At the workshop held at University of British Columbia, January 31, 2003

Can Japan comply with the Kyoto target?

An analysis of Japanese implementation policy

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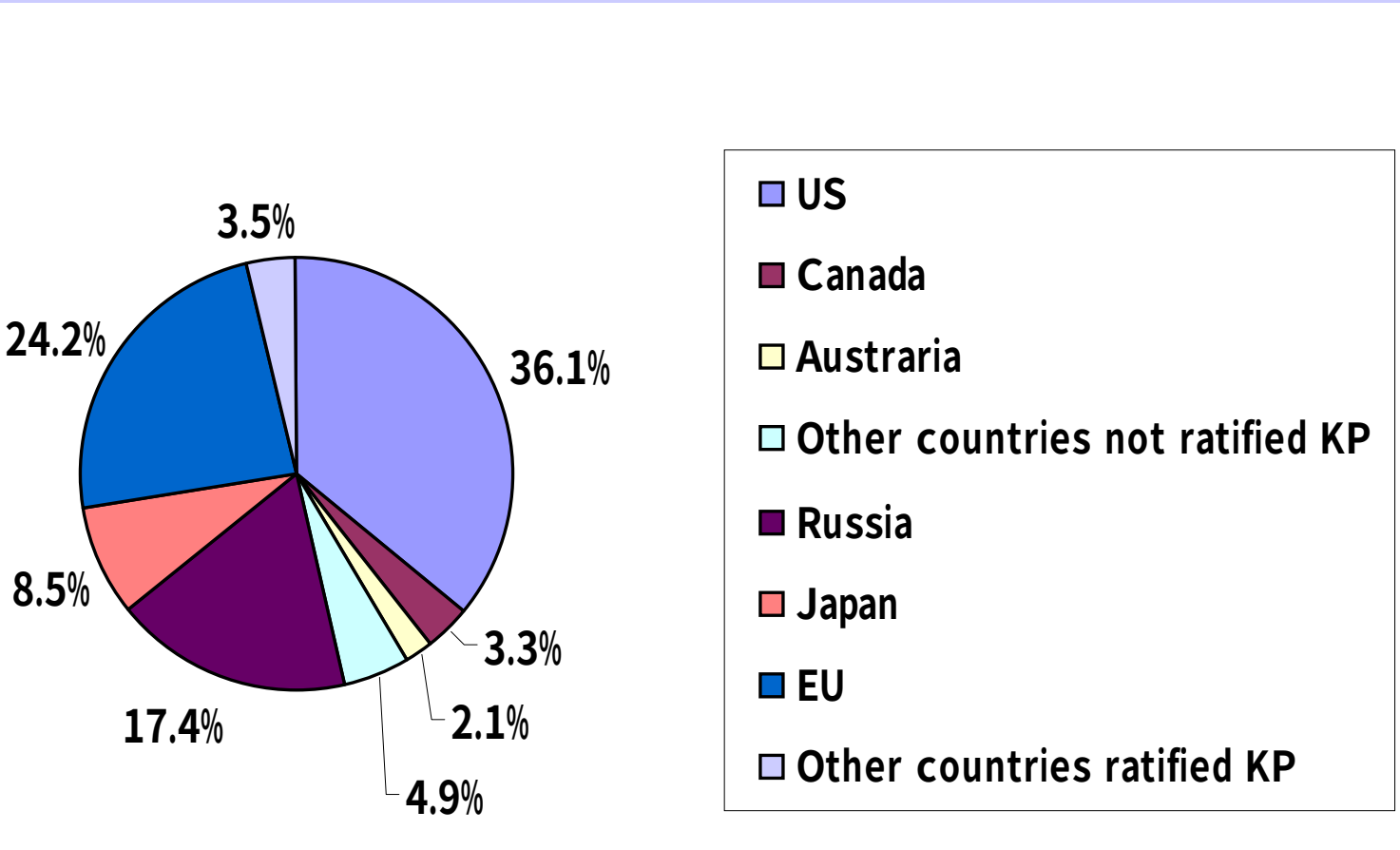
Structure

- Current situation in Japan
- Government Revised Action Plan
- Prospect of Implementation of the Target

