GIES for Energy Saving Technology

- 3D or 2D Model -

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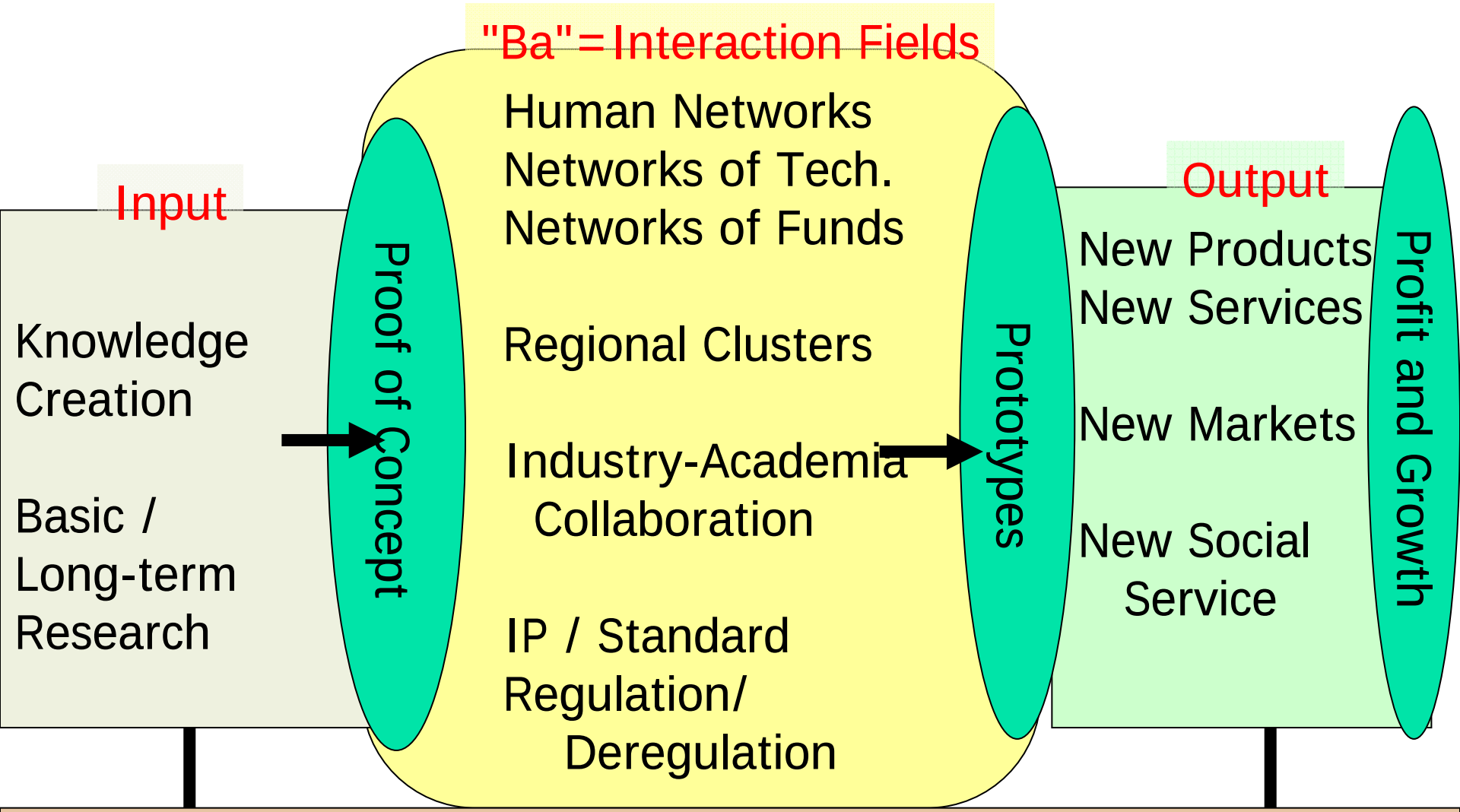
Innovation Ecosystem



Current Version of GIES

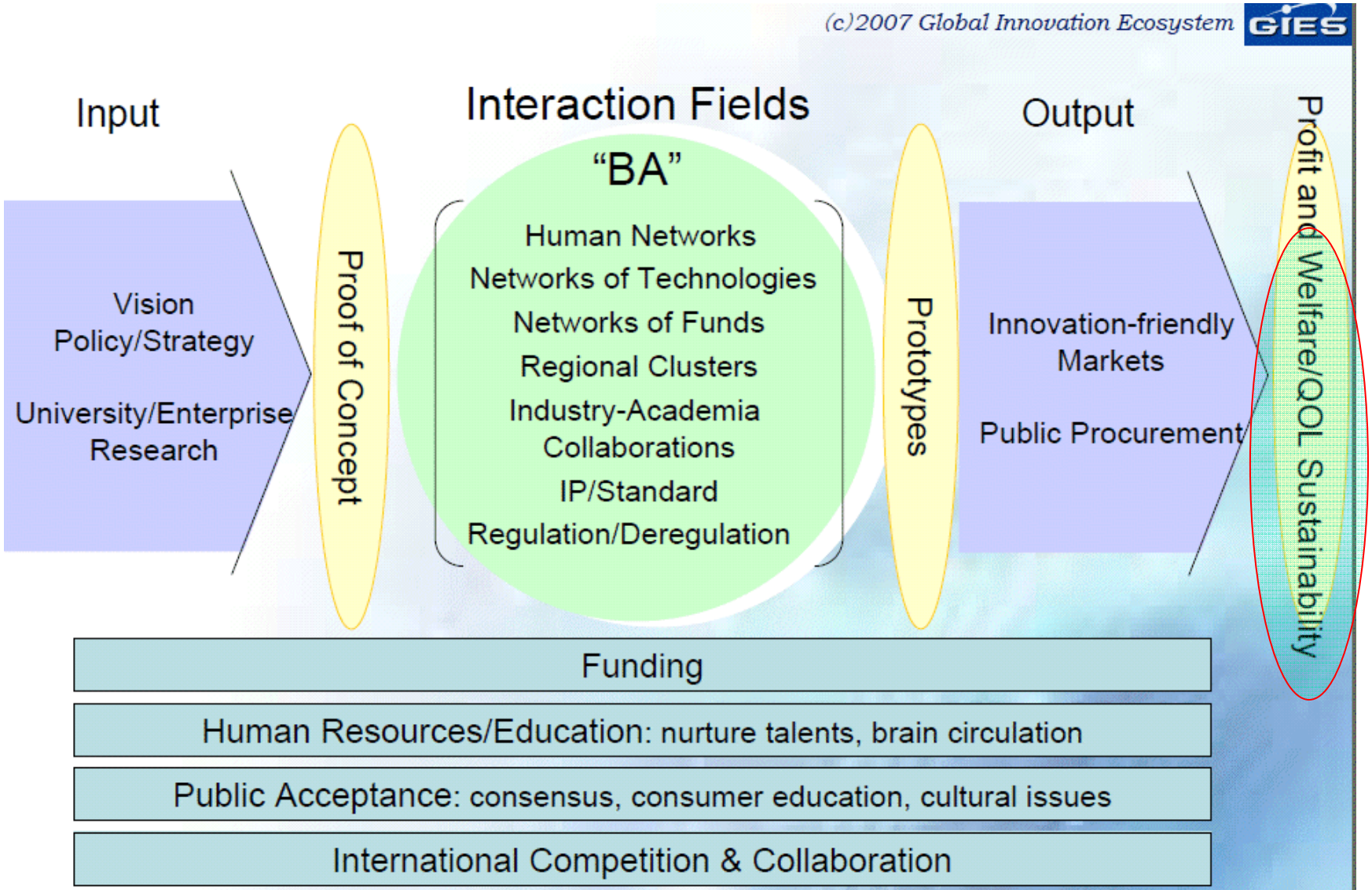
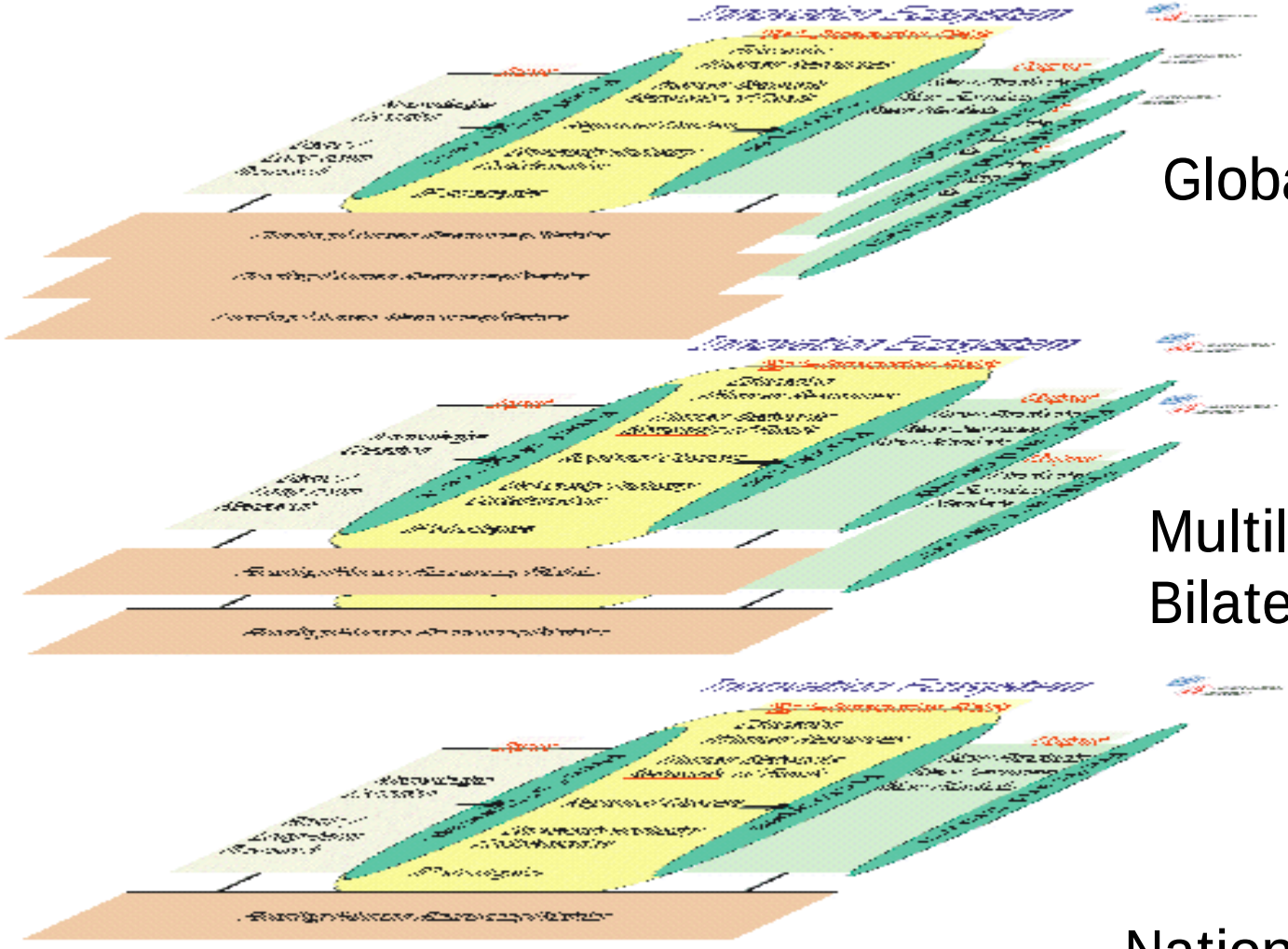
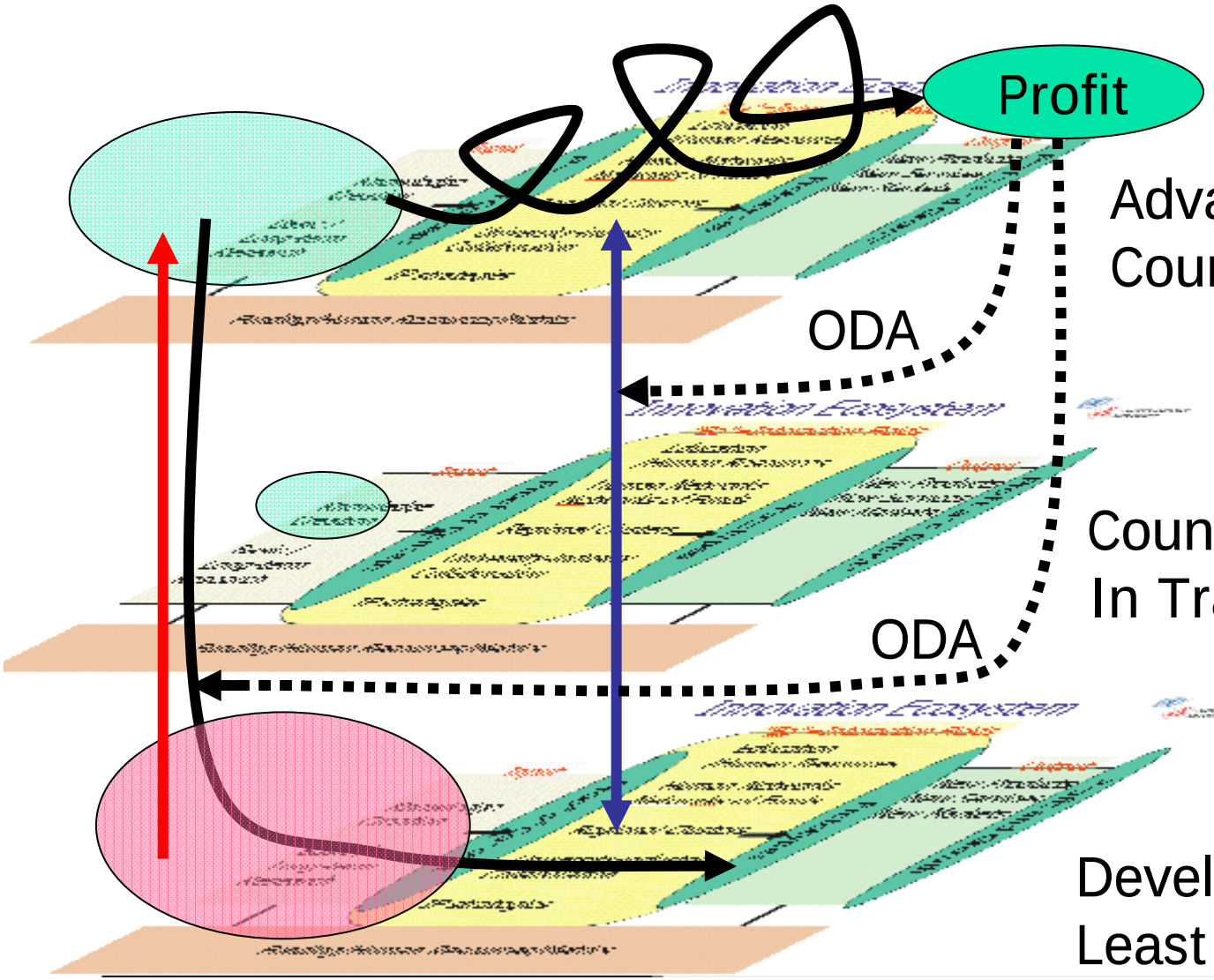


Figure 2. Innovation Ecosystem.

