CHAPTER 3
ENERGY AND SECURITY

Political instability in the Middle East raises questions of vital national security interest as to the availability and preference for oil in long-term energy policy-making.[1] Neither the Asia-Pacific region nor the United States possess oil in sufficient quantity to meet growing long-term demand. (See Figure 3-A.) This shortage of oil amplifies the already tenuous reliance on Middle Eastern oil sources. The strategic situation implies the need for careful cultivation of Middle East relationships over the short run and for the nurturing of alternative energy sources over the long-run. This section examines the Asia-Pacific region's energy mix today, the strategic role of oil, and promotion of other sources of energy.

The Energy Mix Today

Energy patterns in the Asia-Pacific region are driven by the interplay of traditional economic sectors—which generally rely on coal—and modern sectors that rely on oil. Because of their large populations that exist in traditional economic sectors, China and India are heavily reliant on coal derived from domestic sources. The rest of the Asia-Pacific region relies heavily on oil.[2] (See Figure 3-B.) The successful growth of Asia's modern economic sectors also saw:

- Growing use of hydroelectric, nuclear and natural gas forms of energy.
- The reliance of industrialized sectors on global energy markets and transportation systems.
- Government support for energy projects using foreign and domestic investors coupled with private operating companies.
- For some, economic stimulation policies promoting diverse export sectors, rather than dependence on oil and gas exports. Indonesia is a successful example of export diversification, while Brunei and Burma are counterexamples.

Figure 3-A

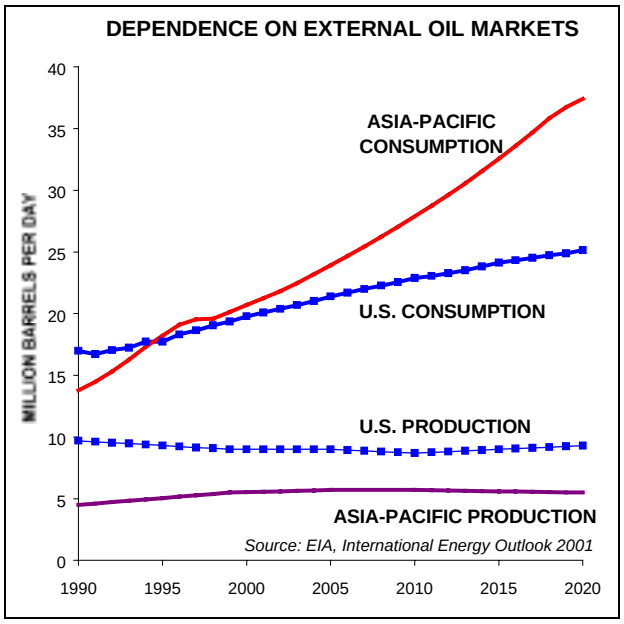
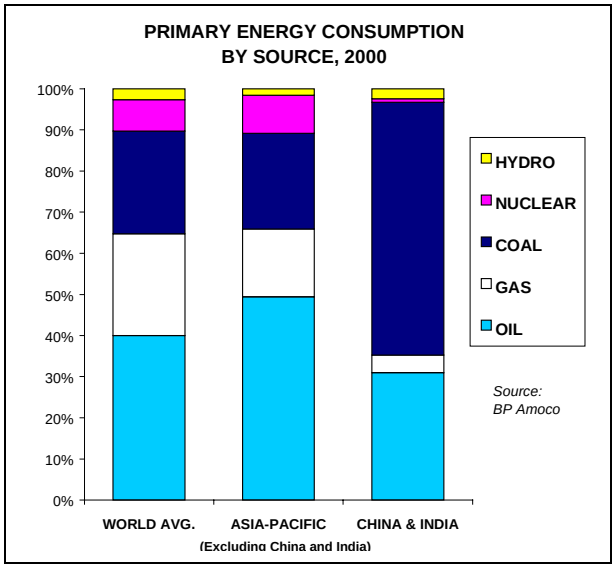


Figure 3-B



Coal. Coal supplies the majority of energy needs in China (64%) and India (56%), but only 23% of the rest of the region's need. Coal consumption in Asia is expected to double in the next 20 years, but will not keep pace with total energy needs. The region is well endowed with coal, especially in China, Australia, India, and Indonesia. At present production rates, the world's coal reserves will last 220 years, and those in the Asia-Pacific region will last 146 years.

