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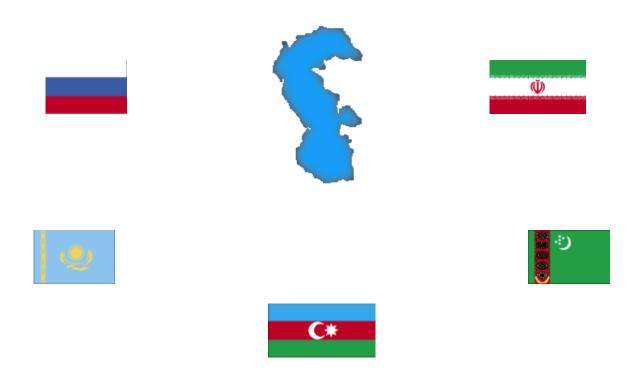


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Caspian Sea Energy:

Oil, Politics and Development in the Caspian Sea Region



Chris Light CPE 825 01 May 2004

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Objective

Oil and natural gas fuel the economies of the world. Energy consumption can be directly correlated to national development, impacting virtually every aspect of a society from national security to the average citizen's standard of living. The technological advances of the last hundred years require governments to secure sizable reserves and reliable sources of petroleum. Since the infancy of the oil industry the Caspian region has played an important role in world events. As an example, the oil fields of Baku represented key strategic objectives in both World War I and World War II. Many have argued that the outcomes of these conflicts could have been significantly altered had Germany succeeded in seizing and exploiting these assets. Prior to 1991 the Caspian was, for all practical purposes, a Russian lake. The dissolution of the Union of Soviet Socialist Republics in 1991 had a profound impact on the Caspian region. The conflicting interests of the newly independent nations surrounding the Caspian and the discovery of potentially enormous hydrocarbon reserves has once again thrust Caspian oil to the forefront of international politics.

The purpose of this paper is to present the major issues impacting Caspian hydrocarbon development. Specifically, a number of topics including the regions geography, history, governments, politics and reserves will be introduced to provide the reader with the framework necessary to fully understand the current and future importance of the Caspian to the international community. After establishing this foundation, current and future projects as well as legal issues and disputes will be discussed. Finally, the reader will be introduced to the geopolitics of the region as well as the related topic of foreign investment. Ultimately, the goal of this paper is to provide the reader with a general, unbiased view of the Caspian region, its resources, historical and future challenges and its relevance to world petroleum markets.

Geographical Areas of Interest

Caspian Sea

The Caspian Sea is the largest lake in the world. Covering 144,000 square miles, this salt lake lies between Europe and Asia. It is bordered on the northeast by Kazakhstan, on the southeast by Turkmenistan, on the south by Iran, on the southwest by Azerbaijan, and on the northwest by Russia. The Caspian reaches its maximum depth of 3,200 feet in the south; the shallow



northern half averages only about 17 ft. The Caucasus Mountains rise from the southwestern shore, and the Elburz Mountains parallel the southern coast. Although the Caspian receives inflows from five rivers including the Volga (which supplies more than 75% of its inflow), Ural, Emba, Kura, and Terek Rivers, it has no outlet. The damming and diversion of the Volga's water for industrial and residential use have been the leading reasons for the historical lowering of the Caspian's water level, a problem of serious proportions. Underlying the Caspian are some of the world's largest oil reserves, and the five surrounding countries, all with major stakes in oil-field development, have disputed zones of control.

(Source: The Columbia Electronic Encyclopedia, 6th ed. Copyright © 2003, Columbia University Press)

The current and future development of Caspian Sea oil reserves will be determined by those nations bordering the Caspian. These culturally and politically diverse nations include Russia, Iran, Azerbaijan, Kazakhstan and Turkmenistan. A brief introduction and overview of each of these nations is presented as general background.

Russian Federation



Background:

With a land area almost twice the size of the United States the Russian Federation is the largest nation in the world. Despite an abundance of natural resources including large deposits of oil, natural gas, coal and thousands of miles of coastline Russia is not favorably located in relation to major sea lanes.

Prior to 1991Russia was the epicenter of the Union of Soviet Socialist Republics (USSR). From 1917 to 1991Russia and its satellite nations were characterized by communist governments and tightly controlled command economies. In December 1991 the USSR splintered into 15 independent republics. Since then, Russia has struggled in its efforts to build a democratic political system and market economy to replace the strict social, political, and economic controls of the Communist period.

In the Caspian Sea region Russia shares a border of 284 km with Azerbaijan and a border of 6,846 km with Kazakhstan. Additionally, Russia shares a border of 723 km with Georgia, a country which occupies a key geographical position between the Caspian Sea and the Black Sea. Other borders of political interest include shared borders with China, Mongolia and Ukraine measuring 3,645 km, 3,485 km,

and 1,576 km respectively. Russia's maritime claims include territorial seas of 12 NM, an exclusive economic zone of 200NM and continental shelf zone of 200 meter depth or to the depth of exploitation.

The Russian Federations population of nearly 145 million is composed of numerous ethnic groups. The largest ethnic group by far is Russian (81.5%) followed by Tatar (3.8%) and Ukrainian (3%). Major religions include Russian Orthodox and Muslim.

The Russian Federation is a constitutional federation with a legal system based on civil law and judicial review of legislative acts. Important political figures include the Chief of State, President Vladimir Vladimirovich Putin and the head of the government, Premier Mikhail Mikhaylovich Kasyanov.

Economic overview:

Despite the best efforts of its leaders The Russian Federation is still struggling to establish a modern market economy. Russia is striving to establish stable conditions including low inflation rates in the 3-5% range, a strong central banking system, and an effective rule of law. If Russia ever hopes to become a member of the European Union (EU) they must attain these goals. In Russia's first five years of independence the economy contracted severely as it struggled with the challenges associated with converting the economy from a centralized system to a market system. Following the 1998 depreciation of the ruble (60% depreciation) and a debt default by the government the economy subsequently rebounded, growing by an average of more than 6% annually in 1999-2002. In 2002 the estimated real GDP growth rate was 4.3%; however, the inflation rate during this period was 15%. The majority of the economic growth realized over the last few years can be directly linked to higher oil prices and the depreciation of the ruble. In Fiscal Year 2001 Russia received \$979 million in economic aid from the United States and \$200 million in aid from the EU. It is important to note that oil, natural gas, metals, and timber account for more than 80% of Russian exports, leaving the country vulnerable to swings in world prices.

(Source: Central Intelligence Agency World Factbook)

Islamic Republic of Iran

Background:

Unlike the Russian Federation,
Iran is ideally located in relation to major
sea lanes. Iran's eastern and southern
borders include the Persian Gulf and the
Strait of Hormuz, considered vital sea
lanes for crude oil transport.

Prior to 1935 Iran was known as

Persia. In 1979 Iran became an Islamic
republic following the exile of the Shah.

Conservative clerical forces established a



theocratic system of government with ultimate political authority vested in a religious scholar. During 1980-88, Iran was involved in a war with Iraq over disputed territory; the outcome of the war was generally regarded as indecisive. In recent years poor economic conditions and dissatisfaction with the government has created pressure for political reform.

Iran borders the Caspian Sea, with 740 km of the Caspian's shoreline contained within its borders. In the Caspian Sea region Iran shares a border of 432 km with Azerbaijan (in addition to 179 km shared with the Azerbaijan-Naxcivan exclave) and a border of 992 km with Turkmenistan. Other borders of political interest include shared borders with Iraq (1,458 km), Afghanistan (936 km), Armenia (35 km), Pakistan (909 km), and Turkey (499 km). Iran's maritime claims include a contiguous zone of 24 NM, territorial seas of 12 NM, an exclusive economic zone comprised of bilateral agreements or median lines in the Persian Gulf and a continental shelf zone defined by natural prolongation.

Like Russia, Iran's population of nearly 70 million people is composed of numerous ethnic groups. The five major ethnic groups include Persian (51%), Azeri (24%), Gilaki / Mazandarani (8%), and Kurd 7%. In addition a small number of Arab (3%) and Turkmen (2%) peoples also reside in Iran. Iran is almost exclusively Muslim with Shi'a Muslims comprising 89% of the population and Sunni Muslims accounting for 10% of the population.

The Islamic Republic of Iran is a theocratic republic containing 28 provinces. The Iranian legal system is based on Islamic principles of government. Important political figures include the Chief of State, Supreme Leader Ayatollah Ali Hoseini-Khamenei, leader of the Islamic Revolution (appointed for life) and President (Ali) Mohammad Khatami-Ardakani. Iran has no formal relations with the West and is typically viewed by the United States as hostile.

Economic overview:

Iran's economy is a mixture of central planning, state ownership (oil and other large enterprises), and small-scale private ventures. Iran is a member of the Organization of Petroleum Exporting Countries (OPEC), a fact that has important implications in Caspian Sea oil development. Iran has an abundance of natural resources including petroleum, natural gas, coal and metal ores. The export of Petroleum products accounts for 85% of Iran's total exports and is central to the economy. The Iranian government is attempting to institute market reforms including diversification of Iran's oil-reliant economy, although little progress has been made toward this goal. Relatively high oil prices in recent years contributed to a real GDP growth rate of 7.6% (2002 estimate), however, the inflation rate remains relatively high (15.3%, 2002 estimate) in comparison to other developed nations. Iran received \$408 million in economic aid in 2002. Iran's major export partners include Japan (17.4%), China (8.6%), UAE (7.6%), Italy (6.6%), South Korea (4.9%), and South Africa (4.4%).

(Source: Central Intelligence Agency World Factbook)

Republic of Azerbaijan

Background:

Azerbaijan is a small, landlocked country situated between Iran and Russia.

A portion of Azerbaijan, known as the Naxcivan enclave, is separated from Azerbaijan proper by the southern reaches of Armenia. Due to its geographical position Azerbaijan does not have direct access to major sea lanes for crude oil transport.



Prior to gaining its independence

in the summer of 1991 Azerbaijan was known as the Azerbaijan Soviet Socialist Republic. Azerbaijan has yet to resolve its conflict with Armenia over the Azerbaijani Nagorno-Karabakh enclave (largely Armenian populated). Azerbaijan has lost 16% of its territory and must support some 800,000 refugees as a result of the conflict.

Azerbaijan borders the Caspian Sea, with roughly 800 km of the Caspian's shoreline contained within its borders. In the Caspian Sea region Azerbaijan-proper shares a border of 284 km with Russia and a border of 432 km with Iran. Additionally, the Azerbaijan-Naxcivan enclave borders Iran for a distance of 179 km. Other borders of political interest include shared borders with Georgia (322 km) and Turkey (9 km). Both Turkey and Georgia control strategic locations in relation to major sea lanes. Due to the fact that Azerbaijan is landlocked it has no maritime claims.

Like its Russian neighbor, Azerbaijan's population of nearly 8 million people is composed of numerous ethnic groups. The four major ethnic groups include Azeri (90%), Dagestani (3.2%), Russian (2.5%) and Armenian (2%). Azerbaijan is predominantly Muslim (93.4% of the population) with practitioners of Russian and Armenian Orthodox accounting for 4.8% of the population.

The Republic of Azerbaijan is a republic containing administrative divisions in the form of 59 rayons (regions), 11 cities and 1 autonomous republic. The Azerbaijani legal system is based on civil law

with a Supreme Court representing the judicial branch. Important political figures include the Chief of State, President Ilham Aliyev and the head of the government Prime Minister Artur Rasizade.

Economic overview:

Azerbaijan's number one export is oil, accounting for 90% of all exports. In the six years following the collapse of the Soviet Union Azerbaijan's oil production declined, however, it has steadily increased since 1997. Azerbaijan has committed to several production-sharing arrangements (PSAs) with foreign firms resulting in a commitment of \$60 billion for long-term oilfield development. In addition to petroleum products Azerbaijan's natural resources include natural gas, iron ore and alumina. Not unlike the Russian Federation, Azerbaijan is struggling with the problems associated with the transition from a command economy to a market economy. Azerbaijan has experienced a real GDP growth rate of 10.6% (2002 estimate). However, unlike its Russian and Iranian neighbors Azerbaijan's inflation rate is low (2.6%, 2002 estimate) in comparison to other developed nations. Trade with Russia and the other former Soviet republics is declining in importance while trade is building with Turkey and the nations of Europe. This trend will have important implications for Azerbaijan's future economic success. Azerbaijan's major export partners include Italy (28.7%), Germany (17.7%), Israel (10.6%), France (8.4%), Georgia (6.7%), and Russia (4.7%). Azerbaijan received \$140 million in economic aid in 2000.

