

# OPEC bulletin

1-2/06

**OPEC Fund:**  
30 years of Partnering for Development



# SECURITY

## BREEDS

# SECURITY

The rising oil market prices of the past two years have been accompanied by increased concern about security of supply in many consumer circles.

This has arisen in spite of the fact that, when the crude oil market has come under heavy pressure during this period, responsible players have ensured at all times that supply has been more than adequate to cover consumer needs. Late last summer, for example, prompt action by OPEC and the International Energy Agency – in close contact with each other – softened the impact of Hurricanes Katrina and Rita on the already tight United States' oil market, as well as further afield in the international arena. This was a re-run of similar co-operation at the outbreak of hostilities in Iraq in spring 2003.

Throughout the present volatile period – that is, since around spring 2004 – OPEC has continued its longstanding practice of closely monitoring market developments and adjusting its production agreements as and when necessary, in the interests of secure crude supply and enhanced market stability generally. As is well-documented, other factors, over which OPEC has little or no influence, have been behind the volatility – notably downstream bottlenecks in consuming countries and heightened levels of speculation. Indeed, even here, OPEC has acted to ease the situation, with increased investment in downstream projects home and abroad.

This has been for the near term.

For the far term, the recent increased concern about security of supply has focused on the issue of whether the world will have enough oil to meet the high levels of demand growth forecast for the coming decades, especially from transitional economies and developing countries. As readers will see from the report, published in this *OPEC Bulletin*, of the recent speech by Mohammed Barkindo, Acting for the Secretary General, to the EUROPIA Conference in London, the response is a clear “yes”. As Mr Barkindo says: “The global resource availability is not a constraint to meeting this (growing demand) in full.”

In short, across all time-horizons for the foreseeable future, security of supply should not be a problem.

The emphasis instead should be on other key factors, notably in this case minimising the uncertainties that can be a blight on sound investment planning.

Alas, uncertainties are compounded by consumer government policies aimed at moving away from oil – moreover, oil from specific global regions – principally, as expressed by such consumers, for security of supply reasons. This constitutes veering away from the natural order of things in an already complex interdependent marketing environment. It makes it even more difficult than it is anyway to predict future demand trends and invest accordingly in production capacity.

In other words, actions taken as result of concern over security of supply are counter-productive, because eventually they reduce the level of security of demand that is central to the investment strategies of producers.

A unilateral approach to handling global energy issues is the last thing the world needs at the moment. As the President of the OPEC Conference, Dr Edmund Maduabebe Daukoru, said last month: “We all have to work together towards global energy security.” This reflects a broad consensus within the industry at large, an industry which is much more integrated than it was in the past. It is also consistent with the enormous, welcome advances that have been made in producer-consumer dialogue over the past two decades.

Security breeds security. A high level of security of supply, as we now have for the early 21<sup>st</sup> century, should be reflected in a high level of security of demand, *i.e.* a minimisation of market uncertainties. And vice versa. However, if some players choose to break the circle, then this could ultimately affect security of both demand and supply and perpetuate volatility, to the detriment of the market as a whole, as well as other sectors of the global economy.



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Barkindo appointed as Acting for the Secretary General



### Cover

The cover shows an artist's view of the OPEC Fund's headquarters in Vienna. The Fund celebrated its 30<sup>th</sup> Anniversary on January 28, 2006 (see Feature, p4). Photo: OPEC Fund.

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### Membership and aims

OPEC is a permanent, intergovernmental Organization, established in Baghdad, September 10–14, 1960, by Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. Its objective is to co-ordinate and unify petroleum policies among Member Countries, in order to secure fair and stable prices for petroleum producers; an efficient, economic and regular supply of petroleum to consuming nations; and a fair return on capital to those investing in the industry. The Organization now comprises 11 Members: Qatar joined in 1961; Indonesia and SP Libya AI (1962); United Arab Emirates (Abu Dhabi, 1967); Algeria (1969); and Nigeria (1971). Ecuador joined the Organization in 1973 and left in 1992; Gabon joined in 1975 and left in 1995.

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The OPEC Bulletin welcomes original contributions on the technical, financial and environmental aspects of all stages of the energy industry, including letters for publication, research reports and project descriptions with supporting illustrations and photographs.

### Editorial policy

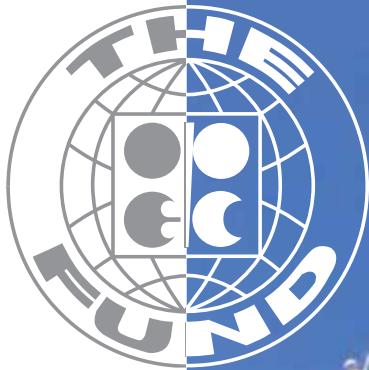
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# The OPEC Fund

## celebrates 30 years of development and co-operation

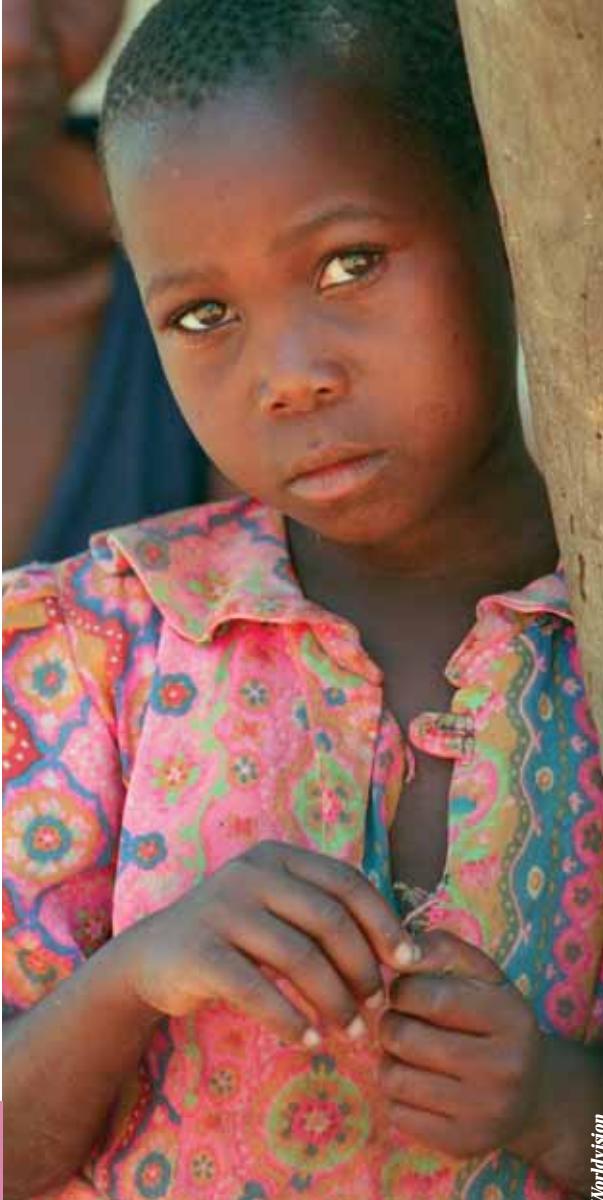


The OPEC Fund for International Development was set up in January 1976 to reinforce development, learning and sharing among developing countries under the banner of South-South co-operation, and help intensify ties between the Organization's Member Countries and other developing nations.

Its primary aim was, and remains, to provide development assistance to non-OPEC countries in pursuit of their social and economic advancement. At 30, the Fund is poised to face up to the challenge of fostering yet more self-sustaining development.

The OPEC Bulletin looks at how the Fund has evolved over the years and how it continues to adapt to the challenges of a demanding new era.

*The Fund's headquarters in Vienna.*



**Mention the name OPEC to any layman** and it will surely conjure up an image of oil rich nations that control vast oil reserves and influence petrol prices. It is a synonymy that the Organization has had to learn to live with since its inception 45 years ago, a tag that it will most probably never entirely lose.

With the 11 Member Countries of the Organization of the Petroleum Exporting Countries (OPEC) relying so heavily on 'black gold' to sustain their economies and the wellbeing of their people, there is a narrow perception of the Organization and its activities in some quarters.

The truth is that there is a lot more to OPEC than meets the eye. Apart from the obvious benefits it affords the global economy with its abundant, regular, and cheap (in real terms) supplies of petroleum, this high-profile economic grouping is doing more than most in helping to relieve the suffering that is still prevalent in the developing world today.

### The OPEC Fund in context

One of these thrusts is being provided by the OPEC Fund for International Development. This institution, like its sister Organization, OPEC, is based in Vienna. This year it is celebrating 30 years of operations, encompassing an ever-expanding development portfolio that has seen well over 100 of the world's most underprivileged countries benefiting from financial assistance extended on favorable terms.

The first Director-General of the OPEC Fund, Egypt's Ibrahim Shihata, in his book 'The Other Face of OPEC', published in 1982, one year before his retirement, spoke frankly about the misguided view people, led by the politicians, had of OPEC. He wrote: "The image of OPEC, as conceived by the Western mind, is one of indifference to the world's ills" — ills that were alleged at the time to be caused by "none other than OPEC itself".

Shihata continued: "Among the predominant images in today's world, this one is particularly false. In fact the major oil-exporting countries of the Third World, acting individually and collectively are playing a major role in assisting other developing nations, especially the poorest. The fact that ... the oil producers of the Third World used the proceeds of their oil in a highly responsible manner was ignored."

**This high-profile economic grouping is doing more than most in helping to relieve the suffering that is still prevalent in the developing world today.**

### What the Fund has provided

Certain facts cannot be ignored, facts that clearly show how much good OPEC Member Countries did — and continue to do — for the world's least fortunate, even though they are developing countries themselves with many developmental challenges, often requiring vast amounts of money. For example, the average gross domestic product (GDP) per capita of OPEC's



Above: The Fund fosters the exchange and development of scientific knowledge in the South through research grants and assistance to specialized institutions.

11 Member Countries in 2004 stood at just \$2,200. This amount was one-seventeenth that of the USA, one-twelfth that of the UK and one-thirteenth that of the average of the EU states in the same year.

Relative to their per capita income, OPEC Member Countries have done a lot more to alleviate poverty in poorer developing countries than the richer nations of the world. For example, Saudi Arabia has consistently earmarked a near four per cent of its annual GDP for the purpose of aid, which it makes through bilateral and multilateral channels.

Also, another good example is Kuwait via the Kuwait Fund, established 1961, which has over the years extended over \$12.4 billion in development financing for developing countries. Other OPEC Members also offer varying degree of financial aid and assistance. Most of the industrialized countries cannot manage even one quarter of a per cent of their GDP for such assistance.

## Co-operation and development

What is also clear is that the funds OPEC Nations set aside for Official Development Assistance (ODA) represent money they could also utilize in improving their own developing economies and standards of living. However, they commendably choose to share their good fortune with other countries in the developing world—nations that are not blessed with reserves of petroleum and struggle to find other means of supporting their fragile economies.

The OPEC Fund's current Director-General, Suleiman J Al-Herbish, emphasized the extent of this bilateral development aid at a recent conference in Washington. He stated: "Although most OPEC Member Countries are low income countries, collectively they have made available a cumulative total of more than \$81bn in development financing from their oil revenues through the OPEC Fund and



other bilateral and multilateral channels as a token of global social responsibility."

The trend towards providing development assistance on concessional terms to developing countries through specialized institutions actually began in the Gulf region. For instance, Kuwait in the early 1960s established two national agencies for this express purpose. The country's pioneering plan quickly caught on and in 1968, the Arab Fund for Economic and Social Development was created.

The United Arab Emirates followed suit with the Abu Dhabi Fund in 1971. From the early 1970s, following the rise in oil prices, several aid institutions and financing facilities were established by OPEC Member Countries. They included the Abu Dhabi Fund, Iraq Fund for External Development (Iraqi Fund), Organization for Investment, Economic and Technical Assistance of Iran (Iran Organization), Kuwait Fund for Arab Economic Development (Kuwait Fund), Saudi Fund for Development (Saudi Fund), and the Banco de Desarrollo Económico y Social de Venezuela (BANDES).

Other countries that set up similar bodies or trust funds are Nigeria, Libya, Algeria and Qatar, offering varying degree of assistance. As Shihata pointed out in his book "... such efforts represent a form of assistance in which a group of countries, themselves developing, voluntarily share their wealth, and not merely their income,





with other countries in need — efforts that present the shining face of OPEC."

But even though the "shining face" Shihata referred to was, to a large extent, already being reflected in the generous level of ODA extended by these countries on an individual basis, it was still felt more could be done — something that epitomized the combined efforts of OPEC Member Countries. That certain something materialized at the first Summit of OPEC Member Countries Heads of State, held in Algiers in 1975. It was at that meeting that Member Countries came up with the idea to establish a multilateral financial arm that could collectively channel aid to developing states.

## The history of the Fund

Initially called the OPEC Special Fund, the actual birth of this new aid facility was on January 28, 1976, when Finance Ministers of OPEC Member Countries, meeting in Paris, endorsed a proposal for the establishment of an international special account, designed to benefit only developing countries outside the Organization. Drawing up the mandate for this new account was made easier for OPEC Members, since, as developing countries themselves, they were able to fully understand the obstacles, pitfalls and problems associated with enhancing sustained and meaningful development.

To assist the development process, it was agreed that a more relaxed and open approach would be adopted in

the way the loans were administered. Financing would be concessional and recipients would not be tied to the usual stringent conditions associated with many bilateral and multilateral aid agencies. In this way, OPEC Fund beneficiary countries were not restricted to purchasing goods and services from donor countries, but from the best available source.

Shihata observed: "As developing countries themselves, with a recent past of dire financial need and of hard experiences in finding expedient and dignified ways of meeting such needs, OPEC Member Countries began their aid efforts with different objectives from those of traditionally known major donors."

He noted: "While the latter have readily used their

*Above: Harvesting corn. ICARDA, an established and long term partner for the Fund, researches agriculture in the dry areas of the world.*

**OPEC Fund beneficiary countries were not restricted to purchasing goods and services from donor countries, but from the best available source.**



*Right: Education is one of the most valuable weapons in the fight against AIDS.*



Above: The aftermath of the Asian tsunami.

was succeeded on his retirement three years later by Dr Y Seyyid Abdulai of Nigeria, who, over an impressive 20-year career span, initiated great progress to boost the Fund's global standing as an important instrument of progressive change to the benefit of the developing world at large.

The present incumbent, Suleiman Al-Herbish of Saudi Arabia, who took over the chief executive's mantle in 2003, is already putting his vast experience on OPEC affairs — he was the Kingdom's Governor for OPEC for 13 years — to good use.

## Listening to the needs of the poor

Although the Fund was set up in January 1976, it was not until August of that year that operations actually began, backed with an initial capital injection of \$800 million. However, within a little over a year its resources had doubled. Operations moved swiftly and by the end of 1977, the Fund had already extended over 70 loans to 58 developing countries.

By April 2003, the Fund had made its 1,000<sup>th</sup> loan. Today, the Fund's resources are made up of voluntary contributions given by its Member Countries, as well as income derived from investments and loan repayments.

The Fund began its operations in the building that housed the Vienna Stock Exchange with only six staff members. In November 1976, it moved to the OPEC Secretariat on Obere Donaustrasse. After a brief stay there, operations moved to the Palais Strudlhof in Vienna's ninth district. In December 1982, it made its final move to the splendid offices of the Deutschmeister Palais on Parkring. Today, it has a work force of around 140 staff.

From the outset, the OPEC Fund has striven to be understanding, flexible and receptive to the needs of the beneficiary countries. It saw its relationship with the recipient states as a partnership. It did not attempt to set the agenda for how the aid was utilized within a scheme, believing that the best approach for conducting successful and productive operations was for the donor and the recipient to be full partners in any project loans agreed upon.

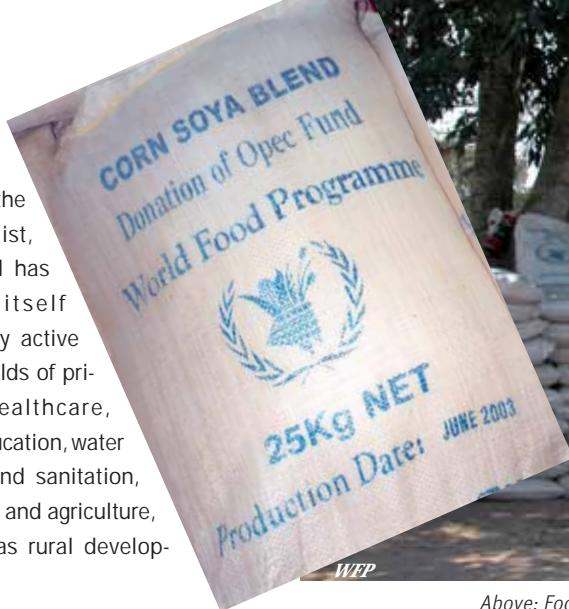
These guiding principles remain very much in force today with the Fund directing its resources to where they will have the greatest impact on the lives of the poor, while allowing the key decisions to be made by the beneficiary governments and the people themselves. With basic human needs and environmental concerns currently



BADEA

Above: Good communication links are vital for social and economic integration. By co-financing the construction of roads, bridges and other transportation infrastructure, the Fund makes it easier for communities to access jobs, social services and markets.

topping the priority list, the Fund has found itself especially active in the fields of primary healthcare, basic education, water supply and sanitation, transport and agriculture, as well as rural development.



Above: Food distribution in Mozambique, a project co-sponsored by the Fund and the World Food Programme.

## How the Fund grew

The success of the Fund in achieving its initial objectives was affirmed within a short period of time. By 1981, barely five years after its founding, OPEC Member Countries had pledged contributions amounting to some \$3.44bn, such was the level of their confidence in meeting the new institution's aims and aspirations.

In those early years, the Fund's main activity was the provision of balance of payments support, followed by loans for large-scale infrastructure projects. However, since the early 1990s, the focus has been on projects of a more social nature, in areas such as health, education, agriculture and rural development, water-supply and sanitation, as well as transportation schemes.

## Distributing help far and wide

Today, the Fund maintains an active project loan portfolio in all the major economic sectors. No fewer than 119 countries from the developing world — from Africa, Asia, the Middle East, Latin America, the Caribbean and Europe — have benefited from the Fund's development assistance. African countries have received the major proportion of assistance, followed by Asia and the region comprising Latin America and the Caribbean. Attention has also been paid in recent years to Europe. Until 1998, the Fund focused more on the public sector, but then formulated a deliberate policy to involve the private sector in its development efforts.

At the end of December 2005, the level of cumulative development assistance extended by the Fund stood at \$7.9bn. In all, 1,147 public and private sector loans have been approved to finance development projects and programmes in all economic and social sectors.

The breakdown of public sector loans (by economic

sector) was: transportation 26.7 per cent; energy 18.6 per cent; agriculture and agro-industry 15.1 per cent; education 12.3 per cent; water supply and sewerage 8.3 per cent; multi-sectoral and other 6.3 per cent; health 6.2 per cent; national development banks 4.3 per cent; industry 1.9 per cent; and telecommunications 0.4 per cent (figures have been rounded up).

Of the Fund's partner countries, almost half are in Africa, with about a quarter each in the Latin America/Caribbean region and in Asia, and a handful in Europe.

The Fund conducts its operations through well-established, yet flexible, lending programmes. It is currently in the second year of its 16<sup>th</sup> lending programme, which is scheduled to run until the end of 2007. A total of \$1.5bn has been allocated to this programme, with some 80 countries eligible for assistance.

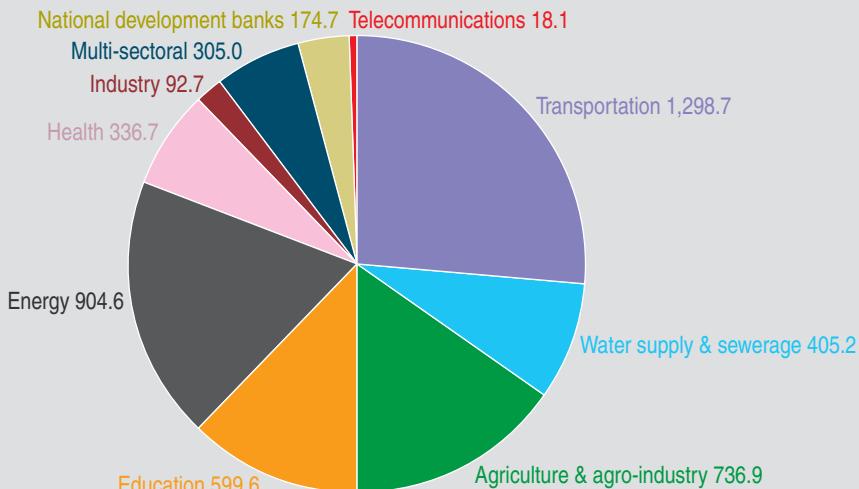
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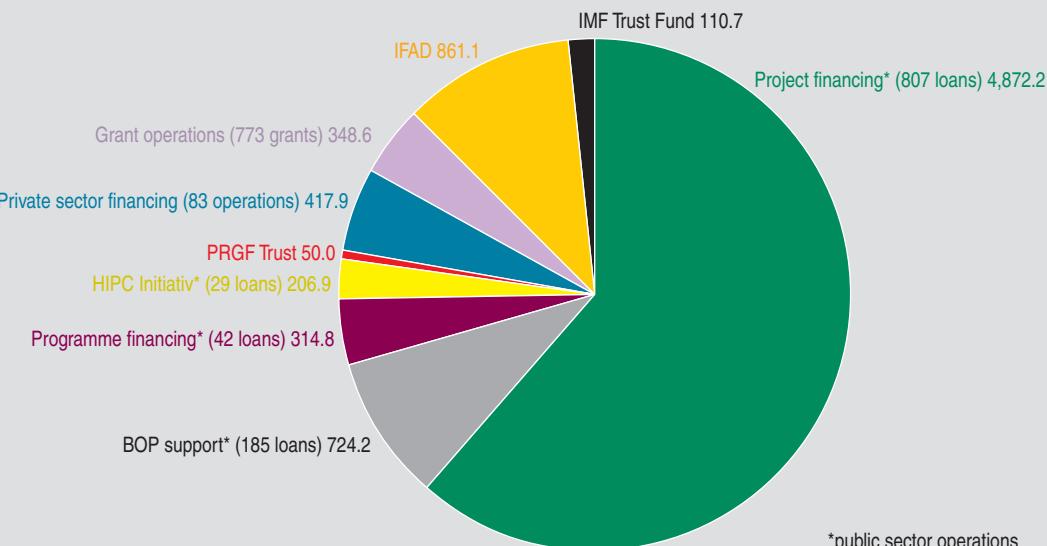
Right: Lesotho is working to close the gaps in primary health care for mothers, children and other vulnerable groups.

**With the destructive impact of HIV/AIDS on development becoming increasingly evident, the Fund launched this Special Account in 2001.**

Sectoral distribution of public sector project loans as of December 31, 2005 millions of dollars



OPEC Fund commitments as of December 31, 2005 millions of dollars



### Quick responses

Where loans are not an option, the OPEC Fund offers emergency relief assistance. It also provides small-scale grant programmes, which range from social schemes and agricultural and medical research to workshops

and seminars. The emergency relief assistance has been rendered to victims of all kinds of catastrophes around the world, such as the tsunami in the Indian Ocean in December 2004.

But the Fund's involvement in disaster-hit areas does not end with the grant aid. It often follows up the

emergency assistance with conventional, low-interest loans to aid longer-term reconstruction in the devastated regions. In all, since the Fund's inception, 773 grants worth \$348.6m had been cumulatively committed as of December 31, 2005.

The need for specialized grant aid has also burgeoned over the years. Again the Fund has responded by setting up three special accounts within its grant programme — a HIV/AIDS Special Account, a Special Food Aid Account, and a Special Account for Palestine.

With the destructive impact of HIV/AIDS on development becoming increasingly evident, the Fund launched this Special Account in 2001. With initial resources of \$15m, the facility has been replenished three times and is now worth \$50m. This money is helping to combat the effects of the disease in more than 90 countries in all developing regions of the world.

The following year, the Fund established the Special Account for Palestine. Here the resources are assisting humanitarian and development work in the region. By the end of 2005, the Fund had allocated a total of \$40m to this Account.

Then, in 2003, after Sub-Saharan Africa faced one of its worst food shortages in living memory, the Fund responded by setting up its Special Food Aid Account. This received an initial allocation of \$20m.

It is important to note that with all these Accounts, the Fund works in tandem with a number of aid agencies who are experts in their field. This ensures that the assistance given by the Fund is directed to where it is needed most.

## Promoting South-South co-operation

Apart from operating as a development institution, the Fund has always sought to enhance South-South solidarity by promoting co-operation among developing countries, notably in terms of scientific research. The Fund has also given donations to other development institutions, including the International Monetary Fund (IMF) for its Poverty Reduction Strategy Trust Fund, the International Fund for Agricultural Development (IFAD) and the Common Fund for Commodities (CFC), set up in 1989 to help bring stability and equity to global commodity trade.

Recognizing the importance of sustainable food and agricultural development in addressing global poverty concern, the OPEC Fund had made enormous contribution to the International Fund for Agricultural Development (IFAD). An institution, which the immediate past OPEC

## At the end of December 2005:

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- Fund's partner countries — almost half are in Africa, with about a quarter each in the Latin America/Caribbean region and Asia. There are a small number in Europe.



*Many roads in Africa are unpaved and turn into muddy swamps during the rainy season, cutting off communities for weeks at a time.*

*Havana's physical infrastructure has suffered after four decades of isolation from the world economy.*



Fund Director-General, Dr Seyyid Abdulai, described as a brain child of OPEC Member Countries.

IFAD has at its inception aimed at promoting and protecting the interests of countries that have strong agricultural economy based, for which belong several developing countries, including those of the OPEC Member countries. For this, the Member States of OPEC offered to put the bulk of the resources required to set up the Institutions, a funding commitment that has remained until today.

### Debt commitment

One example of how the Fund has responded to the most pressing needs of the developing world has been its reaction to the scourge of debt. It is fully conscious of the fact that many of the world's poorest countries spend more money on servicing longstanding external debts than they do on their citizens.

The Fund was a key player in the design of the Heavily Indebted Poor Countries (HIPC) Debt Initiative, which was adopted by the international community in late 1996, and also supports the enhanced HIPC initiative, which is designed to bring about faster, deeper and broader debt relief.

In this manner, the Fund has emerged as a valuable contributor to the economic advancement of the least developed countries (LDCs). Home to some 620 million of the world's poorest people, these 50 nations constitute the weakest and most vulnerable group in the global economy. By the end of December 2005, these countries had received \$3.3bn or 54 per cent of the Fund's total lending commitments, while other developing countries had benefited from loans worth \$2.8bn.

### Encouraging private enterprise

Another example of the Fund's adaptability to modern-day conditions is its commitment to encouraging growth in productive private enterprises in developing countries. The Fund has acknowledged the growing consensus that the private sector, if operated in a conducive environment, can lead to greater productivity and job creation. Involvement in private sector financing is also seen as a way of allowing the Fund to maintain ties with existing beneficiary countries that have advanced economically and moved out of the concessional window.

The Fund recognized that with the private sector growing in both importance and influence in these countries, it would need to step up its efforts in support of such activity. This thinking led to the creation of the Fund's Private Sector Facility in 1998 as a separate lending window.

The OPEC Fund is currently engaged in public sector projects in 110 countries, a number that is growing every year as it makes new partnerships and widens eligibility to include middle-income countries. By the end of 2005, the Fund had approved close to \$417.9m worth of private sector funding, spread over 83 projects.

Sixteen of these projects were approved in 2005 alone, giving an indication of how the programme has snowballed. The Fund is currently active in the private sector in Latin America, the Caribbean, Africa, Central Asia, the Middle East and Asia-Pacific regions.

However, while the Fund is constantly adapting to change, as with its private sector initiative, it remains faithful to its goal of focusing on the low-income countries, and within those countries on development that



UNICEF

Enhancing primary education for girls in Bhutan.

will improve the lives of the poorest and most vulnerable members of society, especially women and children.

It also recognizes that the roles of the public and private sectors are intertwined and that with the right policies in place, the two sectors can effectively act in tandem to ensure equitable growth and sustainable development.

## Looking ahead

What are the future challenges for the OPEC Fund? Well, it is clear that a lot of work still needs to be done. Hundreds of millions of people still suffer from hunger, malnutrition and preventable diseases, and almost as many are illiterate, or lack education or modern skills. And significantly, the number of the world's least developed countries—the poorest of the poor—has been rising since the international community first recognized the existence of such a category in 1971.

Against this depressing, yet so familiar background, the main challenge for the Fund is to remain relevant, aligned and in tune with the needs of its beneficiaries. It has already chalked up many achievements and it has the will and ability to continue to succeed in the future.

Today, the Fund's 12 Members — Algeria, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela—remain fully committed to the institution's future. Whatever challenges the Fund is presented with over the next 30 years it will remain true to its core principle of assisting the poorest communities of the world's least privileged countries.

It will also strive to work ever more closely with its recipient countries, fellow development agencies and other partners, to ensure that its assistance continues to be well targeted, effective and timely.



*Agriculture is the economic backbone of most developing countries. The Fund channels substantial resources into projects that boost the quality and quantity of farm produce, thereby improving food security and raising rural incomes.*



World View Images



# The Fund's resilience remains as strong as ever

**After assuming the role of Director-General of the OPEC Fund for International Development in November 2003, HE Suleiman J Al-Herbish discusses its achievements over the past 30 years, as well as the challenges facing the Organization.**



## **What message would you like to give the world on the 30<sup>th</sup> anniversary of the creation of the OPEC Fund for International Development?**

We have a mission to continue being as dynamic and proactive as possible in order to maintain our prominence on the international development arena. However, in our pursuit for eminence it is imperative that we keep constant vigilance of all the changes that are sweeping across the world. Now more than ever, global interdependencies are bringing communities and societies closer. There is undeniably a sense of urgency to forge a global response to the scourge of poverty and underdevelopment, both of which present two of the greatest challenges for our institution and other development agencies.

No single agency or institution can claim to be a panacea for curing all economic ills. It is imperative, therefore, that the world mobilizes support and pools resources to try to minimize human suffering. The international community needs to work collectively to address the root causes of economic marginalization, exclusion and vulnerability. We are now at the threshold of a new era of greater interdependency. Striving for a better future for our generation and prosperity is too important a task for us to fail.

## **What has been the OPEC Fund's greatest achievement since its creation?**

Three decades after its inception, the OPEC Fund continues to defy all skeptics. We should bear in mind that the Fund was never conceived as a permanent institution. Therefore, the fact that this year we celebrate our thirtieth birthday testifies to the OPEC Fund's resilience and success. It gives us cause for jubilation and pride.

Development is not about a quick fix or a silver bullet, and it requires a broad-based support to stand the test of time. Our success story is attributed to the unique relationship the Fund enjoys with numerous partners, be that sister organizations or other similar development bodies. As an organization of twelve developing countries, the Fund came to appreciate the economic hardships that some of our beneficiaries have to endure throughout the past years. We can say with confidence that our quest for solidarity and interdependence among developing countries is bearing fruit. The breadth of support, which the Fund continues to enjoy from various government officials, institutions and from individuals and sister-organizations representing all segments of society in Member Countries and beneficiaries, is a significant accomplishment. There is another noteworthy achievement.

The Fund has acquired great expertise and experience in all 120 beneficiary countries through years of involvement and investment. These engagements have yielded rich dividends in tens of countries in Asia, Africa, and South America. We do not, of course, measure our achievements simply in financial terms. Our greatest achievement and fulfillment comes from helping pupils in a remote village in Asia or Africa receive decent education; in delivering basic health care to combat diseases; and in building a bridge connecting cities or borders.

## **Do you feel the OPEC Fund has fulfilled its role to support less privileged, poorer countries of the world?**

Let me stress one important thing. An overriding priority at the Fund over the years has been adaptability and relevance. As many new pressing needs unfold in many of the developing countries, the Fund became more vigilant

to accommodate them. In fact, the scope and nature of the Fund's core activities have always been needs-based. The feedback from our partner countries also shows how much they appreciate the Fund's flexibility and its readiness to respond to the ever-shifting demands of the development landscapes.

Many of the Fund's projects and programs are supplemented by grants, which finance technical assistance, research and studies, and humanitarian and emergency aid. The grants sponsor capacity building; sound environmental management; and transfers of appropriate technologies and know-how. It is worth noting as well that under the grants program of the Fund, we have introduced "Special Accounts" geared toward combating poverty and offering rapid assistance to areas of acute need.

**As the Chief Executive Officer of the Fund, what is your vision for this great institution?**

I have always believed that the Fund has great potential to foster human growth and development. There was, of course, a conviction on my part since I joined the Organization two and half years ago to continue with the good work that my predecessors had started. Continuity, however, is not antithetical to our vision and my mission is to see the Fund plucked from obscurity. I have a great passion for raising the profile of our institution, and the time to bring it out of its cocoon is surely upon us.

We need to tell the world how the Fund, for three decades, has been changing the lives of millions of people for the better; how we built innumerable roads, hospitals, schools, industries and infrastructure in tens of countries. Our job, of course, as members of the Fund is to work collectively through teamwork to make it all happen. I have no illusion that change is the only way forward. Let us all remember that if we change our thoughts, we can change our world. I have always been a believer that our human progress hinges on its willingness to respond to the shifting demands of the time. We can not afford to stand still and be left behind. After all, life is about growth, progress and gradual change.

In an age where creating a positive "image" and maximizing publicity are increasingly becoming a corporate necessity, and where improving perceptions is a big challenge, we have the duty to position ourselves as a valuable global community member. This is one challenge that we, at the OPEC Fund, take very seriously.

**Does the Fund plan any special activities to mark its anniversary?**

As part of our events marking the thirtieth anniversary, the OPEC Fund for International Development has lined up a host of activities, some of which will be held outside the Headquarters. One of the highlights is the 27<sup>th</sup> Session of the Fund's Ministerial Meeting in Jeddah (comprising Finance Ministers or their representatives) to be held June 13 in Saudi Arabia, during which the winners of the first OPEC Fund Scholarship Award and OPEC Fund Award for Excellence will be announced. Other significant events include the Fund Arts display to be held in the Headquarters' premises in March through April, and the Fund Photographic Exhibition to be held in May. This Arts Exhibition will also be on display in Jeddah during the Ministerial Meeting, and in Singapore on the 24<sup>th</sup> and 25<sup>th</sup> of September on the sideline of the Annual Meetings of the World Bank Group and International Monetary Fund.

We are also planning to organize our first journalism workshop later this year, where we will invite media representatives from Member Countries to attend a two-day meeting with a view to acquaint them with the Fund's core activities. Renowned journalists and development experts will also take part. Our objectives in all of these activities are to bring the OPEC Fund to the limelight; to give it more visibility; to bring about a better appreciation of the Fund's mandate and overall goals; and to create a positive "corporate identity" for the OPEC Fund.

