

OIL

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Examining the oil market trend in the year 2002, the most obvious feature is the increase in the price from about US\$18-19 per barrel (US\$/bbl) late in 2001 to more than US\$31/bbl late in 2002 (see Figure 1). In fact, the price reached almost US\$35/bbl in early March 2003. This was a reversal of the previous trend of declining prices that had commenced in September 2001. As expected, the factors contributing to the trend reversal in 2002 were global oil supply/demand developments and political/market uncertainties.

The annual growth in world oil demand in 2002 was about 400,000 bbl/d. On the other hand, world oil supply declined by 200,000 bbl/d in that year, thus leading to a rise in the price of oil. It should be emphasised that the demand growth in 2002 was far less than the nearly 2 Mbb/d observed in 1999, 1997 and 1996 (see Table 1 and the previous issues of *Mining Annual Review*). The low demand growth in 2002 was mainly due to the continuation of recession in some parts of the world and a low level of economic activity in others. The low supply was caused by the low production policy maintained by OPEC (the Organisation of Petroleum Exporting Countries).

Moreover, for most of the year the market was anticipating US military action against Iraq. It was feared that in addition to the cessation of Iraq's oil exports, Iraqi missiles, sabotage and pressure from public opinion could result in the disruption of oil supplies from other countries in the Middle East. The fear of possible global oil shortage was also contributing to the high prices in 2002.

Further details of the above are discussed below. However, it is useful to remember a main feature of the international oil market, namely that the production and consumption of oil are not evenly distributed around the world. Consequently, large volumes of oil have to be transported over long distances from the main production areas (such as the Middle East) to the major consumption areas (such as the US, Europe and the Far East).

Demand for oil

The magnitude of oil demand and its annual variations are summarised for the main geographical regions of the world in Table 1. As noted above, world oil demand increased only by 400,000 bbl/d in 2002. Although this was greater than the 300,000 bbl/d increase in 2001, it was below the 800,000 bbl/d increment in 2000 and 1.9 Mbb/d in 1999. These variations in oil demand are illustrated in Figure 2 that also shows an increase of 300,000 bbl/d for 1998 and 1.9 Mbb/d for 1997.

Table 1 also shows that the main regions of world oil demand are North America (in particular the US), Asia Pacific and Europe, with the 2002 demand levels of about 24, 21 and 16 Mbb/d respectively. Oil demand in North America was flat in 2002. Although this was better than the decrease of 100,000 bbl/d in 2001, it was far below the 700,000 bbl/d increase observed in

1999. The increase of demand in Asia Pacific was 300,000 bbl/d – an improvement compared with 2001, but still below the 1 Mbb/d increase observed in 1999. The 2002 oil demand actually decreased by 200,000 bbl/d in Europe demand also decreased by 100,000 bbl/d in Latin America and was flat in Africa and the Former Soviet Union.

Production of crude oil

Further details of crude oil production over the past four years are listed in Table 2. Production data for OPEC countries are listed at the foot of the table, and production for the countries that are not members of OPEC are listed at the top of the table. In each group the countries are arranged in a decreasing order of their 2002 production volume. The lowest production was 188,000 bbl/d in Brunei. Lower production data are not listed in this table. The total production in the countries of the Former Soviet Union (FSU) and Eastern Europe is given for them as a whole.

The total production by those non-OPEC countries not mentioned individually in Table 2 are included at the foot of the table to give a grand total for non-OPEC production. Non-OPEC crude oil production increased by nearly 1.4 Mbb/d in 2002. This was greater than the increase in the previous years (nearly 0.7 Mbb/d in 2001 and 0.9 Mbb/d in 2000).

Examining the 2002 production changes by the individual countries, the greatest increase (nearly 0.8 Mbb/d) occurred in the FSU & Eastern Europe. Most of this increase was in Russia. The next largest increase was in Angola (189,000 bbl/d), followed by Brazil (155,000 bbl/d), Canada (133,000 bbl/d), China (93,000 bbl/d), Equatorial Guinea (65,000 bbl/d) and others. On the other hand, the greatest decrease (89,000 bbl/d) was in Norway, followed by Oman (60,000 bbl/d), the UK (25,000 bbl/d) and others.

Table 2 also shows that OPEC crude oil production decreased by about 2 Mbb/d in 2002. The reduction of production was greatest by Saudi Arabia (409,000 bbl/d), followed by Venezuela (400,000 bbl/d), Iraq (341,000 bbl/d), Iran (266,000 bbl/d) and others as listed in the table.

The variations in non-OPEC production (increase and decrease) were due to operational reasons. Development work in the fields usually results in the growth of production while diminishing reserves lead to production decline. On the other hand, the production changes in OPEC countries were the result of deliberate policy decisions by the organisation.

