

February 15, 2005

Kyoto Protocol, National Climate Policy and Industry: Japanese experiences

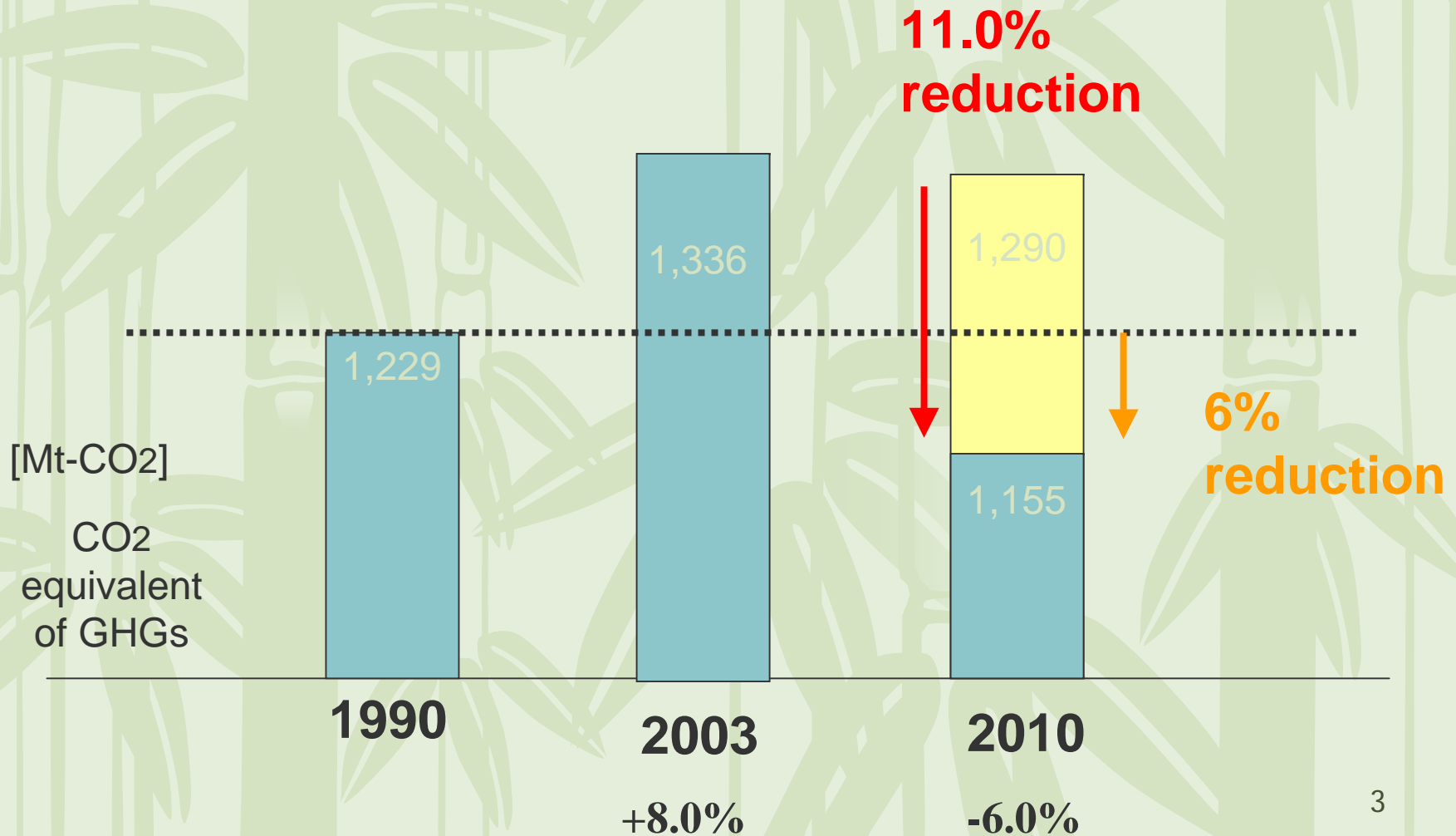
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Structure

- ❖ Japanese Strategies to implement the Kyoto Target
- ❖ Industry Response
- ❖ Post Kyoto Regime