**Financial sustainability has always been a challenge for development institutions in their fight against under-development. How will the Fund plan to meet future demands for more aid?**

We believe that long-term survival and sustainability is critical for our institution to continue its mandate, and to be able to pursue the objectives for which the Fund was created. We are now looking at innovative mechanisms for delivering financial assistance and aid. And we are also identifying the best strategies and plans for helping us meet the calculated financial gaps that may conspire against our campaign toward combating destitution and underdevelopment.

In fact, our Ministerial Council was the first to recognize the need for a systematic exploration of the ways and means of enhancing the Fund's operational resources to maintain its relevance vis-à-vis its targeted beneficiaries and other development partners. We are expecting a final report, outlining the Fund's plans for financial sustainability and optimal visibility in the development landscapes, to be submitted to the next meeting of the Ministerial Council in Jeddah later this year.

# OPEC reaffirms commitment to oil market stability



Inset: OPEC Conference President and Secretary General, Nigerian Minister of State for Petroleum Resources, HE Dr Edmund Daukoru (l), with Acting for the Secretary General, Mohammed Sanussi Barkindo, during the opening of the OPEC Conference.

## The 139<sup>th</sup> (Extraordinary) Meeting of the Conference of the Organization of the Petroleum Exporting Countries

concluded in Vienna, Austria, on January 31, 2006. The Conference was presided over by the OPEC Conference President and Secretary General, HE Dr Edmund Daukoru, who is also the Nigerian Minister of State for Petroleum Resources.

The Conference sent its condolences to the Government and people of the State of Kuwait on the death of His Highness Sheikh Jaber Al-Ahmad Al-Jaber Al-Sabah, Emir of Kuwait as well as to the Government and people of the United Arab Emirates on the passing away of His Highness Sheikh Maktoum bin Rashid, Vice President and Prime Minister of the UAE, and Ruler of Dubai.

In the process of commending the report of the 57<sup>th</sup> Meeting of the OPEC Ministerial Monitoring Sub-Committee (MMSC), held on January 30, 2006, the Conference reviewed the oil market outlook, including the overall demand/supply expectation for the year 2006 especially the first and second quarters, and observed



Above and left: Ongoing deliberations at the 139<sup>th</sup> Meeting of the Conference at the OPEC Secretariat in Vienna.



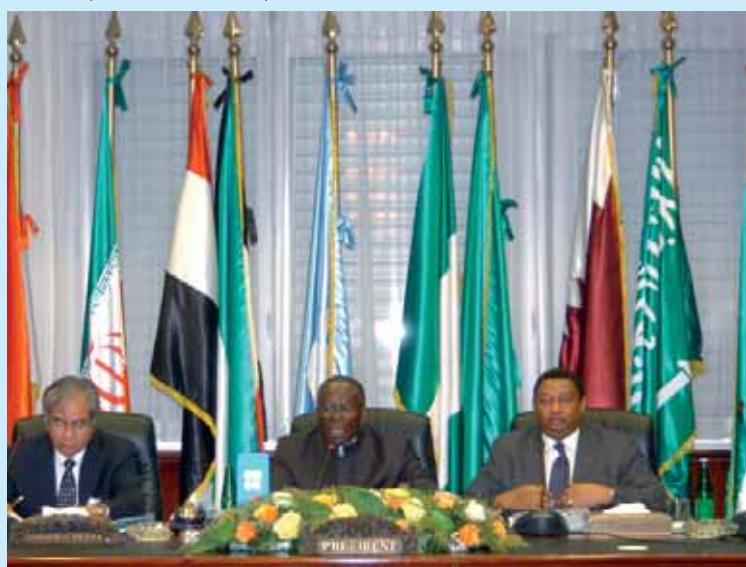
Above: The press wait for the arrival of delegates.

that market fundamentals have remained in balance since it last met in Kuwait in December 2005, with comfortable stock levels. Oil prices remain a central issue however.

While acknowledging that the oil market has remained well supplied, and that commercial stock levels in the OECD remain healthy, prices have nonetheless continued a gradual rise. The Conference cited refining bottlenecks as well as other non-fundamental factors as the primary driver for the price push, as well as observing that forecasts for supply and demand in recent years have tended to underestimate the requirements for OPEC oil, especially in the second quarter.

It noted that OPEC was committed to continuing to play its role in ensuring a stable oil supply to the market that would be conducive to economic growth, however it expressed concern about the "high degree of price volatility and the impact that this may have on the global economy, in particular for developing countries."

Below: Dr Daukoru (c); Mohammed Barkindo (r); and the Chairman of the OPEC Board of Governors, Indonesian Governor, Dr Maizar Rahman.





*Algerian Minister of Energy and Mines, Dr Chakib Khelil (l), and Libyan Secretary of the People's Committee for Energy, Dr Fathi Hamed Ben Shatwan.*



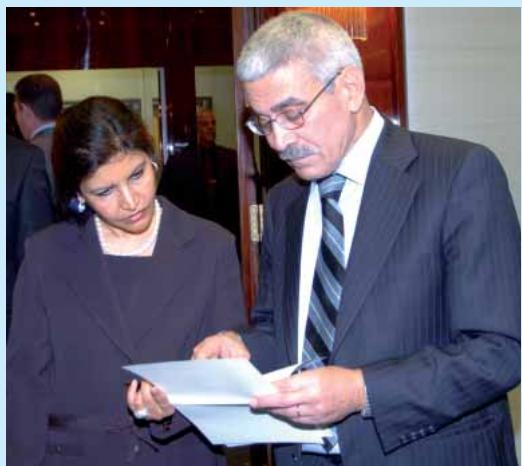
*Algerian Governor, Dr Hamid Dahmani (l), with Nigerian Governor, Ms Ammuna Lawan Ali.*



*Deputy Prime Minister and Head of the Iraqi Delegation, HE Dr Ahmad A Al-Chalabi (l) with Mohammed Barkindo.*



*UAE Energy Minister and Alternate Conference President, Mohamed Bin Dhaen Al Hamli (c), with the UAE's OPEC Governor, Saif Bin Ahmed Al-Ghafli (r).*



In view of this, the Conference decided to maintain the current OPEC-10 production level of 28.0 million barrels per day, as agreed during the 136<sup>th</sup> Meeting of the Conference in June 2005, and noted that OPEC would keep a close eye on market developments "in view of the potential risks and uncertainties identified." The next Ordinary Meeting is planned for March 8, 2006, in Vienna, Austria.

## OPEC supplies to meet demand

In responding to media questions following the end of the Conference as to whether OPEC will increase overall output in the course of 2006, the OPEC Conference President Dr Edmund Daukoru, who is also the Nigerian Minister of State for Petroleum Resources, said OPEC has stated in the past, and again now, that it has more than enough spare capacity to satisfy the market at any given time. "We have always maintained that we have more spare capacity than the market was willing to take," he said.

At present, Daukoru revealed, OPEC has at least two million barrels of available spare capacity, a figure which is still growing, citing Nigeria as working to bring on stream by the first half of the year an additional output of 600,000 b/d on top of a base of figure of 2.5m b/d. In addition, "Saudi Arabia has robust plans to increase capacity and the Kuwaitis also have plans," said Daukoru. With all of these output plans in place, OPEC would be more than capable of supplying the market in the medium to long term, according to the Conference President.



*Above: Saudi Minister of Petroleum and Mineral Resources, Ali I Naimi (l); with Saudi Arabia's Assistant Minister of Petroleum and Mineral Resources, HRH Prince Abdulaziz Bin Salman Al Saud (r); and Saudi Arabia's OPEC Governor, Dr Majid A Al-Moneef (c).*

*Bottom row from left to right:*

*Dr Maizar Rahman (l), with Venezuelan Minister of Energy & Petroleum, Rafael Ramirez.*

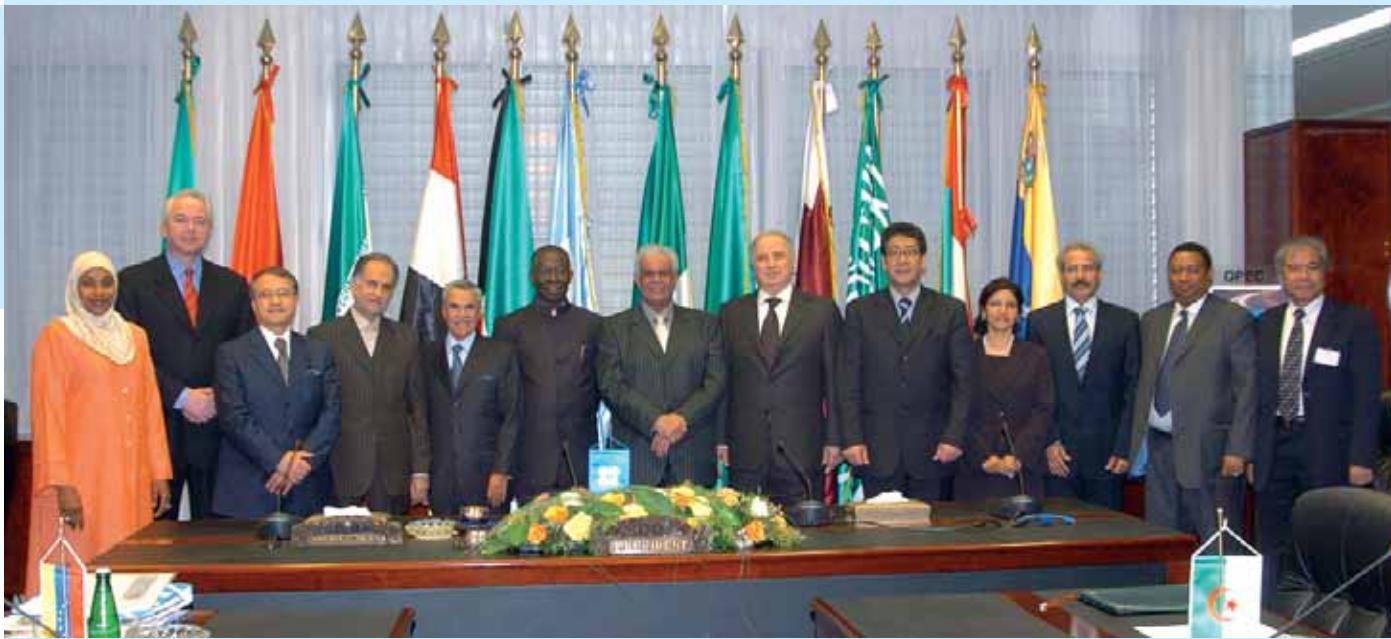
*Qatar's Second Deputy Prime Minister and Minister of Energy and Industry, HE Abdullah bin Hamad Al Attiyah (l), with Conference President, Dr Daukoru.*

*Kuwaiti Governor for OPEC and Head of the Kuwaiti delegation, Siham Abdulrazzak Razzouqi (l), with OPEC's Director of Research, Dr Adnan Shihab-Eldin.*

*HE Abdullah bin Hamad Al Attiyah (l), with Dr Fathi Hamed Ben Shatwan.*

*Mohamed Bin Dhaen Al Hamli, with Libyan Governor for OPEC, Hammouda M El-Aswad.*





Pictured above are delegates attending the 139<sup>th</sup> Meeting of the OPEC Conference (l-r): Nigeria's OPEC Governor, Ammuna Lawan Ali; Venezuela's Minister of Energy & Petroleum, Rafael Ramirez; Algeria's Minister of Energy and Mines, Dr Chakib Khelil; Iran's Minister of Petroleum, Sayed Kazem Vaziri Hamaneh; Saudi Arabia's Minister of Petroleum & Mineral Resources, Ali I Naimi; Conference President, and Nigeria's Minister of State for Petroleum Resources, Dr Edmund Maduabebe Daukoru; Qatar's Second Deputy Prime Minister and Minister of Energy and Industry, Abdullah bin Hamad Al Attiyah; Iraq's Deputy Prime Minister, Dr Ahmad A Al-Chalabi; Libya's Secretary of the People's Committee for Energy, Dr Fathi Hamed Ben Shatwan; Kuwait's Governor for OPEC, Siham Abdulrazzak Razzouqi; UAE's Minister of Energy, Mohamed Bin Dhaen Al Hamli; Acting for the OPEC Secretary General, Mohammed Barkindo; and the Chairman of the OPEC Board of Governors, Indonesia's OPEC Governor, Dr Maizar Rahman.



Conducting the final press conference are Dr Edmund Daukoru (r) and Mohammed Barkindo (l).

## Pressure points

While explaining factors that tend to influence market developments at both the supply and demand ends, the OPEC Conference President said pressure points could always affect the market sentiments. "Pressure points can be sudden emergencies, or geo-political disruptions, for instance the recent gas pipeline explosion in Russia. If a delivery system is tampered with for some reason, those types of thing can be considered pressure points. It can also be sudden, irrational overheating of the market where OPEC may be called upon to intervene," said Daukoru.

He continued: "Interest rate rises and trade imbalances — these can have a downward pull. Several countries are beginning to reduce subsidies and we don't know what this will do to demand. If subsidies are removed, people consume less and we might have a downward pull on projected demand levels."

## Long term thinking

On long term market need projections, Daukoru said: "We really can't pretend to see that far [2020]. There are good studies that guide our short-to-medium-term thinking, but when you go that far out it becomes difficult to use such projections for the basis of interviews. We have long term projections that show OPEC possibly gaining back 50 per cent market share, up from about 40 per cent

now." While recognizing that OPEC's capacity addition are indeed immense, the OPEC President said beside that, the Organization will need to think of investing in human capacity, as well as in new technology.

## Price floors and ceilings

On the assumption that the world economy would absorb a \$60 or more per barrel price level, Dr Daukoru said placing a limit for price movements that are dictated by fundamentals and other non-fundamental variables is difficult. "It's difficult to speculate about limits. If there's anything we've learned about this, it's that we should not impose limits. We have to look at the balance in the global system. Demand that is driven by economic growth is the best because it's not artificial. If a car maker is making more cars because there is more demand, that is what a car maker would pray for. If more and more people are able to afford these cars then that's prosperity — the world moves on. If you put a limit on growth, you put a limit on consumption."

## Stocks inventory outlook

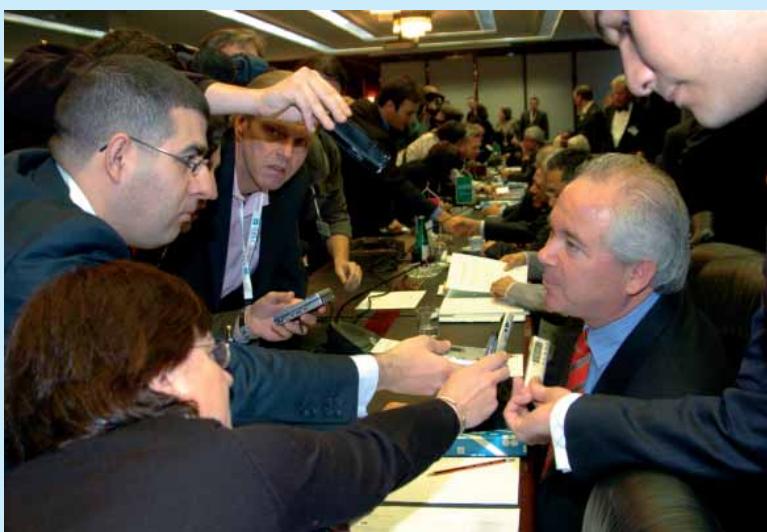
On the use of stocks inventory to measure the market needs (as was usually the case previously, contrary to the current focus on capacity), the OPEC Conference President noted that in the past, especially in the early 70s, there was carry over of spare capacity of up to four million barrels, but because of incessant price shocks, there was no sustained effort to add new capacity. "Carrying that spare capacity is a cost as you have to develop but do not sell. However, given our reading of the future, we have started to add new capacity," said Daukoru. For example, Nigeria is aiming at possible 4m b/d production by the end of 2007 of light sweet crude. "With these efforts going on in Algeria, Libya, Kuwait and Saudi Arabia added all together, it is our projection that we will be able to keep pace with demand," Dr Daukoru assured.

## Improving fuel quality

On efforts at improving the quality of crude, especially heavy sour streams, Dr Daukoru pointed to the efforts being made in that direction. "I'm aware of at least one Member Country that is developing a sophisticated and high tech refinery with the People's Republic of China. There are other countries that are taking heavier grades and producing what is called 'thin crude'.



*Dr Daukoru (l) answering questions before the opening ceremony of the 139<sup>th</sup> OPEC Conference.*



*Rafael Ramirez attending to the press.*



*Dr Fathi Hamed Ben Shatwan being interviewed by analyst John Hall.*



*Dr Daukoru (c) being interviewed by reporters after the final press conference. Dr Daukoru (r) with Mohammed Barkindo (c) and the Head of OPEC's Energy Studies Department, Mohamed Hamel.*



We pre-treat it before it even gets to the refinery. When we talk of the resource base, we include in that the heavy, sour streams and sand and shale, all of which require pre-treatment. This means the global resource base is immense."

### OPEC seeks stable market

As to what should be seen as a floor price for OPEC, the OPEC President reiterated clearly that OPEC does not define monetary levels, and nor does the organization directly control prices. "With regard to the floor price, we always make the point that we do not directly control the price of oil," said Daukoru. "What the price does is dependent upon factors outside supply and demand such as perceptions of the state of world markets at any given time. So we don't set a floor price below which we start to jack things up, or a ceiling above which we begin to do things. When prices are high there is a perception that this cannot be good for global economic growth and this is a matter of judgement."

### Downstream efforts

Commenting on the OPEC downstream projects, Dr Daukoru reiterated OPEC's position that the downstream bottlenecks play a critical role in the current pricing of crude arguing that in recognition of this problem some OPEC Member Countries have enhanced their investment in the downstream even though the main respon-

sibility of the downstream should be with consuming countries.

Dr Daukoru admitted that OPEC sees and appreciates that the downstream constituted a major bottleneck in the past, but hoped that investors are now going to begin to see opportunities in this sector. Regrettably however, "the margins are not always at a consistent level to attract investment" although now that trend has changed we hope they can be sustained at a level conducive for further investment, commented the President.

Nigeria, he announced, is crying out for investors who will come and invest in refining. "We made efforts and gave out a lot of licenses to indigenous refiners last year, and we have approached the joint venture partners to take more interest in the downstream, and even suggested setting a date by which they will be processing a certain percentage of local production."

### Co-operation is the key

Dr Daukoru concluded by stating that the current crude oil prices are without a doubt driven by downstream bottlenecks and perceptions. The situation is also not helped by small volume traders. "It is in the interest of the market that we work for stability all around, and OPEC alone, no matter what extra capacity it can bring to the market, can not fulfil this role. All parties — downstream players, upstream players and even small volume movers — have to co-operate in order to achieve a more stable market."



Iran's Minister of Petroleum, Sayed Kazem Vaziri Hamaneh (l), with the Iranian OPEC Governor, Hossein Kazempour Ardebili.



Libyan Secretary of the People's Committee for Energy, Dr Fathi Hamed Ben Shatwan (l), being interviewed for the OPEC Web site live streaming.



Above: Dr Daukoru (l) with Austria's Federal Minister of Economics and Labour, Dr Bartenstein, at the reception on the occasion of Dr Daukoru's assumption of office as President of the OPEC Conference and OPEC Secretary General. Amongst the guests were OPEC delegates, government officials, media representatives, Member Countries Ambassadors and OPEC and OPEC Fund staff.

# Dr Bartenstein welcomes OPEC's openness and transparency



*Dr Martin Bartenstein (second right) with Dr Edmund Daukoru (second left), Mohammed Barkindo (I).*

Austria's Federal Minister of Economics and Labour, Dr Martin Bartenstein, has welcomed OPEC's commitment to openness regarding discussions around Europe's energy mix. Dr Bartenstein made these remarks in answer to questions during a joint EU-OPEC Press Conference held after the OPEC Conference-President met with the Austrian Minister, who is also the President of the EU Energy Council.

Dr Bartenstein pointed to OPEC's reliability as a partner and supplier, and repeated his call for there to be a more coherent energy policy on a European level.

"We in the EU know where our energy needs are going to go, but we know too little about the relevant figures from India and China, and other growing economies. Therefore it would be important to build transparency regarding energy demand," said Dr Bartenstein. "It's very good news that nowadays we are able to discuss with OPEC questions of energy mix, and we don't limit our talks to oil and gas. We also talk about renewable energies, about the necessity to increase energy efficiency, and we know we have to work on all these things."

With calls growing for a unified EU energy policy, Austria's Federal Minister of Economics and Labour, **Dr Martin Bartenstein**, offers a vision of the future that includes more emphasis on renewables and efficiency, as well as more oil and gas imports.

He commented that the EU welcomes OPEC's decision to hold to its current production volume. "OPEC has spoken to the world over the past few years that it is a reliable partner and supplier, and we appreciate that the supply side of crude oil is not the cause of high prices."

The meeting is the first to take place between OPEC and the EU since Austria assumed the Presidency of the European Union on January 1, 2006, and Dr Daukoru, who is Minister of State for Petroleum Resources of Nigeria, took over the Presidency of the OPEC Conference on the same day.

## EU-OPEC Energy Dialogue

Dr Daukoru and Dr Bartenstein reflected upon the good progress made with the EU-OPEC Energy Dialogue, following the first and second meetings held at ministerial level in Brussels on June 9, 2005 and in Vienna on December 2, 2005. They particularly emphasized the importance of the first joint roundtable held in Vienna on November 21, 2005, which looked at oil market developments and future prospects.

"The close co-operation of suppliers and consumers," said Dr Bartenstein, "is the only means to achieve such a degree of transparency which in the currently complex and sensitive situation will enable us to continue to trust in the free interplay of supply and demand on the market."



“By 2010, we aim to increase the share of renewables in our energy mix to 12 per cent, while at the same time imported dependency will rise from 76 per cent to 81 per cent.”

Dr Bartenstein argued that close co-operation with oil producing countries is very important for strengthening the European Union's long term security of energy supply. “This is all the more true in the light of current developments on the international oil markets,” he said.

They reaffirmed the decision taken at the second meeting of the EU-OPEC Energy Dialogue in December to hold the third round of the ministerial talks in Brussels in June 2006, with a view to institutionalizing annual meetings at this level.

In his meeting with Dr Daukoru, Dr Bartenstein stressed that Austria would continue and intensify “this valuable dialogue” during the period of his country's EU Presidency. “It is an honour and a pleasure for Austria to contribute to the organization of the meetings and workshops already agreed upon. Many of these will take place during Austria's six-month Presidency.”

The Dialogue is seen by the EU as part of a broader approach to strengthen energy relationships with the main oil and gas suppliers and by OPEC as a significant further step in its continued efforts to enhance understanding and co-operation among oil producers and consumers. For his part, Bartenstein saw a future devoted more towards issues such as security of energy supply, the shift on energy mix, and long term investment in the energy sector.

“By 2010, we aim to increase the share of renewables

in our energy mix to 12 per cent, while at the same time our imported dependency of liquid fuels will rise from 76 per cent to 81 per cent,” said Dr Bartenstein. “So, we have to do everything we can to improve energy efficiency. But, our need to import oil and gas will increase.”

Dr Daukoru stated that he was delighted to meet with Dr Bartenstein again on the important issue of the EU-OPEC Energy Dialogue, especially in the early days of Austria's Presidency of the EU. “I would like to take this opportunity to wish the Federal Republic of Austria every success as it steers the affairs of the EU during the term of its Presidency. I firmly believe that this will be of great benefit to the ongoing Dialogue, as well as contributing to the very cordial longstanding relationship that OPEC has established with its host country,” said Dr Daukoru.

He hoped the Dialogue, in the months and years ahead, would help to influence oil market stability and particularly global energy security. “Our meetings are an expression of the confidence we have in the Dialogue, as an instrument for oil market stability that will surely benefit the two sides and the global economy in general,” said Dr Daukoru.



OPEC delegates and Journalists attending the press conference.

# Maintaining the security of energy supply

At the recent London-based Energy Institute's EUROPIA Conference, the Head of OPEC's Energy Studies Department, **Mohamed Hamel**, re-emphasised OPEC's abiding and demonstrable commitment to security of supply on all time-horizons and said this went hand-in-hand with security of demand. Every effort had to be made to reduce uncertainties which were making sound investment planning hazardous, and this required action from all the players in the international market, together with enhanced dialogue. Mr Hamel was delivering the address on behalf of Mohammed Barkindo, Acting for the Secretary General.

**What lies behind this** increased consumer concern about security of supply? The line of reasoning appears to be as follows. There has been the perception of shifting fundamentals in the global energy demand/supply balance, brought on by the unexpectedly high levels of demand growth in the developing world, especially in China and India, which became particularly apparent in 2004, after three years of relatively high market stability.

Within a short time, this drew attention to a broader-based issue, in the eyes of these consumers — whether the world has enough energy resources to meet the levels of energy demand growth that have been forecast for the coming decades, affecting not just today's developed and emerging economies, but also other economies which are expected to reach take-off point in the early 21<sup>st</sup> century.

These consumer concerns have arisen at a time of heightened tensions affecting several regions of the

world. On top of this, there have been some major natural disasters with which the market has had to cope at short notice. Inevitably, political opportunism has been at play too, with influential interest groups putting out alarmist theories about the world running out of oil soon or about natural disasters occurring with greater frequency in the future, and generally tying all of this in with unsubstantiated fears about unreliable sources of supply.

In speaking to you today, therefore, I should like to put your minds at ease about such matters and, more generally, about the outlook for the oil market and the role that OPEC and other producers play in it.

## Security of supply

The commitment to security of oil supply lies at the heart of OPEC's existence. Our Organization's very first resolution, adopted at our formative meeting in Baghdad in September 1960, refers to the assurance of "an efficient, economic and regular supply" of petroleum to consumers. This principle is enshrined in the OPEC Statute, which was adopted in 1961 and has remained a guiding light for our Organization ever since.

But this is not just altruism. The revenues oil-producing developing countries receive from petroleum sales are essential for financing their economic and social development, to an extent that may not be fully appreciated by industrialised nations. This is in addition to the part that must be reinvested in the upstream to meet rising demand. It is, therefore, in the best interests of these producing countries to ensure that every possible measure is taken to support market stability and supply security at all times.

Furthermore, for OPEC and all producing countries, there is another equally important parameter — the assurance of steady, predictable demand. This is often overlooked by consumers; but, for producers, it is as important and as basic as security of supply. Security of demand goes hand-in-hand with security of supply. OPEC's Second Solemn Declaration, which was signed by our Member Countries' Heads of State and Government in Caracas in the year 2000, emphasises "the strong link between the security of supply and the security and transparency of world oil demand." The Long-Term Strategy adopted by OPEC last September refers to "the security of regular supplies to consumers, as well as the security of world oil demand."

The OPEC Statute of 1961 also outlines other central objectives of our Organization, including "the sta-

bilisation of prices in international oil markets" and "the necessity of securing: a steady income to the producing countries; ... and a fair return on their capital to those investing in the petroleum industry."

To see how OPEC's longstanding commitment to security of supply works out in practice, we need only look at our Organization's actions in the volatile international oil market of the past two years. In doing so, we can see that, throughout this period, the market has remained well-supplied with oil and that other factors have been driving-up oil prices, such as downstream bottlenecks, geopolitical tensions and increased speculation in futures markets.

First, OPEC's Member Countries have increased production by around 4.5 million barrels a day since 2002. This has, in turn, led to a steady rise in OECD commercial oil stocks, which are now exceeding their five-year average.

Secondly, where possible, our Member Countries have accelerated their plans to bring on-stream new production capacity to meet continued demand growth and to re-establish a comfortable level of spare capacity. This spare capacity—which is now at 2m b/d—will be more than adequate to cover oil demand growth throughout 2006, when the call on OPEC oil is expected to be slightly lower than in 2005. More increases in capacity have been planned—and are being implemented—for the rest of the decade. Together with the expected growth in non-OPEC supply and OPEC natural gas liquids, this means that cumulative world oil production capacity will rise by around 12m b/d or more over the next five years—well above the expected cumulative rise in demand of 7–8m b/d over the same period.

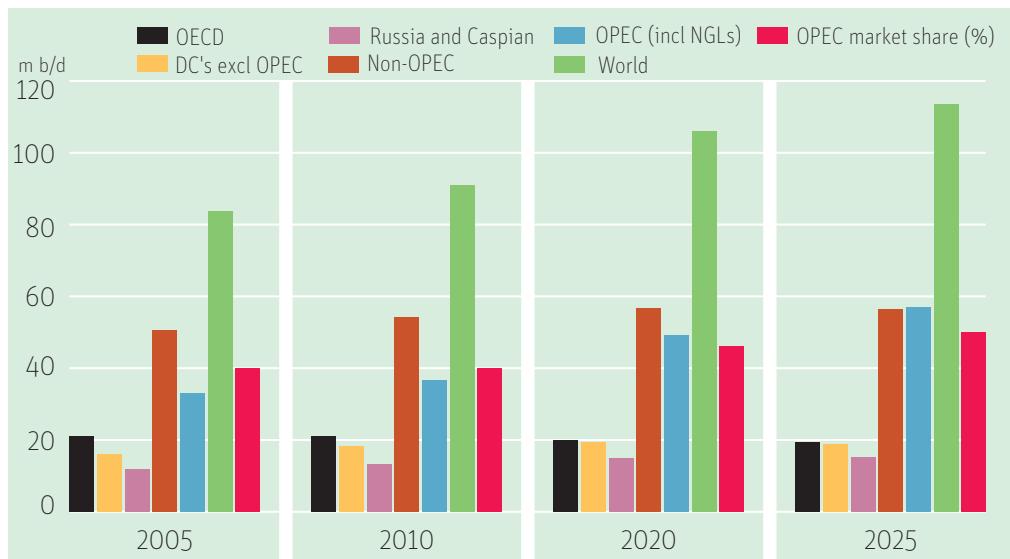
**OPEC's Member**

**Countries have increased production by around 4.5 million barrels a day since 2002.**

## Downstream bottlenecks

And thirdly, at a time when severe downstream bottlenecks in some major consuming countries have been putting pressure on not just product prices, but also crude prices, especially light, sweet blends, OPEC's Member Countries, although traditionally associated more with the upstream, have themselves taken the initiative to invest in downstream projects; this has been on their own and in partnership with others. Currently, 600,000 b/d of refinery capacity is under construction, with an additional 1.9m b/d planned and a further 1.4m b/d under consideration, to make a total of 3.8m b/d by 2010. However, all of this does not escape the fact that downstream investment is

## Oil production outlook



primarily the responsibility of the domestic and international oil companies in consuming countries.

Clearly, such actions as these come from an Organization that is committed to security of supply. This involves careful analysis of the market outlook, detailed planning and considerable upfront investment, perhaps diverting funds from other worthy domestic causes, in order to make absolutely sure that there is enough oil on the market. I will return to investment later.

The year 2006 has begun with a significant rise in prices, even though the market remains well-supplied

with crude and commercial oil stock levels in the OECD are healthy. This, once again, is primarily the result of refining bottlenecks and other non-fundamental factors. However, the continued price volatility is, as ever, a matter of much concern to us,

in particular the impact it may be having on the global economy and, especially, developing countries. The OPEC Secretariat in Vienna continues to monitor the situation carefully.

Nevertheless, looking further into 2006 and at the forecast supply/demand balance, we believe in general that the market supply will remain ahead of demand and that spare capacity will even increase.

Generally speaking, OPEC desires prices that reflect market fundamentals and that are acceptable for producers and consumers alike. Only in this way can our Organization provide the stability and the sustainability

that is so important to the steady growth in supply that is needed to support the rising levels of demand that have been forecast for the opening decades of this century. We shall return to this later.

## Price stability

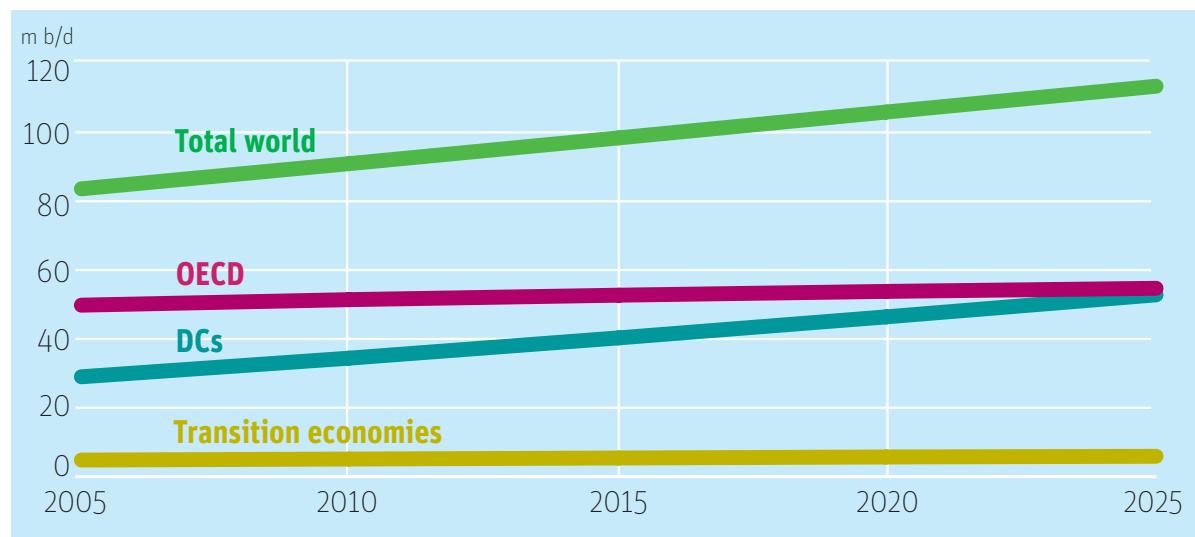
Price stability is, indeed, a realistic prospect, but it is something that must be worked on by all the players in the market, and not just by certain committed groups, if it is to be sustainable over long periods. Stability is the responsibility of all parties. High levels of volatility can be very damaging to the market; they can destabilise other sectors of the global economy; they can be prey to rampant speculation, which, in itself, can then add to the volatility; and they can severely hinder investment strategies in future production capacity.

And finally, on the subject of prices, let me put them in their proper historical context by pointing out that, although oil prices are high in nominal terms, they are nevertheless below those of the early 1980s in real terms. The relative resilience of the global economy to the recent price increases is in part because considerably less oil is now used to produce each dollar of national income, when compared to the past. For example, OECD oil intensities have fallen by almost 60 per cent since 1970. Even developing countries are using less oil per unit of GDP.

In addition, what has gone hand in hand with this decline in intensities, of course, has been the falling

**Although oil prices are high in nominal terms, they are nevertheless below those of the early 1980s in real terms.**

## Oil demand outlook



share of energy in the consumers' budget, as their wealth has increased. We should also remember that the recent rise in oil prices was accompanied by a strong increase in non-energy commodity prices. For example, since the beginning of 2002, steel, copper, iron, lead, nickel and zinc prices have all roughly doubled, while rubber and uranium prices have tripled. These price rises are generally viewed as being driven by the strong synchronised economic expansion over this period.

