Asian activities toward two degree target

Toshihiko Masui

National Institute for Environmental Studies

Comparison of reduction potential of
Asian countries towards achieving two degree target

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Structure of this session

- Asia: Toshihiko Masui, National Institute for Environmental Studies, Japan
- China: Jiang Kejun, Energy Research Institute, China, and Hancheng Dai, National Institute for Environmental Studies, Japan
- India: P. R. Shukla, Indian Institute of Management, India
- Thailand: Bundit Limmeechokchai, Sirindannhorn International Institute of Technology, Thammasat University, Thailand
- Malaysia: Ho Chin Siong, Universiti Teknologi Malaysia, Malaysia
- Cambodia: Hak Mao, Kyoto University, Japan, and Ministry of Environment, Cambodia
- Vietnam: Nguyen Tung Lam, Institute of Strategy and Policy on Natural Resources and Environment, Vietnam
- Nepal: Ram Manohar Shrestha, Asian Institute of Technology, Thailand
- Indonesia: Retno Gumilang Dewi, Institut Teknologi Bandung, Indonesia

What is two degree target?

- Further recognizes that deep cuts in global greenhouse gas emissions are required according to science, and as documented in the Fourth Assessment Report of the Inter-governmental Panel on Climate Change, with a view to reducing global greenhouse gas emissions so as to hold the increase in global average temperature below 2 ° C above pre-industrial levels, and that Parties should take urgent action to meet this long-term goal, consistent with science and on the basis of equity; Also recognizes the need to consider, in the context of the first review, as referred to in paragraph 138 below, strengthening the long-term global goal on the basis of the best available scientific knowledge, including in relation to a global average temperature rise of 1.5 ° C;

A shared vision for long-term cooperative action, Cancun Agreement

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Findings in IPCC AR4

Class	Anthropogenic addition to radiative forcing at stabilization (W/m^2)	Multi-gas concentration level (ppmv CO_2-eq)	Stabilization level for CO_2 only, consistent with multi-gas level (ppmv CO_2)	Number of scenario studies	Global mean temperature C increase above pre-industrial at equilibrium, using best estimate of climate sensitivity	Likely range of global mean temperature C increase above pre-industrial at equilibrium	Peaking year for CO_2 emissions	Change in global emissions in 2050 (% of 2000 emissions)	RCP
I	2.5-3.0	445-490	350-400	6	2.0-2.4	1.4-3.6	2000-2015	-85 to -50	RCP2.6
II	3.0-3.5	490-535	400-440	18	2.4-2.8	1.6-4.2	2000-2020	-60 to -30	
III	3.5-4.0	535-590	440-485	21	2.8-3.2	1.9-4.9	2010-2030	-30 to +5	
IV	4.0-5.0	590-710	485-570	118	3.2-4.0	2.2-6.1	2020-2060	+10 to +60	RCP4.5
V	5.0-6.0	710-855	570-660	9	4.0-4.9	2.7-7.3	2050-2080	+25 to +85	RCP6
VI	6.0-7.5	855-1130	660-790	5	4.9-6.1	3.2-8.5	2060-2090	+90 to +140	

Source: Metz et al.(2007)

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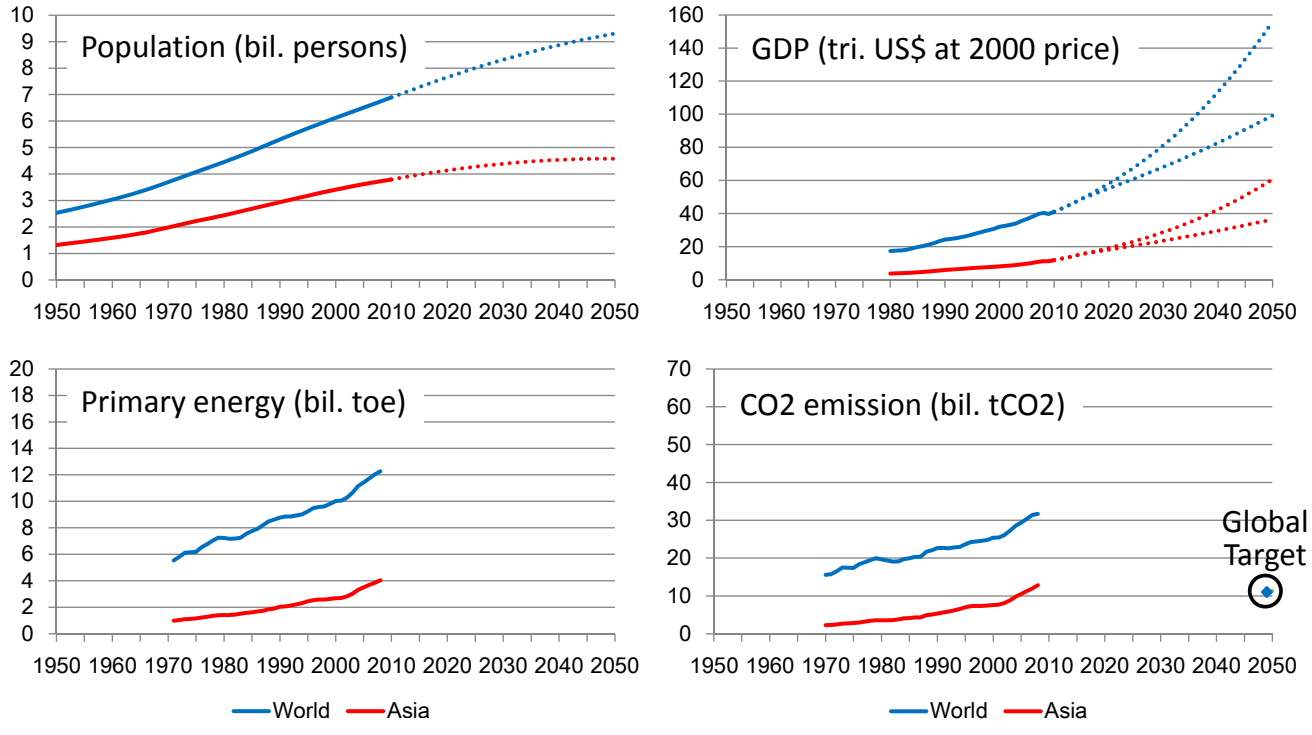
Assumptions of society in 2050