Current situation at the end of 2003

Must reduce 11.0% to achieve goal

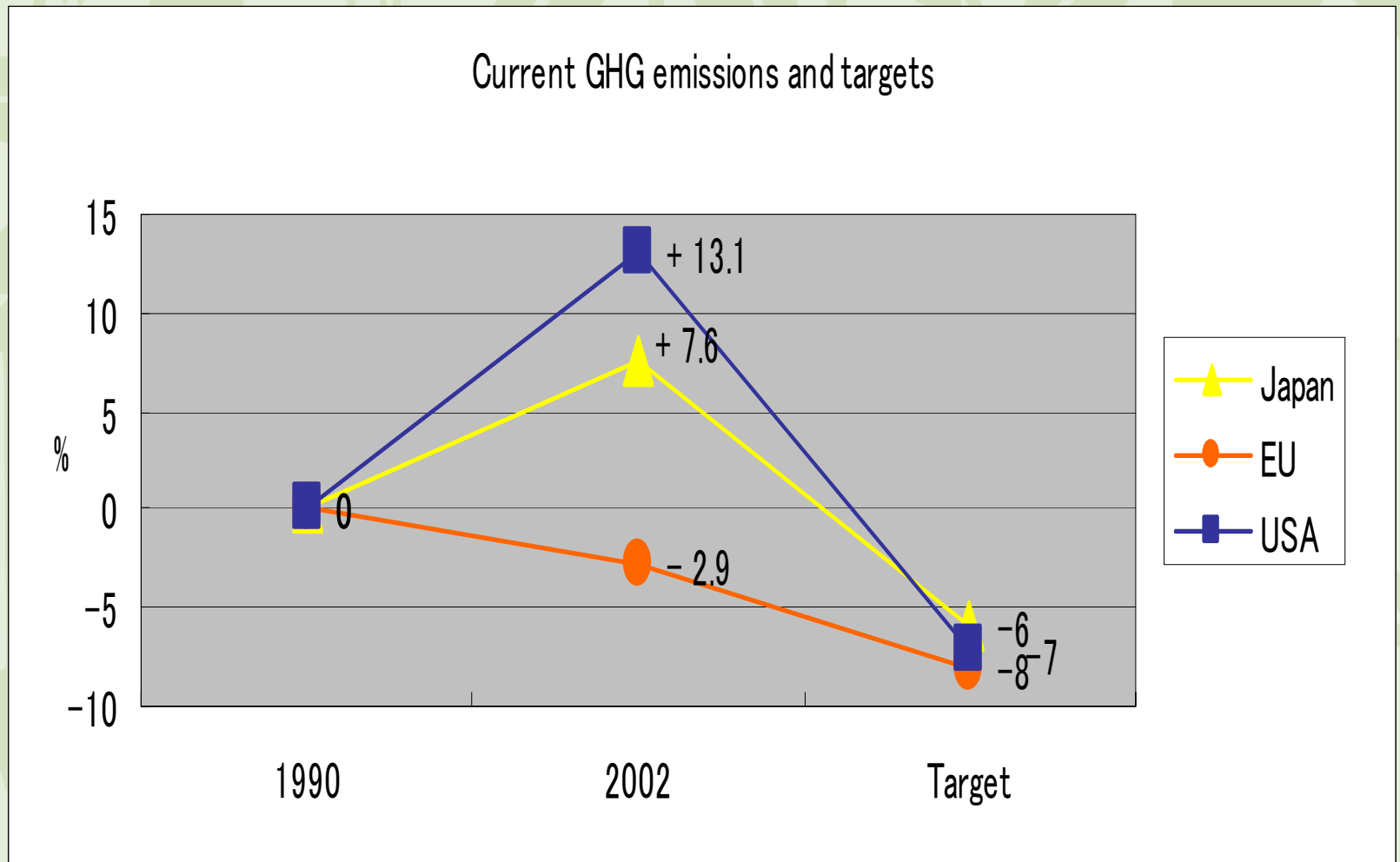


By Sector

Energy Origin CO2 emissions

❖ Industry	- 0.02%
❖ Transportation	+19.5%
❖ Commerce	+36.9%
❖ Household	+28.9%

Comparison (Japan, USA and EU)



Japanese Situation just before Kyoto

- ❖ Ministers' meeting in November 1997
- ❖ BAU emissions of energy-origin CO₂ will exceed 20% compared with the base year
1,266 Mt-CO₂ (1,053 Mt-CO₂ in 1990)
- ❖ Stabilization of energy-origin CO₂ at 1990 level (refer to the next slide)
- ❖ All parties concerned, including industries, agreed

Voluntary Initiative by Keidanren

- ❖ In July 1997 (before COP 3), Keidanren announced their voluntary initiatives to stabilize their CO2 emissions in 2100 at 1990 level
- ❖ Started with 28 sectors, now covers 35 sectors (covering 82% of industrial emissions)
- ❖ As of year 2003, - 0.6% (1990)
- ❖ Built in to the Government Action Plan

CO2 emission stabilization plan toward 2010

	Industry	household/commercial	transportation
Compulsory measures (57.6 Mt-CO ₂)	strengthening energy efficiency law (11.0 Mt-CO ₂)	strengthening energy efficiency law (35.6 Mt-CO ₂)	strengthening energy efficiency law (11.0 Mt-CO ₂)
Voluntary action plan (41.5 Mt-CO ₂)	Keidanren voluntary action plan (41.5 Mt-CO ₂)		
Inducement to Improve energy efficiency (59.8 Mt-CO ₂)	Measures to improve energy efficiency at SMEs etc. (8.1 Mt-CO ₂)	Efficiency improvement at houses & buildings etc. (46.6 Mt-CO ₂)	Diffusion of clean energy cars etc. (5.1 Mt-CO ₂)
Indirect measures (24.6 Mt-CO ₂)			Traffic control etc. (24.6 Mt-CO ₂)
Drastic change of Life style (23.5 Mt-CO ₂)		Adjusting temperature of air-conditioning (18.4 Mt-CO ₂)	Voluntary reduction of car ride etc. (5.1 Mt-CO ₂)
Total (207 Mt-CO ₂)	(60.6 Mt-CO ₂)	(100.6 Mt-CO ₂)	(45.8 Mt-CO ₂)

