Major Issues of Crude Oil Procurement and Cooperation Measures in Northeast Asian Economies

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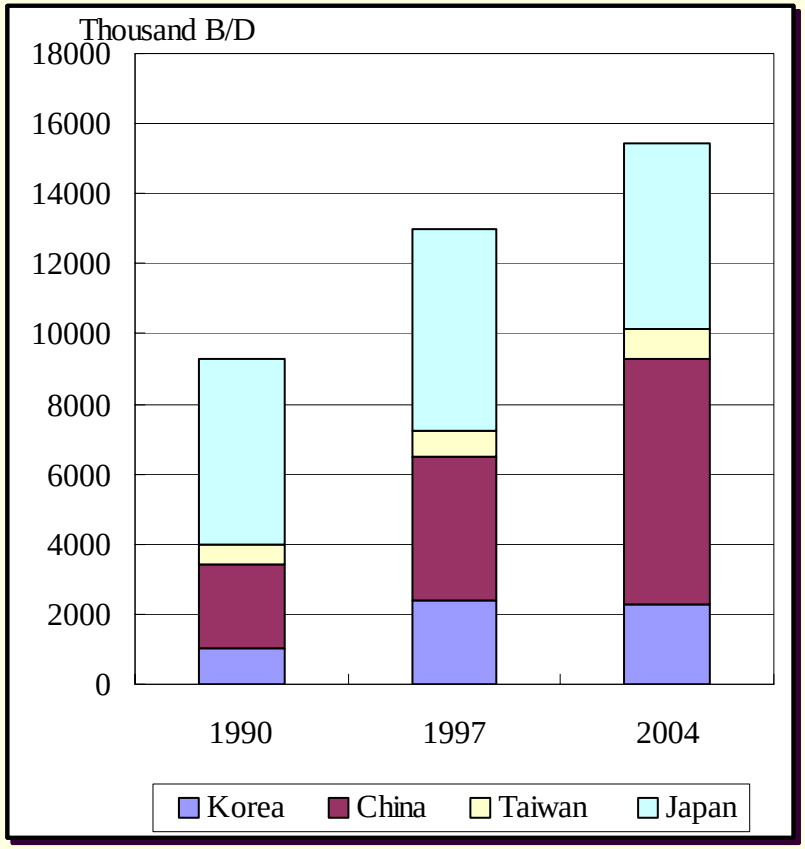
Trends and Prospects of Oil Demand in Northeast Asia (NEA)

Trends of Oil Demand in 3 NEA Countries

- **Oil consumption in 3 NEA countries increased by 3.7% per annum from 1990 to 2004.**
- **Oil demand growth by country**
  - **Korea: 5.8% per annum**
  - **China: 8.0% per annum (Taiwan: 3.4%)**
  - **Japan: 0.0% per annum**
- **Oil Consumption in 2004 [See Figure]**
  - **Korea: 2.28mb/d**
  - **China: 6.68mb/d (Taiwan: 0.88mb/d)**
  - **Japan: 5.29mb/d**
  - **NEA total: 15mb/d**



