

# **SECOND NEAT WORKING GROUP MEETING ON ENERGY SECURITY COOPERATION IN EAST ASIA**

## **SINGAPORE**

30 June 2006

### **I. INTRODUCTION**

The East Asian Institute, on behalf of NEAT Singapore, organized the NEAT WG (Network of East Asian Think Tanks Working Group) Meetings on Energy Security Cooperation in East Asia. The first meeting (Phase 1) was held on 6 May 2005 and the second (Phase 2) on 30 June 2006. Both meetings were held in Singapore. Delegates from all 13 APT (ASEAN Plus Three) countries attended the June 2006 meeting.

This report identifies the major issues raised by delegates regarding energy security cooperation. In this WG meeting, the participants concentrated on energy conservation and the lessons which can be drawn from the more energy-efficient APT countries. This WG meeting also discussed the maritime dimension of energy security.

The goals of the NEAT WG on Energy Security Cooperation are three-fold: promote energy conservation, energy consumption efficiency and energy security in East Asia, share and learn from the experiences of energy-efficient APT countries, and support an East Asian Community in the long run through regional energy cooperation. The 2<sup>nd</sup> WG meeting on Energy Security Cooperation was particularly timely in the wake of continuing oil price rises and global concern, if not tension, over energy security,

especially oil.

A preliminary draft was first distributed to all delegates for their comments and acceptance. The final report on energy security cooperation will be presented along with the other WG reports at the Fourth Annual NEAT meeting in Kuala Lumpur in August 2006.

## **II. THE BACKGROUND**

The WG meeting had three panels and a general discussion. Each panel had two sessions: presentation and discussion. Background papers were first read to establish the agenda for discussion. Delegates then freely exchanged their views on the issues concerned. The panels consisted of the following:

### *1. Improving Energy Efficiency*

This panel focused on the experiences gained and challenges faced in improving energy consumption efficiency in the APT countries. The lead paper was on the impressive efforts of the Japanese industry and society to conserve energy since the 1973 oil shock. Indeed, Japan can be considered the benchmark for energy efficiency and conservation for other APT countries to emulate. (APT energy efficiency statistics are provided in Appendix 1). Delegates from other APT countries also presented papers on their respective countries' experiences as well as shared their national requirements and efforts to improve energy consumption efficiency.

While delegates in principle accepted the logic of the market to set energy prices, avoid waste and boost energy efficiency, they were also sensitive to the political and social realities of certain APT countries which provide fuel subsidies to maintain social stability. Nevertheless, APT countries should seriously consider reducing energy price subsidies in the long run to ensure greater efficiency and conservation of energy resources.

## *2. Energy Security Cooperation: The Maritime Dimension*

This panel explored various potential areas for cooperation among East Asian countries in their search for maritime energy security. One background paper examined China's energy security needs while another focused on the issues of piracy and hypothetical terrorism in the Straits of Malacca. This panel examined the possible role of APT countries for enhancing energy security cooperation in the Straits of Malacca. Analysis of energy security in the Straits is timely especially when Lloyds has labeled the Straits a "war risk" area and hiked insurance premiums.

It was concluded that the alleged problems of piracy and terrorism in the Straits of Malacca have been exaggerated. There have actually been few pirate attacks on oil tankers and no terrorist attacks at all within the Straits. Nevertheless, there is still much room among the APT countries to cooperate with the littoral states to prevent potential piracy and terrorism, and ensure the unimpeded flow of energy through the Straits where 60,000 ships transit annually, carrying 525

million tons of cargo worth US\$ 390 billion (one-third of world trade). By 2004, 26 tankers heading for Asian ports passed through the Straits each day carrying 11 million barrels of oil. Moreover, with continuing increases of traffic in the Straits, APT countries may need to address the problem of congestion and potential accidents which could delay or disrupt energy flows vital to the region.

### *3. Energy Conservation: National Policies*

Delegates shared their countries' experiences and policies on energy conservation. This panel also discussed various APT countries' experimentation with bio-fuels and geo-thermal energy which may reduce oil dependence in the future.

