

OIL PRICE VOLATILITY: LEARNING FROM ASIA-PACIFIC COUNTRY EXPERIENCES

Oil price volatility is here to stay. To meet this challenge, countries in the Asia-Pacific region cannot continue under the “business-as-usual” scenario. Governments should adopt an approach that utilizes more renewable resources and energy-efficient technologies and practices. Developing countries have great potential for improving their energy efficiency as they currently use twice as much oil as developed countries to produce the same unit of economic output. There are also numerous opportunities for gains from diversification to other sources of energy, especially in the transport sector. The initiatives of a number of countries in the region offer valuable lessons with regard to promoting alternative fuels, reducing oil dependence and managing the effects of volatility. There is considerable scope for Governments to be more effective through regional cooperation measures.

Although the price of oil dropped below \$60 a barrel in the latter half of 2006, it has recently crept above \$60 a barrel again, demonstrating once again the unpredictable nature of oil prices. The behaviour of oil prices over the last two years and its potential economic impact have been the subject of widespread attention, particularly concerning the negative impact of high oil prices, however, high oil prices can also have some positive impacts.

HIGH OIL PRICES CAN BE GOOD

A higher oil price transfers income from importing to exporting countries, and the revenue generated could benefit exporting countries as they can use these windfall revenues to invest in upstream development, including increasing production and exploration.

Some analysts suggest that fossil fuel reserves will peak and run out over the next few decades; in considering

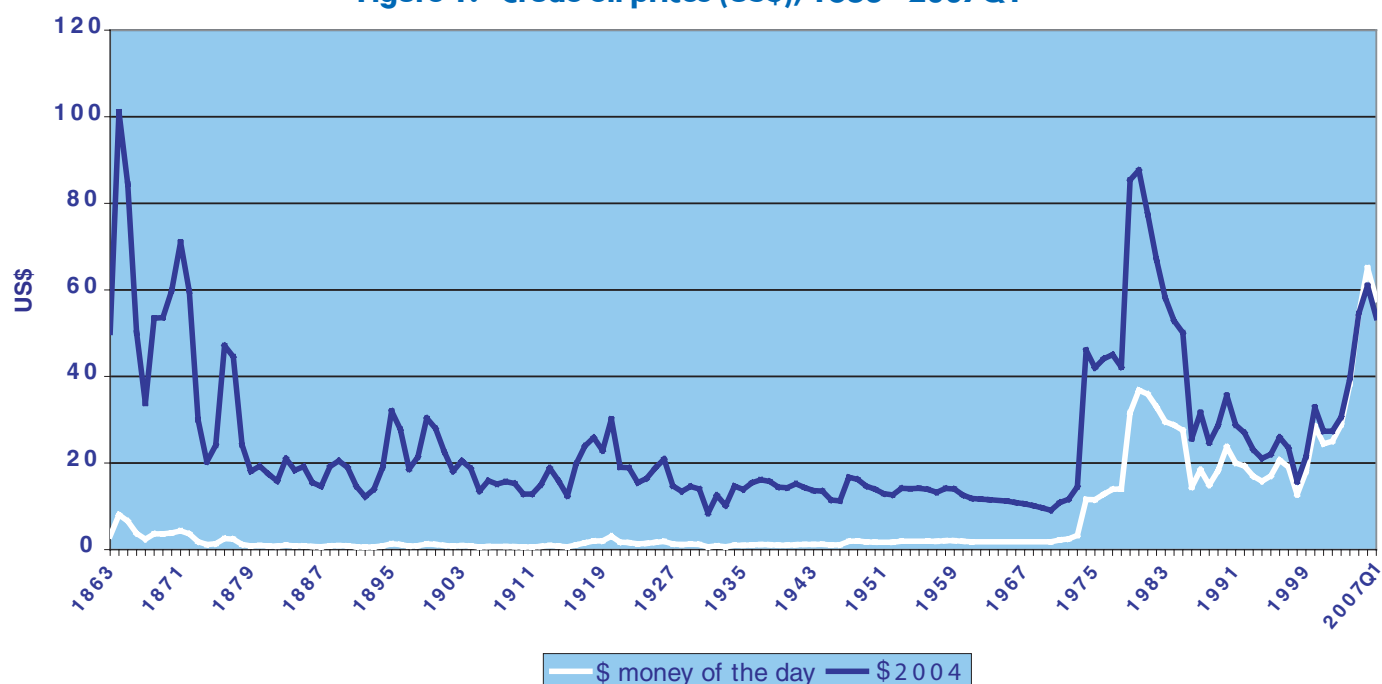
such fuels a non-renewable resource, this argument has considerable merit. Global oil reserves were estimated to be around 1,200 billion barrels at the end of 2005, which is sufficient to meet global oil needs for the next 40 years, based on 2005 production levels. However, reserves have actually been increasing over the past several years as new technologies are introduced and oil exploration is now conducted in places that were previously considered economically unviable when oil prices were lower.¹