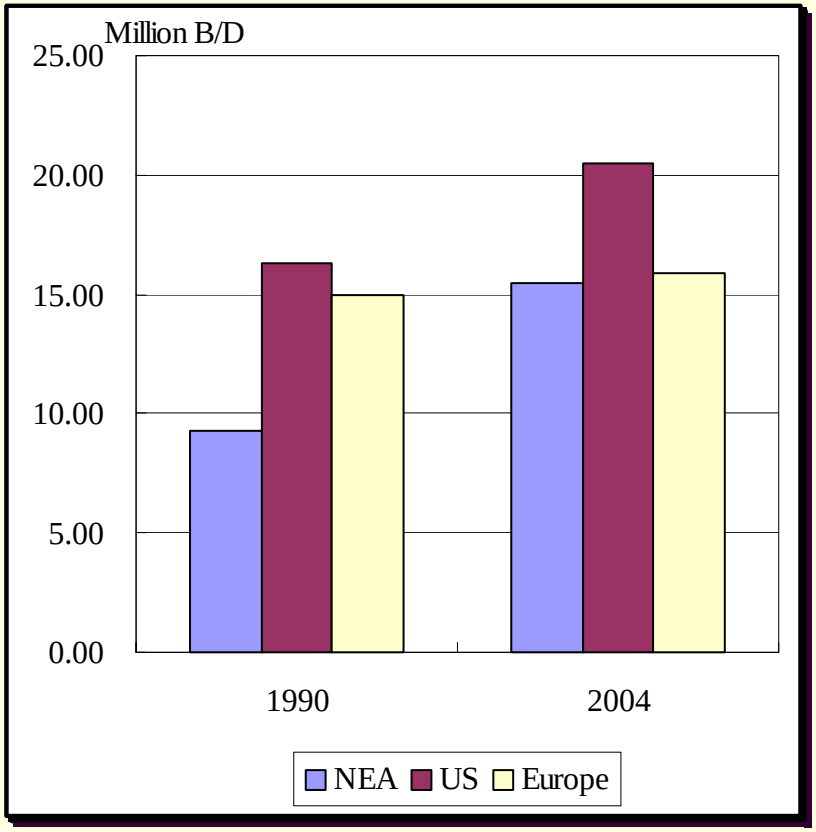
Source: BP

Comparison with Major Oil Consuming Region

- **Oil consumption in NEA accounts for 66% of Asia-Pacific (A-P) consumption and 19% of world consumption in 2004.**

- **Oil demand growth by region from 1990 to 2004**
  - **NEA: 3.7% per annum**
  - **US: 1.7% per annum**
  - **Europe: 0.4% per annum**
  - **World total: 2.3% per annum**

- **Oil Consumption in 2004 [See Figure]**
  - **NEA: 15.4mb/d**
  - **US: 20.5mb/d**
  - **Europe: 15.9mb/d**
  - **World total: 80.8mb/d**



Source: BP

Position of 3 NEA countries in the World (2004)

Rank	Energy Consumption	Oil Consumption	Crude Oil Import	Crude Oil Production	Oil Refining
1	USA	USA	USA	Saudi	USA
2	China	China	Japan	Russia	China
3	Russia	Japan	China	USA	Russia
4	Japan	Germany	Korea	Iran	Japan
5	India	Russia	Germany	Mexico	Korea
6	Germany	India	France	China	India
7	Canada	Korea	Italy	Norway	Germany
8	France	Canada	Spain	Canada	Italy
9	UK	France	UK	Venezuela	France
10	Korea	Italy	Netherlands	UAE	Canada

Sources: BP, Energy Intelligence, Blackwell etc.

Prospects of Oil Demand in 3 NEA Countries

- With rapid increase in China's oil consumption, NEA is expected to become the central region of world oil consumption.
  - Out of the total demand increase of 9.7mb/d in NEA during 2002-2025, 91% will be contributed by China.
  - Oil consumption of NEA countries will surpass the consumption in Europe within a few years.

