How to realize economical development of developing countries within the restriction of global climate change

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CRDS/ JST

Heiligendamm G8 Summit

June 8-11, 2007

- In setting a global goal for emissions reductions in the process we have agreed today involving all major emitters, we will consider seriously the decisions made by the European Union, Canada and Japan which include at least **a halving of global emissions by 2050**. (GHG)

Toyako G8 Summit

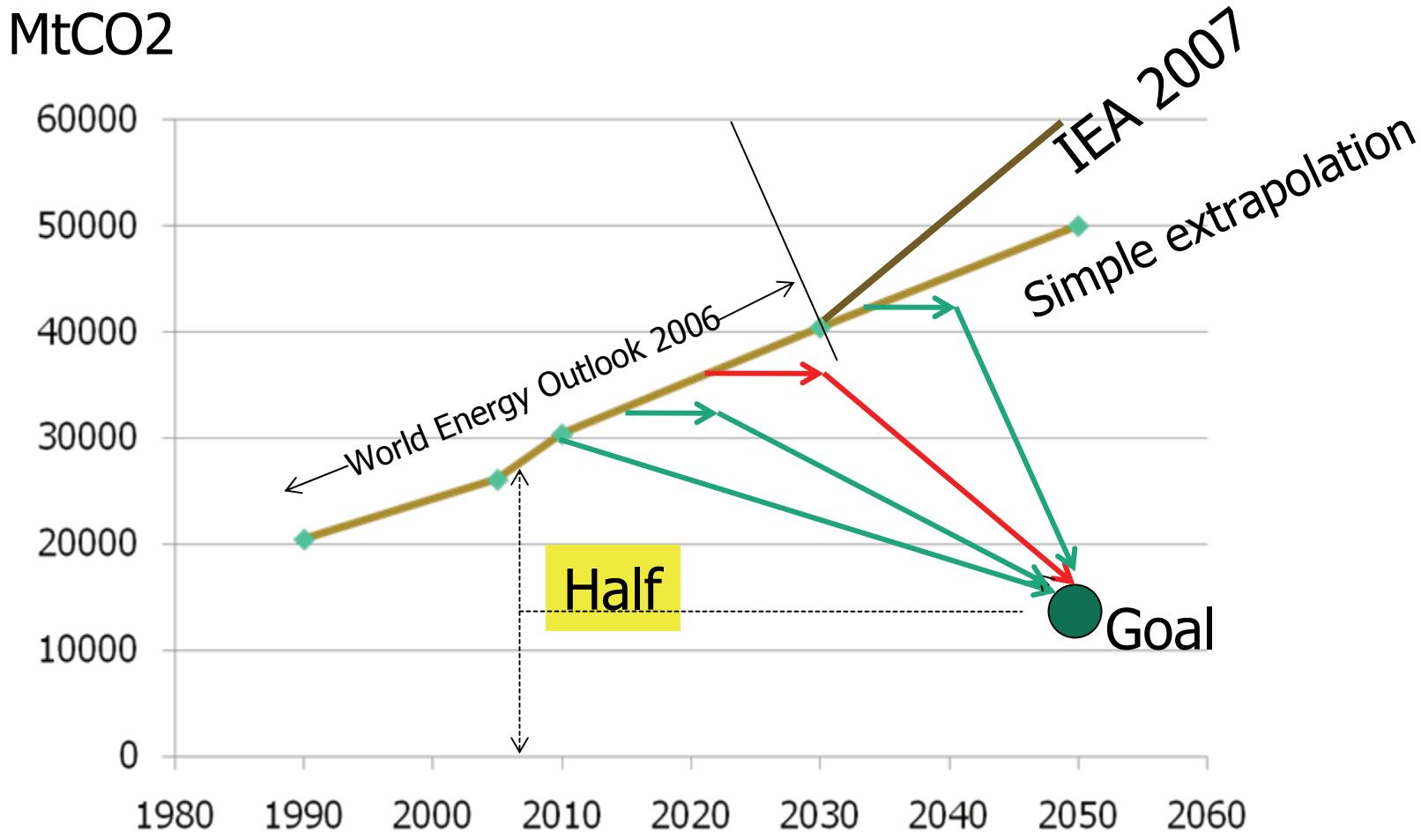
July 7-9, Hokkaido, Japan

- We seek to share with all Parties to the UNFCCC the vision of, and together with them to consider and adopt in the UNFCCC negotiations, the goal of achieving at least 50% reduction of global emissions by 2050, recognizing that this global challenge can only be met by a global response, in particular, by the contributions from all major economies, consistent with the principle of common but differentiated responsibilities and respective capabilities.

Continued

- Substantial progress toward such a long-term goal requires the acceleration of the deployment of existing technologies and will depend on the development and deployment of low-carbon technologies.

Schematic Drawing up to 2050



UNITED NATIONS UNIVERSITY

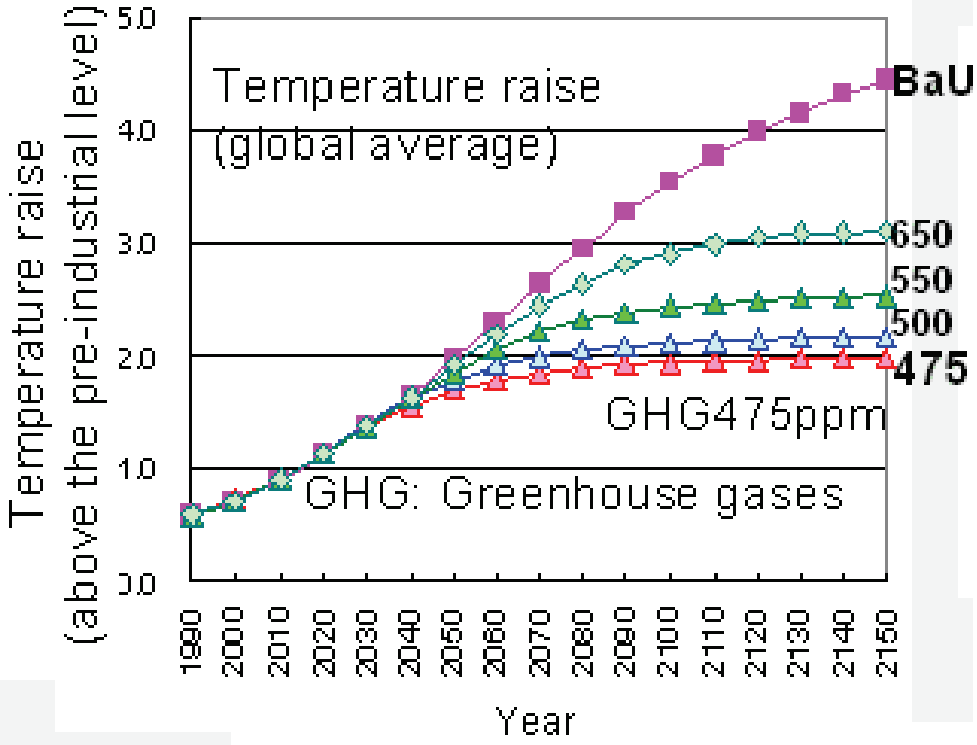
Inertia of Society
Time Constants to Change

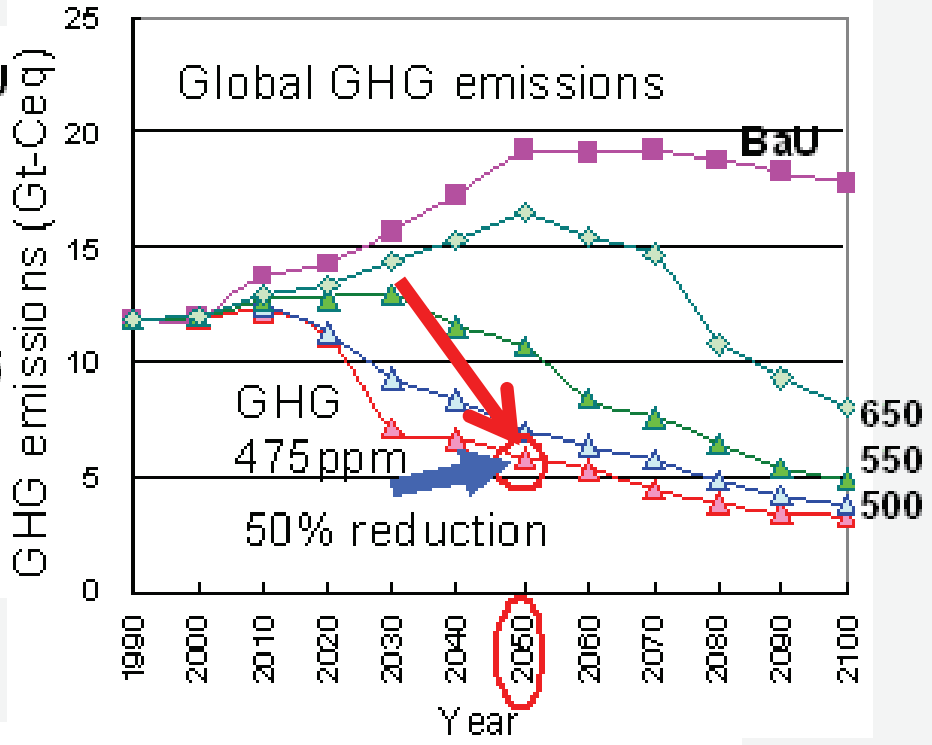
- Life Time of Infrastructure ≒100 Years
- Life Time of Buildings ≒60 Years
- Life Time of Production Plants ≒30 Years
- Life Time of Automobiles ≒15 Years
- Life Time of Consumer Durables ≒12 Years

- Time to change Social Systems.
- Persistency of "Mindsets of People".