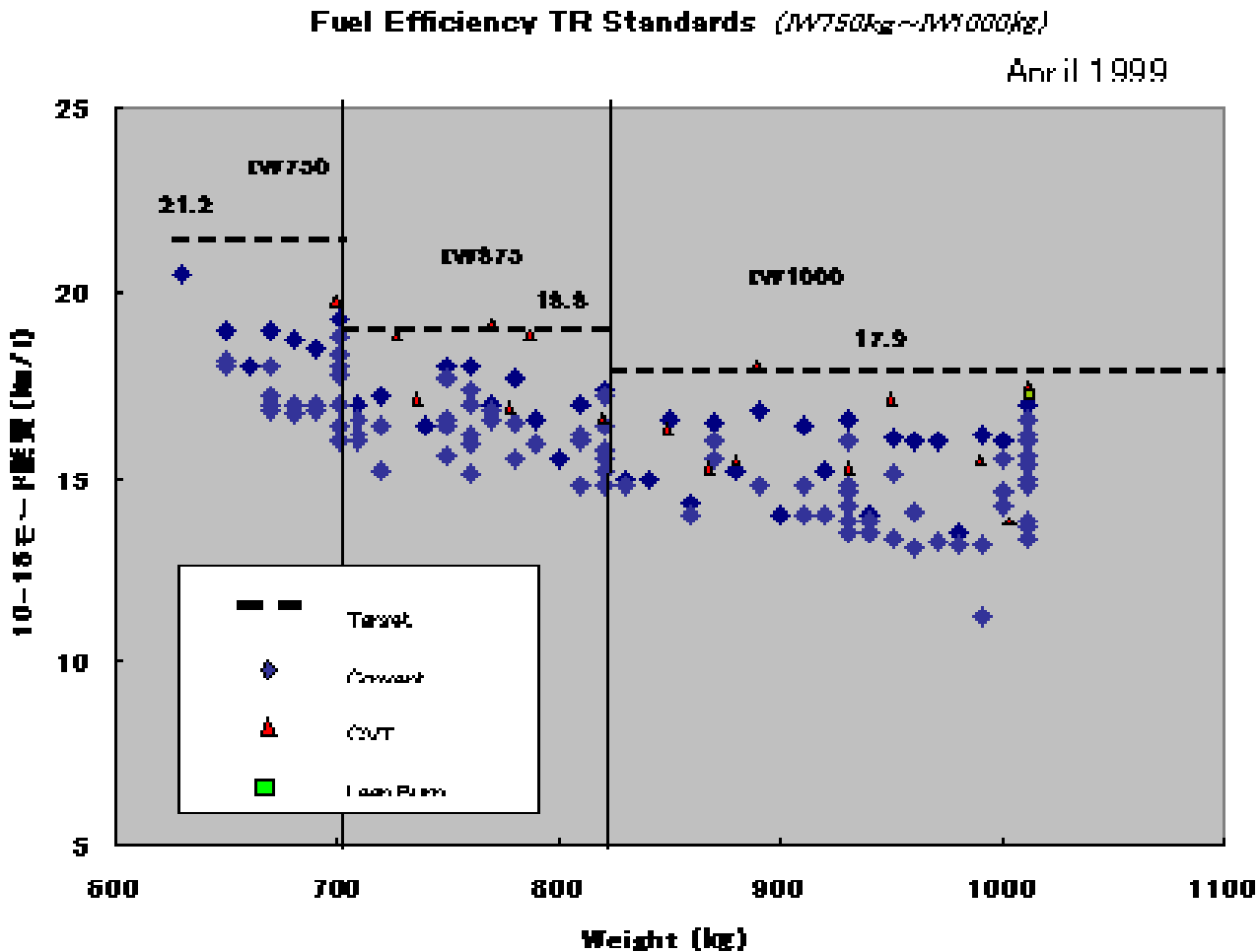
Government Action Plan After Kyoto (original in 1998)

CO2 (energy origin)	± 0.0%
CH4, N2O, Non e-origin CO2	− 0.5%
Technological Innovation	− 2.0%
HFC, PFC, SF6	+ 2.0%
Sink	− 3.7%
Kyoto Mechanism	− 1.8%
TOTAL	− 6.0%

Government Policy (1998)

- ❖ Strengthening of the energy-efficiency regulation (introduction of “top-runner” approach)
- ❖ Law concerning the promotion of the measures to cope with Global Warming

What is “Top-Runner Approach”?



Two committee reports in 2001

(Even after introduction of various measures)

- ❖ Advisory Committee for Natural Resources and Energy July '01 (METI)
 - 73.4 Mt (7%) increase of CO2 emission in 2010
 - Nuclear power plant construction: 10-13
- ❖ Central Environmental Council June '01 (EA)
 - 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

Recommendation of Advisory Committee for Natural Resources & Energy

- ❖ To reduce energy-origin CO₂ Emissions by 73.4 Mt-CO₂ in order to stabilize at 1990 level
 - 1) Further improving energy efficiency
 - 22 Mt-CO₂ (subsidies, strengthening of efficiency standards)
 - mainly at non manufacturing sectors -
 - 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	Original
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 of Action Plan

- ❖ **Compatibility of economy and environment**
Without compromising economic growth
- ❖ **Step by step**
Proceed gradually
- ❖ **Shared responsibility**
All actors' participation
- ❖ **International cooperation**
US participation

What does “step by step” mean?

