Second Asia-Pacific Economic Conference, Kyoto

Issues and solutions for sustainable growth of Asia Pacific from the business perspective

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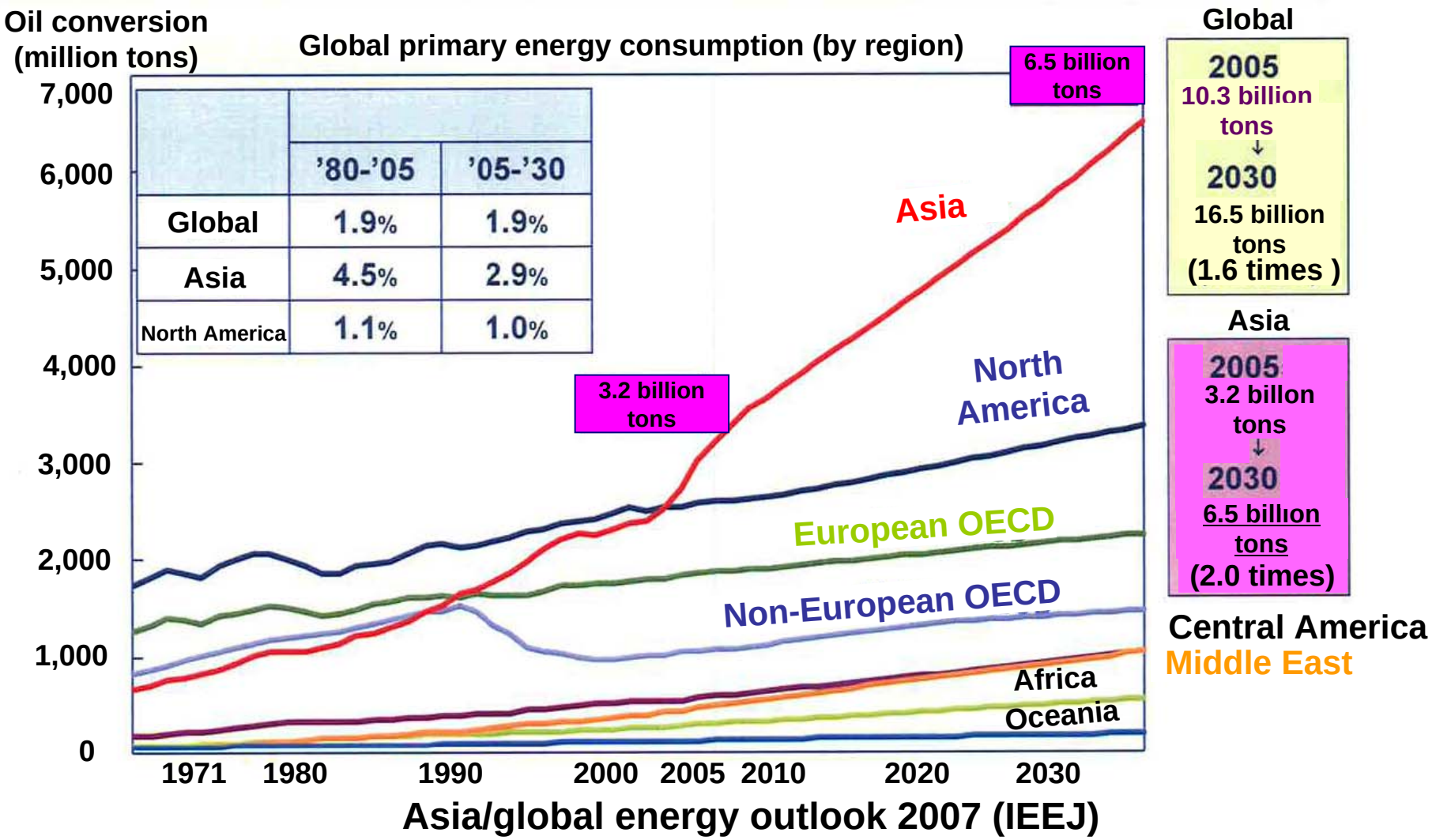
Energy Consumption in Asia

- **Perspective of present and future**



Asia/global energy outlook 2007 (IEEJ)

Asia consists of Japan, China, India, Taiwan, South Korea, Hong Kong, Indonesia, Malaysia, Philippines, Thailand, Vietnam, Singapore, Brunei, other Asian countries (does not include Oceania)