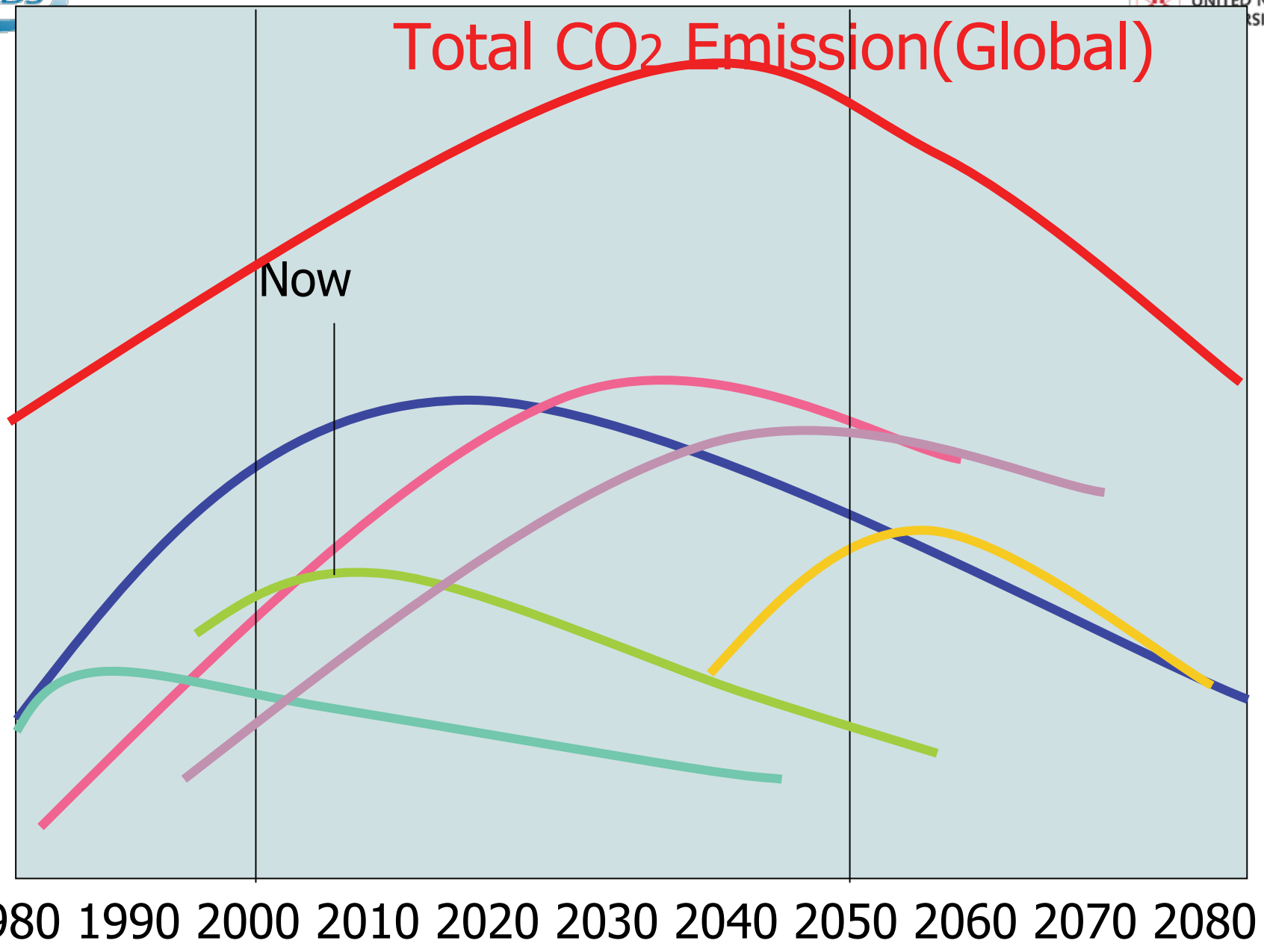
475ppm – 国環研によるシナリオ

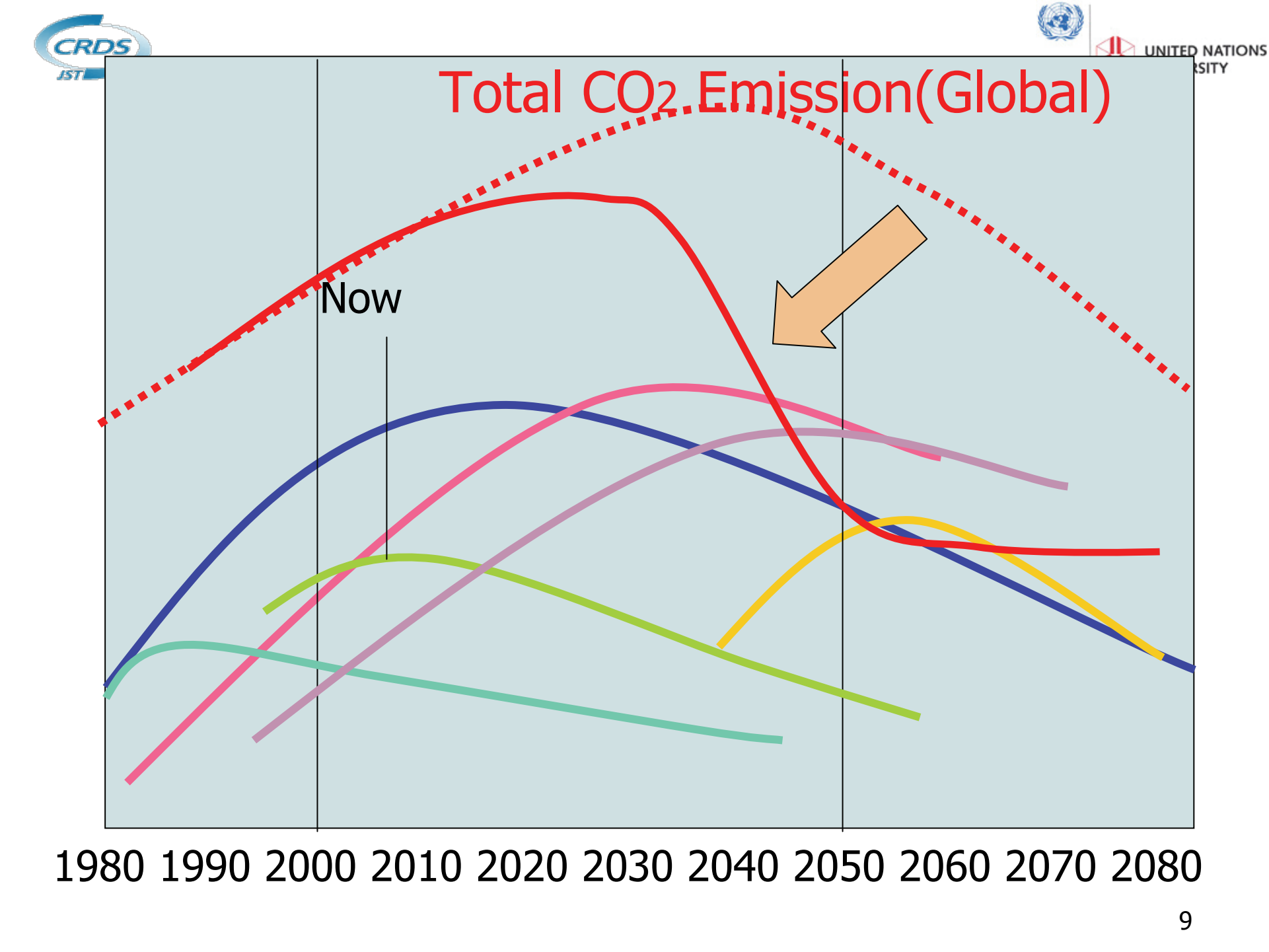
475ppm GHG Scenario by NIES



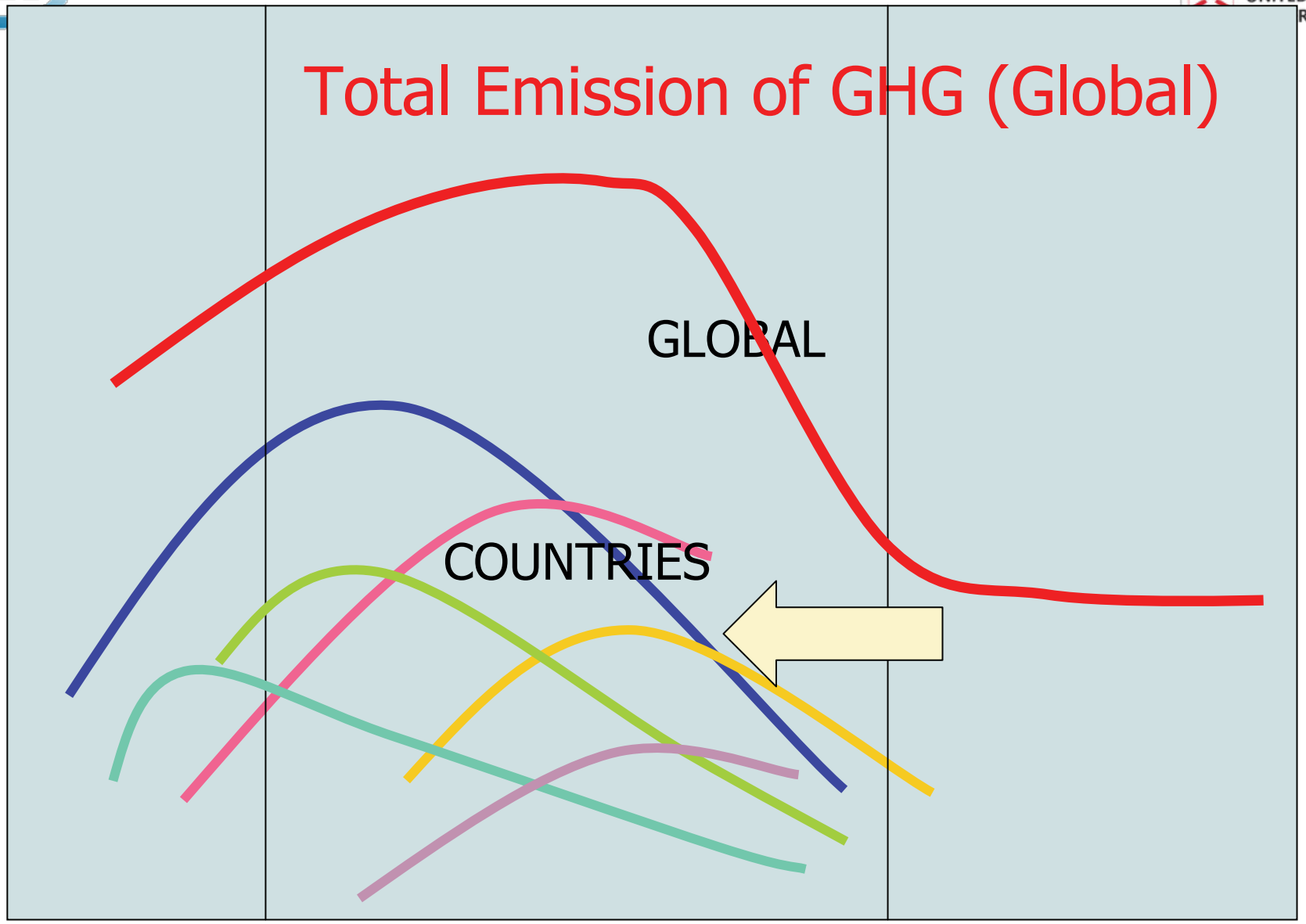


BaU GHG-475ppm GHG-500ppm GHG-550ppm GHG-650ppm