❖ Phase 1: 2002 – 2004

❖ Phase 2: 2005 – 2007

❖ Phase 3: 2008 - 2012

Policies introduced (2002)

- ❖ Re-strengthening of the energy efficiency regulations
- ❖ Revision of the law concerning the promotion of the measures to cope with Global Warming
- ❖ Introduction of RPS rules on “new energy”
- ❖ The basic law on energy policy making

Year 2004 was very important

(Domestic)

- ❖ Review of current strategies (end of phase 1)
- ❖ Then, Revision of Action Plan, if necessary

(International)

- ❖ Prepare for international discussion for “Post Kyoto” which will begin next year

Two committees started discussion in 2004

METI Global Environmental Subcommittee

Interim Report, Aug, 2004

- ❖ Review of Government Action Plan
- ❖ Policies and Measures during Phase 2
- ❖ Future global framework (Post Kyoto)

Expert Committee Report on Future Framework is available now

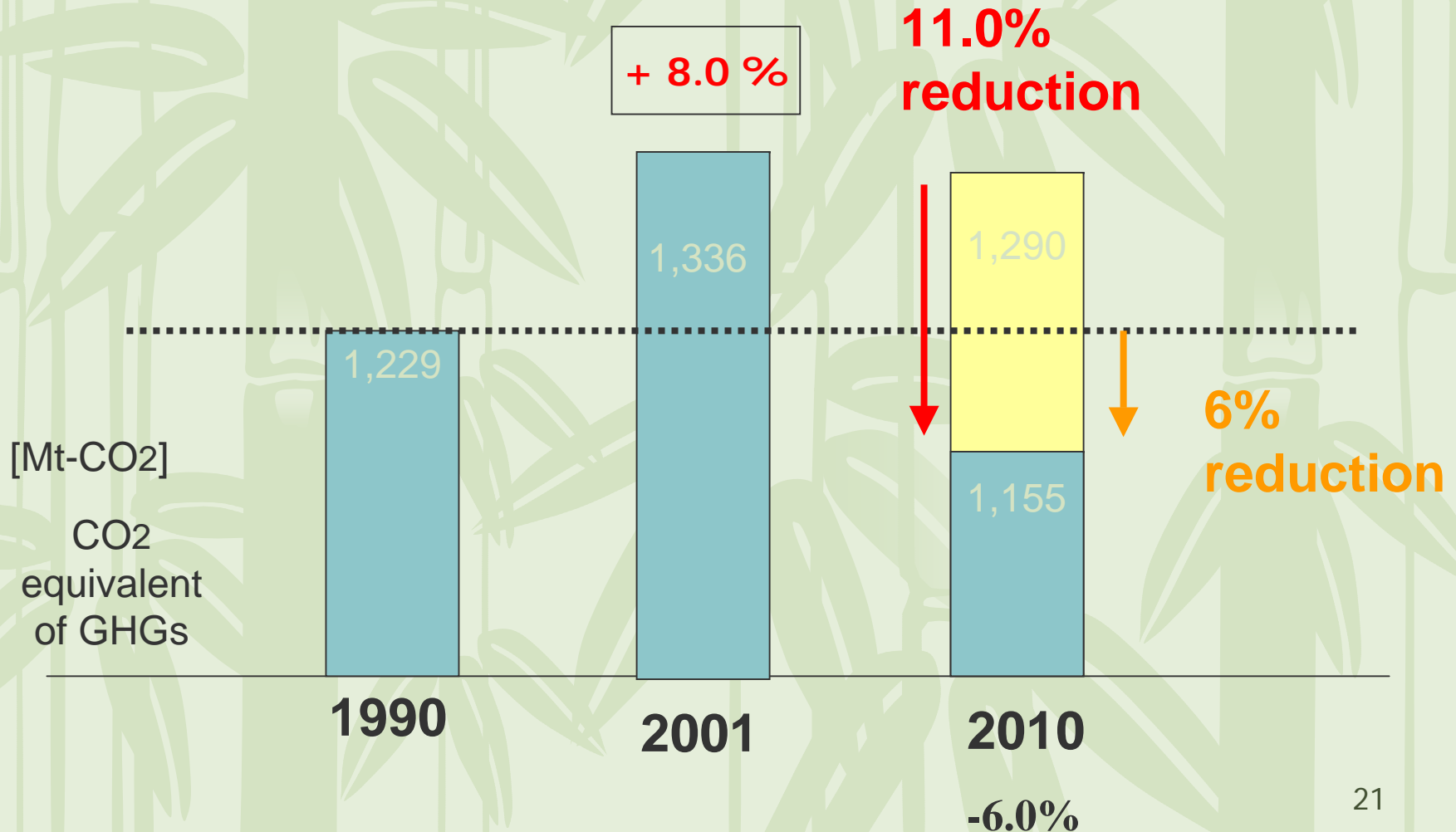
Two committees started discussion in 2004

ME Subcommittee of Central Environmental Council Interim Report, Aug. 2004

- ❖ Review of Government Action Plan
- ❖ Policies and Measures during Phase 2
- ❖ Future global framework (Post Kyoto)
- ❖ an Expert Committee on Climate Change Global Strategy

Outcome of the review,

Additional measures are indispensable



Prospective P&Ms

Followings are several ideas

❖ ME

Draft Climate Change Tax

Yen 2,400-t/c (about \$8.8-t/CO₂)

Revenue (Yen 490b.) to be recycled
for subsidies etc.