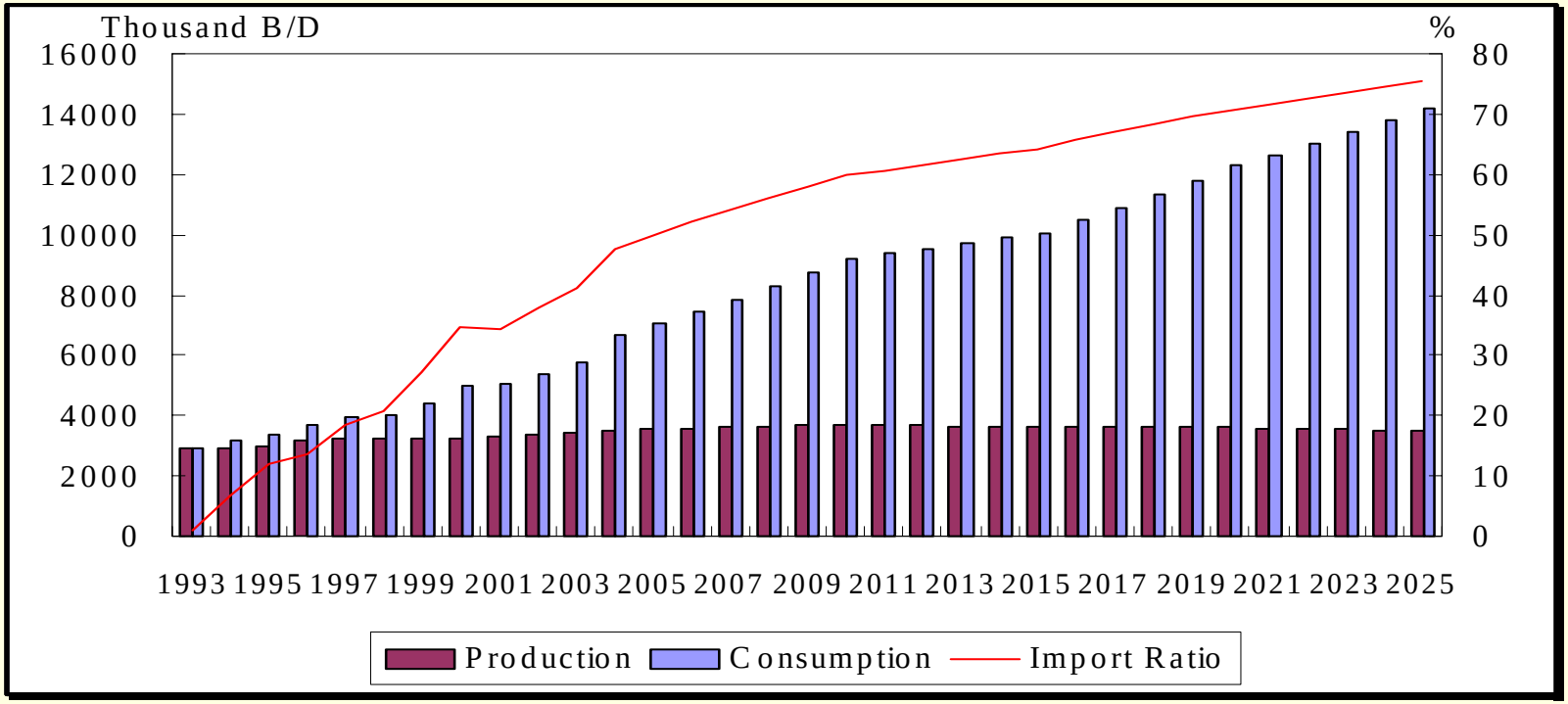
	Actual (mb/d) 2002	Projection (mb/d)				Annual% Change
		2010	2015	2020	2025	
Korea	2.2	2.6	2.8	2.9	2.9	1.3
China	5.2	9.2	10.7	12.3	14.2	4.5
Japan	5.3	5.3	5.4	5.4	5.3	0.0
NEA 3	12.7	17.1	18.9	20.6	22.4	2.5

Source: EIA, *International Energy Outlook*, July 2005

Major Issues of Crude Oil Procurement in Northeast Asia

Increased Dependency on Outside the Region(1)