Total CO_2 Emission(Global)
Now
1980 1990 2000 2010 2020 2030 2040 2050 2060 2070 2080

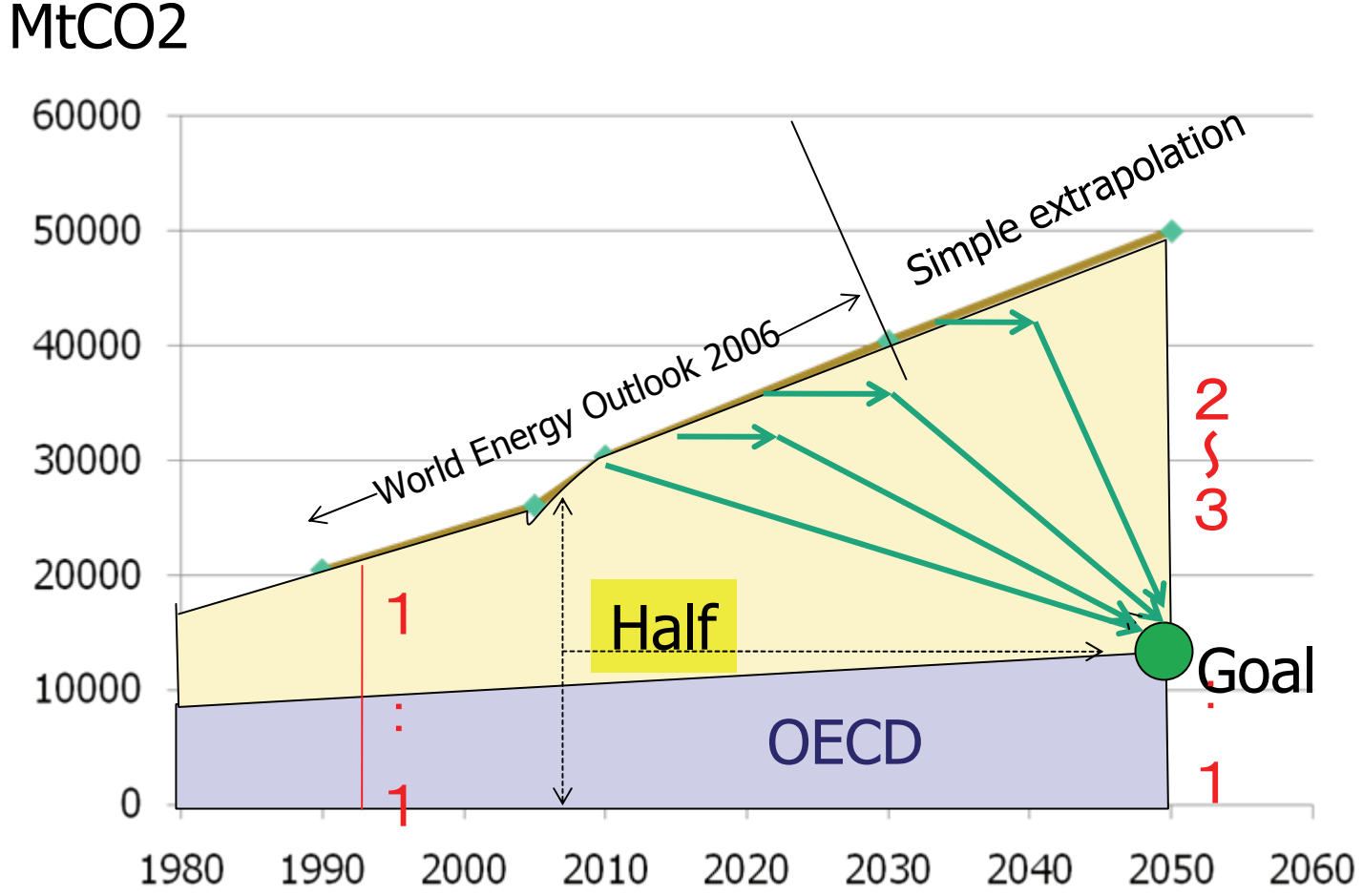

Total CO_2 Emission(Global)
Now
1980 1990 2000 2010 2020 2030 2040 2050 2060 2070 2080

Total Emission of GHG (Global)



