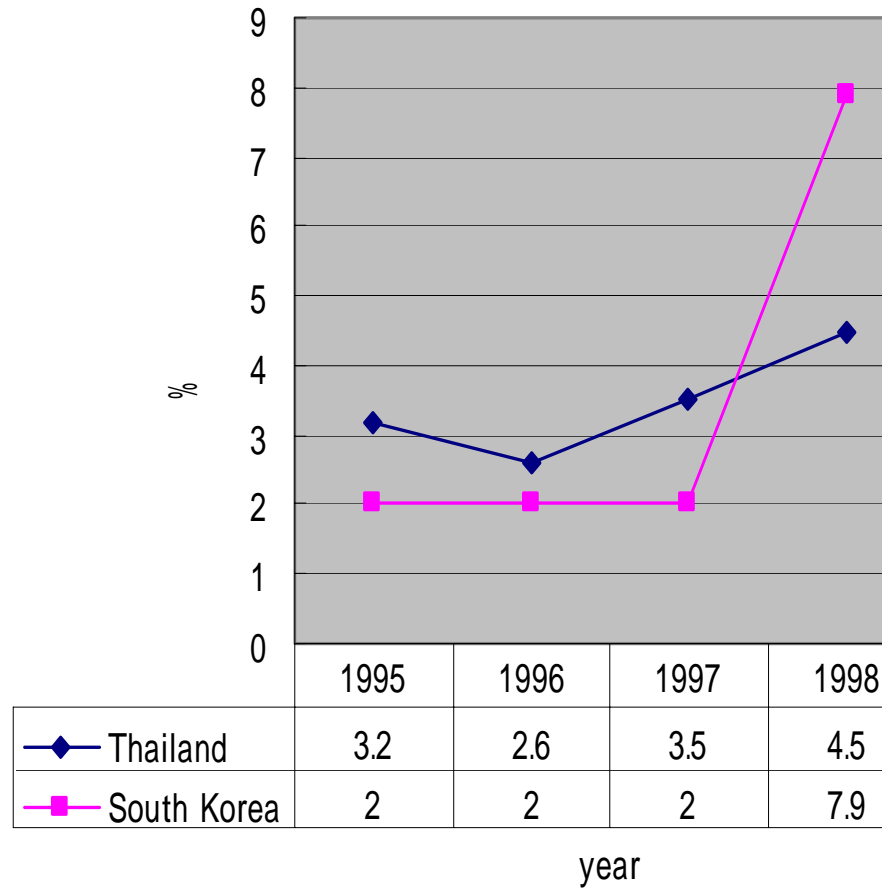
Dismissals, lay-offs

Example: Asian monetary crisis 1997

real GDP growth rate 1995-98

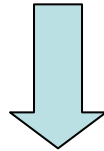


Unemployment rate 1995-98



For this type of unemployment...

Recovery of the Economy



First Remedy

-Macroeconomic measures

{ monetary policy
fiscal policy

-Active investments in the development of growing, promising sectors

EHS to Maintain Employment

EHS = supporting **weakening** sectors

- Retrograde, conservative support
- Obstacle to economic recovery

In the broad view, not a good measure

Welfare

Environment

Employment

Changes in Industrial Structure

Industrial structure

1. Primary industry...agriculture, fishery
2. Secondary industry...mining, manufacturing
3. Tertiary industry...advanced services,
monetary facilities