then, if time allows

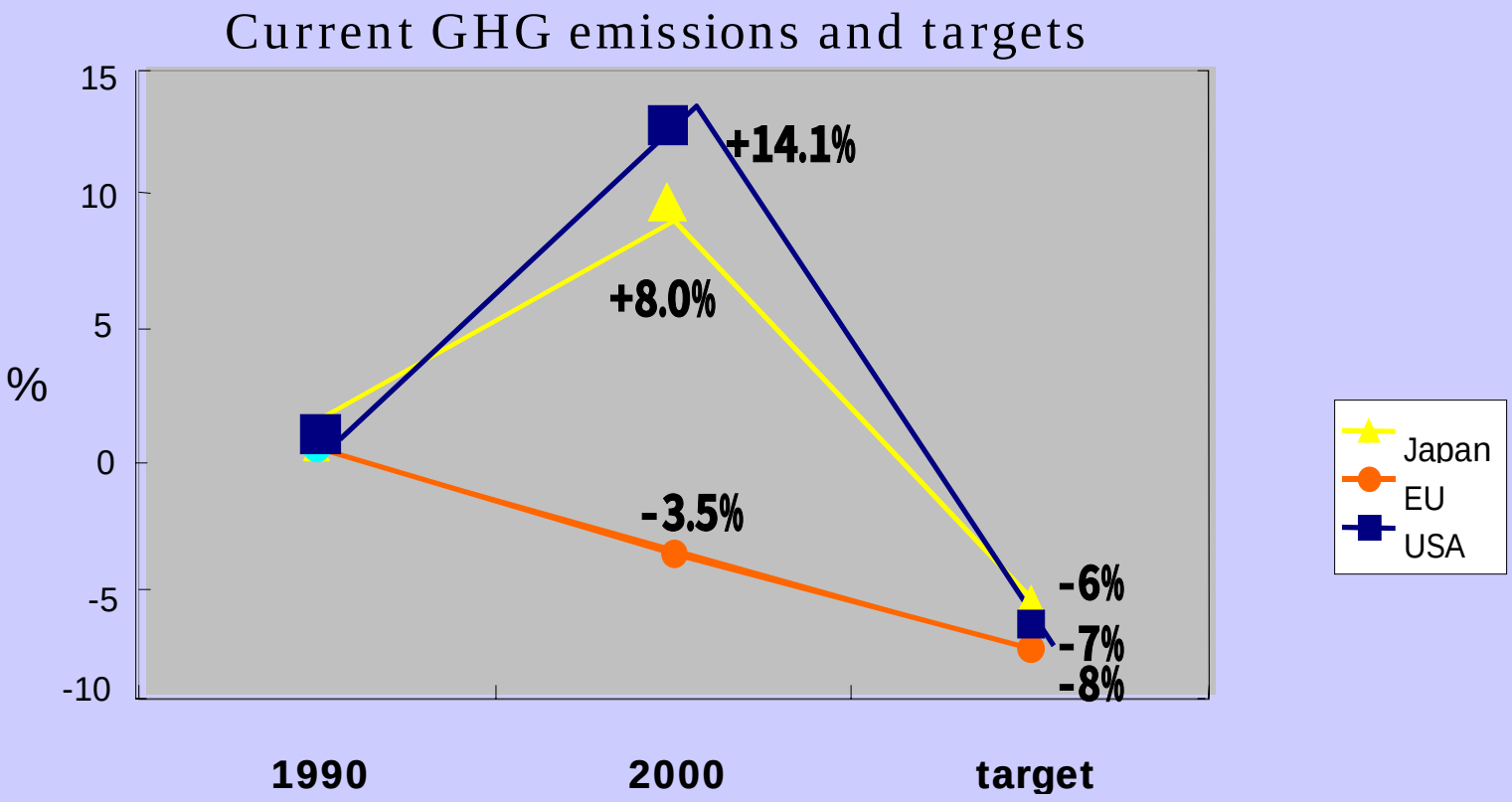
- Mid-term and Long-term Strategy
  (in search of a new regime)

CO_2 emissions of ANNEX1 countries (1990)