### *4. General Economic Framework*

There are at least four factors which underpin energy conservation: economic, institutional, a "green" strategy to raise public consciousness, and the sharing of national experiences and the need for regional cooperation.

- a) Economic factors: Energy consumption is closely related to GDP growth. Indeed, the levels of energy consumption are closely linked to the level of economic development of a country, or more precisely, the stages of its industrialization. To reduce energy consumption, the price mechanism is most effective, ie, how to get the price right, though it is acknowledged that certain

APT countries cannot eliminate energy price subsidies quickly without incurring serious social dislocation. Reducing energy consumption also involves the use of “incentives”; for example, citizens and companies are given awards and publicity for drastically reducing their energy consumption by using electric devices/equipment which the government has labeled “energy efficient” (these consume less power per unit of output, but with higher initial capital outlay), and “disincentives” such as penalizing people and organizations that continue to use old, energy-inefficient equipment.

b) Institutional factors: The state plays an important role in ensuring energy conservation, including the use of tax incentives, a conducive regulatory framework, voluntary guidelines and/or mandatory ones (eg, the setting of air conditioning no lower than 26 degrees Celsius), governmental efforts and commitments to energy saving techniques and R & D (eg, research into new building styles and materials which reduce the need for air cooling and heating), and establishing standards for energy efficient buildings and cars. Simply put, the state has an important role to formulate and implement energy conservation measures.

c) Raising public awareness about energy conservation: governments should inculcate energy-saving behavior in the general public, school children, and industrial/business associations, through energy conservation campaigns and competitions that alert citizens from all walks of life about the quantities of energy that they as individuals, families and workers use for various daily activities and how they could play a part in saving energy at home, school and

at work. These activities are highly cost effective from the standpoint of energy conservation.

- d) APT countries should share their national experiences and enhance regional cooperation in energy conservation. The papers presented at the workshop sent the “signal” that APT countries are cooperating to make East Asia more efficient in the use of precious energy and friendlier to the environment.

### **III. POLICY RECOMMENDATIONS: ENERGY CONSERVATION**

Recommendation 1: APT countries should set national targets of energy efficiency with a view to catching up with the world’s best standards in the long run. China’s target in its 11<sup>th</sup> Five-Year Plan (2006-10) for reducing energy consumption by 20% per unit of GDP is a case in point.

Recommendation 2: APT governments should expand all existing energy conservation efforts. These may include: conducting energy audits and inspections, setting minimum energy consumption efficiency standards, arranging energy efficiency demonstrations, enhancing public education on energy efficiency, and organizing energy-efficiency labeling programs and international technical exchanges (especially from Japan).

Recommendation 3: APT states should pay attention to energy-saving activities by introducing (mandatory or voluntary) energy efficiency standards for common household products. These include: air conditioners, heaters, gas cooking appliances,

gas water heaters, oil water heaters, refrigerators, freezers, ovens, rice cookers, computers, DVD players, TV sets and fluorescent lights.

Recommendation 4: Manufacturing industries should adopt more efficient methods of production by using less energy per unit of output.

Recommendation 5: APT governments should promote energy conservation efforts in the consumption of oil -- especially gasoline and diesel -- in the transport sector, developing policies which ensure that the increasing numbers of vehicles on the roads use fuel as efficiently as possible.

Recommendation 6: APT countries should hold regular energy conservation campaigns which educate people about the relative quantities of energy they use and waste in the home and at work each day, and instill in them the imperative of practicing energy-conserving behavior at all times.

#### **IV: POLICY RECOMMENDATIONS: ENERGY SECURITY COOPERATION IN THE STRAITS OF MALACCA**

Recommendation 1: The more developed APT countries may consider providing material or technical assistance to the less developed littoral states. Besides patrol boats and training ships, these APT countries could help Indonesia build a surveillance radar network in Sumatra to cover the Straits.