OPEC lowered its voluntary self-imposed production ceiling for 2002 by 1.5 Mbb/d (see Table 3 and Figure 2). This was in response to the decrease in the price of oil that had fallen below US\$20/bbl in December 2001. In addition, the outlook at the time was for a very small growth in world oil demand in 2002 (the actual figure is now known to be 0.4 Mbb/d) and a large growth in non-OPEC oil supply (this is now known to be almost 1.4 Mbb/d).

The decisions on production ceilings have been made by the ten member countries of OPEC, excluding Iraq. Under United Nations sanctions, Iraqi oil exports ceased in the first Gulf War at the beginning of the 1990s. They were

resumed in the second half of the decade under the supervision of the UN. In order to allow economic recovery for Iraq, OPEC ministers had decided to exclude Iraq from production quotas (part of OPEC's self-imposed production ceilings in defence of the price of oil). However, Iraq's production and export volumes have remained limited owing to physical constraints in Iraq's oil production facilities. The poor state of Iraq's oil industry is an outcome of the Iran/Iraq war (1980-1988), the military operations of 'Desert Storm' liberating Kuwait (1990-1991) and a decade of sanctions and air strikes on targets within Iraq. In addition, the volume of Iraq's oil exports was often reduced because of disagreements on various substantive and procedural issues between the Iraqi regime and the UN Security Council.

Regulating the market

As noted already, the production and consumption of oil are not always balanced in the international market. There are a number of reasons.

First, success in oil exploration is not guaranteed and the timing and location of discoveries cannot be planned. Moreover, exploration and production operations require heavy front-end capital and a lead time of several years before oil production can commence on a streamlined basis. Oil production is, therefore, inflexible and cannot be tailored to match changes in world oil demand. With hundreds of millions or even billions of dollars of investment in an oil development project, every effort will be made to commence oil production as soon as possible and to maintain it at a maximum rate in order to generate revenues and recover the investments. Production cannot be curtailed in response to a fall in the price of oil.

Second, oil demand is dependent on the level of economic activity and is subject to the cyclic nature of the regional and global economies. The discovery of oil and oilfield development do not necessarily coincide with variations in oil demand. Therefore, local or global oil shortages or surpluses can occur. In addition, variations in supply and demand take place seasonally and may also happen as a result of unforeseen events such as weather conditions. Some of the most important causes of unforeseen variations are political/institutional. They include wars, sanctions, political tensions, industrial actions and security problems; all can disrupt oil supplies and the supply/demand balance.

In addition to all the above factors, the level of global operational oil stocks have been lowered as part of the inventory policies of the oil industry aimed at reducing working capital. The industry, having reduced its inventories, is trying to operate with minimum stocks and even strives towards 'zero-stock' oil operations! The low-stock (hand-to-mouth) policy has made the global industry even less flexible to the variations in supply and demand, especially in the past decade.

The above discussions partly explain why it is left mostly to OPEC to balance the world oil market. And OPEC is able to do so mainly because of a relatively large volume (4-5 Mbbbl/d) of spare oil production capacity. It is important to emphasise that in the past OPEC's efforts at balancing the market had been

on a broad basis, eg, adjusting production once or twice a year. It has been only in recent years that the organisation has been drawn into the short-term management of the global oil market. It could be said that this has come about by default rather than by design. OPEC now has to meet a number of times per year to decide on the adjustment of its production ceiling and, in addition to their scheduled OPEC conferences, OPEC ministers now meet in emergency when necessary, hold *ad hoc* and consultative sessions, and the market is monitored constantly.

Oil market in 2002

The pertinent points about the market have already been noted. The low demand and high non-OPEC supplies were discussed in some detail. OPEC reduced its production ceiling by 1.5 Mbb/d from January 2002 and maintained this ceiling throughout the year (see Table 3 and Figure 2). The price of oil improved noticeably in early 2002 but moved above US\$30/bbl later in the year. OPEC ministers argued that the high price was not caused by 'market fundamentals' but included a 'war premium' from the expectations of a US military attack on Iraq. Thus it was not necessary for OPEC to raise its ceiling. In practice, however, OPEC's actual production did increase during the year as shown in Figure 2.

Past experience shows that OPEC production does not follow the agreed ceiling that closely; many member countries produce above their country quotas. This is partly due to the member countries' contractual commitments and sales, and loading/delivery schedules. However, the main reason is the reluctance by the producers to reduce their production and forego revenues. The temptation is to delay the reduction or not to reduce as much.

As shown in Figure 2, OPEC's actual production was notably above its ceiling in the beginning of 2002. The overproduction grew consistently for most of the year. Excluding Iraq, overproduction by the OPEC 10 was almost 2.8 Mbb/d in October 2002. With the oil market remaining firm until that time, the overproduction was tolerated. However, the reduction in the price of oil in early autumn (Figure 1) forced the member countries to improve their production discipline.