Proportions change through development

Economic development primary tertiary

Changes in Industrial Structure

Development

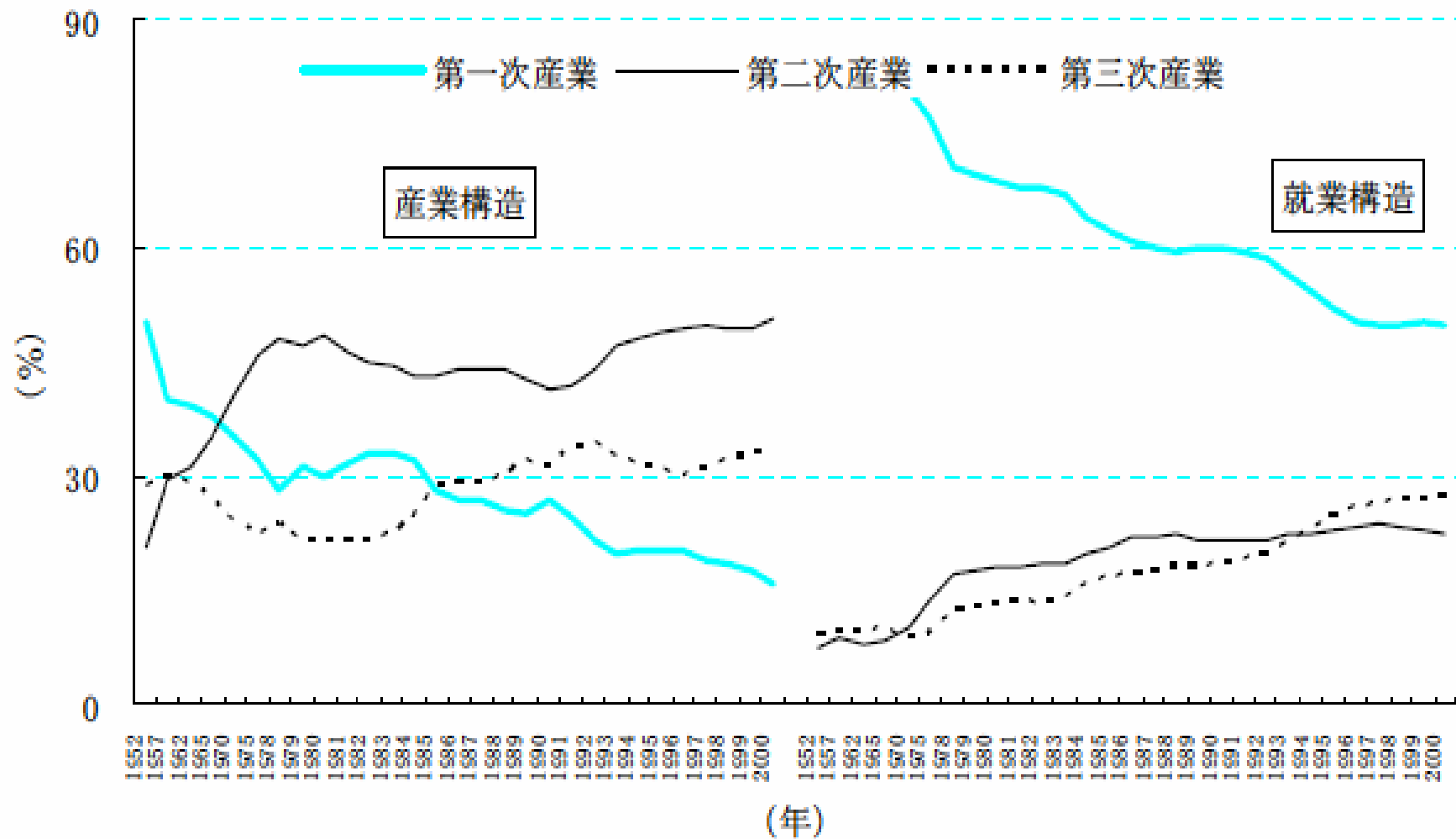
Sophistication of social needs

Demands for labor force shift accordingly

Unemployment results in diminishing sector

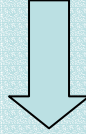
**If transfer of labor force is stagnant,
unemployment increases!**

図2 中国の産業構造と就業構造の変化



For this type of unemployment...