(Source: Central Intelligence Agency World Factbook)

Republic of Kazakhstan



Background:

The largest of the former Soviet Republics, Kazakhstan is a landlocked nation sharing an extensive border with Russia, its northern neighbor. Kazakhstan became a Soviet Republic in 1936. During the 1950s and 1960s Kazakhstan realized a significant immigration rate, most notably from Russia. The immigration rate was so great, in fact, that non-Kazakhs eventually outnumbered natives during this period. Like Azerbaijan and Turkmenistan, Kazakhstan does not have direct access to major sea lanes for crude oil transport. Kazakhstan is landlocked and has no maritime claims.

Prior to gaining its independence in December of 1991 Kazakhstan was known as the Kazakh Soviet Socialist Republic. Kazakhstan was used extensively for weapons testing and was central to the Russian space program. In fact, Russia currently holds a 20 year lease of territory enclosing the Baykonur Cosmodrome, an area of approximately 6,000 sq km.

Kazakhstan borders the Caspian Sea, with 1,894 km of the Caspian's shoreline contained within its borders. In the Caspian Sea region Kazakhstan shares a border of 6,846 km with Russia and a border of 379 km with Turkmenistan. Other borders of political interest include a shared border with China measuring 1,533 km.

Like most nations in the region, Kazakhstan's population of nearly 17 million people is composed of numerous ethnic groups. The four major ethnic groups include Kazakh (53.4%), Russian (30%), Ukrainian (3.7%) and Uzbek (2.5%). Kazakhstan has a slight Muslim majority (47% of the population) with practitioners of Russian Orthodox accounting for 44% of the population.

The Republic of Kazakhstan is a republic containing administrative divisions in the form of 14 provinces and 3 cities. Kazakhstan's legal system is based on civil law with a Supreme Court and Constitutional Council representing the judicial branch. Important political figures include the Chief of State, President Nursultan A. Nazarbayev and the head of the government Prime Minister Daniyal Akhmetov.

Economic overview:

Kazakhstan's number one export is oil, accounting for 58% of all exports. However, in addition to major oil and natural gas deposits Kazakhstan also possesses rich deposits of minerals and precious metals including coal, iron ore, manganese, chrome ore, nickel, cobalt, copper, molybdenum, lead, zinc, bauxite, gold and uranium. The presence of these natural resources and the industries developed to extract them allow Kazakhstan to be less reliant on oil exports than other nations in the region, ferrous metals account for 24% of exports and chemicals 5% of exports. Following the collapse of the Soviet Union Kazakhstan experienced a short-term contraction of the economy, with the steepest annual decline occurring in 1994. From 1995-97 economic reforms and the continued privatization of government controlled industry resulted in a substantial shifting of assets into the private sector. The opening of the Caspian Consortium pipeline in 2001 (from western Kazakhstan's Tengiz oilfield to the Black Sea) has substantially raised export capacity. The government has engaged in several disputes with foreign oil companies over the terms of production agreements. Kazakhstan has experienced a real GDP growth rate of 9.5% (2002) estimate) and a relatively low inflation rate of 6% (2002 estimate). Kazakhstan's major export partners include Russia (16.2%), Bermuda (12.1%), China (11.3%), Germany (8.8%), Italy (5.5%), Ukraine (4.9%) and France (4%). Kazakhstan received \$610 million in economic aid from the United States from 1992-2000.

(Source: Central Intelligence Agency World Factbook)

Republic of Turkmenistan

| Caspian | Türkmenbaşy | Sanyganyah | Koli | Kazakhstan | Caspian | Sea | Balkanabat | Gyzylarbat | Türkmenabat | AshGABAT | Mary | AfgHaNistan | AfgHaNistan

Background:

Turkmenistan is a landlocked nation positioned between Iran in the south and Kazakhstan, its neighbor to the north. Turkmenistan was annexed by Russia between 1865 and 1885, eventually becoming a Soviet Republic in 1925. Like Azerbaijan and Kazakhstan, Turkmenistan does not have direct access to major sea lanes for crude oil transport. Due to the fact that Turkmenistan is landlocked it has no maritime claims.

Prior to gaining its independence in 1991 Turkmenistan was known as the Turkmen Soviet Socialist Republic. Turkmenistan borders the Caspian Sea, with 1,768 km of the Caspian's shoreline contained within its borders. In the Caspian Sea region Turkmenistan shares a border of 992 km with Iran and a border of 379 km with Kazakhstan. Other borders of political interest include a shared border with Afghanistan measuring 744 km.

Turkmenistan's population of nearly 5 million people is composed of numerous ethnic groups.

The four major ethnic groups include Turkmen (77%), Uzbek (9.2%), Russian (6.7%) and Kazakh (2%).

Turkmenistan has a large Muslim majority (89% of the population) with practitioners of Eastern Orthodox accounting for 9% of the population.

Turkmenistan is a republic containing administrative divisions in the form of 5 provinces.

Turkmenistan's legal system is based on civil law with a Supreme Court representing the judicial branch.

Important political figures include the Chief of State and head of the government, President and Chairman of the Cabinet of Ministers Saparmurat Niyazov. President Niyazov's term was extended indefinitely in 1999. Formal opposition to the government is outlawed.

Economic overview:

Unlike the other nations bordering the Caspian, Turkmenistan's number one export is natural gas, accounting for 57% of all exports. Oil comprises 26% of exports. In addition to major oil and natural gas deposits Turkmenistan also possesses coal, sulfur and salt deposits. With an authoritarian ex-Communist regime in power and a tribally based social structure, Turkmenistan has taken a cautious approach to economic reform. Privatization goals remain limited. In 1998-2003, Turkmenistan suffered from the continued lack of adequate export routes for natural gas and from obligations on extensive short-term external debt. At the same time, however, total exports rose by 38% in 2003, largely because of higher international oil and gas prices. Turkmenistan experienced a real GDP growth rate of 21.1% (2002 estimate) and a relatively low inflation rate of 5% (2002 estimate). Turkmenistan's major export partners include Ukraine (49.7%), Italy (18%), Iran (13.1%) and Turkey (6.2%). Turkmenistan received \$16 million in economic aid from the United States in 2001.

(Source: Central Intelligence Agency World Factbook)

Oil Reserve Definitions

To properly analyze Caspian Sea reserves a necessary first step is the development of useful

Petroleum reserve definitions. The Society of Petroleum Engineers (SPE) and World Petroleum Congress

(WPC) have established several useful definitions regarding oil reserves. The definitions provided by the

SPE for proven reserves, unproven reserves and probable reserves are the most useful and will be used in

the subsequent discussion. Summaries of these definitions are provided below.

Proved Reserves

Proved reserves are those quantities of petroleum which, by analysis of geological and engineering

data, can be estimated with reasonable certainty to be commercially recoverable, from a given date

forward, from known reservoirs and under current economic conditions, operating methods, and

government regulations.

Unproved Reserves

Unproved reserves are based on geologic and/or engineering data similar to that used in estimates

of proved reserves; but technical, contractual, economic, or regulatory uncertainties preclude such reserves

being classified as proved. Unproved reserves may be further classified as probable reserves and possible

reserves.

Probable Reserves

Probable reserves are those unproved reserves which analysis of geological and engineering data

suggests are more likely than not to be recoverable.

Possible Reserves

Possible reserves are those unproved reserves which analysis of geological and engineering data

suggests are less likely to be recoverable than probable reserves.

Source: www.spe.org/ Petroleum Reserves and Resources Definitions

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Caspian Sea Reserve Estimates

Estimates of Caspian Sea reserves have varied significantly over time and by source. In general, the United States government estimates are significantly higher than those of leading industry experts. This fact is clearly evident in the estimates presented in Tables 1.1 through 1.4. Some analyst believe the inflated estimates presented by the US government are a direct attempt to exaggerate the significance of the region's hydrocarbon wealth with the aim of reducing future dependence on Persian Gulf oil. (Bahgat, p. 143) It is generally understood that Caspian Sea oil and gas reserves have not been fully assessed and estimates will likely continue to grow over time.

Table 1.1 British Petroleum estimates of Caspian Oil and Gas Reserves

| Country | Estimated proven oil reserves (billion barrels) 2001 | Estimated proven gas reserves (trillion cubic feet) 2001 | Estimated proven oil reserves (billion barrels) 2002 | Estimated proven gas reserves (trillion cubic feet) 2002 |
|-----------------------|--|---|---|---|
| Azerbaijan | 7.0 | 30.0 | 7.0 | 30.0 |
| Iran | 89.7 | 812.3 | 89.7 | 812.3 |
| Kazakhstan | 8.0 | 65.0 | 9.0 | 65.0 |
| Russian Federation | 48.6 | 1680.0 | 60.0 | 1680.0 |
| Turkmenistan | 0.5 | 101.0 | 0.5 | 71.0 |
| Total | 153.8 | 2688.3 | 166.2 | 2658.3 |

Source: BP Statistical Review of World Energy (2003)

Table 1.2 Oil and Gas Journal estimates of Caspian Oil and Gas Reserves

| Country | Estimated proven oil reserves (billion barrels) 2001 | Estimated proven gas reserves (trillion cubic feet) 2001 | Estimated proven oil reserves (billion barrels) 2000 | Estimated proven gas reserves (trillion cubic feet) 2000 |
|-----------------------|---|---|---|---|
| Azerbaijan | 1.2 | 4.4 | 1.2 | 4.4 |
| Iran | 89.7 | 812.3 | 89.7 | 812.3 |
| Kazakhstan | 5.4 | 65.0 | 5.4 | 65.0 |
| Russian Federation | 48.6 | 1700.0 | 48.6 | 1700.0 |
| Turkmenistan | 0.5 | 101.0 | 0.5 | 101.0 |
| Total | 145.4 | 2682.7 | 145.4 | 2682.7 |

Source: "Worldwide Look at Reserves and Production," Oil and Gas Journal (2001)

Table 1.3 Department of Energy - EIA estimates of Caspian Oil and Gas Reserves

| Country | | Oil reserves (billion barrels) 2003 | • | | Gas reserves (trillion cubic Feet) 2003 | |
|------------------------|-------------|--|---------------|--------|---|-------|
| | Proven | Possible | Total | Proven | Possible | Total |
| Azerbaijan | 7 – 12.5 | 32.0 | 39 – 44.5 | 30.0 | 35.0 | 65.0 |
| Iran * | 0.1 | 15.0 | 15.1 | 0.0 | 10.6 | 10.6 |
| Kazakhstan | 9 – 17.6 | 92.0 | 101 - 109.6 | 65.0 | 88.3 | 153.3 |
| Russian Federation* | 0.3 | 7.0 | 7.3 | 0.0 | 0.0 | 0.0 |
| Turkmenistan | 0.5 - 1.7 | 38.0 | 38.5 - 39.7 | 71.0 | 158.9 | 229.9 |
| Total | 16.9 – 32.2 | 184 | 200.9 - 216.2 | 166 | 292.8 | 458.8 |

^{*} Note: EIA estimates include only regions near the Caspian

Source: Department of Energy - Energy Information Administration (www.eia.doe.gov)

Table 1.4 US Central Intelligence Agency estimates of Caspian Oil and Gas Reserves

| Country | Estimated Proven Oil reserves (billion barrels) 2001 | Estimated Proven Gas reserves (trillion cubic feet) 2001 |
|-----------------------|--|---|
| Azerbaijan | 0.59 | 0.06 |
| Iran | 94.39 | 24.8 |
| Kazakhstan | 2.71 | 0.92 |
| Russian Federation | 51.22 | 47.86 |
| Turkmenistan | 0.27 | 1.43 |
| Total | 149.18 | 75.07 |

Source: Central Intelligence Agency World Factbook (2003)

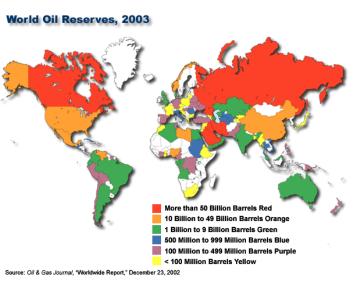
Regardless of the source several general conclusions can be drawn regarding oil and gas reserves in the Caspian Region. First, Kazakhstan contains the largest amount of proven oil reserves among the Caspian countries (excluding total Russian Federation and Iranian reserves) and also has the highest potential for future oil discoveries. (Energy in the Caspian Region, p. 27) Azerbaijan has the second largest oil reserves, however, onshore exploration is at a mature stage and new discoveries are not likely to be large. (Energy in the Caspian Region, p. 32) Finally, Turkmenistan has the smallest oil reserves; however, it possesses enormous natural gas reserves.