Let us now look at the long-term prospects for the oil market, since OPEC's commitment to market stability and security is as valid for the long term as it is for the short term. Demand for energy will continue to grow, as a result of demographics, (with an expected 1.6 billion additional people on the planet within the next 25 years), increases in incomes, continued urbanization and globalization.

Firstly, we should note that, not only has oil been in the leading position in supplying the world's growing energy needs for the past four decades, but also that there is a clear expectation that this will continue at least for the next two decades. Gas will continue also to grow at fast rates, becoming by 2025 the second most important fuel, ahead of coal. Hydro/nuclear/new renewables will flatten out, despite the extreme high growth rates for some new renewables; however, the rather low initial base makes the growth in absolute terms rather limited.

According to the reference case scenario from OPEC's World Energy Model, "OWEM", world oil demand is expected to continue rising in the early decades of the

21<sup>st</sup> century, with annual growth averaging 1.5 per cent up to 2025, when demand will reach 113m b/d. A startling 80 per cent of the increase in global oil demand will come from developing countries.

However, despite this growth, oil use per capita will remain far below the levels seen in the OECD. The transportation sector is particularly important for this growth, with the huge potential for increases in vehicle ownership in developing countries. Asian countries, home to half the world's population, are forecast to experience annual economic growth of over five per cent over the next two decades, and, coupled with this large potential for growth, will remain the key source of oil demand increases in the developing world.

**Hydro/nuclear/new renewables will flatten out, despite the extreme high growth rates for some new renewables.**

## Call on OPEC oil

Over the coming years, non-OPEC output is expected to continue to grow and reach a plateau of 55–57m b/d after 2010. This will mean that the call on OPEC oil will increase substantially, with the Organization's output, including natural gas liquids, rising to 57m b/d in 2025, compared with 33m b/d in 2005.

Let me emphasise here that, although we are envisaging higher levels of demand in the future, the global resource availability is not a constraint to meeting this in full. Proven reserves continue to grow on account of new discoveries, as well as reserve growth resulting from

## World crude oil supply/demand balance, m b/d

	2004	1Q05	2Q05	3Q05	4Q05	2005	05/04	1Q06	2Q06	3Q06	4Q06	2006	06/05
Demand (a)	82.1	83.7	82.1	82.6	83.9	83.1	1.0	85.3	83.4	84.0	85.8	84.6	1.6
Non-OPEC (b)	49.9	50.3	50.5	49.7	50.0	50.1	0.2	50.7	51.2	51.5	52.7	51.5	1.4
OPEC NGL (c)	4.1	4.2	4.3	4.3	4.4	4.3	0.2	4.5	4.6	4.7	4.8	4.6	0.3
OPEC crude oil	29.1	29.5	29.9	30.2	29.9	29.9	0.8	29.8	29.9	29.9	29.9		
a-(b+c)	28.1	29.2	27.3	28.6	29.5	28.6	0.5	30.2	27.6	27.9	28.3	28.5	-0.1
Balance (actual)	1.0	0.3	2.7	1.6	0.4	1.3	0.3	-0.4	2.3	2.1			
Seasonal stock change (2000–2004)						-0.7	0.9	0.3	-0.6				
Stock change													
OECD commercial (e)	0.1	-0.1	0.9	0.2	-0.5								
OECD SPR (f)	0.1	0.1	0.4	0.0	-0.1								
Oil in water (g)	0.1	0.3	0.0	-0.1	0.4								
Remaining to balance (d-e-f-g)	0.6	0.1	1.4	1.5	0.7								

Scenario actual: OPEC crude oil production assumptions:  
as of February 2005, OPEC-11 production is assumed  
to be at 4Q05 level of 29.9m b/d.

advances in technology and improved recovery techniques. This is not to mention the huge potential from unconventional oil resources, such as tar sands. In fact, estimates of ultimately recoverable reserves have been increasing over time. OPEC possesses nearly four-fifths of the world's proven crude oil reserves, and these are sufficient to meet the growing oil requirement for decades to come.

The scale of investment required to meet the expected demand growth over the next few decades runs into billions of dollars, although globally it will not be significantly different to past investment. This is due to the gradual shift away from higher cost non-OPEC supply to lower cost OPEC oil. Of course, oil prices will need to be at a level conducive to supporting the investment required.

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required.**

### Uncertainties

But there are many uncertainties which make sound investment planning a hazardous business. Future economic growth rates, consumer government energy and environmental policies, technological advances and the oil price path lie at the heart of these uncertainties. Given the role that OPEC plays in supporting market stability by supplying the residual barrel, this uncertainty naturally translates into a wide range of possible levels of future oil supply that will be required from OPEC. With a high growth and low growth case, a range of well over 10m

b/d opens up for the possible amount of oil that OPEC might have to supply by 2020.

Over-investment implies heavy costs to be borne by producers, while under-investment will lead to severe price movements. Thus every effort must be made to reduce uncertainties and share the risks among the various parties in the oil industry — OPEC and non-OPEC, producers and consumers, and the international oil companies and other intermediaries.

Importantly, as the President of the OPEC Conference, Dr Edmund Maduabebe Daukoru, said recently: "We all have to work together towards global energy security." He advised against consuming countries taking a unilateral approach to handling global energy issues.

The need for enhanced energy security has to be seen from both supply and demand perspectives, which are mutually supportive. Uncertainty over future demand translates into large uncertainties over the amount of oil that OPEC member countries will eventually need to supply, signifying a heavy burden of risk. Investment requirements are very large, and are subject to considerably long lead-times. It is in this context that there is a call for a "road-map" for oil demand, reflecting the need for security of demand as a legitimate concern for producers, just as consumers express concern over security of supply.

With more transparency in the evolution and implementation of policies, better assessments will be possible as to how future demand is likely to evolve. This, in

## Security of demand

Energy security: to be seen from both supply and demand perspectives

Uncertainty over future demand translates into large uncertainties over the amount of oil that OPEC will eventually need to supply

Investment requirements are large, subject to long lead-times

The call for a “road-map” for oil demand

The need for security of demand is a legitimate concern of producers

More transparency in the evolution and implementation of policies

Lends support to making appropriate capacity expansion decisions, while at the same time not wasting precious financial resources

turn, would lend support to making appropriate capacity expansion decisions that would meet both the increased demand for OPEC oil but also offer an adequate level of spare capacity, while at the same time not wasting precious financial resources.

support this. From the current perspective, investments to the refining sector are coming at a considerably slower pace than is warranted by expected growth in demand: a more orchestrated effort is clearly required to ensure sufficient capacities are in place in the future.

To meet the future challenges about \$160 billion in capacity investment will be required by 2015 and another \$150bn needed for capacity maintenance and replacement of lost capacity. The emerging investment trends suggest that the downstream sector could very well remain a source of market instability over the coming years. It is therefore a pressing area for discussion among all parties, and ways need to be explored that could accelerate expansion plans.

OPEC has devoted so much effort towards encouraging dialogue and co-operation in the industry over the past two decades. The most recent result of this was the establishment, last year, of energy dialogues between OPEC and, respectively, the European Union, China and Russia. In two months' time, producers and consumers will meet at Ministerial level at the tenth International Energy Forum in Doha, in order to discuss at length the latest developments affecting the industry. We are firmly convinced that such dialogue is the way forward for the industry, if it is going to evolve in an orderly manner in the opening decades of this century and successfully meet the challenges that lie before it, including the continued assurance of security of supply and demand.

## Downstream sector

Now we come to the downstream sector. This is a very important part of the supply chain, with the current tightness in the form of inadequate refining capacity putting pressure on oil prices. Several factors will shape developments in this sector in the coming decade. The first concerns the rising volume of crude oil that needs to be refined. Another element is how the oil product demand structure will change, with the expectation that there will be a continued move towards lighter products. At the same time, product specifications are moving towards significantly cleaner products that will require substantial reductions in sulphur content, driven by environmental concerns. Therefore, the downstream sector will require significant investment to meet growing product demand and to address emerging mismatches between crude slate, product demand and product specifications.

Considering recent relatively high refinery utilisation rates, distillation capacity expansion might be expected to at least keep pace with growing demand. However, a review of known refining expansion projects does not

# Barkindo appointed as Acting for the Secretary General



OPEC Conference President and Secretary General, HE Dr Edmund Maduabebe Daukoru, has appointed Mr Mohammed Sanussi Barkindo to the role of Acting for the Secretary General. Mr Barkindo's appointment took effect from the January 1, 2006, the same day Dr Daukoru, who is also Nigeria's Minister of State for Petroleum Resources, assumed the Presidency of the OPEC Conference from Kuwait's Sheikh Ahmad Fahad Al-Ahmad Al-Sabah.

**Until his appointment Mr Barkindo** was the Deputy Managing Director of the Nigerian LNG. Mr Barkindo has been associated with the OPEC Secretariat for 20 years, 14 of which were as Nigeria's National Representative to the OPEC Economic Commission Board (ECB), where he made immense contributions to the role of the technical arm of the Organization.

He has held various posts, including the General Manager of the Nigerian National Petroleum Corporation (NNPC) London; Head International Trade, NNPC London; Managing Director, Hyson/Calson; and Group General Manager, Investments, NNPC.

Mr Barkindo holds a Bachelor of science Degree in Political Science from the Ahmadu Bello University Zaria; a Master degree in Business Administration (MBA) from Southeastern University in Washington DC; and a postgraduate Diploma in Petroleum Economics and Management from Oxford.

Mr Barkindo is an associate member of the Nigerian

Institute of Management, as well as a member of the Institute of Petroleum London and a member of the American Finance Association.

Briefing staff of the Secretariat after assuming duties Mr Barkindo reminisced about the OPEC he first met over 20 years ago.

He recalled how back then OPEC was treated as a pariah organization where top government officials of the major consuming countries did not want to be seen to be associated with OPEC, and those meetings between OPEC and officials of consuming countries were held in secret.

He commended the leadership and the staff for their relentless commitment to oil market stability, noting that the Organization has come a long way in last 20 years.

Mr Barkindo noted the progress made in recent years in various dialogues between OPEC and major markets, and assured that efforts will be intensified to strengthen co-operation.



## Mohammed Sanussi Barkindo

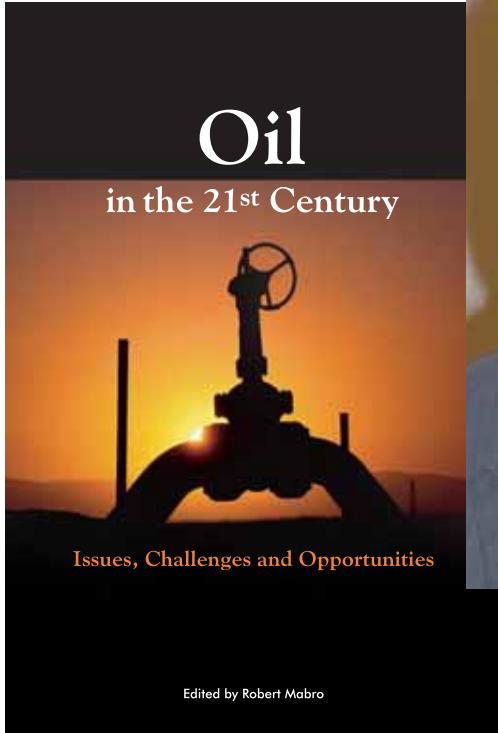
Until his appointment Mr Barkindo was the Deputy MD of Nigeria Liquefied Natural Gas Limited (NLNG)

His other previous posts include Managing Director of Hyson/Calson, and Group General Manager, Investments, the Nigerian National Petroleum Corporation (NNPC)

Mr Barkindo has been Nigeria's National Representative to the OPEC Economic Commission Board for 14 years

Mr Barkindo holds an MBA from Southeastern University in Washington DC, and a postgraduate Diploma in Petroleum Economics and Management from Oxford

# Oil in the 21<sup>st</sup> Century: Issues, Challenges and Opportunities



*Edited by Robert Mabro, OPEC, Vienna, 1<sup>st</sup> Edition, 2005*



Professor Robert Mabro

**“It is ... essential that all the stakeholders address the imminent challenges currently facing the oil industry, as well as potential future challenges, to ensure that adequate supplies to fuel growth are available.”**

“Oil,” argues Robert Mabro, in *Oil in the 21<sup>st</sup> Century: Issues, Challenges and Opportunities* “involves a double dependence.” With almost all Western countries relying upon a secure flow of oil as the fuel of choice for the all important transport sectors, and oil-exporting nations needing oil revenues for the welfare and development of their populations, the overriding importance of petroleum for the world economy is made clear at the outset.

Ten selected essays in this book offer the reader a critical analysis of the global oil market and confront issues such as petroleum production, oil prices and climate change in a clear and non-judgmental way.

## The oil industry today

This forthcoming publication, a special limited edition of which was produced and launched at the December 2005 Kuwait Conference, is not about OPEC, its history, policies or behaviour, but instead addresses issues crucial to the oil industry today, and the future.

This work encompasses chapters on, *inter alia*, The Outlook for Oil to 2020, The Investment Challenge, Technologies to Extend Oil Production, Carbon Sequestration, and Renewable Energy, and really seeks to give the world a way forward and add to our collective knowledge with a set of ideas and thoughts.

The issue of spare capacity, often overlooked in oil debates, is well covered in the book with the different types of oil capacity made clear and assessed, as is the issue of who should pay for its storage (normally assumed to be OPEC). The collective responsibility of oil development has never been more clearly described.

With the contributors hailing from both consuming and producing nations, and from both the world of academia and from within the energy industry, there are multiple perspectives and opinions that are expressed quite broadly.

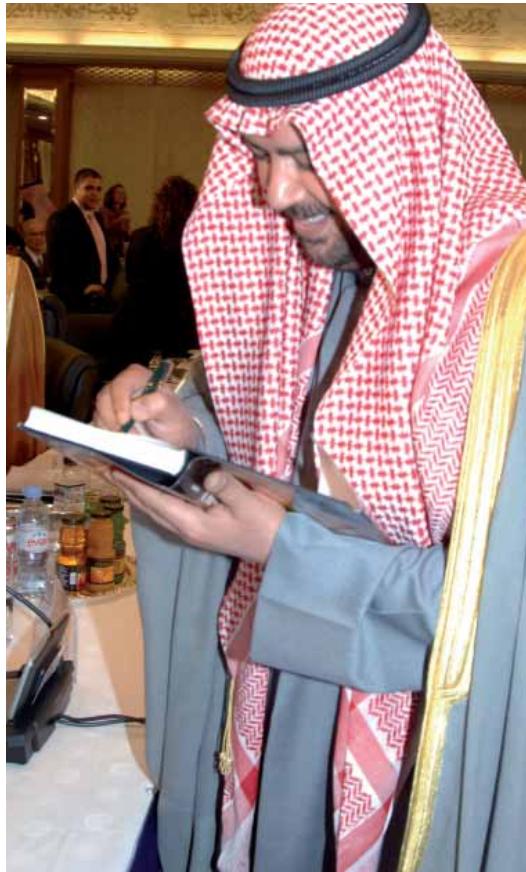
## Open dialogue

This collection seeks to increase open dialogue, and offers opinions that are not necessarily those of OPEC with a belief that discussion is the best way to approach the problems that face the global oil industry in the 21st century.

As well as outlining the vitally important role oil has played in shaping the developed world, this work looks forward to the future uses of petroleum in all parts of the world.

"It is ... essential that all the stakeholders address the imminent challenges facing the oil industry, as well as potential future challenges, to ensure that adequate supplies to fuel growth are available."

The book also offers some reassurance and argues that proven hydrocarbon reserves will last well into the first half of this century or perhaps even longer, and stresses the need to harness and protect this crucial resource for the betterment of mankind.



Kuwait's Minister of Energy, HE Sheikh Ahmad Fahad Al-Ahmad Al-Sabah, signing a copy of the book in Kuwait.

## Professor Robert Emile Mabro CBE — a profile

Robert Emile Mabro CBE is recognized as a world authority on the oil industry, and has been a regular writer on the subject for well over 30 years. He has been awarded the International Association for Energy Economics 1990 Award for Outstanding Contributions to the Profession of Energy Economics and to its Literature. In 2004, Robert Mabro was the pioneer recipient of the OPEC award for contribution to oil studies.

With a qualification in Civil Engineering from Alexandria University, Robert Mabro arrived in London aged 30 to undertake an MSc in Economics. Beginning his academic career at London University's School of Oriental and African Studies, by 1969 he had moved to take up a position at Oxford University in Middle Eastern economics. In 1976 he co-founded the Oxford Energy Policy Club.

In 1978 he founded and became the first Director of the Oxford Energy Seminar, followed by the establishment in 1982 of the Oxford Institute for Energy Studies. This is a charity committed to dialogue between consumers, producers, governments, industry figures and academics, and which also attempts to foster research into the societal and economic issues surrounding energy production.

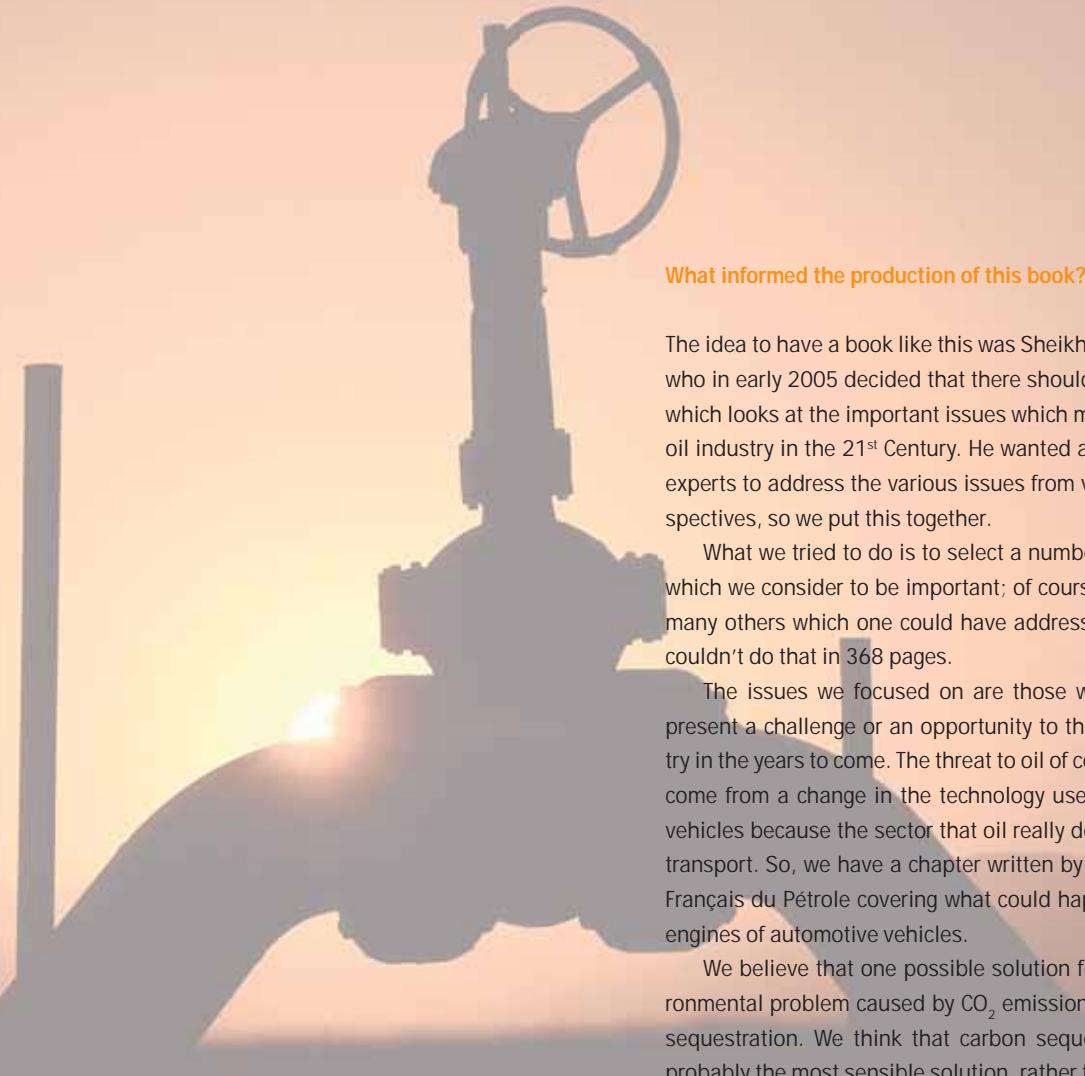
In December 1995 Robert Mabro was awarded the Commander of the British Empire (CBE) by HM the Queen, and remains a Fellow of St Antony's College, Oxford.

## Information

Copious charts and tables are used to illustrate key data and information. The ease of reference to topics will satisfy the needs of academics, energy industry executives, energy writers, as well as the general reader wishing to learn about the oil industry.

Sponsored by the Kuwait Petroleum Corporation, this volume was edited by the renowned authority on oil economics, Robert Mabro, CBE, who headed the Oxford Institute of Energy Studies for over 20 years. All the chapters in this book were written by experts in the energy field.

# Professor Robert Mabro



## What informed the production of this book?

The idea to have a book like this was Sheikh Al-Sabah's who in early 2005 decided that there should be a book which looks at the important issues which may face the oil industry in the 21<sup>st</sup> Century. He wanted a number of experts to address the various issues from various perspectives, so we put this together.

What we tried to do is to select a number of issues which we consider to be important; of course there are many others which one could have addressed, but we couldn't do that in 368 pages.

The issues we focused on are those which could present a challenge or an opportunity to the oil industry in the years to come. The threat to oil of course could come from a change in the technology used by motor vehicles because the sector that oil really dominates is transport. So, we have a chapter written by the Institut Français du Pétrole covering what could happen to the engines of automotive vehicles.

We believe that one possible solution for the environmental problem caused by CO<sub>2</sub> emissions is carbon sequestration. We think that carbon sequestration is probably the most sensible solution, rather than relying on alternative energies such as solar or nuclear.

But this requires social development, it requires subsidies, and perhaps government should focus on that possibility. We address the issues surrounding reserves and resources because some people believe we have reached a point where production of oil cannot be increased anymore. Hence, we have a very good chapter written by Dr Thomas S Ahlbrandt from the US Geological Survey.

We address current problems such as investments, prices, and how the market works. I hope that this work opens a field for a subsequent book, perhaps in a year's time or so, where we look at issues that we could not cover in this one, mainly because our intention was not to produce an encyclopaedia.

#### You must have had a theme for the book. What's the most important challenge to be addressed?

The book was not organized along a definite theme, but I think the shrewd reader will realize that the rules underlying the theme to which I referred earlier is "what are the challenges facing the oil industry in the decades to come?" To my mind the theme must be selective and focus on issues which will turn out to be very important soon.

#### The issues raised in this book are likely to generate an awful lot of debate and prompt more discussion. What do you think?

It's not conceived as a book for controversy, certainly not. It is conceived as a book which draws attention to certain issues. For example, we have a big debate about the peak oil theory.

#### What about the peak oil theory?

Well, I think the peak oil theory lacks the rigour of good definition. What is oil? If you focus on a very narrow concept of oil, essentially conventional oil, then it will be depleted one day, and before that happens, production reaches a peak then starts to decline. OK.

But why should I focus on conventional oil? There is such a thing as unconventional oil. The range of possible liquid is very wide. Why frighten the world by saying we are going to have a peak of conventional oil production when (if that peak happens) we can go to tar sands, we can go to bituminous shale, we can go to GTL, we can go coal to liquid, and we can go to ethanol. The issue is not an issue of resource scarcity. The issue is one of investment.

#### Has there been enough investment in the industry?

Definitely investment has been the problem. People invested in the past because there was surplus capacity — surplus capacity in refineries, in tankers, in the upstream. But surplus capacity declined over the years. People should have realized that as this trend continues there will be a point where we don't have surplus capacity anymore, and this is the time to start investing.

#### But surely with the price of oil at this level it's time to invest?

Of course it's time to invest but this is not how the investors think. The investor does not look at the price of oil today. Investors ask themselves will the surplus last? And we are in a world where there is demand pessimism, price pessimism, all kinds of pessimism. If you talk to the oil companies, the refinery margin is very high, but they ask how long will that last.

I think governments have to intervene, but private companies do not like that idea at all. The national oil companies have to work with their governments, the latter of which would be the owner of the company. In general it is not a relationship that is conducive to good investment decisions because governments have a different approach to business than the company. The ideal solution is a situation where the government is the owner, but the government has to remain at arms length from the company.

At the same time, the government should have an enlightened strategy. Whenever it needs regulation, regulate. Whenever it needs subsidy, subsidize. Whenever the company needs gentle steering, steer. Don't sit back and say the market knows better — the market knows nothing.

"The issues we focused on are those which are new and could present a challenge or an opportunity to the oil industry in the years to come."

"My worry is that people do not invest in time then they blame on geology. Geology is not the issue, the issue is to invest enough, and to invest in time."

*This interview was carried out by Eithne Treanor, City Savvy Media, at the 138<sup>th</sup> Meeting of the OPEC Conference, Kuwait, December 2005.*



## Dialogue the key to market stabilization

With energy supply one of the international community's hot topics, delegates and attendees at the 2006 World Economic Forum in Davos, Switzerland, listened intently as OPEC Conference President and Minister of State for Petroleum Resources of Nigeria, Dr Edmund Maduabebe Daukoru, outlined the Organization's strategy to deal with coming challenges

*Pictured above are participants at the World Economic Forum in Davos on January 27, 2006 (l-r): Director, Global Health Initiative of the Harvard University, Christoph Murray; Norwegian Prime Minister, Jens Stoltenberg; Microsoft Chairman, Bill Gates; Nigerian President, Olusegun Obasanjo; Britain's Chancellor of the Exchequer, Gordon Brown; and Italy's Economy Minister, Giulio Tremonti.*

**"If there is one outstanding challenge that has emerged, it is the need to prevent rapid upheavals from occurring in the market in the future."**

Dr Edmund Maduabebe Daukoru



If we are to address the challenges of the energy sector, particularly those that relate to oil, which is the leading sector in the energy industry, we need first to look at the events of the past two years in the oil market.

There has been the challenge of meeting much higher-than-expected levels of oil demand from both large emerging economies, such as China and India, as well as developed economies such as the US. High oil demand by itself is good news: it is a reflection of a healthy world economy, better social progress in many parts of the world, and maybe some movement towards poverty eradication.

"The Chinese demand is partly as a result of a revision in the way they assess their economic growth," said Daukoru. "Any increase in growth, to some measure, will result in the need for more fuel, but we will take this in our stride. We see it more as an opportunity for investment in new capacity. We will call on companies, private entities and governments that have capital to invest in the energy sector."

### Upstream and downstream

The challenge is not just for the upstream; it is also for the downstream. The upstream has been remarkably responsive, even in times of large weather-related sup-



AP Photo

ply disruption, as we witnessed last year in the US. It is now widely accepted that the price volatility of the past two years has been attributed much more to downstream bottlenecks in consuming countries than it has been to shortages in the upstream.

"Prices are high and what OPEC always tries to do is make sure the market is well supplied, and we believe the market is now well supplied," said Daukoru. "However, we need more refining capacity, encompassing more stringent fuel specifications."

Throughout this period, the market has been well-supplied with crude — very much due to OPEC's actions. In 2004 spare capacity was lower than in the past years, but this is behind us now and we expect there to be a comfortable upstream cushion for the foreseeable future — from both OPEC and non-OPEC producers. The role of spare capacity provider that OPEC offers to the benefit of the world has been widely recognised.

Recent events have highlighted once again another challenge, and this is the need to reduce the impact of speculative activity on price levels. Excessive speculation can greatly exaggerate the effect of external impulses on the market, to the detriment of producers and consumers alike and with damaging repercussions further afield in the global economy.

## Price fluctuations

However, if there is one outstanding challenge that has emerged — or, more accurately, re-emerged — it is the need to prevent rapid upheavals from occurring in the market in the future. The century began with three years of high stability in the market, to the satisfaction of all. But, since then, we have been experiencing a very different situation.

This is by no means a new phenomenon. We have seen time and again throughout the 150-year history of the modern petroleum industry big swings in the market's fortunes in the space of a few months, and sometimes even weeks, and this has been very damaging to the industry.

Is there really a means of preventing this in the future? In posing this rhetorical question, I am looking beyond partisan views or politicising each such event. Phenomena like these seem endemic to the industry.

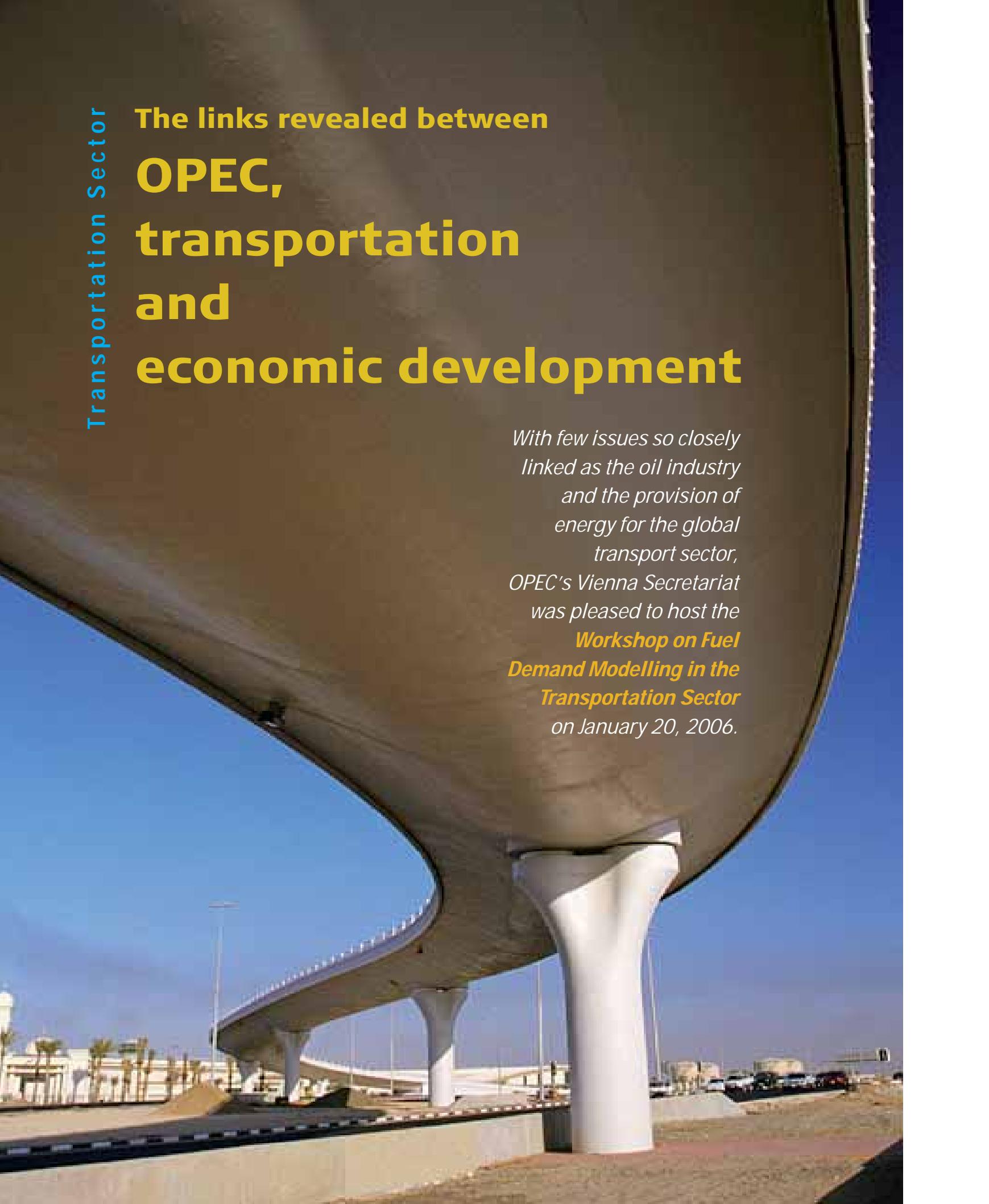
I have isolated these challenges, because they have come to the fore in the volatile conditions of the past two years, and can, in that sense, be described as "new". However, we have a broader vision of the challenges and some of these date from the foundation of OPEC 45 years ago, while others are more recent.

*Nigerian President Obasanjo shares a word in Davos with Irish musician Bono during the session on 'Next steps for Africa'.*

*This article was adapted from interviews and a speech given at the 2006 World Economic Forum by Dr Edmund Maduabebe Daukoru.*

# The links revealed between OPEC, transportation and economic development

*With few issues so closely linked as the oil industry and the provision of energy for the global transport sector, OPEC's Vienna Secretariat was pleased to host the **Workshop on Fuel Demand Modelling in the Transportation Sector** on January 20, 2006.*





**"Transportation is like a glue that binds the world together – land, sea and air."**

### **“Transportation,”**

said Mohammed Barkindo, Acting for the Secretary General, “is like a glue that binds the world together — land, sea and air.” The development of transportation is itself inextricably linked to a nation’s economic development, and with more people moving out of poverty, demands on the global transport sector will multiply.

There will be “an explosive demand in transportation materials,” with the transport sector “remaining captive for the oil market in the foreseeable future,” said Barkindo, confirming the theory that OPEC and the transport sector are to a large extent mutually dependent. In

fact, Barkindo went on to speculate that OPEC may not exist in the way we know it today without the advances in transportation.

### **Refined petroleum products**

OPEC is of central importance to the future of transportation, not least because refined petroleum products provide the dominant source of energy for the sector, and will continue to do so for years.

Oil consumption for road transportation represented over 80 per cent of the total incremental global oil final consumption during the period 1980–2001. For this

reason, argued Mr Barkindo, OPEC requires a sound understanding of how the market is likely to develop; hence the workshop was convened.

The reason efforts to move transport sectors away from oil have failed is because no true viable economic substitute has been found for refined petroleum. Substitute fuels (such as ethanol and natural gas) have been tried in the transportation sector, yet their overall share in road transportation remains marginal.

Director, International Fuel Quality Center (IFQC), **Sandrine Dixson-Decleve**, commented that alternative fuel demand will increase but conceded that it stands at only four per

**"There will be an explosive demand in transportation materials, with the transport sector remaining captive for the oil market in the foreseeable future."**



Opening the Workshop were OPEC's Acting for the Secretary General, Mohammed Barkindo (c), OPEC's Director, Research Division, Dr Adnan Shihab-Eldin (l), and Head of OPEC's Energy Studies Department, Mohamed Hamel.

cent of the current world market. "The world is looking at these energy concerns and how they impact energy policy," said Dixson-Decleve. "For example, one of the questions that's being put out there is, *Will we become dependent on alternative energy sources?*"

However, even though biofuels have been given tax breaks in many European countries, the problems remain storage (how to get it nearer to the customer); labeling; consumer acceptability; and no standard testing procedure to ensure quality.