3D Multilayer Schematic Representation



3D Multilayer Schematic Representation



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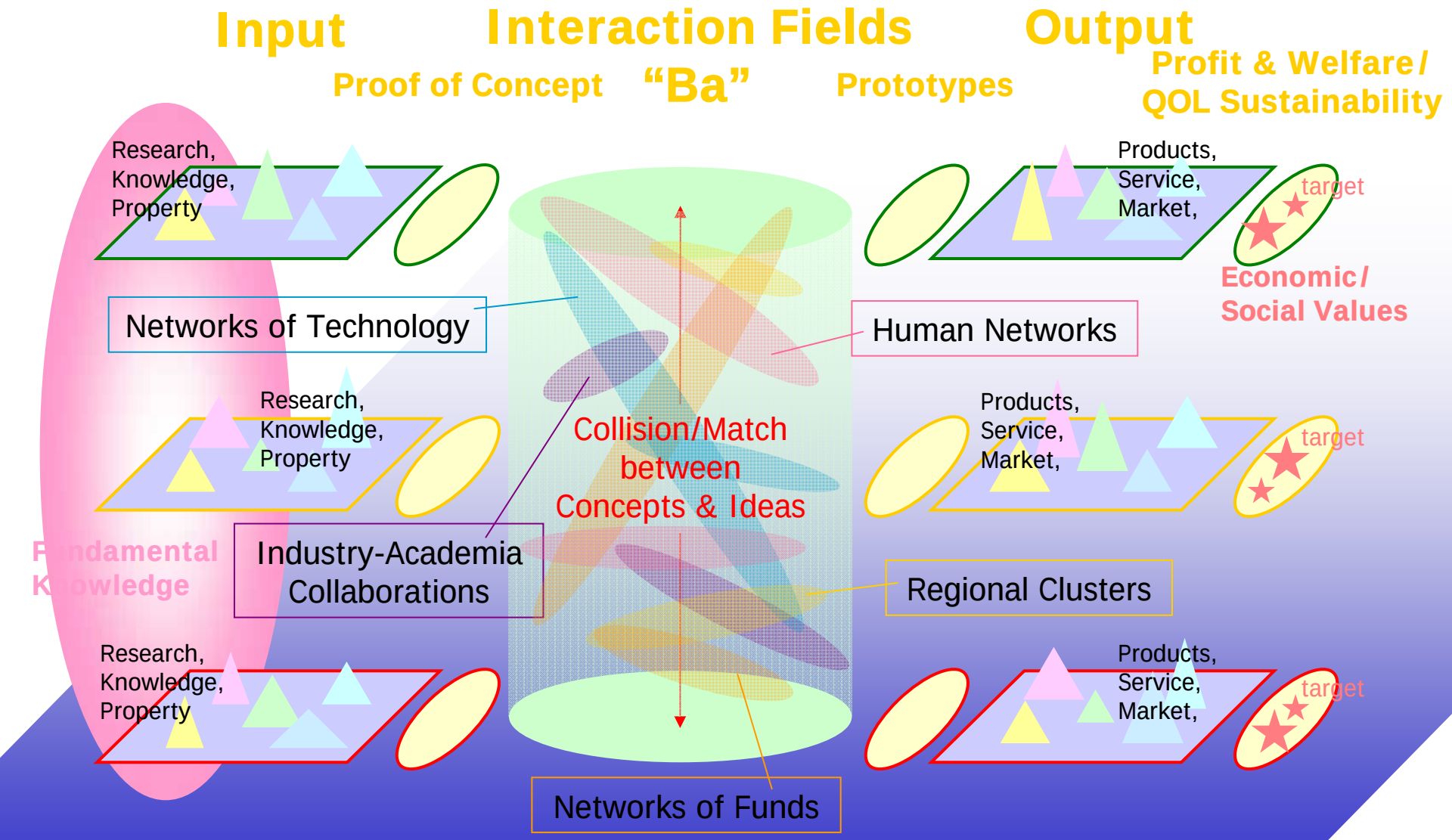
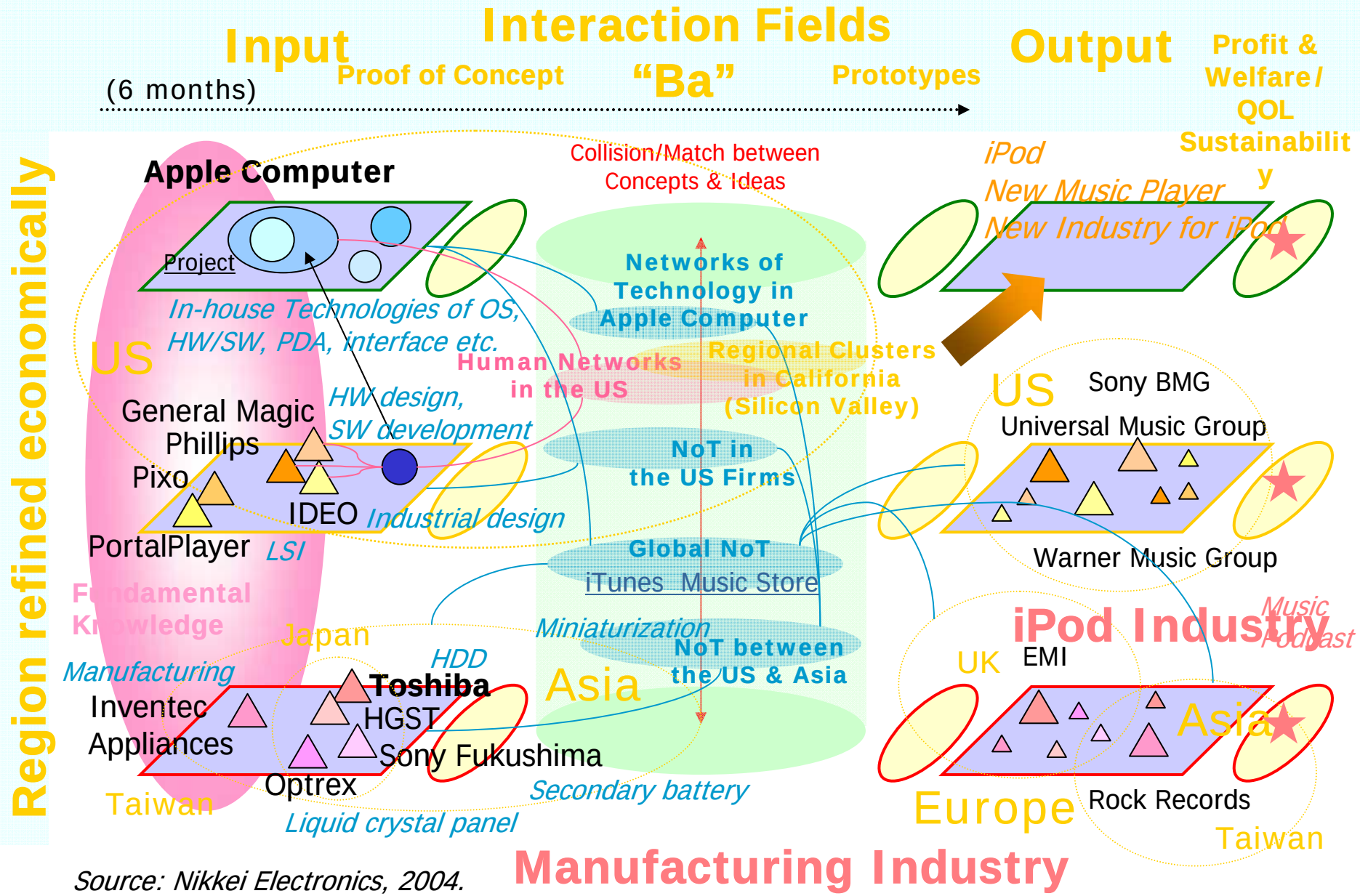
3D Multilayer Schematic Representation

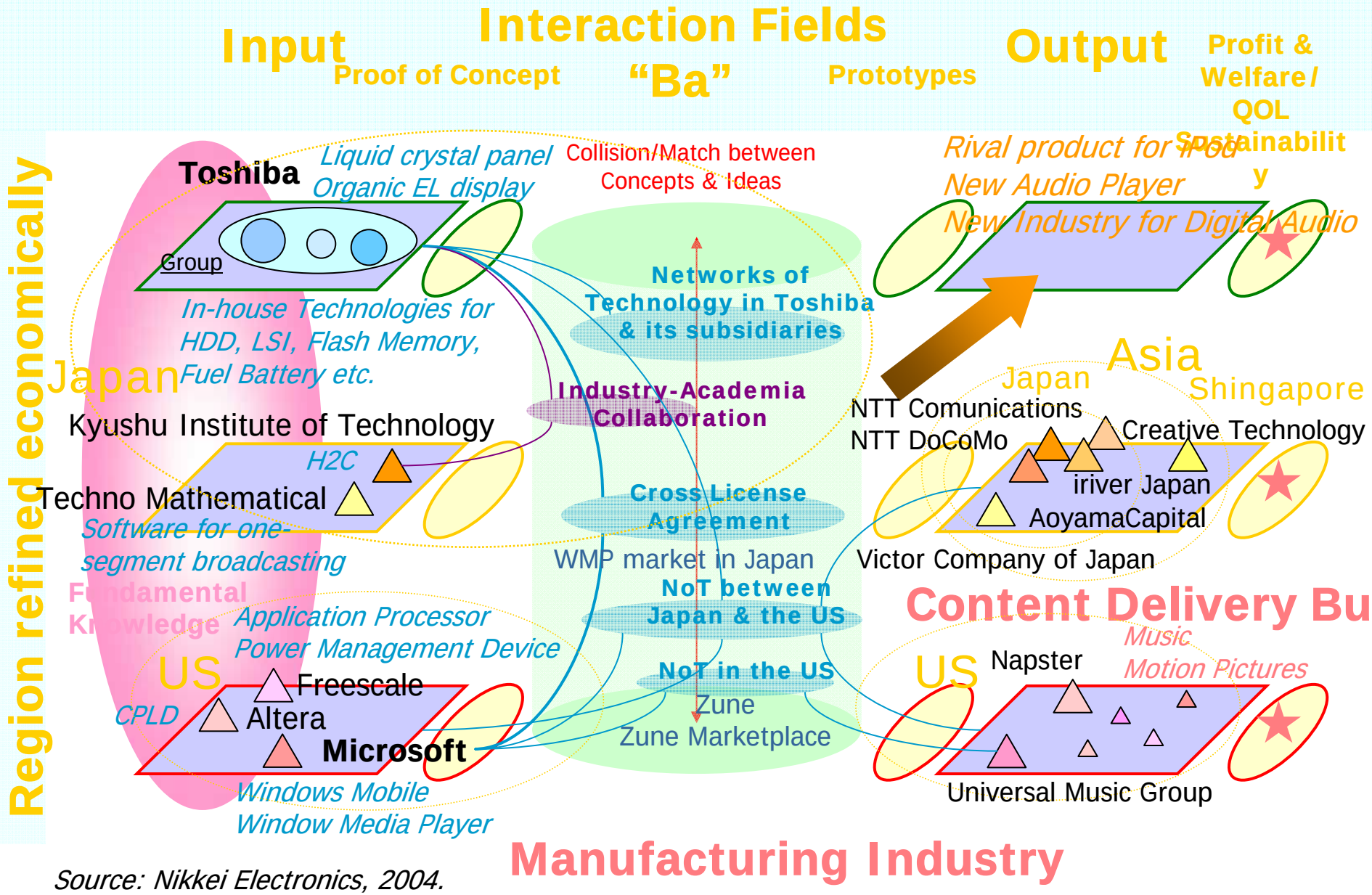


GIES model in the case of iPod



Source: Nikkei Electronics, 2004.

