

Oil Production in Iraq: Persisting Decline or Upswing?

Following the Gulf War in 1991, oil production declined drastically in Iraq as a result of war damage, while the United Nations imposed a ban on oil exports.¹ The 2.8 million barrels a day (mbd) of oil produced by Iraq in 1989 shrank to only 0.2 mbd in 1991. At the end of 1996, Iraq was granted permission to export a limited quantity of oil in order to pay for food and medicine imports (under the UN Oil-for-Food Programme), and this led to an expansion of oil production beyond domestic needs. Iraq produced 2 mbd of oil in 2002, thus contributing around 2.5% to total world oil production. The current war will again diminish oil production in Iraq severely. A persistent reduction in Iraqi oil production will probably cause a price thrust – not least because commercial stocks in the USA are currently low; however, the high prices would soon fall again if the shortage were rapidly overcome by the release of government-controlled oil stocks and if output were increased in other oil-producing countries.

If the Iraq conflict is settled soon, then Iraq could increase its oil production to such an extent with the help of foreign investment that a drop in oil prices would follow, as would discussions about the distribution of production quotas within OPEC.

Economy

Iraq, which has around 24 million inhabitants (July 2002), is the second most highly populated country in the Middle East after Iran. It borders on Turkey to the north, on Syria and Jordan to the west, and on Saudi Arabia and Kuwait to the south. Iraq has access to the Persian Gulf to the south west (cf. figure).

Iraq's gross national product in 2002 (15.5 billion US \$ at purchasing-power parity rates or 29 billion US \$ at market exchange rates) was only around a third of the figure for 1989,² although economic growth had accelerated at the end of the 1990s as oil production and oil

prices rose. Real GNP increased substantially in 1999 and 2000 (by 12% and 11%, respectively), but the increase was much weaker in 2001 (+3%) and GNP actually showed a slight decrease last year.

Iraq's foreign debt is estimated at between at least 65 and 83 billion US \$.³ If the country's war reparation obligations are included, the debt amounts to at least 140 billion US \$ – which would make Iraq probably the most heavily indebted country in the world.⁴ The financial obligations resulting from the 'normal' foreign debts alone probably amount to between 5 and 12 billion US \$ per annum,⁵ which would correspond to between a sixth and over two-fifths of GNP.

Oil reserves

Because of the conflicts of the last three decades and the UN sanctions in force since 1991, Iraq's oil resources have not been fully explored – especially those in the western desert regions of the country. The United States Geological Survey (USGS) and the International Energy Agency (IEA) believe that Iraq still has around 120 to 130 billion barrels of exploitable oil resources, 78 billion barrels of which are proven reserves. BP, which bases its figures on data from the Oil & Gas Journal, actually estimates Iraq's proven oil reserves at 113 billion barrels, which would correspond to almost 11% of total world oil reserves.⁶ Thus, Saudi Arabia seems to be the only country with more proven oil reserves than Iraq (cf. table 1). Possible resources are also estimated to be much larger than those calculated by the USGS and the IEA.⁷ All in all, even if oil production were to be sub-

³ Before war broke out against Iran in September 1980, Iraq still had foreign currency reserves of 35 billion US \$. Cf. US Department of State, Bureau of Near Eastern Affairs: 'Background Note: Iraq.' Washington, D.C., December 2001.

⁴ Cf. American University, Washington, D.C., The Atlantic Council of the United States: 'Winning the Peace: Managing a Successful Transition in Iraq.' Policy paper. Washington, D.C., January 2003. In actual fact, the UN has received claims related to Iraq's invasion of Kuwait which total over 300 billion US \$.

⁵ Ibid.