2050年までの道筋

Schematic Drawing up to 2050



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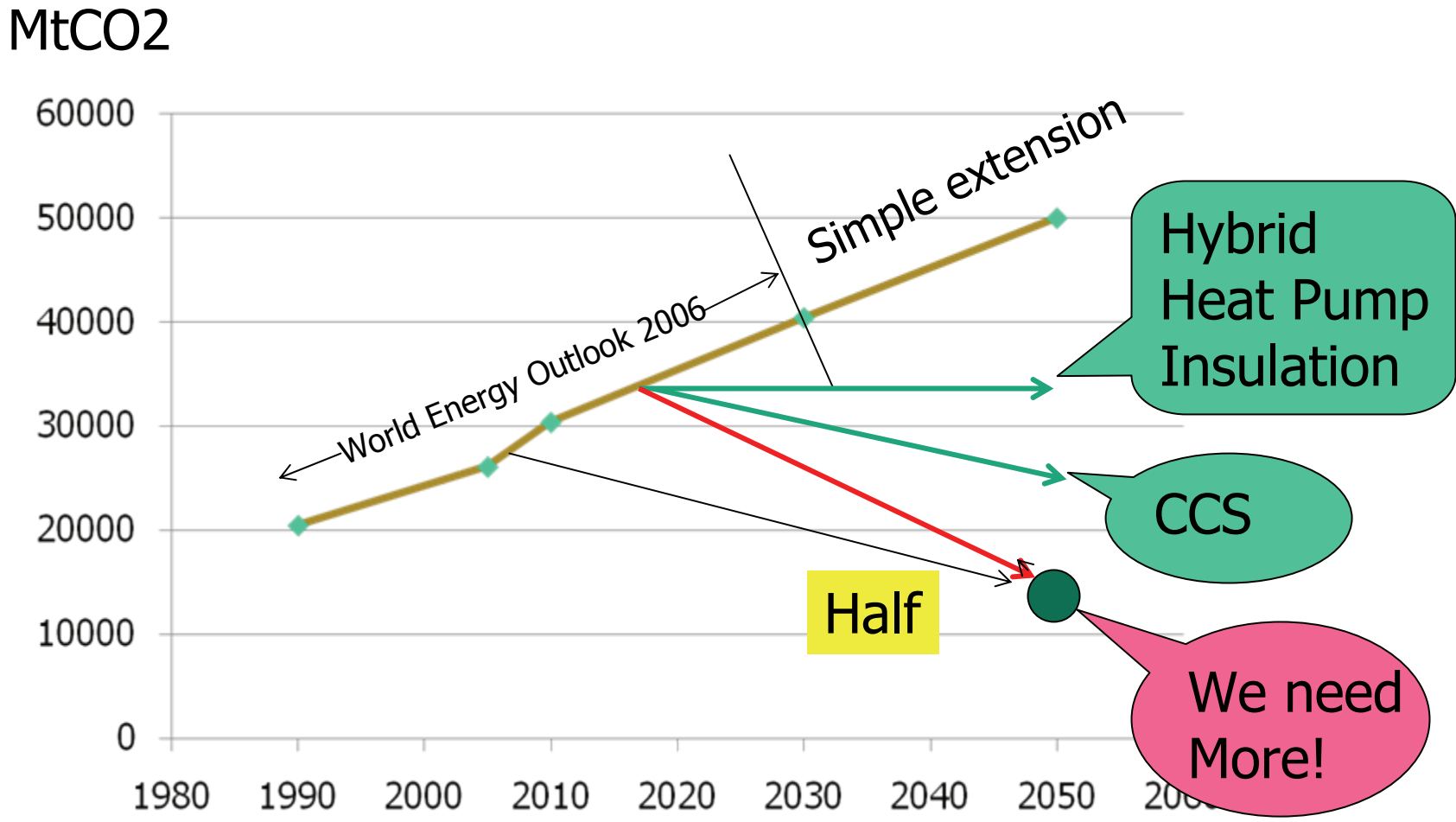

2050年までの道筋

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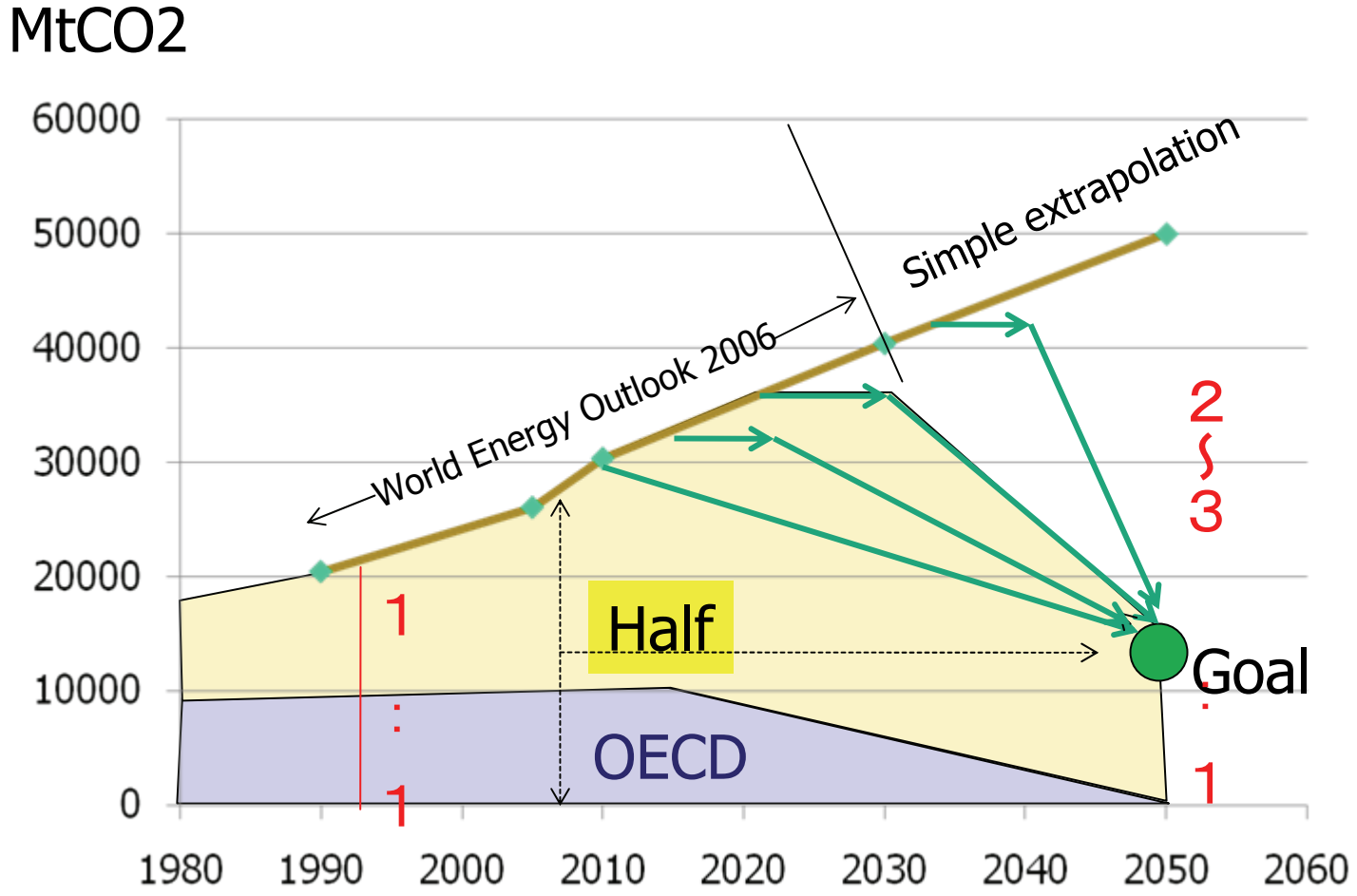
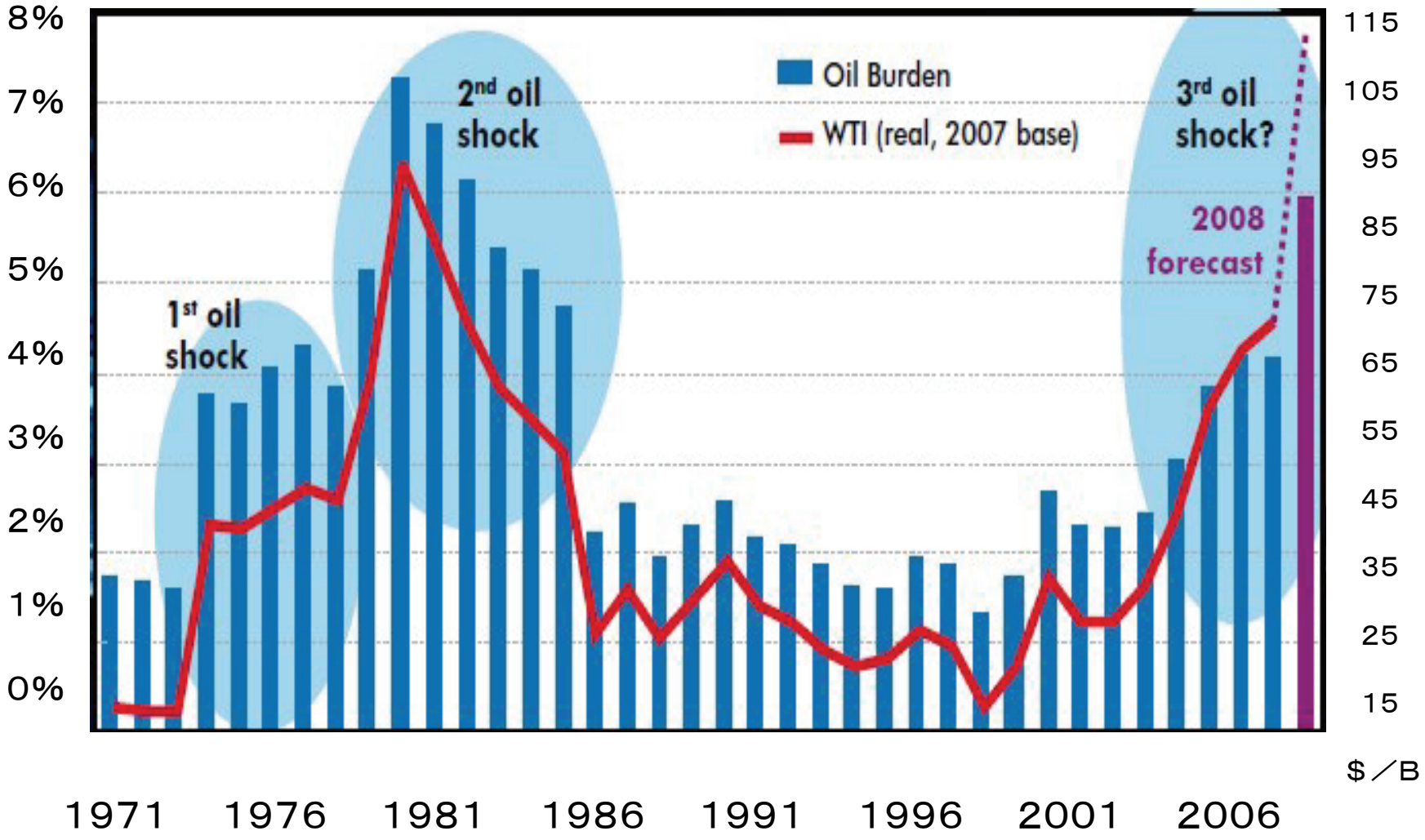
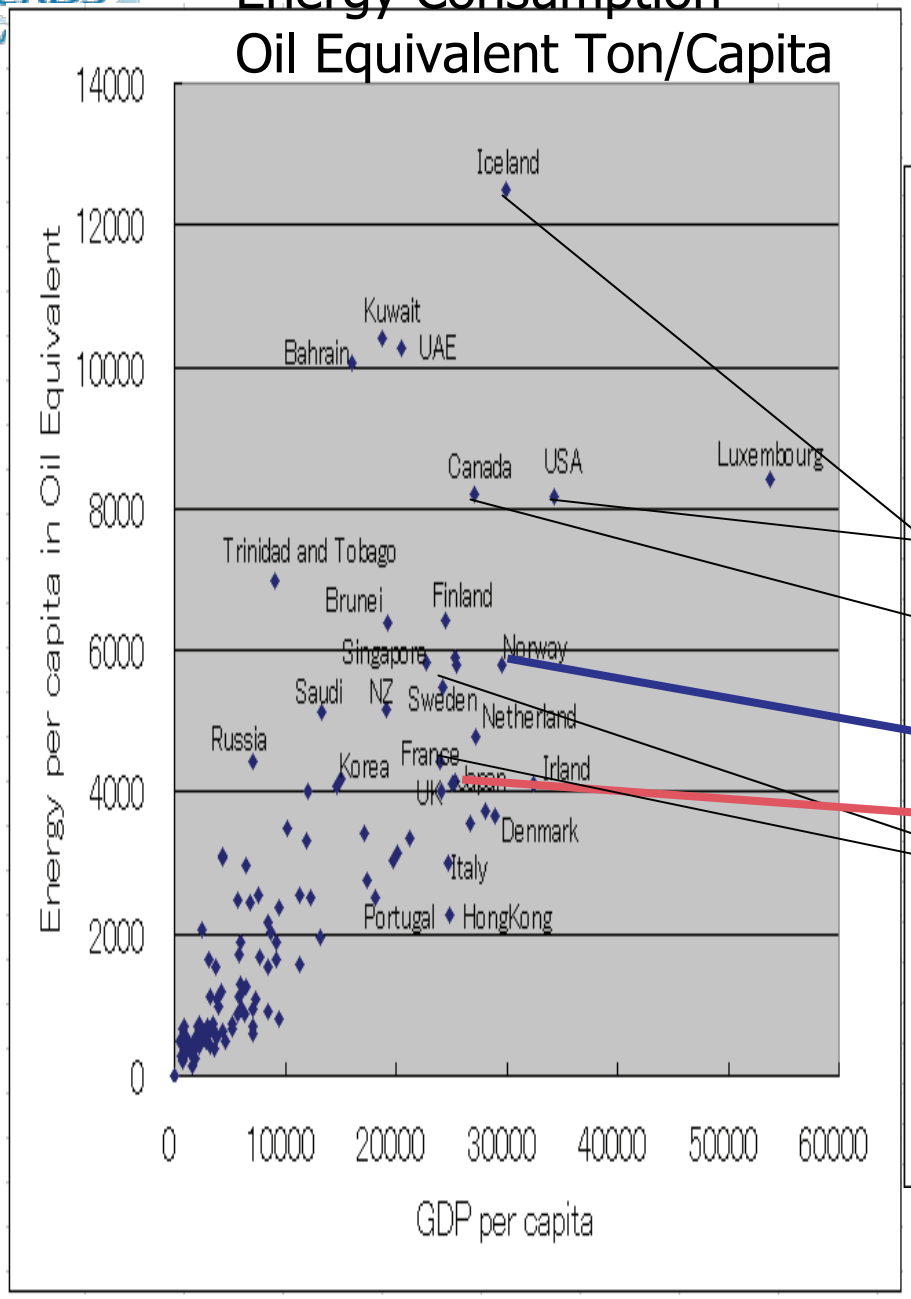