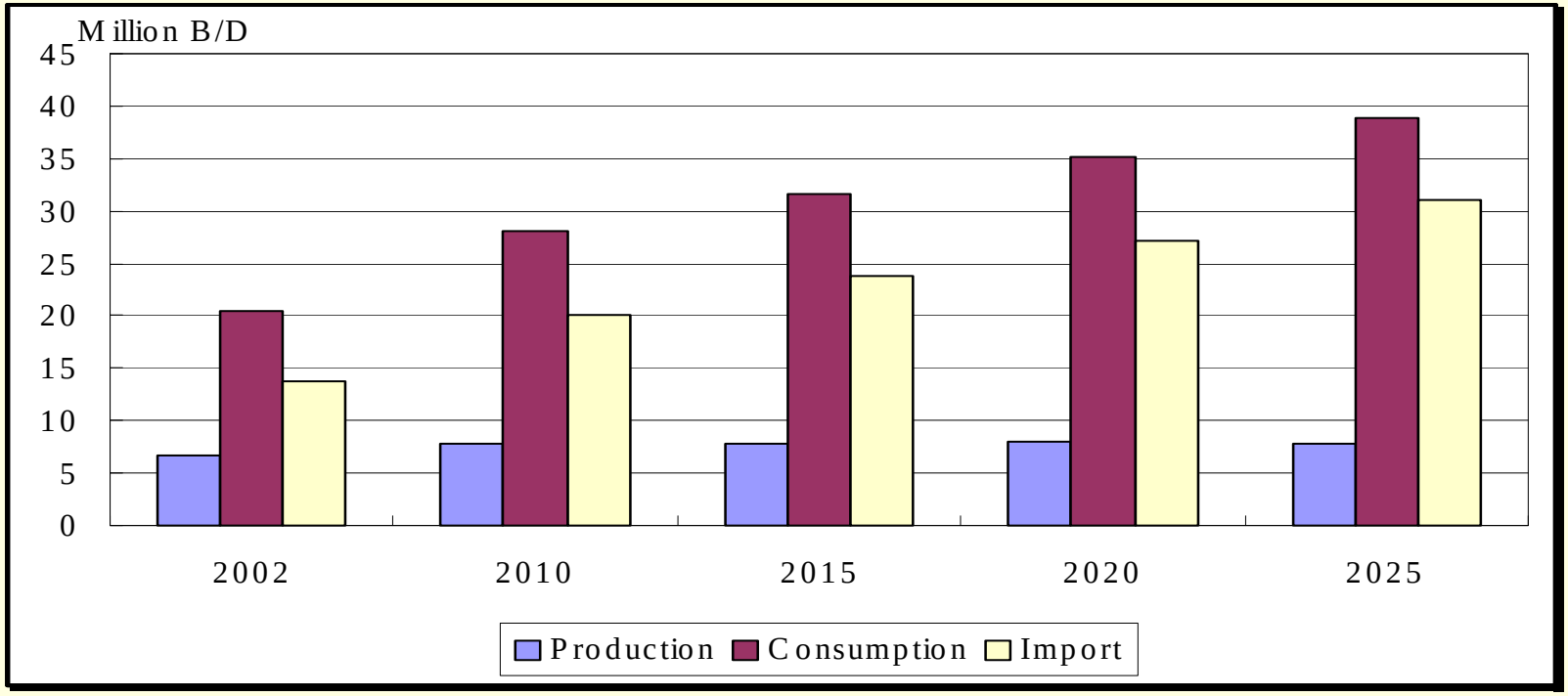
- **China's crude oil import demand will be 5.5mb/d in 2010, 6.5mb/d in 2015, 10.7mb/d in 2025.[See Figure]**
  - **China's Crude oil production till 2025 will maintain current level of 3.5-3.7mb/d.**



Note: Based on EIA Projection in 2005

Increased Dependency on Outside the Region(2)

- **Asia's crude oil import from outside the region is expected to rise from 67% in 2002 to 75% in 2015, 80% in 2025 [See Figure], leading higher dependency on Middle East crude.**
  - **Dependency on ME(2004): Korea 78%, China 46, Japan 81%**