The Caspian Sea and the surrounding area encompass five different geological basins with different basin history, rock age and type, and hydrocarbon types and reserves. These basins are referred to as the South Caspian, North Caspian, North Usturt, Mangyshlak, and Amu-Darya basins. The South Caspian basin includes Azerbaijan, western Turkmenistan and a portion of Iran. The North Caspian basin

occupies portions of Kazakhstan and the Russian Federation. South of the North Caspian basin, the North Usturt basin contains a portion of Kazakhstan. The Mangyshlak basin lies almost entirely within the borders of Kazakhstan. Finally, the Amu-Darya basin is located in eastern Turkmenistan. (Energy in the Caspian Region, p. 13-24)

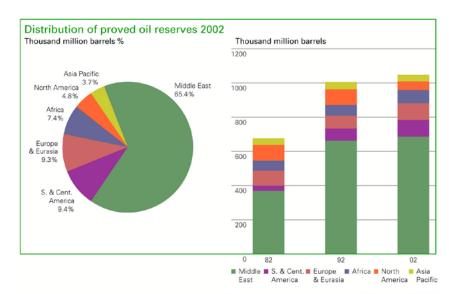
Caspian Oil Reserves in Perspective

Kazakhstani and Azerbaijani officials
have referred to their countries as "another Middle
East," "another Saudi Arabia," and "another
Kuwait." (Bahgat, p. 143) Although it is fair to
say that these claims are an exaggeration of the
truth few would argue that the Caspian region has
vast hydrocarbon reserves. British Petroleum's



2003 Statistical Review of World Energy (Appendix A) clearly illustrates Caspian reserves in relation to

worldwide proved oil reserves. BP's estimates indicate that the Middle East's reserves account for 65.4% of the world's total proven reserves (for 2002). By comparison, estimates for Europe and Eurasia (including the countries of Azerbaijan, Kazakhstan, the Russian Federation and Turkmenistan) only account for 9.3% of the worlds total proved reserves. These estimates suggest



BP statistical review of world energy 2003

what many experts have claimed, that Caspian reserves are more realistically comparable to North Sea reserves vise those of the Middle East.

Caspian Oil Production

While there may be some debate regarding the actual extent of Caspian reserves most sources agree on the extent of oil production in the region. Tables 2.1 through 2.3 summarize important production numbers for the Caspian republics. Although British Petroleum's estimates (Table 2.1) are somewhat higher than those reported in the Oil and Gas Journal (Table 2.2, Appendix B) the differences are not significant. Of considerable interest is the fact that the current oil production of Azerbaijan, Kazakhstan and Turkmenistan account for a relatively small percentage of world production with a combined 2% share of the total. Current production is proportional to reserves. Kazakhstan is by far the largest producer followed by Azerbaijan and Turkmenistan respectively.

Table 2.1 British Petroleum estimates of Caspian Oil Production

| Country | Estimated oil production (barrels/day) 2000 | Estimated oil production (barrels/day) 2002 | Percentage Share of total world oil production 2002 |
|-----------------------|---|--|---|
| Azerbaijan | 281,000 | 308,000 | 0.4 % |
| Iran | 3,766,000 | 3,366,000 | 4.7 % |
| Kazakhstan | 744,000 | 989,000 | 1.3 % |
| Russian Federation | 6,536,000 | 7,698,000 | 10.7 % |
| Turkmenistan | 144,000 | 182,000 | 0.3 % |
| Total | 11,471,000 | 12,543,000 | 17.4 % |

Source: BP Statistical Review of World Energy (2003)

Table 2.2 Oil and Gas Journal estimates of Caspian Oil Production

| Country | Estimated oil production (barrels/day) 2000 | Producing Oil Wells 2000 |
|--------------------|---|--------------------------|
| Azerbaijan | 257,800 | 2,102 |
| Iran | 3,567,500 | 1,120 |
| Kazakhstan | 627,000 | 11,715 |
| Russian Federation | 6,350,800 | 104,150 |
| Turkmenistan | 143,000 | 2,460 |
| Total | 10,946,100 | 121,547 |

Source: "Worldwide Look at Reserves and Production," Oil and Gas Journal (2001)

Table 2.3 US Central Intelligence Agency estimates of Caspian Oil Production

| Country | Estimated oil production (barrels/day) 2001 | Estimated oil consumption (barrels/day) 2001 |
|--------------------|---|--|
| Azerbaijan | 307,200 | 140,000 |
| Iran | 3,804,000 | 1,277,000 |
| Kazakhstan | 798,200 | 195,000 |
| Russian Federation | 7,286,000 | 2,595,000 |
| Turkmenistan | 162,500 | 63,000 |
| Total | 12,357,900 | 4,270,000 |

In order to significantly increase production the Caspian nations will have to overcome several formidable obstacles. First and foremost the national sovereignty issues surrounding the division of the Caspian seabed must be resolved. Secondly, foreign investment must be secured to locate and exploit existing and possible reserves. Finally, several major environmental challenges must be overcome including the massive pollution in the Caspian Sea caused by industrial waste, raw sewage and the direct discharge of crude oil.

Transportation of Caspian Petroleum Products to World Markets

The previous discussion of the Caspian region's geography indicated that the Caspian Sea is landlocked. Moreover, three of the five nations surrounding the Caspian (Azerbaijan, Kazakhstan, and Turkmenistan) are themselves landlocked. These facts play a central role in determining the routes and methods used to transport crude oil, refined products and natural gas to world markets. In general, the only efficient means to transport these products in sufficient quantity is via pipeline to deep water ports with access to major sea lanes. Pipeline projects represent large capital investments on the part of the governments involved and the cooperation and partnership of numerous government entities and private sector investors to accomplish.

Current Infrastructure

Before introducing information on proposed and current projects it is worthwhile to briefly examine the regions existing infrastructure. Table 3.1 summarizes the total length of existing pipelines in the five nations surrounding the Caspian.

Table 3.1 Total Lengths of Operational Caspian Pipelines (2003)

| Country | Oil(km) | Gas(km) | Refined |
|--------------|---------|---------|--------------|
| | | | Products(km) |
| Russia | 70,833 | 135,771 | 11,536 |
| Iran | 8,256 | 16,998 | 7,808 |
| Azerbaijan | 1,631 | 5,001 | N/A |
| Kazakhstan | 9,771 | 10,527 | 1,187 |
| Turkmenistan | 853 | 6,634 | N/A |
| Total | 91,344 | 174,931 | 20,531 |

Source: Central Intelligence Agency World Factbook (2003)

Despite a significant total length of existing pipeline relatively few large volume pipelines exist to transport products to Black Sea and Mediterranean ports. Access to these sea lanes is critical in the development of the region as they allow the movement of hydrocarbon reserves to world markets.

Appendix C contains additional information on the major pipelines currently in use and proposed pipeline projects. Major pipeline projects will be covered in greater detail in the next section.



Source: Energy Information Administration www.doe.eia.gov/Caspian Sea Region

Proposed Projects

In an effort to reach world markets numerous joint ventures and government sponsored projects have been undertaken. Three of the region's largest pipeline projects to date were undertaken to service

western markets. These projects include the Caspian Pipeline Consortium, the Baku-Tiblisi-Ceyhan (BTC) oil pipeline and the South Caucasus or Baku-Tiblisi-Erzurum (BTE) natural gas pipeline.

The Caspian Pipeline Consortium Project (CPC) will connect Kazakhstan's Caspian Sea area oil deposits with Russia's Black Sea port of Novorossiysk. The pipeline's first crude oil was loaded at Novorossiysk in October of 2001. Most of the oil routed through CPC comes from Kazakhstan's Tengiz field; however, several other Kazakhstani fields (including the Kashagan oilfield) are developing spur connections to the pipeline. These new connections are expected to increase throughput from 260,000 bbl/d, in 2002, to between 350,000 and 415,000 bbl/d by the end of 2003. Current capacity of the CPC pipeline is 560,000 bbl/d, with plans to increase capacity to 1.34 million bbl/d. Completion of this project will give the Caspian Sea region a viable alternative to the Russian dominated northern export routes (namely the Atyrau-Samara route).

The Baku-Tbilisi-Ceyhan pipeline will export Azeri (and quite possibly Kazakhstani) oil along a 1,040-mile route from Baku, Azerbaijan via Georgia to the Turkish Mediterranean port of Ceyhan, allowing oil to bypass the congested Bosporus Straits which connect the Black Sea and the Mediterranean. Moreover, this route bypasses potential "hot spots" in southern Russia and the entire territory of Armenia. Construction of the 1-million-bbl/d pipeline, which is estimated to cost \$2.9 billion, is scheduled to be completed in the fourth quarter of 2004, with oil to begin flowing in 2005.

The South Caucasus or Baku-Tbilisi-Erzurum gas pipeline will run parallel to the Baku-Tbilisi-Ceyhan oil pipeline for most of its route before connecting to the Turkish infrastructure near the town of Erzurum, eventually terminating in Istanbul. The pipeline is designed to carry natural gas from Azerbaijan's Shah Deniz field; planned capacity is expected to be 258 billion cubic feet per year. The project is scheduled to be completed in time for the Shah Deniz project's first contracted exports to Turkey in 2006.

(Source: Energy Information Administration www.doe.eia.gov/Caspian Sea Region)

Project Development – Political and Economic Issues

As previously mentioned, prior to 1991 all of the Republics surrounding the Caspian (with the exception of Iran) fell under the Soviet Unions sphere of influence. The nature of the communist regimes

politics, philosophy and command economy had several important implications for the movement of Caspian crude oil and natural gas prior to the dissolution of the Soviet Union. Cold War politics, a self-contained non-global economy and an artificial, fixed currency exchange rate all played a central part in the oil and gas transportation infrastructure established prior to 1991. Most notably, with no concern for servicing Western markets, pipelines were built to transport products from the Caspian region north into Russia and East into the Eastern Bloc countries. Moreover, in the years preceding the Soviet Unions collapse Moscow's focus shifted away from the Caspian region and toward the vast reserves of Siberia. Again, new pipeline construction and upkeep of the existing infrastructure suffered as a consequence. After gaining their independence in 1991, the new republics of the region had no way to easily transport their considerable hydrocarbon wealth (in sufficient volume) to the largest markets in the world, Western Europe and the United States.

The current and projected growth of Asian markets, especially that of China, and the Caspian's proximity to these markets has lead many to consider the development of projects to transport products from the Caspian region to the East. However, this option does not appear likely at present due to the enormous distances and geographical obstacles involved.

Political considerations and issues of national stability are major obstacles to potential construction projects and the subsequent movement of oil and natural gas south through Iran, Afghanistan or Pakistan. Current US sanctions against Iran will likely prevent foreign investment in any project involving construction of pipelines within Iranian borders. Turkmenistan has been promoting the Afghanistan option, which would entail building pipelines across Afghan territory to reach markets in Pakistan and possibly India. The fall of the Taliban regime in Afghanistan in December 2001 has rekindled proposals to build a Trans-Afghan natural gas pipeline; however, this effort has been delayed due to hesitance on the part of key financial backers.

Russia has proposed multiple pipeline routes that utilize its existing and proposed infrastructure. Shortly after independence, two new pipelines were constructed known as the "Northern" and "Western" Early Oil Pipelines, which extend from Baku to Novorossiysk (Russia), and Baku to Supsa (Georgia), respectively, and have a combined capacity of roughly 215,000 bbl/d. Also, an existing northbound pipeline from Atyrau in Kazakhstan to Samara in Russia has been upgraded. However, it is important to

realize that the other nations in the region are hesitant to rely on Russia as a primary export route and wish to diversify their export options.

(Source: Energy Information Administration www.doe.eia.gov/Caspian Sea Region)

Legal Debate on International Division of the Caspian Sea

Prior to 1991 the legal status of the Caspian Sea was not heavily scrutinized. More than four fifths of the Caspian's shore line was contained within the borders of the USSR with the remainder forming a portion of Iran's northern border. Three separate Russian-Iranian treaties signed in 1921, 1935 and 1940 set forth legal guidelines regarding the presence of warships, fishing rights and exclusive zones. These agreements established a ten nautical mile exclusive zone in coastal waters; however, they did not address other resources (including oil and natural gas).

After 1991 the situation became much more complicated as the newly independent nations began to contest legal rights to the Caspian's resources. One of the largest controversies between the Caspian states to date concerns the legal definition of the Caspian under international law. Laws governing "lakes" vary significantly from those governing "seas" and a general consensus has not been reached regarding which definition applies to the Caspian. Articles 122 and 123 of the 1982 United Nations Convention on the Law of the Sea (Appendix D) address "enclosed seas"; however, the Caspian is not specifically mentioned in these articles. Article 122 provides the following definition for enclosed seas:

"...a gulf, basin or sea surrounded by two or more states and connected to another sea or the ocean by a narrow outlet or consisting entirely or primarily of the territorial seas and exclusive economic zones of two or more coastal states."

The vagueness of Articles 122 and 123 provide the basis for a great deal of debate. It has been argued that this definition cannot be applied to the Caspian because it is entirely landlocked and not "connected to another sea or the ocean by a narrow outlet". On the other hand, some legal experts contest that the second half of the definition allows the Caspian to qualify as an enclosed sea. (Troubled Waters, p. 21) The uncertainty surrounding the proper classification of the Caspian in relation to Articles 122 and 123 has

allowed the nations surrounding the sea to interpret these articles in ways which accommodate their own individual interests.