Source: UNFCCC

Current position of Japan, USA and EU

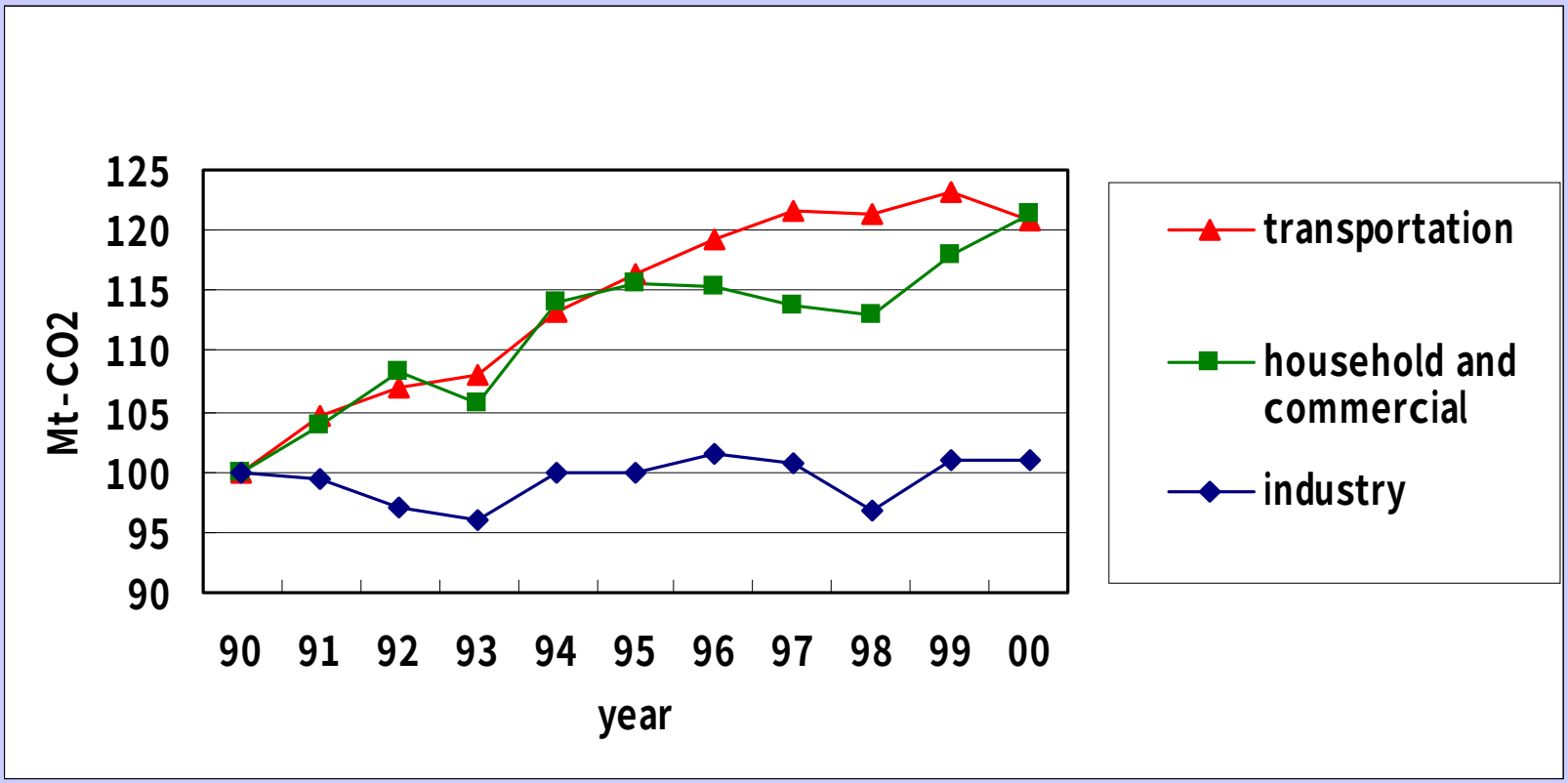


Current situation (2000/1990)

- GHGs emissions in 2000 1,332Mt-CO2 (+8.0%)
- CO2 emissions in 2000 1,239Mt-CO2 (+10.5%)
- Breakdown of CO2 emissions by sectors

  Industry 40.0%, Household & Commercial 25.7%, Transportation 20.7%, Others 13.6%

Increase of CO2 emissions by sector



Government Action Plan

- Introduced in June, 1998
- Reviewed in March, 2002
- Fundamental framework of global warming prevention in Japan
- Contains more than 200 measures

BAU emissions of CO2

20 % increase in 2010

1,266 Mt-CO2 (1,053 Mt-CO2 in 1990)

Government Action Plan (original in 1998)

CO2 (energy origin)	± 0.0%
Methane etc.	– 0.5%
Technological Innovation	– 2.0%
HFC, PFC, SF6	+ 2.0%
Sink	– 3.7%
Kyoto Mechanism	– 1.8%
TOTAL	– 6.0%

CO2 emission stabilization plan toward 2010

	Industry	household/commercial	transportation
Compulsory measures (57.6 Mt-CO2)	strengthening energy efficiency law (11.0 Mt-CO2)	strengthening energy efficiency law (35.6 Mt-CO2)	strengthening energy efficiency law (11.0 Mt-CO2)
Voluntary action plan (41.5 Mt-CO2)	Keidanren voluntary action plan (41.5 Mt-CO2)		
Inducement to Improve energy efficiency (59.8 Mt-CO2)	Measures to improve energy efficiency at SMEs etc. (8.1 Mt-CO2)	Efficiency improvement ar houses & buildings etc. (46.6 Mt-CO2)	Diffusion of clean energy cars etc. (5.1 Mt-CO2)
Indirect measures (24.6 Mt-CO2)			Traffic control etc. (24.6 Mt-CO2)
Drastic change of Life style (23.5 Mt-CO2)		Adjusting temperature of air-conditioning (18.4 Mt-CO2)	Voluntary reduction of car ride etc. (5.1 Mt-CO2)
Total (207 Mt-CO2)	(60.6 Mt-CO2)	(100.6 Mt-CO2)	(45.8 Mt-CO2)

About nuclear energy

- Government action plan was based on the assumption that 20 nuclear power plants (Additional capacity of 25M kW) will be newly built by 2008. This is expected to reduce 107.9 Mt-CO2).
- Based on unrealistic assumption

Two committee's report in 2001

(Even after introduction of various measures)