Issues of energy sector in Asia Pacific Region

- **Energy security**

  - **Securing supply capability**
    - **Coping with the rapid growth**

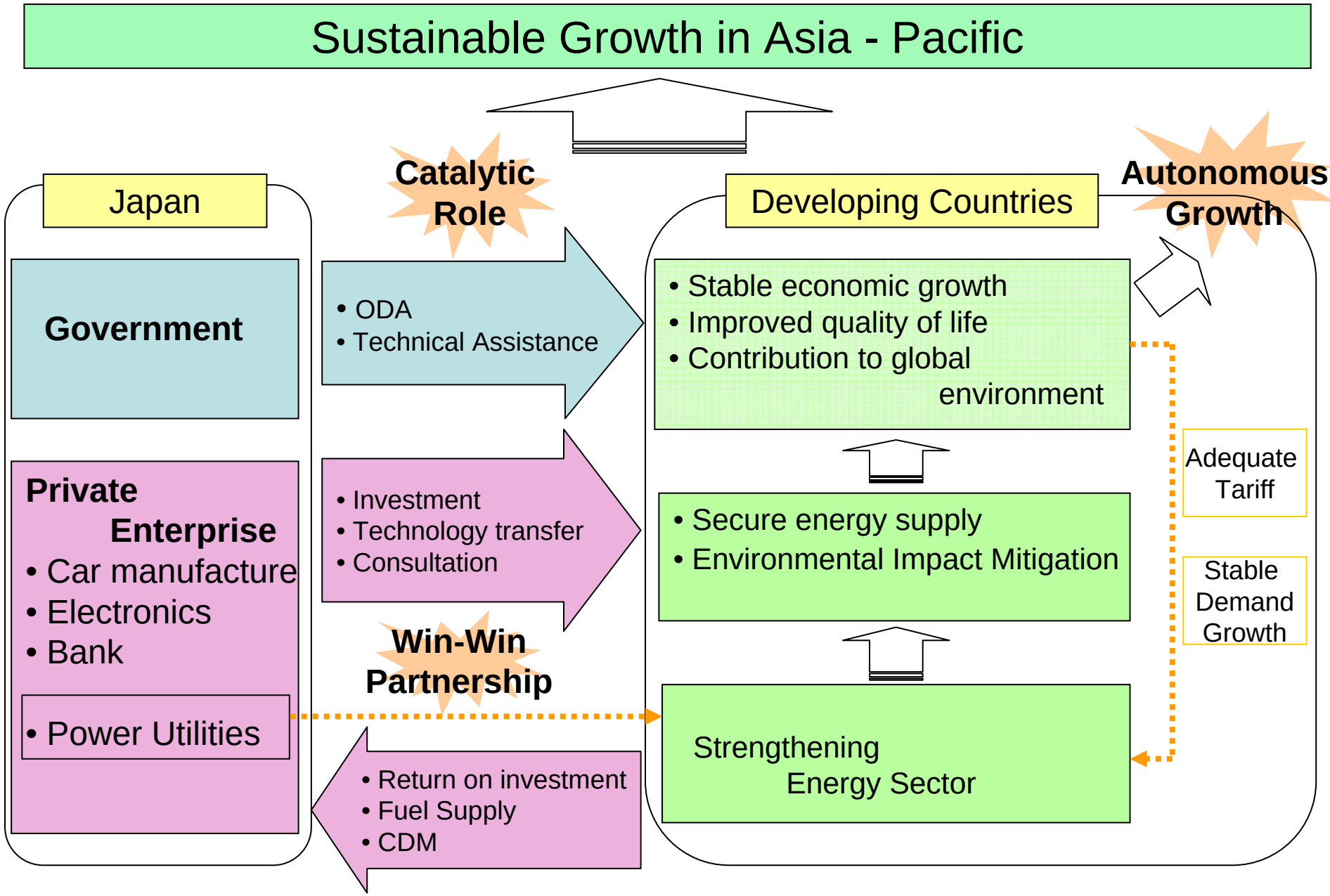
  - **Conversion to non-fossil fuel**
    - **Increasing dependency to fuel supply from outside the region**

- **Environment**

  - **Promotion of energy conservation**
    - **Both supply and demand side**

  - **Environmental protection technologies**
    - **CCS, Clean Coal Technology, etc.**

Role of Japanese Enterprise (Highlighting Energy Sector)



Superior technologies of Japanese power companies

- **Environmental technology**

  CCS, Clean Coal Technology,

  Reduction of environmental load

- **Nuclear power generation and fuel cycling**

  safe operation, effective use of resources

- **System operation technology**

  minimization of power outages

- **High efficiency of power generation/transmission**

  outstanding quality of manufacturing and operation

- **Energy conservation technology**

  Heat pump, DSM

Schemes of technology transfer

➢ Energy security

- **Highly efficient power generation**
  - combined cycle
- **Non-fossil fuel generation**
  - Nuclear power
  - Renewable energy

➢ Environmental technologies

- **Supply side**
  - CO_2 Separation / Capture / Isolation (CCS, etc.)
  - The efficiency improvement of power generation (clean coal, etc.)
  - Reduction of environmental load (NOx, SOx removal, etc.)
- **Demand side**
  - Promotion of energy saving equipment (heat pump, etc.)