If the Caspian is considered a sea it would be subject to the provisions of the 1982 convention. These rules state that each of the five nations would be entitled to extend their sovereignty over the internal waters and territorial seas up to 12 nautical miles from the coast. Moreover, their rights between 12 and 24 nautical miles would be limited to policing, customs and other functions which would help them prevent violations of their laws. Most importantly they would have sovereign rights over an area up to 200 nautical miles of the continental shelf and over an exclusive economic zone of up to 200 nautical miles. Given that the Caspian's width is much less than 400 nautical miles the Caspian states would have to cooperate to achieve an equitable agreement. (Troubled Waters, p. 22) One such agreement would involve the "median line method" in which the border lines of the exclusive economic zones and the borders of the continental shelf would be identical. Any resource exploration or development occurring in the "joint area" would require the agreement of all five nations.

On the other hand, if the Caspian Sea is viewed as a lake the situation changes dramatically. International law does not provide any meaningful precedence on lakes; therefore, the states have greater latitude in defining boundaries and a greater degree of sovereignty over those sections of the Caspian under their control. Several methods could be applied but general practice has been to divide lakes into sectors or a combination of national sectors and an area held in common. In most discussions involving the Caspian the notion of a common area is dismissed. One of the key implications of this arrangement is that each nation would have complete sovereignty over their sector. Moreover, each nation would be free to exploit any resources present in their respective sectors without the consent of the other nations in the region.

As previously indicated each nation in the Caspian chooses a definition which is most advantageous to their current interests in an effort to maximize the potential or known resources under their control while simultaneously minimizing those of the other four nations in the region. Figure 1 illustrates both the median line method and the national sector method of dividing the Caspian.

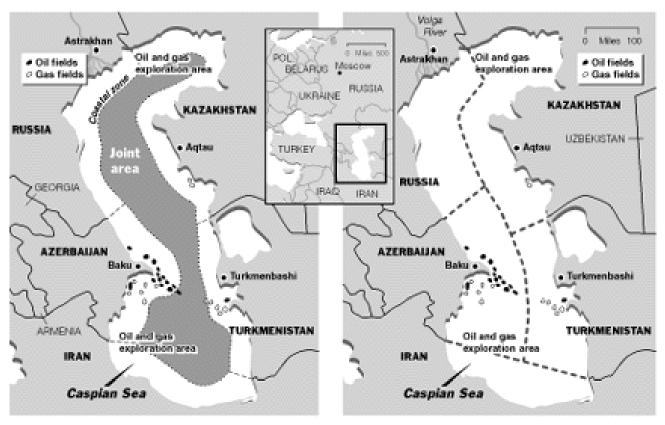


Figure 1 (Source: http://www.wws.princeton.edu/~wws401c/1998/caspian.html#legal)

In general Russia and Iran have opposed division of the Caspian into sectors. This reluctance has been largely motivated by the fact that the Russian and Iranian sectors would not contain significant reserves. Conversely, sector division is strongly supported by Azerbaijan due to the large number of oil fields in the Caspian waters east and southeast of Baku. Pressure to reach a consensus in the short term continues to grow as the future economic well being of the nations in the region is directly tied to Caspian hydrocarbon resource development. Russia in particular has shifted from a hard-line stance to one of accommodation, recently signing seabed delimitation treaties with both Azerbaijan and Kazakhstan.

As previously mentioned Azerbaijan, Kazakhstan, and Russia have ratified Caspian seabed delimitation treaties based on equidistance but there has been no resolution on dividing the water column among any of the littoral states. Iran continues to insist on dividing the Caspian Sea into five equal sectors and challenges Azerbaijan's hydrocarbon exploration in disputed waters. Turkmenistan has not committed

to follow either Iran or the other littoral states in the division of the Caspian Sea seabed and water column.

An International Court of Justice (part of the United Nations) decision is expected to resolve disputes over sovereignty of certain Caspian oilfields. (Source: Central Intelligence Agency World Factbook)

Geopolitics in the Caspian Region

Webster's dictionary defines geopolitics as "the study of the interrelationship of geography...and politics". Although many nations have an interest in the Caspian region this paper will focus on three particular aspects of Caspian geopolitics. Specifically, internal issues impacting hydrocarbon development and production will be discussed. Furthermore, the interests and foreign policy of the United States as they relate to the Caspian region will be explored. Finally, the role of foreign investment in regional development will be presented.

Regional Disputes and Conflicts

Regional stability is an important geopolitical consideration in the Caspian. Following the dissolution of the Soviet Union the new governments of the former socialist republics faced significant challenges including transition to market economies, government restructuring and the integration of diverse populations encompassing numerous ethnic groups and religions. Russia, in particular, has struggled with this transition. Numerous conflicts still plague the region, threatening future foreign investment and Caspian resource development.

The Russian Federation has been fighting a determined guerrilla war in Chechnya for years.

Additionally, Russia and China still dispute several small islands and China continues to seek a mutually acceptable solution. Moreover, several small, strategic segments of the Russian-Georgian border remain in dispute. Observers representing the Organization for Security and Cooperation in Europe (OSCE) continue to monitor some of the more volatile areas including the Pankisi Gorge in the Akhmeti region and the Argun Gorge in Abkhazia.

Recent conflicts and regime changes in the bordering countries of Afghanistan and Iraq continue to pressure Iran. Thousands of Afghan refugees reside in Iran. Moreover, Iran still has unresolved disputes

from the eight-year war with Iraq over maritime boundaries, land boundaries and navigation channels.

Azerbaijan and Armenia continue to dispute the independence of largely Armenian enclaves in Azerbaijan. The Armenian military currently occupies about one-sixth of Azerbaijan and the OSCE continues to mediate the dispute. Turkmenistan has not resolved its maritime boundary with Kazakhstan in the Caspian Sea. (Source: Central Intelligence Agency World Factbook)

In order to attract foreign investment in the region the Caspian states must attain an acceptable level of regional stability. Specifically, investors must have reasonable assurances that current and future joint projects will not be caught up in long (and unprofitable) legal debates or transit areas that may or may not be under the respective governments control in the future.

US interests in the Caspian Region

The United States is the only remaining superpower and the world's leading oil consumer, accounting for 25.4% of world oil consumption in 2002. The relatively small production figures attributable to the former Soviet Republics pale by comparison. Azerbaijan's, Kazakhstan's and Turkmenistan's combined oil production for 2002 was only 2% of total world production with individual contributions of 0.4%, 1.3% and 0.3% respectively. (BP Statistical Review of World Energy, 2003) Given that the entire production of these nations could only satisfy 8% of US annual consumption raises several important questions. The remainder of this section will attempt to answer some of these questions, including:

- 1. What is the United States current foreign policy position?
- 2. What does the United States hope to achieve in the Caspian region?
- 3. Why is the United States so interested in the region?

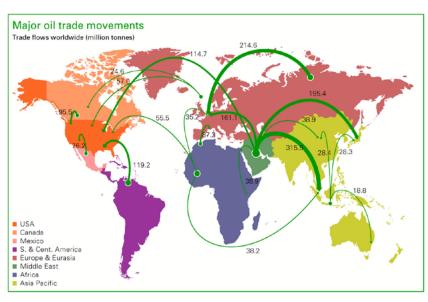
US foreign policy and interests in the Caspian region have shifted over time. From 1991 to 1994 the United States did not want to further destabilize an already volatile situation in the former Soviet Union. To facilitate this goal the US engaged in a non-interference policy in an attempt to bolster the

legitimacy of the new governments. During this period the United States' central preoccupation was the continued success of a stable government in Russia, consequently, the former Soviet republics in the Caspian region received little aid or assistance from the United States. From 1994 to 1997 US foreign policy shifted with the realization that an authoritarian regime might come to power in Russia. Consequently, United States policy supported the continued independence of the former Soviet Republics and US foreign aid to the region increased. After 1997 the Clinton administration recognized the former Soviet South as a "strategically vital region" which the United States could not afford to neglect. (Dekmejian/Simonian, p. 135) The United States current foreign policy goals in the region include:

- 1. Containing Russia;
- 2. Isolating Iran;
- 3. Rewarding allies old and new (Turkey, Georgia, Azerbaijan);
- 4. Pacification of the Caucasus (Nagorno-Karabakh and Abkhazia);
- 5. Development of alternate energy sources to reduce reliance on the Arabs and Iran;
- 6. Projection of US influence into a regional power vacuum, ostensibly to maintain stability (Source: Dekmejian/Simonian, p. 138)

The objectives listed above have several important implications. The goal of Iranian isolation stems from the United States' desire to contain the spread of Islamic fundamentalism. The continued

unilateral sanctions against Iran are one outcome of this policy. This policy has had a significant impact on hydrocarbon development in the region, especially in regards to foreign investment and joint ventures. In particular, (as the information presented in the proposed projects section clearly indicates) current and



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proposed projects in the region exclude Iranian interests and transit routes. Moreover, the theme of regional stability is predominant throughout the United States' foreign policy goals. The importance of regional stability to foreign investment will be discussed in greater detail in the next section. Finally, and perhaps most importantly, continued involvement in Caspian hydrocarbon development will reduce US dependence of Middle Eastern oil. While the United States expends considerable effort to diversify its oil imports it cannot escape the reality that the Middle East is the world's largest oil exporting region. For strategic purposes the United States desperately wants to reduce its reliance on OPEC oil. At present the United States imports 161.1 million tonnes of oil from the Middle East annually, 40 million tonnes more than from any other region. (BP Statistical Review of World Energy, 2003) US dependence on Middle Eastern oil is the major contributing factor to the United States' continued interest in the Caspian Sea region. While current production from the region is relatively small the projected reserves in the region could provide reduced dependence on OPEC in the future. Moreover, the US government's continued support of foreign investment (especially that of US international oil firms) is closely tied to this foreign policy objective.

Caspian Region Foreign Investment

The Caspian states future economic and fiscal well-being is directly tied to foreign investment. As we have seen in the previous sections hydrocarbon reserves account for a very large percentage of exports and constitute the major source of future income streams for the nations in the region. However, these resources have been largely underdeveloped to date. Moreover, the rather weak economies of these nations require the attraction of foreign capital to develop, produce and transport hydrocarbon resources to world markets. In his book entitled "American Oil Diplomacy in the Persian Gulf and the Caspian Sea", Gawdat Bahgat outlines the developments responsible for international oil companies' growing interest in the region. These developments include:

- 1. Production has declined in such great oil provinces as the Alaskan North Slope and the North Sea.
- 2. The Caspian region contains some of the largest underdeveloped oil and gas reserves in the world.

- 3. Saudi Arabia and Kuwait were strongly opposed to foreign investment in their energy sector. Iran, Iraq, and Libya have been under U.S. unilateral or UN multinational economic sanctions. For political reasons, international oil companies have been denied access to hydrocarbon resources in the Middle East.
- 4. Upon independence, Baku (Azerbaijan), Astana (Kazakhstan), and Ashgabat (Turkmenistan) had very weak economies. The only way to stop the deterioration of the standard of living was (and still is) to fully utilize their hydrocarbon resources. But the three states lack the necessary financial resources to explore and develop oil and gas fields. Their leaders concluded that foreign investment was essential for their economic growth... (Bahgat, p. 142)

Despite a number of recent setbacks

foreign investment in the region remains strong. The attached Energy Information Administration table summarizes the current leading foreign investment projects in the Caspian Sea region. Large potential reserves in the region coupled with the encouragement and support of both the Caspian states and Western governments will continue to galvanize international oil companies' resolve to invest heavily in the region for the foreseeable future. A number of the largest multinational oil companies in the world are already deeply involved in Caspian Sea development, most notably British Petroleum and ChevronTexaco. In fact ChevronTexaco has taken the lead in developing Caspian oil and gas resources and is well

| Table 1 | The Caspian Sea Region's Leading Upstream Foreign Investment Projects by Country | | | | |
|--------------|---|------------------------------|--------------------|--|--|
| Country | Project | Proven Reserves | 2002 Production | Projection | |
| Azerbaijan | ACG Mega- Structure (BP et al) | 5.4 Billion Barrels | 125,000 bbl/d | 2005: 460,000 bbl/d 2008-9: 1 million bbl/d | |
| | Shah Deniz (BP et al.) | 14 Trillion Cubic Feet | N/A | 2006: 296 Bcf | |
| | Tengiz (ChevronTexaco et al.) | 6-9 Billion Barrels | 285,000 bbl/d | 2006: 450,000 bbl/d 2010: 700,000 bbl/d | |
| Kazakhstan | Karachaganak (BG, Agip, et al.) | 2.4 Billion Barrels | 100,000 bbl/d | 2008: 240,000 bbl/d | |
| | Kashagan (ENI-Agip, BG, et al.) | 7-9 Billion Barrels | N/A | 2005: 100,000 bbl/d | |
| | Cheleken (Dragon Oil) | 0.6 Billion Barrels | 10,000 bbl/d | 2003: 11,000 bbl/d | |
| Turkmenistan | Nebit Dag (Burren Energy) | 0.1 Billion Barrels | 10,000 bbl/d | 2003: 12,000 bbl/d | |
| Uzbekistan | Central Ustyurt and Southwest Gissar (Trinity Energy) | Being Developed | | 2006: 2,600 bbl/d 71 Bcf | |

positioned to dominate oil and gas reserves and production ranking in the Caspian for several years to come. (Bahgat, p. 149) Billions of dollars have been invested in the region to date, however, the rate of investment varies with what experts term "above-the-ground-risk". An inverse relationship exists between risk and the rate of investment, in other words, the greater the risk the slower the rate of investment. The investment risks inherent in the Caspian region have been outlined in previous sections of this paper.