- Advisory Committee for Natural Resources and Energy July '01

  73.4 Mt (7%) increase of CO2 emission in 2010

  Nuclear power plant construction: 10-13

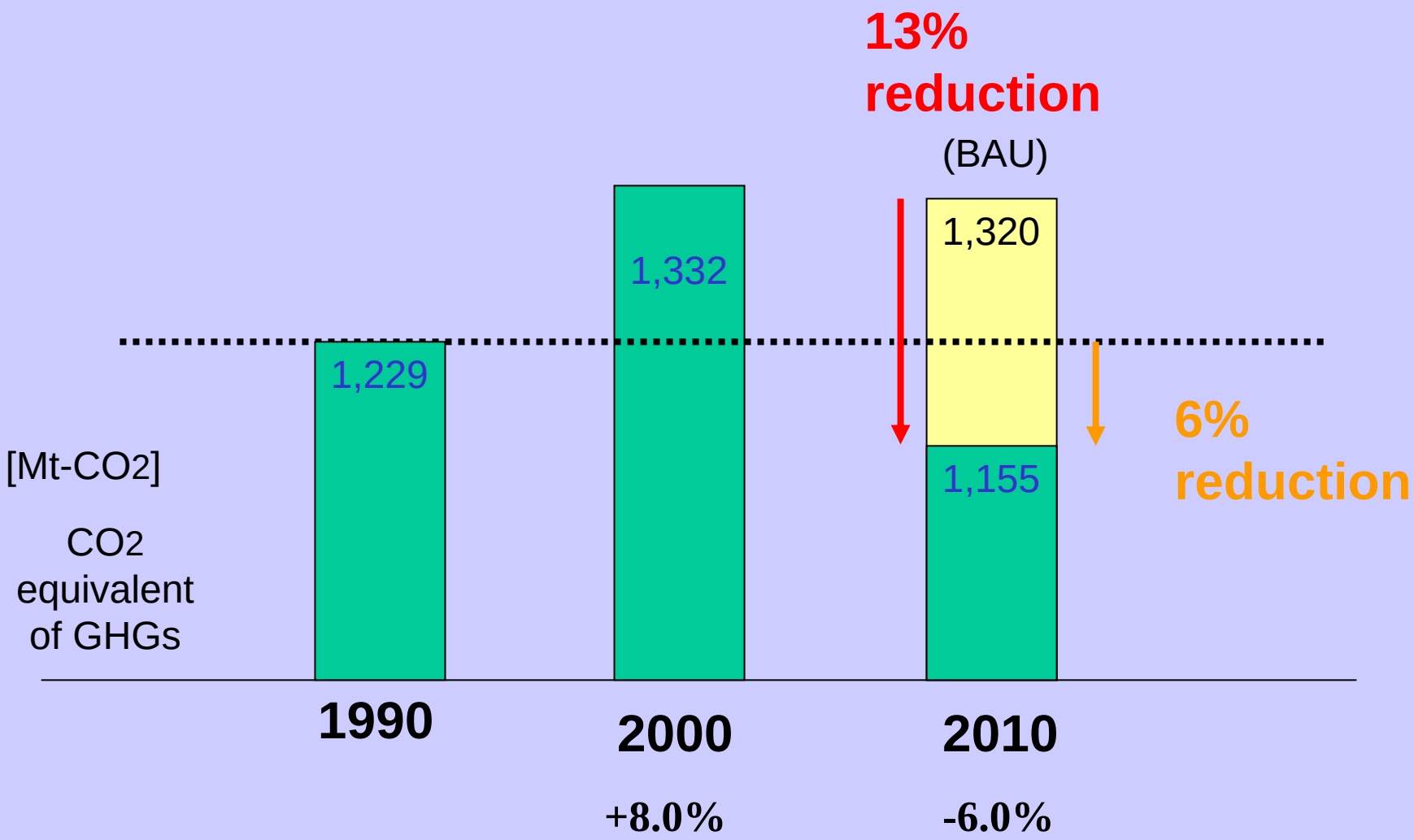
  The Central Environmental Council June '01

  61.0 & 93 Mt increase (5% for case 1 & 8% for case 2 respectively) of GHG emissions in 2010

  Nuclear power plant 13 (case 1) & 7 (Case 2)

- Additional measures should be introduced

13% reduction is necessary



Recommendation of Advisory Committee for Natural Resources & Energy

- To reduce CO2 Emissions by 73.4 Mt-CO2 in order to stabilize at 1990 level

1) Further improving energy efficiency

-22 Mt-CO2 (subsidies, revision of efficiency standards)

2) Promoting renewable energy (up to 3%)

-34 Mt-CO2 (introduction of RPS law)

3) Fuel switching

-18 Mt-CO2

Revised Action Plan (March 19, 2002)

	Revised	Old
CO2 (energy origin)	± 0.0%	± 0.0%
Other CO2 & Methane etc.	– 0.5%	– 0.5%
Innovative Technology etc.	– 2.0%	– 2.0%
HFC, PFC, SF6	+ 2.0%	+ 2.0%
Sink	– 3.9%	– 3.7%
(Kyoto Mechanism)	– 1.6%	– 1.8%
TOTAL	– 6.0%	– 6.0%

Basic Principles

- Compatibility of economy and environment
  - Without compromising economic growth
- Step by step
  - When to introduce economic incentives
- Shared responsibility
  - All actors' participation
- International cooperation
  - US participation

What does “step by step” mean?