Director, Hydro Propulsion System, Power Train Development Centre, Toyota Motor Corporation, Japan, **Takehisa Yaegashi**, argued that hydro hybrid engines are now a vital part of the transportation process. "By the end of the 21<sup>st</sup> century fossil fuels will dry up, and as an industry we have to work on energy diversification and reduction of emissions," said Yaegashi. "My conviction that the 21<sup>st</sup> century is the age of the hybrid is only getting stronger."

Commenting on developments within natural gas, Senior Staff Consultant, Petroleum Economics Limited, **Neil Atkinson**, said: "In terms of fixed distance fleets, such as buses, taxis or those on delivery routes, there's scope to move them to natural gas, or another alternative fuels."

Assistant Professor of Economics, University of California, **Kurt Van Dender**, drew attention to the possible "rebound effect" (efficiency drives that result in increasing consumption) that is a likely consequence of lower levels of fuel consumption. More fuel efficient travel will mean cheaper travel, will mean more demand for travel, which will mean more travel. In fact, argued Dender, the "cost of any rebound effect may well outweigh any benefit you get from reducing CO<sub>2</sub> emissions."

### Responsibility

There was also a call for the world's policy makers to take responsibility for the big issues, such as making it clear which type of car they want consumers driving, and the type of fuel they want used.

With 6.8 billion gallons of fuel being wasted in US traffic jams every year, it was also argued that the short-term answer to the emissions problem could be to build more roads. In terms of China's expected economic growth, the question as to whether there will be enough steel, double hulled ships, labour, factories, infrastructure, and engineering expertise to satisfy the demand was also raised.



**"The problems remain storage; labeling; consumer acceptability; and no standard testing procedure to ensure quality."**

## Main points of the Workshop

In any transportation and oil equation, car ownership is a crucial element. Road vehicles will increase by 140 per cent over the next 25 years

Poverty and transportation are closely linked

Transport will be captive to oil for many years

Alternative energy has issues around storage, refuelling, and user friendliness

Travel demand management measures (most likely higher taxation) may be needed soon

Any new technology for the transportation industry will take 15 to 20 years to become mainstream

There is a global move towards urbanization with over 50 per cent of the world's population living in urban areas within 10 years

# Public transportation – a pathway to sustainability



*In a presentation given at the Transportation Workshop,  
Dr Ranjan Kumar Bose,  
Senior Fellow, Centre for Urban Systems and Infrastructure,  
The Energy and Resources Institute (TERI), assesses the moves towards developing sustainable transport systems in South Asia in general, and three cities (Bangalore, Dhaka, and Colombo) in particular.*

## Introduction

**Urban transport in South Asia is typically characterized by rapidly increasing populations and vehicle use resulting in increasing levels of congestion, rapid growth in fuel use and CO<sub>2</sub> emissions, and unacceptably high levels of air pollution.**

The problems are exacerbated by the rapid growth of large sized cities, rampant suburban sprawl, outdated transport infrastructure, deteriorating bus services, rising motor vehicle ownership and its use, poorly maintained vehicles, a mix of slow non-motorized and fast moving traffic sharing the same road space, and inadequate and unco-ordinated land use and transport planning.

Three South Asian cities — Bangalore, Dhaka and Colombo — were selected as case

study sites to analyze the transportation, energy demand and emissions scenarios over the next 15 years (to 2020) using a common analytical framework. Although the types of data available in the three cities vary widely, the results show in each city a doubling of motor vehicles due to rise in income levels, and a tripling of fuel use and CO<sub>2</sub> emissions to 2020.

However, analysis of the data shows a strengthening of bus services could provide multiple benefits — reduction in traffic congestion, fuel savings, pollution reduction and CO<sub>2</sub> mitigation. Furthermore, dedicated corridors, incorporating new approaches to system design and new technologies, could put urban transportation on a more sustainable path.

## Patterns of development

The path of development challenges countries' transport needs. Traditionally, governments have worked to meet this challenge by massive investment in road infrastructure. Owning a personal motor vehicle is often perceived as the embodiment of development, while other forms of transport (rail and non-motorized transport such as bicycles) are frequently de-emphasized.

The traditional development path has led to numerous problems for many cities around the world. The transport sector often accounts for over 25 per cent of developing countries' total energy consumption, constraining their ability to use foreign exchange export earnings for needs other than petroleum. Besides the energy security and sustainability implications of this dependence on oil, transport will also generate roughly one-fourth of the world's energy-related CO<sub>2</sub> emissions.

Rapid level of motorization have caused severe environmental damage in many urban areas, especially by deteriorating local air quality, and traffic congestion has become so aggravated in many developing country cities that urban economies suffer losses due to the time wasted in commuting.

## The value of public transport

To minimize the negative impacts of traditional transportation development we need new solutions that enable developing economies to meet transport needs within energy, environmental, and economic constraints. Compared to cities dominated by small private vehicles, those with well-designed public transport (PT) systems have much less traffic congestion, lower pollutant and CO<sub>2</sub> emissions, and offer better mobility for all social and economic classes. Provisioning of efficient public transport (PT) systems, which mainly encompasses bus transport (BT) and rail transport (RT), can bring concrete solutions and put urban transportation on a more sustainable path.

Bus rapid transit systems (preferably with

buses running on cleaner fuels) emerging in Latin America provide fast, reliable and efficient urban travel for large numbers of people. In cities such as Bogotá, São Paulo, Lima and Abidjan segregated bus ways have proved able to carry high volumes (up to 20,000 persons per hour per lane) at acceptable speed and at a fraction of the cost of metro rails.

PT carries more people in fewer vehicles using less fuel, so it cuts both congestion and pollution. For example, in India, a car consumes nearly five times more fuel than a 52-seater bus and occupies about 38 times more road space to meet a kilometer of passenger travel demand.

## Urbanization and motorization – the implications

With economic growth urbanization is inevitable. According to the United Nations, the world's urban population, which reached 2.9 billion in 2000, is expected to rise to 5bn by 2030. Whereas only 30 per cent of the world population lived in urban areas in 1950, the proportion of urban dwellers rose to 47 per cent by 2000 and is projected to attain 60 per cent by 2030. Population growth is particularly rapid in the urban areas of less developed regions, averaging 2.4 per cent per year during 2000–2030, consistent with a doubling time of 29 years.

In Europe, North and Latin America the rate of urbanization is very high. Even then, the total number of urban dwellers is more in Asia (1.4bn) than the combined figure for the three continents. Furthermore it was estimated, by 2030, Asia and Africa will each have higher numbers of urban dwellers than any other major area of the world, and Asia will account for 54 per cent of the urban population of the world, up from 48 per cent in 2000.

The urbanization trend indicates that when it comes to growth of urban agglomerations, Asia, specifically, and the developing countries in general, will be the driver. And related to this process is the process of motorization. Latin America, for example, is highly urbanized (over 75 per cent) and is also

the most motorized in terms of car ownership among developing economies.

## The future of motorization

Much of the future growth in motorization will occur outside the industrialized world. Starting from a relatively small motor vehicle population base, developing countries are experiencing rapid growth in motor vehicle fleets – motor vehicle growth rates in many of the developing and newly industrialized countries of Asia, Africa and Latin America far outpaced those of the Organization for Economic Co-operation and Development (OECD) countries during the 1980s.

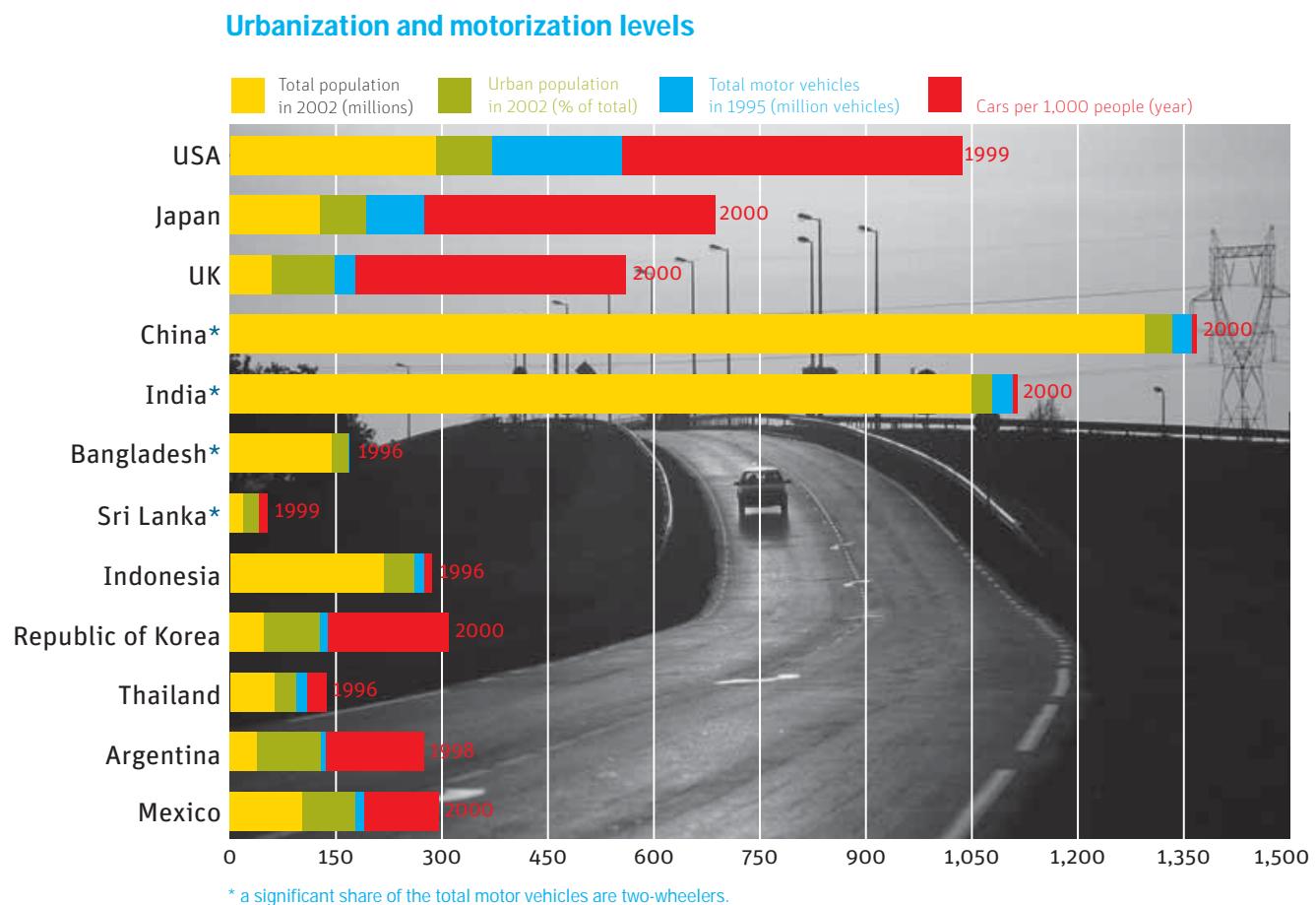
The developing world is characterized by low but generally rising incomes and by rapidly growing and relatively young populations. These people have to get to work, get

***Besides the energy security and sustainability implications of this dependence on oil, transport will also generate roughly one-fourth of the world's energy-related CO<sub>2</sub> emissions.***

to school, and shop. The goods they produce and consume have to be transported from their factories to their stores. All this requires transportation.

The transport sector will account for 54 per cent of the global primary oil consumption in 2030 compared to 47 per cent in 2004 and 33 per cent in 1971. Transport will absorb two-thirds of the increase in total oil use, and almost all the energy currently used for transport purposes is in the form of oil products. Despite the policies and measures that many countries have adopted to promote the use of alternative fuels, such as biofuels, and compressed natural gas, according to the UN report the share of oil in transport energy demand will remain almost constant over the period 2002–2030, at 95 per cent.

Demand for road transport fuels is growing



dramatically in many developing countries, in line with rising incomes and infrastructure development. Since road based transport systems are mainly dependent on oil, it becomes important for urban and energy planners in oil-importing developing countries to plan for greater efficiency of energy use in urban transport to enable a reduction in the import bill.

### Congestion and pollution

Unfortunately, the present supply of PT mainly in South Asian cities has been inadequate and of poor quality. This has led to the growth of personalized vehicles in the region, with consequent problems of congestion, high costs, higher energy consumption and heavy atmospheric pollution. The rising oil demand in the region is aggravated by the driving conditions in many of the world's cities.

Congestion also intensifies motor vehicle emissions, which contribute to the rap-

idly deteriorating air quality in many developing country cities. Many of these vehicles have no emissions controls, and those that do are often poorly maintained. In contrast to the urbanized areas of the developed world, vehicle related air pollution in many developing countries is clearly getting worse.

The air in Asian cities is among the most polluted in the world and vehicular traffic is a major contributor to the pollution levels. According to an ADB study, the levels of ambient particulates — smoky particles and dust, which cause respiratory disease — are generally twice the world average and more than five times as high as in industrialized countries and Latin America.

Motor vehicle emissions harm not only local environments and economies, but the global ecosystem as well. The transport sector as a whole is the second-largest sector for CO<sub>2</sub> emissions worldwide, after the power sector. Its share of total emissions will rise from

21 per cent in 2002 to 23 per cent in 2030. More than half the increase in the sector's emissions will occur in developing countries, where personal vehicle ownership is expected to grow rapidly.

### Importance of augmenting public transport system

One of the increasingly important areas of work in the urban transport scenario, especially to mitigate growing oil demand, emissions and congestion, is that of creating an effective and efficient PT system.

There have been a number of policy interventions to promote PT throughout the world. Starting from the addition of physical infrastructure and extension of conventional Bus systems, Bus Rapid Transit (BRT), Light Rail Transit (LRT) or underground Metro to traffic restraining measures, one thing shines through clearly. The most successful systems

are those where policies are integrated and not asymmetrically dependent on one or two measures.

In conventional literature, BRT and LRT, the two components of a successful PRT system have been traditionally looked upon as competitors rather than partners in developments. This is due to a number of reasons. Most of the examples from the effective BRT systems don't have an urban rail system, and are not missing one either in term of urban transport demand needs. Cities such as Bogotá have sustained their needs through an effective BRT, and the policy makers in South Asian cities would definitely consider that before trying to integrate the transit system with both LRT and BRT.

### Going underground

The option in public transportation outside BRT and LRT is the underground Metro system. However, though this scores even more than LRT on account of speed and efficiency, and is definitely nearer to zero emission than BRT, the reason why it is not on the list of the preferred public transportation systems of the urban transport planners is because of the prohibitive costs and long gestation and payback period.

The underground Metro system scores heavily over the other modes, but the costs and the recovery potential are the factors which pegs back its viability, especially in the developing world. It has been generally seen that because of the extremely large capital cost component in most Metro systems, most networks generally struggle to recover the whole cost, Hong Kong being an exception.

### Case Study Assessments in South Asian cities

Three cities from South Asia — Bangalore (India), Dhaka (Bangladesh) and Colombo (Sri Lanka) — were selected to provide a big picture analysis of the current transportation situation and the future scenarios with

respect to travel demand pattern (for movement of people and goods), policy initiatives to control vehicular emissions and, in particular, public transport improvements, and their impact of increasing the share and utilization of public transport and discouraging use of personalized vehicles on energy use and tailpipe emissions.

A common analytical framework is used to project transportation scenarios and also analyze the transport energy demand and

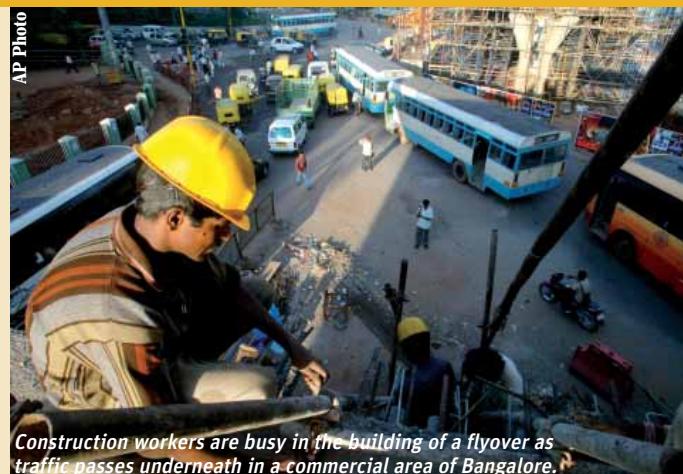
emissions (local pollutants and CO<sub>2</sub>) under two alternative scenarios—Business as usual or Baseline (BL) and Increased share of Public Transport (PT). Although the types of data available in the three cities vary widely, analysis of the results show further strengthening and augmenting public transport systems in these cities, with commensurate increases in ridership, could provide substantial road space with reduction in traffic congestion, fuel savings and emissions reduction.

### City profiles

#### Bangalore

Bangalore, capital of Karnataka state, is the fifth largest city in India with a population of 5.69 million in 2001 spread over 530 square kilometer of area. The city registered 1.7m motor vehicles in 2003, with two-wheeled vehicles (scooters and motor cycles) as the dominant mode (77 per cent) and then cars (15 per cent). The road network in the city is predominantly radial with a large number of intersections (about 30,000). Considering that there has been almost no increase in the size or number of roads in the city the road space of 11.9 per cent in 1996 is significantly lower than the international norm of around 25 per cent.

A total of about 2,000 km of roads can be considered to be forming the main life-line of Bangalore for carrying the commuter traffic. The high density and intermixing of pedestrians and slow and fast moving traffic has drastically reduced the level of service of many roads in the city leading to frequent congestion and at many locations. Nearly all the major intersections operate at over capacity, prompting traffic police to switch off fixed time traffic signals. As a consequence, average delays experienced on major junctions today are in excess of 11–12 minutes as opposed to a delay of two to five seconds per km in 1971.



*Construction workers are busy in the building of a flyover as traffic passes underneath in a commercial area of Bangalore.*

Since 1994, the Government of Karnataka has been contemplating a rail based metro transit system for the growing city and has established Bangalore Mass Rapid Transit Limited. The Metro Rail project has recently been given clearances from the central government agencies. Two rail corridors are proposed as part of this project but no feeder system is integrated into its design. The effectiveness of the two corridors of the Metro Rail to take care of the entire transportation needs of the city and whether its implementation would ensure any shift from private to public modes is also not clear.

The Bangalore Metropolitan Transport Corporation (BMTC) executed a feasibility study in 1999 for the MetroBus system for Bangalore. This was undertaken with assistance from Swedish International Development

## City profiles

Agency (SIDA) and was further developed into a pilot project, which was to be implemented with a grant from SIDA. The project was halted in August 2003 because of the Government of India's 'New Donor Policy'. The MetroBus Section established by the BMTC with dedicated staff for implementing the project nevertheless continues to function and is carrying out work required for this purpose.

Some of the major policy initiatives undertaken for Bangalore are:

- ▶ The State government has taken measures such as enacting legislation to provide a legal foundation for implementation of a metro system, and establishing the Bangalore Mass Rapid Transit System Limited (BMRTL).
- ▶ Pollution check is mandatory and validity period is six months. Spot-checking of emission by Traffic Police is rigorous. There is a proposal to reduce the validity period to three months.
- ▶ During the recent budget presentation by the Chief Minister of Karnataka (Bangalore is its Capital), new legislation of requirement of "Green Fitness License" for vehicles older than 15 years has been made mandatory for Bangalore.
- ▶ 38 major roads of the city have been made as one-way traffic to ensure smoother mobility.
- ▶ It became mandatory to convert all auto rickshaws to run on LPG by the end of the year 2002.
- ▶ LPG conversion of four wheelers is being encouraged.
- ▶ Government has already started dialogue with oil companies to have LPG filling facility at the petrol pumps. A few pumps have already been given approval for setting up this facility.
- ▶ A task force consisting of transport authorities, police, and some other State Department Officers have been formed and they have been asked to study various control measures that are in place in cities such as Delhi to make recommendations for Bangalore.

**Dhaka probably has the most cycle rickshaws in the world, well over 100,000. Dilapidated, unsafe and uncomfortable vehicles dominate the transport system.**

### Dhaka

Dhaka, the capital of Bangladesh, has grown from a sleepy town of little over half a million people in the early sixties to a modern city of over 11 million in 2003 and extends over 1,353 sq km. Dhaka's traffic conditions are characterized by a poor institutional and regulatory framework and reluctance to enforce existing legislation. The roads are over-

whelmed with mixed modes of transportation using the same space namely by bus, trucks, cars, and non-motorized traffic that includes cycle rickshaws, bicycles, animal drawn cart or push cart, and above all pedestrians.

The deficiencies in the city's transport systems have affected its economics and social performance. Travel modes in Dhaka are in certain respects unique among large Asian cities. Almost 40 per cent of the trips are on foot, 30 percent are by non-motorized cycle-rickshaw, eight per cent are by motorized three-wheel auto rickshaw, four per cent by bus, one per cent by private car, and the remaining 17 per cent are by government provided transport, such as school buses. Thus more than two-thirds of trips are non-motorized. Cycle rickshaws, pedestrians and hawkers occupy more than 70 per cent of the road space.

Dhaka probably has the most cycle rickshaws in the world, well over 100,000. Dilapidated (buses), unsafe (rickshaws) and uncomfortable (auto-rickshaws) vehicles dominate the transport system. Pedestrian pathways, where it exists, have been taken over by roadside shops and peddlers, and are dirty and unsafe. With growing numbers of personalized vehicles, especially cars and auto-rickshaws, the overall transport services and urban air quality keep on deteriorating. There is no railway network for city commuters in Dhaka. Several tracks of the national railway network originating at the Dhaka central railway station in Kamalapur traverse the city.

The public bus system in Dhaka is characterized by a large number of individual bus owners, about 750, with an average of only



two buses per owner. There are two major companies, one state-owned (The Bangladesh Road Transport Corporation, BRTC) and the other private (the Metro Bus Company). Each provides about five per cent of bus transport services. The Metro Bus Company, with about 100 buses, serves two commuter routes. While these companies could provide the seeds for better bus service in the future, they are probably too small to be efficient in service, or to have the resources to purchase high-quality, low emission buses. New buses as well as four-stroke baby taxis run with CNG have been pressed into service as alternatives.

The Communication and the Environment Ministry have jointly undertaken various measures to tackle the dual problems of traffic congestion and urban air pollution. The significant ones are:

- ▶ Construction of several flyovers.
- ▶ Minibuses and buses older than 20 years have been banned from Dhaka roads.
- ▶ Two-stroke engine vehicles have been banned from Dhaka roads with effect from September 1, 2002.
- ▶ Non-motorised vehicles have been banned from certain city roads.
- ▶ Many roads are being made one-way, road-dividers are being constructed in almost all roads and most breaks in existing road-dividers are being closed off (to prevent vehicles from making U-turns).
- ▶ Some double-decker buses have been added to the existing fleets.
- ▶ Accelerated efforts to convert gasoline vehicles to CNG.
- ▶ Import of re-conditioned vehicles (up to five-year old vehicles from Japan) to be banned in two years' time.
- ▶ Auto emission standards are being finalized.
- ▶ Catalytic converters will be made compulsory for all vehicles. Diesel particulate filters will be compulsory for diesel vehicles.
- ▶ Large fines will be imposed for black smoke emitting vehicles.
- ▶ Spot checks in the city to determine emission compliance.

## Colombo

Colombo, capital of Sri Lanka, is a compact city of moderately high density but plentiful open space. The city with a population of 642,000 is part of the Greater Colombo Metropolitan Region (GCMR), which had 4.8 million inhabitants in 1998, and the region is spread over 676 sq km. The daily floating population in the Colombo city is estimated to be about 1.2m, equivalent to the total population of the Colombo Metro area. Average daily traffic entering the city is currently 210,000 vehicles in one direction. The city road network generally has two lanes.

All major roads and rail systems emanate from Colombo; there is virtually no interconnection between regional centres other than through Colombo. The city is served by an extensive road network, by a dense, fixed-route, private and public bus network, and by railway lines with commuter services paralleling four of the five radial roads.

The traffic conditions in the city are rapidly deteriorating. Traffic speeds on the main arterial roads during rush hour have fallen from 18–32 km/hour in 1997 to 6–11 km/hr. Near gridlock conditions are experienced in some areas of central Colombo in early afternoon, where there is a concentration of schools. The Central Business District of Colombo city has grown with the seaport of Colombo. This port currently generates 1750 container movements in the road network, of which 70 per cent is in the northern part of Colombo.

Bus travel is a dominant form of transport for those traveling to and from the city centre. Passenger bus services contribute to about 80 per cent of the overall passenger transport service in the country. Rail could play a bigger role, particularly for the long distance commuter. With growing traffic congestion, there will be an increased demand for bus priorities on all main radial roads. Bus priority systems can range from simple with-flow bus lanes to segregated guided bus systems. The lack of wide roads within Colombo makes it difficult to allow for an exclusively segregated bus way.

Private sector bus operators account for about two thirds, while the balance is provided by public sector bus services consisting of 11 Regional Transport Companies (RTCs), also called cluster bus companies, the Northern Region Transport Board and Vavniya Passenger Transport Services Limited monitored by Sri Lanka Central Transport Board (SLCTB). A series of shortcomings have been cited in both public and private sector passenger bus operations.

Among them are poor service and quality, an inadequate number of buses operating on some routes, especially in remote areas, non availability or non adherence to time tables, unqualified crew, poor infrastructure facilities such as bus stands, bus halts etc, increasing operating costs and low profit margins. The RTCs are highly overstaffed, particularly in certain clerical and allied categories. However, in respect of crews, technical and engineering grades are understaffed. The public school bus service has largely dropped in wake of privatization, and an increasing number of children are brought to school by small vans and private cars resulted in extended rush hour conditions in the morning as well as in the afternoon.

Land use practice is often poor and shopping centers have been built on some of the arterial roads with little regard for the parking and traffic problems they cause. Some roads have become heavily congested not

***Land use practice is often poor and shopping centers have been built on some of the arterial roads with little regard for the parking and traffic problems they cause.***

just because of increasing airport traffic, but by container traffic from the port. Thus, the 30 km distance to the airport can take 90 minutes during rush hour. Several steps have been taken or proposed, to alleviate some of these problems:

- ▶ The Municipal council has proposed a charge of Rs10/day for vehicles entering the city.
- ▶ A dry container port has been proposed to alleviate congestion and the Port itself; containers would be brought to the inland location by rail.
- ▶ Studies are under way to introduce one-way streets, possibly with counter-flow bus lanes (which have proven more successful than parallel bus lanes in many European cities).
- ▶ Construction has begun on the airport expressway.
- ▶ Suburban railway electrification has been proposed many times, but the economics appear unfavorable, and most of the potential passengers would be bus rather than car passengers.
- ▶ Light rail systems have been suggested as an alternative, but definitive proposals have yet to emerge. A metro system also seems unlikely.

### ***Several past studies have been based upon estimates that are highly questionable.***

### **A common analytical framework**

This section presents the analytical framework that has been applied in the three cities. First, the growth of vehicles is analyzed using econometric relationships to derive travel demand. Second, a decomposition method referred as the 'ASIF' is used for analyzing energy demand and emissions under alternative scenarios.

The principal components of the ASIF method include Activity (ie, passenger and freight travel demand expressed in passenger- or tonne-kilometres) modal Structure (ie, share of passenger- or tonne-kilometres occurring on each mode), the modal energy Intensity of each mode (ie, energy burned per passenger- or tonne-kilometre) and the emission Factors of criteria pollutants (CO, HC, NOx, PM) and for CO<sub>2</sub> Fuel-to-Carbon ratio (ie, carbon released per unit of energy burned).

ASIF offers an analytical framework in which client country authorities and stakeholders can evaluate and debate the options for improving the environmental performance of transport. For example, interventions in I and F (technologies and utilization) have the largest promise of restraint, while policies that affect A and S through broader transport reform will also restrain emissions. It would be important to note here that this study stresses upon the interventions at the S level of ASIF methodology through reforms achieved by modal shifts towards PT with drop in car and two-wheeler use through traffic restrain measures.

The advantage with this methodology is that it allows for a number of interventions at I, F and A with commensurate number of multiple scenarios each with a certain energy use and emission levels. Hence the policy makers have a spectrum to choose from and more importantly it makes the framework easily replicable. The variables that drive the accounting framework include the following components:

- Passenger and freight travel demand (a function of growth in the number of in-use

motor vehicles of different modes, average vehicle utilization, and occupancy/ load levels).

- Modal split (the share of total passenger or freight kilometre of travel demand catered to by different modes).
- Penetration of technologies (determined from the time-series sales data of different technologies within a given mode).
- Average fuel efficiency of each technology (vehicle-kilometre run per unit of fuel consumed).
- Average emission factor of each vehicle (quantity of pollutant emitted per unit of fuel consumption). The pollutants considered are CO, CO<sub>2</sub>, HC, NOx, and PM.

The common analytical framework is implemented in each of the three cities using a combination of simple accounting and simulation software called LEAP (Long Range Energy Alternatives Planning) and Excel Spreadsheet. LEAP is designed to assist policy-makers in evaluating alternative policies to study their impact on energy and the environment. LEAP has been developed by the Stockholm Environment Institute, Boston, and is effective in evaluating alternative policies, which has a bearing on energy and environment.

The LEAP has in built in it multiplicative links which have emission coefficients linked to fuels which in turn is linked to sector and sub sector levels of activity. Hence it is easier and faster to build up the activity branches in the transport sector, each having a unique technology and fuel intensity which gets directly linked to fuel consumption and emissions.

Moreover, it is easier to observe the change in the output in terms of the energy use and emission levels under alternate scenarios as a multitude of scenarios can be created conveniently with changes in the inter-modal pattern of the activity or the technology type of a particular activity. Even historically speaking, a number of urban transport, energy demand and emissions impact studies in Asian cities have applied ASIF using LEAP software.

## Vehicle fleet and its projections

Estimating the vehicle fleet and its composition in the three cities is the starting point for implementing the ASIF framework. Yet this proves to be a major challenge because of the deficiencies and inconsistencies in the available data, and several past studies have been based upon estimates that are highly questionable. The fundamental difficulty is that while records are kept to reasonable accuracy on new vehicle registrations, there is no (or very little) data on vehicle retirements or vehicles actually on road, with the inevitable result of overestimating the number of vehicles in the fleet. This is compounded by periodic changes in the classification schemes used by official sources. After carefully going through the list of vehicle categories used in the three countries, the following types of vehicles emerged as commonly identifiable operational vehicle types:

### Personal transport

- 1) scooters, mopeds and motorbikes as two-wheelers; and
- 2) cars, jeeps and dual/multi-purpose vehicles.

### Intermediate public transport (IPT)

- 1) three-wheelers; and
- 2) taxis and maxi cabs.

### Public transport

- 1) standard sized buses; and
- 2) mini buses.

### Goods transport

- 1) three-wheelers;
- 2) light-; and
- 3) heavy-commercial vehicles.

The individual's decision to use two-wheelers, cars/jeeps, three-wheelers, taxis and buses is driven by his/her level of income to a very large extent. Rising incomes are expected to lead to a shift up the 'transport ladder' from public transport to two-wheelers and from two-wheelers to cars. Hence per capita income is an important economic variable determining the level of motorization. Interestingly, the

growth of personal and intermediate public transport in the three cities is strongly influenced by the per capita income.

However, the growth of public transport buses and goods transport is strongly influenced by the gross domestic product (GDP). Using econometric relationships with per capita income or GDP as explanatory variables, vehicle projections for different category of vehicles are made for the three cities.

The growth of motor vehicles in each of the three cities has outpaced their respective population. The estimated total number of vehicles in Bangalore over the 20-year period is much higher than Dhaka in spite of population size of Dhaka almost double compared to Bangalore. Interestingly, in each of the three cities the total number of vehicles is expected to double in the next 15-year period. This is mainly due to the heavy dependence on road-based motorized vehicles in Bangalore and also insignificant share of cycle rickshaws and bicycles in the city, unlike in Dhaka where a major share of commuter travel demand is met by non-motorized modes.

The rapid growth of the vehicles particularly in Bangalore and Colombo illustrates the fundamental changes that have occurred following the liberalization period (post 1991 in India and post 1977 in Sri Lanka) coupled with steady economic growth which has resulted in sharp changes in the fleet mix.

One important feature about this growth is the large share of personally owned vehicles including two-wheeled vehicles (scooters, motorcycles, mopeds), cars and jeeps, although the vehicle ownership patterns vary significantly across cities. While two wheelers share in the total fleet is pre-dominant in Bangalore and Colombo, in Dhaka the share of two-wheeled vehicles and cars and jeeps are similar. Further, in Dhaka, the dual purpose or multi utility vehicles (MUVs) share in the total operating fleet is expected to remain around five per cent in the future.

Greater dependence on personalized vehicles both in terms of its ownership and use has been due to inadequate attention to the public-based bus transportation system.

Among the categories of vehicles that form the intermediate public transport (IPT) modes, the number of operating three-wheelers (also called autorickshaws) is the most pre-dominant mode. Its share in the total fleet size during the period 2000–2020 is expected to remain around five per cent in Bangalore, decline from 15 per cent to ten per cent in Dhaka, and increase in the case of Colombo from eight per cent to about 13 per cent.

***Greater dependence on personalized vehicles both in terms of its ownership and use has been due to inadequate attention to the public-based bus transportation system.***

## Travel demand projections

The total motorized travel demand for people's mobility is estimated to be the highest in Bangalore, about 63 billion passenger kilometer (BPKM) in 2005 in the business-as-usual or the baseline (BL) case, much higher than Dhaka (6 BPKM) and Colombo (46 BPKM).

While in Bangalore the travel demand is expected to increase more than four times between 2005 and 2020, the increase during the same period for Dhaka and Colombo is a little over double and triple respectively. The annual rate of growth of travel demand during this period is estimated to be 9.68 per cent, 5.43 per cent and 7.23 per cent in Bangalore, Dhaka and Colombo respectively.

Unlike in Bangalore and Colombo, the total passenger travel demand met by motor vehicles in Dhaka is significantly lower (only 3.81 BPKM in 2005) as the city has a large established network of non-motorized cycle rickshaws and cyclists. Interestingly, in spite of an insignificant share of buses in the total fleet (1.5 percent in Bangalore, 0.3 percent in Dhaka and 2.8 percent in Colombo in 2005) public buses in the city cater to a large portion of travel demand (about 43 percent in

Bangalore, 21 per cent in Dhaka and 74 per cent in Colombo in 2005) and this trend is likely to continue.

In 2020 the expected share of public transport in the BL scenario is likely to go up to around 62 per cent in Bangalore, 24 per cent in Dhaka and 76 per cent in Colombo with corresponding share of personal transport to be about 33 per cent, 55 per cent and 18 per cent, and that of IPT around 6 per cent, 21 per cent and six per cent respectively.

The total motorized freight travel demand is expected to rise from 4.95 billion tonne kilometer (BTKM) in 2005 to 14.69 BTKM in 2020 in Bangalore (three times); from 3.81 to 9.59 BTKM in Dhaka (2.5 times) and from 13.99 to 44.45 BTKM in Colombo (over three times) respectively. The annual rate of growth of freight travel demand in the 20-year period

### ***While gasoline is used only in the transport sector, diesel (or the high-speed diesel) is consumed in different sectors.***

is estimated to be 7.52 per cent, 6.35 per cent and 8.01 per cent in Bangalore, Dhaka and Colombo, respectively.