Challenges of technology transfer

1) Economic

- Country risk
- Return and cost of projects

2) Institutional

- Laws and regulations of host country
- Availability of attractive finance (ODA etc.)

3) Social

- Public Acceptance
  (relocation at hydropower projects)
- Lifestyle
  (tolerance toward energy conservation)

Schemes and Challenges

			Challenges		
			Economic	Institutional	Social
Energy security	High-efficiency power generation project (IPP)		• Project return • Country risk	• Attractive financing by international financing institution (ADB/JBIC) • Power purchase agreement • CDM application	• Acceptance of local residents • Environmental impact assessment
	Nuclear power generation		• Balance of safety and cost	• Nuclear nonproliferation • Safeguard	
	Renewable energy		•Enhancement of economic feasibility by cost reduction	•Grant(e8/JICA) • ODA application	—
Environmental technology	Supply	CO2 Separation / Capture /Isolation (CCS, etc.)		・CDM application • Business model Scheme (*Application of ODA, etc.)	
		Generation efficiency enhancement (Clean coal, etc.)			
		Reduction of environmental load in Power plant			
	Demand	Promotion of energy saving equipment			• Impact on lifestyle

Some examples (1)

● Renewable energy

Solar Power Generation Project in Tuvalu

① Project overview

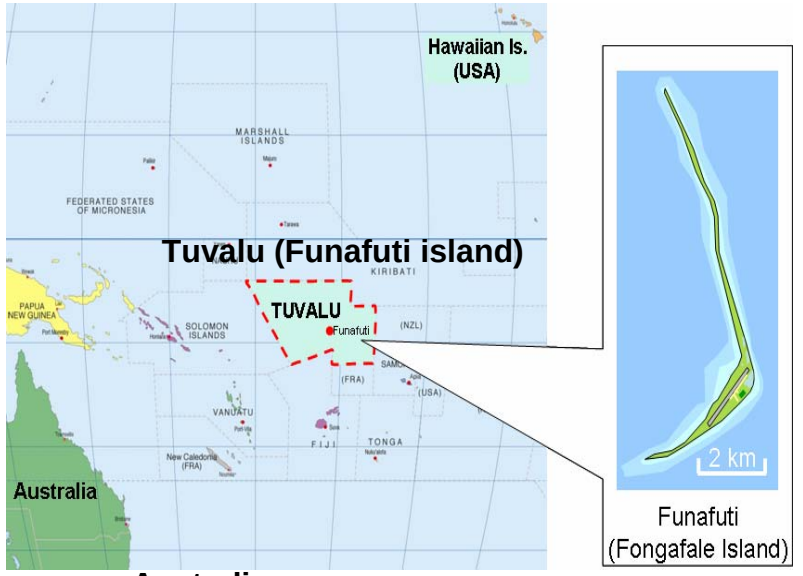
- Capacity : 40 kW
- Construction schedule:

  October 2007 ~ January 2008
- Capital source：

  1) Kansai Electric Power Donation

  2）”Japan’s Grant Assistance for GrassRoots Project”

  by Ministry of Foreign Affairs of Japan



Australia

② Project Objectives

1)To provide a trigger to utilize renewable energy

2)To send a symbolic message to the world concerning prevention of global warming

Artist's conception of completed project
(Scheduled for completion Jan. 2008)

Some examples (2)

● CO2 Separation / Capture technology

(CCS by chemical absorption method)

＊Flue gas CO2 recovery pilot plant
（Nanko Power Station）

- 1990
  Starts joint research with Mitsubishi Heavy Industries, Ltd.

- 1991
  Sets up a pilot plant at Nanko Power Station.

- Currently
  Developing world's most efficient "absorption liquid" (KS-1).

Top level CO_2 separation/capture technology

⇨ **Application of CDM to CCS will be required along with cost reduction to promote further.**

Summary

- ✓ **Aid from advanced countries leads to autonomous growth of developing countries**
- ✓ **Energy security and environmental technology transfer will be possible through business**
- ✓ **Assistance from governments and financing institutions are required to gain project feasibility and to form public acceptance**