Impossible to Reach the Goal even Emission from OECD=0
Reduction in Developing Countries = Key Factor

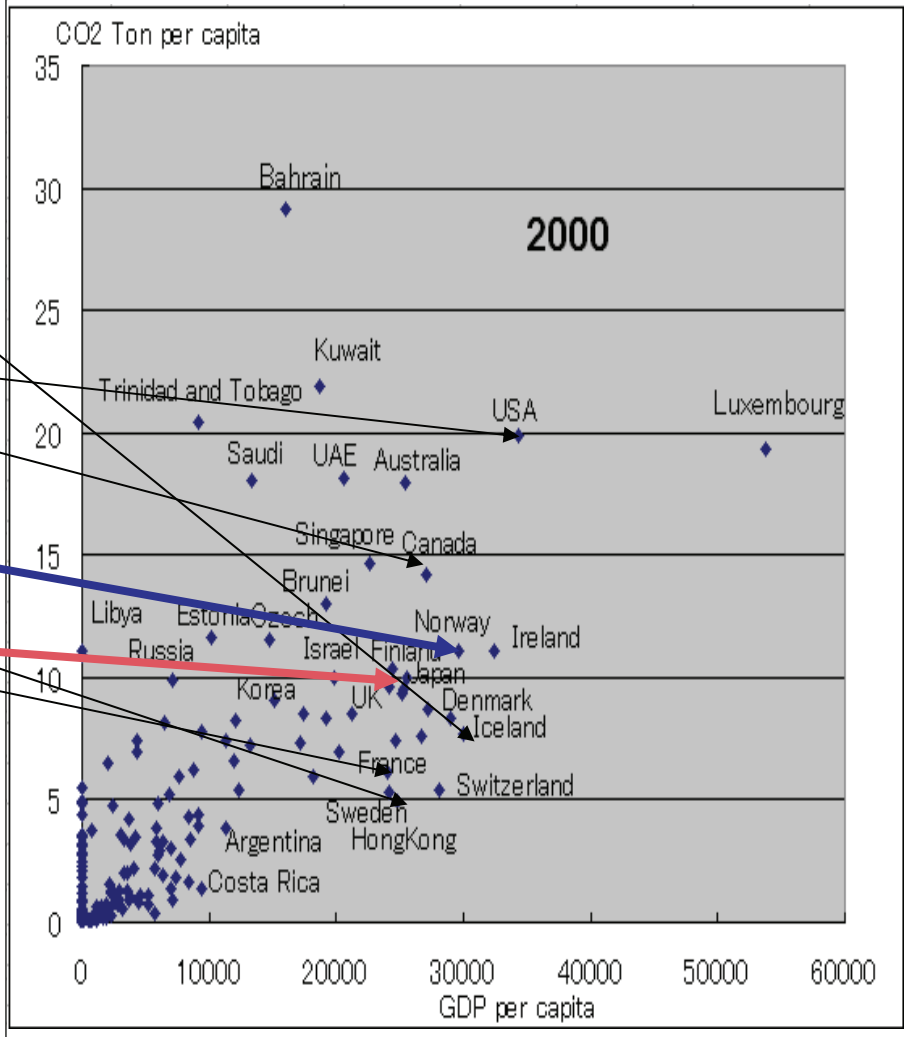
Fig Oil Burden and Price of Oil by IEA 2008