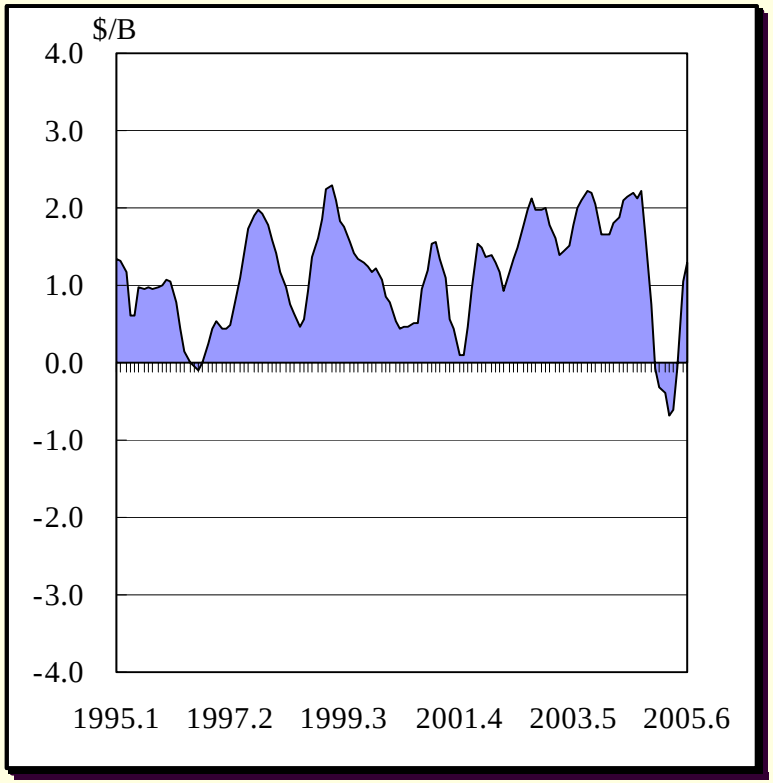
Note: Based on EIA Projection in 2005

Asian Premium of Middle East Crude Oil(1)

- **Crude oil prices for Asian market remained higher than those of European and U.S. markets by around $1/barrel.**

- **Price Difference of Arabian Light during 1995-2004**
  - **Asia – Europe : $1.17/B [See Figure]**
  - **Asia – U.S. : $0.95/B**
  - **U.S. – Europe : $0.22/B**

- **The extra costs due to relatively higher crude prices can be a factor to suppress economic activity in Asia.**



