

JUNBA2009 Symposium

San Francisco Airport Marriott

---Next Step to a Greener Earth---

Environmental Technology Trends and Collaborative Proposals between the US and Japan

January 12th, 2009

Yuji Ide

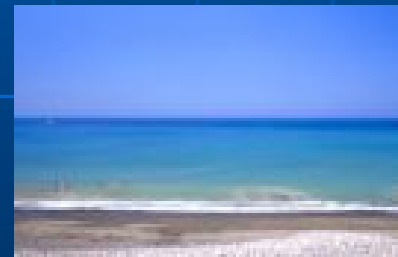
President, JUNBA

Japanese University Network in the Bay Area

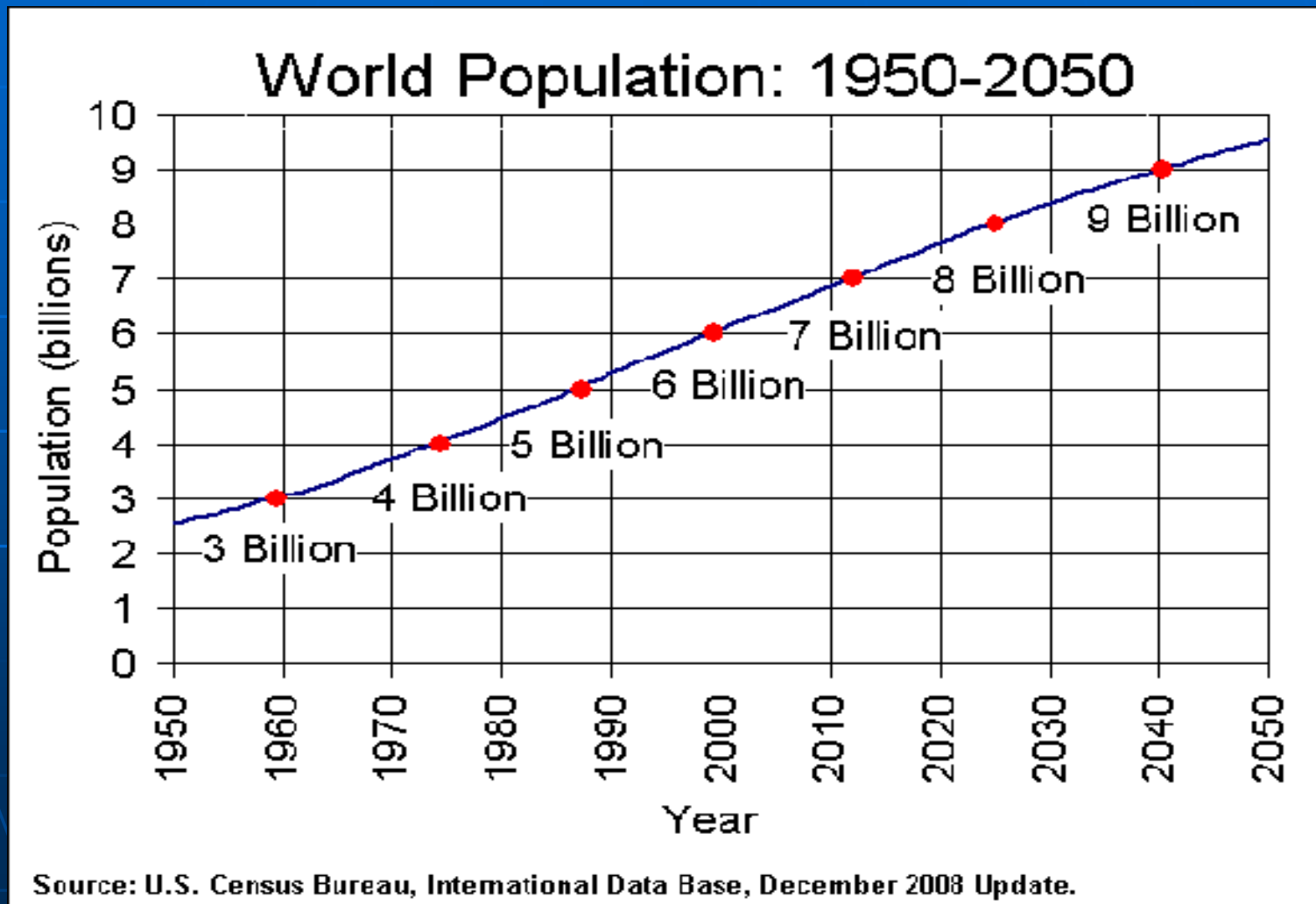
World's Environments

From increase in energy consumption and population growth:

- Climate Change
- Ocean Contamination
- Deforestation
- Energy Shortages
- Food Shortages
- Infectious Diseases

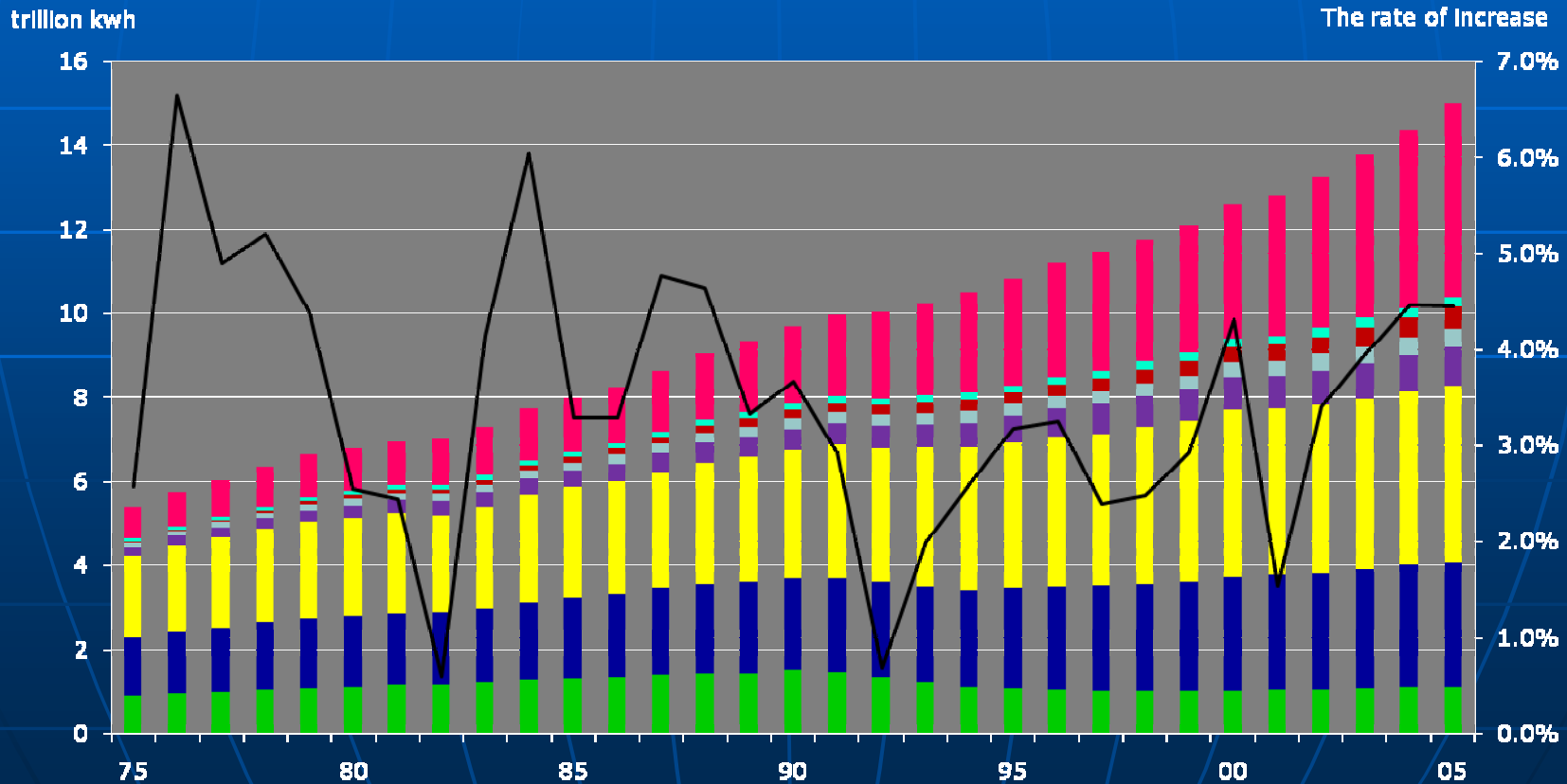


World's Population



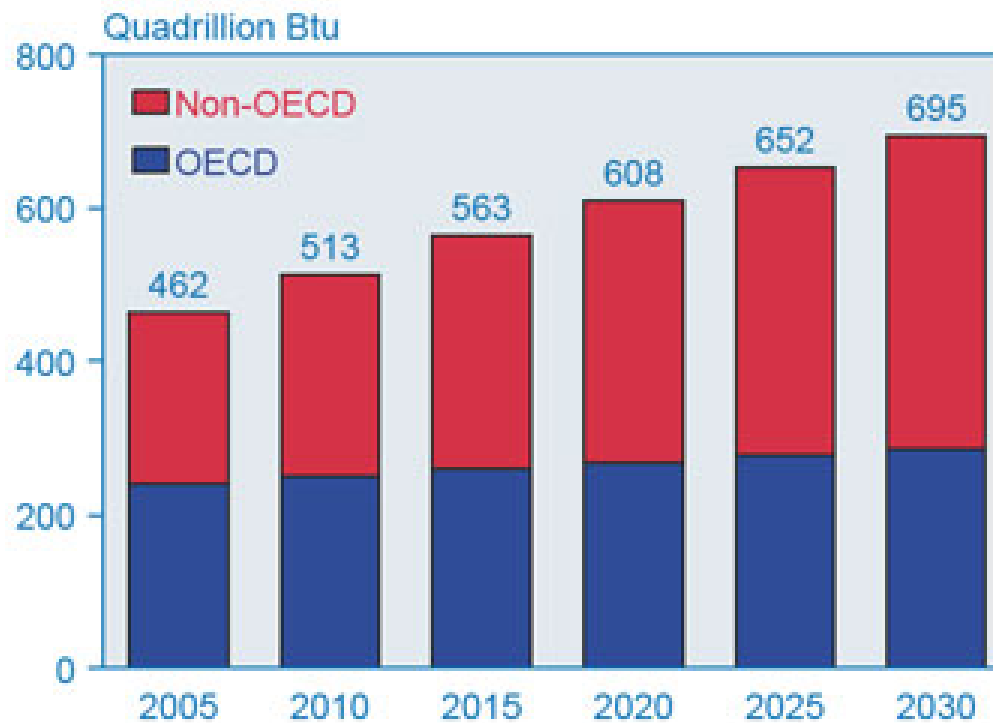
World's Power Consumption

■ 世界の電気消費量の推移 EIA IEA2005 "Energy Balances of OECD Countries"



World's Energy Consumption

Figure 1. World Marketed Energy Consumption, 2005-2030



Sources: 2005: Energy Information Administration (EIA), *International Energy Annual 2005* (June-October 2007), web site www.eia.doe.gov/iea. Projections: EIA, *World Energy Projections Plus* (2008).

What can we do and what should we do?

- Decrease in population?
- Decrease in energy consumption?
- Decrease in CO₂?
- Increase in forests?
- Develop low power consumption equipment?
- Develop an innovative power generation system with low heat generation?