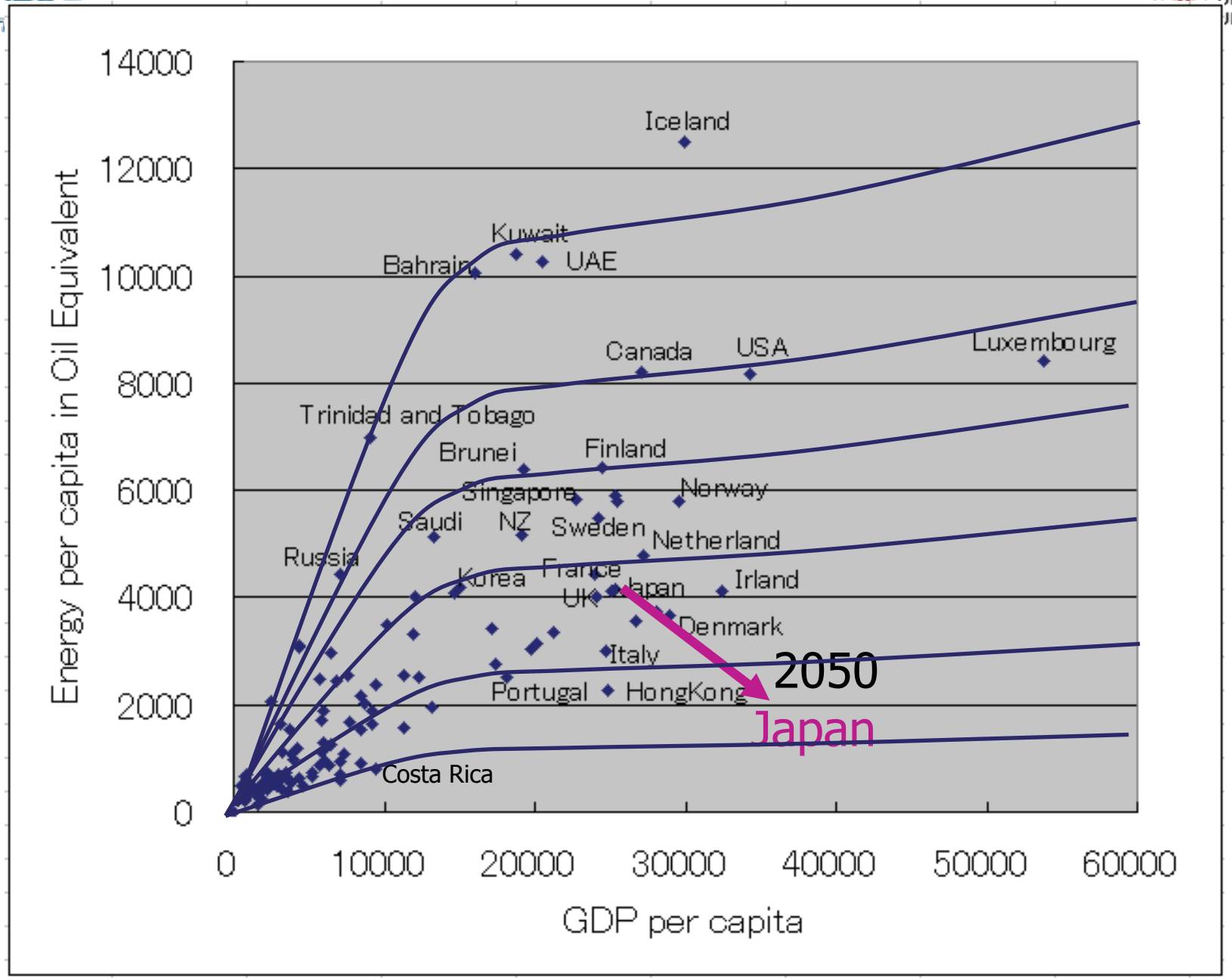


Energy Consumption
Oil Equivalent Ton/Capita

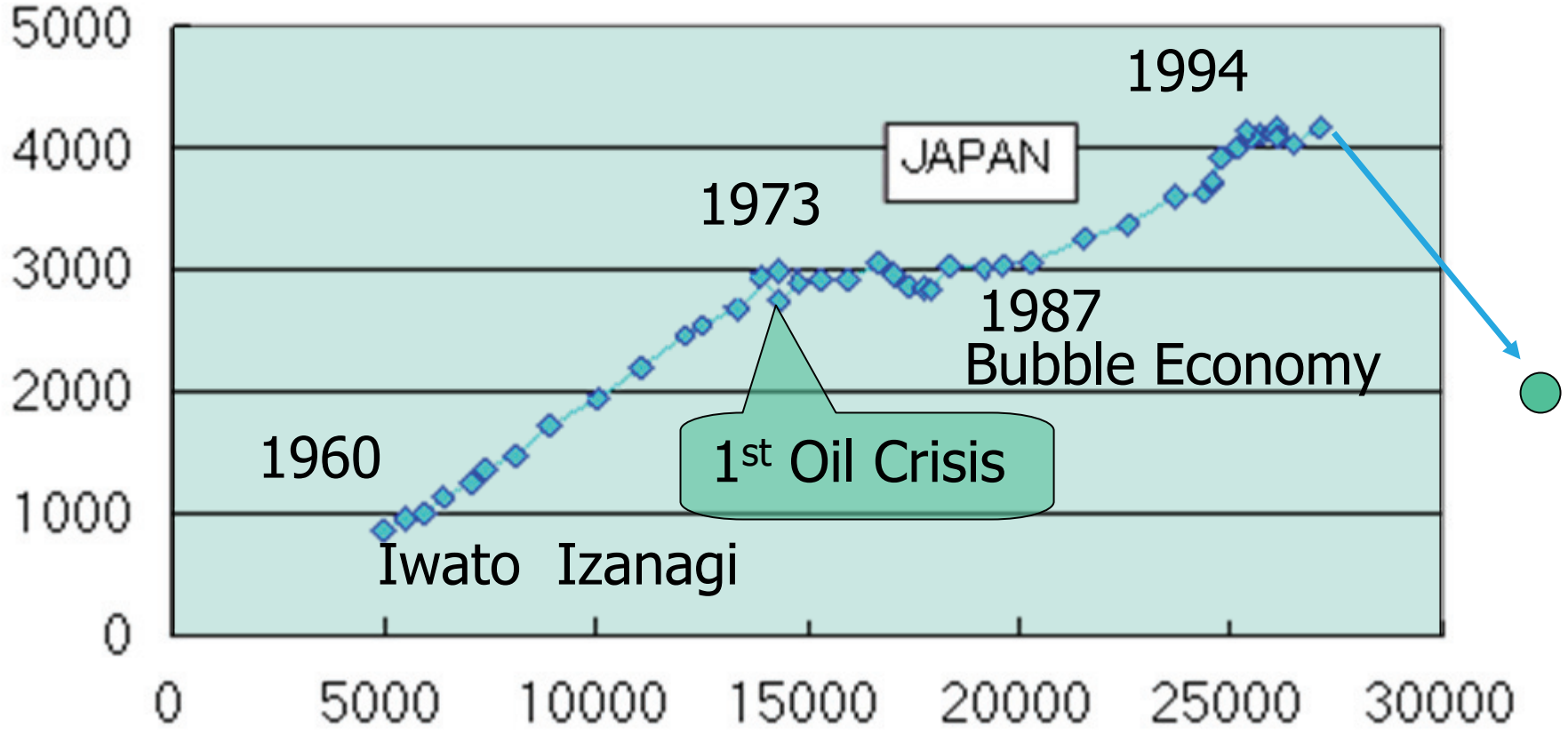


CO2 Emission Ton/Capita




14000
12000
10000
8000
6000
4000
2000
0
Energy per capita in Oil Equivalent
0
10000
20000
30000
40000
50000
60000
GDP per capita
Iceland
Kuwait
Bahrain
UAE
Canada
USA
Luxembourg
Trinidad and Tobago
Brunei
Finland
Singapore
Norway
Saudi
NZ
Sweden
Netherland
Russia
Korea
France
UK
Japan
Irland
Denmark
Italy
Portugal
HongKong
Costa Rica
2050
Japan