Target (CO₂ emission by 4%)

Voluntary domestic ET

Voluntary Initiative to Voluntary Agreement

Kyoto Mechanism

❖ METI

Basic Principle

Further Strengthening of Energy Efficiency standards
(targeting mainly to commercial, household,
and transport sectors)

Kyoto mechanism

Domestic measures and Marginal Abatement Cost

Median projection cost of several models, t/CO₂

	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

Industry Voluntary Initiative

- ❖ Nature: Keidanren “Bubble”

<http://www.keidanren.or.jp/english/policy/2003/113/index.html>

- ❖ Regularly reviewed by the Government Committees

- ❖ Set up Third Party Evaluation Committee

available at <http://www.keidanren.or.jp/english/policy/2003/026/index.html>

Purpose; Secure transparency

Enhance reliability

Japan's position toward Kyoto Mechanisms

- ❖ Differentiate between EIT and CDM/JI
Will not purchase “Hot Air”
- ❖ Various Assistance provided by the Government (capacity building, feasibility studies, etc.)
- ❖ Help to establish JGRF Dec. 1, 2004)
\$140M. 33 companies (electricity, manufacturers, trading companies, government affiliated banks)
- ❖ Press COP toward promotion of CDM

Industry Position toward CDM/JI

- ❖ Major players at the PCF (World Bank)
- ❖ Major players at the JGRF
- ❖ Toward compliance of their own commitment
(Who will pay?)

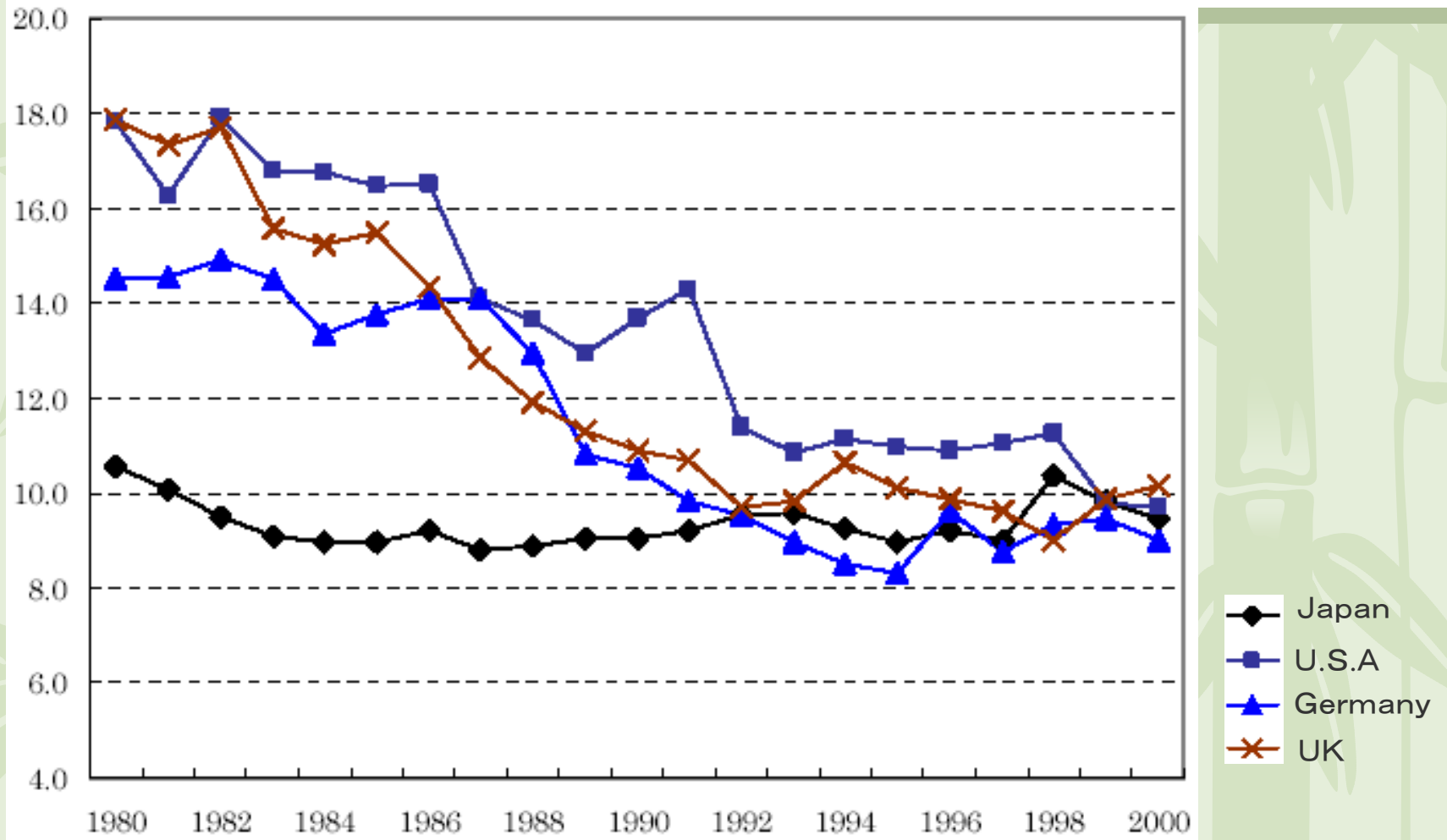
- ❖ Basically based on the Voluntary Agreements
- ❖ It will not affect Japanese Industry's action plan