Now, to assess the impact of increasing the penetration of public transport, an alternative to the BL scenario called the increased share of public transport (PT) scenario is constructed, wherein it is assumed that in the year 2020:

- The penetration and utilization of standard sized buses and rail system (excluding Dhaka) would increase considerably compared to BL (80 per cent each in Bangalore and Colombo and 60 per cent in Dhaka), while that of mini buses would continue to remain at the same level as estimated in 2005.
- The share of IPT in Bangalore and Colombo would continue to remain same as it is

today; while in Dhaka its share would go down to 15 per cent compared to the current 21 per cent level.

- The remaining share of the total travel demand will be catered by personal modes and is distributed in 2:1 ratio for two-wheeler: cars/jeeps/MUVs together.

### **Fuel efficiency and emission factors**

One of the major limitations of the study is the absence of a credible database on fuel efficiency and emission factors of in-use vehicles under city driving conditions in Dhaka and Colombo. In absence of such information the database on fuel efficiency and emission factor of Indian vehicles has been used as a proxy.

In India, the mass emission standards for new vehicles were first notified on February 5, 1990, and became effective from April 1, 1991. These were revised and made more stringent in April 1996 and standards for 2000 and 2005 were also announced. Considering the progressive tightening of emission standards in almost five yearly intervals, the Central Pollution Control Board (CPCB) published in-use vehicle emission factor data for the following five reference periods, for different category of vehicles and fuels (CPCB, 2000): 1986–1990; 1991–1995; 1996–2000; 2001–2005; and 2006–2010.

The emission factors in any given period are made more stringent compared to the previous period as the vehicle manufacturers have followed — and are expected to follow — progressively stringent emission standards/norms for conformity of vehicle productions during these five reference periods. For the purposes of this study, the data source on emission factors for different category of existing diesel and gasoline is the same CPCB data. As far as the emission factors of vehicles beyond 2010 is concerned, the data is based largely on the results of the international/national field trial and as modulated by our judgment and exercised in consultation with experts in the field of tailpipe emissions.

In the ASIF model fuel efficiency values and emission factors of all pollutants from different categories of vehicles are classified into following four categories: Pre 2001, 2001–2005, 2006–2010 and post–2010 model vehicles.

The emission factor of CO<sub>2</sub> is estimated by multiplying the following parameters:

- 1) average carbon content in the auto fuel (by weight);
- 2) specific gravity of the fuel;
- 3) per cent of fuel burnt, which has been assumed as 99 per cent; and
- 4) total atomic weight of CO<sub>2</sub> divided by atomic weight of carbon.

### **Energy demand and fuel mix pattern**

Given the current fuel infrastructure available in the three cities, it is assumed that gasoline, diesel and LPG will be the autofuels in Bangalore and Colombo whereas in Dhaka it will be gasoline, diesel and CNG. In addition, Bangalore and Colombo will have electric trains to meet commuters travel needs. In Bangalore the total transport energy demand is expected to grow from about 1,184 thousand tones of oil equivalent (TTOE) in 2005 to 1,754 TTOE in 2010 and 3,684 TTOE in 2020 — 3.1 times increase between 2005 and 2020 in the BL scenario.

Similar trend is observed in Colombo. During the same period, the total energy demand in Colombo is likely to increase from 1,131 TTOE to 1,576 TTOE to 3,754 TTOE — 3.3 times increase between 2005 and 2020. Dhaka's demand for petroleum products is remarkably low — in 2005 only 276 TTOE, which was nearly 23 per cent of the amount consumed in Bangalore in 2005, a city of almost half the size of Dhaka but about 9 times the number of motor vehicles during the same period. Total energy demand in Dhaka is expected to grow from 276 TTOE in 2005 to 413 TTOE in 2010 to 723 TTOE in 2020 — 2.6 times increase between 2005 and 2020.

In the absence of city specific published

data on gasoline and diesel consumption in the transport sector, the fuel demand estimates obtained from the model for Bangalore is compared with the published sales data at the state level in 2000. However, for Dhaka and Colombo the comparisons are made with their country level information. While gasoline is used only in the transport sector, diesel (or the high-speed diesel) is consumed in different sectors namely, agriculture, transport, industry, diesel generators etc.

In 2000/01, according to the model estimates, over 77 per cent gasoline and 21 per cent diesel sold in Karnataka were consumed in the transport sector for intra-city movement of traffic in Bangalore. In Dhaka, gasoline and diesel consumption in the transport sector was only 14 per cent and 4.5 per cent respectively of the country's total fuel supply. In Colombo, the corresponding values are 48 per cent gasoline and 70 per cent of auto diesel.

### Baseline scenario results

Diesel is the pre-dominant auto fuel in the three cities, followed by gasoline – ratio of diesel to gasoline is 6.5 in Colombo, 3.4 in Dhaka and 1.3 in Bangalore. Total demand of diesel in Bangalore and Colombo are expected to increase over 3.5 times in 2020 from the current level of 649 TTOE and 963 TTOE respectively. In Dhaka the demand of diesel is quite low but expected to go up three-fold in 2020 from the current level of 179 TTOE.

Gasoline demand in Bangalore is significantly higher compared to Colombo. This is mainly because of heavy utilization of two-wheeled vehicles that occupy a significant share of road space. Although CNG cars, taxis and buses have been introduced in Dhaka, their scale of operation is rather limited due to the supply constraint of CNG infrastructure.

Similarly, in Bangalore and Colombo, instead of CNG, LPG is used as an auto fuel. It is expected that CNG demand in Dhaka will increase to almost double in 2020 compared to its present level of consumption (44 TTOE in 2005). While that of LPG demand in Bangalore and Colombo is expected to go up 2.3 times

and 1.6 times, respectively, in 2020 compared to its present level.

### Public transport scenario results

The potential for reducing the total transport energy demand differs considerably in the three cities given the different level of penetration assumed in the three cities. For instance, in Bangalore the energy reduction potential is over 21 per cent in 2020 compared to BL. The corresponding figures for Dhaka and Colombo are 15 per cent and three per cent, respectively.

### Emissions loading

#### Carbon dioxide

The steep rise in transport energy demand in the three cities is expected to result in rapid growth of CO<sub>2</sub> emissions. In the BL case, CO<sub>2</sub> emissions is expected to go up from 3,148 thousand tonnes (TT) in 2005 to 9,950 TT in 2020 in Bangalore (3.2 times); 3,130 TT to 10,520 TT in Colombo (3.4 times); and from 728 TT to 1,949 TT in Dhaka (2.7 times) respectively. The annual rate of increase of CO<sub>2</sub> emissions will be marginally higher compared to total energy demand in the two scenarios during the period 2005 to 2020. The highest rate of CO<sub>2</sub> growth is observed in Colombo (8.42 per cent), followed by Bangalore (7.97 per cent) and in Dhaka (6.78 per cent).

#### Criteria pollutants

The vehicular emission loading of CO, HC, NOx and SO<sub>2</sub> have shown a steep increase in the three cities from 2005 to 2020 in the BL scenario. With greater penetration of public transport, the emissions loading in Bangalore is expected to significantly drop for CO, HC and PM. However, there will be a marginal increase in NOx emissions in the PT scenario. Interestingly in the other two cities the emissions loading curves of all the criteria pollutants are similar in both BL and PT scenario.

The reason being, in Colombo the share of public transport in BL is already very high (nearly 73 per cent in 2005 and expected to go over 76 per cent in 2020) compared to only a four per cent increase of its share in the PT scenario in 2020 (making the PT share to 80 per cent). So the level of penetration of public transport is marginal in the alternative case. On the other hand, in Dhaka, the share of public transport in BL is very low (expected to go up from 16 per cent in 2005 to 24 per cent in 2020). But, in the PT scenario, it is assumed around 60 per cent of the travel demand will be catered by public transport in 2020 but there will be a significant decline in use of IPT or para transit during the same period and also a drop in use of personal vehicles.

***The highest rate of CO<sub>2</sub> growth is observed in Colombo, followed by Bangalore and in Dhaka.***

### Impact of increasing the share of public transport in 2020

It is now possible to quantify the impact of increasing the penetration of public transport purely based on a set of assumptions for a change in modal split taking place in the year 2020. In working out this the following assumptions have been made:

- ▶ Present modal split for public transport as estimated in the BL scenario in Bangalore, Dhaka and Colombo will be around 62 per cent, 24 per cent and 76 per cent, respectively.
- ▶ In the recommended PT scenario, public transport shares in Bangalore, Dhaka and Colombo will be 80 per cent, 60 per cent and 80 per cent, respectively.
- ▶ The share of intermediate public transport (three-wheeler auto rickshaws, taxis and

maxi cabs) will remain at the current level of around five per cent in Bangalore and Colombo whereas in Dhaka its share will drop from 20 per cent at current level to 15 per cent.

- The balance share of the total travel demand will be catered by personal modes and will be distributed in 2:1 ratio for two-wheeler: cars/jeeps/MUVs together.
- In 2020, increasing the penetration of public transport as recommended in the alternative case will result in a multiple benefit:

***Bus system improvements in South Asian cities could be among the most important and most cost-effective approaches for achieving transport sustainability.***

- An increase in public transport share from 62 per cent to 80 per cent in Bangalore leads to a fuel saving of 765,320 tonnes of oil equivalent, which is equivalent to about 21 per cent of the fuel consumed in the BL case. The other advantages that ensue are a 23 per cent reduction in total vehicles (642,328) and creating a road space (equivalent to 418,210 cars off the road) and reduce traffic congestion. Air pollution in the city drops significantly — 40 per cent drop in CO, 46 per cent HC, six per cent NOx, and 29 per cent PM. The total CO<sub>2</sub> mitigation potential over the next 15-year period would be 13 per cent.
- An increase in public transport share from 24 per cent to 60 per cent in Dhaka leads to a fuel saving of 106,360 tonnes of oil equivalent, which is equivalent to about 15 per cent of the fuel consumed in the BL case. The other advantages that ensue are a 39 per cent reduction in total vehicles (99,294) and creating a road space

(equivalent to 78,718 cars off the road) and reduce traffic congestion. Air pollution in the city drops significantly — 24 per cent drop in CO, 26 per cent HC, <1 per cent NOx, and 13 per cent PM. The total CO<sub>2</sub> mitigation potential over the next 15-year period would be nine per cent.

- A marginal increase in public transport share from 76 per cent to 80 per cent in Colombo leads to a fuel saving of 104,720 tonnes of oil equivalent, which is equivalent to about three per cent of the fuel consumed in the BL case. The other advantages that ensue are a five per cent reduction in total vehicles (47,716) and creating a road space (equivalent to 62,152 cars off the road) and reduce traffic congestion. However, air pollution in the city does not drop much as the city already depends heavily on public transport and the CO<sub>2</sub> mitigation potential is around two per cent.

### Conclusions and recommendations

Bus system improvements in South Asian cities could be among the most important and most cost-effective approaches for achieving transport sustainability. Compared to urban transport systems dominated by personal vehicles, properly managed bus-dominated systems result in much less traffic congestion, lower energy use, and less emissions, as has been demonstrated in this paper using three city specific studies in South Asia.

It is extremely important to preserve, improve and expand bus systems as they can offer most affordable, cost-effective, space efficient and environmentally friendly mode of motorized travel. While rail-based systems, including street-level trams or light rail, elevated rail, and underground rail systems, offer an important sustainable transport mode, they have several disadvantages compared to bus systems. Rail systems are expensive to build, require large capital investments for land acquisition.

Moreover, it can take many years to

develop rail systems. In some respects rail offers advantages, such as greater capacity and faster speeds. But some recent advances in bus systems, such as high capacity buses, bus lanes, timetables, and bus stop bays, and public policies to encourage use could close this performance gap.

Although there exist large deficiencies and inconsistencies in the available data, and also absence of credible database on fuel efficiency and emission factors of in-use vehicles as observed in Dhaka and Colombo, research work presented in this paper found several common, interlocking factors:

- The majority of passenger travel demands in large sized South Asian cities are made on buses, in spite of an insignificant share of buses in the total vehicular fleet with poor service quality. Dhaka is an exception. Travel modes in Dhaka are in certain respects unique among large Asian cities. More than two-thirds of trips are non-motorized.
- In the baseline scenario, while numbers of motor vehicles double, energy demand and CO<sub>2</sub> emissions triple in the three cities over the next 15 year period. However, a large mitigation potential of energy demand and emissions exists in Bangalore and Dhaka provided bus transport services are strengthened and significantly improved.
- The growing number of vehicles is part of a lopsided policy that encourages consumption of fossil fuels over conservation. While improved technology and cleaner fuels with progressively stringent emissions standards can reduce the pollution from more vehicles, this rate of consumption of fuel use will be much too high for clean air. Better bus systems can dramatically reduce total vehicle pollution.
- Transportation demand management needs to be pursued more vigorously having failed until now because of lack of public transport alternatives, and political unwillingness to implement and enforce an effective public transport system.

- The time to act is now. The issues facing South Asian cities represent opportunities for improvement, but the longer authorities wait to address transportation inefficiencies, the more difficult and expensive it will be to produce a positive outcome.

Can the penetration of bus systems be increased in South Asian cities? Can bus systems become a “growth area” in developing cities? The experience of a few Latin American cities suggests that they can, and that the benefits of doing so are substantial. The city of Curitiba in Brazil is an example whose advanced design high-capacity bus system has grown up along with the city over the past three decades, and now carries a high share of all motorized travel.

The success of the bus system in Curitiba has spurred other South American cities, such as Porto Alegre, Bogota and Quito, to develop similar high-capacity systems. Similar initiatives in South Asian city corridors with high traffic volumes is more economical as public transport systems carry a large share of urban travelers but are responsible for only a small part of traffic congestion, energy use and pollution. This is because reasonably full buses are inherently efficient — in terms of both road space and fuel use per passenger kilometer.

In much of the developing world, although buses are favorable on a pollution per passenger basis, they are often highly polluting and noisy. City authorities are just beginning to become aware of new types of efficient, clean and affordable buses that can improve this image and maintain or even increase their share of trips, while improving total mobility. Such a vision can become reality if bus systems are modified to offer better speed, service and convenience than personal vehicles.

Equally important is the provisioning of infrastructure to promoting the commonly used non-motorized transport system used throughout the developing world. For bicycling, providing facilities such as separated paths, and safe parking can help promote

their use. For pedestrians, all cities should have adjacent safe, well-maintained sidewalks. For cycle rickshaws and carts, similar facilities are needed, particularly separated space on roads so they do not have to compete for and disrupt traffic. All non-motorized path and intersection construction and maintenance should be equal in quality to those for motorized vehicles.

The challenge for city authorities is two fold: a) enhance the attractiveness of collective and non-motorized modes, and b) reduce the impact of personal motor vehicles.

To optimize the existing transportation infrastructure, mobility needs must be met efficiently through a greater modal share of public transport. However, unless the quality of public transport services improves substantially, the increasing preference for personal vehicles will continue. Improving buses and bus systems will help increase the bus share of passenger travel in cities around the world.

But unless strong policies to dampen the growth in car travel and, in many places, scooter and motorcycle travel are also applied, the fight for sustainable transport will be a losing battle. Increasing vehicle and fuel taxes, strict land-use controls and limits, and higher fees on parking are important to ensure a sustainable urban transport future. Equally important is integrating transit systems into a broader package of mobility for all types of travelers, for example non-motorized vehicle lanes. Pedestrians and bicyclists are important users of transit, if they can get to it.

Developing pilot demonstration projects in South Asian cities will be helpful in the effort to push forward along the path of the city’s long-range transport strategy. In order to ensure future expansion of rapid, clean public transport services, it is strongly recommended that the following components must be considered to put urban transportation in South Asia on a more sustainable path:

- Dedicated bus corridors, with strong physical separation from other traffic lanes.
- Modern bus stops, bus ticketing, and advanced rider information system —

especially pre-board ticketing and multi-door buses to ensure rapid boarding and alighting.

- Integrated ticketing that allows free transfers across bus companies and modes (bus and rail).
- Differentiated services such as express services, or premium services at higher fares.
- Introducing advanced technology buses, low floor or articulated buses, and alternative fuels and low sulphur diesel.

### ***The challenge for city authorities is to enhance the attractiveness of collective and non-motorized modes, and reduce the impact of personal motor vehicles.***

- Formal co-ordination among operators to create new feeder services to the bus stations/terminals, with opportunities for integrating fares between the modes.
- Develop a new regime for bus licensing, regulation and compensation.
- Strengthening methods of enforcement and evaluation.
- Building a strong network of pedestrian and cycle access to bus and rail stations.
- Renovating areas around bus station to create vibrant, pedestrian-oriented neighbourhoods.
- Land-use reform to encourage higher densities around bus stations.

This paper is prepared based on a research study entitled ‘Energy, environment and mobility in three south Asian cities — making way for public rapid transit: benefits and opportunities’ completed on March 22, 2005, with funding for the study provided by the International START Secretariat, Washington DC, USA.



# Burkina Faso welcomes the OPEC Fund

Director-General tours National Public Health Laboratory



In late November, the Director-General of the OPEC Fund, **Suleiman J Al-Herbish**, led a high-level mission to Burkina Faso in West Africa. In a demanding four-day visit, he met with several Cabinet Ministers, toured a number of project sites, and signed two new loan agreements.

Burkina Faso is one of the Fund's oldest partners. In an association spanning almost three decades, the Fund has extended a cumulative \$142 million in lending to the country to help finance some 30 operations in a wide variety of sectors. As a least developed nation, Burkina Faso is accorded priority status by the Fund, which has worked closely with successive governments over the years to address areas of expressed need.

A landlocked country with a population of almost 14 million, it remains one of Africa's poorest regions, a situation exacerbated by population growth, lack of natural resources and communications infrastructure, droughts, and its essentially subsistence agricultural base (although cotton is exported).

The country's GDP, according to figures from the US Department of State, was \$4.5 billion in 2003, with an annual growth rate of 6.5 per cent.

### Collaboration process

Even though the country receives help from International Monetary Fund debt-relief programmes it still requires help from the Fund with specific ventures.

For the OPEC Fund, country visits, such as the one to Burkina Faso, are an important part of the collaboration process and particularly useful at the policy level for directing the Fund's future engagement. They also provide an opportunity to see, first hand, the impact of the Fund's work on the ground.

One particularly impressive project toured by the Fund delegation was the National Public Health Laboratory (NHPL) in the Burkinabe capital, Ouagadougou. NHPL is one of the country's premier health facilities and was constructed and equipped with Fund co-financing in the late 1990s. A second loan in 2001 supported an expansion initiative for the provision of additional services.

The Fund delegation was privileged to receive a guided tour of the lab by NHPL Director-General, Daouda Traore. NHPL staff explained their work as the delegation visited the different specialized units and witnessed the testing of various foodstuffs, water and drinks.

As the only referral laboratory of its kind in Burkina Faso, NHPL is responsible for executing quality control on all products likely to affect community health, from food, vaccines and medical fluids, to cosmetics and pesticides. It also investigates hygienic conditions in public places, such as restaurants, and helps control agriculture and veterinary-related diseases.

Traore explained that, so far in 2005, the lab had conducted almost 19,000 tests and carried out 225

field inspections in markets and restaurants and at local producers of milk, oil, water and bread. The laboratory was also heavily involved in the battle against cholera, he said, and was working to identify sources of contamination.

Other projects visited during the Fund's mission included an AIDS clinic (see separate story, page 58), the Ziga Dam, the Ouagadougou-Leo-Ghana Border Road and the Ouagadougou University Campus Dormitory Facilities. On each occasion, the Fund delegation was escorted by the responsible minister or project director and briefed thoroughly on the needs that prompted the various projects as well as the related goals and outcomes. The Director-General voiced his appreciation by commenting on "the high level of professionalism and commitment displayed by everyone involved in bringing the projects to fruition."

A further highlight of the mission was the official handover of emergency food rations to the Ministry of Agriculture. In a ceremony conducted jointly by Al-Herbish and WFP Country Director, Ms Annalisa Conte, 300 tonnes of cereals were donated to help relieve food shortages caused by drought and locust invasion. The food aid was provided under a \$1.2m grant approved by the Fund to purchase emergency supplies for affected communities in Mali, Mauritania and Niger, as well as Burkina Faso.

Addressing the assembled onlookers, including Kaboret Ibrahim, Secretary General of the Ministry of Agriculture, Al-Herbish acknowledged the many difficulties confronting farmers in developing countries. "Too often, farmers are at the mercy of nature and other circumstance beyond their control," he said. The OPEC Fund sympathized with these problems and was working to ease hardships wherever possible, he added.

### Continued support

In an end-of-mission communiqué, the Director-General conveyed his thanks to President Compaore and the Government for the warm hospitality extended to the Fund. He concluded by offering his assurance of continued support to the country: "The OPEC Fund anticipates many more years of productive co-operation with Burkina Faso ... the possibilities for future collaboration are wide and varied," he said.



*OPEC Fund Director-General, Suleiman J Al-Herbish, toured the many specialized units of the NHPL, which provides quality control on a wide range of products, including bottled water.*



# Burkina Faso gains ground in fight against HIV/AIDS

Director-General inaugurates AIDS clinic in Burkina Faso

Like much of sub-Saharan Africa, Burkina Faso is fighting disease as well as poverty, in particular cholera, HIV/AIDS and malaria. In the main, it is an uphill battle. In the case of HIV/AIDS, however, small but significant victories are giving fresh momentum to the campaign. Thanks to a high level of political commitment, prevalence rates are showing a marked decline.

Key to this success is the support of bilateral and multilateral partners, of which the OPEC Fund is one.

It was with pleasure, therefore, that Suleiman J Al-Herbish, OPEC Fund Director-General, accepted an invitation to inaugurate an AIDS clinic in the Burkinabe capital, Ouagadougou, during his recent official mission to Burkina Faso.

The new clinic, in the Kossodo district, was financed under a joint OPEC Fund/WHO initiative against AIDS in Africa, one of a series of schemes currently being implemented through the Fund's HIV/AIDS Special Grant Account. A Fund donation of \$567,000 made it possible to extend and rehabilitate the existing premises and financed the purchase of equipment and medicines as well as training.

## Aids in Sub-Saharan Africa

Local people turned out in force to witness the opening ceremony, which was performed by Suleiman Al-Herbish in the presence of Joseph Tiendrebeogo, Permanent Secretary of the National Council to Fight AIDS, together with other government officials and representatives of WHO.

After unveiling the inauguration plaque, Al-Herbish paid tribute to the government's commitment to controlling the spread of HIV/AIDS. It was largely due to the government's early response, he noted, that prevalence had been contained at just 2.3 per cent, a level well below the sub-Saharan average of 7.4 per cent.

In sub-Saharan Africa (a region which encompasses over ten per cent of the world's population) at the end of 2003 there were almost 25 million people (adults and

children) living with an HIV/AIDS, with over 2m dying from the disease that year.

At the end of 2005, the estimate of the number of people (adults and children) in the region with the HIV/AIDS virus was almost 30m, with over 3m new infections taking place in 2005 alone. Moreover, many sub-Saharan nations are seeing the AIDS/HIV virus develop as a general epidemic, affecting all sections of society with equal vigour.

The Director-General reiterated the Fund's pledge to fight AIDS, which he described as one of the greatest constraints to development. "The tendency of the disease to strike young men and women in their prime productive years is robbing society of key citizens," he said. "With reduced human capacity, the affected countries' prospects for increased growth and prosperity are grim indeed."

Following a guided tour of the premises, the Director-General praised the dedication of its staff for "striving to treat not only the physical side of HIV/AIDS but also its psychological impact," and conveyed his best wishes to the National Council for success with its work.

The new centre will provide an integrated range of HIV/AIDS-related services, from consultation and counselling to screening and outpatient care. A central focus is the testing of pregnant women to prevent mother to child transmission. Although small in size, the centre is expected to make an important contribution to the government's 2006–2010 national strategic plan to fight AIDS, which seeks to consolidate progress made to date, reduce the spread of the disease, and facilitate access to care and anti-retroviral drug treatment.

The reasons behind the growth in HIV/AIDS sufferers are complex and long-standing, but poverty (leading to instability and lack of economic infrastructure) is a principal cause. Placing Burkino Faso within a regional context, its HIV/AIDS prevalence rate of 2.3 per cent is below that of Togo at 4.1 per cent, but above that of Mali (1.9 per cent) and Niger (1.2 per cent).

AP Photo

## President Compaore receives Fund Director-General



*The Fund's Director-General chats with locals during his visit to Burkina Faso.*

## The Ziga Dam

Lies 40 kilometers from the capital Ouagadougou, and is still one of the largest projects ever attempted in Burkina Faso. When completed (scheduled for September 2006) it will provide drinking water to almost 800,000 Ouagadougou and outer region inhabitants. The project includes the building of a 200 million cubic meter dam, eight reservoirs, and a nearby treatment station.



The Fund's four-day mission to Burkina Faso concluded with a courtesy call on President Blaise Compaore, to provide a briefing on the visit and discuss strategies for future collaboration. The meeting followed talks earlier in the day with Prime Minister Ernest Yonli.

The Director-General informed Compaore about the role and work of the OPEC Fund and conveyed his satisfaction with the institution's "decades-long co-operation with Burkina Faso." Suleiman Al-Herbish said it had been instructive and pleasing to visit Fund-sponsored projects in and around Ouagadougou. "We have been greatly impressed with the standard of implementation and with the level of professionalism



and commitment among all involved," he said. The Director-General assured the President that Burkina Faso and its needs would remain at the very top of the Fund's priorities.

President Compaore expressed his gratitude to the Fund for its many contributions to Burkina Faso's development efforts, describing the institution as a "valued partner." Referring to possibilities for future co-operation, the President highlighted the Government's desire to pursue development of the private sector and suggested several areas of potential collaboration. He also congratulated the Fund on its forthcoming 30<sup>th</sup> Anniversary.

The meeting concluded with both President Compaore and Al-Herbish agreeing that the Fund's visit to Burkina Faso had been a resounding success.

## *Sheikh Jaber Al-Ahmad Al-Jaber Al-Sabah*

**1926 — 2006**

As this issue of the OPEC Bulletin was being compiled, it was announced that Sheikh Jaber Al-Ahmad Al-Jaber Al-Sabah, the respected 13<sup>th</sup> Emir of Kuwait, had died. Our condolences go to his family and the people of Kuwait. A 40-day period of mourning for Kuwait was announced upon news of the death.

Sheikh Jaber ruled with decisiveness through nearly three decades, and ensured Kuwait's continued independence and infrastructure and societal modernization.

For example, in May 2005 the Emir finally pushed through legislation giving women in Kuwait the vote, and UN Secretary-General, Kofi Annan, praised him for his moves towards political freedom and greater social justice.

Sheikh Jaber entered public life in 1949, and by the late 1950s had already helped create Kuwait's own Kuwait National Petroleum Company in an attempt to give the country more control over its energy reserves. He became Crown Prince in 1966.

Demonstrating a considerable flair for organization and forward thinking, he also helped establish the Kuwait



AP Photo

Fund for Economic Development, the country's first international aid group, followed by the 1976 creation of the Fund for Future Generations, into which ten per cent of Kuwait's oil revenues are transferred to act as a national safety net when oil reserves are eventually diminished.

For many, Sheikh Jaber is seen as the leader who maintained Kuwait's national unity through many conflicts and disturbances via the subtle use of diplomacy, as well as establishing the standards of public probity that remain in evidence today.

Sheikh Jaber had been seriously ill for several years, and suffered a brain haemorrhage in 2001 which limited his capacity to rule.

Sheikh Jaber was succeeded by Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah as the 15<sup>th</sup> Emir of Kuwait and was officially sworn in on Sunday, January 29, 2006.

## *Sheikh Maktoum bin Rashid Al-Maktoum*

**1944 — 2006**

It is with great sadness that the OPEC Bulletin reports the passing of Sheikh Maktoum bin Rashid Al-Maktoum, the Vice President and Prime Minister of the United Arab Emirates, and Emir of Dubai.

Sheikh Maktoum served as prime minister for almost eight years between December 1971 and April 1979, at which point he was superseded by his father, Sheikh Rashid bin Saeed Al-Maktoum. He returned to leadership upon his father's death in October 1990.

He was acclaimed as the brain behind the development of the modern day Dubai. He was laid to rest at the Umm Hurair Cemetery in Bur Dubai, the same location as his father.

Dubai has seen many changes in the last ten years, including the expansion of Dubai International Airport, the establishment of an organization to oversee industrial development, the streamlining of government procedures, the opening of the Dubai Internet City, the launch of the Dubai Ideas Oasis (a centre for innovation), the establishment of the Dubai IT Academy, and the setting up of the Dubai Executive Council, a body whose main role is to formulate future plans for the emirate.

A 40-day official mourning period was announced during which flags flew at half-mast following news of the Sheikh's death in Australia.

King Abdullah, the Custodian of the Two Holy Mosques, and Crown Prince Sultan, sent messages of condolence to UAE President Sheikh Khalifa bin Zayed Al-Nahayan and Sheikh Mohammed Al-Maktoum upon news of the death.

"The country has lost a historic leader who devoted all his life to establishing the UAE and enhancing its



Reuters

structure and the welfare of its people," said President Khalifa. "He was an example of sincere commitment placing the country's interest over any other considerations. His constructive role in leading the UAE to success will be etched in the memory of the nation."

A statement from the UAE's presidency said Sheikh Maktoum devoted his life to restructuring the UAE via the well managed but spectacular growth of Dubai.

Educated in England, his good manners, consideration for Muslim and Arab concerns, kindness towards people, and love of horse racing were well known. He was part owner of Dubai's Godolphin racing stables and owned many thoroughbreds, including a stake in Jeune, a 1994 Melbourne Cup winner. Despite this interest, he often liked to maintain a low profile while in government.

Crown Prince Sheikh Mohammed bin Rashid Al-Maktoum, defense minister of UAE for over 25 years, has taken over as the ruler of Dubai. He has been heir apparent to the throne of Dubai since 1995.

This section includes the OPEC Monthly Oil Market Report (MOMR) for February published by the Research Division of the Secretariat, containing up-to-date analysis, additional information, graphs and tables. The publication may be downloaded in PDF format from our Web site ([www.opec.org](http://www.opec.org)), provided OPEC is credited as the source for any usage.

## Crude oil price movements

### OPEC Reference Basket<sup>1</sup>

The Basket escalated in January to record highs after slipping in late December on warmer weather in North America. The year started strong following the disruption of Russian natural gas supplies to Europe. The Basket surged over seven per cent in the first week to close \$3.68 higher at \$55.51/b. Despite warmer weather in the Western hemisphere, rising tensions in the geopolitical arena in the Middle East amid a supply disruption from West Africa revived market bullishness into the second week.

The forecast for warmer weather amid a healthy rise in distillate stocks in the USA and weak refining margins in Europe prevented prices from rallying further. The Basket closed \$1.62 higher for a rally of nearly three per cent to settle at \$57.13/b. The third week continued on the same ongoing concern over possible supply disruptions from the Middle East with the stride capped by the forecast of warmer weather in the Northern hemisphere amid a widened sweet/sour spread, continued weak refining margins, and bearish US petroleum data. The

Basket closed the third week at \$58.43/b for a gain of \$1.30, or more than two per cent higher (see **Table A**).

The rally sustained into the fourth week in January on escalating tensions in the Middle Eastern geopolitical arena at a time when extremely cold weather also trimmed Russian oil production for the second week amid continued production losses from Nigeria. In the fourth week, the Basket was up \$1.69 or 2.8 per cent to settle at \$60.12/b. In the final days of January, the market was inspired by the cold snap across Europe amid ongoing tensions in the Middle East. However, assurances from OPEC Member Countries to keep the supply flow steady along with low seasonal demand as US refineries enter the heavy maintenance season after last September's hurricanes, prevented the market from a further surge.

On a monthly basis, the above events helped the Basket to surge by \$5.64 or nearly 11 per cent to settle at \$58.29/b in January, the largest rise since March last year, yet similar to the previous January's rise of nearly 13 per cent to \$40.24/b. In the first decade in February, the Basket retreated from a late January peak of over \$60/b to average \$58.71/b on easing tensions in the geopolitical arena and ample supply.

### US market

The cash crude market in the USA rose on concern over possible supply disruptions from the Middle East amid actual supply losses of light sweet Nigerian crude. Although the weekly US petroleum data revealed a comfortable winter fuel supply amid a forecast for warmer weather, fear of a supply shortfall sent crude oil prices to peak once again well over the \$60/b level. In the first week in January, West Texas Intermediate's (WTI) weekly average stood some six per cent higher at \$62.58/b. The WTI/West Texas sour (WTS) spread narrowed by 48¢ to \$4.99/b on fear of lower light sweet crude supply. The sentiment continued into the second week as WTI's average surged \$1.17 or nearly two per cent to settle at \$63.75/b.

The WTI/WTS spread widened by 48¢ to \$5.47/b. In the third week, escalating tensions in the Middle East along with the halt of some production out of Nigeria sent alertness in the US cash crude market. WTI cash crude surged \$1.62 or 2.5 per cent higher to settle at \$65.37/b with the WTI/WTS spread widening to \$6.04/b. Closed transatlantic arbitrage opportunities continued to support the light sweet market in the USA amid tight supplies. The WTI/WTS spread widened 36¢ to \$6.40/b as WTI crude

1. An average of Saharan Blend (Algeria), Minas (Indonesia), Iran Heavy (IR Iran), Basra Light (Iraq), Es Sider (SP Libyan AJ), Bonny Light (Nigeria), Qatar Marine (Qatar), Arab Light (Saudi Arabia), Murban (United Arab Emirates) and BCF-17 (Bachaquero, Venezuela).

settled in the fourth week at \$66.93/b for a gain of 2.4 per cent or \$1.56. Despite assurance that OPEC would keep supply flowing at a steady level, and the forecast for warm weather in the northern hemisphere during January amid rising underground natural gas storage, market jitteriness continued in the geopolitical arena, adding to the fear premium. The WTI/WTS spread widened in January to \$6.26 or nearly \$1/b on fear of light sweet crude supply. WTI's monthly average was at \$65.22/b for a gain of \$5.85 or nearly ten per cent.

### European market

The North Sea benchmark Brent/Forties/Oseberg (BFO) differentials emerged in the New Year on a firmer note amid healthier refining margins as traders began snapping remaining January cargoes. Falling freight rates also added to the bullish market sentiment in the first week. However, some cargoes remained unsold into the second week. Moreover, plentiful stocks made refiners hesitant to procure further barrels, although improved transatlantic arbitrage kept a cap on falling differentials.

The weak sentiment continued in the third week on remaining January cargoes. Moreover, mild weather in the USA discouraged arbitrage barrels across the Atlantic. In the fourth week, the drop in the North Sea differentials opened arbitrage opportunities. In the final days of the month, differentials firmed on a cold snap across Europe amid disrupted Russian supplies due to the cold weather. Dated Brent rose in January well over ten per cent or \$6 over December to settle at \$62.95/b.

