

# *A Japanese view of US Nuclear Energy Policy*

## *How the US could Deal with Energy Security*

GUIRR, National Academy of Science

14 June 2007

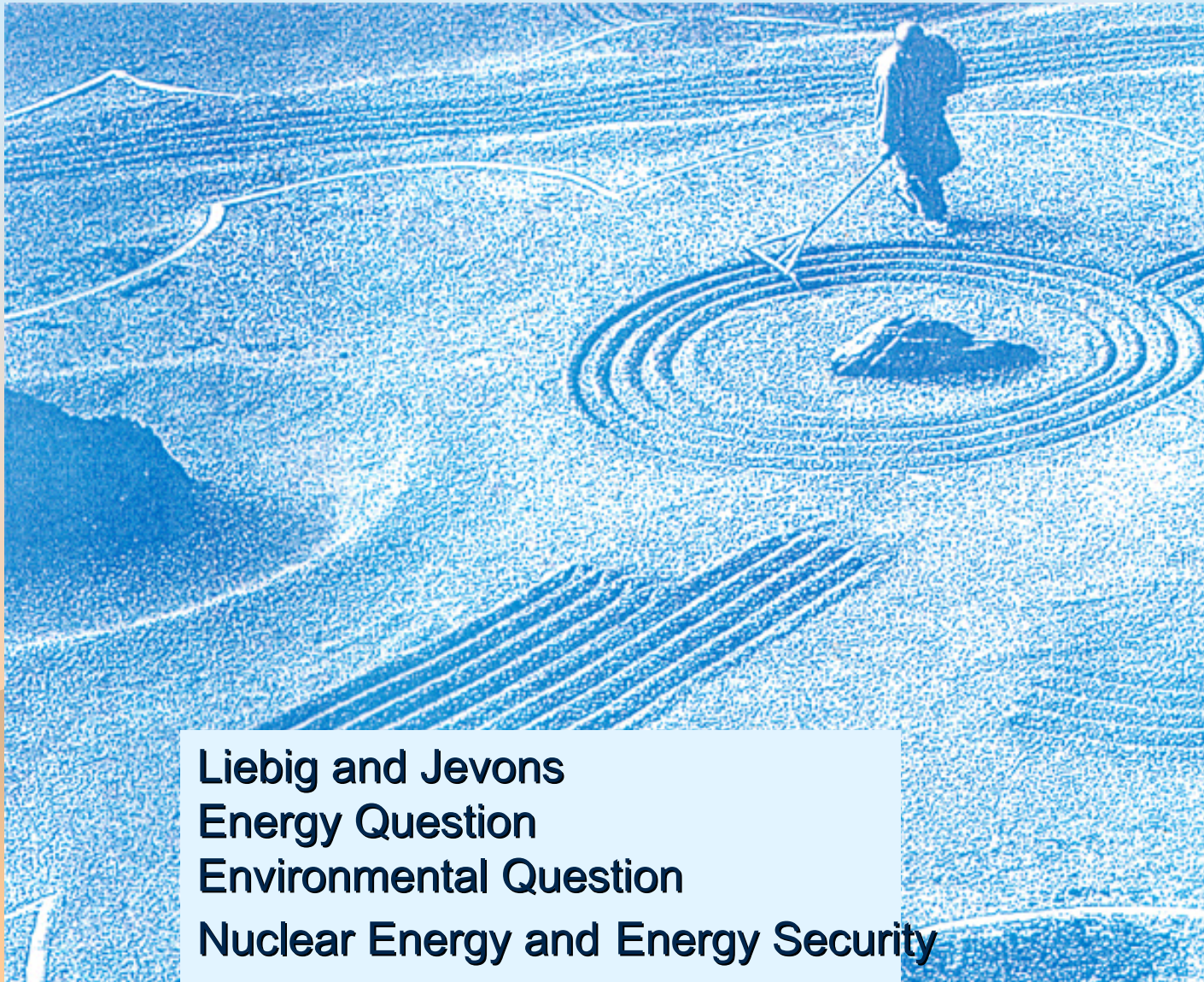
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# *Japanese Experience*



Liebig and Jevons  
Energy Question  
Environmental Question  
Nuclear Energy and Energy Security

Temple

# *Energy Question and Environmental Question*

## 1) Period of loose Energy ( Nuclear Energy, Technological fix )

- 1953 'Atoms for Peace' and 'Energy in the Future'
- 1957 IAEA, 1970 NPT

## 2) Period of tight Energy ( Artificial)

- Oil Crisis(1973 First Oil Crisis, 1974 IEA)
- 1977 Japan· US Reprocess Talks (by President Carter )

## 3) Period of loose ( Revisit Security Policies)

- 1979 Three Mile Island, 1986 Chernobyl Accident
- US, stagnation of NE Under NIMBY, BANANA

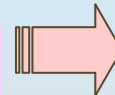
## 4) Period of tight?