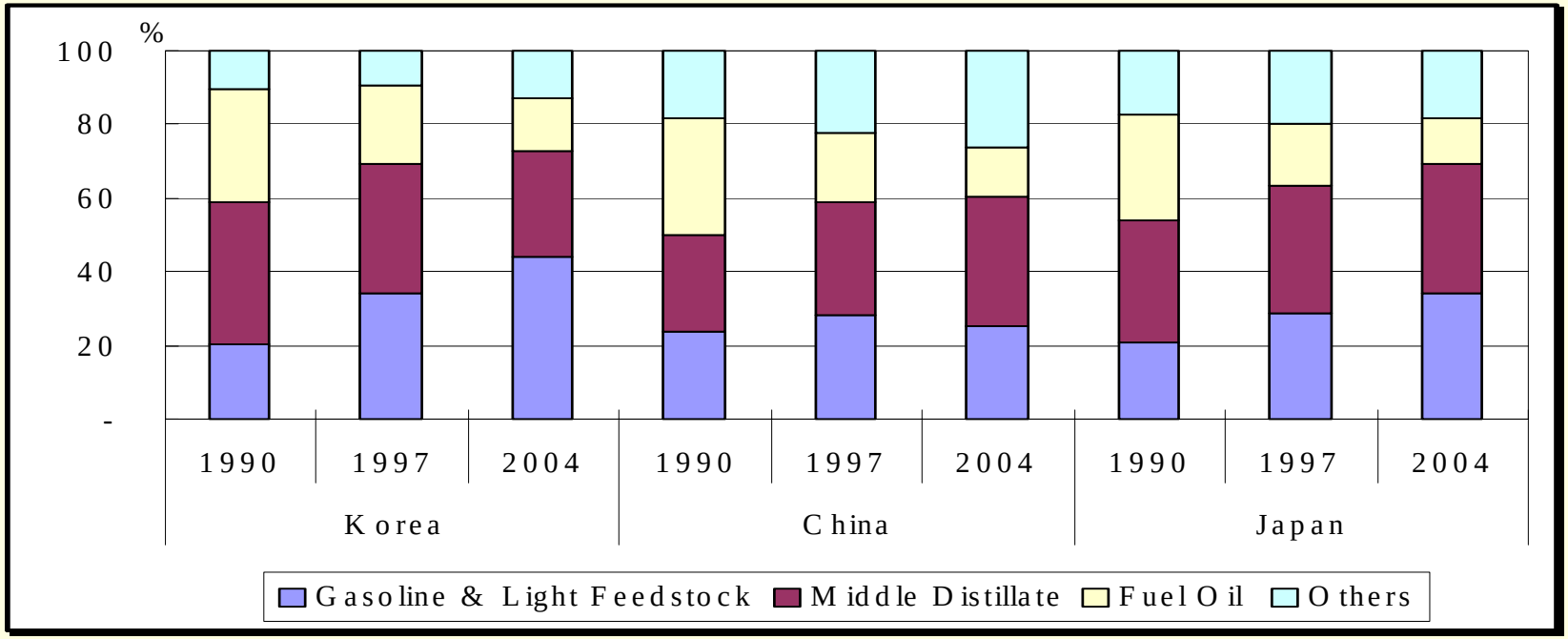
Note: 6-month moving average

Asian Premium of Middle East Crude Oil(2)

- The fundamental cause for Asian premium underlies in the limited supply sources of crude oil to Asia and Asia's heavy reliance on the Middle East (ME).
- Asian premium is also caused by the fact that ME producers have created a marketing system that inhibit arbitrage between East and West.
  - Destination restrictions
  - Third-party trading restrictions
- As long as the inflexible supply system remains unchanged, Asia's rising dependency on the ME crude only dampen Asian premium phenomenon.

Strong Demand for Sweet-Light Crude Oil(1)

- Oil importing countries in NEA compete for sweet (low sulfur) and light crude of which the export availability is already in decline.
- Oil product demand in 3 NEA countries is characterized by a transformation of demand pattern, i.e., the lightening of demand.



Sources: KEEI, BP

Strong Demand for Sweet-Light Crude Oil(2)

- Although China has enough capacity to deal with heavy crude, most of its refining facilities are equipped to run only sweet crude.
  - Low capability to process sour (high sulfur) ME crude
- Korea, which has higher capability for running sour ME crude, has not enough cracking capacity to refine heavy crude.
- The lack of sweet-light crude supply will be maintained in the near future, leading to widening the price spread between sweet-light crude and sour-heavy crude

Vulnerability of Transportation Routes(1)

- Increased trade, especially from ME to NEA, will intensify concerns the vulnerability of maritime transportation routes.
  - Export of ME in the world: 30%(2002) → 41%(2025)
  - Import of China in the world: 4%(2002) → 12%(2025)
- Maritime routes have narrow and congested sections that are susceptible to piracy, terrorist attack or accidents.
  - The Straits of Hormuz, The Straits of Malacca etc.

[Projection of oil tanker traffic]