Poor refining margins saw a weaker market in the Mediterranean. Lingering January cargoes added to the burden by keeping differentials under Brent at a wide level with the first weekly average at a discount of \$4.22/b. Nevertheless, cheap Urals attracted some buying interest amid delays for a round-trip voyage into the Black Sea. However, concern over the delay made the grade less attractive amid continued thin refining margins. In the second week, Urals averaged \$4.02/b below Brent. The narrowing differential was due to the attractiveness to move barrels out of the region as a

**Table A: Monthly average spot quotations for OPEC's Reference Basket and selected crudes including differentials**

	Dec 05	Jan 06	2004	2005	\$/b
<b>OPEC Reference Basket</b>	<b>52.65</b>	<b>58.29</b>	<b>40.24</b>	<b>58.29</b>	
Arab Light <sup>1</sup>	52.84	58.22	38.26	58.22	
Basrah Light	49.15	55.35	38.58	55.35	
BCF-17	42.34	47.85	na	47.85	
Bonny Light <sup>1</sup>	57.91	63.80	44.01	63.80	
Es Sider	57.14	61.51	41.75	61.51	
Iran Heavy	50.88	56.89	37.51	56.89	
Kuwait Export	50.83	56.35	38.55	56.35	
Marine	54.72	59.72	38.44	59.72	
Minas <sup>1</sup>	54.43	63.04	42.55	63.04	
Murban	57.47	62.58	42.08	62.58	
Saharan Blend <sup>1</sup>	57.65	63.82	44.39	63.82	
<b>Other crudes</b>					
Dubai <sup>1</sup>	53.22	58.43	37.78	58.43	
Isthmus <sup>1</sup>	52.77	58.31	38.89	58.31	
Tia Juana Light <sup>1</sup>	49.23	54.06	35.75	54.06	
Brent	57.02	62.86	44.01	62.86	
West Texas Intermediate	59.36	65.19	46.64	65.19	
<b>Differentials</b>					
WTI/Brent	2.34	2.32	2.63	2.32	
Brent/Dubai	3.80	4.44	6.23	4.44	

*Note: As of the third week of June 2005, the price is calculated according to the current Basket methodology that came into effect as of June 16, 2005. BCF-17 data available as of March 1, 2005.*

*1. Old Basket components: Arab Light, Bonny Light, Dubai, Isthmus, Minas, Saharan Blend and T J Light.  
na = not available*

*Source: Platt's, direct communication and Secretariat's assessments.*

batch of late January cargoes began to move. The third week saw a firmer spread as cargoes began moving west.

The spread narrowed to \$3.07/b below Dated Brent. Bad weather disrupting supply boosted market sentiment for Urals differentials to improve into the fourth week with the Brent/Urals spread at \$2.82/b. In the final days of the month, Urals was under pressure by weak refining margins and constant shipping delays which disrupted logistics plans and prompted refiners to stick to alternative grades. Urals averaged the last three days in January at \$3.50/b below Dated Brent.

### Far East market

The Middle Eastern crude emerged on a healthy note on rising demand from Asia especially for middle-distillate grades with March Oman trading at a slight premium to parity. The sentiment was split in the second week.

While the sour grade was under pressure due to weaker fuel oil, March Oman traded at a 5¢ discount to the official selling price (OSP). Abu Dhabi Murban was on offer at an 8¢ premium compared to a 25¢ premium for February loading. Waning demand for kerosene-rich crude also pressured the market amid high outright prices due to tensions in the geopolitical arena. Nonetheless, fuel oil prices improved in the third week on emerging demand and recovering refining margins which supported the Middle Eastern crude. March Oman was trading at stronger levels of a 15-18¢ premium to MOG. In the fourth week, the Mideast sour crude saw a double digit premium following a Chinese buying spree ahead of the New Lunar Year in Asia. In contrast, Murban was selling at a discount amid additional supply in April. A reselling of Oman by Chinese traders pressured the grade to sell from a lower premium of 3¢ to a discount of 3¢/b to the MOG.

## Asian market

The market in Asia appeared strong as February cargoes cleared rapidly at strong premiums. Demand remained healthy for both heavy and medium to heavy sweet grades. Malaysia's Petronas was selling February Luban at a nearly two-year high premium of \$2.65/b. In the second week, falling freight rates amid the flow of some West African crude prevented the premium from rising further. The first cyclone in Western Australia, which forced producers to shut in production, helped to keep the bullish momentum intact. Moreover, strong buying from Indonesia supported the market. In the third week, the prolonged closure of the Australian Cossack oil field along with delays on the Mutineer-Exeter, Griffin and Legendre fields as well as the disruption in Nigerian crude output boosted sweet grades to firm further with their strong differentials as Malaysian grades continued to trade at strong premiums. March Luban traded at a stronger premium of \$3.07/b to Tapis Asian Petroleum price Index (APPI). Furthermore, despite the weak naphtha cracking spread, increased demand from Asian electricity producers for thermal power generation helped to balance the market.

## Product markets and refinery operations

Unseasonably warm weather in the USA and its adverse effect on distillate demand have overshadowed the bullish impacts of a cold

**Demand for all products other than middle distillates is slow and it seems that it will not support crude prices in the short term.**

**Table B: Selected refined product prices**

		Nov 05	Dec 05	Jan 06	\$/b Change Jan/Dec
<b>US Gulf (cargoes)</b>					
Naphtha		59.84	64.51	69.29	4.78
Premium gasoline	(unleaded 93)	64.38	71.30	76.63	5.33
Regular gasoline	(unleaded 87)	61.02	66.03	72.01	5.98
Jet/kerosene		71.23	72.93	76.62	3.69
Gasoil	(0.05% S)	71.14	72.57	75.30	2.73
Fuel oil	(1.0% S)	52.99	50.51	49.00	-1.51
Fuel oil	(3.0% S)	38.42	41.12	46.01	4.89
<b>Rotterdam (barges fob)</b>					
Naphtha		62.65	65.20	73.50	8.30
Premium gasoline	(unleaded 50 ppm)	67.03	68.24	76.37	8.13
Premium gasoline	(unleaded 95)	60.02	61.04	68.13	7.09
Jet/kerosene		69.50	70.00	76.16	6.16
Gasoil/diesel	(50 ppm)	71.05	69.25	73.79	4.54
Fuel oil	(1.0% S)	42.01	41.75	45.19	3.44
Fuel oil	(3.5% S)	37.50	37.54	42.21	4.67
<b>Mediterranean (cargoes)</b>					
Naphtha		51.20	53.71	59.23	5.52
Premium gasoline	(50 ppm)	64.69	67.95	75.71	7.76
Jet/kerosene		67.90	68.15	73.64	5.49
Gasoil/diesel	(50 ppm)	69.80	70.64	74.58	3.94
Fuel oil	(1.0% S)	41.91	43.53	47.98	4.45
Fuel oil	(3.5% S)	35.57	35.02	39.62	4.60
<b>Singapore (cargoes)</b>					
Naphtha		53.19	53.77	58.26	4.49
Premium gasoline	(unleaded 95)	60.87	61.01	66.78	5.77
Regular gasoline	(unleaded 92)	59.48	59.89	65.42	5.53
Jet/kerosene		64.78	70.37	77.02	6.65
Gasoil/diesel	(50 ppm)	66.50	69.10	77.61	8.51
Fuel oil	(180 cst 2.0% S)	43.80	43.68	46.72	3.04
Fuel oil	(380 cst 3.5% S)	42.91	42.48	45.33	2.85

snap in Europe and Asia and capped the surge in product prices in those areas. This situation, along with higher crude oil prices due to rising geopolitical tensions in the market, has exerted pressure on refinery margins particularly in the USA (see **Table B**).

Refinery margins for the WTI benchmark in the US Gulf Coast fell by 12¢/b in January compared to the previous month. In the same month, despite the cold weather and huge draws on distillate stocks in Japan and South Korea, refinery margins for the Dubai benchmark in Singapore rose by just 39¢ to \$2.93/b. Similarly, the European refinery margins rebounded sharply and reached 67¢/b from -33¢/b last

month. Looking ahead, middle distillate and gasoline stocks are at comfortable levels. Stocks for these products are expected to recover in Asia as freezing weather in the north-east has dissipated. Additionally, demand for all products other than middle distillates is slow and it seems that it will not support crude prices in the short term. However, tighter product specifications and heavy refinery maintenance in the USA and Asia could switch the product market sentiment to bullish and lift crude and product prices.

Lower refinery margins in Europe have forced refiners to reduce their throughput in January. The refinery utilization rate in Europe declined by 4.7 per cent to 86.9 per cent in

**Table C: Refinery operations in selected OECD countries**

	Refinery throughput m b/d				Refinery utilization per cent			
	Nov 05	Dec 05	Jan 06	Jan/Dec	Nov 05	Dec 05	Jan 06	Jan/Dec
USA	14.70	14.86	14.55	-0.31	87.6	88.6	84.9	-3.70
France	1.83	1.79	1.73	-0.06	93.5	91.7	87.4	-4.30
Germany	2.34	2.36 <sup>R</sup>	2.19	-0.17	100.6 <sup>R</sup>	101.4 <sup>R</sup>	90.2	-11.20
Italy	1.95	1.92	1.88	-0.04	83.9	82.7	81.1	-1.60
UK	1.61	1.60	1.63	0.03	88.0	87.7	86.6	-1.10
Eur-16	12.70 <sup>R</sup>	12.67 <sup>R</sup>	12.28	-0.39	91.5 <sup>R</sup>	91.3 <sup>R</sup>	86.9	-4.40
Japan	4.21	4.42	4.40	-0.02	89.4	94.1	96.0	1.90

Sources: OPEC statistics, Argus, Euroilstock Inventory Report/IEA.

*R* Revised since last issue.

January from 91.6 per cent in the previous month. The same trend was followed by US refiners but at a slower pace. In the USA, the refinery utilization rate dropped to 84.9 per cent from 88.6 per cent in December 2005. Despite the slide in refinery utilization rates in Europe, Japanese rates extended their upward movement rising to 96 per cent from 94.1 per cent last month (see **Table C**).

#### US market

Over the last three months, crude, gas and product markets were mainly driven by low distillate stocks and the expectation of colder-than-normal weather in the USA. In the last couple of weeks, unseasonably warm weather in the north-east of the USA and its impact on gas and middle distillate stocks changed market players' perception significantly. As a result, they squared out their long position in the products futures market, which, in turn, exerted pressure on product prices. The crack spread of gasoil against the WTI benchmark in the US Gulf dropped from \$13.44/b in early January to \$9.83/b late in the same month. A similar trend was followed by jet/kero. In the middle of last month, some of the market players shifted their attention to the gasoline market developments, but gasoline stock-builds in the last two weeks have weakened gasoline's physical and futures prices and narrowed the crack spread of gasoline versus WTI crude. Despite these bearish developments, most market analysts are still optimistic about the turn of market sentiment due to the heavy refinery

maintenance schedule in the next two to three months and the phasing out of methyl tertiary-butyl ether (MTBE) reformulated gasoline, which may have an adverse impact on gasoline supply. Furthermore, higher-than-normal winter temperatures have also further deteriorated the low-sulphur fuel oil discount against WTI crude oil, and it has dropped to minus \$17.30/b from minus \$14/b in the latter part of December.

#### European market

Following the freezing weather, slowing gas and fuel oil supply from Russia and lower middle distillate arbitrage cargoes from the Middle East, many market players had expected European product prices to surge significantly in January. The bearish developments in the US market have undermined the European product market. Gasoline prices rose in mid-January because of higher exports to the USA, but they declined later and reduced the gasoline crack spread to \$11.8/b from \$14.30/b in early January. In the same month, naphtha was the weakest product category due to sluggish demand from the petrochemical industry.

Middle distillate prices, which were lifted by a cold snap, failed to consolidate themselves, and the recent sliding of gasoil prices was mainly attributed to bearish developments in the US distillate stocks and falling futures markets. Despite the weakness in gasoil, the jet fuel market looks promising due to refinery maintenance and fear of a supply shortage in the next months. The crack spread of jet/kero against the Brent benchmark is still above \$13/b.

As far as the fuel oil market is concerned, low-sulphur fuel oil was supported by European utility company's demand, which switched to fuel oil from gas due to a cut in Russian natural gas supply. High-sulphur fuel oil was also supported by reduced former Soviet Union (FSU) exports via Baltic and Black Sea ports due to higher domestic demand in Russia and other FSU states amid sub-zero temperatures there.

**Despite the weakness in gasoil, the jet fuel market looks promising due to refinery maintenance and fear of a supply shortage**

#### Asian market

The Asian product market lost its strength in the latter part of January as the freezing weather in north-east Asia dissipated and arbitrage opportunity to the west remained closed. In that month, due to ample supply from India and the Middle East as well as the unplanned shut-down of ethylene units in Taiwan and Korea, the naphtha crack spread against the Dubai benchmark fell into negative territory. The crack spread might be able to recover in the short term, and as arbitrage cargoes

returning from the west deteriorated the bearish outlook further. Similarly, the seasonal fall in gasoline demand eroded the gasoline crack spread versus Dubai crude oil in January. The gasoline crack spread slipped from \$9.39/b in early January to \$4.54/b in early February. Due to reduced Chinese exports and unplanned refinery shut-downs, the Asian gasoline market sentiment may improve in the next months. The middle of the barrel complex prices, which were lifted by cold weather in north-east Asia, and a draw on kerosene stocks in Japan, have lost their strength recently. This situation could weaken further, especially for gasoil, as Pertamina slashed its diesel import for February by half to parity 3 million barrels (m b) and has not yet announced its import plans for March.

With regard to the bottom of the barrel component, high demand by Japanese utility plants helped low-sulphur waxy residue prices, but due to an inflow of more than 2.5 million tonnes of Western cargoes, high-sulphur fuel oil is under pressure, and its crack spread versus the Dubai crude dropped to minus \$11.5/b. Heavy refinery maintenance in Asia may provide support in the second quarter.

## The oil futures market

The crude oil futures contract closed the final days of last year on a bullish note. Concern over possible supply disruptions from Nigeria along with outages of natural gas supply from Russia into some parts of Europe supported the bullish market sentiment.

**Concern in the geopolitical arena amid supply disruptions from Nigeria and cold weather halting some Russian exports narrowed the contango.**

Hence, the Nymex WTI front-month closed the first weekly period at \$63.14/b for a gain of 8.5 per cent. The Commodity Futures Trading Commission (CFTC) reported that non-commercials boosted long positions by a hefty 11,200 lots to narrow the net short positions to 14,400 lots from the 24,400 the week before, with the open interest building up by a healthy 31,000 lots.

The bullishness continued into the second week on rising tensions in the Mideast geopolitical arena amid a supply drop from Nigeria and continuing draws on crude oil stocks in the USA. The Nymex prompt futures contract closed the second weekly period at \$63.37/b for a marginal gain of 23¢. Nonetheless, the CFTC's second weekly period reported that non-commercial funds have increased longs by another significant volume of 13,000 lots, narrowing the net short gap to over 700 contracts amid a hefty rise in open interest which was inflated by a considerable 43,000 lots.

In the third weekly period, Nymex WTI front-month contracts soared to close at \$66.31/b on rising tensions in the geopolitical arena and continued draws on crude oil stocks. However, fund-sell offs for profit-taking inspired by the forecast for mild US weather kept some balance in the futures market. The CFTC report showed non-commercials widened net-shorts by a marginal 950 to over 1,600 lots. Open interest was inflated by 16,600 lots to nearly 910,000 contracts.

The stride continued into the fourth week on rising tensions in the Middle East which made the Nymex WTI futures contracts surge to \$67.06/b on unseasonably warm weather in most parts of the USA amid a hefty one-day drop in natural gas futures of nearly eight per cent. However, the CFTC reported that non-commercial contracts increased long positions while reducing shorts to flip into net long for the first time since September. Open interest edged insignificantly lower to 908,000 lots.

In the final weekly period, the Nymex WTI front-month surged 86¢ to close the last day in January at \$67.92/b. The perception that OPEC would keep supply flowing at 25-year high levels, amid bearish US weekly data, balanced the upward trend inspired by tensions in the geopolit-

ical arena amid rising fear of supply disruptions from the Middle East and West Africa. The CFTC reported that non-commercials moved deeper into net longs reaching nearly 20,000 lots on a moderate rise in the long and a significant drop in the short positions. Open interest climbed further to reach 950,000 after a gain of nearly 43,000 lots.

In January 2006, concern in the geopolitical arena amid supply disruptions from Nigeria and cold weather halting some Russian exports narrowed the contango. The 1<sup>st</sup>/2<sup>nd</sup> month average in January 2006 narrowed by 14¢ to 65¢/b with the later months narrowing further. The 1<sup>st</sup>/6<sup>th</sup>, 12<sup>th</sup> and 18<sup>th</sup> month average slipped by 29¢, 56¢, and 77¢/b, despite healthy crude oil stocks in the USA at a weekly average of 320m b, or some 27m b over January 2005. Moreover, the contango remained as US refineries scheduled heavy maintenance in the second quarter which had been delayed to boost supplies to ease disruptions caused by the devastating hurricanes.

## The tanker market

After falling for the second consecutive month to hit a 24-month low in December, OPEC spot fixtures picked up sharply in the third week of January to touch a three-year high. Reported OPEC spot fixtures increased from an average of 12m b/d in the first half to more than 22m b/d in the second, resulting in a monthly average of 17.5m b/d, almost 6m b/d or 52 per cent higher than the previous month. The significant jump in OPEC spot fixtures in the third week contributed largely to the tightness of the tanker market. Almost 80 per cent or 4.6m b/d of the growth in OPEC spot fixtures was driven by the Middle East with eastbound leading the growth with 3.3m b/d to average 7.2m b/d and westbound doubling to 2.6m b/d. The surge in eastbound fixtures is attributed essentially to Japan, which experienced a severe winter, and to increasing purchases from China.

Consequently, OPEC's share of global spot fixtures moved from 60 per cent in November-December to 72 per cent in January. In contrast,

non-OPEC spot fixtures showed a decline of 700,000 b/d or nine per cent to stand at nearly 6.9m b/d, the lowest level in the last two years. Following the significant spike in the OPEC area, global OPEC and non-OPEC spot fixtures increased by 5.3m b/d or 28 per cent to average 24.5m b/d, the highest level since March 2005. Preliminary estimates show that sailings from the OPEC area increased by 1.1m b/d or five per cent to 24.16m b/d with the Middle East accounting for 17.9m b/d, which corresponds to a growth of 400,000 b/d or two per cent over the previous month. Compared to the corresponding month of last year, sailings from the Middle East were unchanged. Arrivals in the US Gulf and US East Coasts and the Caribbean as well as in North-West Europe inched up by 300,000 b/d or three per cent to average 10.9m b/d and 8.2m b/d, respectively. However, arrivals at the Euro-Mediterranean region and Japan continued to fall for the second consecutive month to stand at around 4m b/d each, which corresponds to a drop of 400,000 b/d and 200,000 b/d, respectively. In the case of North-West Europe, the size of the decline was almost equivalent to the increase of the previous month.

The tanker market weakened significantly in the first half of the month due to negligible activity since many charterers were still out of the market after the New Year holidays. As a result, there was a plentiful supply, with the 30-day availability of very large crude carriers (VLCCs) in the Middle East reaching 85 units in the first two weeks. Freight rates for cargoes moving from the Middle East plummeted to Worldscale 90s for eastbound and westbound long-haul voyages. Nevertheless, an exceptionally active market in the third week saw freight rates surge, especially for tankers moving from the Middle East to the east, to double by the end of the month from the four-month low hit on January 12, following a brisk surge in bookings before the Chinese New Year as charterers began to cover early February stems.

Westbound VLCC freight rates also improved but at a lower pace compared to eastbound. On a monthly basis, VLCC rates on both routes averaged W132 and W98, respectively, which

corresponds to a drop of 25 and 28 points compared to December 2005 levels. The fall in the VLCC sector led to reduced profits of Suezmax and Aframax owners, with Suezmax rates following the same movement and declining by 30 per cent to stand at W170 for tankers trading between West Africa and the US Gulf Coast and W164 for transatlantic cargoes. Contrary to VLCCs, Suezmax rates began to firm almost one week later as many charterers started to switch to Suezmax due to the high rates for VLCCs. However, despite the drop in the VLCC and Suezmax sector, freight rates remained higher than the January 2005 levels, especially in the VLCCs which rose 86 per cent on the Middle East/eastbound route and 40 per cent on the Middle East/westbound route.

Similarly, the Aframax sector softened with rates losing 34 per cent in the Mediterranean Basin and from there to North-West Europe to average W187 and W184, respectively, as Bosphorus Strait delays began to ease. Due to limited activity, the Caribbean and Indonesia/US West Coast routes saw rates slide by nearly 80 and 28 points to hit W271 and W242, respectively. In contrast to the VLCC and Suezmax sectors, the sharp decline in Aframax rates made January 2006 averages lower than those of the previous year, except for the Indonesia/US East Coast route.

Contrary to crude oil, the tanker market for products was very active with rates supported by cold winter weather rebounding in January 2006. Rates for cargoes of 30,000–50,000 dwt on the Middle East/east route increased by 26 points to average W363, while on the Singapore/east route, rates gained three points to reach an all-time high of W394, driven by high demand, especially from Japan, which experienced very low temperatures. The strong demand for electricity substantially increased fuel oil demand in Asia-Pacific and led to a growth in imports following a severe winter in north-east Asia. Tankers moving from the Caribbean and North-West Europe to the USA enjoyed gains of 67 and 24 points, respectively, to average W375 and W336, thanks to strong imports from the USA, especially for distillates, which reached a five-year record of 700,000 b/d. The highest

increase in freight rates was displayed across the Mediterranean and from there to North-West Europe on the back of the tightness in tonnage supply as a result of high demand in combination with bad weather in the Baltic and delays in the Bosphorus Strait. Rates on both routes increased by around 100 points to hit all-time high averages of W410 and W420, respectively. Compared to January 2005, freight rates for products were higher, except for tankers trading between North-West Europe and US East and Gulf Coasts.

**The tanker market for products was very active with rates supported by cold winter weather rebounding in January.**

## World oil demand

### Estimate for 2005

World oil demand growth in 2005 has been revised down by 100,000 b/d to just below 1m b/d, due to the release of data showing lower fourth-quarter figures for many regions, which reveal weaker growth at the end of the year. This represents a 1.2 per cent y-o-y rise and a yearly average of 83.1m b/d. As mentioned before, the source of the revision can be almost entirely traced back to the lower demand figures of the last quarter of last year when revisions to OECD as well as non-OECD regions resulted in a sizeable 600,000 b/d downward correction that wiped off all growth for the quarter. On a regional basis, demand estimates for OECD North America and Western Europe were lowered by approximately 200,000 b/d each, while for non-OECD Asia, the Middle East and China demand estimates were revised down by approximately 200,000 b/d, 100,000 b/d and 100,000 b/d, respectively.

According to the latest inventory report by the EIA, total petroleum deliveries to the USA fell by 60,000 b/d, or 0.3 per cent, during 2005. Even though there was a marked drop in product deliveries in the months following Hurricanes Katrina and Rita, weak demand was already present in the first half of the year as product supplies contracted during February, April, May and July showing below-average growth rates in January and March of last year. The latest data shows that demand recovered in December rising an estimated 1.4 per cent y-o-y; however, very preliminary figures indicate another contraction of 1.2 per cent in January 2006.

If the estimated contraction in US demand for the whole of 2005 materializes, which would account for more than 80 per cent of total North American growth, the region could

## According to the latest inventory report by the EIA, total petroleum deliveries to the USA fell by 60,000 b/d during 2005.

actually show a negative demand growth rate as the increase in Mexico's consumption will be offset by the drop in demand for the USA and Canada. In Western Europe latest figures show a y-o-y drop in demand for the final months of 2005, especially in December, despite the harsh winter temperatures.

With the freezing temperatures, many waterways used for the transportation of petroleum products via barge have been frozen, disrupting the normal flow of supplies and enforcing the use of onsite inventories. Thus, we estimate that demand should pick up in the next months in order to replenish depleted stocks. Oil demand in China estimated from 'apparent demand' for oil – ie production of crude

plus net trade of crude and products, under the assumption of zero stock changes – indicates only a marginal 500,000 b/d y-o-y gain with the latest available data pointing to a contraction during the last three months of 2005. With production levels fairly stable, the meagre rise in Chinese demand last year can be traced back to the trade side. For the first eleven months of 2005, product exports increased, on average nearly 200,000 b/d, while net crude imports showed only a marginal 400,000 b/d increase over 2004.

### OECD

Oil demand in OECD countries was revised down by around 100,000 b/d with respect to the last assessment and is estimated to have grown by 200,000 b/d, or 0.3 per cent, to average 49.7m b/d in 2005. Nonetheless there is an increased chance that the region will experience a contraction in demand for the whole of 2005 as preliminary data on the USA and Western Europe, which is not yet incorporated in this report, indicates a y-o-y contraction.

According to the latest figures, OECD inland deliveries of petroleum products for the period January–November 2005 rose by a slight 20,000 b/d which translates into a y-o-y change of 0.1 per cent and a period average of 45.7m b/d. Not surprisingly, gasoil/diesel requirements rose by 210,000 b/d, or 1.7 per cent, during the 11-month period with a large share of the increase originating in Western Europe followed by North America. Kerosene and naphtha requirements grew by 70,000 b/d or 1.8 per cent and 30,000 b/d or one per cent during the period.

Gasoline requirements showed a surprising decline as the modest rise in North American consumption of 0.6 per cent was offset by the continued and sizeable 4.1 per cent fall in demand in Western Europe. LPG consumption shrank by 200,000 b/d or 4.1 per cent as high gas prices encouraged substitution wherever possible. LPG consumption suffered the biggest relative decline in North America, dropping 5.6 per cent; however, consumption also fell a considerable 4.4 per cent in Western Europe but rose by one per cent in the OECD Pacific.

Residual fuel oil requirements for the period January–November fell by 1.3 per cent as the 4.6 per cent rise in consumption in North America was offset by a 6.4 per cent and 3.1 per cent drop in Western Europe and OECD Pacific.

### Developing countries

Developing countries oil demand is forecast to rise by 700,000 b/d or 3.4 per cent to average 22.1m b/d for the whole of 2005. Developing countries contribution to total world oil demand growth is estimated at approximately three quarters – higher in relative terms than the 34 per cent share in 2004 but lower compared to the nearly 1m b/d growth seen in the group last year. Therefore, it is so essential that the assessment on developing countries captures as much as possible real demand patterns, despite the difficulties posed by the reliability, timeliness and availability of the data.

Preliminary data continues to come in strong for the first half of the year with first-quarter y-o-y growth assessed at 900,000 b/d or 4.3 per cent followed by another 800,000 b/d or 3.7 per cent during the second quarter. Latest third-quarter demand figures, subject to sizeable revisions, show a deceleration in growth to 700,000 b/d or three per cent; however, estimates for the last three months of the year indicate a considerably lower growth of 2.5 per cent as preliminary figures indicate a sizeable lower fourth-quarter demand in Asia and to a lesser extent in the Middle East.

Yet, the lion's share of demand growth in this group will originate in non-OECD Asia and the Middle Eastern countries where consumption is projected to rise by 200,000 b/d or 2.6 per cent and 300,000 b/d or 5.6 per cent, respectively.

In South-East Asia, reductions in subsidies seem to have slashed consumption in several countries, and this might be one of the reasons for the observed drop in demand growth during the third and fourth quarter when consumption rose by only 1.6 per cent and 0.6 per cent y-o-y. Oil demand in Latin America and Africa is projected to increase by around 100,000 b/d each; however, in relative terms demand growth in Latin America is estimated at only

2.2 per cent while in Africa consumption will increase by almost 3.6 per cent.

### Other regions

Other regions total oil demand growth is projected at a mere 80,000 b/d or 0.7 per cent to average 11.3m b/d for the year. Chinese apparent demand growth has been revised down many times in a row and now stands at 30,000 b/d or 0.5 per cent for a yearly average of 6.6m b/d. According to the latest production and trade data, apparent demand in China seems to have fallen marginally. The fall can be traced back to the 5.6 per cent decline in Chinese net imports during 2005. Disaggregating the data into crude and products shows that net petroleum product imports fell by nearly 40 per cent or 200,000 b/d while crude oil imports decreased by only 1.3 per cent y-o-y.

On the other hand, oil production, the other component of the apparent demand equation, shows a growth of 4.2 per cent, rising by 150,000 b/d to 3.63m b/d. FSU's apparent demand has been revised up slightly for the fourth quarter following declines of 0.6 per cent and 3.1 per cent in the second and third quarters that offset a promising 8.1 per cent y-o-y rise during the first quarter of 2005. The upward revision came on the back of the freezing temperatures that boosted demand for electricity generation and the switching to fuel oil as an alternative fuel. Apparent oil demand growth estimate for Other Europe (a group consisting of several Central European states) remains unchanged at 30,000 b/d or 3.5 per cent.

### Forecast for 2006

Average world oil demand is projected to grow by 1.6m b/d or 1.9 per cent to average 84.6m b/d for 2006, marginally lower than the last assessment. Oil consumption is expected to rise in all major regions with the sole exception of Other Europe where demand is expected to contract marginally. North America will contribute the bulk of consumption growth within the OECD countries where demand is projected to rise by 500,000 b/d or slightly less than one per cent to average 50.1m b/d over the entire year. Demand for oil in the North American

region is estimated to rise by 350,000 b/d or 1.4 per cent y-o-y to average 25.8m b/d accounting for more than three-fourths of the total OECD growth. The remaining one-fourth of the growth will originate in Western Europe and OECD Pacific with estimates indicating y-o-y demand growth of 0.4 per cent and 0.5 per cent, respectively.

Developing countries demand – slightly lower than in 2005 but still in line with the trend of the last decade – is projected to grow by 600,000 b/d or 2.9 per cent to average 22.8m b/d. Within developing countries, non-OECD Asia's oil demand growth of 320,000 b/d or 3.8 per cent will account for half of the total growth, with the remaining half shared by Middle East, Latin America and Africa where forecasts show a y-o-y rise of 2.5 per cent, 2.1 per cent and 2.8 per cent, respectively. China's apparent demand growth of 400,000 b/d or six per cent will make up about one-fourth of total world oil demand growth in 2006 and nearly 85 per cent of the projected Other regions' growth of 460,000 b/d.

On a quarterly basis, world oil demand will average 85.4m b/d during the first quarter of 2006 – higher than the preceding quarter (83.9m b/d) as well as the following (2Q06) when demand is projected to see a seasonal drop of more than 1.9m b/d to 83.4m b/d. As for the third quarter of 2006, the forecast calls for a rise of 600,000 b/d with respect to the previous quarter to average 84m b/d. This should be followed by another 1.8m b/d increase in demand in the last quarter of the year with total demand estimated at 85.8m b/d.

## World oil supply

### Non-OPEC

#### Estimate for 2005

Non-OPEC supply in 2005 is expected to average 50.2m b/d, representing an increase of 200,000 b/d over 2004. Baseline revisions to the 2004 and 2005 estimate have resulted in a slight upward adjustment to the overall level of non-OPEC supply.

### Revisions to the 2004/05 estimate

The full year estimate for 2004 has been revised up 70,000 b/d as recent historical data for Malaysia, Argentina, and Oman indicates that baseline oil supply in these countries was slightly higher than previously assessed. For 2005, the level of non-OPEC supply has also been revised up 56,000 b/d due to the impact of historical revisions as well as actual data for some countries for 3Q05 and 4Q05. Upward revisions in Brazil, Colombia, Ecuador, Cuba, Suriname, Oman, and Kazakhstan have been partially offset by downward revisions in the USA, Norway, Denmark, Australia, and Malaysia. The first, second, and third quarters of 2005 have been revised up by 77,000, 75,000, and 97,000 b/d, respectively, whilst the fourth quarter has been revised down 25,000 b/d.

### Forecast for 2006

Non-OPEC oil supply in 2006 is expected to average 51.5m b/d, an increase of 1.4m b/d over 2005, and broadly unchanged versus the last assessment. The impact of historical revisions, unplanned shutdowns during January as well as minor adjustments to the outlook for Norway, Australia, India, Malaysia, Argentina, Brazil, Colombia, Ecuador, and Sudan have resulted in a negligible revision to the overall growth forecast. On a quarterly basis, non-OPEC supply is expected to average 50.7m b/d, 51.2m

**The greatest uncertainty remains the expected path of recovery for US Gulf of Mexico production.**

b/d, 52.7m b/d and 51.5m b/d, in the first, second, third and fourth quarter, respectively, representing a downward revision of 131,000 b/d and 48,000 b/d in the first and second quarters, and an upward revision of 92,000 b/d and

109,000 b/d in the third and fourth quarters, respectively. The greatest uncertainty remains the expected path of recovery for US Gulf of Mexico (GoM) production.

December 2005 non-OPEC supply is estimated at 50.7m b/d. In January 2006, a total of 500,000 b/d of oil production was affected due to extreme weather conditions in Russia, technical faults in some fields in Norway and Kazakhstan, cyclone activity in Australia, and a brief oil workers' strike in Argentina. An additional 400,000 b/d were shut in the US GoM. These losses, however, are expected to be partially offset by new supplies from other countries, and most of them will return in February and March.

### **OECD**

OECD oil supply is expected to average 20.5m b/d, representing an increase of 170,000 b/d versus the previous year, but slightly lower versus last month's report. The outlook for Norway has been revised down primarily due to the impact of recent unplanned shut-downs, whilst the outlook for Australia has been revised due to recent losses related to cyclone activity.

**Additional hurricane losses in NGL and onshore crude bring total US losses closer to 550,000 b/d in January.**

### **USA**

US oil supply is expected to average 7.4m b/d in 2006, an increase of 140,000 b/d versus 2005. GoM losses during the month of January averaged 390,000 b/d, a slight improvement from December; at the time of writing shut-in production was 364,000 b/d. However, additional hurricane losses in NGL and onshore

crude bring total US losses closer to 550,000 b/d in January. The last production data available (January) indicates that total US oil supply averaged 7.2m b/d, or 170,000 b/d higher than in December 2005. This level is also the same as our forecast for 1Q06.

The greatest uncertainty/risk remains the expected path of recovery of US GoM production. Production is expected to increase from 1.1m b/d at present to 1.7–1.8m b/d by the end of 2006 once current shut-in oil is brought back on stream and new projects start. Our assumptions for losses in the GoM in 1Q06 and 2Q06 remain unchanged at 300,000 b/d and 200,000 b/d, respectively, as well as 50,000 b/d of permanent losses, but these are likely to be adjusted in the coming months.

Three important Gulf projects are expected to start: Thunder Horse (3Q06), Constitution (3Q06) and Atlantis (4Q06). Recent announcements by operators suggest that all of these are on schedule including the restart of Mars (3Q06), but as always the timing is subject to revisions in both directions.