GIES model in the case of gigabeat



Source: Nikkei Electronics, 2004.

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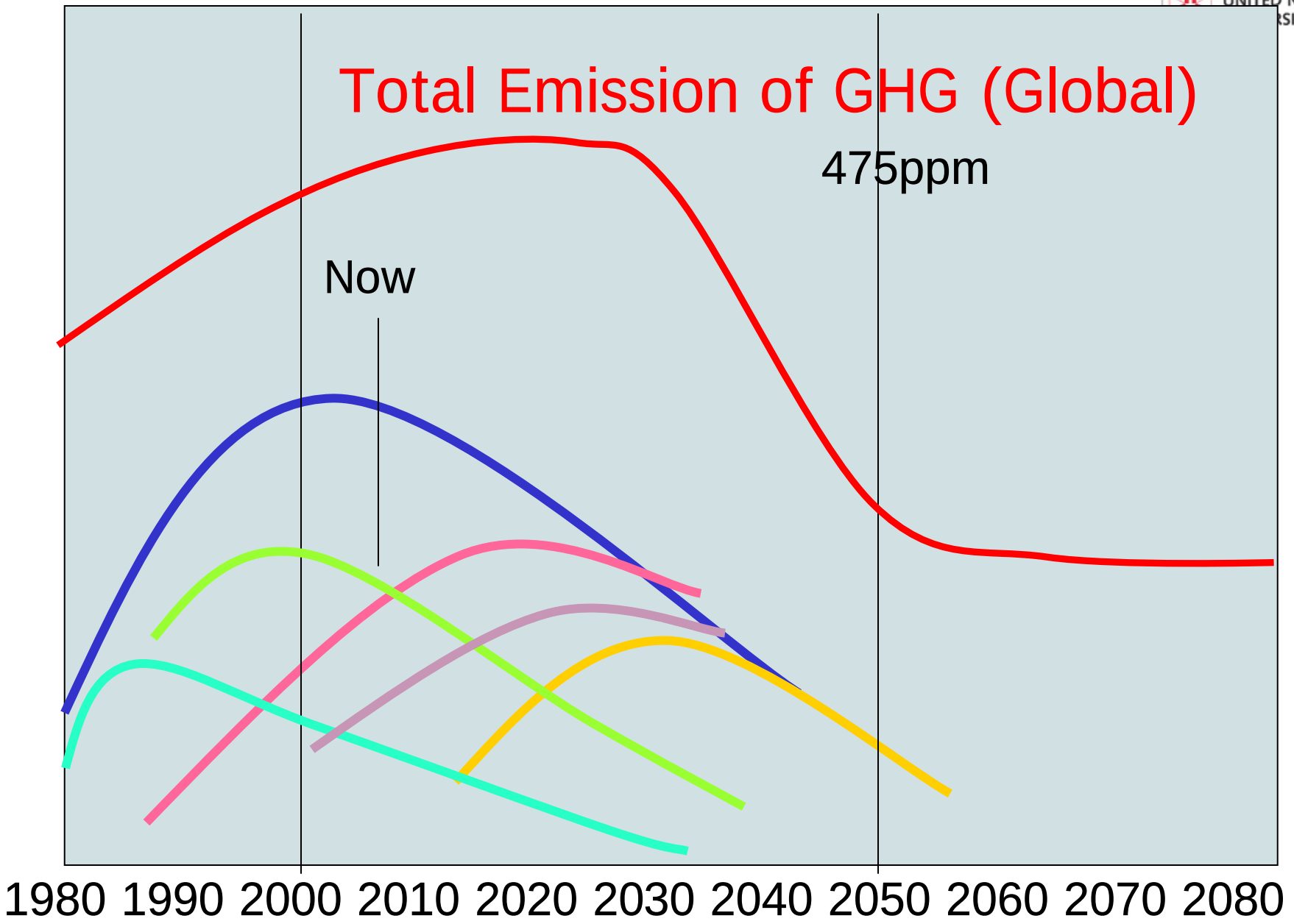
Japanese New Policy for Climate Change by Prime Minister ABE

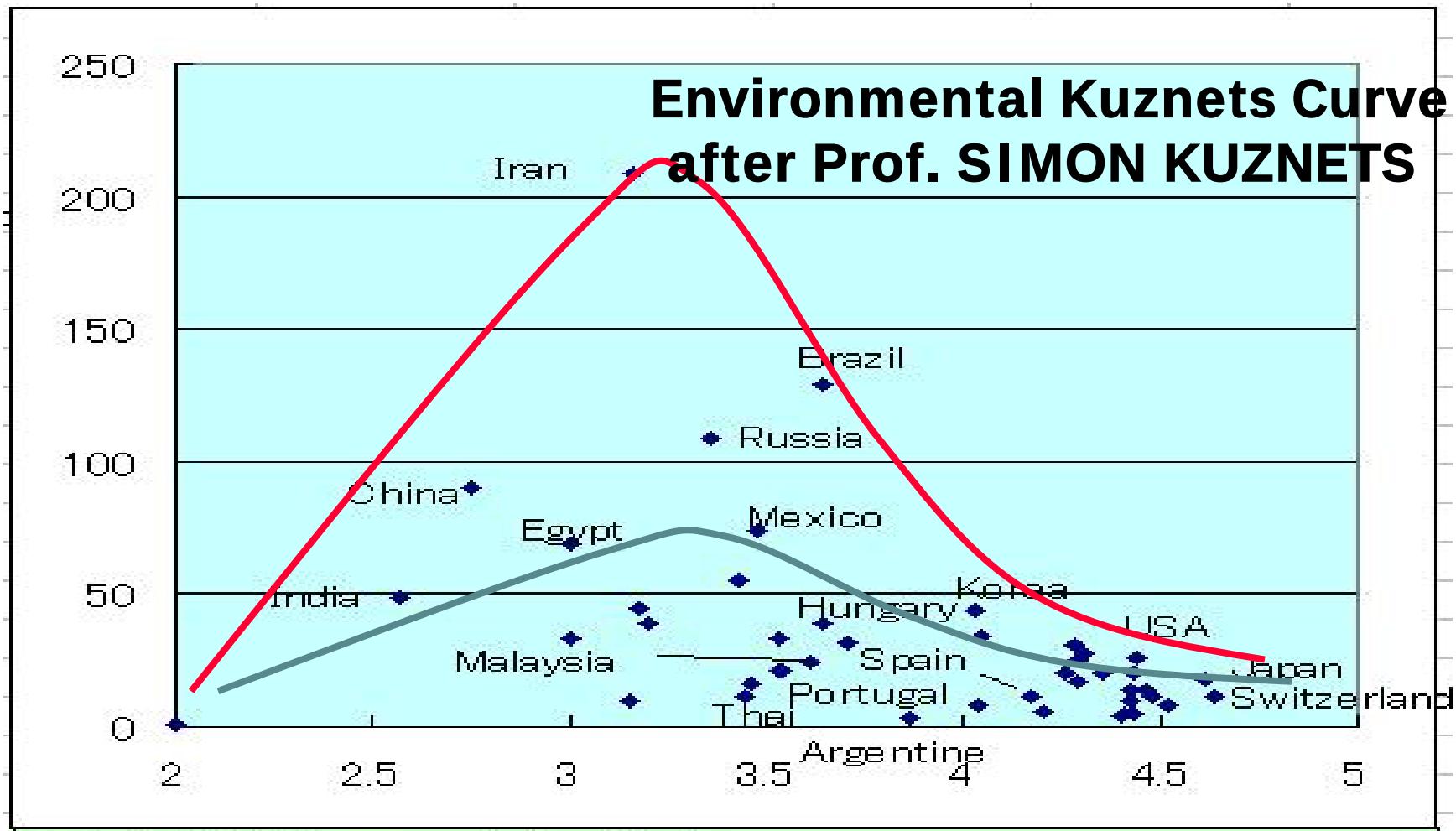
- May 24, 2007 in his Lecture at “Future of ASIA” in Tokyo.
- “Cool EARTH 50” = 50% reduction of GHG by 2050”
- He will propose this again in the next G8 to be held in Toya-ko, Hokkaido in 2008.

Heiligendamm G8 Summit

- 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)


Total Emission of GHG (Global)
475ppm
Now
1980 1990 2000 2010 2020 2030 2040 2050 2060 2070 2080

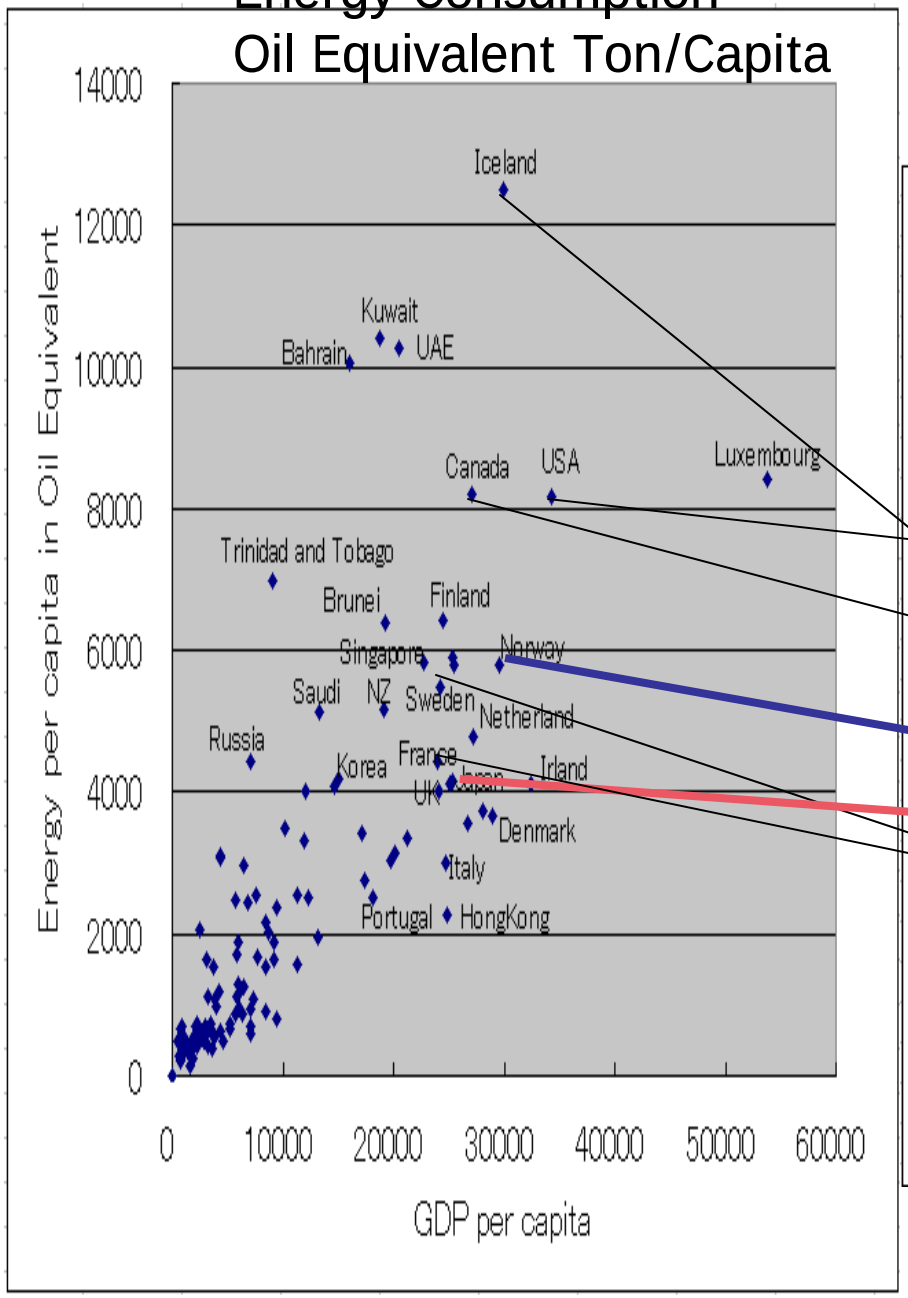
GDP par capita vs. SOx Concentration



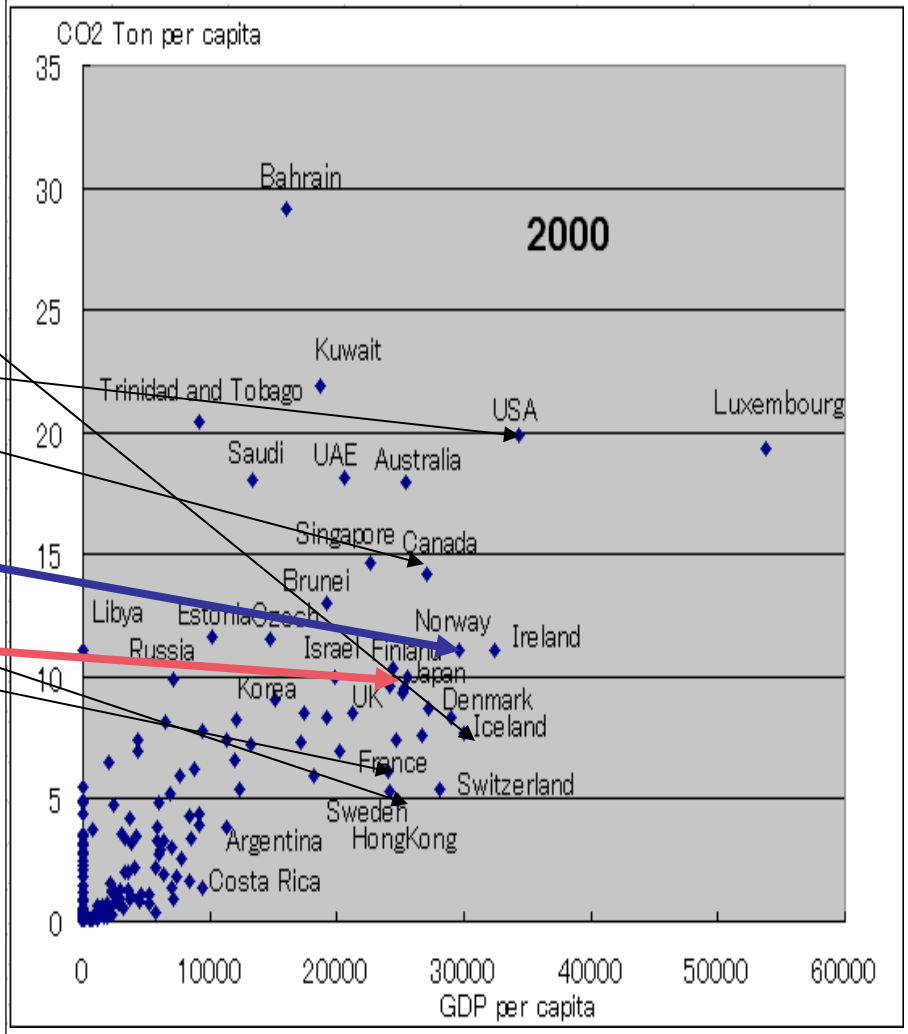
X-Axis: GPD / person in Log Scale
Y-Axis: SOx Concentration in Capital Area (micor gr / m3)

Tendency is clearer in Log Scale Plot.