Smooth transfer of labor force



Best Remedy

Difficulties

- Mismatch of reservations
- Lack of information

Measures

- Broader access to employment agencies, counselors
- Strengthen carrier education

EHS to Maintain Employment

Example) EHS to Coal Industry

Economic development in Japan

diminishing of coal mining

Coal self-sufficiency rate

1940s 98%  1997 2.9%

Support means confining labor force in the
unproductive sector
hinders economic development
not a good employment policy

The world is now moving towards Greener, Sustainable Society

World's mind is shifting from fossil fuels
towards cleaner energy

Industrial Structure is shifting towards
sustainable society

EHS will hamper this stream

EHS

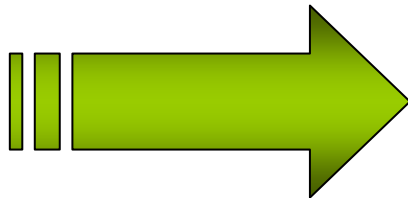
Economic Welfare	BAD
Environment	BAD
Unemployment	BAD

Cannot be justified in exercising as
employment policy!

Energy Security

- Confusion in the Middle East
- Hurricanes

Lack of energy supply

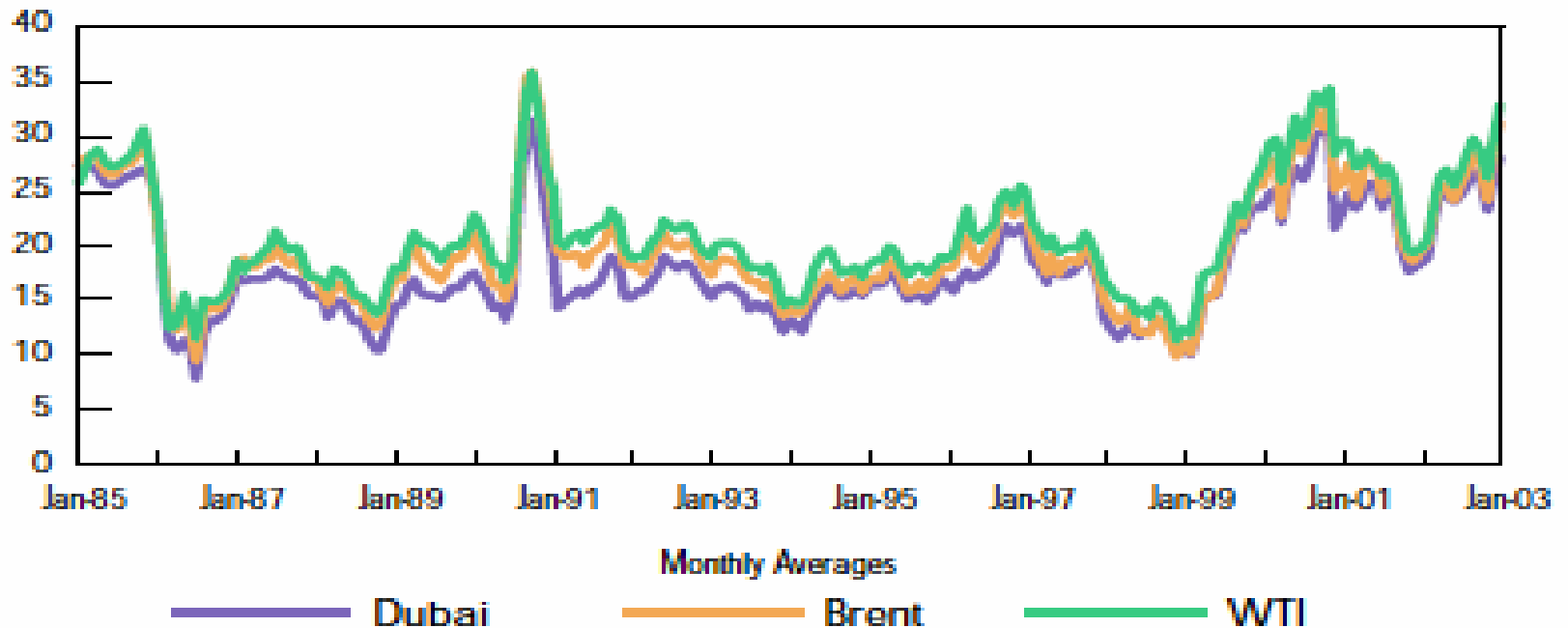


Market reacted sensitively

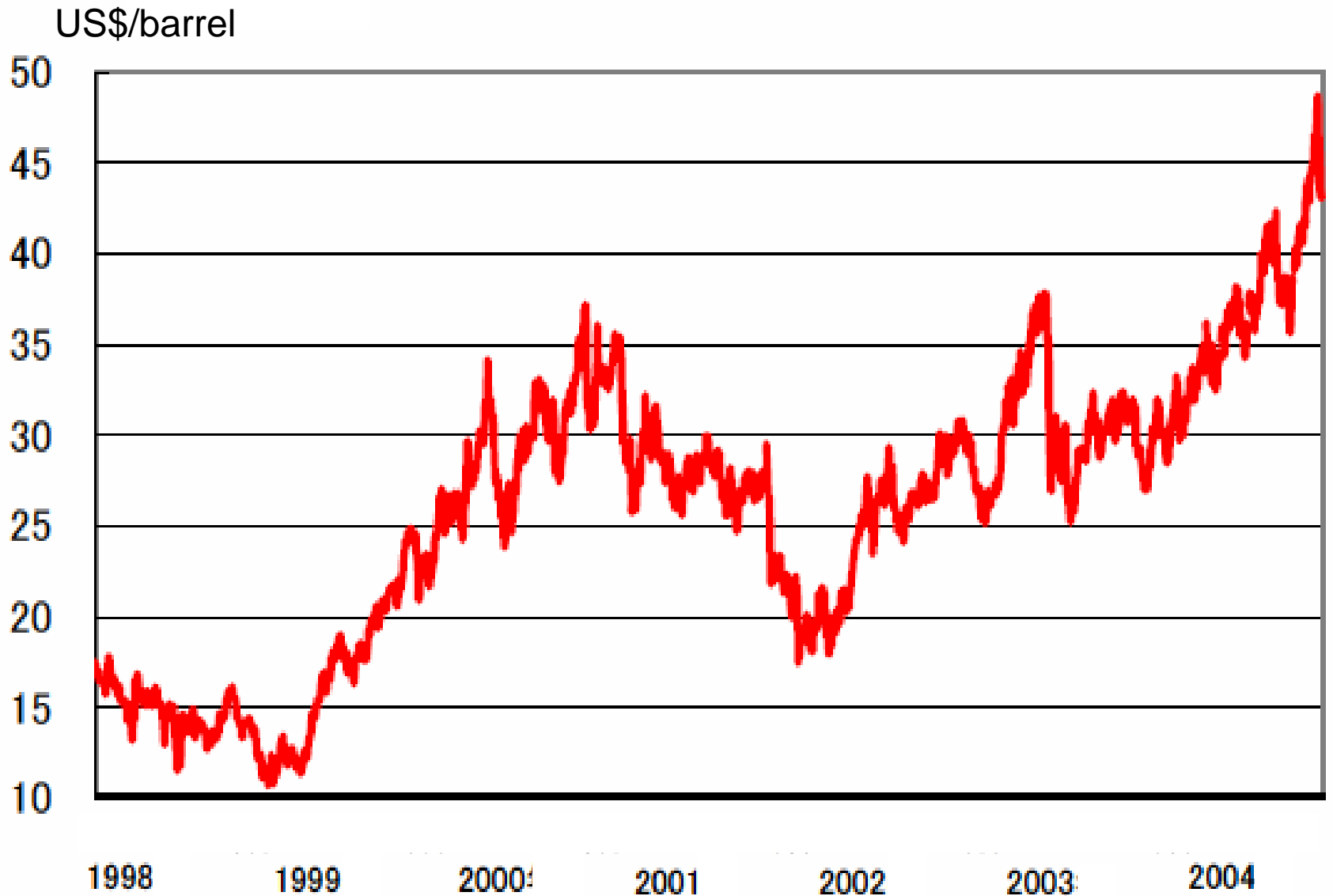
Volatility of crude oil prices

Crude Oil

Key Crude Oil Spot Prices in US Dollars/barrel



WTI crude oil spot prices



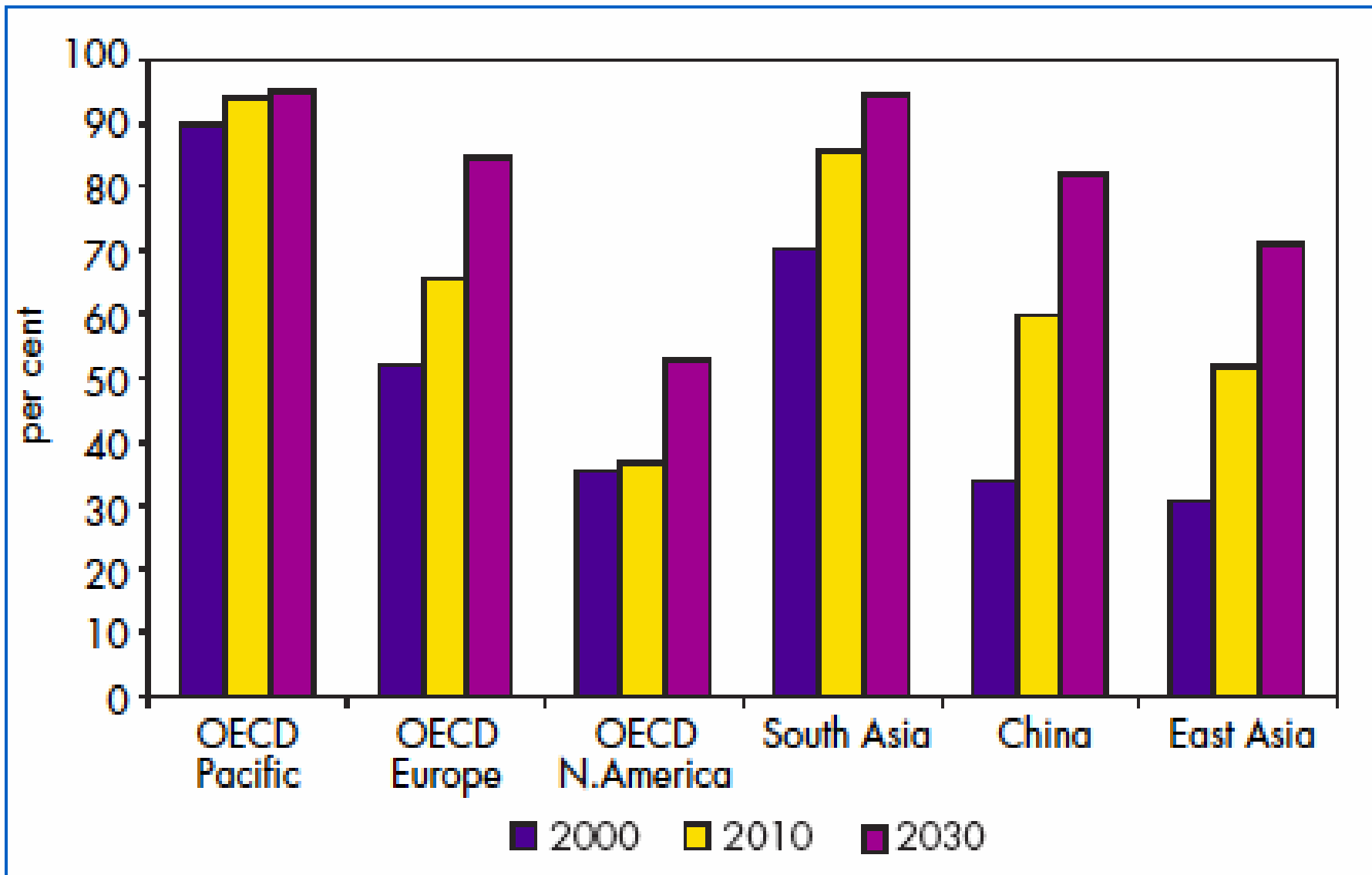
Source: The Institute of Energy Economics, Japan HP