Recommendation 2: APT countries should participate and cooperate actively in

ReCAAP (Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships).

Recommendation 3: There should be APT multilateral exercises to:

- a) handle environmental disasters caused by oil spillage from tankers, tugs and barges in the Straits, and
- b) provide humanitarian assistance by mounting search and rescue operations in the Straits. These initiatives can be regarded as CBM (Confidence Building Measures). They aim to boost mutual trust and confidence, reduce suspicion and develop a spirit of cooperation among APT countries.

Recommendation 4: APT countries should also build on the Malaysian June 2006 proposal for a Southeast Asian Disaster Relief Center to provide humanitarian assistance and handle environmental disasters. This proposal can be expanded to cover the Straits of Malacca and potential maritime disasters with the participation of APT countries.

## **V. CONCLUSION**

APT governments should do whatever possible to encourage higher energy consumption efficiency and reduce the transitional period between high and low environmental impact of economic development, ie, improve the so-called “Environmental Kuznet’s Curve” (see Figure 4). Asia is the fastest developing region in the world. Concomitantly, energy demand is growing at an unparalleled rate. With

global energy resource depletion on the one hand, and increasingly worrying energy-related environmental degradation on the other, it is becoming urgent that each unit of energy consumed in Asia be utilized to the fullest degree, and as cleanly as possible.

The more developed APT countries are encouraged to transfer energy conservation technology and know-how to the less developed members, which should introduce policy and regulatory framework to absorb them. Thus, APT countries can share all their energy-efficiency experience for mutual benefit and enhance trust within the East Asian Community.

## APPENDIX 1

**Table 1 – Asia: Intensity Rankings for 1980 and 2004**

(British Thermal Units per USD using constant Year 2000 dollars and market exchange rates)

1980		2004	
China	101,936	China	32,910
Laos	23,761	Indonesia	28,042
Singapore	19,838	Vietnam	26,000
Indonesia	18,412	Laos	24,123
Myanmar	18,349	Thailand	22,159
Malaysia	16,224	Malaysia	23,000
Vietnam	15,874	Singapore	18,728
US	15,174	Myanmar	16,133
Brunei	14,486	Brunei	16,103
Thailand	13,643	Philippines	14,400
Korea	13,317	Korea	14,100
Philippines	11,870	US	9,400
Japan	5,508	Japan	4,580
Cambodia	746	Cambodia	1,900

Notes: Figures for 2004 are estimates.

Energy intensity shows how much energy is used to produce a certain amount of goods and services and is defined as the ratio of total energy consumption over GDP. It can be written as:

$$I = E/GDP$$

where *I* is energy intensity, *E* is energy consumption and *GDP* is the level of output in an economy. Changes in energy intensity may show that there are changes in the structure of an economy, changes in the mix of energy sources or changes in the efficiency of energy use in the economy.

Source: Energy Information Administration International at

<http://www.eia.doe.gov/pub/international/iealf/tablee1g.xls> (8 May 2006).

**Table 2- Asia: Energy Intensity and Elasticity Data (2004)**

	Intensity	Elasticity ratio
Cambodia	1945	0.09
Japan	4580	0.59
Laos	15063	0.84
Singapore	18728	0.92
Philippines	14400	0.97
Korea	14100	1.13
Brunei	16103	1.20
Myanmar	16133	1.37
China	32910	1.61
Indonesia	28042	1.70
Malaysia	23000	1.81
Thailand	22159	1.84
Vietnam	26000	2.01

Notes:

The elasticity of energy consumption is an estimate of how much energy is required to produce an additional unit of GDP. It can be written as: rate of energy consumption growth/rate of GDP growth.

If the elasticity of energy consumption is greater than 1, the economy's energy consumption is growing more rapidly than GDP. If it is less than 1, the economy's energy consumption is growing less rapidly than GDP. If it is 1, it is growing proportionally with GDP. In general, the lower the energy intensity, i.e. below one, the more energy efficient the economy, e.g., Japan.