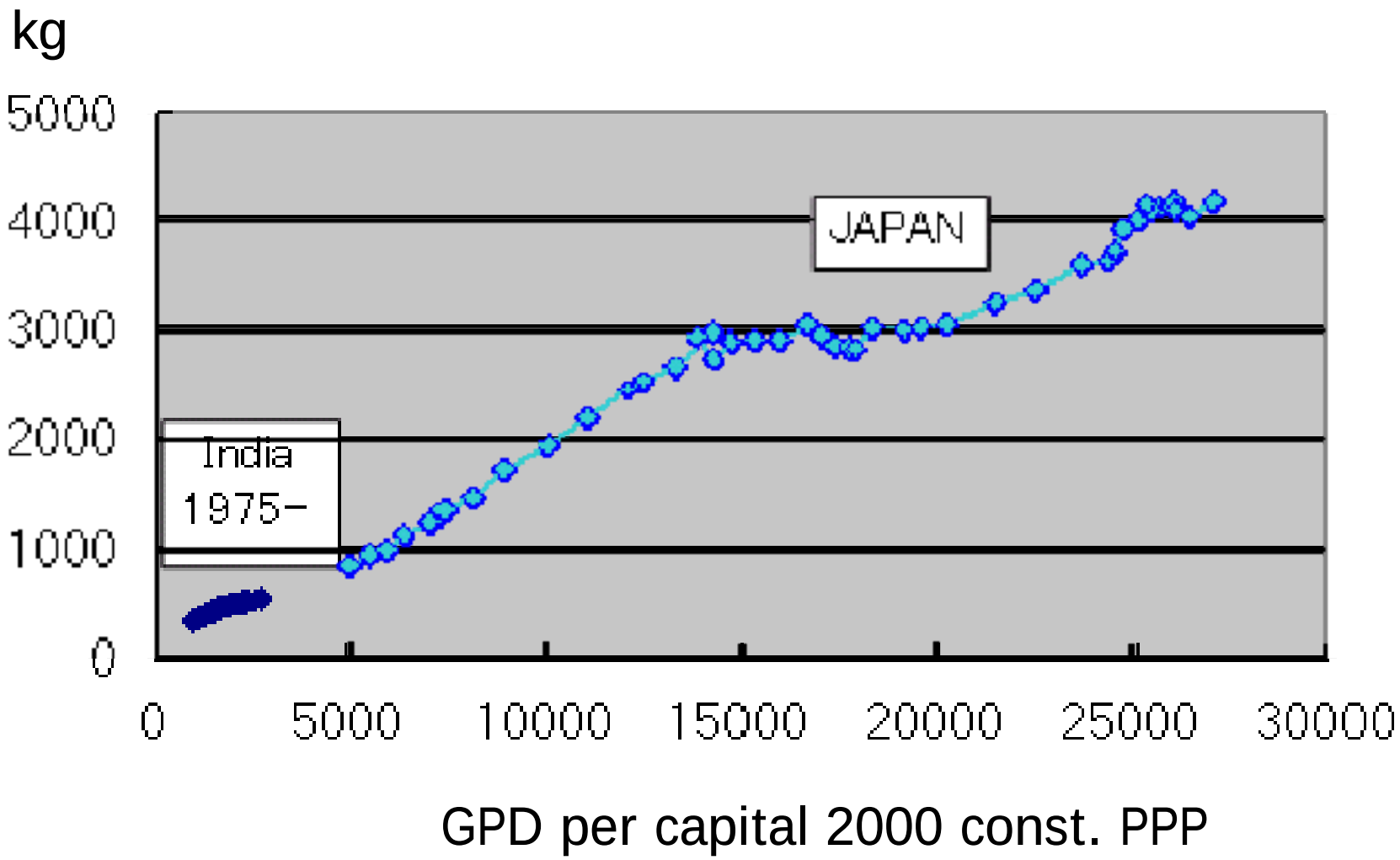
Energy Consumption Oil Equivalent Ton/Capita



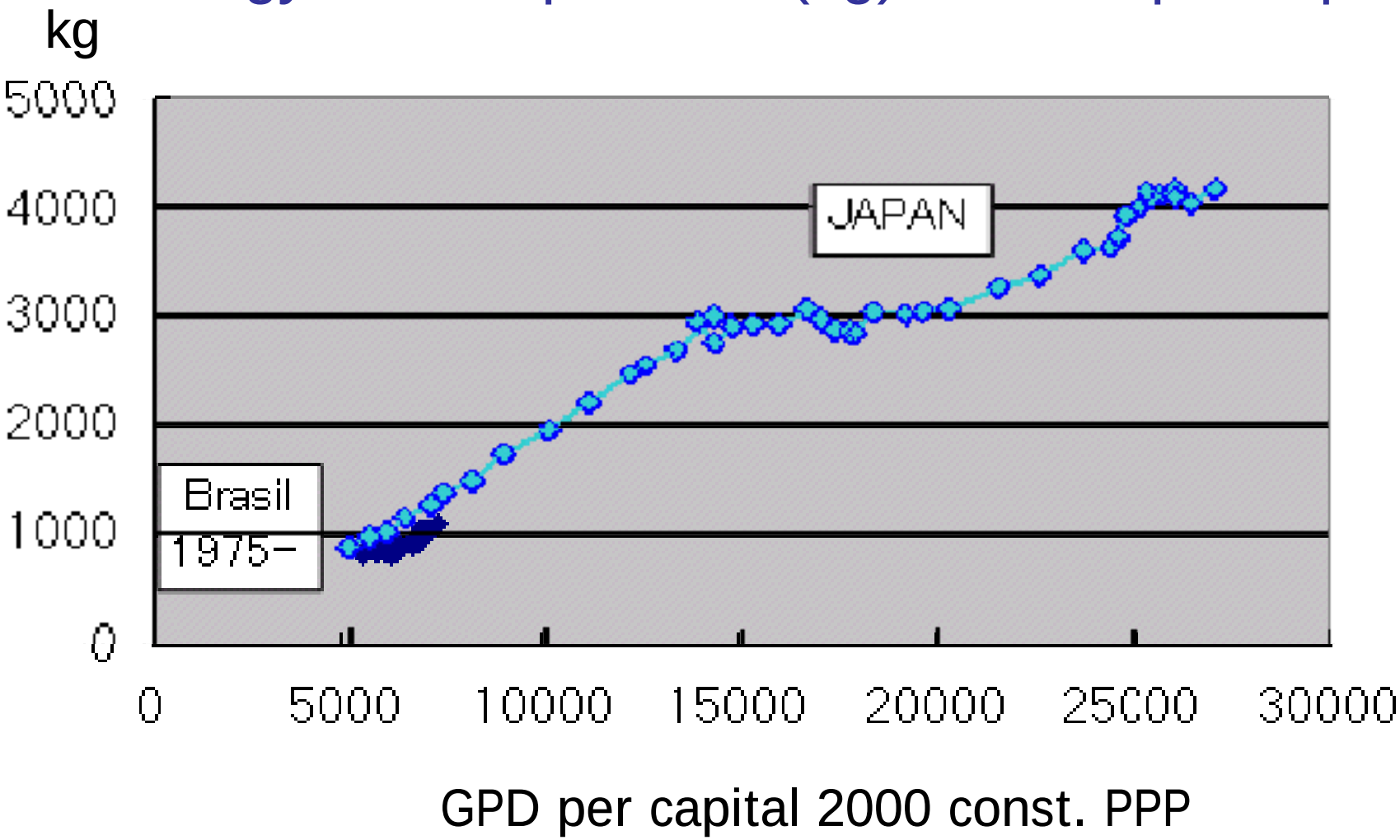
CO2 Emission Ton/Capita



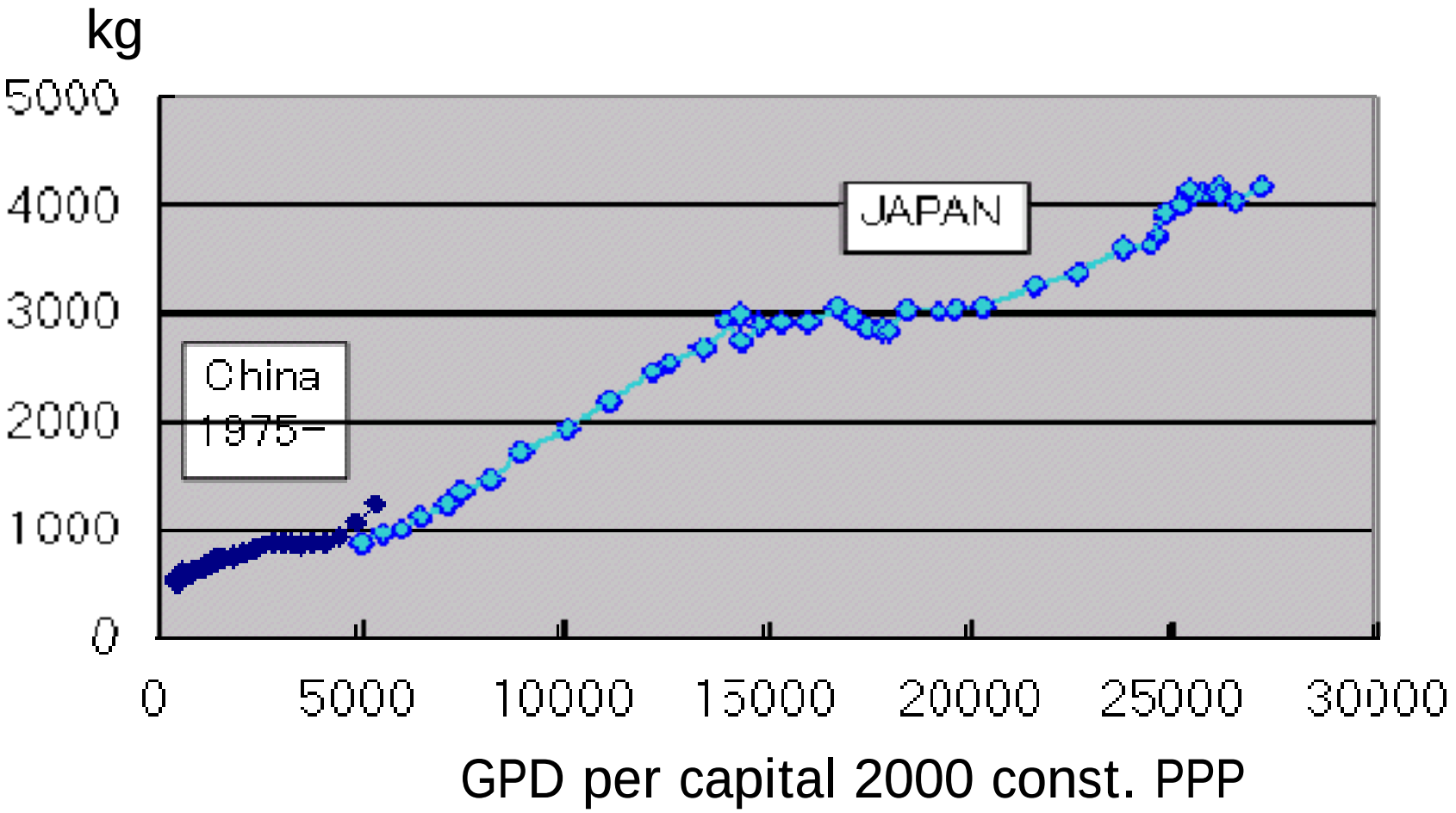
Energy in Oil Equivalent (kg) vs. GDP per capita