In the future,
Import dependency of
each country



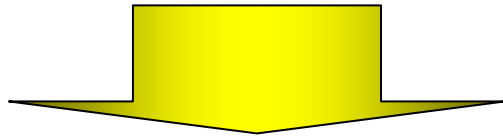
UP!

Figure 3.7: Oil Import Dependence by Region



Source: Energy outlook2003 p108

- Forthcoming resource constraints
fear of lowering energy security



“Improvement of energy security”
becomes more and more important!

What should be done to secure energy?
(Are EHS' needed or not?)

General ways to improve energy security

< short term >

- stockpiling

< long term >

- Diversification the sources of supply
- Improvement of efficiency
- Increase of domestic supply
- etc

stockpiling

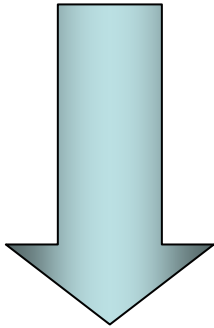
- IEA 90days of oil stockpiling
- When supply disruption occurs
release oil stock into markets

works as safety valve
of market price

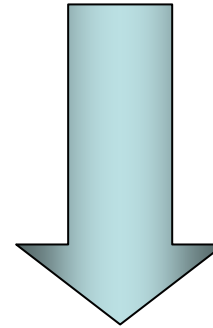


stockpiling

economy

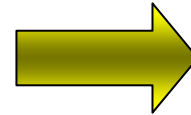


environment



Diversification of the sources of energy

- suppliers
- Primary energy sources

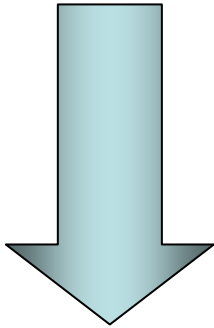


diversify

need for
risk management

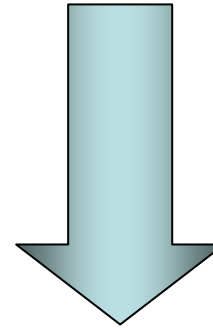


economy



small costs

environment



little negative impacts

Improvement of efficiency

< power generation >

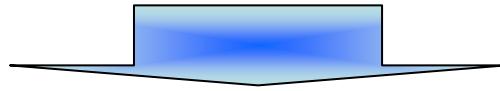
Improvement same electricity with less fuels

< save energy use >

Shift for less energy intensive technology
less demand for electricity

Saved fuels

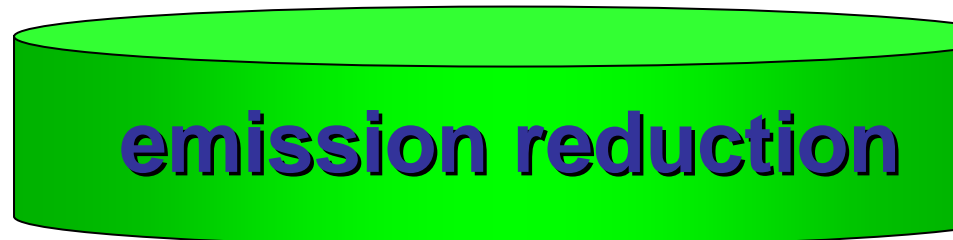
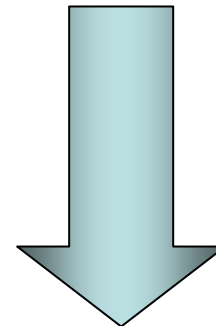
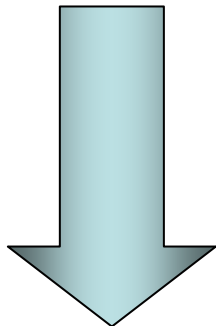
- • • unnecessary for additional import