### **Mexico and Canada**

Mexican oil supply is expected to average 3.8m b/d in 2006, flat from 2005. The last production data available (December) indicates that Mexican oil supply averaged 3.8m b/d. A number of reports indicate that a sharp decline is expected imminently at the Cantarell field, which produces around 54 per cent of total Mexican oil supply. Whilst it is true that the field has reached an inflection point, its decline, which actually may have started last year, is likely to be gradual and on average partly compensated by increases in other fields. In May last year, the short-term outlook for Mexican oil supply was downgraded, precisely to reflect declining production at Cantarell in the foreseeable future.

The outlook for Canada remains unchanged, with oil supply expected to average 3.3m b/d in 2006, representing an increase of 250,000 b/d versus 2005. However, monthly production levels have been running ahead of forecasts, which may end up taking the 2006 estimate slightly higher.

### **Western Europe**

Total oil supply in Western Europe is expected to average 5.43m b/d in 2006, a drop of 240,000 b/d versus 2005. Last year was disappointing for Norwegian production due to accidents, prolonged shut-downs, deeper maintenance, and project delays; however, 2006 has not started any differently.

Norwegian oil supply is expected to average 2.9m b/d this year, a drop of 50,000 b/d versus 2005. Since the start of 2006, a number of unplanned shut-downs at several fields have been announced, including the Visund field (35 kb/d – January 19) which is expected to take until April to be resolved.

The latest shut-downs include Kvitebjorn field (60,000 b/d – February 9) and Heidrun (140,000 b/d – February 15) both of which are expected to be down for a few days. As a result, the growth forecast has been revised down a slight 12,000 b/d based on preliminary estimates. A total of 3m b of oil and condensate production may be deferred from January to February.

UK oil supply is expected to average 1.7m b/d, which represents a drop of 160,000 b/d versus 2005. The growth forecast was revised down last month on the basis of observed production declines and the potential impact of reduced investment, particularly in marginal fields following the recent tax hike. Having said this, it remains uncertain what the ultimate impact of the new fiscal system on production will be this year and next. Danish oil supply is expected to average 360,000 b/d in 2006, a drop of 20,000 b/d versus 2005.

### **Asia Pacific**

Oil supply in the Asia Pacific region is expected to average 580,000 b/d in 2006, or 10,000 b/d higher than in 2005. Australian oil supply is expected to average 520,000 b/d, unchanged from last year but a downward revision of 26,000 b/d versus last month. During January, Australian oil supply was affected by cyclone activity prompting the shut-down of Mutineer and Cossack fields affecting 100,000 b/d of production during the entire month.

## Developing countries

Oil supply in the developing countries (DCs) is expected to average 13.3m b/d, an increase of 700,000 b/d over 2005. The outlook for India, Malaysia, Argentina, and Sudan has been revised slightly down, the impact of which has been offset by upward revisions to the outlook of Brazil, Colombia, and Ecuador.

The most recent monthly production data for India shows an unusual performance following the fire at the Bombay High development hub last year. It is clear that some production has been recovered, but the data still shows production averaging significantly less than expected, the cause of which remains unknown. As a result we may have to err on the conservative side for the outlook for 2006, and so have revised down the outlook for growth by 18,000 b/d leaving Indian oil supply growth in 2006 broadly unchanged from 2005. Oil supply in Malaysia averaged 900,000 b/d in 4Q05, or 43,000 b/d lower than expected and this has resulted in a lower base for 2006.

Malaysian oil supply has remained at 700,000–800,000 b/d for the last ten years; its performance has been fairly consistent and has tended to fluctuate according to the timing of new projects as well as the maintenance at existing developments, among others. Going forward, oil supply is expected to drop slightly in 2006 versus 2005 and then recuperate in 2007 and beyond, driven by several deepwater projects, starting with Kikeh (120,000 b/d in 4Q07).

The outlook for Argentina has been revised down due to a lower base in 4Q05, the impact of production losses resulting from the recent strike, and a higher assumption for the decline rate in mature fields. Argentina's oil supply is now expected to average 710,000 b/d, representing a drop of 50,000 b/d versus 2005 and a revision of 20,000 b/d versus last month. In Sudan, oil supply is expected to average 510,000 b/d, an increase of 170,000 b/d from 2005 but a downward revision of 10,000 b/d. The revision reflects additional information of the ramp up of the Adar Yale project in the first half of 2006. By the end of 2006, total oil production should reach 600,000 b/d.

On the positive side, Colombian oil produc-

tion has been performing slightly better than expected for several months as local producers benefit from reduced fiscal take, marginal opportunities, and current prices. Oil supply is now expected to average around 530,000 b/d in 2006, unchanged versus 2005. In Brazil, baseline revision to the 2005 estimate has led to a positive adjustment of 39,000 b/d in 2006. Having said this, recent news indicate that the start up of the P 50 (1Q06) platform is now planned for April, slightly later than previously assumed. However, its ramp up as well as that of the Jubarte P 34 (1Q06) and Golfinho (2Q06) fields through the next six months is still expected to contribute to a growth rate of 220,000 b/d versus last year, and possibly more, taking Brazilian supply to 2.21m b/d in 2006.

## Other regions

Total FSU oil supply is expected to average just under 12m b/d, an increase of 400,000 b/d versus 2005. The forecast for Other regions (Other Europe and China) remains broadly unchanged, with total oil supply expected to be 3.7m b/d in 2005 representing an increase of 60,000 b/d from 2005.

## Russia

Russian oil supply is expected to average 9.6m b/d in 2006, an increase of 180,000 b/d versus 2005 and broadly unchanged from last month. January data shows that cold weather reduced Russian output by 180,000 b/d versus December 2005. As a result, the 1Q06 forecast has been revised down a slight 20,000 b/d to 9.52m b/d.

The direction of the drop is inline with the seasonal trend, but the absolute level of the drop was much higher than expected which reflects a weaker underlying production base and lack of momentum compared to previous years. In prior years, many oil producers were growing production even under adverse conditions by exporting via rail, or other non-water channels during the winter period. In January 2006 the situation proved to be different as only a handful of producers are delivering limited growth.

Interestingly, there are widely contrasting views about Russian growth in 2006: based on the estimated average growth of major Russian companies and Sakhalin, y-o-y growth could be higher than four per cent, while the Ministry's forecast puts total growth at one to two per cent, and some think it could be negative. On the one hand, the government now controls some 3m b/d of production and their plan is to maintain modest production growth. On the other, private Russian companies are benefiting from the positive price environment, and most are not short of opportunities and are able to

**Russian oil supply is expected to average 9.6m b/d in 2006, an increase of 180,000 b/d versus 2005 and broadly unchanged from last month.**

make corporate profits. However, the current fiscal regime for export duties as well as the sub-soil law are unlikely to improve in 2006 limiting some upstream investments and large scale developments, as well as developments that depend on high costs rail exports. Finally, Yukos and Sibneft are not likely to lose production in 2006 – capital investment is expected to increase in the core remaining assets.

## Caspian, China

Azeri oil production is expected to average 600,000 b/d in 2006, an increase of 180,000 b/d versus 2005. Kazak oil production is expected to average 1.28m b/d in 2006, an increase of 50,000 b/d over last year and broadly unchanged from the previous month. January data shows Kazak production averaging 1.2m b/d, down from December levels primarily because lower production at Karachaganak and Tengiz fields. Elsewhere, oil production in China is forecast to average 3.7m b/d in 2006, an increase of 50,000 b/d versus 2005.

	2004	2005	2Q05	3Q05	4Q05	Nov 05	Dec 05	Jan 06	1,000 b/d
Algeria	1,228	1,350	1,343	1,366	1,375	1,375	1,376	1,372	-4.2
Indonesia	968	941	944	933	935	938	932	923	-9.2
IR Iran	3,920	3,924	3,946	3,937	3,914	3,900	3,910	3,890	-20.0
Iraq	2,015	1,831	1,841	1,968	1,681	1,713	1,578	1,546	-31.3
Kuwait	2,344	2,505	2,506	2,527	2,547	2,543	2,542	2,565	23.5
SP Libyan AJ	1,537	1,642	1,634	1,654	1,665	1,665	1,668	1,667	-1.7
Nigeria	2,352	2,414	2,423	2,423	2,475	2,496	2,475	2,438	-37.2
Qatar	777	795	793	796	805	808	808	808	0.7
Saudi Arabia	8,982	9,404	9,456	9,498	9,438	9,458	9,423	9,400	-22.7
UAE	2,360	2,445	2,398	2,476	2,511	2,510	2,514	2,500	-14.2
Venezuela	2,576	2,631	2,633	2,611	2,589	2,585	2,597	2,543	-53.7
OPEC-10	<b>27,043</b>	<b>28,050</b>	<b>28,077</b>	<b>28,222</b>	<b>28,253</b>	<b>28,278</b>	<b>28,244</b>	<b>28,105</b>	<b>-138.5</b>
<b>Total OPEC</b>	<b>29,058</b>	<b>29,881</b>	<b>29,918</b>	<b>30,189</b>	<b>29,935</b>	<b>29,990</b>	<b>29,822</b>	<b>29,652</b>	<b>-169.8</b>

Totals may not add, due to independent rounding.

### OPEC NGLs and non-conventional oils

The growth forecasts for OPEC NGL production in 2005 and 2006 remain unchanged at 200,000 b/d and 330,000 b/d, respectively. This increase should result in average production of 4.3m b/d in 2005 and 4.62m b/d in 2006 (see Table D).

### OPEC crude oil production

Total OPEC crude oil production averaged 29.7m b/d in January, a fall of 170,000 b/d from last month, according to secondary sources (see Table E).

### FSU net oil exports (crude and products)

In 2005, FSU net oil exports are expected to average 7.7m b/d, an increase of 430,000 b/d versus 2005. The forecast for 2006 shows net exports averaging 8.1m b/d, which represents an increase of 340,000 b/d over 2005 (see Table F).

### Rig count

#### Non-OPEC

Non-OPEC rig count stood at 2,772 rigs in January, which represents an increase of 97 rigs compared to the previous month. Of the total,

265 rigs were operating offshore and 2,507 onshore. In terms of oil and gas split, 840 rigs were drilling for oil, an increase of seven from the previous month, while the rest was drilling for gas. Regionally, North America gained 86 rigs and Western Europe gained seven rigs, while the Middle East, Africa, Latin America and rest of Asia gained three rigs. The average rig count in 2005 was 2,479 rigs, one of the highest levels in 20 years.

#### OPEC

OPEC rig count was 304 in January, representing an increase of six rigs over the previous month. Gains took place in Saudi Arabia (six) and UAE (two), which were partially offset by declines in other OPEC Countries. In terms of oil and gas split, there were 245 oil rigs operating in January and the rest was gas rigs.

### Oil trade

#### OECD

Preliminary data shows that crude oil imports by OECD countries in January increased by 390,000 b/d or 1.2 per cent over the previous month to reach 31.7m b/d, but remained unchanged compared to a year earlier. In the

same period, product imports saw a marginal growth of 14,000 b/d to hit 10.9m b/d. All together, crude oil and products increased by one per cent to 42.6m b/d. Exports edged up by 0.4 per cent to 15.4 m/d divided roughly into equal parts of crude oil and products. Compared to the previous January, total exports were almost 900,000 b/d lower.

As a result, net OECD crude oil net imports grew by 352,000 b/d or 1.5 per cent over December to average 24.3m b/d in January, whilst products remained almost stable at 2.79 b/d. However, compared to the same month last year, crude oil and product net imports were, respectively, 590,000 b/d and 160,000 b/d higher.

For the whole of 2005, OECD crude oil imports dropped 2.8m b/d or nine per cent to average 28.3m b/d and products stayed at 9.8m b/d. With crude exports declining by 1.3m b/d or 17 per cent and products by 200,000 b/d or 2.5 per cent, total OECD net imports in 2005 fell to 14.3m b/d.

In terms of crude oil suppliers, the Former Soviet Union (FSU) came out on top in January with more than 17 per cent, followed by Saudi Arabia with 16 per cent, compared to a respective 13.4 per cent and 13 per cent in the previous January. On a yearly basis, Saudi Arabia's share

stood at 14.4 per cent and FSU's at 15.3 per cent followed by Norway with 7.2 per cent and Mexico with 6.8 per cent. Venezuela remained the main supplier of products with more than seven per cent in January 2006, followed by the Netherlands and FSU with 5.4 per cent each.

### USA

In January, US crude oil imports fell by 580,000 b/d or 5.7 per cent to average 9.6m b/d, while products increased by 251,000 b/d or seven per cent to 3.8m b/d, leading to total oil imports of 13.4m b/d. Compared to a year earlier, crude oil imports declined by 200,000 b/d while product imports surged by almost 1m b/d or 35 per cent. With exports of crude oil and products remaining stable at 900,000 b/d, US net imports fell by 340,000 b/d to 12.6m b/d with crude oil at 9.6m b/d and products at 2.9m b/d.

For the whole year 2005, crude oil net imports showed a minor slide of 83,000 b/d to remain at 10m b/d compared to 2004 and products moved up by 220,000 or ten per cent to 2.37m b/d, resulting in total net imports of 12.37m b/d.

Canada with 22 per cent and Mexico with 21 per cent remained the main suppliers of US crude oil followed by Saudi Arabia with 14 per cent and Nigeria with 13 per cent. It is worth noting that Canada's and Mexico's share went up from 34 per cent to 43 per cent between December and January. On a yearly basis, among the main suppliers, only Canada saw its share increase to 20 per cent in 2005 from 16 per cent in 2004, while Mexico, Saudi Arabia and Nigeria saw their shares stable at 18 per cent, 14 per cent and 13 per cent, respectively.

### Japan

Japan's crude oil and product imports remained almost stable at 4.2m b/d and 900,000 b/d, respectively, in January. Nevertheless, compared to a year earlier, Japan's crude oil imports displayed a growth of 150,000 or 3.7 per cent y-o-y. Despite the growth in crude oil, total oil imports were 45,000 b/d lower than in the previous year as product imports declined by 195,000 b/d in one year. With total oil exports remaining stable at 300,000 b/d,

**Table D: OPEC NGL production, 2002–06**

				<i>m b/d</i>
<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>04/05</b>	
3.62	3.71	4.09	0.38	
<b>1Q05</b>	<b>2Q05</b>	<b>3Q05</b>	<b>4Q05</b>	
4.22	4.27	4.32	4.37	
<b>2005</b>	<b>05/04</b>	<b>2006</b>	<b>06/05</b>	
4.30	0.20	4.62	0.33	

**Table F: FSU net oil exports** *m b/d*

	<b>1Q</b>	<b>2Q</b>	<b>3Q</b>	<b>4Q</b>	<b>Year</b>
<b>2002</b>	5.14	5.84	5.85	5.49	5.58
<b>2003</b>	5.87	6.75	6.72	6.61	6.49
<b>2004</b>	7.17	7.30	7.38	7.37	7.31
<b>2005</b>	<b>7.49</b>	<b>7.73</b>	<b>7.80</b>	<b>7.87</b>	<b>7.72</b>
<b>2006<sup>1</sup></b>	<b>7.77</b>	<b>8.26</b>	<b>8.21</b>	<b>8.01</b>	<b>8.06</b>

1. Forecast.

Japan's oil net imports stayed almost unchanged at 4.82m b/d in January compared to the previous month. However, when compared to a year earlier, Japan's oil net imports were 250,000 b/d or five per cent lower as a result of a sharp decline of 400,000 b/d in products.

On average, Japan's crude oil net imports increased by 80,000 b/d or two per cent in 2005 to average 4.1m b/d and products dropped by 110,000 b/d to 600,000 b/d, leading to total net oil imports of 4.70m b/d against 4.73m b/d in 2004.

Middle Eastern countries remained the main suppliers of Japan's crude oil in 2005, with Saudi Arabia accounting for 28 per cent, UAE for 26 per cent, Iran for 12 per cent, Qatar for nine per cent, Kuwait for eight per cent and Oman for five per cent. In December 2005, Saudi Arabia's share reached 35 per cent. Similarly to crude oil, UAE and Saudi Arabia remained Japan's main product suppliers with 20 per cent and 17 per cent, respectively, followed by Korea with ten per cent and USA with eight per cent.

### China

In December, China's crude oil imports increased by almost 140,000 b/d or 5.5 per cent to average 2.66m b/d, offsetting the drop of nearly the same size displayed in November. When compared to the same month last year, crude oil imports were 200,000 b/d or seven per cent lower. Product imports continued to increase to reach 970,000 b/d, 48,000 b/d higher than the previous month but 2.5 per cent lower than a year earlier. China's exports continued to increase, averaging 640,000 b/d with 73 per cent crude oil and 27 per cent products.

As a result, China's total net imports of crude oil and products together grew by 82,000 b/d to average 3.0m b/d.

On a yearly basis, China's crude oil imports growth fell from 35 per cent in 2004 to just 3.5 per cent in 2005, resulting in average imports of 2.6m b/d. Product imports declined by almost 13 per cent to average 900,000 b/d as a result of the almost zero growth in the demand. Consequently, China's net crude oil imports

**Middle Eastern countries remained the main suppliers of Japan's crude oil in 2005, with Saudi Arabia accounting for 28 per cent.**

increased by just 1.4 per cent or 34,000 b/d to average 2.4m b/d, while products decreased by 27 per cent or 195,000 b/d to 500,000 b/d in 2005, resulting in a drop of 5.2 per cent or 160,000 b/d to 2.9m b/d in total net crude oil and product imports.

In December 2005, Saudi Arabia was the main supplier of China's crude oil with 20 per cent followed by Angola with 16 per cent, Russia with 13 per cent and Iran with 11 per cent. For the whole 2005, Saudi Arabia saw its share rising from 14 per cent in 2004 to almost 18 per cent in 2005, with the volume climbing by 30 per cent. Most of the countries saw their shares

increasing, especially Congo, which emerged as one of the main suppliers with nearly five per cent of China's total crude oil imports. In contrast, Oman's share fell from more than 13 per cent in 2004 to less than nine per cent in 2005, corresponding to a decline of 31 per cent in volume, leaving the second position of main supplier to Angola.

### India

After increasing by 48,000 b/d in November, India's crude oil imports continued to increase by almost the same rate to reach almost 2.0m b/d in December, while products remained roughly unchanged at around 200,000 b/d, which led to total crude and product imports of 2.2m b/d, two per cent higher than the previous month. On the export side, India exported 400,000 b/d of products in December, which was 17,000 b/d lower than the previous month, making India a net exporter of products. With net crude oil imports just below 2m b/d and net product exports of 200,000 b/d, India's total net oil imports increased by 58,000 b/d to 1.7m b/d.

For the whole of 2005, India's crude oil imports averaged 2.0m b/d against 1.9m b/d, which corresponds to an increase of 4.7 per cent, while product exports fell from almost 200,000 b/d to 150,000 b/d, a drop of 25 per cent. Consequently, total crude and product net imports increased by 140,000 b/d to stand at 1.9m b/d.

**For the whole of 2005, India's crude oil imports averaged 2.0m b/d against 1.9m b/d, which corresponds to an increase of 4.7 per cent.**

## Stock movements

### USA

The deficit in total commercial oil stocks in the USA in December turned into a surplus in January, increasing by 12.6m b or 400,000 b/d to stand at 1,022.2m b. This trend was prompted by considerable gasoline and middle distillate stock-builds pushing the y-o-y surplus to around seven per cent and eight per cent above the five-year average. Crude oil stocks registered a slight decline (see **Table G**).

Crude oil inventories fell a slight 600,000 b to 321.0m b in January versus the previous month. This development occurred amid a dip in refinery throughput, which was offset by a reduction in crude oil imports. Refineries operated at a utilization rate of 87 per cent, a drop of two per cent from December. Crude oil imports fell from an average 10.1m b/d in December to just 9.7m b/d in January on lower spot arbitrage shipments and a fall in refinery capacity due to the maintenance. Commercial crude oil stocks still show a healthy level of 26m b or 8.7 per cent higher than this time in the previous years and 30m b or 11 per cent above the last five-year average. Days of forward cover remained almost unchanged at 22 days, but two days higher when compared to a year earlier as well as the 2000–2004 average. As a larger than typical level of refinery capacity is forecast to be offline in the first quarter of this year, the outlook for crude stocks continues to look rosy.

On the product side, the focus of the market has changed from heating oil to gasoline as inventories were below the previous year. But last week showed a strong stock build adding around 15m b since the beginning of this year. In early January, gasoline inventories stood at worrisome levels indicating a y-o-y deficit of three per cent, but now have reached 219.0m b, an increase of 7.4m b or two per cent above last year and four per cent more than the last five-year average. This increase was mainly due to continued high imports as gasoline production fell in line with lower refinery runs. Total imports were 603,000 b/d in January, up by 23

per cent compared to last year as Europe continued to send its cargoes across the Atlantic.

Although the picture looked healthy when considering the absolute level, the forward cover was below the last five-year average. Moreover, gasoline yields remained at a high 58 per cent leaving little room for refiners to switch production from distillate. At the same time, domestic output is expected to fall in the coming weeks as spring maintenance is estimated to be heavier than normal. In the coming weeks, gasoline stocks should be carefully monitored, with a lot depending on the ability of Europe to supply the US market as well as any sudden surge in gasoline demand.

Regarding distillate stocks, they remained at comfortable levels from the previous month. In fact, distillate inventories are currently at 136.3m b, a surplus of 7.4m b or 15 per cent above the previous year and ten per cent higher than the last five-year average. Heating oil showed an even healthier picture with a y-o-y surplus of 33 per cent and 19 per cent above the last five-year average. This counter-seasonal movement was due to shrinking demand as a result of the mild winter in the USA. Warmer-than-normal weather allowed distillate demand to fall by around 100,000 b/d from January 2004. The healthy picture is not likely to change much in the coming weeks as the winter season is about to end and refiners will direct their focus on gasoline.

US commercial oil stocks in the week ended February 3, 2006 witnessed a further build of 2.6m b to stand at 1,025.0m b on the back of a strong 4.3m b build in gasoline inventories, while crude oil and middle distillates experienced a marginal draw of 300,000 b. At 320.7m b, US commercial crude oil stocks remained well above the upper end of the range for this time of year by some 30m b. Crude inputs averaged 14.5m b/d, down 203,000 b/d from the previous week as some refineries continue to undergo maintenance. This corresponds to a refinery utilization of 85.8 per cent, a drop of 1.2 per cent. Gasoline inventories jumped to 223.4m b, a rise of 6.6m b from a year ago and 13.2m b above last year's average. This increase was mainly due to high imports

**Table G: US onland commercial petroleum stocks<sup>1</sup>**

mb

	Dec 2, 05	Dec 30, 05	Jan 27, 06	Change Jan/Dec	Jan 27, 05	Feb 3, 06 <sup>2</sup>
<b>Crude oil (excl.SPR)</b>	<b>320.3</b>	<b>321.6</b>	<b>321.0</b>	<b>-0.6</b>	<b>288.2</b>	<b>320.7</b>
Gasoline	202.6	204.3	219.0	14.7	218.7	223.3
Distillate fuel	130.6	128.9	136.3	7.4	122.2	136.0
Residual fuel oil	39.6	38.3	40.9	2.6	41.3	41.2
Jet fuel	42.8	43.5	44.6	1.1	42.4	45.0
<b>Total</b>	<b>1,025.7</b>	<b>1,009.6</b>	<b>1,022.2</b>	<b>12.6</b>	<b>967.5</b>	<b>1,025.0</b>
SPR	685.6	684.6	683.7	-0.9	679.0	683.9

1. At end of month, unless otherwise stated.

Source: US/DoE-EIA.

2. Latest available data at time of report's release.

**Table H: Western Europe onland commercial petroleum stocks<sup>1</sup>**

mb

	Nov 05	Dec 05	Jan 06	Change Jan 06/Dec 05	Jan 05
<b>Crude oil</b>	<b>472.5</b>	<b>473.7</b>	<b>482.1</b>	<b>8.4</b>	<b>466.3</b>
Mogas	140.4	144.4	145.2	0.8	152.4
Naphtha	26.8	24.2	25.1	0.9	26.5
Middle distillates	389.3	382.6	381.9	-0.7	361.8
Fuel oils	115.4	111.5	112.2	0.6	108.8
<b>Total products</b>	<b>645.0</b>	<b>638.5</b>	<b>639.3</b>	<b>0.7</b>	<b>623.0</b>
<b>Overall total</b>	<b>1,144.3</b>	<b>1,136.4</b>	<b>1,146.4</b>	<b>10.0</b>	<b>1,115.8</b>

1. At end of month, and includes Eur-16.

Source: Argus, Euroilstock.

**Table I: Japan's commercial oil stocks<sup>1</sup>**

mb

	Oct 05	Nov 05	Dec 05	Change Dec 05/Nov 05	Dec 04
<b>Crude oil</b>	<b>114.0</b>	<b>111.0</b>	<b>104.8</b>	<b>-6.2</b>	<b>117.5</b>
Gasoline	14.2	14.3	12.2	-2.1	12.9
Middle distillates	49.5	47.6	35.2	-12.4	40.0
Residual fuel oil	21.2	19.9	18.0	-1.9	19.5
<b>Total products</b>	<b>84.9</b>	<b>81.8</b>	<b>65.4</b>	<b>-16.4</b>	<b>72.3</b>
<b>Overall total<sup>2</sup></b>	<b>198.9</b>	<b>192.8</b>	<b>170.2</b>	<b>-22.5</b>	<b>189.8</b>

1. At end of month.

Source: MITI, Japan.

2. Includes crude oil and main products only.

which reached 1.13m b, 32 per cent above this time last year. Distillate stocks inched lower to 136.0m b, but are still at a comfortable level of 18 per cent and 14 per cent above last year and the last five-year average. An increase in low-sulphur distillate fuel (diesel fuel) inventories was more than compensated by a larger decline in high-sulphur distillate fuel (heating oil).

### Western Europe

Total oil stocks in Eur-16 (EU-15 plus Norway) experienced a build in January increasing by 10.0m b or 300,000 b/d to stand at 1,146.4m b, reversing the down-trend of the last two months. This level was 30.6m b or three per cent higher than that registered a year ago and nine per cent higher than the last five-year average. The bulk of this build came from crude oil which increased by 8.4m b (see **Table H**).

**Total oil stocks in Eur-16 experienced a build in January increasing by 10.0m b or 300,000 b/d to stand at 1,146.4m b.**

Lower refinery runs, which were at 12.3m b/d or 400,000 b/d below the previous month's level, combined with plentiful availability of crude from Russia and the Middle East, was behind this build. Refineries were operating at a utilization rate of 93.7 per cent, up from the 96.7 per cent experienced in December 2005. Several refineries had slowed runs in recent weeks after margins slumped compared with the level registered during the second quarter of last year. With this build, crude oil stocks are currently about 16m b or three per cent higher than this time a year ago and nine per

cent above the last five-year average. This trend should continue to rise in the coming months as crude runs are likely to remain lower and West African production should recover (see **Table H**).

On the product side, gasoline stocks rose a slight 800,000 b to 145.4m b after climbing by 4.5m b in December 2005, leaving them at a y-o-y deficit of about 8.0m b. Usually, gasoline stocks build at the beginning of the year, but high exports to the USA have left inventories well below year-ago level. Distillate stocks, which include heating oil, diesel and jet fuel, fell only 700,000 b to 381.9m b mainly due to stronger heating oil demand caused by the severe cold weather across most of Europe. This slight draw does not appear bullish as the surplus over the same period a year earlier remains higher at 20.1m b or 5.6 per cent, and ten per cent higher than the five-year average.

### Japan

Oil inventories in Japan witnessed a stronger drop in December than in the same month last year, falling by 22.5m b or 800,000 b/d to 170.2m b. This was ten per cent lower than a year ago and three per cent lower than the last five-year average. The bulk of this draw came from middle distillates followed by crude oil (see **Table I**).

Total commercial oil inventories continued to experience a seasonal drop for the second consecutive month. Crude oil stocks contributed to this draw decreasing by 6.2m b to stand at 104.8m b. This corresponds to a significant y-o-y decline of nearly 11 per cent, and around two per cent less than the 2000–2004 average. In spite of a boost in imports by ten per cent and 7.1 per cent on a monthly and y-o-y basis, crude oil stocks slumped due mainly to higher refinery runs which inched up by 4.6 per cent in order to meet the growing demand resulting from the hard winter in northern Asia. The use of crude for direct burning by Japanese power generators doubled in December to 190,000 b/d.

Total major product inventories (gasoline, middle distillates and residual fuel oil) wit-

nessed a substantial draw of nearly 16m b over November to stand at 65.4m b, a decline of 9.6 per cent relative to December 2004, despite the fact that the refinery utilization capacity jumped from 88.2 per cent in October to 93.5 per cent in December. The sharp stock-draw was driven to stand 12 per cent lower than the same month last year.

The prolonged severe winter in Japan boosted the demand for kerosene and heating fuels. Kerosene stocks were slashed by 32.4 per cent compared to the previous month to stand at 20.63m b, with sales reaching the highest level in 50 years. However, middle distillates remained about two per cent above the five-year average. Improved refinery utilization and higher output were not enough to counterbalance the impact of increased demand. Gasoline and residual fuel oil showed a more moderate drop of around 2m b from the previous month to stand at 12.2m b and 18.0m b, respectively.

## Balance of supply/demand

### Estimate for 2005

The demand for OPEC crude in 2005 (a-b) has been revised down to 28.6m b/d from 28.8m b/d last month, but still represents an increase of 600,000 b/d from 2004. In particular, the required crude for the fourth quarter has been revised down by 600,000 b/d to 29.5m b/d, compared with average OPEC production during the quarter of 29.9m b/d (see **Table J**).

### Forecast for 2006

For 2006, the demand for OPEC crude is expected to average 28.5m b/d, representing a downward revision of 200,000 b/d versus last month. The new forecast shows that demand for OPEC crude is expected at 30.2m b/d in the first quarter, 27.6m b/d in the second, 27.9m b/d in the third and 28.3m b/d in the fourth, representing a downward revision of 100,000 b/d in the second, 300,000 b/d in the third, and 400,000 b/d in the fourth quarter, respectively.



**Table J: World crude oil demand/supply balance**

m b/d

<b>World demand</b>	2001	2002	2003	2004	1Q05	2Q05	3Q05	4Q05	2005	1Q06	2Q06	3Q06	4Q06	2006
<b>OECD</b>	48.0	48.0	48.6	49.5	50.6	48.7	49.3	50.1	49.7	50.9	49.1	49.6	50.8	50.1
North America	24.0	24.1	24.5	25.3	25.5	25.3	25.5	25.5	25.5	25.9	25.6	25.7	26.0	25.8
Western Europe	15.3	15.3	15.4	15.6	15.6	15.3	15.7	15.7	15.6	15.6	15.3	15.8	15.9	15.6
Pacific	8.6	8.6	8.7	8.5	9.5	8.1	8.1	8.8	8.6	9.4	8.2	8.1	9.0	8.7
<b>Developing countries</b>	19.7	20.2	20.4	21.4	21.8	22.2	22.2	22.3	22.1	22.4	22.7	22.8	23.1	22.8
<b>FSU</b>	3.9	3.7	3.8	3.8	3.9	3.7	3.8	4.0	3.9	4.0	3.7	3.9	4.1	3.9
<b>Other Europe</b>	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.9
<b>China</b>	4.7	5.0	5.6	6.5	6.5	6.6	6.4	6.7	6.5	7.0	7.0	6.8	6.9	6.9
<b>(a) Total world demand</b>	77.1	77.7	79.2	82.1	83.7	82.1	82.6	83.9	83.1	85.3	83.4	84.0	85.8	84.6

**Non-OPEC supply**

<b>OECD</b>	21.8	21.9	21.6	21.3	20.9	20.9	19.8	19.7	20.3	20.2	20.4	20.2	21.1	20.5
North America	14.3	14.5	14.6	14.6	14.4	14.6	13.7	13.6	14.1	14.1	14.4	14.5	15.0	14.5
Western Europe	6.7	6.6	6.4	6.1	6.0	5.7	5.5	5.6	5.7	5.6	5.5	5.1	5.5	5.4
Pacific	0.8	0.8	0.7	0.6	0.5	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.6
<b>Developing countries</b>	11.0	11.4	11.5	12.0	12.4	12.6	12.6	12.8	12.6	13.0	13.1	13.5	13.7	13.3
<b>FSU</b>	8.5	9.3	10.3	11.2	11.4	11.5	11.6	11.9	11.6	11.8	11.9	12.1	12.1	12.0
<b>Other Europe</b>	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
<b>China</b>	3.3	3.4	3.4	3.5	3.6	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.7	3.7
<b>Processing gains</b>	1.7	1.7	1.8	1.8	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9
<b>Total non-OPEC supply</b>	46.5	47.9	48.8	49.9	50.3	50.5	49.7	50.0	50.1	50.7	51.2	51.5	52.7	51.5
<b>OPEC NGLs and non-conventionals</b>	3.6	3.6	3.7	4.1	4.2	4.3	4.3	4.4	4.3	4.5	4.6	4.7	4.8	4.6
<b>(b) Total non-OPEC supply and OPEC NGLs</b>	50.1	51.6	52.5	54.0	54.6	54.8	54.0	54.4	54.4	55.2	55.8	56.1	57.5	56.1

**OPEC crude supply and balance**

<b>OPEC crude oil production<sup>1</sup></b>	27.2	25.3	27.0	29.1	29.5	29.9	30.2	29.9	29.9					
Total supply	77.3	76.9	79.5	83.1	84.0	84.7	84.2	84.3	84.3					
<b>Balance<sup>2</sup></b>	0.2	-0.8	0.2	1.0	0.3	2.7	1.6	0.4	1.3					

**Stocks**

<b>Closing stock level (outside FCPEs)m b</b>														
OECD onland commercial	2630	2476	2517	2558	2546	2626	2642	2597	2597					
OECD SPR	1288	1347	1411	1450	1462	1494	1494	1483	1483					
OECD total	3918	3823	3928	4008	4009	4120	4136	4080	4080					
Oil-on-water	830	816	883	904	927	928	922	956*	956*					
<b>Days of forward consumption in OECD</b>														
Commercial onland stocks	55	51	51	52	52	53	53	51	52					
SPR	27	28	29	29	30	30	30	29	30					
<b>Total</b>	82	79	79	81	82	84	83	80	81					

**Memo items**

FSU net exports	4.6	5.6	6.5	7.3	7.5	7.7	7.8	7.9	7.7	7.8	8.3	8.2	8.0	8.1
<b>[(a) – (b)]</b>	27.0	26.2	26.7	28.1	29.2	27.3	28.6	29.5	28.6	30.2	27.6	27.9	28.3	28.5

1. Secondary sources.

Note: Totals may not add up due to independent rounding.

2. Stock change and miscellaneous.

\* Estimated.

**Table J** above, prepared by the Secretariat's Energy Studies Department, shows OPEC's current forecast of world supply and demand for oil and natural gas liquids.

The monthly evolution of spot prices for selected OPEC and non-OPEC crudes is presented in **Tables One and Two** on page 78, while **Graphs One and Two** (on page 79) show the evolution on a weekly basis. **Tables Three to Eight**, and the corresponding graphs on pages 80–81, show the evolution of monthly average spot prices for important products in six major markets. (Data for Tables 1–8 is provided by courtesy of Platt's Energy Services).