Comparison in US and Japan

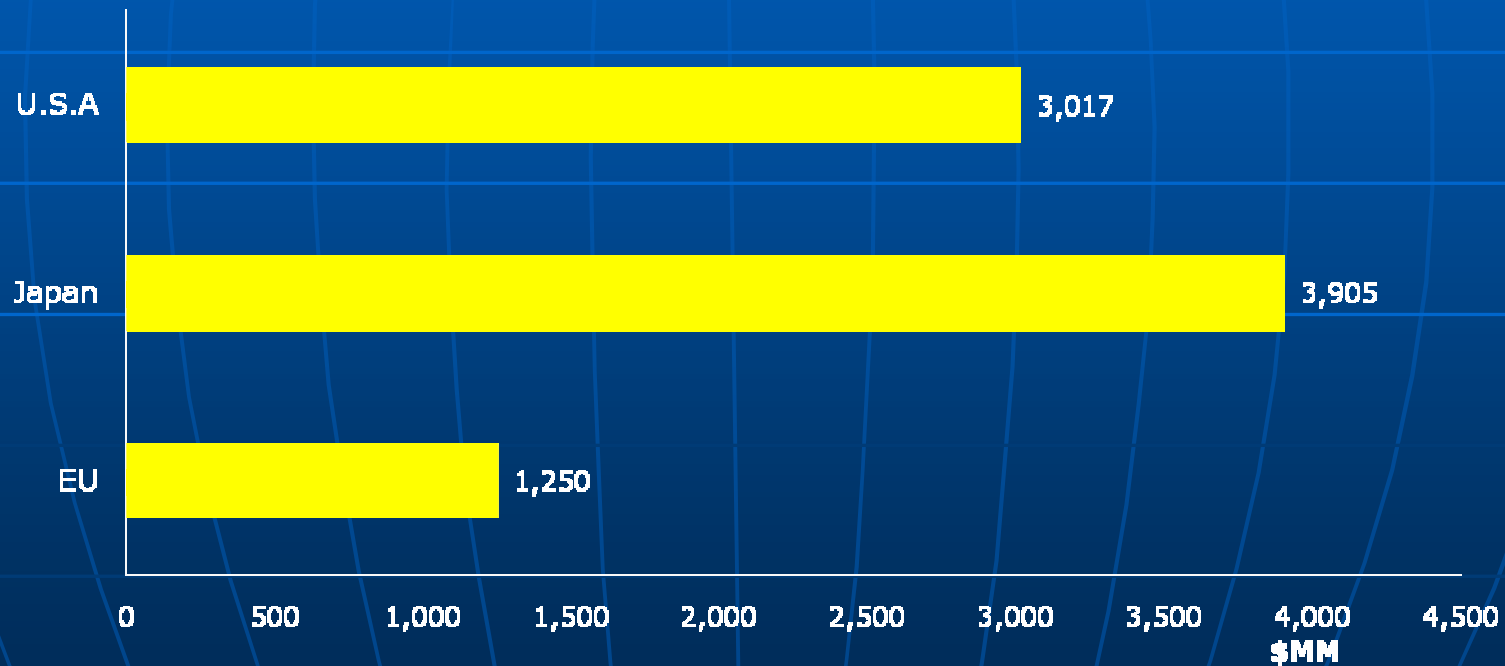
GDP in 2007

1. USA	\$13,841,300 million
2. JAPAN	\$ 4,378,005 million
3. GERMANY	\$ 3,323,561 million
4. CHINA	\$ 3,241,775 million