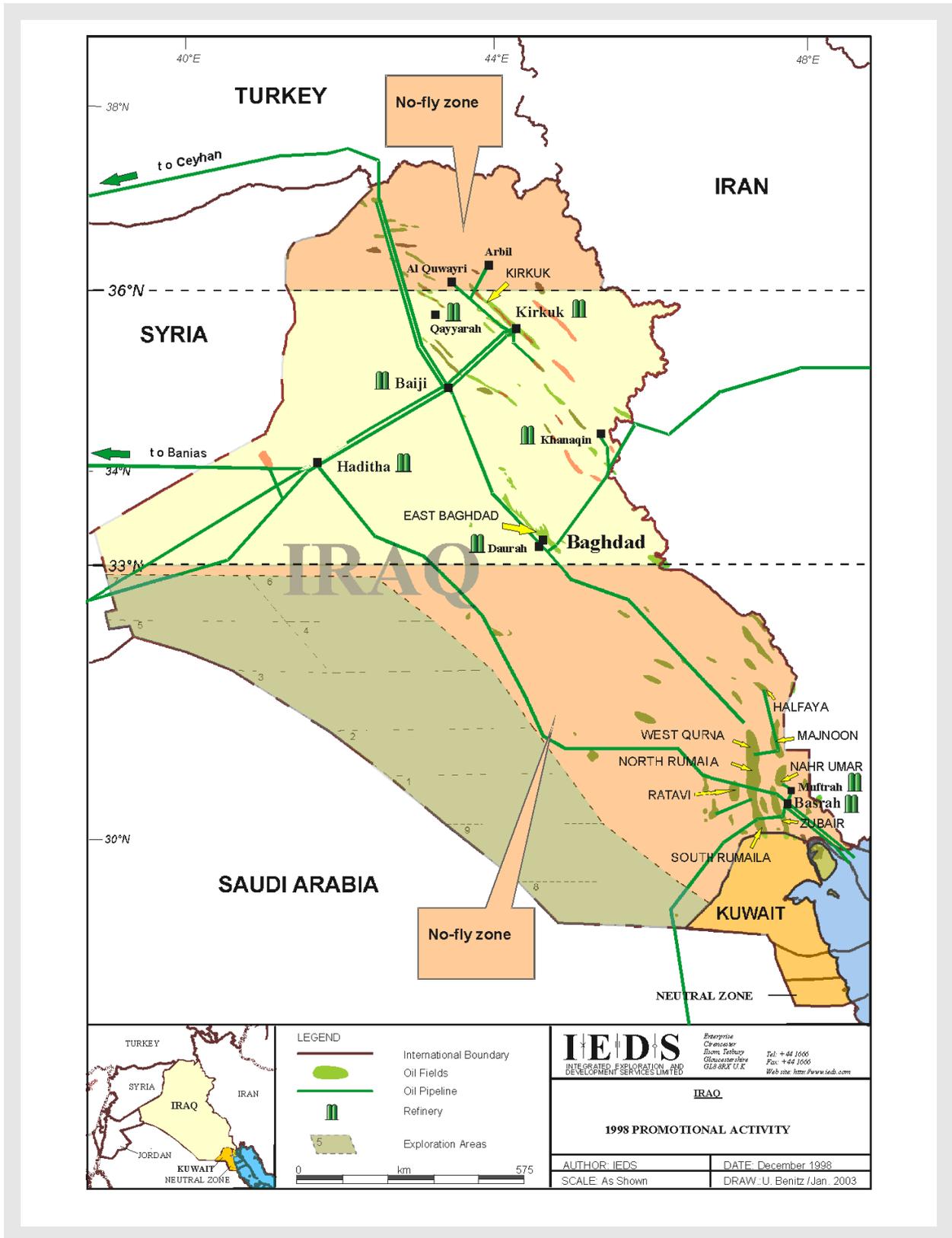
⁶ Cf. BP Amoco: 'Statistical Review of World Energy', June 2002. The political situation in Iraq makes it difficult to say which estimate is correct. However, it is striking that Iraq – like other OPEC countries – doubled its claimed reserves in 1987, when OPEC production quotas were determined on the basis of each country's reserves. Cf. Federal Institute for Geosciences and Natural Resources (BGR): *Commodity Top News*, no. 18, 2003.

⁷ Possible resources could amount to 220 billion barrels. A further 100 billion barrels are suspected in deep formations in the as yet unexplored western regions of the country. If this is true, Iraq's oil resources could be even larger than those currently estimated (conservatively) in Saudi Arabia. Cf. Energy Information Administration, loc. cit.

¹ This article was first published in the beginning of March, 2003 and, thus, before the war on Iraq started. Since the information given is still highly relevant, the editors have decided to leave the chapter essentially unchanged.

² Energy Information Administration: 'Country Analysis Briefs. Iraq.' Washington, D.C., October 2002.

Figure
Oil Infrastructure in Iraq



Sources: Integrated Exploration and Development Services Limited; Petroleum Economist 1999; Federal Institute for Geosciences and Natural Resources (BGR).