The price of oil, however, rose again in December 2002. The rise was mostly due to the strike by oil industry workers in Venezuela and coincided with the global high demand season. The strike started in early December as limited protests against the policy of President Chavez, and affected only the national oil company. Subsequently, however, the protests became more widespread and Venezuelan oil exports almost came to a halt. The most pronounced impact was on the US market; Venezuela is a 'short-haul' supplier to the US and exports more than 1 Mbb/d to that market.

It was in response to these developments that OPEC decided to raise its production ceiling by 1.3 Mbb/d (for the OPEC 10) in January 2003. With the continuation of the Venezuelan strike and the increasing prospects for US military attack on Iraq, oil prices rose further and OPEC decided to increase its ceiling by another 1.5 Mbb/d in February. The Venezuelan strike continued

into February-March 2003. Nigerian oil production was also reduced as a result of concerns over security in the period preceding the country's national elections.

Finally, military attack on Iraq began in the latter part of March. It was soon realised that the disruption in oil exports was limited only to Iraq and was unlikely to spread to the other countries in the Persian Gulf. The price of oil fell by US\$7-8/bbl. Most of this was due to the 'war premium', although other factors also contributed to the fall in price, such as the seasonal decrease in oil demand, the recovery of oil production in Venezuela and Nigeria, and overproduction by OPEC.

The military operations in Iraq were unexpectedly rapid and successful. At the time of writing (April 2003), oil production in Iraq had resumed, albeit on a limited scale, and it was announced that every effort will be made to start exports in June.

Market outlook

As of early spring 2003, the possibility of major disruptions of oil exports in the Middle East had not materialised and Iraq itself was preparing to resume oil exports. The problems in Venezuela and Nigeria were brought under control. In addition, seasonal world demand was nearly 2 Mbbbl/d less than its peak in the winter. Last but not least, overproduction by the OPEC 10 was more than 1 Mbbbl/d and possibly 2 Mbbbl/d!

Against this background, OPEC ministers at their emergency/consultative meeting in April, noted the excess supply of oil in the market and recognised that this had to be reduced. However, the ministers announced that they would increase their production ceiling by 900,000 bbl/d from the beginning of June. In the immediate aftermath of this announcement, the price of oil fell. The market was confused, wrongly interpreting this announcement as indicating an increase in OPEC supplies. However, soon it was realised that the goal of OPEC was to reduce the overproduction by its members, though the organisation was realistic in its expectations. Moreover, some OPEC ministers stated that they would review the situation in their next meeting in June at which time they might take steps to reduce supplies again.

The price of oil has been hovering at about US\$25/bbl. The general perception is that there are excess supplies in the market and the outlook is for even further supplies in the coming months, but the market remains firm.

A few points should be underlined. OPEC countries, especially Saudi Arabia, have increased their production significantly since December 2002. This was said to be in response to the Venezuelan oil-workers' strike and the high seasonal demand. The more important reason, however, was to prepare for the possibility of major disruptions in Middle East oil supplies resulting from the US attack on Iraq. It is useful to remember that the comments in the media and the general perception in the market at that time saw an impending shortage of oil in the world, and thus very high oil prices. In response to this fear, OPEC raised its production ceiling twice (by 1.3 and 1.5 Mbbbl/d) as

noted above. More importantly, however, the individual member countries raised their production much above their quotas. In fact their total production more than compensated for the disruption in supplies from Venezuela.

Whereas the measures by OPEC were welcomed by the world market at the time, there is now a fear that they could result in oversupply. With a sailing time of almost two months for oil tankers from the Persian Gulf to reach the US, there is still a large volume of oil on the water moving towards the US. It is also reported that large volumes of earlier Saudi oil had been stored in tankers in the Caribbean. Sooner or later these will have to be delivered. The reported level of oil stocks remains low, but it should soon rise again.

Moreover, the prospects for global demand are not that favourable, reflecting the threat of recession for many parts of the world. The 2003 growth in world oil demand is forecast to be less than the growth in non-OPEC supply. Therefore OPEC countries (excluding Iraq) should reduce their production to avoid a drastic fall in the price of oil in the summer. However, there is a general perception that the OPEC 10 will not be able to rein in their excess production to the raised ceiling in June, let alone to a lower ceiling in the summer.

A contrary view is that Iraqi exports might not reach the previous levels that quickly, possibly as a result of technical constraints but also organisational and institutional problems. Also, Venezuelan production may not reach its pre-strike level easily because of the disruption to operations and the need for maintenance work. Furthermore, the level of oil stocks in different parts of the world is still low. For example, US stocks had dipped below the minimum operational level and any extra supplies will first be used to replenish the stocks to more reasonable levels. Finally, although it is always difficult for producers to reduce production, OPEC countries are likely to rein in their overproduction, as they have done so on previous occasions in the past few years.