Source: Energy Information Administration International at <http://www.eia.doe.gov/pub/international/iealf/tablee1g.xls> (8 May 2006).

Figure 1 - Energy Intensity of ASEAN 6

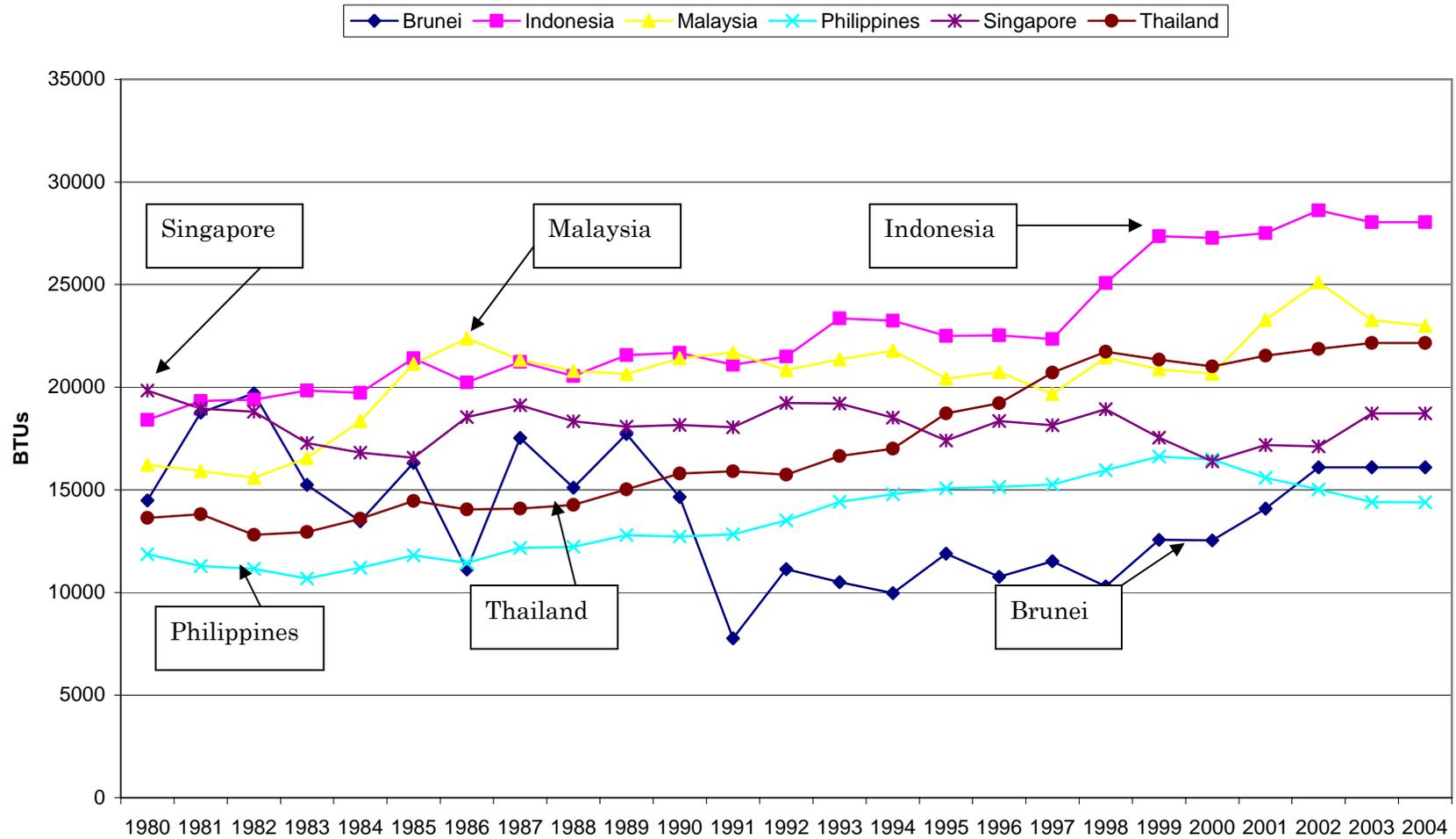


Figure 2 - Energy Intensity