improvement of energy security

economy

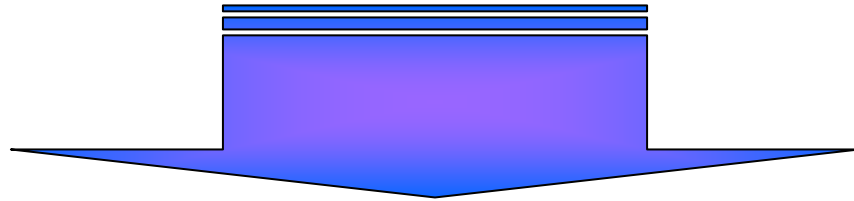
environment



Increase of domestic supply

Promotion of

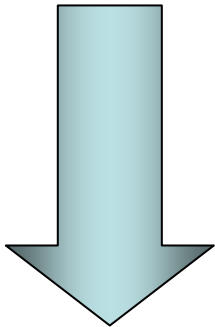
- nuclear energy
- renewable energy



steady acquisition of clean energy

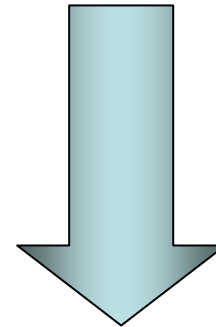
Increase of domestic supply

economy



**insignificant costs
in the future**

environment



**emission
reduction**

- Each measures;
 - **costly at first but promising**
 - **beneficial for environment**

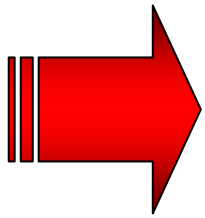
How about subsidizing for domestic fuels such as coal and oil?

Cost-effective?
Environmentally-friendly?

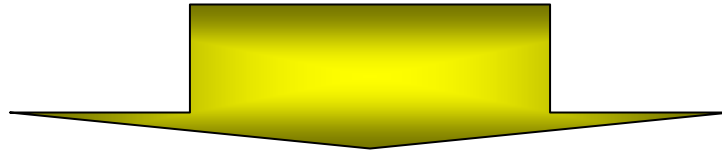
Are they more

Subsidies in fuel exporting countries

Lowering domestic energy price



demand for energy use



energy for export

need for import

Subsidies in fuel exporting countries

- worsen energy security !***
- economic loss by decreased revenue
from energy export !***
- increase of CO2 emission !***

Nothing but the worst way

Subsidies in fuel importing countries

Subsidies for coal are common
prevent damages from supply disruptions

But...

is it essential to subsidize less productive domestic coal?