- 1st period: 2002 – 2004
- 2nd period: 2005 –2007
- 3rd period: 2008 - 2012

Evaluation of Japanese Action Plan

- Japan ratified the KP in June 4, 2002
- CO2 stabilization plan
  - Nuclear power plant construction
- Relying upon mostly domestic measures
  - 88%: Domestic, 12%: Kyoto mechanism
  - How to evaluate from efficiency standpoint
- Sink
  - How to remove 3.9% of GHGs

CO2 stabilization plan

- Nuclear power plant construction

  Is 10 – 13 new plants (30% increase) feasible?

- Energy efficiency improvement (22.0 Mt)

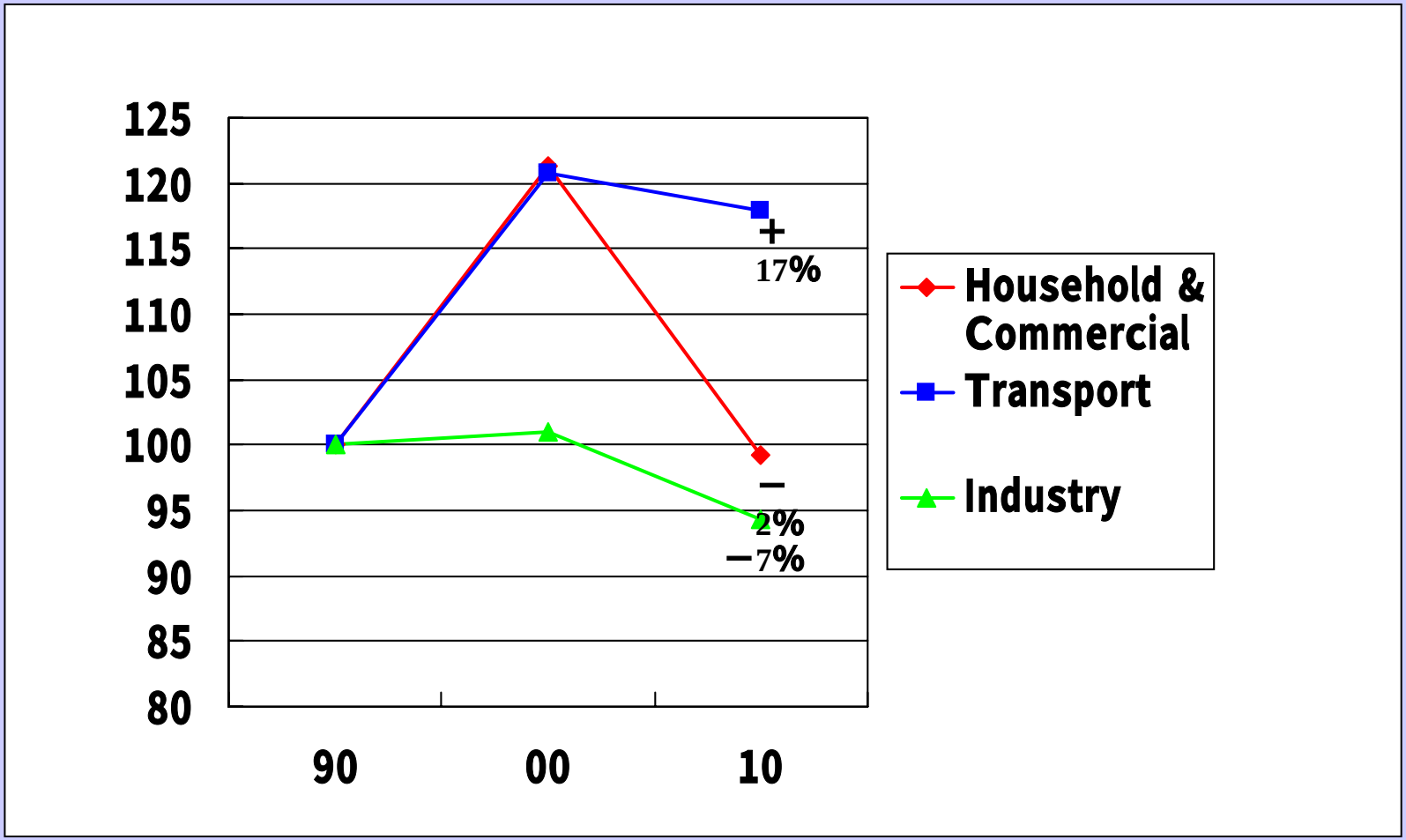
  Extension of top runner standards (2.9 Mt-CO2)