5. UK	\$ 2,771,504 million
6. FRANCE	\$ 2,556,601 million
7. ITALY	\$ 2,101,437 million

Comparison in US and Japan

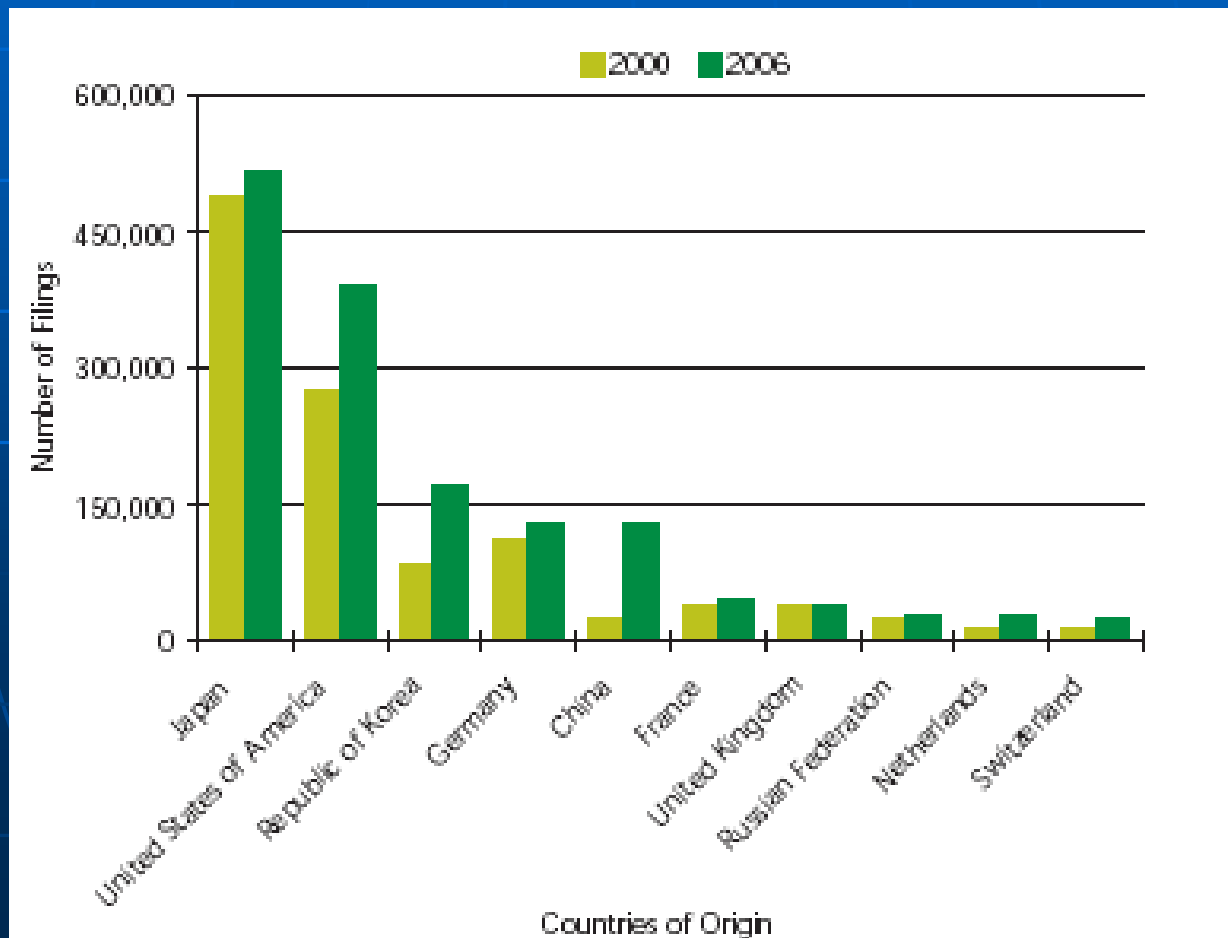
- R&D Investments for Energy by Government in 2005 (IEA)