Table 1
**OPEC Oil Reserves and Resources,
 by Country**
 Estimates in billion barrels

	Proven reserves			Possible resources	
	USGS	IEA	BP	USGS	IEA
Algeria	9	15	9	8	10
Indonesia	8	10	5	7	10
Iran	71	76	90	53	67
Iraq	78	78	113	45	51
Kuwait	54	55	97	4	4
Neutral Zone	8	8	- ¹	0	0
Libya	25	25	30	8	9
Nigeria	17	20	24	38	43
Qatar	4	15	15	4	5
Saudi Arabia	211	221	262	87	136
United Arab Emirates	57	59	98	8	10
Venezuela	30	30	77	20	24
OPEC	572	612	819	281	369
of which Middle East	484	512	674	200	273

¹ Included in the figures for Kuwait and Saudi Arabia.

Sources: US Geological Survey (USGS): US Geological Survey World Petroleum Assessment 2000. Denver 2001; International Energy Agency (IEA): World Energy Outlook 2002. Paris 2002; BP Statistical Review of World Energy, June 2002.

stantially increased, Iraq's oil reserves would be in no danger of depletion for some time yet.

Oil production

Prior to the invasion of Kuwait, around two thirds of Iraqi oil was extracted from the Rumaila, Zubair and Nahr bin Umar fields in the south of the country.⁸ As yet undeveloped large fields, such as Majnoon and West Qurna, are also found in this area. The Kirkuk oil field in northern Iraq was discovered back in 1927 and primarily produces light oil, whose quality has diminished in recent years.⁹

In 1999, over 50 oil fields in the south of the country had to be shut down because of water breakthroughs and corrosion problems. These problems still seem to exist; according to the Iraqi oil minister, only 23 of 73 fields were in operation at the beginning of 2002. Because Iraq lacks spare parts for oil production and because access to state-of-the-art exploration and extraction technologies is blocked, oil production is being maintained at a high level with outdated techniques (e.g.

⁸ Both light and heavy oils, with different shares of sulphur content, are extracted from these fields.

⁹ Energy Information Administration, loc. cit.

water injection), which can damage the fields and thus lead to future production losses. A group of experts who examined the Iraqi oil industry on behalf of the UN reported in March 2000 that a decline in production of between 5% and 15% per annum can be expected if sufficient replacement parts for extraction are not immediately acquired. However, the group also concluded that today's recovery rates of only 15% to 20% could be increased to between 30% and 50% if modern extracting techniques were used (e.g. horizontal drilling and 3D seismic).¹⁰

Refineries

Iraq has ten refineries, which had a total capacity of 0.7 mbd prior to the Gulf War. Because the UN sanctions made it impossible to carry out more than makeshift repairs on those refineries damaged in the war, production in 2000 probably only barely exceeded 0.4 mbd¹¹ (cf. table 2). In particular, domestic demand¹² for light products, especially for fuels, cannot be fully met. The largest refineries are Baiji North, Basra and Daura, which have capacities of 150 000, 140 000 and 100 000 barrels per day, respectively. The UN experts believe that these refineries are in such poor condition owing to the lack of spare parts that they represent a danger to the increasingly badly motivated personnel and to the environment.¹³

Transport capacities

Iraq basically has a number of ways to transport its oil to buyers in Europe, Asia and the USA (via the Persian Gulf, via Syria to the Mediterranean, via Saudi Arabia to the Red Sea, via Turkey by land to Europe). However, the necessary transport infrastructure was severely damaged in the wars against Iran and Kuwait (and its allies). The internal pipeline link between Iraq's northern and southern oil fields, which originally had a total capacity of 1.4 mbd, was repaired at the beginning of 2001 according to the Iraqis, but it is unlikely to have been restored to full capacity as yet.¹⁴ The Kirkuk-Ceyhan pipeline is currently capable of transporting

¹⁰ United Nations: 'Report of the Group of United Nations Experts Established Pursuant to Paragraph 30 of the Security Council Resolution 1284.' Final Report, March 2000.

¹¹ The UN experts report that some refineries are being 'cannibalised' in order to obtain replacement parts for other units.

¹² A substantial volume of products is also supplied to Jordan.

¹³ Essential safety regulations are not being observed. Thus, oil leaks are significant safety risks, contaminated waste water effluents are being allowed to spill into local rivers, etc. Cf. United Nations, loc. cit.