  Promoting Energy Management System (11.6 Mt-CO2)

  Acceleration of TR fuel standard (2.6 Mt-CO2)

Feasibility of CO2 stabilization

Energy demand side



Major assumptions of stabilization Plan

- Annual economic growth 2%
- Construction of nuclear plants as scheduled
- Workable RPS
- Fuel switching
- All measures in DSM be implemented as planned

Criticism from a NGO

- Breakdown of measures contained in it

Achievement of quantitative targets is ensured		17%
Quantitative targets and measures for promotion exist		42%
Administrative targets	(12%)	
Industry voluntary action plan	(29%)	
Measures for promotion exist		20%
Others(enlightenment etc.)		21%
Total		100%

Sink and Kyoto Mechanism excluded, Source: Kiko Network (NGO)

How Japan should implement the Kyoto Target

- Action plan would add pain to economy in addition to pain due to Japan's structural reform
- Politicians need voters' support to proceed
- Should find out alternatives

  →

- Maximum utilization of Kyoto Mechanism

Comparison of Marginal Abatement cost to attain Kyoto target Per t/CO2

Median projection cost of several models

	Domestic measures only	Utilizing the Kyoto Protocol
Japan	US$ 90	US$ 19
U.S.A.	US$ 49	
EU	US$ 57	

Source: IPCC Third Assessment Report

CO2 price in the world market

t-CO2

- CERUPT

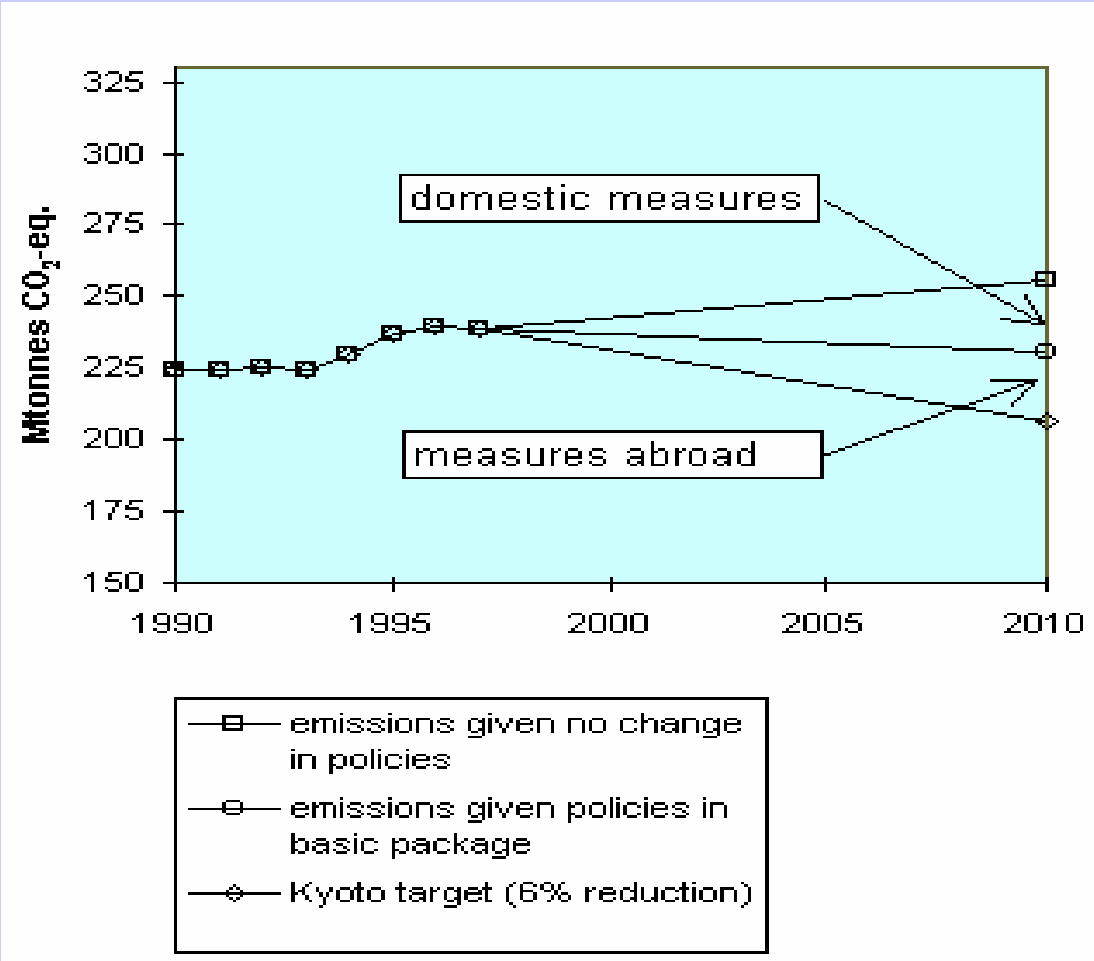
  €5.5 (Renewable energy) to €3.5 (fuel switching)
- ERUPT 1 April 2001 final