Specifically, these risks include accurately accessing the Caspian's hydrocarbon reserves; forecasting and analyzing conflicts between regional and international powers; domestic ethnic conflicts; disputes over the legal status of the Caspian; and disagreements on the most cost-effective means to transport petroleum products. (Bahgat, p. 143) In summation, the Caspian republics must strive to minimize these risks if they hope to maintain or accelerate the rate of foreign investment.

Summary

Since the early twentieth century the Caspian region has played an important role in history. Current events and future prospects indicate that this trend will continue well into this century. The stated objective of this paper was to provide the reader with a general, unbiased view of the Caspian region, its resources, historical and future challenges and its relevance to world petroleum markets. Numerous topics have been presented in an attempt to achieve that objective. The economic, social and political complexities of the Caspian region represent a significant body of work. However, with a little effort it is possible to discern the key issues impacting hydrocarbon development in the region.

While some topics are open to debate certain facts are undeniable. Despite a relatively large disparity among sources there is no doubt that the Caspian region contains vast hydrocarbon reserves. Moreover, the successful development of these reserves is in the best interest of both the Caspian Republics and the developed countries of the West. Every nation in the Caspian region must develop their hydrocarbon reserves to the fullest extent possible. The exportation of oil and natural gas will drive the economies of these nations and provide the cash inflows necessary to promote stability and improve the standard of living. The growing dependence of the United States and other Western powers on uninterrupted crude oil supplies will continue to shape foreign policy for the foreseeable future. The Caspian region represents an opportunity for the nations of Europe, Asia and North America to reduce their strategic reliance on Middle Eastern oil and the market pricing power of OPEC member nations.

To fully develop the Caspian region's reserves several major obstacles must be overcome. The nations in the region do not possess the economic resources necessary to develop their reserves. Therefore, the attraction and retention of foreign investment will continue to be a central preoccupation of the Caspian

governments. Secondly, a reasonable level of stability must be achieved in order to attract the support of foreign governments and investors. Attaining this stability will require the resolution of long standing ethnic and religious conflicts. Finally, the legal status of the Caspian Sea itself must be resolved. Failure to reach a consensus in the near term will slow resource development and threaten future projects. A bright future awaits the Caspian nations if they can successfully meet these challenges. Ultimately, Caspian crude will significantly impact world oil markets and international politics.

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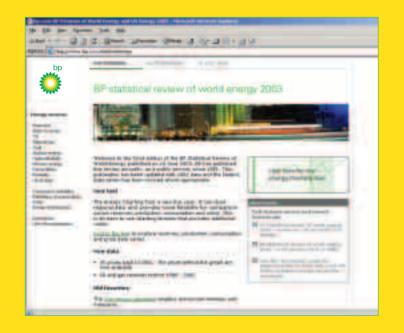
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Our website contains all data found in the printed edition, plus a number of additions, including the historical series from 1965 for many sections. The website covers additional energy topics, such as renewable energy, and includes tools to assist researchers. All data can be downloaded.



BP is one of the world's largest petroleum and petrochemicals companies. Our main activities are exploration for and production of crude oil and natural gas; oil refining, marketing, supply and transportation; and manufacturing and marketing of petrochemicals. We have a growing activity in gas, power and renewables and in solar power generation. BP has well-established operations in Europe, North and South America, Asia, Australasia and Africa.



In a year when events have brought energy issues back into high profile with fears of disruption to supplies and of price instability, it is instructive to take a long-term perspective and to consider the gradual changes that are reshaping the global energy market.

This is the 52nd edition of the BP Statistical Review of World Energy. In its early years, the Review recorded the growth in the consumption of oil, particularly in Europe and North America, in response to the increase in the number of cars. It also recorded the growth in energy trade, again concentrated in oil.

Five decades on, we are seeing a series of important shifts in the pattern of energy consumption and supply. Natural gas is overtaking coal as a source of energy around the world. Trade in both oil and gas as a proportion of total energy consumption is growing, and the geographical pattern of that trade is changing as economic growth, particularly in China, leads to an increase in the requirement for energy imports.

The continuing development of Russian energy resources is steadily increasing production and opening up the potential for new trading links. So, too, is the development of the energy resources in the Caspian region. The growth in natural gas consumption is contributing to the shift to a lower carbon fuel mix as well as providing a further important element of security in an energy market where the sources of supply are more diversely spread than at any time over the last century.

These are the trends that will shape the world's energy market over the decades ahead. They are also the trends shaping BP's business activity as we approach our first centenary in 2008.

The Statistical Review is a document of record that has tracked change for more than half a century. I would like to thank all those within BP and beyond who have helped produce this year's edition which can also be found on our website at www.bp.com/centres/energy. I hope you will find it a useful and stimulating summary of a fascinating and ever evolving story that remains crucial to human progress.

The Lord Browne of Madingley

Group Chief Executive

June 2003

BP Statistical Review of World Energy



2002 in review

World consumption of primary energy increased by 2.6% in 2002, well ahead of the 10-year growth trend of 1.4% per annum. Reported growth in energy demand of almost 20% in China was behind much of this relative strength: energy consumption in the world, excluding China, grew by less than 1% during the year, reflecting a second year of below-trend economic growth.

Energy developments

Coal was the fastest-growing fuel in 2002 on the back of a huge 28% reported rise in Chinese consumption. World coal consumption increased by almost 7%, well ahead of the 10-year annual trend rate of less than 1%. Natural gas consumption recovered strongly to grow by 2.8% in 2002, while oil consumption was broadly flat for the second year running. Nuclear and hydroelectricity grew by 1.5% and 1.3% respectively.

By region, energy demand was especially weak in Europe and Japan, where consumption fell by 1%, and in South & Central America, where consumption was flat compared with 2001. Economic conditions explain much of this weakness.

Apart from South & Central America, energy consumption growth in the emerging economies was relatively robust in 2002. Non-OECD Asia Pacific (excluding Japan, South Korea and Australasia) experienced growth of almost 11.5%, reflecting very strong growth of 19.7% in China, while Africa and the Middle East saw rises of 2.2% and 1.6% respectively.

Oil

Brent oil prices averaged \$25.19 per barrel in 2002, up slightly on the 2001 average price of \$24.77 and well above the post-1986 annual average of \$19.40. Prices were relatively weak at the start of the year in the wake of the 11 September 2001 terrorist attacks, but trended upwards over the course of 2002 on the back of OPEC production restraint and supply disruptions involving Iraq and Venezuela. The low point in prices of around \$18 per barrel was recorded in mid-January, whereas the peak of almost \$32 was registered just before the end of the year.

OPEC oil production fell substantially in 2002 for the second year running. Average production for the year was down by more than 1.8 million barrels per day (b/d) or 6.4%, following an 870,000 b/d or 2.8% decrease in 2001. The steep drop in OPEC output was the result of output restraint and a number of unplanned disruptions to production. As in 2001, the largest fall in percentage terms was 14.4% in Iraq, which was affected by a month-long suspension of exports from April to May and the imposition of 'retroactive pricing' under the UN's 'Oil for Food' programme.

OPEC output restraint in 2002 was a response to the sharp drop in the demand for its oil in the face of weak global oil demand growth and the rapid expansion of oil production outside OPEC. Oil demand in 2002 was exceptionally weak for the third consecutive year, with consumption growing by only 290,000 b/d. Oil production outside OPEC increased by 1.45 million b/d.

The countries of the Former Soviet Union (FSU) accounted for over half of this increase, with Russia and Kazakhstan, up by 640,000 b/d and 150,000 b/d respectively, accounting for nearly all the FSU's gains. Other large output increases came from Canada, Angola and Brazil, up by 170,000 b/d, 160,000 b/d and 160,000 b/d respectively.

Natural gas

World consumption of natural gas grew by a relatively strong 2.8% in 2002 on the back of a 3.9% US consumption increase and robust growth in Non-OECD Asia Pacific of more than 7%. The US increase followed a fall of similar magnitude the year before, as natural gas prices moderated from 2001 levels.

On the gas production side, North America was the only region to see a decline. A price-driven drop in drilling activity following the boom in 2001 explains some of the decrease, but the maturity of the USA and Canada from a resource perspective also seems a contributing factor. Another notable feature of 2002 was the first increase in Russian production for several years, as the super-giant Zapolyarnoye field was brought on stream. Within Europe, Norwegian output expanded strongly by 21.4% as production from the UK and the Netherlands, down 2.6% and 3.2% respectively, contracted.

Other fuels

World coal consumption increased by 6.9% in 2002. However, this was almost entirely a Chinese phenomenon: reported consumption in China rose by an extraordinary 27.9%. Excluding China, world coal consumption grew by just 0.6%, with strong growth of 3.7% in Asia (excluding China), and modest growth in North America of 1.5%, offset by declines of 1% in Europe and 7.8% in the FSU.

Consumption of nuclear power rose modestly in 2002, expanding by 1.5% globally. The fastest increase in nuclear power occurred in Asia, home to most of the new plants under construction. Hydroelectric generation recovered only partially from a very weak 2001. Strong rebounds of 10.4% in North America and 4.6% in Latin America were counteracted by weakness in Europe, which declined by 9.9%.

Acknowledgements

We express our gratitude to our numerous contacts worldwide who provide the basic data for this publication.