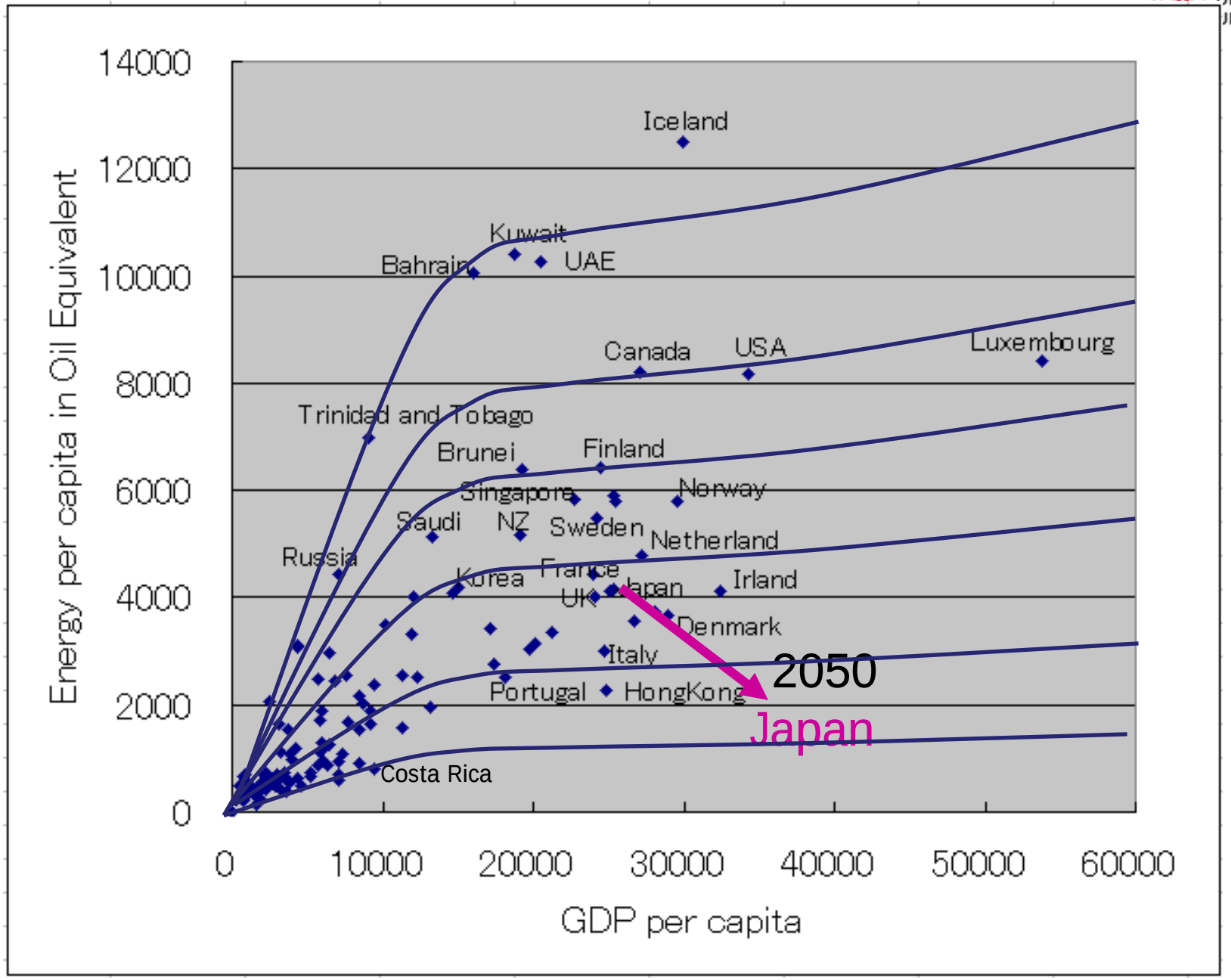


Energy in Oil Equivalent (kg) vs. GDP per capita

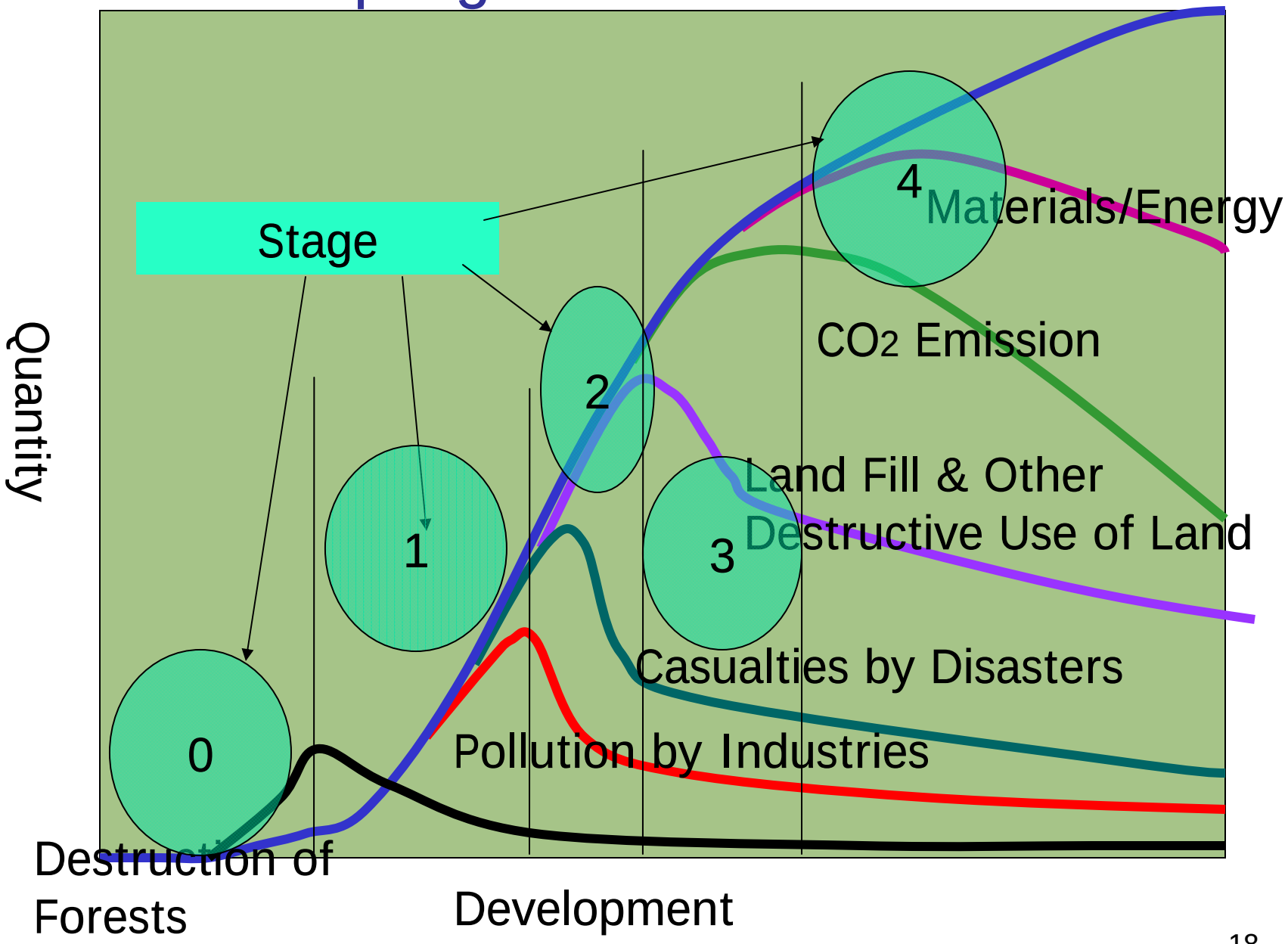


Energy in Oil Equivalent (kg) vs. GDP per capita



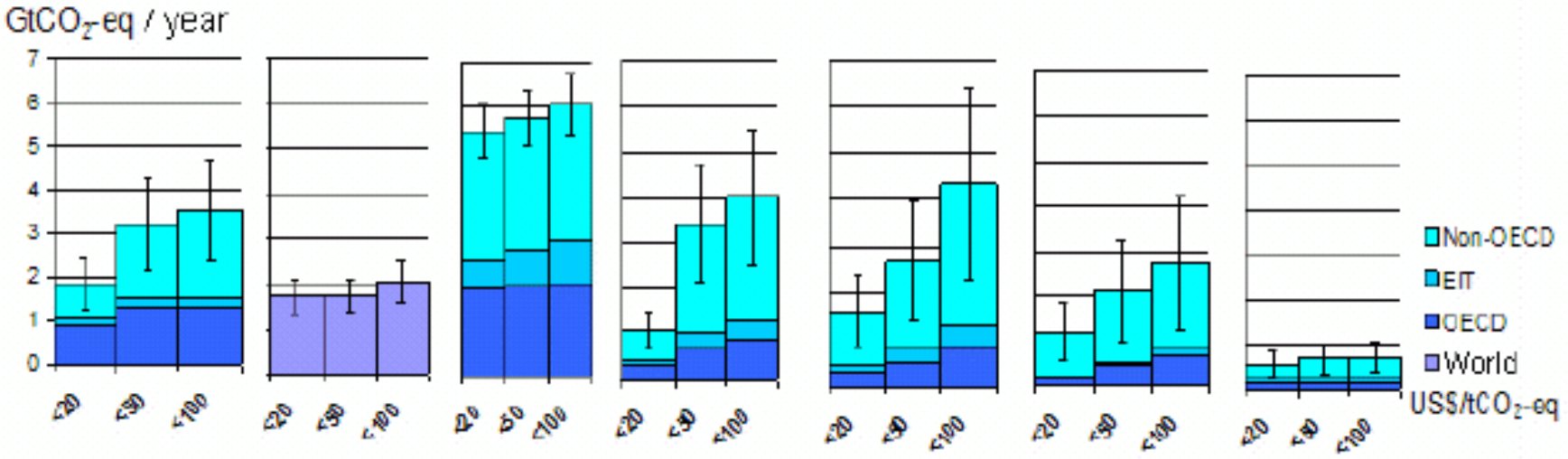

Energy per capita in Oil Equivalent
14000
12000
10000
8000
6000
4000
2000
0
0
10000
20000
30000
40000
50000
60000
GDP per capita
Iceland
Kuwait
Bahrain
UAE
Canada
USA
Luxembourg
Trinidad and Tobago
Brunei
Finland
Singapore
Norway
Saudi
NZ
Sweden
Netherland
Russia
Korea
France
UK
Japan
Irland
Denmark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

Decoupling from Env. Issues



Possibilities of Reduction of GHG

エネルギー　　建築物　　農業　　廃棄物



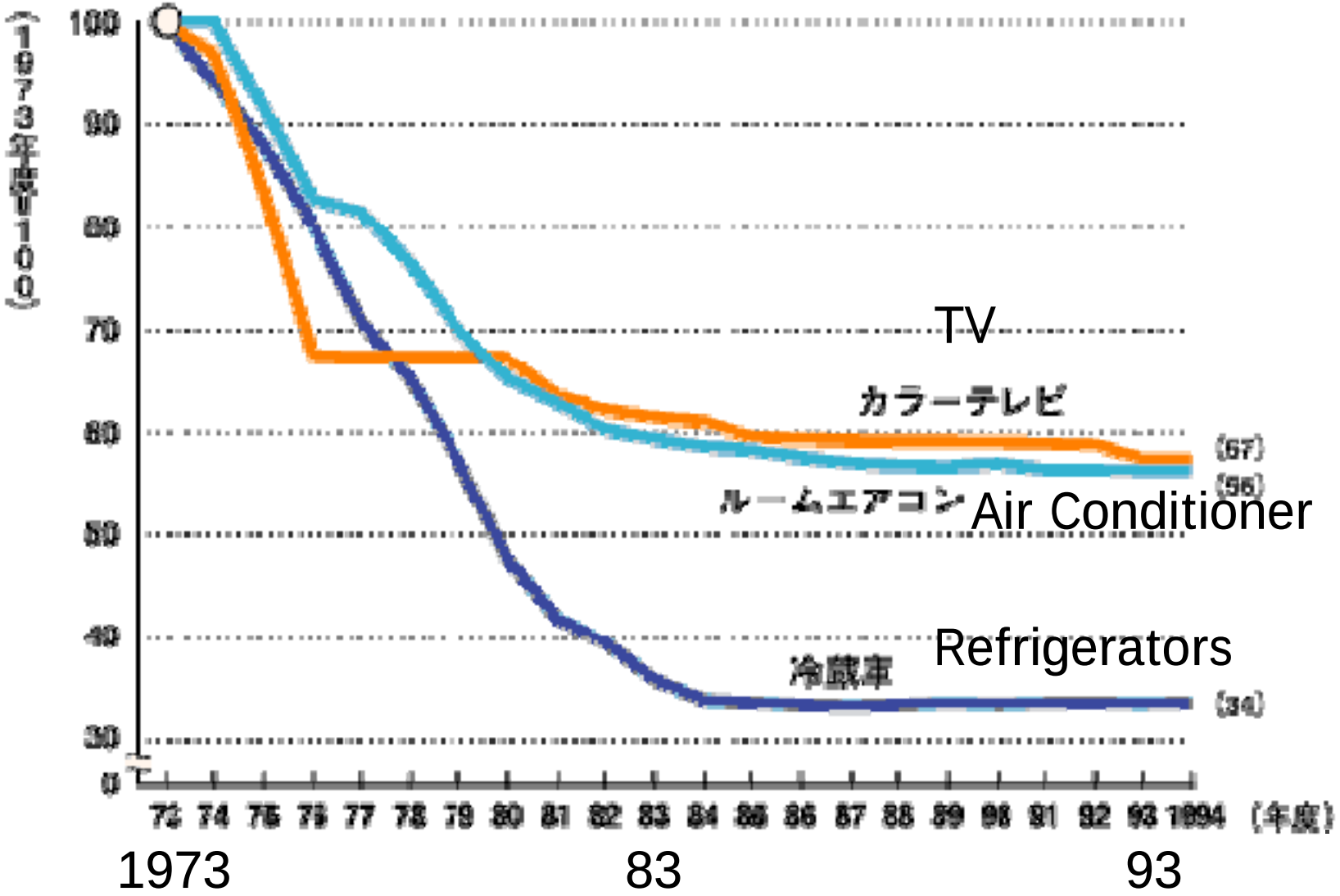
(potential at <US$100/tCO2-eq: 2.4 - 4.7 Gt CO2-eq/yr)	*(potential at <US$100/tCO2-eq: 1.6 - 2.5 Gt CO2-eq/yr)*	*(potential at <US$100/tCO2-eq: 5.3 -6.7*	*(potential at <US$100/tCO2-eq: 2.5 - 5.5 Gt CO2-eq/yr)*	*(potential at <US$100/tCO2-eq: 2.3 - 6.4 Gt CO2-eq/yr)*	*(potential at <US$100/tCO2-eq: 1.3 - 4.2 Gt CO2-eq/yr)*	*(potential at <US$100/tCO2-eq: 0.4 - 1 Gt CO2-eq/yr)*