  Average €8.4 (before US withdrawal)
- ERUPT 2 As of May 2002

  Average €5
- PCF €3-5
- ICF Average €4, Max. €5

The Netherlands' climate policy

And Supplementarity



Dutch Climate Policy http://www.vrom.nil/international

Mid-term and Long term strategy

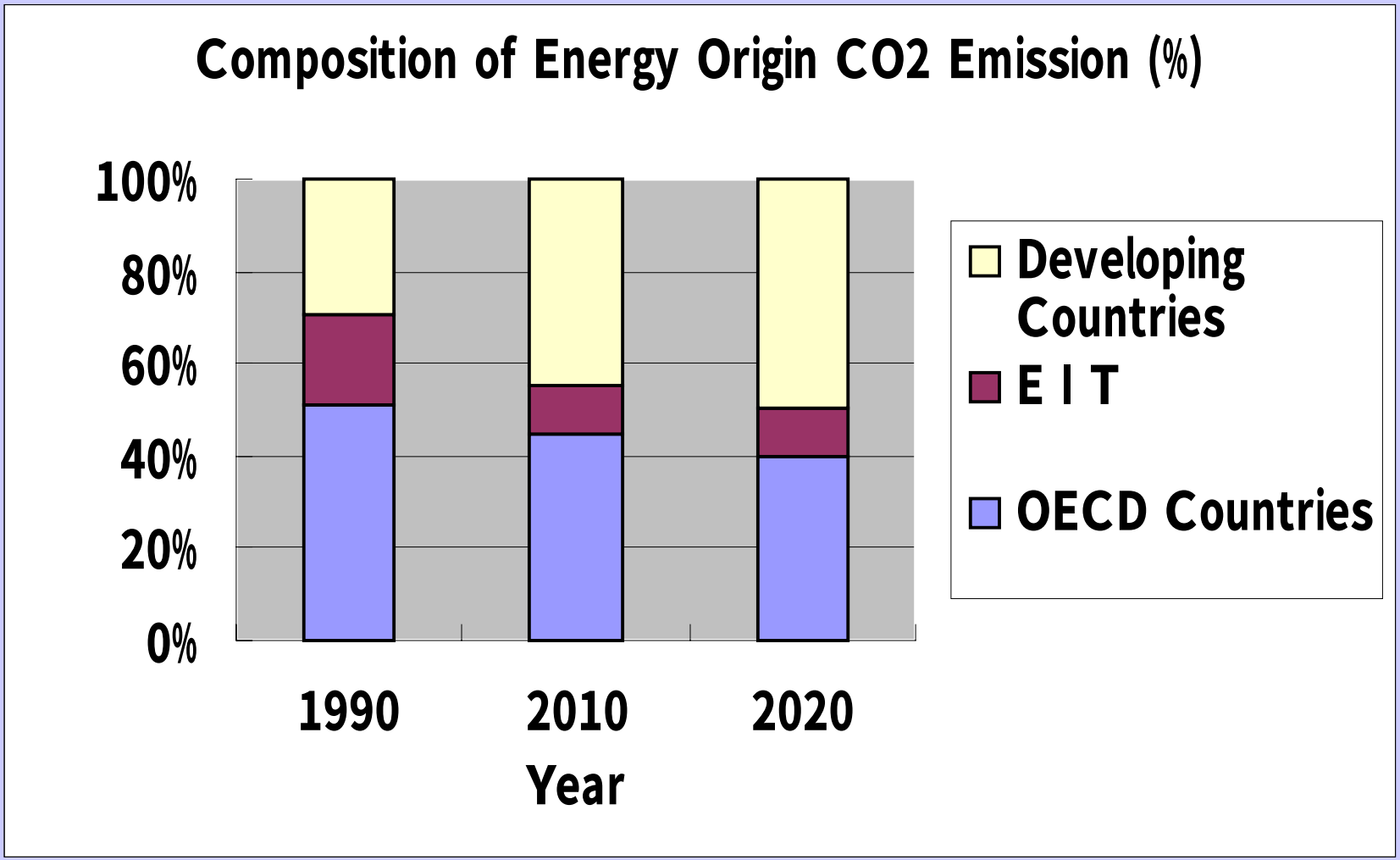
In search of a “New Regime”

Kyoto target is a drop in the bucket

- IPCC TAR tells us we need to reduce emissions substantially in 100 years
- Even if 5.2% reduction is achieved, global emission will increase by 30%

Rapid Increase of D.Cs. Emission

More than double during 1990 - 2010



But Kyoto target is very hard to achieve

- BAU emission of OECD countries in 2010 is estimated as 124.9%. Must reduce more than 30%
- Loss of international competitiveness
- Industries may push government
- Voters are reluctant (damages are invisible)
- What should politicians do?