What if it becomes clear for Japan unable to comply the target

- ❖ Do our best ---
- ❖ Stability and Growth Pact
- ❖ Conditions
 - Top energy efficiency in the world

Energy Consumption / Steel Production (t)

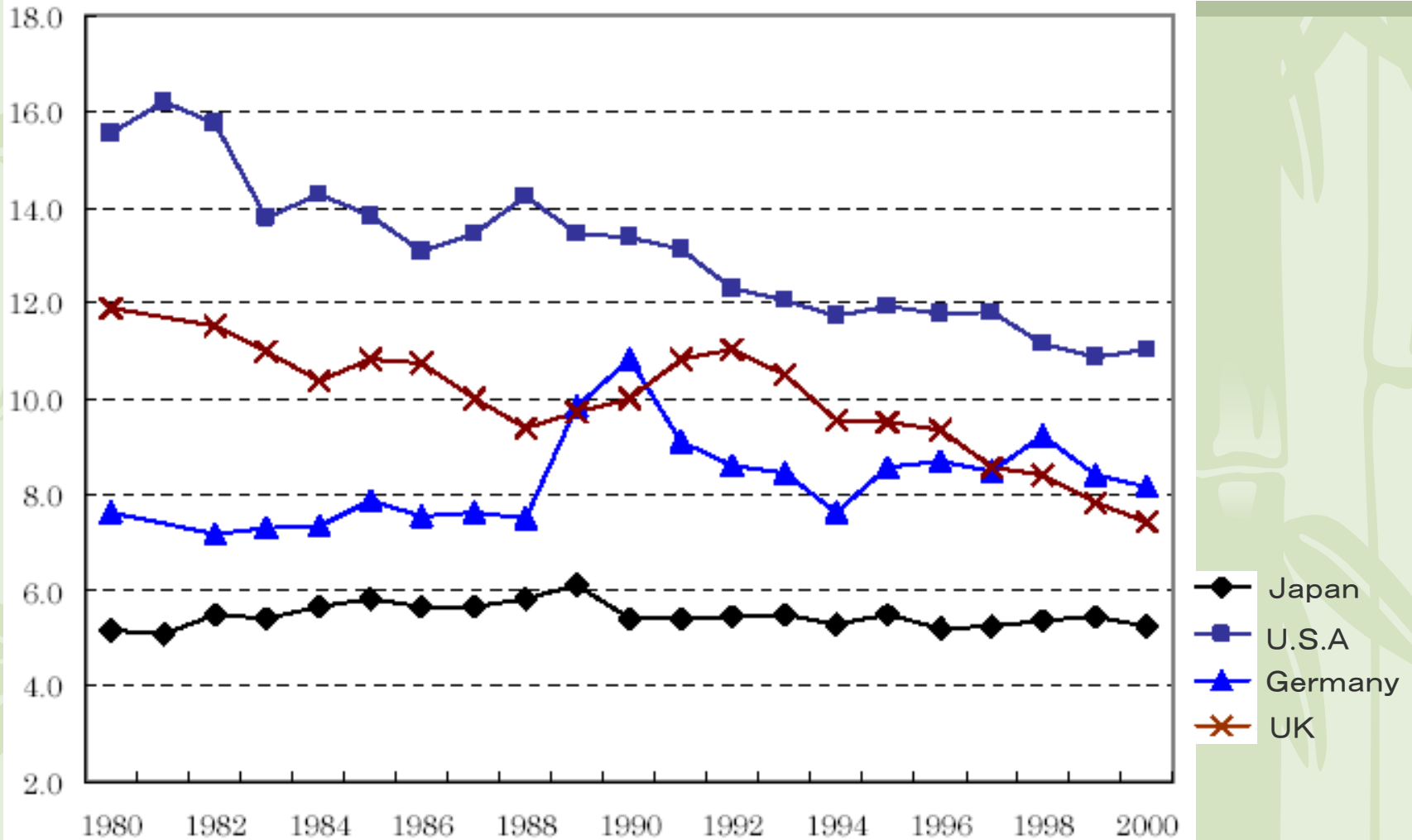
(GJ/t)



Source: Energy Statistics of OECD Countries (IEA) etc₂₉

Energy Consumption / Cement Production (t)

(GJ/t)