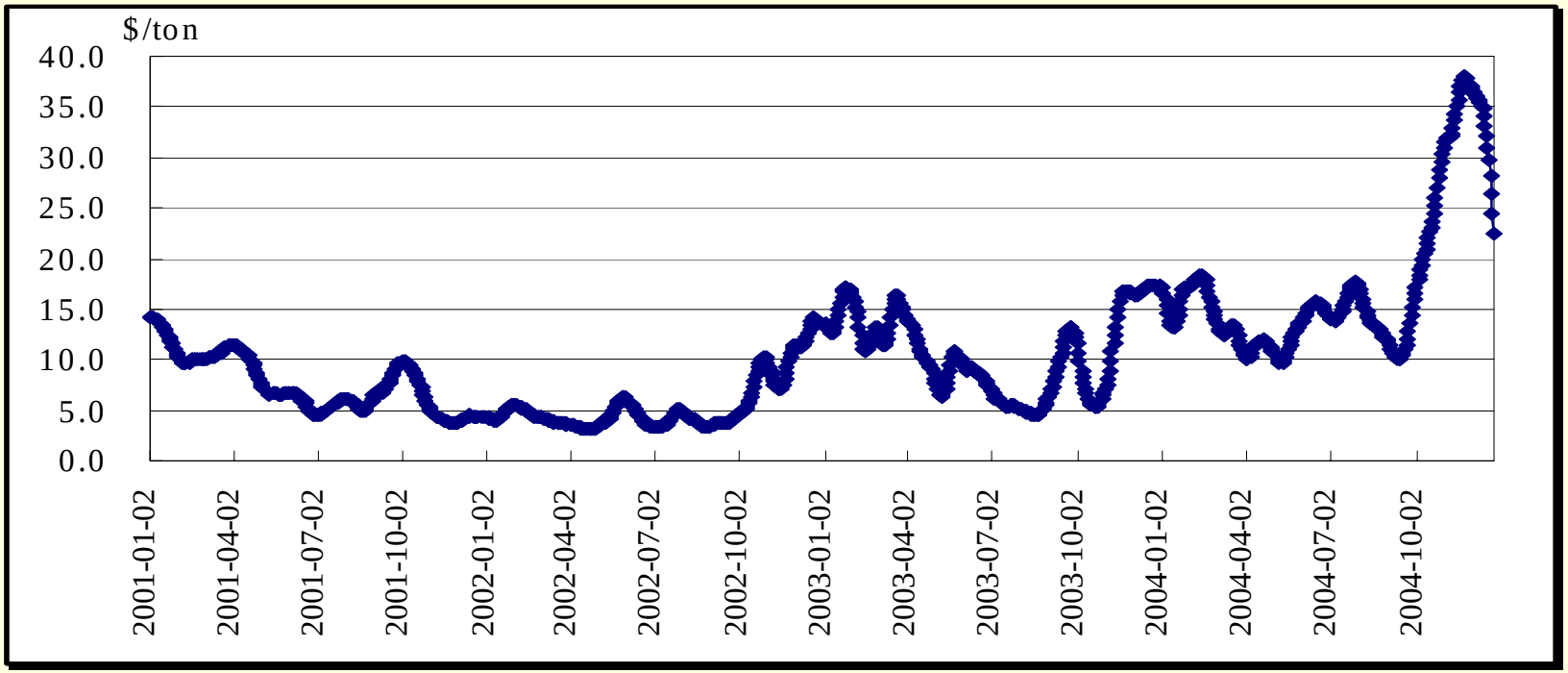
	2002		2030	
	Volume	Share	Volume	Share
Straits of Hormuz	15mb/d	44%	43mb/d	66%
Straits of Malacca	11mb/d	32%	24mb/d	37%

Source: IEA, *World Energy Outlook*, September 2004

Vulnerability of Transportation Routes(2)

- **The rapid rise in oil tankers embarked from ME to Far East is expected to make tanker shipping market tight.**

[Trends of tanker freight costs]



Note: 10-day moving average
Applied World Scale of VLCC to the flat rate of Gulf - Far East
Source: SK

Cooperation Measures amongst Northeast Asian Economies

Cooperation for Overseas Oil Development

- **China, Japan and Korea have been pursuing overseas oil development for energy security.**
  - **Supply source diversification strategy**
  - **Control over foreign oil supply**
- **In order to avoid over-competition amongst NEA countries, joint investment (e.g. consortium) in overseas oil development projects has to be encouraged.**

  "Anecdotal reports indicate that Chinese companies continue to overbid on some tenders ….. Overbidding causes concern because it gives producers a false sense of value for their resources and contributes higher global prices." **(IEA report, Feb.2005)**

Cooperation for Crude Oil Import Logistics

- China has only a few crude oil tanker ports to bring VLCC alongside due to shallow-water coastal area.
  - VLCC accessible crude oil tanker ports are 5 out of 24 in China, compared to 4 out of 5 in Korea and 21 out of 39 in Japan.
- When oil companies in NEA import crude oil, the efficiency of crude oil import logistics can be enhanced through a joint purchase or joint transportation.
  - Primary transport by VLCC to NEA region
  - Secondary transport by small tanker to Chinese port
- Surplus oil reserve facilities in NEA region can be efficiently utilized amongst oil companies in NEA by appropriate rental system.