Table 2

Oil Extraction, Refining, and Transport Capacities in Iraq

Oil fields		Refineries		Ports		Pipelines	
Name	Reserves in million bpd ¹	Name	Capacity in thousand bpd ¹	Name	Capacity in million bpd ¹	Name	Capacity in million bpd ¹
Majnoon	12.1 to 20.0	Baiji	150	Mina al-Bakr	1.2	Kirkuk-Ceyhan:	
West Qurna	11.3 to 15.0	Basra	140	Khor al-Amaya	.	Dortyol ²	0.9
East Baghdad	11+	Daura	100	Khor al-Zubair	.	Iraq-Saudi Arabia:	
Kirkuk	10+	Khanakin	12	Umm Qasr	.	IPSA 1,2 ³	1.65
Rumaila	10+	Haditha	7			Banias/Tripoli ⁴	0.3
Nahr bin Umar	6+	Muftiah	5			Iraq Strategic ⁵	<1.4
Rattawi	3.1	Qayarah	2				
Halfaya	2.5 to 4.6						
Nassiriya	2 to 2.6						
Suba-Luhais	2.2						
Tuba	1.5						
Khurmala	1.0						
Gharaf	1.0 to 1.1						
Rafidain	0.7						
Amara	0.5						

1 bpd = barrels per day. — 2 Optimal capacity 1.5 to 1.6 mbd. — 3 Shut down by Saudi Arabia in 1990. — 4 Shut down by Syria in 1982, now repaired. — 5 North-South link between domestic oil fields; direction of transport reversible.

Source: Energy Information Administration: Country Analysis Briefs. Iraq. Washington, D.C., October 2002.

0.9 mbd of oil from northern Iraq to Turkey. If the inactive parallel pipeline from Basra were reopened, total transport capacity could be increased to between 1.5 and 1.6 mbd.¹⁵ Another pipeline (with a capacity of 1.65 mbd), which runs from the southern oil fields through Saudi Arabia to the Red Sea, has been closed since 1990. However, the pipeline to Tripoli/Banias on Syria's Mediterranean coast, which was shut down by Syria in 1982, was repaired in 1999,¹⁶ and is probably used for illegal exports.

Crude oil and mineral oil products can also be exported via three tanker terminals on the Persian Gulf: Mina-al-Bakr, Khor al-Amaya and Khor al-Zubair. The port of Umm Qasr is also equipped for loading crude oil tankers. Between 1.2 and 1.3 mbd of crude oil could currently be turned over at Mina-al-Bakr were it not for the bottleneck created by inadequate storage capacities. The Khor al-Amaya terminal is under repair and could soon accommodate between 0.5 and 0.7 mbd. All in all, substantial investment is still required to restore Iraq's infrastructure to its pre-war standing.

Oil exports under UN supervision

The UN Security Council imposed sanctions on Iraq immediately after the invasion of Kuwait. Negotiations on limited Iraqi oil exports to finance food imports failed because Iraq refused to accept the sanctions regime. It was not until 1996 that agreement was reached on the Oil-for-Food Programme, which – from the end of 1996 onwards – initially allowed Iraq to export oil worth up to 2 billion US \$ over successive 180-day periods. Iraq was allowed to use 72% of the profits to buy food and medicines, while the UN withheld 28% to pay war reparation claims and administrative costs. The ceiling on oil export earnings was increased to 5.3 billion US \$ in April 1998. When it became impossible to ignore the catastrophic state of the Iraqi oil industry, the UN authorised imports of replacement parts for oil extraction amounting to 300 million US \$. The following year, the ceilings on oil exports and on the share of export earnings that could be used for modernising the oil industry were removed.¹⁷ Despite the Oil-for-Food Programme,

¹⁴ According to research by Platts, however, UN inspectors discovered leaks in March 2001. Cf. Platts: "Iraq's oil industry: An Overview" (<http://www.platts.com/features/Iraq/oiloverview.shtml>).

¹⁵ To reopen the pipeline it would be necessary to repair leaks, modernise the pumping stations and install measuring equipment on the Turkish border.

¹⁶ Arab News.com of 27 December 1999: 'Baghdad Completes Karkouk-Banias Oil Pipeline.'

¹⁷ This relaxation of the terms was pushed through although Iraq was smuggling large quantities of oil to its neighbouring countries (Jordan, Turkey, Syria and Iran) and had earned profits outside the channels controlled by the UN. However, since May 2002 imports to Iraq have also been restricted by the Goods Review List (GRL) drawn up by the Security Council, which catalogues so-called 'dual-use' goods that can be used for both military and civilian purposes. United Nations, Office of the Iraq Programme: 'Oil-for Food Programme, in Brief.' New York, February 2003.