Depending on the right policy, a higher price may also stimulate research and development into alternative sources of energy, energy conservation, and efficiency improvement in oil-importing, as well as oil-exporting countries. Energy efficiency measures in particular can often cost very little to implement but cumulatively can save a large amount of energy, and thus money. With oil prices having remained high for over two years, energy efficiency measures appear to be gaining popularity.

Oil prices have always been volatile because they are affected by unpredictable yet recurrent natural disasters and political instability. Yet when comparing today's oil price with the adjusted recent oil price, a steady climb is more evident than an actual “shock” as occurred in the 1970s and 1980s. In 1980, oil prices were about \$36 a barrel at the exchange rate of the day, but when adjusting the price to 2004 dollars, the price of a barrel was equivalent to \$82 a barrel (figure 1). The current price of oil is still below this adjusted figure, although the market trend has been moving upwards. For example, the price rose as high as \$78.40 a barrel in July 2006. Some analysts were predicting oil prices above \$100 a barrel; others, though, argue that current prices are still below their historic highs and are unlikely to reach such levels for a long time to come.

¹ BP (2006), *BP Statistical Review of World Energy*, available online at: <www.bp.com>, June.

Figure 1. Crude oil prices (US\$), 1863 - 2007Q1



Source: BP Statistical Review of World Energy, June 2006; and ESCAP calculations.

Note: prices refer to annual average.

VOLATILITY IS HERE TO STAY

Over the short term, the Energy Information Administration (EIA) suggests that the price of oil will hover around \$69 a barrel in 2007.² Over the long term, the EIA presents three scenarios for oil price developments. In the reference scenario, global oil prices are estimated to rise to \$59 a barrel in 2005 dollars by 2030, whereas the low and high oil price scenarios predict a 2030 price of \$35 a barrel and over \$100 a barrel in 2005 dollars respectively.³ In December 2005 the Institute of Energy and Economics in Japan (IEEJ) predicted that the price of oil will be an average of \$60 to \$70 a barrel under the Institute's high price scenario, although its reference scenario predicted only an average value of \$55 to \$60 a barrel in 2006.⁴ The International Energy Agency (IEA) predicts that the price of oil will average about \$60 a barrel through 2007 (based on the IEA crude oil import price in 2005 dollars, – a proxy for international prices) and then drop back to about \$47 a barrel by 2012. IEA assumes a slow rise after 2012 to about \$55 a barrel (in 2005 dollars). Nominally, the

Agency estimates the price will reach \$97 a barrel in 2030.⁵ The range of these predictions reflects the degree of uncertainty in the oil market.