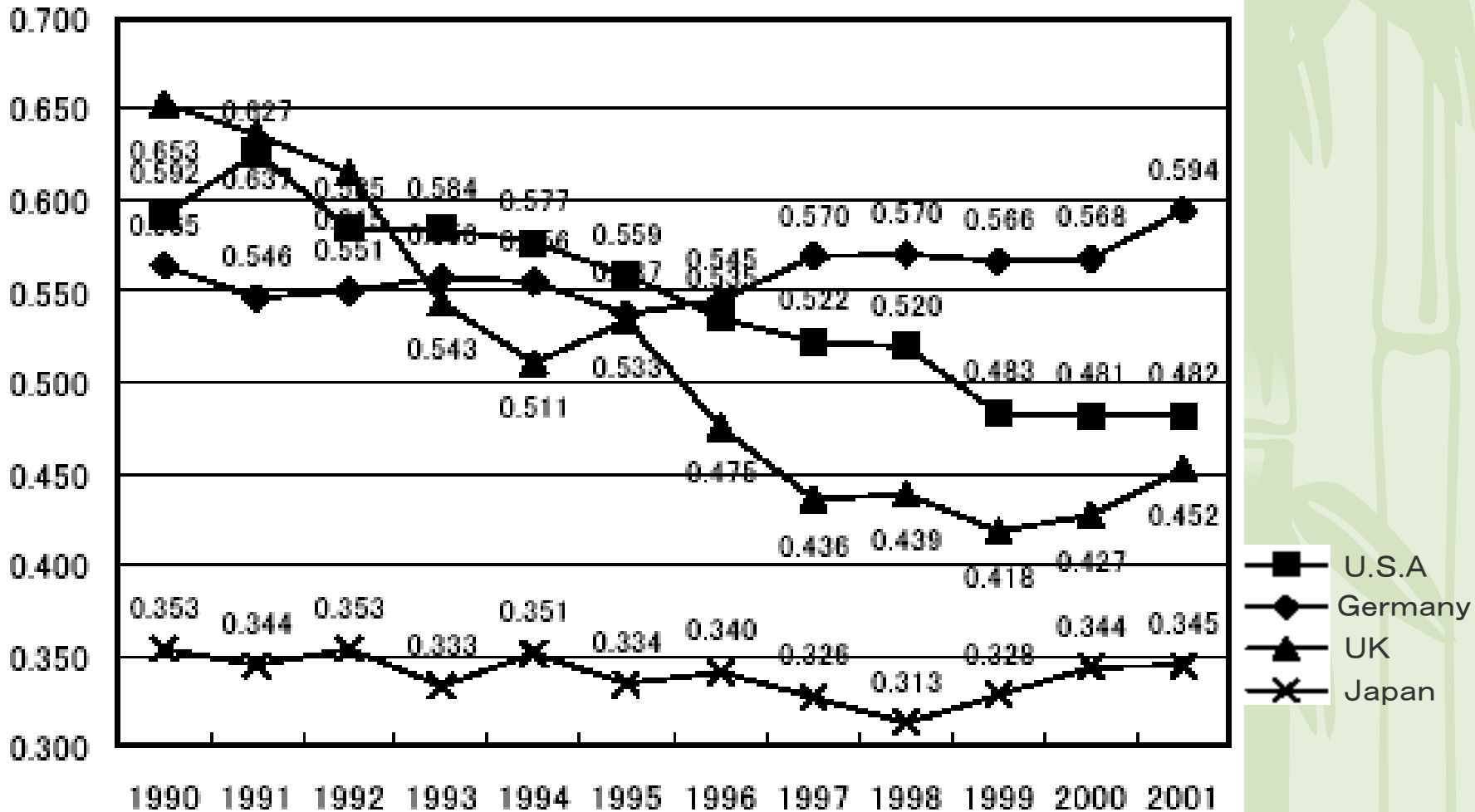


Source: Energy Statistics of OECD Countries (IEA) etc₃₀

CO2/Power Generation (kWh)

(Average of All Electric Generation)

(Kg-CO2/kWh)



Source: Energy Statistics of OECD Countries (IEA) etc₃₁

Post Kyoto Regime

My personal view

❖ Basic Concept

Even though there exists no consensus on future level of GHG concentration, global GHG emissions must be reduced below current level in 100 years in order to stabilize at the lowest realistic scenario GHG concentration, 550 ppm (Refer to the next slide)

❖ Japan must implement the Kyoto Target

Because Japan has ratified the KP, though without no cost/benefit discussion at Japanese Diet (parliament), Japan is obligated to implement the Kyoto Target

❖ Need Sustainable Framework

Shortcomings of the Kyoto Protocol

❖ Not global

Covers 1/3 of global emission

Without US and developing countries' participation

Only Japan among top 5 emitters assume obligation

Implementation of target means 30% increase of global emissions

❖ Cost is uncertain as a result of absolute cap

❖ Initial Allocation has no scientific basis

❖ Stick for the parties of the protocol

Any possibility of extension?

- ❖ USA will never be back to current regime with much stringent cap
- ❖ Without US, no participation from major developing countries
- ❖ But we have to cope with climate change globally
- ❖ New “global” regime is definitely necessary for which US and Developing Countries can join

What kind of regime?