Table 3

Projects for Developing New Oil Fields in Iraq

Oil fields	Production capacity	Reserves	Development costs	Interested companies
	Thousand barrels per day	Billion barrels	Billion US \$	
Majnoon	600	10 to 30	4	Total
West Qurna Phase II	1000	15	3.7	Lukoil
Bin Umar	500	6	3.4	Total
Saddam	300	1	3	Tatneft
Nassiryah	300	2	1.9	Eni/Repsol
Halfaya	225	2.5	2	BHP
Ratawi	200	1	2.5	Shell/Can Oxy/Petronas
Tuba	180	0.5	1.25	ONGC/Sonatrach/Pertamina
Gharaf	100	1	2.5	TPAO/Japex
Rafidain	100	0.3	0.75	Pacific
Al-Ahdab	90	0.2	0.5	CNPC
Amara	80	0.2	0.5	PetroVietnam
Qurna West Phase I	200	0.4	1	Zarubezhneft
Qurna West DS 6	65	0.2	0.5	Bashneft
Rumaila South, Mishrif ext.	250	0.4	1	Tatneft
Rumaila North, Mishrif	250	0.4	1	Mashinoimport
Khurmala	100	1	2.5	Stroyexport/Bow Canada
Suba-Luhais	100	2.2	5.5	Slavneft
Hemrin	60	0.2	0.5	Stroyexport/Bow Canada
Total	4 700	44.5 to 64.5	38	x

Source: Deutsche Bank Global Oil & Gas: Baghdad Bazaar. Big Oil in Iraq? London, 21 October 2002.

the economic and humanitarian situation¹⁸ in Iraq – following the catastrophic developments up to the mid-1990s – is still entirely unsatisfactory.

Foreign oil interests in Iraq

Once the UN sanctions are lifted, it will be possible to stabilise production in the operative oil fields and to develop new fields with the help of foreign service enterprises and oil companies. Because of the favourable geological conditions and the resulting low production costs, many foreign oil concerns have been endeavouring for years to win concessions for oil extraction from as yet undeveloped fields. These include companies from Russia, China, France, Italy and the Netherlands/Great Britain.

According to the information available, Iraq offered these companies 12-year development and production contracts which would guarantee a profit margin of 20%.¹⁹ Nineteen projects with a total production capacity of 4.7 mbd and an investment volume of 38 billion

US \$ are known of (cf. table 3). However, the UN sanctions are still impeding the concrete realisation of such deals. Iraq's main aim with these proposals is probably to create friction between the enterprises and the countries involved and thus to undermine the UN sanctions regime.

Several foreign oil concerns – with the exception of the American oil companies and BP²⁰ – are involved in talks with Iraq about individual projects. The largest oil fields have attracted the interest of the Russian companies Lukoil and Tatneft, the French company Total, and the Italian company ENI. According to *The Economist*,²¹ Iraq has concluded over 30 contracts in the weeks and months before the war. *Petroleum Intelligence Weekly*,²² however, reports that contracts have been formally sealed only with French Total and with Russian and Chinese firms. Total had already negotiated concessions for developing the Majnoon and Bin Umar fields in 1995, but these contracts stipulated deadlines for the commencement of investment activity that have since expired. Thus, Total claims that the con-

¹⁸ On the humanitarian situation in Iraq, cf. Campaign Against Sanctions on Iraq: 'Starving Iraq: One Humanitarian Disaster We Can Stop.' March 1999; Project Ploughshares: 'Humanitarian Disaster in Iraq.' *Ploughshare Monitor*, March 2000. UNICEF estimates that 1.5 million people died between 1990 and 1999 as a result of the grim economic and humanitarian situation.

¹⁹ Deutsche Bank Global Oil & Gas: 'Baghdad Bazaar. Big Oil in Iraq?' London, 21 October 2002, p. 12.

²⁰ However, BP recently massively increased its interests in Russia by acquiring a 50% stake in Tyumen Oil Co. (TNK).

²¹ Cited in Energy Information Administration, loc. cit., p. 7.

²² *Petroleum Intelligence Weekly*, 23 December 2002, p. 3.