輸送　　製造業　　林業

1tCO2 <$20　<$50　<$100

電気機器の省エネルギー

Energy Saving Trends



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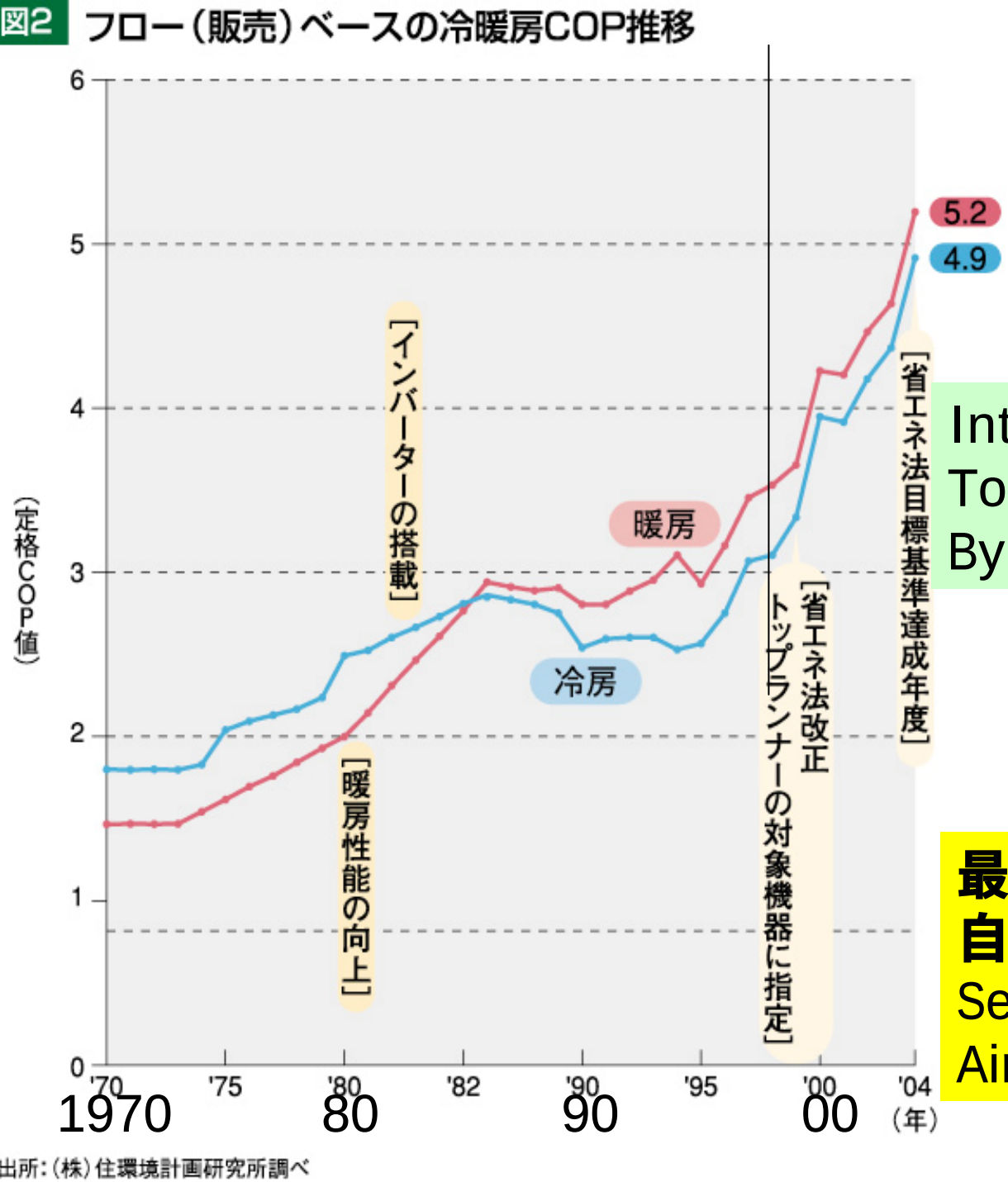
COP

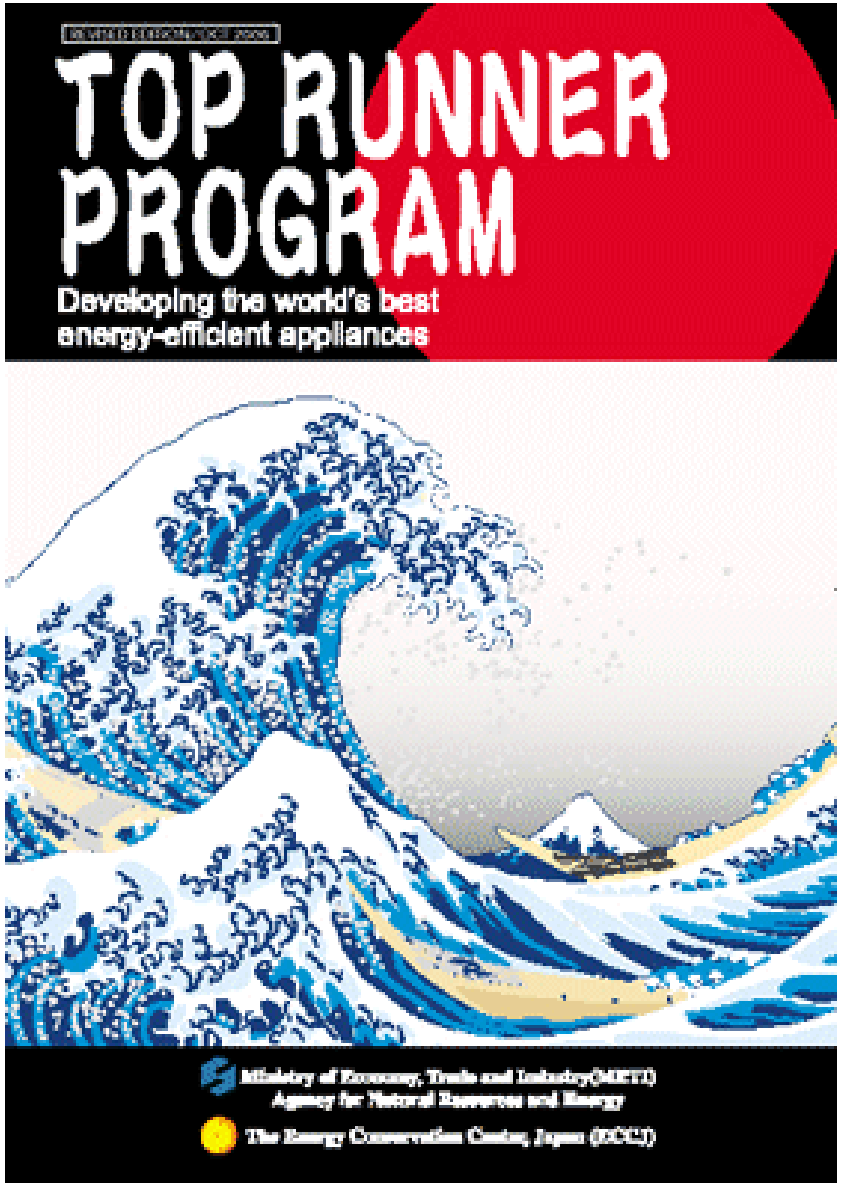
効率係数



Now
> 6

Introduction
Top Runner
By METI

最近では、
自動お掃除
Self-cleaning
Air conditioner



Developing the World's Best Energy-Efficient Appliances
(Japan's "Top Runner" Standard)
REVISED EDITION/OCT 2006

世界最高の省エネルギー機器の創出に向けて
(日本のトップランナー基準)改訂2006年10月版

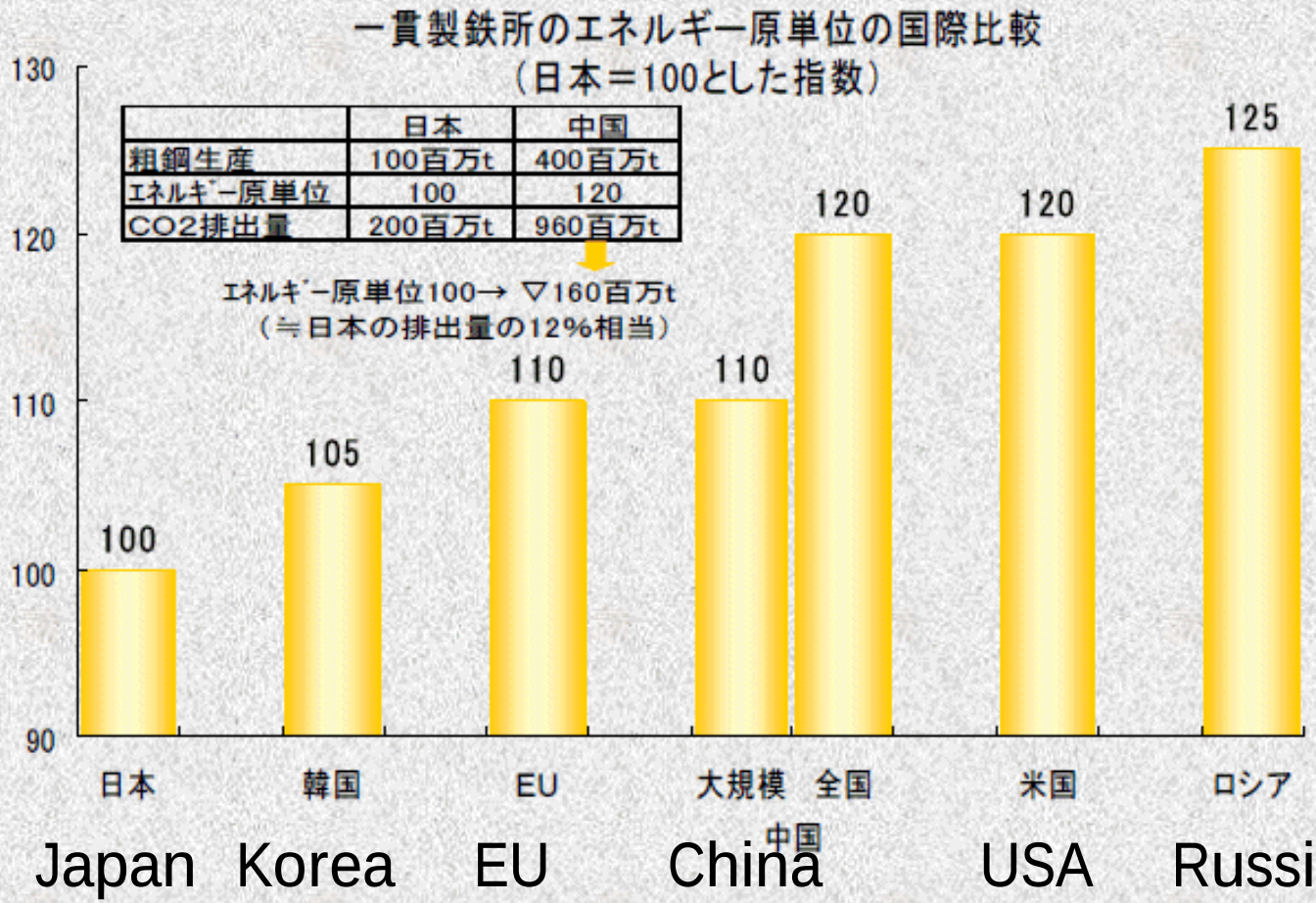
公平な比較のために、
多くの区分に分割。
エアコンだと、
**　冷暖房用、冷房専用、マルチ、**
**　サイズ、能力などなど　３２区分**