| Proved reserves | At end 1982 Thousand | At end 1992 Thousand | At end 2001 Thousand | Thousand | At end Thousand | 1 2002 | |
|-------------------------------|-------------------------|-------------------------|-------------------------|-----------------|--------------------|------------------|---------------|
| Toved reserves | million | million | million | million | million | Share | R/F |
| JSA | barrels 35.1 | barrels 32.1 | barrels 30.0 | barrels 30.4 | tonnes | of total 2.9% | ratio 10.8 |
| JSA Canada | 8.3 | 7.5 | 6.5 | 6.9 | 3.0 0.9 | 0.7% | 9.0 |
| Vexico | 48.3 | 51.3 | 26.9 | 12.6 | 1.8 | 1.2% | 10.1 |
| Total North America | 91.6 | 90.9 | 63.5 | 49.9 | 6.4 | 4.8% | 10.1 |
| Argentina | 2.6 | 1.6 | 3.0 | 2.9 | 0.4 | 0.3% | 10.5 |
| Brazil | 1.8 | 3.0 | 8.5 | 8.3 | 1.1 | 0.8% | 15.4 |
| Colombia | 0.5 | 1.9 | 1.8 | 1.8 | 0.3 | 0.2% | 8.5 |
| Ecuador | 1.4 | 1.6 | 2.1 | 4.6 | 0.3 | 0.4% | 31.2 |
| Peru | 0.8 | 0.4 | 0.3 | 0.3 | † | 0.4 /6 | 9.2 |
| rinidad & Tobago | 0.6 | 0.4 | 0.5 | 0.7 | 0.1 | 0.1% | 13.6 |
| /enezuela | 21.5 | 62.7 | 77.7 | 77.8 | 11.2 | 7.4% | 74.0 |
| Other S. & Cent. America | 1.0 | 0.8 | 1.9 | 2.0 | 0.3 | 0.2% | 39.2 |
| otal S. & Cent. America | 30.2 | 72.5 | 96.0 | 98.6 | 14.1 | 9.4% | 42.0 |
| zerbaijan | n/a | 1.3 | 7.0 | 7.0 | 1.0 | 0.7% | 62. |
| Denmark | 0.5 | 0.7 | 1.1 | 1.3 | 0.2 | 0.1% | 10.0 |
| aly | 0.7 | 0.7 | 0.6 | 0.6 | 0.1 | 0.1% | 16.0 |
| azakhstan | n/a | 5.2 | 8.0 | 9.0 | 1.2 | 0.9% | 26. |
| lorway | 6.8 | 8.8 | 9.4 | 10.3 | 1.4 | 1.0% | 8. |
| omania | n/a | 1.6 | 1.0 | 1.0 | 0.1 | 0.1% | 20. |
| ussian Federation | n/a | 48.5 | 48.6 | 60.0 | 8.2 | 5.7% | 20. |
| ırkmenistan | n/a | n/a | 0.5 | 0.5 | 0.1 | 0.1% | 8. |
| nited Kingdom | 13.9 | 4.1 | 4.9 | 4.7 | 0.6 | 0.5% | 5. |
| zbekistan | n/a | n/a | 0.6 | 0.6 | 0.0 | 0.1% | 11. |
| Other Europe & Eurasia | 67.0 | 4.1 | 2.3 | 2.4 | 0.1 | 0.1% | 14. |
| otal Europe & Eurasia | 88.8 | 75.0 | 84.1 | 97.5 | 13.3 | 9.3% | 17. |
| an | 55.3 | 92.9 | 89.7 | 89.7 | 12.3 | 8.6% | 73. |
| aq | 41.0 | 100.0 | 112.5 | 112.5 | 15.2 | 10.7% | 70. |
| uwait | 67.2 | 96.5 | 96.5 | 96.5 | 13.3 | 9.2% | |
| man | 2.7 | 4.5 | 5.5 | 5.5 | 0.7 | 0.5% | 16. |
| atar | 3.4 | 3.7 | 15.2 | 15.2 | 2.0 | 1.5% | 57.0 |
| audi Arabia | 165.3 | 260.3 | 261.8 | 261.8 | 36.0 | 25.0% | 86.0 |
| yria | 1.5 | 1.7 | 2.5 | 2.5 | 0.3 | 0.2% | 11.9 |
| Inited Arab Emirates | 32.4 | 98.1 | 97.8 | 97.8 | 13.0 | 9.3% | |
| emen | - | 4.0 | 4.0 | 4.0 | 0.5 | 0.4% | 23.4 |
| Other Middle East | 0.2 | 0.1 | 0.1 | 0.1 | † | ♦ | 7.8 |
| otal Middle East | 369.0 | 661.8 | 685.6 | 685.6 | 93.4 | 65.4% | 92.0 |
| lgeria | 9.4 | 9.2 | 9.2 | 9.2 | 1.2 | 0.9% | 16. |
| ngola | 1.6 | 1.5 | 5.4 | 5.4 | 0.7 | 0.5% | 16.4 |
| ameroon | 0.5 | 0.4 | 0.4 | 0.4 | 0.1 | • | 15.3 |
| ep. of Congo (Brazzaville) | 1.6 | 0.8 | 1.5 | 1.5 | 0.2 | 0.1% | 16.0 |
| gypt | 3.3 | 6.2 | 3.7 | 3.7 | 0.5 | 0.4% | 14. |
| abon | 0.5 | 0.7 | 2.5 | 2.5 | 0.3 | 0.2% | 23.: |
| bya | 21.5 | 22.8 | 29.5 | 29.5 | 3.8 | 2.8% | 59. |
| igeria | 16.8 | 17.9 | 24.0 | 24.0 | 3.2 | 2.3% | 32. |
| udan | 0.4 | 0.3 | 0.6 | 0.6 | 0.1 | 0.1% | 6. |
| unisia | 1.9 | 1.7 | 0.3 | 0.3 | t | • | 11.: |
| ther Africa | 0.4 | 0.3 | 0.3 | 0.3 | t | • | 3.: |
| otal Africa | 57.8 | 61.9 | 77.4 | 77.4 | 10.3 | 7.4% | 27.3 |
| ustralia | 1.6 | 1.8 | 3.5 | 3.5 | 0.4 | 0.3% | 14. |
| runei | 1.2 | 1.4 | 1.4 | 1.4 | 0.2 | 0.1% | 18.0 |
| hina | 19.5 | 24.0 | 24.0 | 18.3 | 2.5 | 1.7% | 14. |
| dia | 3.4 | 6.0 | 4.8 | 5.4 | 0.7 | 0.5% | 19. |
| donesia | 9.6 | 5.8 | 5.0 | 5.0 | 0.7 | 0.5% | 11. |
| lalaysia | 3.3 | 3.7 | 3.0 | 3.0 | 0.4 | 0.3% | 10. |
| apua New Guinea | - | 0.3 | 0.2 | 0.2 | t | • | 14. |
| nailand | 0.1 | 0.2 | 0.5 | 0.6 | 0.1 | 0.1% | 9. |
| etnam | - | 0.5 | 0.6 | 0.6 | 0.1 | 0.1% | 4. |
| ther Asia Pacific | 0.5 | 0.8 | 0.7 | 0.8 | 0.1 | 0.1% | 14. |
| otal Asia Pacific | 39.2 | 44.6 | 43.8 | 38.7 | 5.2 | 3.7% | 13. |
| OTAL WORLD | 676.7 | 1006.7 | 1050.3 | 1047.7 | 142.7 | 100.0% | 40. |
| | 116.7 | 108.9 | 84.5 | 72.0 | 9.4 | 6.9% | 9. |
| Which: OECD# | | | | | | | |
| OPEC | 443.3 | 769.9 | 818.8 | 819.0 | 111.9 | 78.2% | 82.0 |
| f which: OECD# OPEC Non-OPEC‡ | | | | 819.0 150.9 | 111.9 20.1 | 78.2% 14.4% | 82.0 11.9 |

^{*}Over 100 years.

n/a not available.

Notes:

Proved reserves of oil - Generally taken to be those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the

future from known reservoirs under existing economic and operating conditions.

Reserves/Production (R/P) ratio – If the reserves remaining at the end of any year are divided by the production in that year, the result is the length of time that those remaining reserves would last if production were to continue at that level.

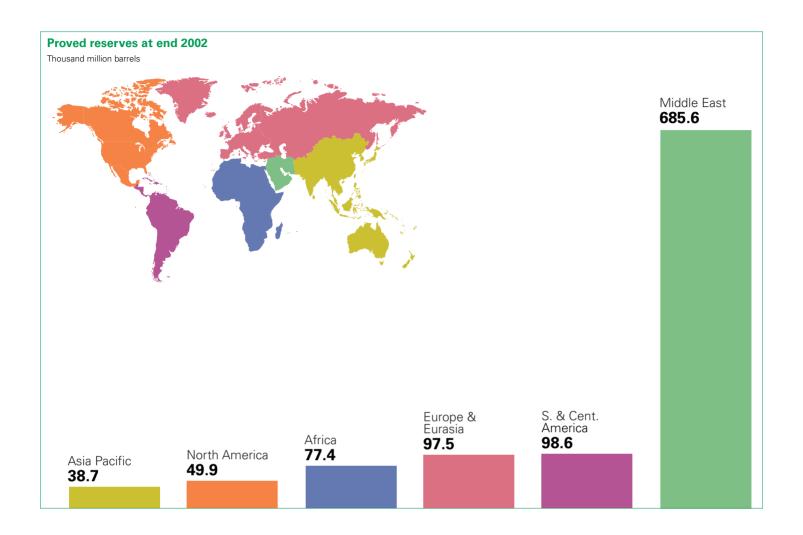
Source of data – With the exception of Azerbaijan, Kazakhstan and Egypt for 2001, the estimates contained in this table are those published by the Oil & Gas Journal, plus an estimate of natural gas liquids for USA and Canada. Reserves of shale oil and oil sands are not included.

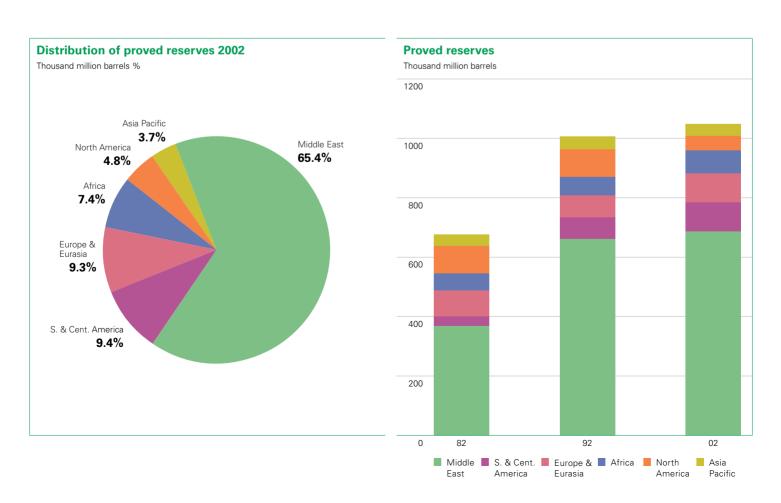
^{*}Less than 0.05.

*Less than 0.05%.

#1982 excludes Central European members.

‡Excludes Former Soviet Union.