Energy Consumption
Kg Oil Eq. per capita

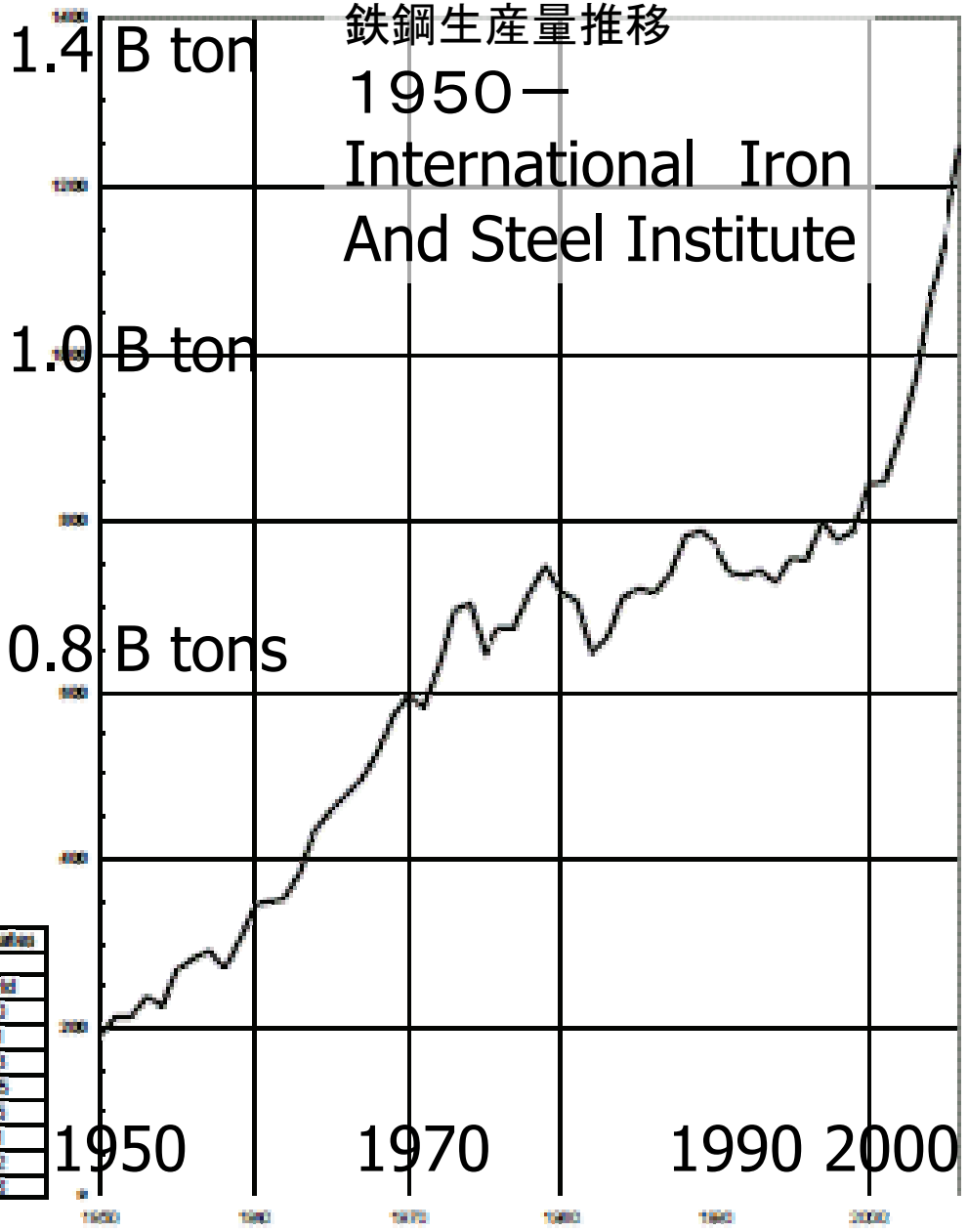


World crude steel production 1950 to 2006

(million metric tons)

Years	World
2006	1,244
2005	1,142
2004	1,068
2003	970
2002	904
2001	850
2000	848
1999	789
1998	777
1997	799
1996	755
1995	756
1990	775
1985	721
1980	717
1975	644
1970	595

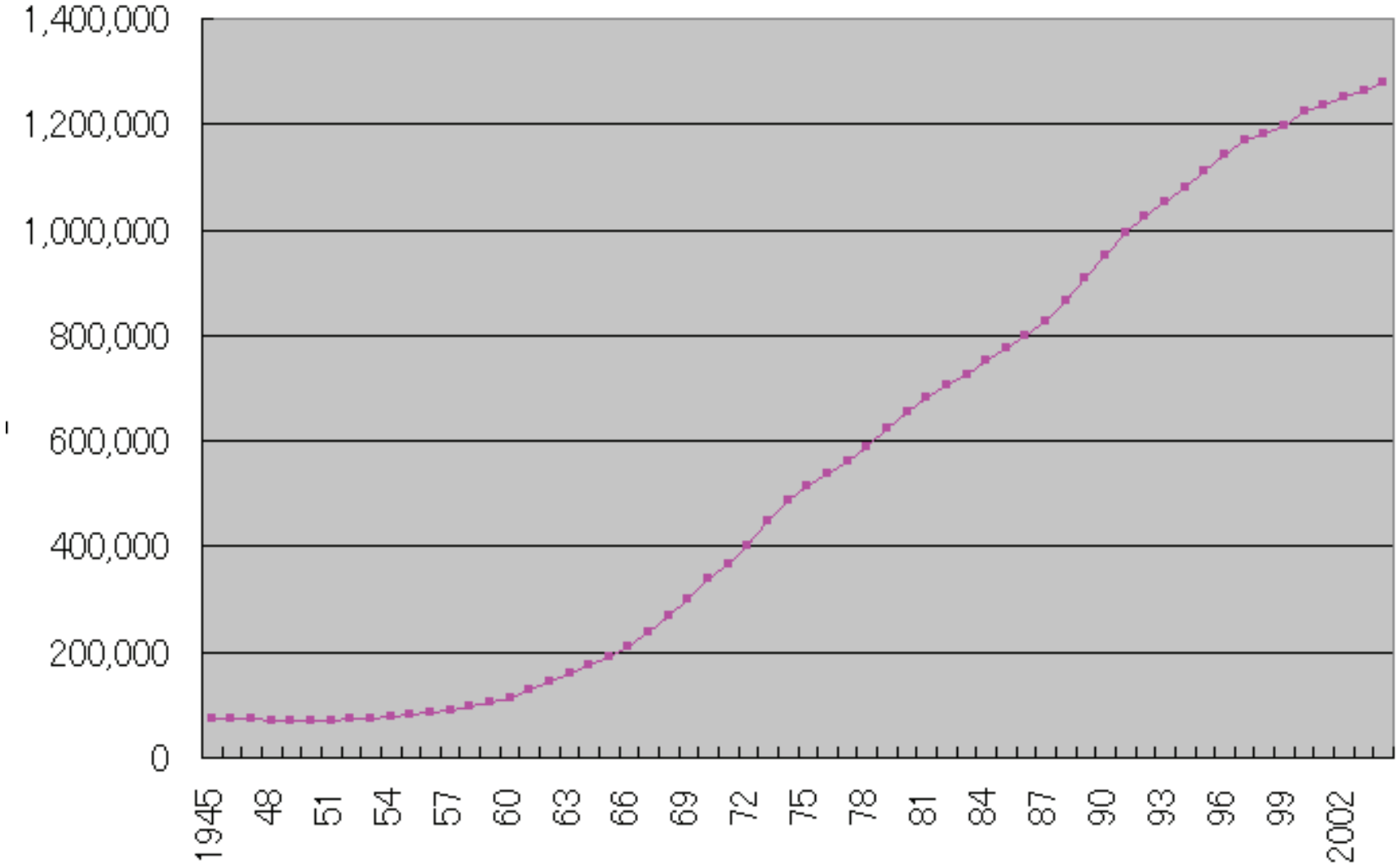
世界の
鉄鋼生産量推移
1950－
International Iron
And Steel Institute



Average Growth Rates (% per annum)	
Years	World
2005-06	9.0
2000-05	5.1
1995-00	2.3
1990-95	-0.5
1985-90	1.5
1980-85	0.1
1975-80	2.2
1970-75	1.6

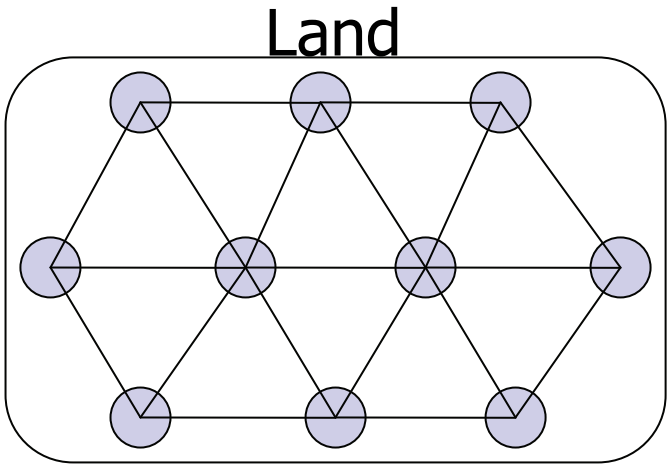
日本の鉄の蓄積量　千トン

Stock of Steel in Japan kton



Western Civilization : Grid Type

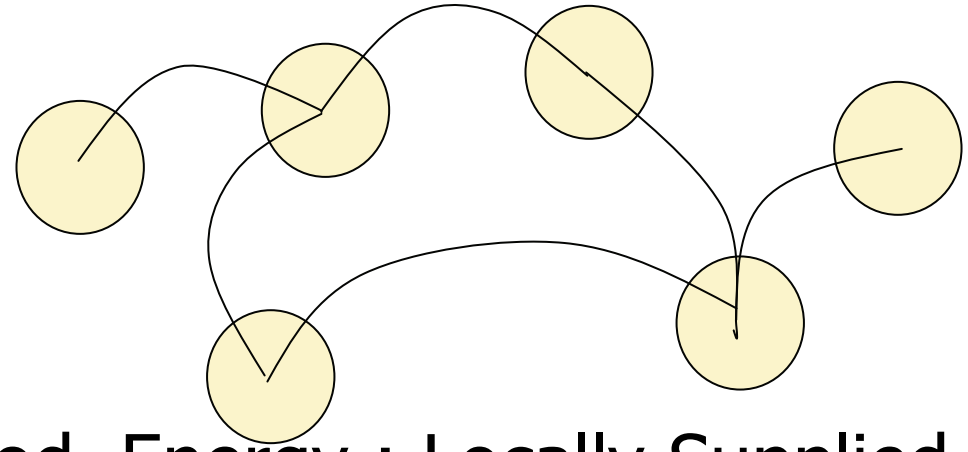
- Electric Power Grid
- Express Way
- Bullet Train
- Sewage System