Previous oil shocks in 1973 and 1981 plunged the global economy into recession. However, owing to the relatively slower pace of oil price increases in comparison to the situation in the early 1980s, as well as to lower dependence on oil, the region's economic growth rate still remains relatively resilient. In general, Governments have shielded consumers from the impacts of high oil prices by not immediately transferring price increases to consumers through financial mechanisms, such as by maintaining or reducing taxes or providing subsidies on diesel or kerosene for example.⁶ IEA estimates that subsidies on oil products in countries that are not members of the Organization for Economic Co-operation and Development amount to more than \$250 billion a year.⁷

Analysts' opinions on this issue vary, but most people agree that oil price volatility will remain a major concern. Economies can prepare for and adjust to gradual price

² EIA (2006), *Short-term Energy Outlook*, available online at: <www.eia.doe.gov/oiaf/forecasting.html>, 24 July.

³ EIA (2007), *EIA Annual Energy Outlook 2007*, available online at: <www.eia.doe.gov/oiaf/aeo/index.html>, February.

⁴ K. Komyama (2005), *Prospects for the International Oil Market and Crude Oil Prices in 2006*, summary of the 393rd Forum on Research Works, (IEEJ, Japan).

⁵ OECD/IEA (2006), *World Energy Outlook 2006*, (OECD/IEA, Paris).

⁶ ESCAP (2005), *Economic and Social Survey of Asia and the Pacific 2005: Dealing with Shocks* (United Nations publication, Sales No. E.05.II.F.10).

⁷ OECD/IEA (2006), *World Energy Outlook 2006*, (OECD/IEA, Paris).

risers to absorb the impact, but in the light of the currently high levels of oil dependency a sudden jump would be damaging. In response to these concerns, Governments have been implementing a number of measures to help diversify their energy sector. Although the price of oil dropped below \$60 a barrel in November 2006, response strategies to the high oil price appear to be working.

ENERGY SECURITY AND SAVING MONEY: THE IMPERATIVE OF GOVERNMENTS

There is a strong incentive for Governments to wean their economies off oil and utilize oil resources as efficiently as possible, while trying to diversify into other energy options.

A number of organizations have reviewed the cost of different energy development options, including a "business-as-usual" approach and one that utilizes more renewable resources and energy-efficient technologies and practices. One predicts that this alternative approach would not only enhance energy security and mitigate environmental damage but also save a substantial amount of money when compared with the "business-as-usual" approach. The International Energy Agency predicts that global energy demand would be about 10 per cent lower in 2030 if the alternative, energy-efficient approach is adopted, with savings amounting to about \$560 billion. For example, in the electricity sector it is estimated that every \$1 invested on demand-side management of electricity would save more than \$2 of investment on the supply-side. This is even more pronounced in developing countries where almost \$3 of investment in supply can be avoided for every \$1 invested in demand-side management because energy production efficiency and consumption is much poorer. This demonstrates that a number of simple opportunities exist to implement energy-efficient measures.⁸

On average, oil-importing developing countries use more than twice as much oil as developed countries to produce the same unit of economic output. Increasing the end-use efficiency of oil is one concrete step towards improving energy security in countries heavily reliant on this fuel.

Opportunities abound for developing alternatives and new technologies for reducing oil dependency through diversification into other sources of energy, as the power

sectors of a number of countries had done after the previous oil crises. For the transport sector, viable alternatives to the use of oil are being investigated, such as natural gas, synthetic fuels, biofuels and fuel cells. Also being considered are energy-efficient vehicles and improved public transport systems aimed at reducing people's reliance on cars. Improving the efficiency of the transport sector would lead to substantial fuel savings by consumers amounting to two to three times the additional capital cost for such vehicles. An additional investment of \$800 billion in more fuel-efficient cars and other oil-consuming goods⁹ between 2005 and 2030, would lead to estimated global oil-imports savings of about \$1.9 billion.

For these reasons, a number of countries are actively implementing programmes aimed at encouraging the use of alternative fuels in the transport sector. The use of alternative fuels, such as compressed natural gas, liquefied petroleum gas, biofuel, biodiesel, electricity and hydrogen can have a lesser adverse impact on urban air quality and also provide opportunities for energy diversification, thereby enabling countries to become less dependent on oil.