| Production* | | | | | | | | | | | | Change | 2002 |
|--------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------------|-------------------|
| Thousand barrels daily | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2002 over 2001 | share of total |
| USA | 8868 | 8583 | 8389 | 8322 | 8295 | 8269 | 8011 | 7731 | 7733 | 7670 | 7698 | 0.3% | 9.9% |
| Canada | 2062 | 2184 | 2276 | 2402 | 2480 | 2588 | 2672 | 2604 | 2721 | 2712 | 2880 | 6.4% | 3.8% |
| Mexico | 3120 | 3132 | 3142 | 3065 | 3277 | 3410 | 3499 | 3343 | 3450 | 3560 | 3585 | 1.0% | 5.0% |
| Total North America | 14050 | 13899 | 13807 | 13789 | 14052 | 14267 | 14182 | 13678 | 13904 | 13942 | 14163 | 1.7% | 18.7% |
| Argentina Brazil | 587 652 | 630 664 | 695 693 | 758 718 | 823 807 | 877 868 | 890 1003 | 847 1133 | 818 1268 | 827 1337 | 800 1500 | -3.2% 12.2% | 1.1% 2.1% |
| Colombia | 442 | 458 | 460 | 591 | 635 | 667 | 775 | 838 | 711 | 627 | 601 | -4.2% | 0.8% |
| Ecuador | 328 | 353 | 388 | 395 | 393 | 397 | 384 | 382 | 409 | 416 | 410 | -1.5% | 0.6% |
| Peru | 117 | 127 | 128 | 123 | 121 | 120 | 119 | 110 | 104 | 98 | 98 | - | 0.1% |
| Trinidad & Tobago | 144 | 134 | 141 | 142 | 141 | 135 | 134 | 141 | 138 | 135 | 155 | 15.4% | 0.2% |
| Venezuela | 2499 | 2592 | 2752 | 2959 | 3137 | 3321 | 3510 | 3248 | 3321 | 3210 | 2942 | -8.3% | 4.3% |
| Other S. & Cent. America | 76 | 83 | 90 | 96 | 102 | 108 | 125 | 122 | 129 | 138 | 148 | 7.7% | 0.2% |
| Total S. & Cent. America | 4845 | 5040 | 5347 | 5782 | 6159 | 6493 | 6940 | 6822 | 6898 | 6788 | 6654 | -2.1% | 9.4% |
| Azerbaijan | 226 | 209 | 193 | 185 | 183 | 185 | 230 | 278 | 281 | 300 | 308 | 2.8% | 0.4% |
| Denmark | 159 86 | 170 89 | 187 94 | 188 101 | 207 104 | 233 114 | 235 108 | 301 96 | 364 88 | 347 79 | 371 103 | 7.0% 29.8% | 0.5% 0.2% |
| Italy Kazakhstan | 549 | 490 | 430 | 434 | 474 | 536 | 537 | 631 | 744 | 836 | 989 | 17.8% | 1.3% |
| Norway | 2218 | 2377 | 2693 | 2903 | 3233 | 3280 | 3139 | 3139 | 3346 | 3418 | 3330 | -3.0% | 4.4% |
| Romania | 142 | 144 | 145 | 145 | 142 | 141 | 137 | 133 | 131 | 130 | 127 | -2.3% | 0.2% |
| Russian Federation | 8038 | 7173 | 6419 | 6288 | 6114 | 6227 | 6169 | 6178 | 6536 | 7056 | 7698 | 9.1% | 10.7% |
| Turkmenistan | 109 | 92 | 87 | 84 | 90 | 108 | 129 | 143 | 144 | 162 | 182 | 12.4% | 0.3% |
| United Kingdom | 1981 | 2119 | 2675 | 2749 | 2735 | 2702 | 2793 | 2893 | 2657 | 2476 | 2463 | -0.6% | 3.3% |
| Uzbekistan | 79 | 94 | 124 | 172 | 174 | 182 | 191 | 191 | 177 | 171 | 171 | 0.3% | 0.2% |
| Other Europe & Eurasia | 641 | 601 | 609 | 576 | 548 | 526 | 507 | 475 | 468 | 467 | 480 | 3.1% | 0.7% |
| Total Europe & Eurasia | 14228 | 13557 | 13656 | 13825 | 14004 | 14233 | 14175 | 14458 | 14937 | 15443 | 16222 | 5.0% | 22.0% |
| Iran | 3523 | 3683 | 3692 | 3695 | 3709 | 3726 | 3803 | 3550 | 3766 | 3680 | 3366 | -8.6% | 4.7% |
| Iraq | 531 1077 | 455 1945 | 505 2085 | 530 2130 | 580 2129 | 1166 2137 | 2126 2176 | 2541 2000 | 2583 2105 | 2371 2069 | 2030 1871 | -14.4% -9.8% | 2.8% 2.6% |
| Kuwait Oman | 748 | 785 | 819 | 868 | 897 | 909 | 905 | 911 | 959 | 961 | 902 | -9.6% -6.2% | 1.3% |
| Qatar | 495 | 460 | 451 | 461 | 568 | 694 | 747 | 724 | 796 | 779 | 755 | -3.3% | 1.0% |
| Saudi Arabia | 9098 | 8962 | 9023 | 9032 | 9180 | 9361 | 9370 | 8694 | 9297 | 8992 | 8680 | -3.7% | 11.8% |
| Syria | 518 | 570 | 568 | 601 | 591 | 582 | 580 | 583 | 554 | 587 | 576 | -1.9% | 0.8% |
| United Arab Emirates | 2510 | 2443 | 2482 | 2410 | 2495 | 2490 | 2556 | 2299 | 2492 | 2429 | 2270 | -6.9% | 3.0% |
| Yemen | 184 | 209 | 346 | 351 | 357 | 375 | 380 | 405 | 450 | 471 | 473 | 0.4% | 0.6% |
| Other Middle East | 54 | 53 | 52 | 52 | 50 | 50 | 49 | 48 | 49 | 49 | 49 | - | 0.1% |
| Total Middle East | 18739 | 19566 | 20023 | 20130 | 20555 | 21488 | 22692 | 21755 | 23051 | 22388 | 20973 | -6.5% | 28.5% |
| Algeria | 1323 | 1329 | 1324 | 1327 | 1386 | 1421 | 1461 | 1515 | 1579 | 1562 | 1659 | 6.7% | 2.0% |
| Angola | 550 134 | 504 130 | 557 115 | 633 106 | 716 110 | 741 124 | 731 105 | 745 95 | 746 88 | 742 80 | 905 72 | 22.0% -9.9% | 1.3% 0.1% |
| Cameroon Rep. of Congo (Brazzaville) | 167 | 185 | 185 | 180 | 200 | 225 | 264 | 293 | 275 | 271 | 258 | -9.9% -4.7% | 0.1% |
| Egypt | 906 | 941 | 921 | 924 | 894 | 873 | 857 | 827 | 781 | 758 | 751 | -1.0% | 1.0% |
| Equatorial Guinea | 2 | 5 | 5 | 7 | 17 | 60 | 83 | 100 | 113 | 181 | 237 | 31.0% | 0.3% |
| Gabon | 289 | 305 | 337 | 356 | 365 | 364 | 337 | 340 | 327 | 301 | 295 | -2.0% | 0.4% |
| Libya | 1473 | 1402 | 1431 | 1439 | 1452 | 1489 | 1480 | 1425 | 1475 | 1425 | 1376 | -3.5% | 1.8% |
| Nigeria | 1950 | 1985 | 1988 | 1998 | 2138 | 2303 | 2163 | 2028 | 2104 | 2199 | 2013 | -8.5% | 2.8% |
| Sudan | _ | 2 | 2 | 2 | 5 | 9 | 12 | 63 | 174 | 211 | 233 | 10.4% | 0.3% |
| Tunisia | 110 | 99 | 93 | 90 | 89 | 81 | 85 | 86 | 80 | 73 | 76 | 3.3% | 0.1% |
| Other Africa | 29 | 36 | 42 | 51 | 62 | 64 | 63 | 56 | 61 | 64 | 61 | -4.8% | 0.1% |
| Total Africa | 6933 | 6922 | 7001 | 7112 | 7434 | 7754 | 7640 | 7574 | 7803 | 7868 | 7937 | 0.8% | 10.6% |
| Australia Brunei | 598 182 | 566 175 | 611 179 | 583 175 | 610 165 | 668 163 | 644 157 | 577 182 | 812 193 | 733 203 | 730 210 | -1.0% 3.5% | 0.9% 0.3% |
| China | 2841 | 2888 | 2930 | 2989 | 3170 | 3211 | 3212 | 3213 | 3252 | 3306 | 3387 | 2.5% | 4.8% |
| India | 643 | 620 | 708 | 804 | 778 | 800 | 791 | 788 | 780 | 779 | 793 | 2.0% | 1.0% |
| Indonesia | 1579 | 1588 | 1589 | 1578 | 1580 | 1557 | 1520 | 1408 | 1456 | 1389 | 1278 | -8.1% | 1.8% |
| Malaysia | 670 | 662 | 674 | 724 | 736 | 764 | 815 | 791 | 791 | 786 | 833 | 5.6% | 1.0% |
| Papua New Guinea | 53 | 126 | 121 | 100 | 106 | 76 | 81 | 88 | 69 | 58 | | -20.7% | 0.1% |
| Thailand | 83 | 87 | 87 | 87 | 97 | 116 | 121 | 132 | 164 | 174 | 197 | 13.4% | 0.2% |
| Vietnam | 111 | 128 | 144 | 155 | 179 | 205 | 245 | 296 | 328 | 350 | 354 | 1.0% | 0.5% |
| Other Asia Pacific | 159 | 156 | 143 | 136 | 145 | 158 | 143 | 137 | 136 | 144 | 160 | 10.9% | 0.2% |
| Total Asia Pacific | 6918 | 6996 65080 | 7186 | 7330 | 7566 | 7718 | 7729 | 7612 | 7981 | 7921 | 7987 | 0.7% | 10.7% |
| TOTAL WORLD of which: OECD | 65713 | 65980 | 67020 | 67968 | 69770 | 71953 | 73357 | 71898 | 74574 | 74350 | 73935 21516 | -0.7% | 100.0% |
| OPEC | 19572 26059 | 19671 26844 | 20530 27322 | 20742 27559 | 21352 28354 | 21669 29663 | 21482 30910 | 21040 29432 | 21517 30974 | 21341 30105 | 28240 | 0.8% -6.4% | 28.4% 38.4% |
| Non-OPEC‡ | 30505 | 30940 | 32306 | 33113 | 34245 | 34913 | 35056 | 34915 | 35587 | 35586 | 36214 | 1.8% | 48.6% |
| Former Soviet Union | 9149 | 8196 | 7391 | 7297 | 7171 | 7377 | 7391 | 7551 | 8013 | 8659 | 9482 | 9.4% | 13.1% |
| TOTAL SOVICE STROTT | 0170 | 0100 | , 50 1 | , 201 | , 1 / 1 | , 577 | , 50 1 | , 001 | 5010 | 5555 | 0.402 | J. 7 /U | 10.170 |

^{*}Includes crude oil, shale oil, oil sands and NGLs (natural gas liquids – the liquid content of natural gas where this is recovered separately).

Excludes liquid fuels from other sources such as coal derivatives.

‡Excludes Former Soviet Union.

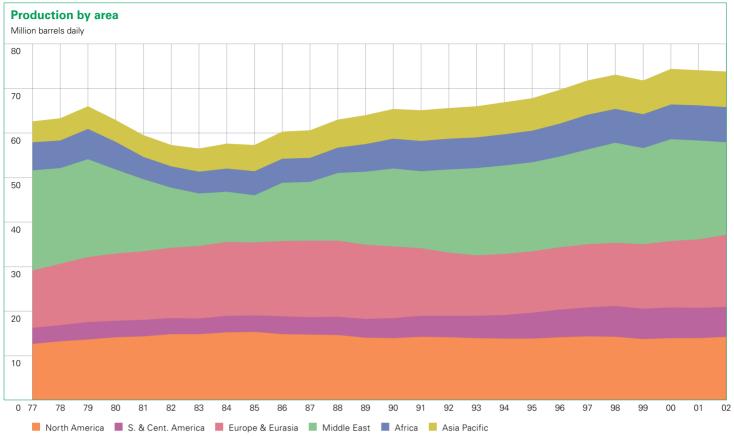
Note: Annual changes and shares of total are calculated using million tonnes per annum figures rather than thousand barrels daily. Because of rounding some totals may not agree exactly with the sum of their component parts.