- Presently, US (103units), Japan (55units) and World (440units)
- Environmental question(Climate Changes)
- Energy question(BRICS and Hubbert's Limitation)
- US Energy Policy Act, GNEP and US-Japan Cooperation
- Post Kyoto Protocol, 2013

# *Changes around the World*

<US>

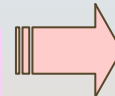
No construction of Nuclear Plant since 1970



New construction plan of NPs after 30 years

<Finland, UK>

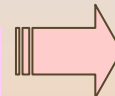
Negative feeling about NP after Chernobyl



Switch to new construction of NPs

<China, India, Russia>

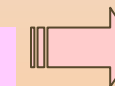
Very small number of NPs, Very few NPs constructed in last 20 years in Russia



New construction plan of more than 20 NPPs in each country

<Sweden, Swiss>

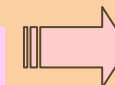
National referendum to phase-out NPPs after Chernobyl



Even now a large amount of electric power depends on NP (Sweden: about 1/2, Swiss: about 1/3)

<International Energy Agency (IEA)>

Nuclear power has been considered taboo



For the first time in 2006 the role of nuclear power was positively evaluated

Trends in reevaluation of NP from the view point of Environment: J. Lovelock, P. Moor



# Structural Changes

## Industry (Plant makers)

1980s

### 4 European Companies

[Brown Boveri et Cie, Asea, Framatome, Siemens,]

### 4 US Companies

[WH, Combustion Engineering, GE, Babcock & Wilcox]

### 3 Japan Companies

(MHI\*, Hitachi, Toshiba)



Country by country independent makers

From Now

WH\*\* – Toshiba  
(US – Japan)

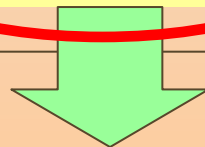
GE – Hitachi  
(US – Japan)

AREVA – MHI\*  
(France – Japan)

(Rosatom)  
(Russia)



International alliances



## Market (New Market of NP)

Past 10 years

JAPAN  
US

8

0

Europe

0

Russia

1

India

6

China

6

S.E.Asia

0

From Now

13

33?

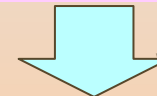
Finland, France, UK  
Rumania, Lithuania  
Bulgaria, Slovakia

40?

20?

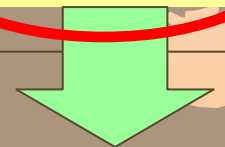
30?

Vietnam, Indonesia  
Kazakhstan, Turkey  
Egypt, etc.



Market was concentrated

Market will be globalized



Nuclear Energy Policy needs to be coordinated internationally

\* MHI: Mitsubishi Heavy Industry

\*\* WH: Westinghouse

# *U.S. - Japan Joint Nuclear Energy Action Plan*

signed by DOE Secretary Bodman – METI Minister Amari  
President Bush and Prime Minister Abe welcomed Joint Action Plan on April 2007

## **(1) Nuclear Energy Cooperative Research and Development under GNEP**

- Establish 6 WGs and Execute in 3 phases (Phase I: ~ June 2008, Phase II: ~ June 2011, Phase III: July 2011 ~ )

## **(2) Collaboration on Policies and Programs that Support the Construction of New Nuclear Power Plants**

Coordinated support, U.S. measures (ex. Loan guarantees) and Japanese measures (ex. Trade insurance)

## **(3) Establishing Nuclear Fuel Supply Assurance Mechanism**

Cooperate for establishment of international reliable nuclear fuel supply assurance mechanism

## **(4) Joint Collaboration to Support the Safe and Secure Expansion of Nuclear Energy in Interested Countries while Promoting Non-proliferation**

Collaborate on infrastructure development etc. in countries where there is plan to introduce new nuclear power plants

# *As a lawyer of US, I think .....*

- ⚙ No silver bullets for energy security
- ⚙ Have your feet on the ground
- ⚙ Science is not Sufficient(The art of management\*)
- ⚙ Technological fix is not Sufficient(Mindset fix \* \*)
- ⚙ Take a leadership in building system for 21<sup>st</sup>

◆ \* V. Bush

◆ \*\* Mindset fix: sustainable, systematic and integrated efforts to bring innovation