of Cambodia, Laos, Vietnam & Myanmar

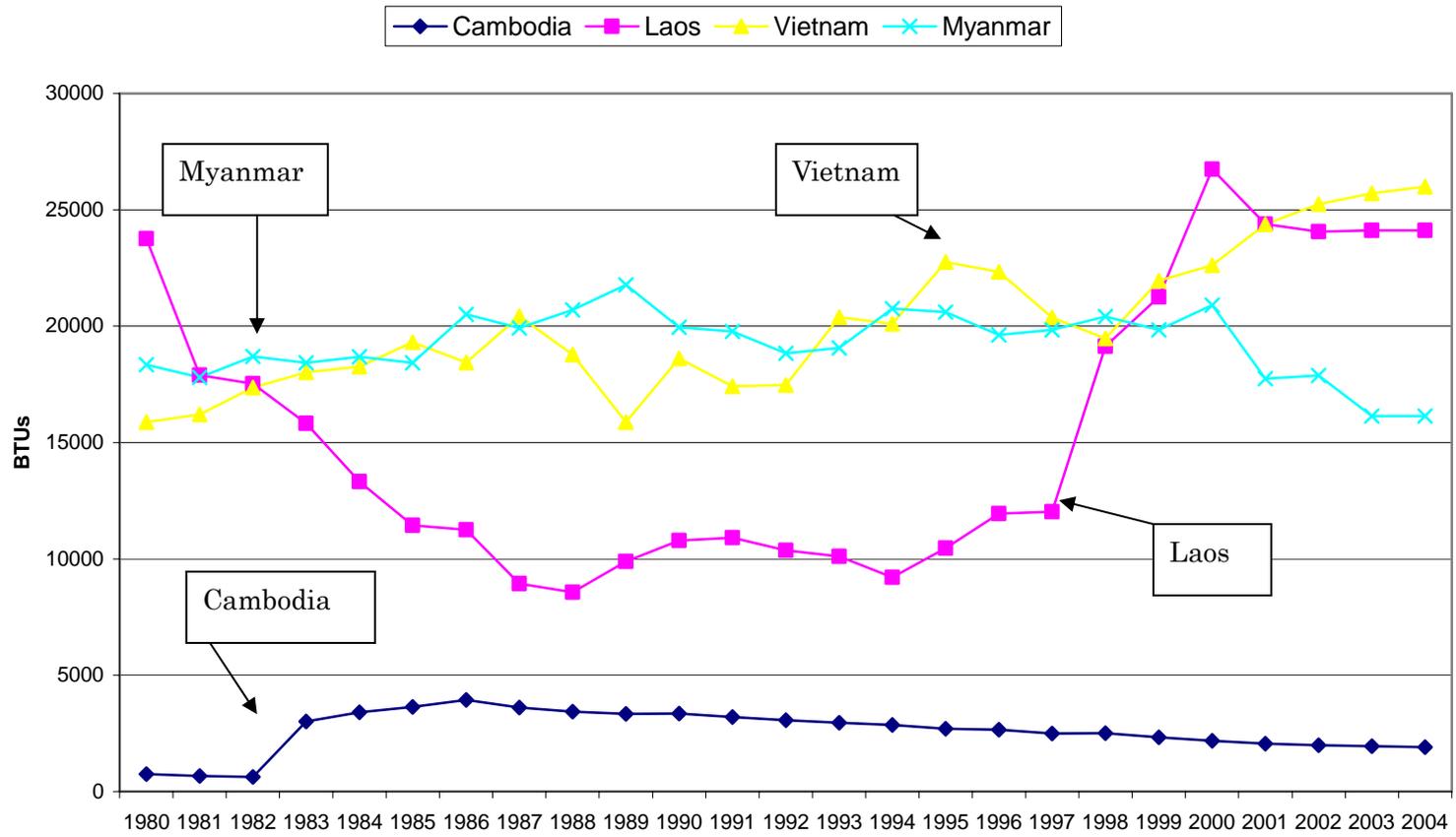
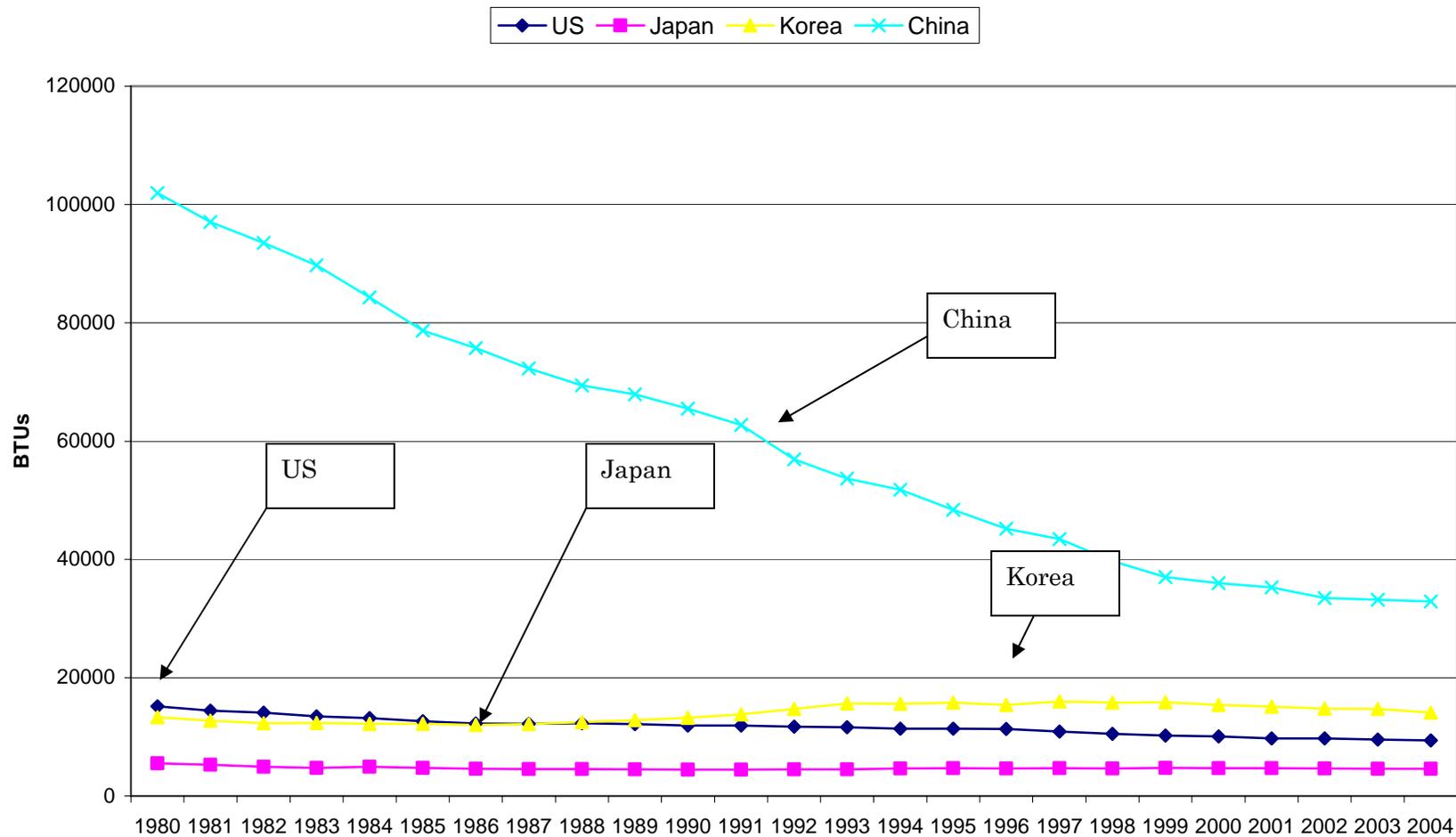