	Advanced Society Scenario (ADV)	Conventional Society Scenario (CNV)
Summary	Accept the new social system, institution, technologies etc. positively and proactively.	Discreet about the new social system, institution, technologies etc., and worry about their transition cost.
Economy	Annual growth rate from 2005-2050: 3.27%/year (Global) and 4.16%/year (Asia)	Annual growth rate from 2005-2050: 2.24%/year (Global) and 2.98%/year (Asia)
Population	Total population in 2050: 9.3 billion persons in the World, and 4.6 billion persons in Asia	
Education	Education system will be improved positively. Education period: from 4-12 years in 2005 to 11-14 years in 2050	Education system will be improved normally. Education period: from 4-12 years in 2005 to 8-13 years in 2050
How to use time	Time for working and improving career will be longer.	Time for staying with family or friends will be linger.
Labor	0% of unemployment rate in 2075	Fixed unemployment rate to 2009 level
Government	Efficiency will Improved immediately.	Efficiency will be improved gradually.
International Cooperation	Reduction of trade barriers and FDI risks	Gradual improvement in collaborative relationships among Asian countries.
Innovation	High	Medium
Transportation	Increase of demand sue to high economic growth	Gradual increase of demand
Land use	More speedy and more efficient land use change	Moderate and careful land use change

Activities in Asia and World toward 2050



10 Actions toward Low Carbon Asia

- NIES and other collaborating universities and institutes have proposed the 10 Actions to half global greenhouse gas emission in 2050 compared to 1990 level.
  - narrative storyline/roadmap by 2050 and model simulations

Action 1 **Urban Transport**
Hierarchically Connected Compact Cities

Action 2 **Interregional Transport**
Mainstreaming Rail and Water in Interregional Transport

Action 3 **Resources & Materials**
Smart Ways to Use Materials that Realize the Full Potential of Resources

Action 4 **Buildings**
Energy-Saving Spaces Utilizing Sunlight and Wind

Action 5 **Biomass**
Local Production and Local Consumption of Biomass

Action 6 **Energy System**
Low Carbon Energy System Using Local Resources

Action 7 **Agriculture & Livestock**
Low Emission Agricultural Technologies

Action 8 **Forestry & Land Use**
Sustainable Forestry Management

Action 9 **Technology & Finance**
Technology and Finance to Facilitate Achievement of LCS

Action 10 **Governance**
Transparent and Fair Governance that Supports Low Carbon Asia

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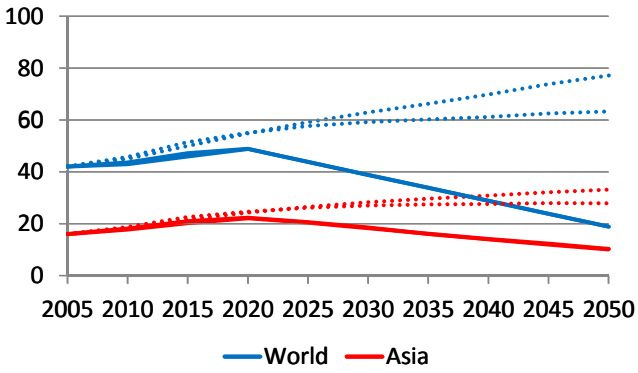
GHG emission reduction in Asia and World

Tentative results



solid lines: 2 degree
dot lines: references

GHG in Advanced/Conventional Society Scenario
(GtCO2-eq)

The Global CGE (Computable General Equilibrium) model results.
In Asia, the total GHG emissions in 2050 will have to be lower than the present level, although the GDP will be 3-5 times.
The marginal cost in 2050 will be 260-340 US$/tCO2-eq when “10 actions” will be realized.

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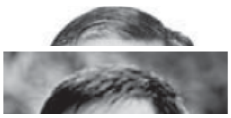
Calculation by Dr. S. Fujimori (NIES)

At the following presentations

- "10 actions" are based on "Top-down" approach.
- Introduction of activities/policies in each country toward the low carbon society will be explained from the "Bottom-up" viewpoint;
  - Emission target
  - NAMA
  - Other activities toward low carbon Asia such as capacity building, ...
  - Requests to Japan

Structure of this session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