Hydroelectric Power. Although hydroelectric power provides only 2% of the Asia-Pacific region's energy needs, it is an essential part of rural development plans. Perhaps in disproportion to energy needs, these plans are related to cross-border tensions—and cooperation—over river basins like the Mekong and Ganges. China and India will likely double their hydroelectric consumption in the next 20 years. China's controversial Three Gorges Dam project is scheduled to be fully operational by 2009 and addresses both flooding and energy concerns.

Nuclear Energy.[3] When excluding coal-intensive India and China, nuclear power supplies 9% of the region's energy needs. The Asia-Pacific region is actively adding nuclear capacity while the rest of the world is retiring plants. Key nuclear energy consumers are Japan (309 B Kilowatt-hours) and South Korea (98 B Kilowatt-hours). China's nuclear capacity may increase nine-fold in the next 20 years. Nuclear plants are found in India and Taiwan. North Korea's plant is to go online in 2008. Given healthier economies, programs will proceed in Thailand, Indonesia, the Philippines, and Vietnam.

Natural Gas.[4] At present production rates, the world's proved natural gas reserves will last 62 years. Although sizeable, Asia's natural gas reserves are smaller than reserves in the Middle East, the former Soviet Union, or Africa. Natural gas satisfied 11% of the Asia-Pacific region's energy needs in 2000. By the year 2020, natural gas consumption in the region is expected to reach 27 trillion cubic feet, which is 2.8 times the current level.

The Strategic Role of Oil

Prevalence of Oil. Oil is the key energy source powering the modern economic sectors of the Asia-Pacific region. Japan is the world's second largest oil consumer, China ranks third, while South Korea is sixth. When excluding China and India, oil accounted for 49% of the region's energy consumption in 2000.

Rising Demand for Oil. In the next 20 years, China's oil consumption is expected to grow 93%, while the rest of Developing Asia will increase 53%.

Declining Regional Oil Supplies. Assuming constant production rates, the world's proved oil reserves[5] would last 41 years, although the Asia-Pacific region's smaller oil reserves would last until only 2015. Projections by the Energy Information Administration assume continued discovery of world oil resources, which may be an optimistic assumption, given that regional supplies are limited and new findings are scarce.

Import Dependency.

- The Asia-Pacific region produced 5.5 million barrels pre day (MBD) of the 20.7 MBD that it consumed in 2000. (Almost all of the region's production is consumed internally.)
- The share of imports in Asia-Pacific oil consumption has risen from 67% in 1990 to 73% in 2000. The dependency on imports is projected to rise to 80% by 2010 and 85% by 2020. (See Figure 10-B.)

The Middle East. Asia's dependence on Middle East sources of oil will grow. The Middle East supplies almost all of the Asia-Pacific region's imports, with Algeria, Nigeria, and Venezuela providing a very small portion.

- The share of Persian Gulf oil in total oil consumption is high for the Philippines (85%), Japan (75%), South Korea (74%), Taiwan (61%), Singapore (55%), and Thailand (48%).[6] (These facts include oil that is refined by Singapore, but primarily is obtained from the Middle East.)

- Countries that are less dependent on Persian Gulf oil include Australia (23%) and China (8%).
- The Asia-Pacific region's dependence on Persian Gulf oil sharply contrasts with the United States, where Venezuela, Canada, Mexico, and the North Sea will remain key external sources for the U.S. energy market. The United States produced 9 MBD of oil in 2000, while consuming 20 MBD. The overall U.S. dependency on imports to meet oil demand is expected to rise from 40% in 1995 to 50% in 2020.[7] Currently, oil from the Persian Gulf comprises 13% of U.S. oil consumption.[8]

Shipping Lanes. The dependency on oil imports from the Middle East emphasizes the strategic importance of shipping lanes. Protection of vital Sea-Lines of Communication (SLOCs)—such as the Strait of Malacca—will likely become an even greater priority in the region. An indication of this trend is the demand for naval and air capabilities in the Asia-Pacific region, which is driven partly by a desire to protect oil shipments.

Oil and China. China's oil demands are growing and outstripping its domestic oil production.[9] China will be increasingly reliant on external sources for oil, especially the Middle East. Some Chinese policy-makers may seek a mercantilist approach to energy sources by securing access to supplies and transportation routes. Consequently, some energy analysts speculate that:

- The securing of oil sources and routes may be a motivating factor for China to expand and modernize its navy.
- China's growing political involvement in Burma (Myanmar) is linked, according to some observers, by a desire to establish naval facilities on the Indian Ocean.[10]
- China's energy connections to Central Asia and Russia seek to ensure its future access to global oil supplies and imply an economic interest in stabilizing ethnic problems along China's borders.
- Corruption and rent-seeking will be a problem in energy sectors. China's coal bureau is under investigation, as part of the government's acknowledged mishandling of one-fifth of its budget.[11]

Oil and the South China Sea. Oil politics in the South China Sea threaten not only global shipping trade but also regional security. Further, the economic importance of additional reserves in the middle of the South China Sea—in the Spratly Islands—is easily overstated.