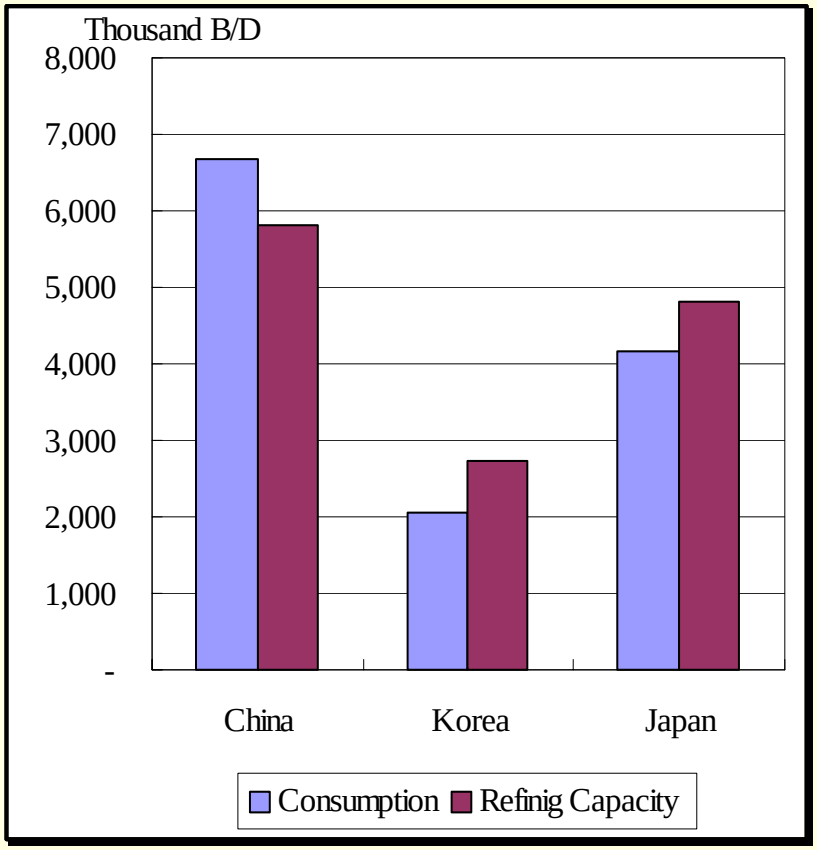
Cooperation for Safety of Maritime Transport

- To establish a stable maritime order, UN Maritime Law Treaty ratified in 1994 can provide a foundation.
  - Uniform interpretation regarding critical concerns on security
- Maritime security cooperation should be sought by ASEAN Regional Forum (ARF) and Council for Security Cooperation in the Asia-Pacific (CSCAP).
- Alternative route for the Strait of Malacca should be considered from a long-term perspective.

Cooperation for Creating Oil Market in NEA

- East Siberia and Far East Russia could become a sub-center of crude oil supply to NEA through cooperation amongst NEA countries.
  - Providing a marker crude for the region
  - Reducing 'Asian premium'

- China could reduce the demand for crude oil import from outside the region by activating oil product trade in NEA region.
  - Lack of refining capacity in China [See Figure]
  - Surplus refining capacity in Korea and Japan



Sources: BP(China), KNOC(Korea), PAJ(Japan)

Cooperation for Enhancing Bargaining Power

- **To cope with 'Asian Premium', oil importing countries in NEA should require ME producers to improve their inflexible supply system.**
  - **Undoubtedly, NEA oil importers have to maintain close relations with ME oil exporters.**
- **In NEA region, China, Japan and Korea need to change the competitive oligopsony into cooperative oligopsony in order to deal with the monopoly supplier, Russia.**
- **NEA countries' energy cooperative body such as SOC (Senior Official Committee) should be established to deal with various energy issues including the cooperation for oil supply security.**

Thank You

for Your Attention !