Table 4
World Oil Supply and Demand, 2000 to 2005
In mbd

	2002	2003	2004	2005
World demand	76.9	77.9	80.0	82.0
Supply				
OPEC	28.9	28.5	30.0	31.0
of which:				
excluding Iraq ¹	26.9	25.8	27.0	27.6
Iraq ²	2.0	2.7	3.0	3.4
Others ³	48.0	49.4	50.0	51.0
Production capacity				
OPEC excluding Iraq	30.6	31.1	31.3	32.8
Iraq	2.8	3.0	3.3	3.8
Total	33.4	34.1	34.6	36.6

1 Including Natural Gas Liquids (NGL). — 2 Production figures for 2002 are actual values; the values for 2003 to 2005 correspond to 90% of capacity in the absence of new war damage. — 3 Including processing gains.
Source: DIW Berlin estimates.

tracts are no longer binding for either party today.²³ The Russian firm, Lukoil, sought guarantees for the validity of its contracts for developing the West Qurna field in the event of a regime change, which led Iraq to cancel its contracts with Lukoil in December 2002. Following interventions by the Russian government, however, the cancellation was revoked.

War in Iraq: the effect on the oil market

Despite the weak global economic trend, the International Energy Agency believes that world oil consumption is likely to increase by around 1 mbd to almost 78 mbd this year.²⁴ Non-OPEC production (including processing gains) will probably show a somewhat higher increase – to over 49 mbd. OPEC would thus have to supply almost 29 mbd in order to cover demand in 2003. OPEC's crude oil production capacity currently amounts to almost 30 mbd, according to the IEA,²⁵ and to around 34 mbd if Natural Gas Liquids (NGL) are included. A potential decline in Iraqi production – which was around 2 mbd in 2002 – could thus be offset, especially if production in Venezuela, which dropped precipitously until the beginning of January because of strikes, were increased again at the same time. A decline in oil

²³ Cf. Handelsblatt of 20 February 2003, p. 14: 'Totalfina-Elf-Image leidet unter der Irak-Krise.'

²⁴ International Energy Agency: 'Oil Market Report.' Paris, 17 January 2003.

²⁵ Deutsche Bank believes that OPEC actually had a maximum sustainable capacity of 32.6 mbd at the end of 2002. Cf. Deutsche Bank, loc. cit., p. 19.

production in Iraq could still cause a price thrust, however, not least because commercial stocks in the USA are currently low. But prices would remain high only for a brief period if government-controlled stocks were released and production were increased in other oil-producing countries.

If economic growth accelerates substantially in 2004, then oil consumption might increase to up to 82 mbd by 2005. The supply of oil from outside OPEC (including processing gains) could be increased to over 51 mbd until then, which would mean OPEC would have to supply 31 mbd (cf. table 4). It would be in a position to do so even if production in Iraq were to fall to zero until 2005.²⁶

Under these circumstances, it is likely that given the seasonal decline in consumption, the currently low stocks will be brought up to a normal level again by the summer.²⁷ As long as Iraq's production capacities are not reduced, oil prices will then drop substantially again. If the sanctions against Iraq were to be lifted in the course of this year and the modernisation of the country's oil industry pushed ahead with the help of foreign investors, then it should even be possible to increase oil production to around 3.4 mbd by 2005. Nigeria hopes to expand production by around 1 mbd in just a few years and will push for an increase in its quota at the OPEC conference this March.²⁸ Iran is also in the process of developing large oil fields and will take steps to ensure that it does not have to reduce its output because of rising production in Iraq. Finally, Saudi Arabia also plans to expand its production potential and exploit it to a greater extent. The total potential OPEC production increases (including Iraq) up to 2005 exceed the probable demand for OPEC oil. This could lead to difficult negotiations on the distribution of OPEC production quotas. However, going on the experience of recent years, it can be assumed that OPEC will master this challenge and avoid a long-term drop in prices below the target price range of between 22 and 28 US \$ per barrel.

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²⁶ The current capacity (including NGL) of the OPEC countries minus Iraq is just about enough in mathematical terms given full capacity utilisation. Moreover, according to the Deutsche Bank, capacities in these countries will be increased by around 2 mbd between 2003 and 2005. Cf. Deutsche Bank, loc. cit.

²⁷ *Petroleum Intelligence Weekly*, 10 February 2003, p. 5: 'Oil Markets Look Ready for Iraq War.'

²⁸ *Alexander's Gas & Oil Connections*, vol. 8, Issue 4, 20 February 2003: 'Nigeria to Increase Oil Production.' American consultants are actually advising Nigeria to leave OPEC so as to have a free hand in increasing production. Cf. Obi Nwasike (Principal Consultant, Chester Mead Associates): "OPEC...it's time to say goodbye...". In *Alexander's Gas & Oil Connections*. Speeches (<http://www.gasandoil.com/goc/speeches/>).