**Table 1: OPEC Reference Basket crude oil prices, 2005–2006**

\$/b

Crude/Member Country	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	January					
											1W	2W	3W	4W	5W	5Wav
<b>Arab Light</b> – Saudi Arabia	46.85	48.68	47.09	52.47	53.46	58.24	57.63	54.65	51.55	52.84	55.38	57.10	58.42	60.05	60.15	58.22
<b>Basrah Light</b> – Iraq	46.21	45.74	44.57	50.59	52.24	57.10	55.68	51.39	48.07	49.15	53.00	54.17	55.48	56.81	57.29	55.35
<b>BCF-17</b> – Venezuela	32.86	32.73	32.39	37.48	44.07	46.15	50.79	47.51	41.33	42.34	46.29	46.34	47.37	49.55	49.73	47.85
<b>Bonny Light</b> – Nigeria	53.15	53.18	50.23	55.93	58.40	65.49	65.60	60.74	57.18	57.91	60.76	62.40	64.12	65.74	65.99	63.80
<b>Es Sider</b> – SP Libyan Aj	49.71	49.67	47.90	53.15	55.71	60.27	60.39	58.25	54.92	57.14	58.94	60.34	61.70	63.26	63.29	61.51
<b>Iran Heavy</b> – IR Iran	46.50	46.06	43.25	49.60	51.07	55.69	55.10	51.73	49.28	50.88	53.93	55.84	57.09	58.74	58.87	56.89
<b>Kuwait Export</b> – Kuwait	46.42	47.89	46.36	51.15	51.31	55.18	54.60	51.76	49.19	50.83	53.50	55.29	56.53	58.16	58.26	56.35
<b>Marine</b> – Qatar	46.53	48.23	46.66	52.27	53.57	57.49	58.37	55.80	53.17	54.72	56.90	58.72	59.86	61.51	61.62	59.72
<b>Minas</b> – Indonesia	54.30	55.96	50.34	55.01	56.17	61.07	60.27	58.64	53.87	54.43	58.63	62.19	63.19	65.55	65.63	63.04
<b>Murban</b> – UAE	49.90	52.35	51.03	55.16	57.05	61.78	62.68	59.30	56.13	57.47	59.74	61.68	62.73	64.33	64.41	62.58
<b>Saharan Blend</b> – Algeria	52.59	51.98	48.69	54.41	57.30	63.67	63.30	59.48	56.15	57.65	60.96	62.50	64.02	65.77	65.88	63.82
<b>OPEC Reference Basket</b>	<b>49.07</b>	<b>49.63</b>	<b>46.96</b>	<b>52.04</b>	<b>53.13</b>	57.82	57.88	54.63	51.29	52.65	55.51	57.13	58.43	60.12	60.25	58.29

**Table 2: Selected OPEC and non-OPEC spot crude oil prices, 2005–2006**

\$/b

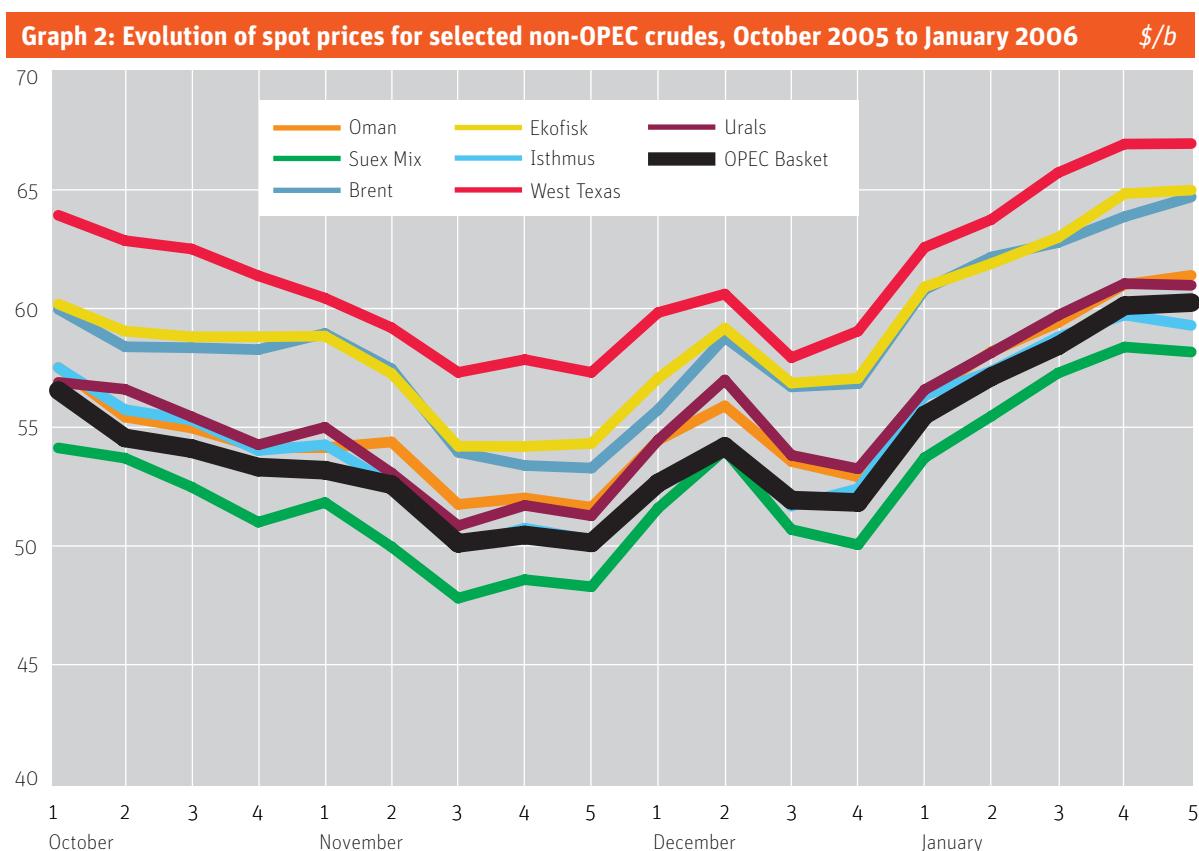
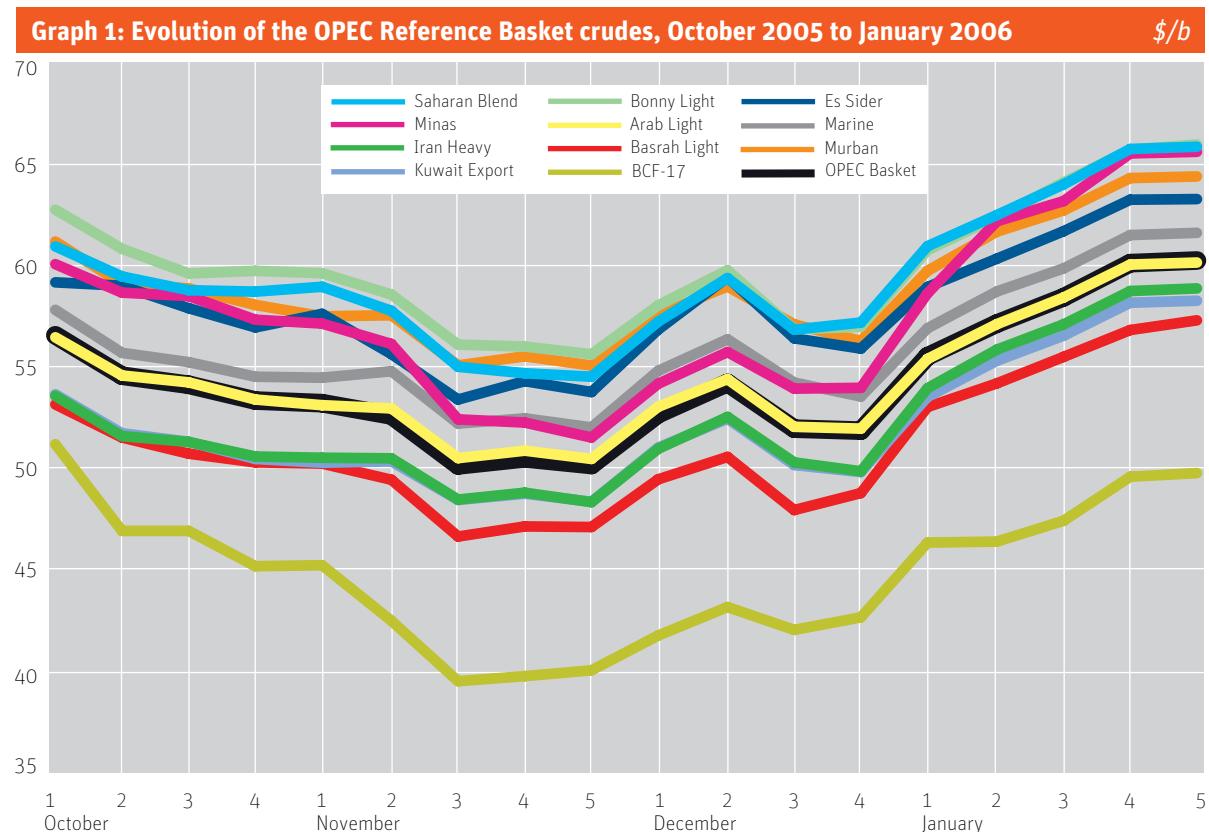
Crude/Member Country	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	January					
											1W	2W	3W	4W	5W	5Wav
<b>Arab Heavy</b> – Saudi Arabia	41.81	43.33	42.21	48.34	48.83	52.02	51.57	49.03	47.40	49.16	51.41	53.22	54.43	56.07	56.39	54.30
<b>Brega</b> – SP Libyan Aj	52.11	51.67	48.36	54.03	56.77	63.72	62.57	58.75	56.01	57.12	61.00	62.37	62.98	64.07	64.80	63.04
<b>Brent</b> – North Sea	52.60	51.87	48.90	54.73	57.47	64.06	62.75	58.75	55.41	57.02	60.80	62.17	62.78	63.87	64.70	62.86
<b>Dubai</b> – UAE	45.60	47.24	45.68	51.37	52.78	56.55	56.41	54.20	51.63	53.22	55.53	57.36	58.55	60.22	60.48	58.43
<b>Ekofisk</b> – North Sea	52.34	51.68	48.85	55.03	57.59	63.92	62.55	59.22	55.76	57.54	60.91	61.89	62.99	64.84	64.99	63.12
<b>Iran Light</b> – IR Iran	48.50	48.42	45.53	52.37	53.86	60.41	58.74	54.38	51.31	53.20	56.07	57.52	59.01	60.48	60.73	58.76
<b>Isthmus</b> – Mexico	47.52	47.13	45.05	51.48	53.85	59.66	59.92	55.64	51.57	52.77	56.34	57.37	58.80	59.73	59.29	58.31
<b>Oman</b> – Oman	46.95	48.22	46.70	52.20	53.42	57.46	58.24	55.52	52.78	54.21	56.38	58.18	59.41	61.01	61.40	59.28
<b>Suez Mix</b> – Egypt	44.58	44.81	43.11	48.88	51.64	56.01	55.91	52.83	49.29	51.59	53.72	55.47	57.28	58.38	58.17	56.60
<b>Tia Juana Light<sup>1</sup></b> – Venez.	43.50	43.27	41.67	48.19	49.10	54.22	53.87	51.48	48.77	49.23	52.23	53.19	54.51	55.38	54.97	54.06
<b>Urals</b> – Russia	47.92	47.89	46.27	51.87	54.95	58.64	58.23	55.80	52.38	54.63	56.58	58.14	59.71	61.05	60.98	59.29
<b>WTI</b> – North America	54.09	53.09	50.25	56.60	58.66	64.96	65.28	62.67	58.42	59.36	62.58	63.75	65.72	66.93	66.95	65.19

Note: As of June 16, 2005 (ie 3W June), the OPEC Reference Basket has been calculated according to the new methodology as agreed by the 136<sup>th</sup> (Extraordinary) Meeting of the Conference.

1. Tia Juana Light spot price = (TJL netback/Isthmus netback) x Isthmus spot price.

Kirkuk ex Ceyhan; Brent for dated cargoes; Urals cif Mediterranean. All others fob loading port.

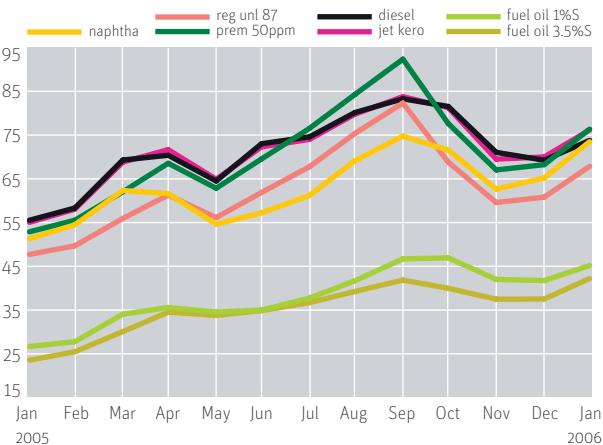
Sources: The netback values for TJL price calculations are taken from RVM; Platt's Oilgram Price Report; Reuters; Secretariat's calculations.



Note: As of June 16, 2005 (ie 3W June), the OPEC Reference Basket has been calculated according to the new methodology as agreed by the 136<sup>th</sup> (Extraordinary) Meeting of the Conference.

**Graph and Table 3: North European market – spot barges, fob Rotterdam**

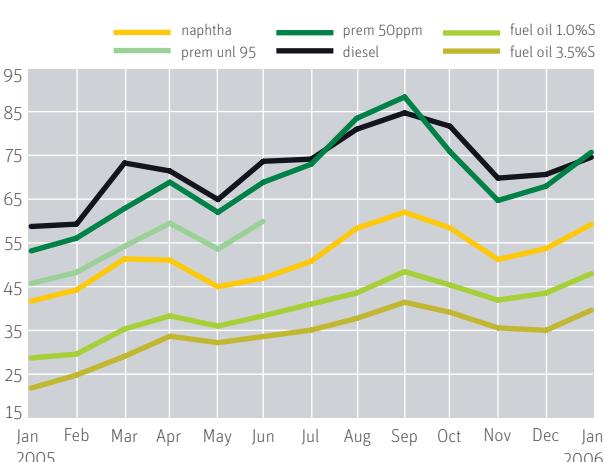
\$/b



		naphtha	regular gasoline unleaded	premium gasoline 50ppm	diesel ultra light	jet kero	fuel oil 1%S	fuel oil 3.5%S
2005	January	51.32	47.72	52.89	55.54	55.05	26.68	23.54
	February	54.49	49.69	55.53	58.33	58.05	27.78	25.48
	March	62.33	55.94	62.03	69.30	68.81	34.06	30.09
	April	61.62	61.29	68.55	70.38	71.67	35.59	34.53
	May	54.65	56.14	62.85	64.51	64.90	34.56	33.79
	June	57.23	61.88	69.54	73.02	72.32	35.01	34.86
	July	61.22	67.78	76.54	74.60	74.02	37.74	36.71
	August	69.12	75.37	84.28	80.15	79.78	41.70	39.25
	September	74.77	82.32	92.35	83.28	83.78	46.70	41.86
	October	71.56	68.81	77.64	81.54	81.27	46.94	39.98
	November	62.65	59.58	67.03	71.05	69.50	42.01	37.50
	December	65.20	60.82	68.24	69.25	70.00	41.75	37.54
2006	January	73.50	67.85	76.37	73.79	76.16	45.19	42.21

**Graph and Table 4: South European market – spot cargoes, fob Italy**

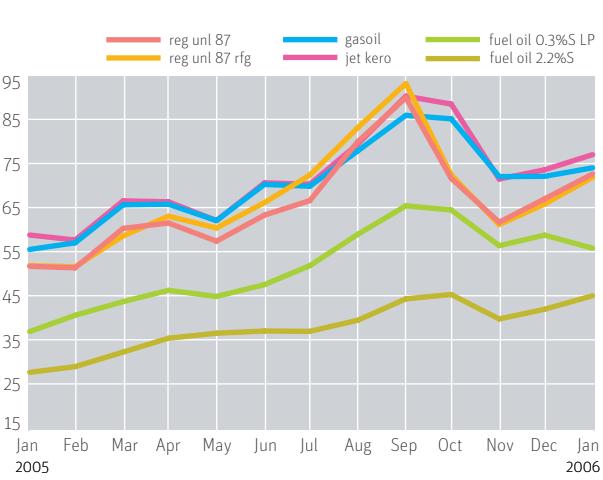
\$/b



		naphtha	premium gasoline unl 95	premium gasoline 50ppm	diesel ultra light	fuel oil 1%S	fuel oil 3.5%S
2005	January	41.69	45.72	53.17	58.75	28.69	21.80
	February	44.26	48.28	56.09	59.29	29.59	24.79
	March	51.34	54.23	62.87	73.26	35.31	29.07
	April	51.05	59.51	68.88	71.44	38.31	33.67
	May	44.97	53.58	61.99	64.90	35.99	32.20
	June	46.94	59.95	68.85	73.65	38.33	33.59
	July	50.79	na	72.99	74.14	41.03	35.08
	August	58.32	na	83.45	80.97	43.55	37.73
	September	62.01	na	88.35	84.73	48.43	41.43
	October	58.43	na	75.86	81.66	45.39	39.15
	November	51.20	na	64.69	69.80	41.91	35.57
	December	53.71	na	67.95	70.64	43.53	35.02
2006	January	59.23	na	75.71	74.58	47.98	39.62

**Graph and Table 5: US East Coast market – spot cargoes, New York**

\$/b, duties and fees included



	regular gasoline unleaded 87	regular gasoline unl 87rfg	gasoil	jet kero	fuel oil 0.3%S	fuel oil 2.2%S
2005	51.67	51.84	55.50	58.76	36.87	27.62
	51.32	51.57	57.00	57.64	40.57	28.91
	60.28	58.57	65.62	66.52	43.66	32.22
	61.50	63.04	65.76	66.31	46.23	35.36
	57.38	60.37	62.04	62.05	44.83	36.50
	63.29	66.13	70.25	70.60	47.52	37.00
	66.58	72.37	69.84	70.32	51.82	36.92
	79.97	83.13	77.86	79.41	58.94	39.44
	89.92	93.13	85.92	90.26	65.40	44.29
	71.63	72.41	85.13	88.48	64.45	45.28
	61.67	61.14	72.03	71.47	56.36	39.73
	66.97	65.79	72.08	73.56	58.75	41.93
2006	72.61	71.85	74.01	77.00	55.77	44.99

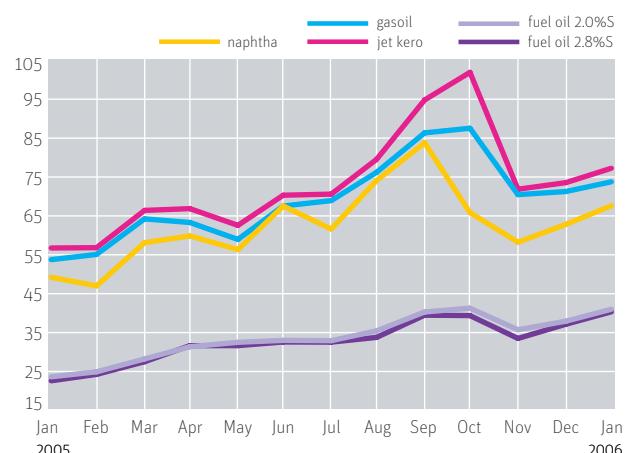
na not available.

Source: Platts. Prices are average of available days.

**Table and Graph 6: Caribbean market – spot cargoes, fob**

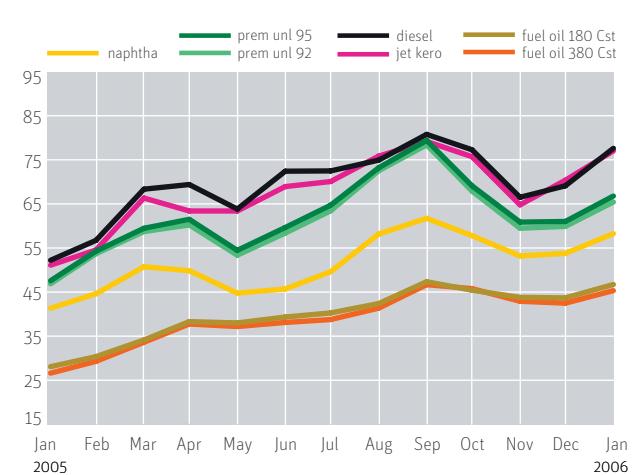
\$/b

	naphtha	gasoil	jet kero	fuel oil 2%S	fuel oil 2.8%S
2005	January	49.21	53.75	56.75	23.62
	February	47.01	55.09	56.83	24.91
	March	58.11	64.23	66.41	28.22
	April	59.86	63.31	66.87	31.36
	May	56.34	58.95	62.57	32.50
	June	67.54	67.54	70.32	33.00
	July	61.63	68.93	70.60	32.92
	August	74.08	76.21	79.54	35.44
	September	83.80	86.35	94.80	40.29
	October	65.85	87.54	101.92	41.28
	November	58.23	70.47	71.86	35.73
	December	62.83	71.27	73.56	37.93
2006	January	67.61	73.77	77.25	40.99
					40.34


**Table and Graph 7: Singapore market – spot cargoes, fob**

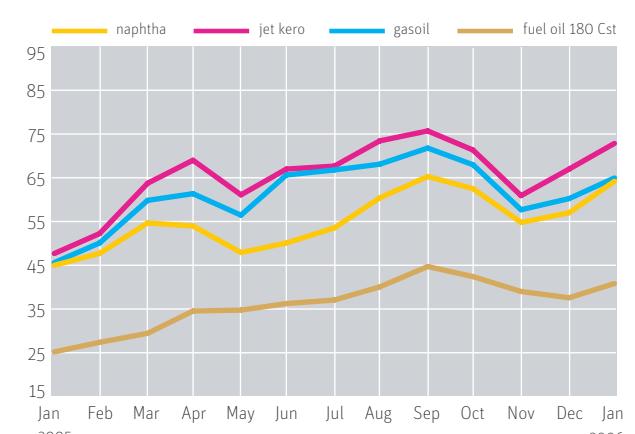
\$/b

	naphtha	premium gasoline unl 95	premium gasoline unl 92	diesel ultra light	jet kero	fuel oil 180 Cst	fuel oil 380 Cst
2005	January	41.34	47.57	46.87	52.21	51.10	28.08
	February	44.61	54.27	53.70	56.72	54.54	30.35
	March	50.74	59.47	58.72	68.34	66.33	34.13
	April	49.85	61.50	60.23	69.39	63.39	38.30
	May	44.76	54.46	53.37	63.83	63.39	38.00
	June	45.71	59.65	58.38	72.42	68.93	39.34
	July	49.62	64.70	63.43	72.48	70.07	40.27
	August	58.17	73.19	72.52	74.92	75.84	42.39
	September	61.73	79.40	78.39	80.77	79.16	47.35
	October	57.80	69.10	67.91	77.28	75.71	45.42
	November	53.19	60.87	59.48	66.50	64.78	43.80
	December	53.77	61.01	59.89	69.10	70.37	43.68
2006	January	58.26	66.78	65.42	77.61	77.02	46.72
							45.33


**Table and Graph 8: Middle East Gulf market – spot cargoes, fob**

\$/b

	naphtha	gasoil	jet kero	fuel oil 180 Cst
2005	January	44.99	45.60	47.68
	February	47.71	50.10	52.24
	March	54.66	59.83	63.74
	April	53.98	61.36	69.00
	May	47.91	56.45	61.09
	June	50.08	65.62	66.98
	July	53.53	66.78	67.66
	August	60.39	68.09	73.42
	September	65.28	71.78	75.70
	October	62.50	67.97	71.33
	November	54.78	57.69	60.91
	December	56.99	60.23	66.97
2006	January	64.19	64.95	72.85
				40.82



na not available.  
Source: Platts. Prices are average of available days.

## Forthcoming events

**11<sup>th</sup> Asia Upstream 2006, March 8–9, 2006**, Singapore. Details: Global Pacific & Partners, Suite 27, 78 Marylebone High Street, Marylebone, London W1U 5AP, UK. Tel: +44 (0)20 7487 3173; fax: +44 (0)20 7487 5611; e-mail: info@glopac.com; Web site: www.petro21.com.

**Well and reservoir surveillance/management in a \$60 oil price world, March 12–15, 2006**, Bandar Seri Begawan, Brunei Darussalam. Details: Society of Petroleum Engineers, Suite B-11-11, Level 11, Block B, Plaza Mont'Kiara, Jalan Bukit Kiara, Mont'Kiara, 50480 Kuala Lumpur, Malaysia. Tel: +60 3 6201 2330; fax: +60 3 6201 3220; e-mail: spekl@spe.org; Web site: www.spe.org.

**Negotiating upstream oil and gas contracts, March 13–17, 2006**, London, UK. Details: CWC Associates Limited, 3 Tyers Gate, London SE1 3HX, UK. Tel: +44 (0)20 7089 4163; fax: +44 (0)20 7089 4201; e-mail: bookings@thecwcgroup.com; Web site: www.thecwcgroup.com.

**LNG San Antonio 2006, March 15–17, 2006**, San Antonio, TX, USA. Details: CWC Associates Limited, 3 Tyers Gate, London SE1 3HX, UK. Tel: +44 (0)20 7089 4163; fax: +44 (0)20 7089 4201; e-mail: bookings@thecwcgroup.com; Web site: www.thecwcgroup.com.

**GIOGIE 2006: 5<sup>th</sup> Georgian international oil, gas, energy and infrastructure conference & showcase, March 16–17, 2006**, Tbilisi, Georgia. Details: ITE Group Plc, 105 Salusbury Road, London NW6 6RG, UK. Tel: +44 (0)20 7596 5233/5000; fax: +44 (0)20 7596 5106; e-mail: oilgas@ite-exhibitions.com; Web site: www.gioge.com.

**Indian oil & gas conference 2006, March 22–24, 2006**, New Delhi, India. Details: The Conference Connection Administrators Pte, 105 Cecil Street, #07-02 The Octagon, 069534 Singapore. Tel: +65 6222 0230; fax: +65 6222 0121; e-mail: info@cconnection.org; Web site: www.cconnection.org.

**7<sup>th</sup> Middle East geosciences conference and exhibition, March 27–29, 2006**, Bahrain. Details: Overseas Exhibition Services, 12<sup>th</sup> floor, Westminster Tower, 3 Albert Embankment, London SE1 7SP, UK. Tel: +44 (0)20 7840 2136; fax: +44 (0)20 7840 2119; e-mail: mep@oesallworld.com; Web site: www.all-worldexhibitions.com.

**Oil and gas mini MBA, March 27–April 7, 2006**, London, UK. Details: CWC Associates, 3 Tyers Gate, London SE1 3HX, UK. Tel: +44 (0)20 7089 4200; fax: +44 (0)20 7089 4201; e-mail: bookings@thecwcgroup.com; Web site: www.thecwcgroup.com.

**Latin independents forum 2006, March 28, 2006**, Rio de Janeiro, Brazil. Details: Global Pacific & Partners, Suite 27, 78 Marylebone High Street, Marylebone, London W1U 5AP, UK. Tel: +44 (0)20 7487 3173; fax: +44 (0)20 7487 5611; e-mail: info@glopac.com; Web site: www.petro21.com.

**TUROGE: Caspian and Black Sea oil & gas exhibition and conference 2006, March 28–30, 2006**, Ankara, Turkey. Details: ITE Group Plc, 105 Salusbury Road, London NW6 6RG, UK. Tel: +44 (0)20 7596 5233/5000; fax: +44 (0)20 7596 5106; e-mail: oilgas@ite-exhibitions.com; Web site: www.turoge.com.

**Latin petroleum: strategy briefing, March 29, 2006**, Rio de Janeiro, Brazil. Details: Global Pacific & Partners, Suite 27, 78 Marylebone High Street, Marylebone, London W1U 5AP, UK. Tel: +44 (0)20 7487 3173; fax: +44 (0)20 7487 5611; e-mail: info@glopac.com; Web site: www.petro21.com.

**Nigeria oil & gas 2006, April 3–5, 2006**, Abuja, Nigeria. Details: CWC Associates, 3 Tyers Gate, London SE1 3HX, UK. Tel: +44 (0)20 7089 4200; fax: +44 (0)20 7089 4201; e-mail: dhagan@thecwcgroup.com.

**IBC's oil & gas tax 2006, April 5–6, 2006**, London, UK. Details: IBC Energy Conferences, 69–77 Paul Street, London, EC2A 4LQ, UK. Tel: +44 (0)20 7017 5518; fax: +44 (0)20 7017 4745; e-mail: lindsay.ambrose@informa.com; Web site: www.ibcenrgy.com.

**Crude oil marketing & valuation, April 10–11, 2006**, Phuket, Thailand. Details: Conference Connection Administrators Pte, 105 Cecil Street #07-02 The Octagon, Singapore 069534. Tel: +65 62220230; fax: +65 62220121; e-mail: info@cconnection.org; Web site: www.cconnection.org.

**Intelligent Energy 2006, April 11–13, 2006**, Amsterdam, The Netherlands. Details: Spearhead Exhibitions, Oriel House, 26 The Quadrant, Richmond, Surrey, TW9 1DL, UK. Tel: +44 (0)20 8439 8900; fax: +44 (0)20 8439 8901; e-mail: enquiries@spearhead.co.uk; Web site: www.ie2006.com.

**5<sup>th</sup> Asia/China petrochemical feedstock markets, May 15–16, 2006**, Shanghai, China. Details: Centre for Management Technology, 80 Marine Parade Road #13-02, Parkway Parade Singapore 449269. Tel: +65 6345 7322/6346 9132; fax: +65 6345 5928; e-mail: cynthia@cmtsp.com.sg; Web site: www.cmtevents.com.

**CERI 2006 oil conference: Tight as a drum, April 23–25, 2006**, Calgary, Alberta, Canada. Details: Canadian Energy Research Institute, #150, 3512 – 33 Street NW, Calgary, AB, Canada T2L 2A6. Tel: +1 403 282 1231; fax: +1 403 284 4181; e-mail: jstaple@ceri.ca; Web site: www.ceri.ca.

**African National Oil Companies, April 24, 2006**, London, UK. Details: Global Pacific & Partners, Suite 27, 78 Marylebone High Street, Marylebone, London W1U 5AP, UK. Tel: +44 (0)20 7487 3173; fax: +44 (0)20 7487 5611; e-mail: duncan@glopac.com; Web site: www.petro21.com.

**African Petroleum Forum 2006, April 25–26, 2006**, London, UK. Details: Global Pacific & Partners, Suite 27, 78 Marylebone High Street, Marylebone, London W1U 5AP, UK. Tel: +44 (0)20 7487 3173; fax: +44 (0)20 7487 5611; e-mail: duncan@glopac.com; Web site: www.petro21.com.

**11<sup>th</sup> Asia natural gas, April 25–26, 2006**, Singapore. Details: Centre for Management Technology, 80 Marine Parade Road #13-02, Parkway Parade Singapore 449269. Tel: +65 6345 7322/6346 9132; fax: +65 6345 5928; e-mail: cynthia@cmtsp.com.sg; Web site: www.cmtevents.com.

**Energy infrastructure security & crisis management, April 25–26, 2006**, London, UK. Details: IQPC, Anchor House, 15–19 Britten Street, London, UK. Tel: +44 (0)20 7368 9301; fax: +44 (0)20 7368 9301; e-mail: enquire@oilandgasiq.com; Web site: www.lng-technology.com.

**LNG sales contracts, April 26, 2006**, Singapore. Details: Centre for Management Technology, 80 Marine Parade Road #13-02, Parkway Parade Singapore 449269. Tel: +65 6345 7322/6346 9132; fax: +65 6345 5928; e-mail: cynthia@cmtsp.com.sg; Web site: www.cmtevents.com.

**8<sup>th</sup> PetroAfricanus Dinner, April 26, 2006**, London, UK. Details: Global Pacific & Partners, Suite 27, 78 Marylebone High Street, Marylebone, London W1U 5AP, UK. Tel: +44 (0)20 7487 3173; fax: +44 (0)20 7487 5611; e-mail: duncan@glopac.com; Web site: www.petro21.com.

**World LNG technology summit 2006, April 26–27, 2006**, Barcelona, Spain. Details: IQPC, Anchor House, 15–19 Britten Street, London, UK. Tel: +44 (0)20 7368 9301; fax: +44 (0)20 7368 9301; e-mail: enquire@oilandgasiq.com; Web site: www.lng-technology.com.

**FPSO training course, April 26–28, 2006**, Houston, TX, USA. Details: IBC Energy Conferences, 69–77 Paul Street, London, EC2A 4LQ, UK. Tel: +44 (0)20 7017 5518; fax: +44 (0)20 7017 4745; e-mail: lindsay.ambrose@informa.com.

**Middle East petroleum & gas conference, April 30–May 2, 2006**, Abu Dhabi, UAE. Details: Conference Connection Administrators Pte, 105 Cecil Street #07-02 The Octagon, Singapore 069534. Tel: +65 62220230; fax: +65 62220121; e-mail: info@cconnection.org; Web site: www.cconnection.org.

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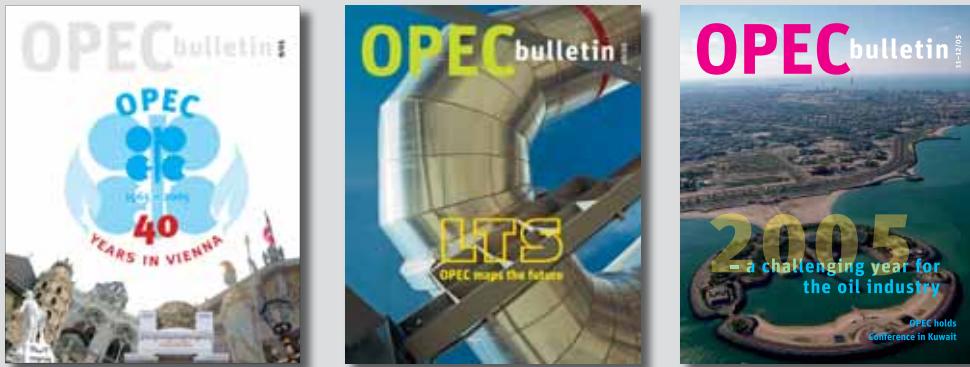
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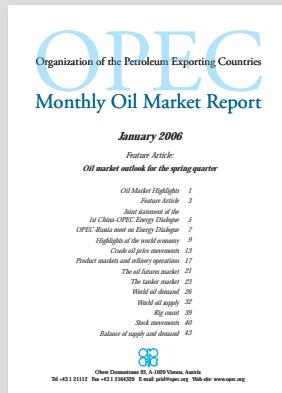
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