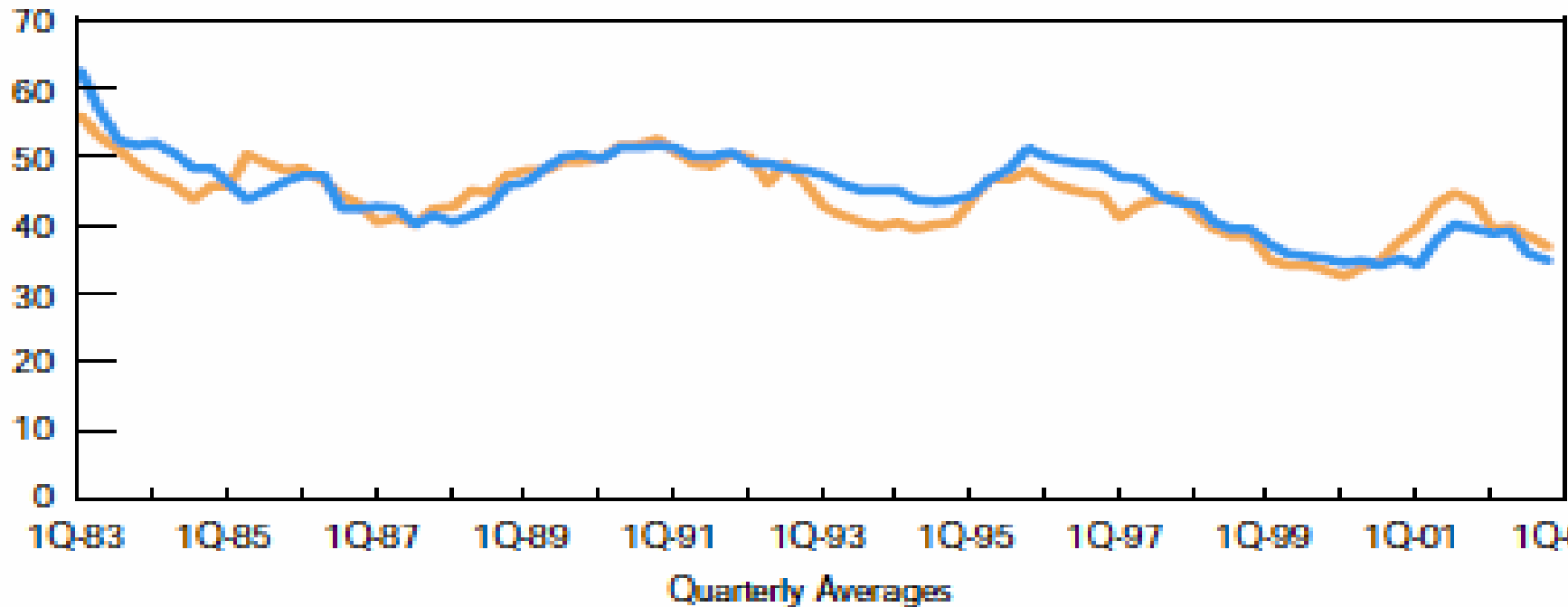
Coal exporting countries

exporters	coal(Mt)
Australia	198
China	86
Indonasia	73
South Afriva	69
Russia	45
United States	35
Colombia	34
Canada	27
Poland	23
Kazakhstan	14
Rest of the World	36
total	640

Volatility of coal prices

Coal

Steam Coal Import Costs in US Dollars/tonne

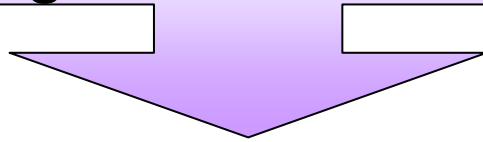


— EU

— Japan

Subsidy(EHS) necessary?

- Coal producing countries
politically & economically stable
- Price volatility
not so high



little obstacle from import

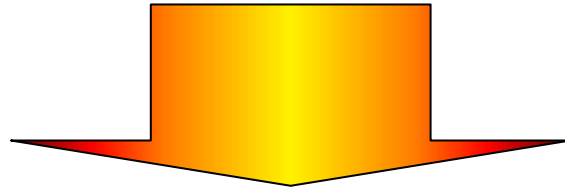
There is no reason to justify EHS in improving energy security!

Improvement of energy security

Other measures:

Economy= better

Environment= better



**Environmentally harmful subsidies
shall not be justified.**

Conclusion

economic losses + environmental damages
> social benefits

EHS could not be justified.

in opposite case

Other measures can achieve the same social benefits with less economic losses & environmental damages than EHS can.

Unless policymakers defeat these 2 points, EHS can not be justified.

References part 1



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