- Impossible to Realize this type of Development in Whole World.
- Too Expensive, Too Much Resources

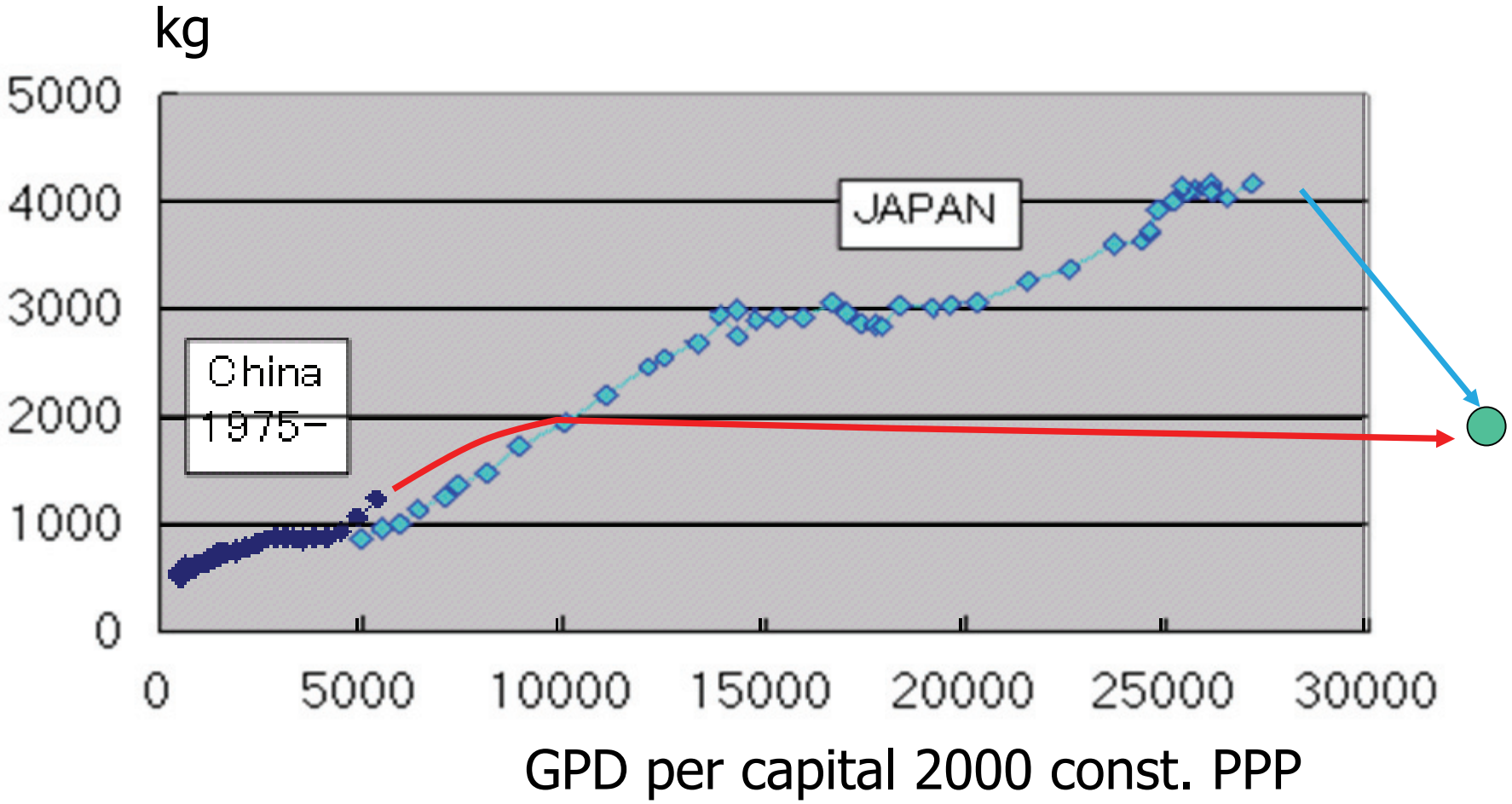
Alternative Type of Civilization ?

- Locally Self Sufficient but Connected by Information System

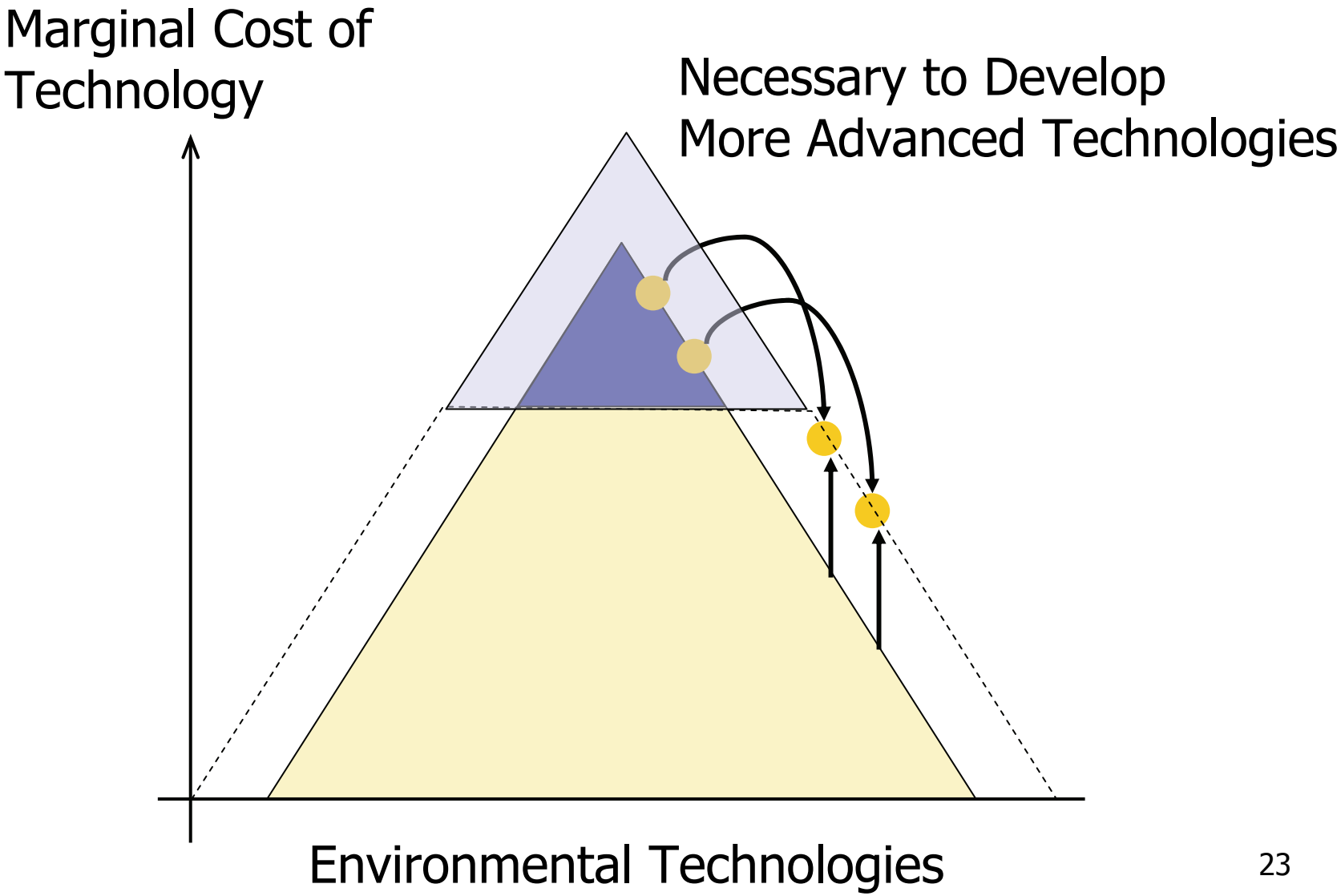


- Food, Energy : Locally Supplied
- Basic Generic Products such as Steel, Automobiles, Home Appliances : Transported by Railroad Freight Train

Different Type of Civilization in China and others



Technology Transfer and Marginal Cost



Herman Daly's Definition
Steady State Economics since 1970s

- Harvesting rates should not exceed regeneration rates.
- Waste emissions should not exceed the renewable assimilative capacity of the local environment.
- Nonrenewable resources should be depleted at a rate equal to the rate of creation of renewable substitutes.

Conclusions

- Limitations = Already No-doubt
- in Environment: Climate Change
- in Resource: Mineral, Energy
- Key components
- 1. Technology Transfer Scheme
- 2. Creation of Different Civilizations other than Western Style

- Need to Consider "Ultimate Sustainability"