- The region around the South China Sea has proved oil reserves estimated at about 7.5 billion barrels, which are located within Exclusive Economic Zones of several littoral countries.
- The most optimistic Western estimates place total oil resources (not proved reserves) within the South China Sea at 2 billion barrels. If fully recoverable, the Spratly Islands hypothetically could yield a peak oil production level of 180,000—370,000 barrels per day—the same order of magnitude as current production levels in Brunei or Vietnam. However, the rule-of-thumb for frontier areas is that only 10% of potential resources can be economically recovered, which suggests that total production will be significantly less.[12]

Oil's Strategic Implications. The security of global oil markets is a vital foundation for socio-economic growth within Asian countries.

- The region will increasingly depend on political stability in the Middle East.
- Oil dependency presents the challenge of potential resource conflict as well as the opportunity for international cooperation.
- Some argue that growing energy linkages between Asia and the Middle East drive arms sales, particularly between China and Iran.
- Non-oil producing countries of the region will continue to experience bilateral deficits in their balance of payments with oil producing countries. For example, the Philippines exports its laborers to Arabian Gulf states to help pay for oil imports.
- The demand for energy has spin-off effects on environmental conditions, especially regarding the impact of fossil

fuels. Energy is a two-edged sword, both sides of which have global implications. For example, oil prices are part of a global market mechanism, and the environmental damage to the atmosphere caused by this oil usage also has global consequences. (See Chapter 6.)

- The intensity of energy usage—in terms of per capita energy—in the Asia-Pacific reflects its current practices, which are unique. However, the long-term energy demand of the region will multiply with the proliferation of modern industries and consumer behavior patterns.
- Given the region's surging demand for energy and the political fragility of oil suppliers, the handwriting is on the wall: The development of alternative energy sources is vital to regional and global security.

Endnotes

1 Center for Strategic and International Studies (CSIS), *The Geopolitics of Energy into the 21st Century*, 2000; Thomas Barnett and Bradd Hayes, *Asian Energy Futures*, U.S. Naval War College, August 2000 (www.nwc.navy.mil/newrulesets/AEFreport.htm); and Michael T. Klare, *Resource Wars: The New Landscape of Global Conflict*; 2001.

2 BP Amoco, *Statistical Review of World Energy 2001*, June 2001 (www.bpamoco.com/downloads/). Throughout this chapter, current consumption data and reserves to production ratios are from BP Amoco, while forecasts are from Energy Information Administration (EIA), *International Energy Outlook 2001,* March 2001, (www.eia.gov/oaif/ieo2001/). See also EIA, *Country Analysis Briefs* (www.eia.doe.gov/emeu/cabs/).

3 EIA, *Ibid.* and East-West Center, *Energy Program Database.*

4 EIA, *Ibid.* and East-West Center, *Ibid*.

5 The U.S. Geological Survey (USGS) is a key authority on reserve potential. See USGS, *World Petroleum Assessment and Analysis,* 1995 (energy.er.usgs.gov/products/papers/WPC/14/); and USGS, *World Conventional Crude Oil and Gas: Identified Reserves, Undiscovered Resources and Futures,* 1998 (energy.er.usgs.gov/ products/openfile/OFR98-468/).

6 Blackwell Energy Research, *World Oil Trade,* September 1997; British Petroleum, *Statistical Review of World Energy 1997* (www.bpamoco.com/statdata.html); EIA, *Country Energy Data Reports* (www.eia.doe.gov/world/country/); and East-West Center, *Energy Program Database*.

7 EIA, *International Energy Outlook 2001*.

8 EIA, *International Petroleum Monthly,* September 2001.

9 EIA, *Country Analysis Briefs: China* (www.eia.doe.gov/emeu/cabs/china.html).

10 Mohan Malik, "Burma Slides Under China's Shadow," *Jane's Intelligence Review*, July 1, 1997; Marvin Ott, *Burma: A Strategic Perspective*, (www.ndu.edu/inss/strforum/forum92.html).

11 Financial Times, *China: Beijing Reveals Massive Misuse of Funds*, August 18, 1999 (www.ft.com).

12 EIA, *South China Sea*, February 2001, and EIA, *World Oil Transit Chokepoints*, November 2001 (www.eia.doe.gov/emeu/cabs/).