Cooperation between countries, including among oil-exporting and oil-importing countries of the region and beyond, could be an important tool for stabilizing market conditions, as well as introducing common standards and incentive regimes for sustainable energy production and consumption, with the ultimate aim of reducing the region's reliance on oil.

SUCCESS STORIES FROM THE REGION

Many Governments are already undertaking a number of initiatives to reduce their country's dependence on oil. In October 2005, Indonesia cut subsidies on fuel prices for the second time that year as oil subsidies cost the Government \$7.4 billion in 2004. If the subsidies had not been removed, their cost would have increased to \$13 billion or \$14 billion in 2005. In addition to this, the Government of Indonesia has embarked on an intensive biofuel programme aimed at reducing oil consumption by 10 per cent by 2010.¹⁰

In Thailand, oil and energy savings and the promotion of alternative energy sources have been emphasized through projects such as those producing biodiesel and ethanol. Energy efficiency has also been aggressively

⁸ *Ibid*

⁹ *Ibid*

¹⁰ Antara News (2006), *News Focus: Indonesia turning to biofuel as alternative energy*, available online at: <www.antara.co.id/en/seenws/?id=17326>, accessed in August 2006.

promoted across all sectors over the past year, as oil consumption accounts for a large portion of the country's GDP. In 2004 alone it cost 700 million baht or 11 per cent of GDP.¹¹ An energy conservation fund was set up in 1992 to promote energy-efficiency,¹² and the Government has also formulated policies to diversify the energy sector through the use of renewable energy, such as alternative fuels. It has made considerable investments in developing the biofuel industry in Thailand.

In the Philippines, a number of energy-saving measures are being implemented. Energy conservation measures are encouraged in public buildings and the operating hours of petrol stations have been reduced. Also, the import tariffs for fuel-intensive vehicles have been increased and energy-efficiency programmes are being enhanced across all sectors. The Government of the Philippines has also recently issued an executive order removing all import duties on components, parts and accessories for the assembly of hybrid, electric, flexible fuel and vehicles running on compressed natural gas. Through this initiative, the Philippines hopes to become a manufacturing centre for vehicles running on alternative fuels, for the purposes of curbing air pollution and reducing the country's dependence on imported oil.¹³

These measures contributed to a drop in oil consumption in the Philippines of almost 7 per cent between 2004 and 2005, even though total energy consumption increased by 1.4 per cent. Oil comprised 58 per cent of the fuel mix in 2005 compared with 63 per cent in 2004, showing a slight drop in the country's dependence on oil.

In February 2006, Pakistan announced a decision to introduce buses running on compressed natural gas, which is estimated to have cut \$700 million annually from the country's diesel import bill. The Government is encouraging the use of compressed natural gas in order to provide cheap and environmentally friendly source of fuel.¹⁴ As of 2006, almost 900,000 vehicles in Pakistan were already using this fuel.¹⁵

SURVIVING THE OIL PRICE ROLLERCOASTER

Past experience suggests that the oil market is and will likely remain volatile. However, concerted and collective efforts by key stakeholders are needed to contain this volatility and produce win-win solutions for all. Serious consideration should be given to establishing a regular forum of oil exporters and importers in the Asian and Pacific region. In addition, Governments should step up their efforts to diversify their energy sources, improve their energy efficiency and the eco-efficiency of their economic growth by changing their consumption and production patterns. Governments would also reap benefits from increased research and development aimed at promoting wider use of alternative sources of energy, coupled with greater diffusion of advanced technologies, including fossil fuels, renewable and energy-efficient technologies.

As many Governments have already begun to realize, alternatives exist to help manage the risks posed by high oil prices.

This issue of the Socio-Economic Policy Brief has been prepared with substantive contribution from Ms. Kelly Hayden, Environment and Sustainable Development Division, ESCAP.

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