- ❖ To begin slowly so that major players can participate
- ❖ Should be politically feasible
 - Democracies can proceed only as fast as voters will permit
(Financial Times, Aug. 21. 2000)
- ❖ Should be compatible with economy as well as energy security
- ❖ Better strong weak agreement than weak strong agreement (Economist Nov. 27, 1997)

Characteristics of Climate Change

- ❖ Damages are invisible
 - Hard to introduce drastic measures
- ❖ Intergenerational Issue
 - Cost benefit analysis among generations are necessary
 - Must consider technology innovation
- ❖ Impact on economic growth
 - Cost (incl. opportunity cost) benefit analysis is indispensable
- ❖ Uncertainty
 - Step by step decision making approach is preferable

Alternative ideas

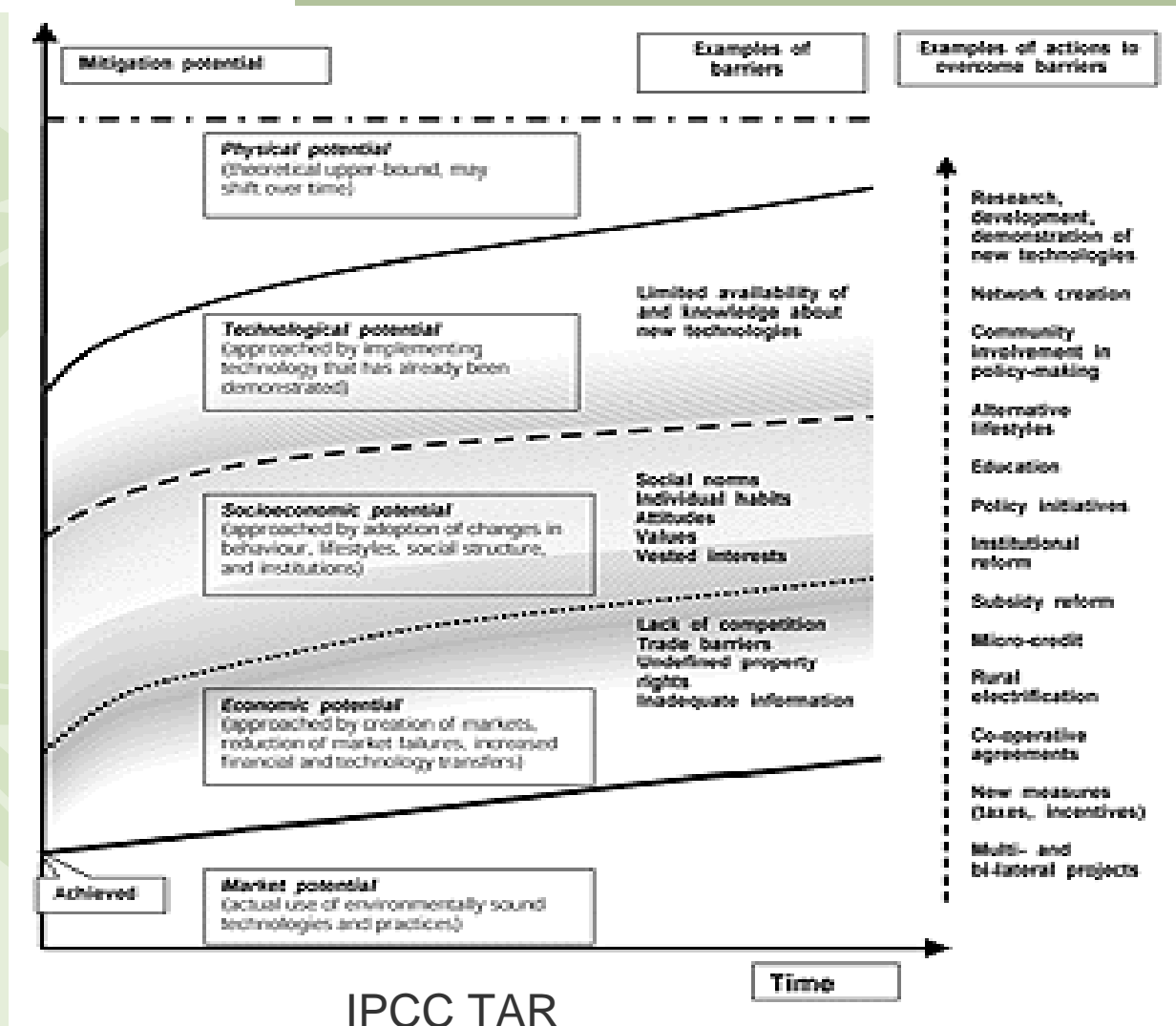
- ❖ Kyoto framework with revised target
- ❖ WTO-like scheme (deeper then broader)
- ❖ Review of “developing” countries
- ❖ Hybrid Approach
- ❖ Efficiency target
- ❖ Sector specific efficiency target
- ❖ Pledge and Review
- ❖ Technologies (CSLF, IPHE)

Criteria (Environmental Effectiveness, Economic Efficiency, Equity, Political Feasibility)

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

Technology innovations, diffusions and transfer are crucial factors



CO2 Emission Reduction Effects of Technological Options under a 550 ppmv Limit