２０１０冷凍年からは４区分

32 categories for Air Conditioners; 4 categories from 2010

Unit Energy Consumption for Steel Making

(2) 一貫製鉄所のエネルギー原単位の国際比較



出所：韓国鉄鋼協会、中国鋼鉄工業協会、個別ヒアリング等の情報より作成

(注)中国のデータについては、BOUNDARY、定義等不明

http://www.jisf.or.jp/business/ondanka/sinchoku/docs/WG_070116.pdf

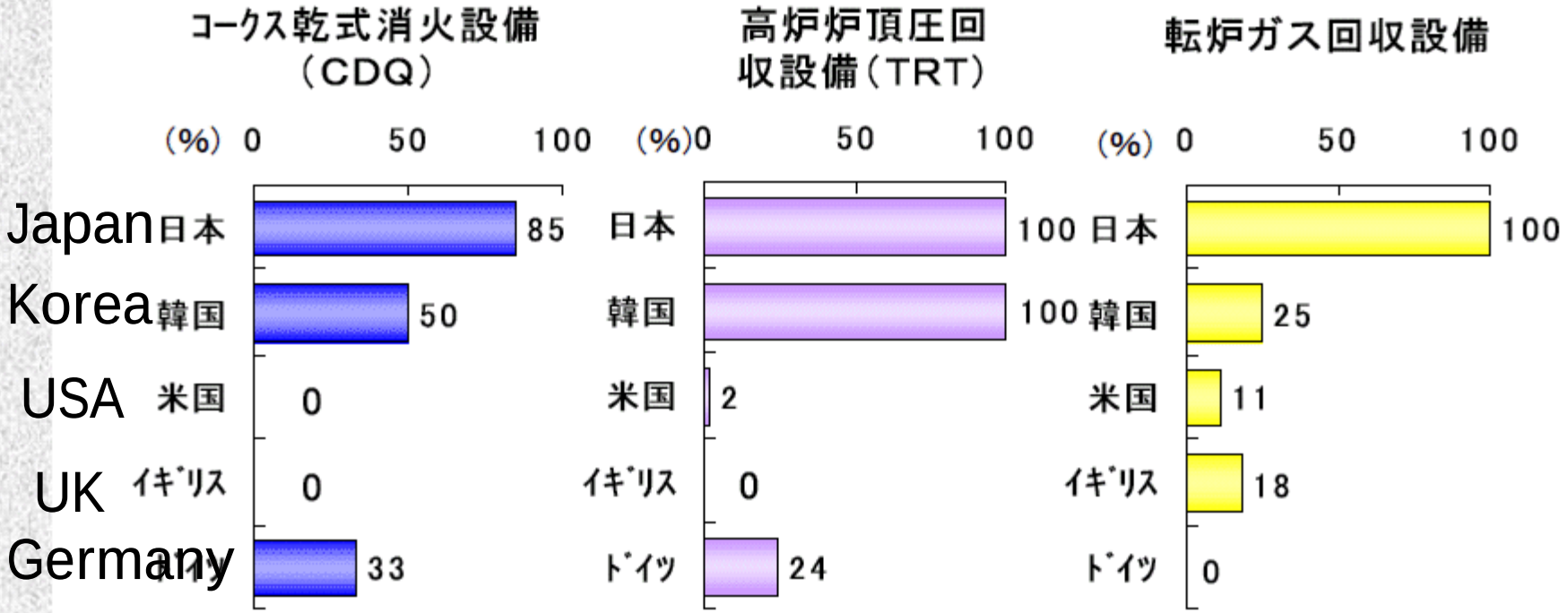
Introduction of Save Energy Devices in Steel Industries

(2) 主要省エネ設備普及率の国際比較

■ 下図は1996年の調査結果

■ 現在、(財)エネルギー経済研究所の協力の下、データを更新すべく、IISI(国際鉄鋼協会)傘下の主要企業に対し働きかけているところ

Top Pressure Recovery Turbine



Coke Dry Quenching

Basic Oxygen Converter Gas Recovery Process

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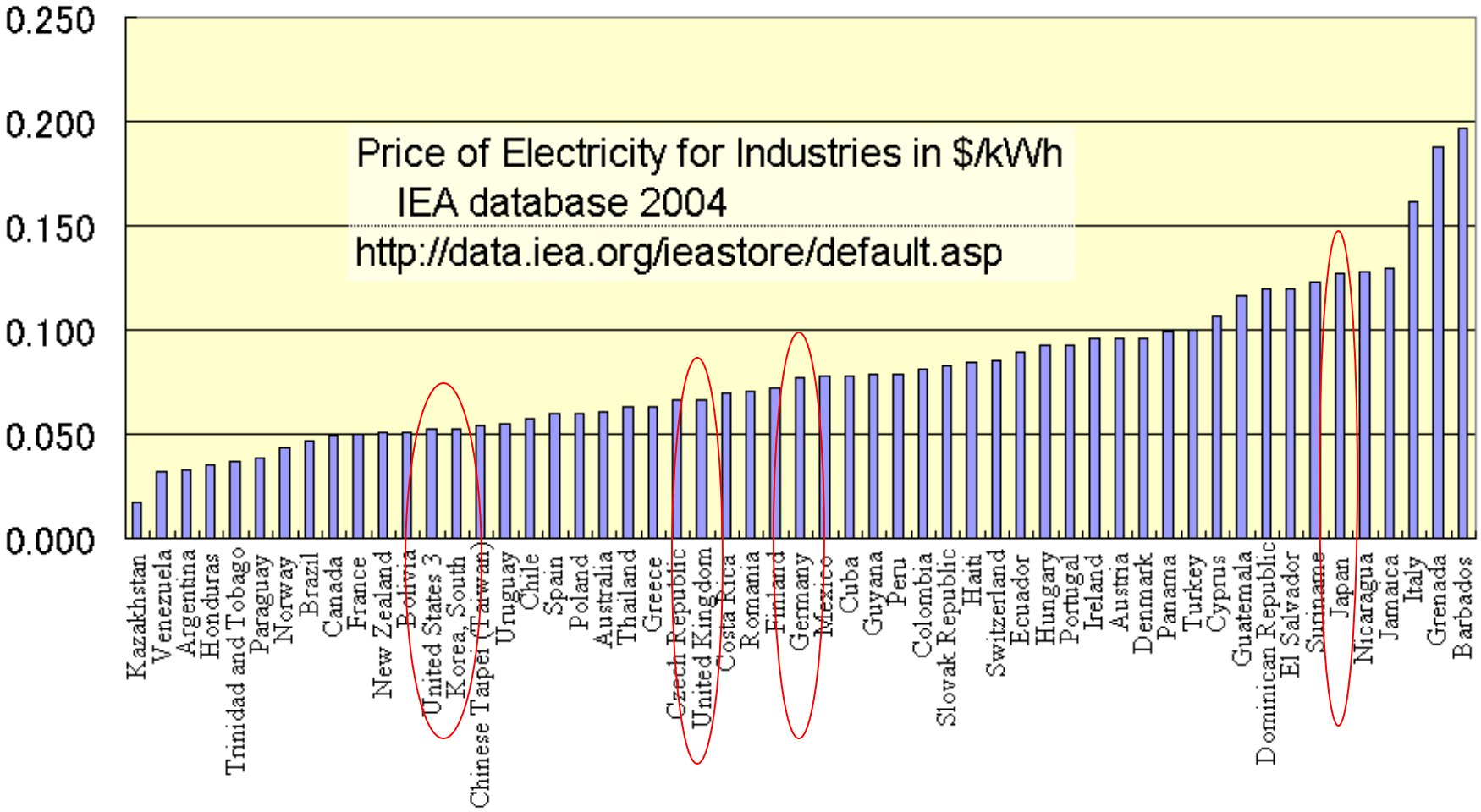
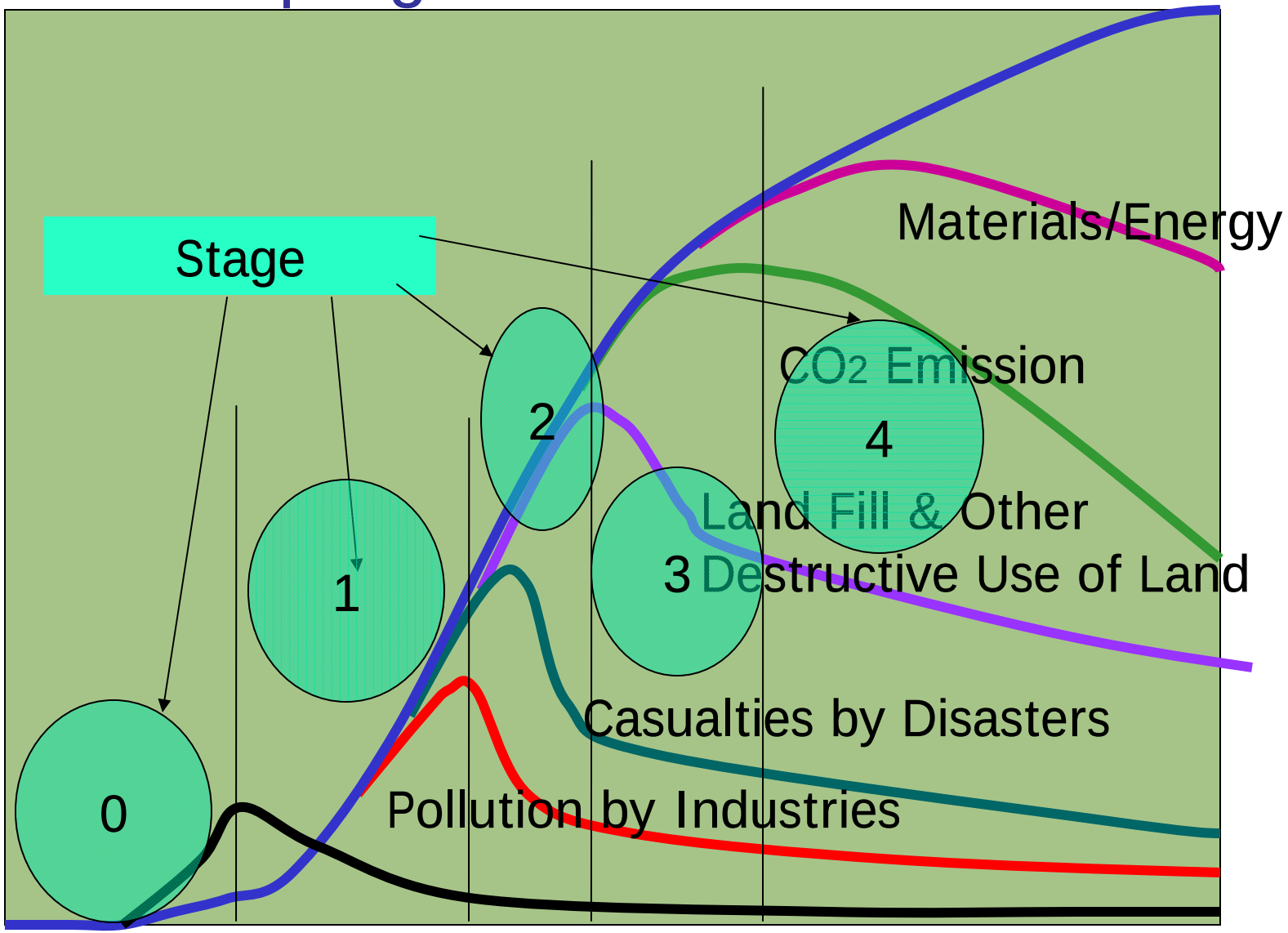
Price of Electricity for Industries



Decoupling from Env. Issues

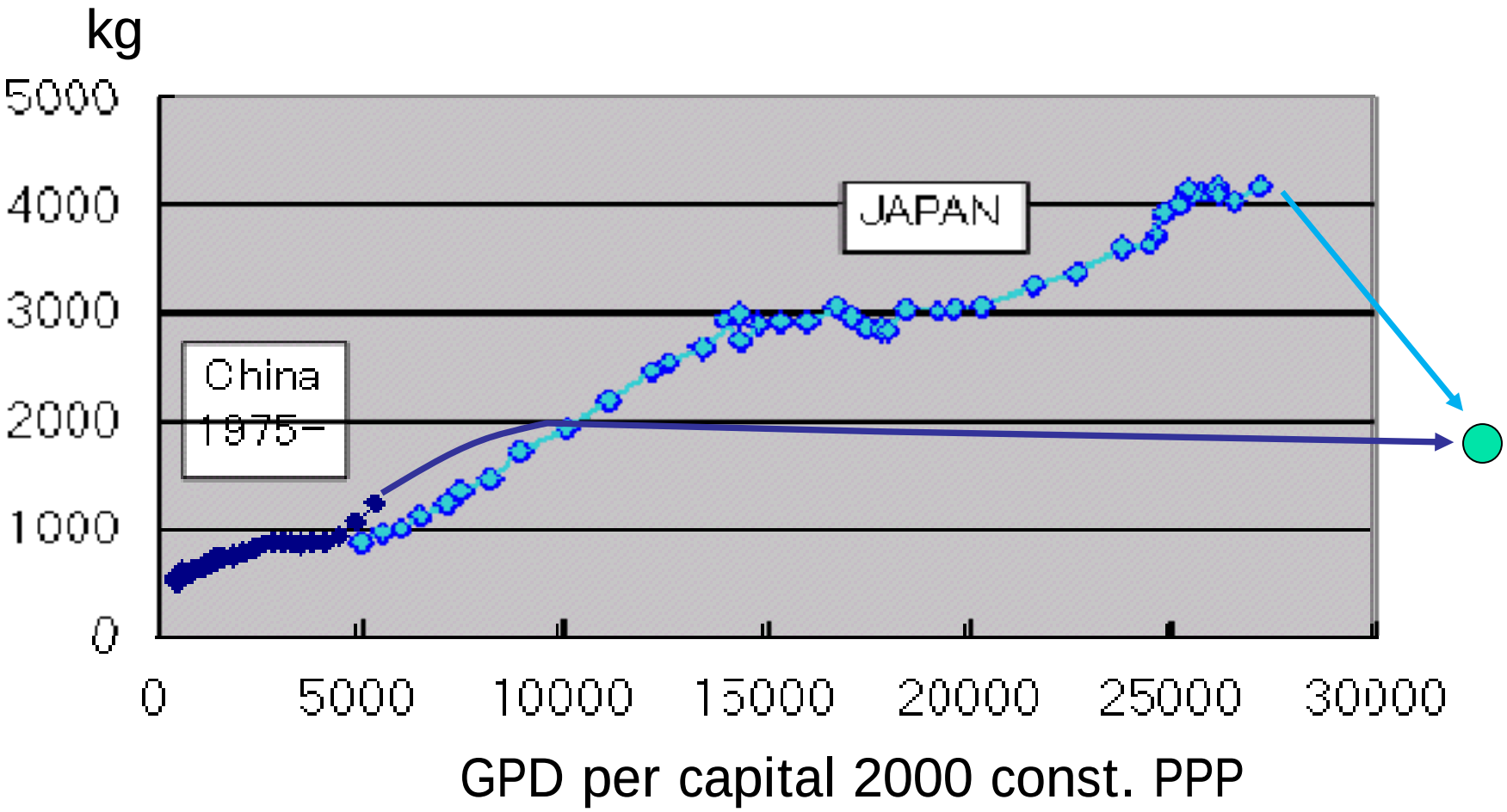


Go into Stage 4;
We have three kinds of Approach.