Not to stick short-term commitment too much (1)

- “Better a strong weak agreement that has a good chance of being honoured than a weak strong agreement that is likely to collapse”

  The Economist November 27, 1997

- “Democracies can proceed only as voters will permit”

  Financial Times August 21, 2000

Not to stick short-term commitment too much (2)

- Kyoto Protocol is the first step
- Should not kill it by punishing the countries that would be unable to comply their targets
- Politicians of those countries can not have voters' support anymore

In search for a New Regime

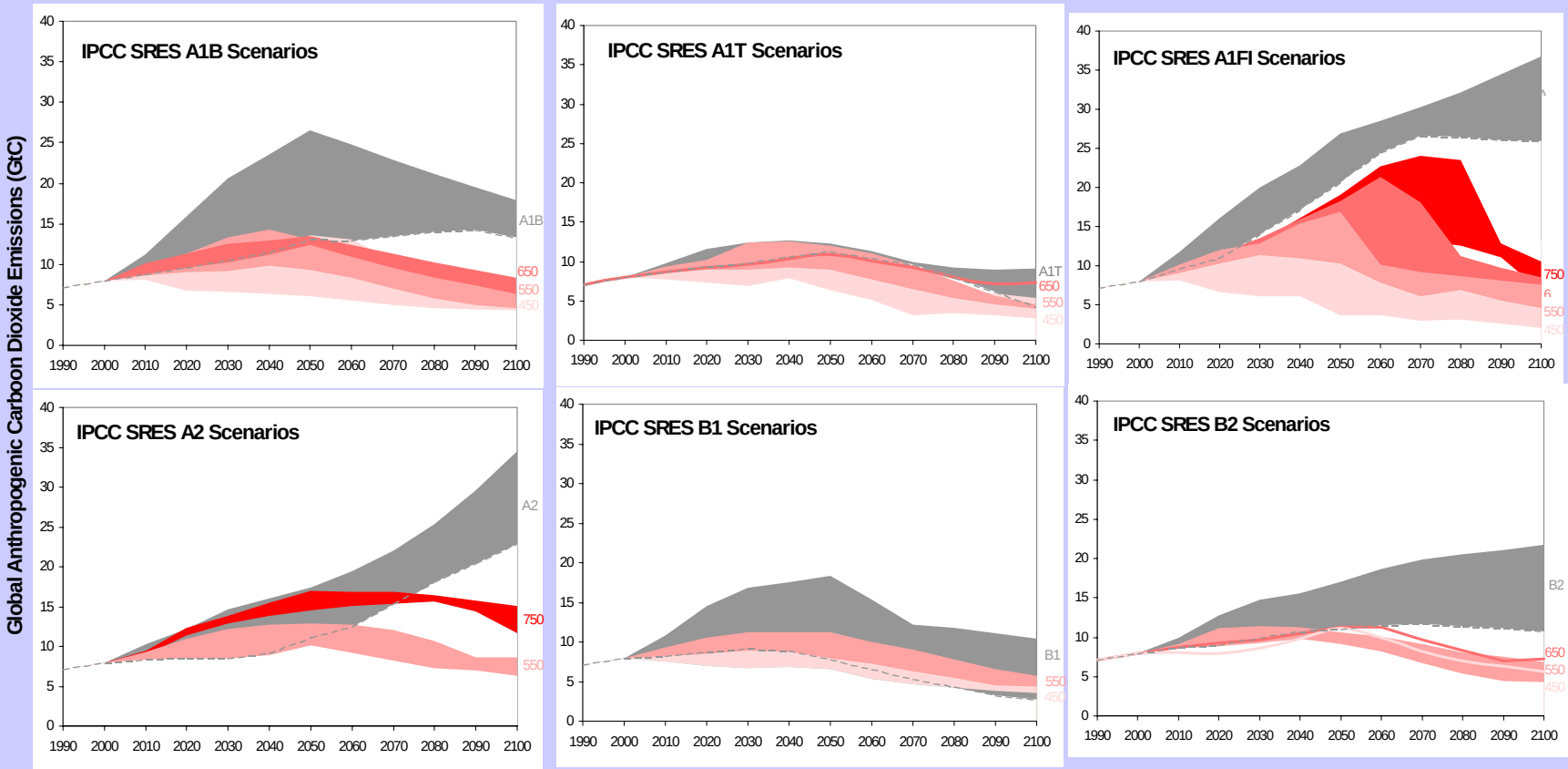
- Definitely need US participation
- Two reasons

  Effectiveness, Developing countries' participation
- US should have introduced effective policies and measures, but ---
- Can not expect US participation by simple extension of current regime in 2013
- In search for a new regime (such as efficiency standards and conversion)

What kind of society should we aim at

- The reference and stabilization scenarios shown in Figure SPM 1 of WG3 report will give us inexhaustible suggestions

6 different scenarios are shown in IPCC TAR



We should aim at society with which we can stabilize GHG concentration in 100 years at a reasonable cost

Decoupling of economic growth and fossil fuel consumption