各国のエネルギー分野における政府研究開発投資 (2005)



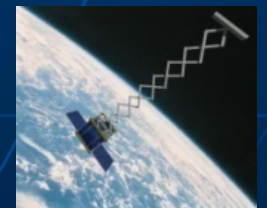
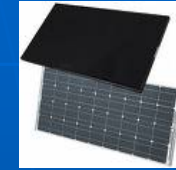
Comparison in US and Japan

- Patent Filings by Country of Origin in 2006



Trends of Environmental Technology in Japan

- Solar Cells (High Efficiency)
- Fuel Cells
- Hydrogen
- Hybrid Car/Fuel Cell Car/Electric Car
- Wind Power (small wind turbine)
- Rare Metal Recovery
- Micro Satellite (small and low cost)
- Nature monitoring and recovery



Trends of Environmental Technology in the US

- Solar Cells (low cost system)
- Solar concentrator
- Electric Cars
- Wind Power (large wind turbine)
- Large Satellite
- Environment Protection



Strengths of Japan and US

	Japan	US
■ R&D funds	large	large
■ Patents	many	many
■ System size	small	large
■ Efficiency	very good	good
■ Cost	good	good
■ New concepts	good	very good

If US and Japan collaborate (1)

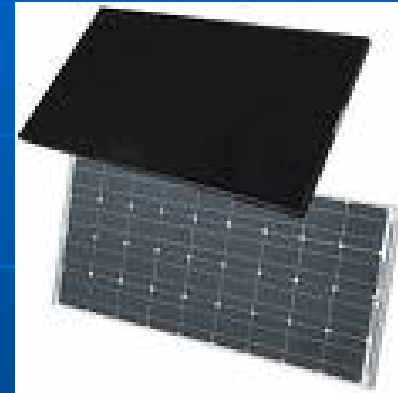
- New hybrid car using
“solar cell” and “fuel cell”



- Low cost solar power
- 10 minutes fuel charge and 8 hour run

If US and Japan collaborate (2)

- Home Power Station



Small wind turbine

High efficiency solar cell

Fuel cell



If US and Japan collaborate (3)

---Environment Monitoring System---

Hundreds of Japanese micro satellites
launched by a US Space Shuttle



If US and Japan collaborate (4) ---Natural Environment Conservation---

Japan

Island Country



Mountains



Rivers



Oceans



Volcanoes



US

Continental Country



Mountains /Forest



Rivers /Lakes



Oceans



Canyons



If US and Japan collaborate

- We can change the world by great concept technologies with efficient and low-cost systems.
- We can obtain monitoring data of wide area range from east to west of the Pacific Ocean.
- We can foster international human resources to solve the global environmental issues.

If we work together,.....

Next Step to a Greener Earth