As always, it is difficult to make precise forecasts, but it seems more probable that oil prices will weaken rather than strengthen in the coming months, though a collapse in the price of oil is not likely.

Table 1 - Oil Demand in the Main Geogrpahic Regions of the World (Mbb/d)

Actual Demand				
	1999	2000	2001	2002
Middle East	4.5	4.7	4.8	5.0
North America	23.8	24.0	23.9	23.9
Asia Pacific	20.4	20.7	20.9	21.2
FSU	3.6	3.6	3.7	3.7
Africa	2.4	2.4	2.5	2.5
Latin America	4.9	4.9	4.8	4.7
Europe	15.9	15.8	16.0	15.8
Total World	75.4	76.2	76.5	76.9
Incremental Demand				
Middle East	0.3	0.2	0.1	0.2
North America	0.7	0.2	-0.1	0.0
Asia Pacific	1.0	0.3	0.2	0.3
FSU	-0.1	0.0	0.1	0.0
Africa	0.0	0.0	0.1	0.0
Latin America	0.1	0.0	-0.1	-0.1
Europe	-0.2	-0.1	0.2	-0.2
Total World	1.9	0.8	0.3	0.4

Source: International Energy Agency.

Table 2	Crude Oil Production ('000 bbl/d)				
Some Non-OPEC Countries	1999	2000	2001	2002	2002-2001 change
FSU & E Europe	7335	7,748	8,323	9,109	786
US	5,882	5,822	5,801	5,817	16
China	3,195	3,236	3,301	3,394	93
Mexico	2,906	3,012	3,127	3,177	50
Norway	3,018	3,205	3,237	3,148	-89
UK	2,725	2,514	2,331	2,306	-25
Canada	1,901	2,035	2,052	2,185	133
Brazil	1,086	1,128	1,303	1,458	155
Oman	895	933	964	904	-60
Angola	762	741	696	885	189
Malaysia	723	692	744	770	26
Argentina	800	751	774	751	-23
Egypt	852	812	760	751	-9
India	652	650	644	662	18
Australia	518	700	633	626	-7
Colombia	816	687	604	586	-18
Syria	537	523	518	508	-10
Ecuador	376	393	407	394	-13
Denmark	300	363	349	371	22
Yemen	408	354	350	350	0
Vietnam	190	304	305	330	25
Gabon	340	327	301	295	-6
Congo	264	265	268	254	-14
Sudan	12	187	200	200	0
Equatorial Guinea	94	168	135	200	65
Brunei	<u>163</u>	<u>177</u>	<u>180</u>	<u>188</u>	<u>8</u>
Sum of the above	36,750	37,727	38,307	39,619	1,312
Total Non-OPEC Countries	38,038	38,918	39,571	40,953	1,382

Table 2 continued	Crude Oil Production ('000 bbl/d)				
	1999	2000	2001	2002	2002-2001
OPEC Countries					
Saudi Arabia	7,732	8,264	7,918	7,509	-409
Iran	3,504	3,682	3,696	3,430	-266
Venezuela	2,787	3,028	2,685	2,285	-400
UAE	2,059	2,233	2,163	1,995	-168
Nigeria	1,964	2,034	2,083	1,945	-138
Kuwait	1,873	2,099	2,042	1,879	-163
Libya	1,347	1,414	1,365	1,316	-49
Indonesia	1,280	1,267	1,214	1,122	-92
Algeria	754	809	836	854	18
Qatar	633	688	672	644	-28
Iraq	<u>2,525</u>	<u>2,567</u>	<u>2,355</u>	<u>2,014</u>	<u>-341</u>
Sum of the above	26,458	28,085	27,028	24,993	-2,036

Totals may not add up due to independent rounding.

Source: Oil and Gas Journal, various issues.

Table 3 - Crude Oil Production Ceilings for OPEC 10* (Mbbbl/d)

	Ceiling	Change
April 1999	22.98	
March 2000	24.69	1.7
July 2000	25.4	0.7
October 2000	26.2	0.8
November 2000	26.7	0.5
Change: Jan 00-Jan 01		3.7
February 2001	25.2	-1.5
April 2001	24.2	-1.0
September 2001	23.2	-1.0
January 2002	21.7	-1.5
Change: Jan 01-Jan 02		-5.0
(No change in 2002)		
January 2003	23	1.3
February 2003	24.5	1.5
June 2003	25.4	0.9
Change: Jan 03-Jun 03		3.7

*OPEC 10: OPEC excluding Iraq.

Source: OPEC & CGES.