Figure 3 - Energy Intensity of US, Japan, Korea & China

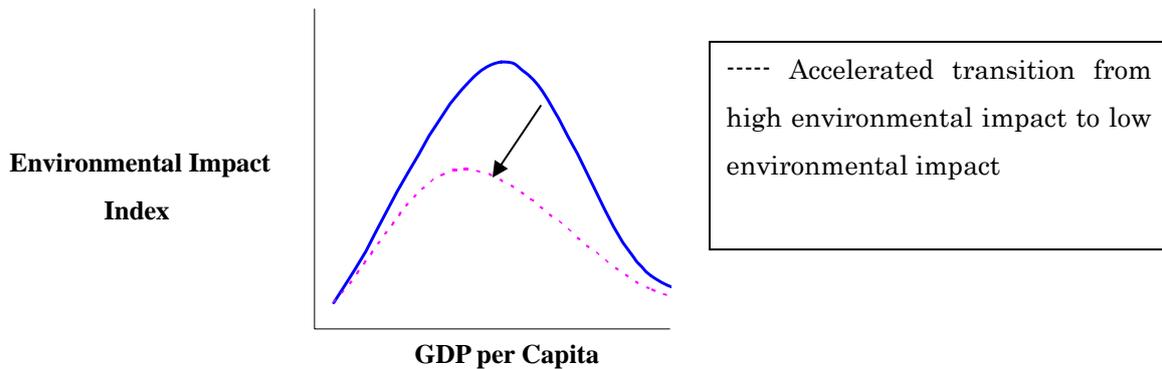


**Table 3 – Asia: Electricity Distribution Losses (% of Electricity Supply)**

	1960	1969	1980	1989	1996	1999	2003
Brunei					2.0	1.2	4.9
China					6.9	7.0	6.5
Indonesia					12.3	11.8	16.3
Japan	11.5	6.5	4.4	4.5	3.6	3.3	4.8
Korea					5.1	4.1	3.2
Malaysia					11.1	8.0	4.6
Myanmar					35.1	28.5	18.4
Philippines					16.7	14.8	12.9
Singapore					4.5	4.2	6.6
Thailand					8.6	8.2	7.2
Vietnam					18.9	15.6	14.0
Asia excluding China					16.9	17.8	17.8
OECD			7.6	5.9	6.4	7.0	6.7
Non-OECD					12.0	12.5	12.5
World					8.4	9.0	9.3

Sources: IEA, *Energy Statistics of OECD Countries*. Paris: OECD/IEA, various years;  
IEA, *Energy Statistics of Non-OECD Countries*. Paris: OECD/IEA, various years.

**Figure 4: Improving the ‘Environmental Kuznets Curve’**



Notes:

In the original (1956) version of the ‘Kuznets Curve’, Simon Kuznets postulated that income inequality before development is low; it then tends to increase as incomes rise but decrease after incomes have reached a certain level. The theory is now also used to examine how the environmental impact of development changes over time. According to the ‘Environmental Kuznets Curve’, as per capita GDP rises, the environmental impact also rises steeply; it then reaches a peak and thereafter declines, ie, that society initially pays little attention to the environmental damage resulting from industrialisation. But after a certain point, when people begin to enjoy comfortable lifestyles, the desire for a clean environment begins to increase and translate into government policy, thereby reversing destruction to the environment.

Tanabe believes that the environmental impact of modernisation and industrialisation in Asia need not be as serious in the early stages (represented by the dotted line) as it was in the Western developed world, nor does it take as long if energy- efficient equipment is used right from the start.

Source: Yasuo Tanabe, Vice President Research Institute of Economy, Trade and Industry (RIETI)

*Energy Efficiency: Lessons from Japan “From Cool Japan to Cool Asia”, NEAT WG presentation, 30 June 2006.*