- Regulation (such as “Cap”)
- Economical Incentive (Trade) or Env. Tax
- Ethics, Responsibility for Future Generation

- Change the Mindset of People

GDP per capita vs. Energy in Oil Equivalent (kg)



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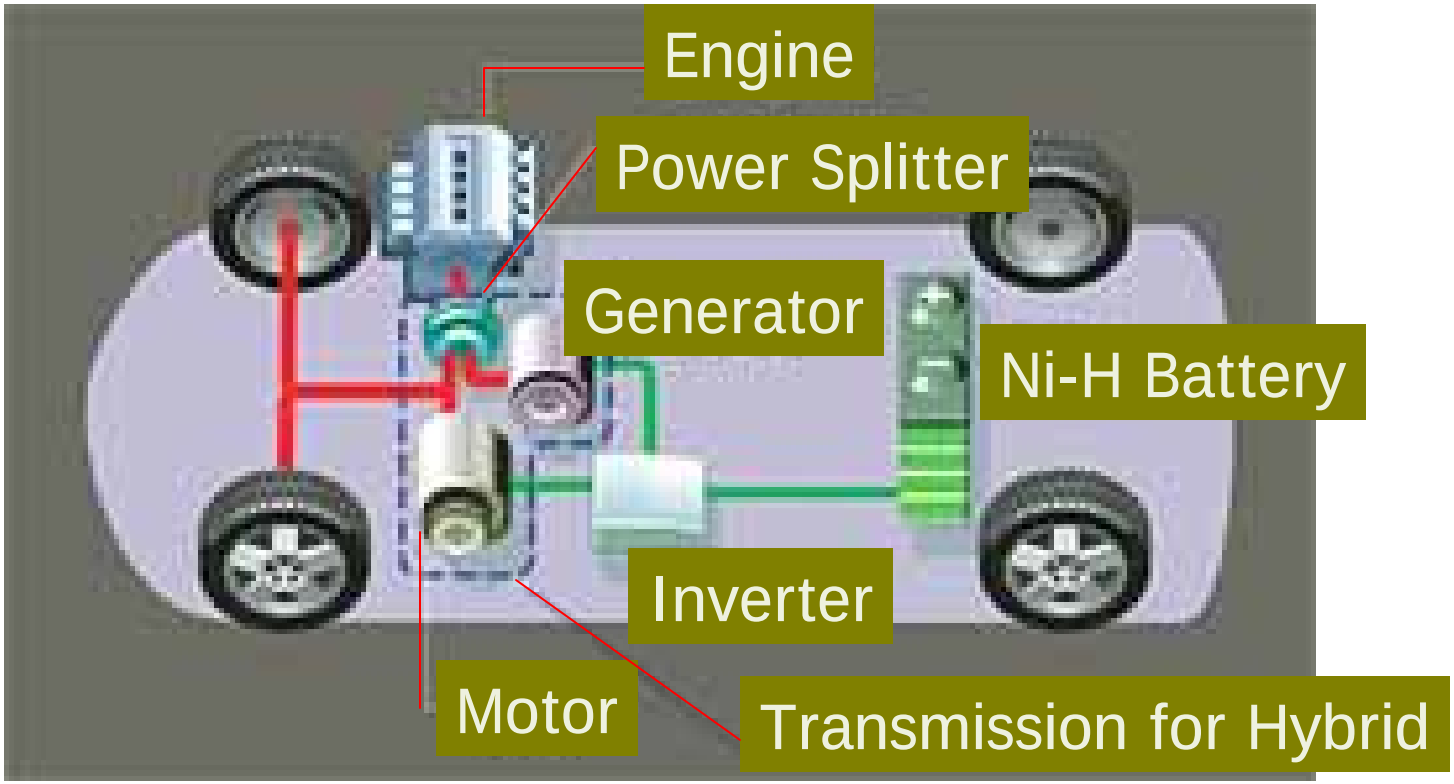
Develop “EcoTech 2.0”

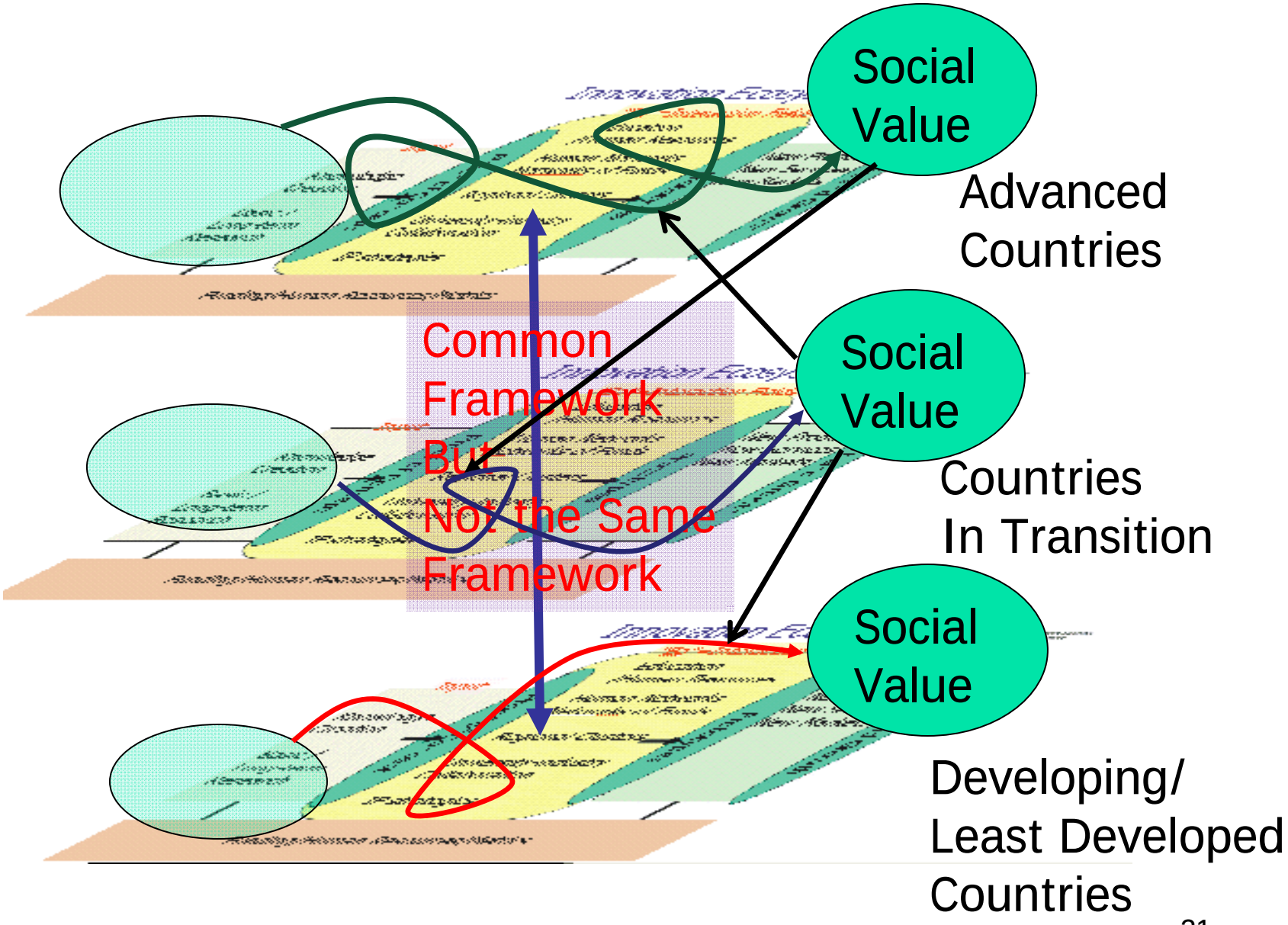
- Improve Efficiency at least by the factor of 2
  - Heat Pump Technology
  - Hybrid Vehicle
- Next Candidates???
  - Pure Electric Vehicle
  - LED Light
  - Organic EL, Laser TV
- But We need more possibilities!

An Example = New Prius

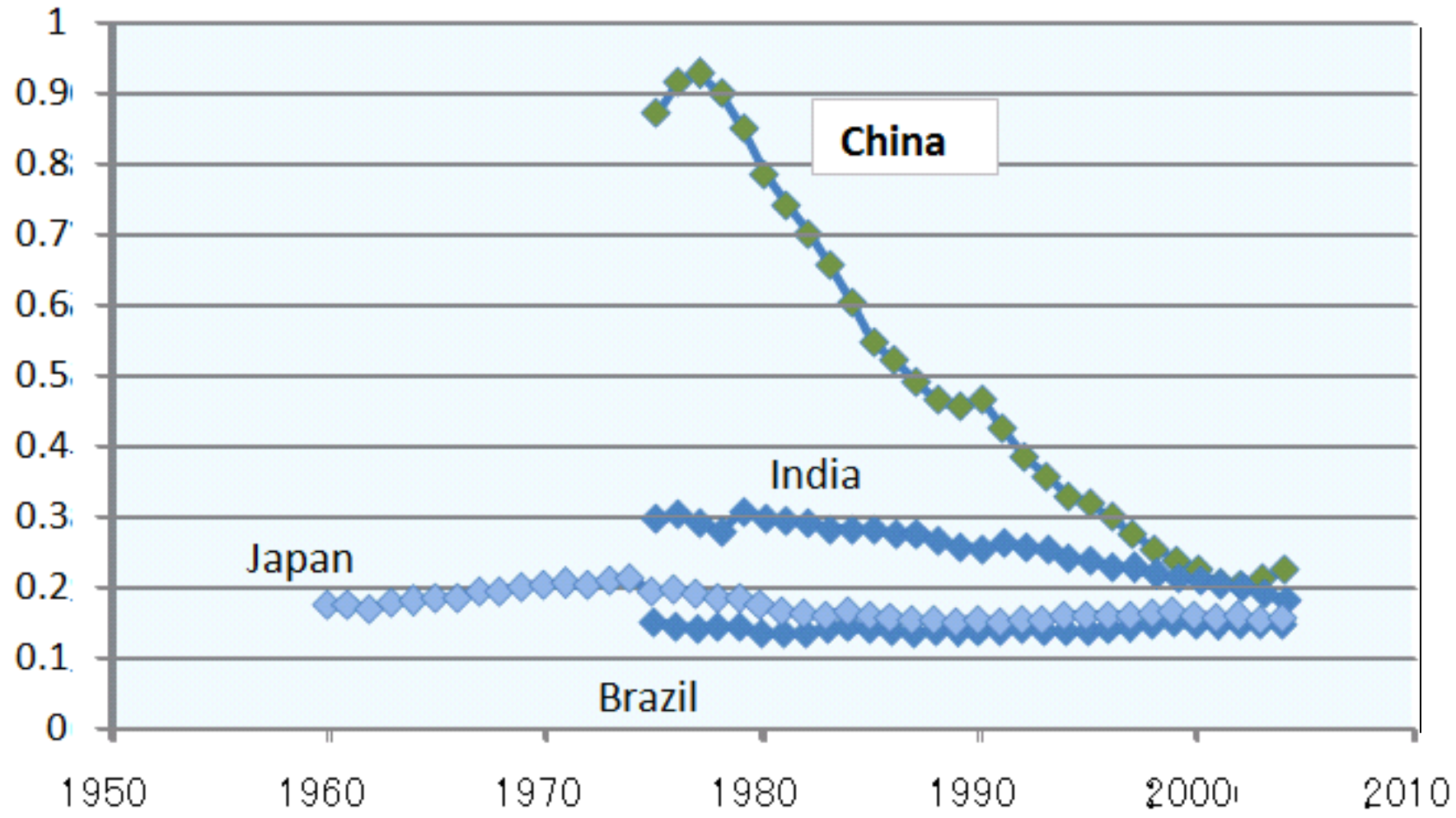
- Hybrid Motor Vehicle by TOYOTA



3D Multilayer Schematic Representation



Energy Intensity Trends



GDP per capita vs. Energy in Oil Equivalent (kg)