| Production* | | | | | | | | | | | | Change | 2002 |
|--|---|---|--|--|---|--|--|--|---|--|---|--|--|
| Million tonnes | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2002 over 2001 | share of total |
| USA | 413.0 | 397.0 | 387.5 | 383.6 | 382.1 | 380.0 | 368.1 | 352.6 | 352.6 | 349.2 | 350.4 | 0.3% | 9.9% |
| Canada | 97.0 | 102.0 | 106.4 | 111.9 | 115.5 | 120.7 | 125.1 | 121.0 | 126.9 | 127.5 | 135.6 | 6.4% | 3.8% |
| Mexico | 153.7 | 153.8 | 154.4 | 150.5 | 162.6 | 169.7 | 173.5 | 165.2 | 171.2 | 176.6 | 178.4 | 1.0% | 5.0% |
| Total North America | 663.7 | 652.9 | 648.3 | 646.0 | 660.1 | 670.4 | 666.7 | 638.8 | 650.8 | 653.3 | 664.4 | 1.7% | 18.7% |
| Argentina | 29.0 | 31.1 | 34.5 | 37.5 | 40.8 | 43.4 | 44.0 | 41.8 | 40.4 | 40.8 | 39.4 | -3.2% | 1.1% |
| Brazil | 32.3 | 32.9 | 34.3 | 35.5 | 40.2 | 43.1 | 49.8 | 56.3 | 63.2 | 66.3 | 74.4 | 12.2% | 2.1% |
| Colombia | 22.2 | 22.9 | 23.0 | 29.5 | 31.8 | 33.2 | 38.5 | 41.6 | 35.3 | 31.0 | 29.7 | -4.2% | 0.8% |
| Ecuador | 16.7 | 17.9 | 19.7 | 20.1 | 20.0 | 20.2 | 19.5 | 19.4 | 20.9 | 21.2 | 20.8 | -1.5% | 0.6% |
| Peru | 5.8 | 6.3 | 6.3 | 6.1 | 6.0 | 5.9 | 5.8 | 5.4 | 5.1 | 4.8 | 4.8 | - | 0.1% |
| Trinidad & Tobago | 7.3 | 6.8 | 7.1 | 7.0 | 7.0 | 6.7 | 6.7 | 7.0 | 6.8 | 6.5 | 7.5 | 15.4% | 0.2% |
| Venezuela | 129.6 | 134.0 | 142.0 | 152.4 | 162.2 | 171.4 | 181.0 | 167.0 | 171.6 | 165.2 | 151.4 | -8.3% | 4.3% |
| Other S. & Cent. America Total S. & Cent. America | 3.6 | 3.9 | 4.3 | 4.6 | 5.0 | 5.3 | 6.2 | 6.2 | 6.6 | 7.0 | 7.5 | 7.7% | 0.2% |
| | 246.5 | 255.7 | 271.2 | 292.8 | 312.9 | 329.2 9.2 | 351.5 11.4 | 344.6 | 349.8 | 342.8 | 335.7 | -2.1% | 9.4% |
| Azerbaijan | 11.1 7.8 | 10.3 | 9.6 | 9.2 9.2 | 9.1 10.1 | 9.2 11.4 | | 13.8 14.7 | 14.0 17.8 | 14.9 | 15.3 18.1 | 2.8% 7.0% | 0.4% |
| Denmark Italy | 7.6 4.5 | 8.3 4.6 | 9.1 4.9 | 5.2 | 5.5 | 6.0 | 11.4 5.6 | 5.0 | 4.6 | 16.9 4.1 | 5.4 | 29.8% | 0.5% 0.2% |
| Kazakhstan | 25.8 | 23.0 | 20.3 | 20.6 | 23.0 | 25.8 | 25.9 | 30.1 | 35.3 | 40.1 | 47.2 | 17.8% | 1.3% |
| | 107.0 | 114.2 | 128.6 | 138.4 | 154.8 | 156.3 | 149.7 | 149.7 | 160.2 | 162.2 | 157.4 | -3.0% | 4.4% |
| Norway Romania | 6.8 | 6.9 | 7.0 | 7.0 | 6.9 | 6.8 | 6.6 | 6.4 | 6.3 | 6.2 | 6.1 | -3.0% -2.3% | 0.2% |
| Russian Federation | 398.8 | 354.9 | 317.6 | 310.8 | 302.9 | 307.4 | 304.3 | 304.8 | 323.3 | 348.1 | 379.6 | -2.3 % 9.1 % | 10.7% |
| Turkmenistan | 5.2 | 4.4 | 4.2 | 4.1 | 4.4 | 5.4 | 6.4 | 7.1 | 7.2 | 8.0 | 9.0 | 12.4% | 0.3% |
| United Kingdom | 94.3 | 100.2 | 126.5 | 129.9 | 129.7 | 127.9 | 132.1 | 136.8 | 125.9 | 116.7 | 115.9 | -0.6% | 3.3% |
| Uzbekistan | 3.3 | 4.0 | 5.5 | 7.6 | 7.6 | 7.9 | 8.2 | 8.1 | 7.5 | 7.2 | 7.2 | 0.3% | 0.2% |
| Other Europe & Eurasia | 31.1 | 29.0 | 29.4 | 27.7 | 26.3 | 25.2 | 24.3 | 22.7 | 22.5 | 22.3 | 23.0 | 3.1% | 0.7% |
| Total Europe & Eurasia | 695.6 | 659.8 | 662.7 | 669.6 | 680.2 | 689.0 | 686.0 | 699.2 | 724.6 | 746.7 | 784.2 | 5.0% | 22.0% |
| Iran | 175.7 | 183.2 | 183.6 | 183.7 | 184.8 | 185.1 | 188.9 | 176.2 | 187.5 | 182.6 | 166.8 | -8.6% | 4.7% |
| Iraq | 26.1 | 22.3 | 24.8 | 26.0 | 28.6 | 57.1 | 104.4 | 124.9 | 127.3 | 116.5 | | -14.4% | 2.8% |
| Kuwait | 54.0 | 96.6 | 103.4 | 104.9 | 105.1 | 105.1 | 107.2 | 98.3 | 104.0 | 101.9 | 91.8 | -9.8% | 2.6% |
| Oman | 37.0 | 38.8 | 40.5 | 42.8 | 44.4 | 44.9 | 44.7 | 45.0 | 47.6 | 47.5 | 44.6 | -6.2% | 1.3% |
| Qatar | 22.8 | 21.1 | 20.6 | 21.1 | 26.2 | 32.2 | 34.6 | 33.4 | 36.8 | 35.8 | 34.7 | -3.3% | 1.0% |
| Saudi Arabia | 442.4 | 432.8 | 435.3 | 435.4 | 443.5 | 451.3 | 452.0 | 419.1 | 450.6 | 434.1 | 418.1 | -3.7% | 11.8% |
| Syria | 25.8 | 28.3 | 28.2 | 29.8 | 29.4 | 28.8 | 28.8 | 28.9 | 27.6 | 29.1 | 28.6 | -1.9% | 0.8% |
| United Arab Emirates | 118.9 | 114.8 | 116.6 | 114.0 | 117.9 | 117.0 | 119.9 | 107.6 | 117.0 | 113.5 | 105.6 | -6.9% | 3.0% |
| Yemen | 8.7 | 9.9 | 16.4 | 16.7 | 16.9 | 17.7 | 18.0 | 19.2 | 21.3 | 22.3 | 22.4 | 0.4% | 0.6% |
| Other Middle East | 2.5 | 2.5 | 2.4 | 2.4 | 2.3 | 2.3 | 2.3 | 2.2 | 2.3 | 2.3 | 2.3 | _ | 0.1% |
| Total Middle East | 914.0 | 950.2 | 971.6 | 976.7 | 999.1 | 1041.6 | 1100.8 | 1054.8 | 1121.9 | 1085.6 | 1014.6 | -6.5% | 28.5% |
| Algeria | 56.6 | 56.7 | 56.4 | 56.6 | 59.3 | 60.3 | 61.8 | 63.9 | 66.8 | 65.8 | 70.2 | 6.7% | 2.0% |
| Angola | 27.2 | 24.8 | 27.4 | 31.2 | 35.4 | 36.5 | 36.0 | 36.7 | 36.9 | 36.6 | 44.6 | 22.0% | 1.3% |
| Cameroon | 6.8 | 6.6 | 5.8 | 5.4 | 5.6 | 6.3 | 5.3 | 4.8 | 4.5 | 4.1 | 3.7 | -9.9% | 0.1% |
| Rep. of Congo (Brazzaville) | 8.6 | 9.5 | 9.6 | 9.3 | 10.4 | 11.6 | 13.6 | 15.1 | 14.2 | 14.0 | 13.3 | -4.7% | 0.4% |
| Egypt | 46.0 | 47.5 | 46.5 | 46.6 | 45.1 | 43.8 | 43.0 | 41.4 | 38.8 | 37.3 | 37.0 | -1.0% | 1.0% |
| Equatorial Guinea | 0.1 | 0.2 | 0.2 | 0.3 | 0.9 | 3.0 | 4.1 | 5.0 | 5.6 | 9.0 | 11.7 | 31.0% | 0.3% |
| Gabon | 14.5 | 15.2 | 16.8 | 17.8 | 18.3 | 18.2 | 16.9 | 17.0 | 16.4 | 15.0 | 14.7 | -2.0% | 0.4% |
| Libya | 69.7 | 66.1 | 67.5 | 67.9 | 68.6 | 70.0 | 69.6 | 67.0 | 69.5 | 67.0 | 64.7 | -3.5% | 1.8% |
| Nigeria | 96.3 | 97.1 | 97.0 | 97.5 | 104.7 | 112.7 | 105.9 | 99.2 | 103.3 | 107.8 | 98.6 | -8.5% | 2.8% |
| Sudan | _ | 0.1 | 0.1 | 0.1 | 0.2 | 0.4 | 0.6 | 3.1 | 8.6 | 10.4 | 11.5 | 10.4% | 0.3% |
| Tunisia | 5.2 | 4.7 | 4.4 | 4.3 | 4.2 | 3.8 | 4.0 | 4.1 | 3.8 | 3.5 | 3.6 | 3.3% | 0.1% |
| Other Africa | 1.5 | 1.7 | 2.0 | 2.5 | 3.0 | 3.1 | 3.0 | 2.7 | 3.0 | 3.1 | 3.0 | -4.8% | 0.1% |
| Total Africa | 332.4 | 330.4 | 333.8 | 339.3 | 355.7 | 369.8 | 363.7 | 359.9 | 371.3 | 373.3 | 376.4 | 0.8% | 10.6% |
| Australia | 26.5 | 24.9 | 26.9 | 25.4 | 26.6 | 28.8 | 27.4 | 24.5 | 35.4 | 31.8 | 31.5 | -1.0% | 0.9% |
| Brunei | 8.9 | 8.5 | 8.7 | 8.5 | 8.0 | 7.9 | 7.6 | 8.9 | 9.4 | 9.9 | 10.2 | 3.5% | 0.3% |
| China | 142.0 | 144.0 | 146.1 | 149.0 | 158.5 | 160.1 | 160.2 | 160.2 | 162.6 | 164.8 | 168.9 | 2.5% | 4.8% |
| India | 30.2 | 29.0 | 33.3 | 37.8 | 36.3 | 37.3 | 36.7 | 36.5 | 36.1 | 36.0 | 36.7 | 2.0% | 1.0% |
| Indonesia | 76.7 | 76.9 | 76.9 | 76.5 | 76.7 | 75.7 | 74.2 | 68.6 | 71.5 | 68.0 | 62.4 | -8.1% | 1.8% |
| Malaysia | | | 31.7 | 34.0 | 34.4 | 35.1 | 36.9 | 35.6 | 35.5 | 35.0 | 37.0 | 5.6% | 1.0% |
| | 31.7 | 31.1 | | | | 3.5 | 3.8 | 4.1 | 3.2 | 2.7 | 21 | -20.7% | 0.1% |
| Papua New Guinea | 31.7 2.5 | 5.9 | 5.7 | 4.7 | 5.0 | | | | | | | | |
| Thailand | 31.7 2.5 3.3 | 5.9 3.4 | 3.5 | 3.4 | 3.8 | 4.5 | 4.7 | 5.2 | 6.6 | 7.0 | 7.9 | 13.4% | |
| Thailand Vietnam | 31.7 2.5 3.3 5.5 | 5.9 3.4 6.3 | 3.5 7.1 | 3.4 7.7 | 3.8 8.9 | 4.5 10.1 | 4.7 12.1 | 14.6 | 16.2 | 7.0 17.1 | 7.9 17.3 | 13.4% 1.0% | 0.5% |
| Thailand Vietnam Other Asia Pacific | 31.7 2.5 3.3 5.5 7.4 | 5.9 3.4 6.3 7.3 | 3.5 7.1 6.6 | 3.4 7.7 6.3 | 3.8 8.9 6.7 | 4.5 10.1 7.3 | 4.7 12.1 6.6 | 14.6 6.3 | 16.2 6.3 | 7.0 17.1 6.6 | 7.9 17.3 7.3 | 13.4% 1.0% 10.9% | 0.2% |
| Thailand Vietnam Other Asia Pacific Total Asia Pacific | 31.7 2.5 3.3 5.5 7.4 334.7 | 5.9 3.4 6.3 7.3 337.1 | 3.5 7.1 6.6 346.3 | 3.4 7.7 6.3 353.1 | 3.8 8.9 6.7 365.0 | 4.5 10.1 7.3 370.3 | 4.7 12.1 6.6 370.2 | 14.6 6.3 364.4 | 16.2 6.3 382.9 | 7.0 17.1 6.6 378.9 | 7.9 17.3 7.3 381.4 | 13.4% 1.0% 10.9% 0.7% | 0.5% 0.2% 10.7% |
| Thailand Vietnam Other Asia Pacific Total Asia Pacific TOTAL WORLD | 31.7 2.5 3.3 5.5 7.4 334.7 3186.8 | 5.9 3.4 6.3 7.3 337.1 3186.0 | 3.5 7.1 6.6 346.3 3233.9 | 3.4 7.7 6.3 353.1 3277.5 | 3.8 8.9 6.7 365.0 3372.9 | 4.5 10.1 7.3 370.3 3470.2 | 4.7 12.1 6.6 370.2 3538.8 | 14.6 6.3 364.4 3461.7 | 16.2 6.3 382.9 3601.3 | 7.0 17.1 6.6 378.9 3580.6 | 7.9 17.3 7.3 381.4 3556.8 | 13.4% 1.0% 10.9% 0.7% - 0.7% | 0.5% 0.2% 10.7% 100.0% |
| Thailand Vietnam Other Asia Pacific Total Asia Pacific TOTAL WORLD of which: OECD | 31.7 2.5 3.3 5.5 7.4 334.7 3186.8 926.8 | 5.9 3.4 6.3 7.3 337.1 3186.0 926.6 | 3.5 7.1 6.6 346.3 3233.9 966.6 | 3.4 7.7 6.3 353.1 3277.5 974.8 | 3.8 8.9 6.7 365.0 3372.9 1006.5 | 4.5 10.1 7.3 370.3 3470.2 1019.9 | 4.7 12.1 6.6 370.2 3538.8 1011.2 | 14.6 6.3 364.4 3461.7 986.5 | 16.2 6.3 382.9 3601.3 1011.3 | 7.0 17.1 6.6 378.9 3580.6 1001.4 | 7.9 17.3 7.3 381.4 3556.8 1009.7 | 13.4% 1.0% 10.9% 0.7% - 0.7% 0.8% | 0.5% 0.2% 10.7% 100.0% 28.4% |
| Thailand Vietnam Other Asia Pacific Total Asia Pacific TOTAL WORLD of which: OECD OPEC | 31.7 2.5 3.3 5.5 7.4 334.7 3186.8 926.8 1268.8 | 5.9 3.4 6.3 7.3 337.1 3186.0 926.6 1301.5 | 3.5 7.1 6.6 346.3 3233.9 966.6 1324.0 | 3.4 7.7 6.3 353.1 3277.5 974.8 1335.9 | 3.8 8.9 6.7 365.0 3372.9 1006.5 1377.6 | 4.5 10.1 7.3 370.3 3470.2 1019.9 1438.0 | 4.7 12.1 6.6 370.2 3538.8 1011.2 1499.4 | 14.6 6.3 364.4 3461.7 986.5 1425.2 | 16.2 6.3 382.9 3601.3 1011.3 1506.0 | 7.0 17.1 6.6 378.9 3580.6 1001.4 1458.1 | 7.9 17.3 7.3 381.4 3556.8 1009.7 1364.2 | 13.4% 1.0% 10.9% 0.7% -0.7% 0.8% -6.4% | 0.5% 0.2% 10.7% 100.0% 28.4% 38.4% |
| Thailand Vietnam Other Asia Pacific Total Asia Pacific TOTAL WORLD of which: OECD | 31.7 2.5 3.3 5.5 7.4 334.7 3186.8 926.8 | 5.9 3.4 6.3 7.3 337.1 3186.0 926.6 | 3.5 7.1 6.6 346.3 3233.9 966.6 | 3.4 7.7 6.3 353.1 3277.5 974.8 | 3.8 8.9 6.7 365.0 3372.9 1006.5 | 4.5 10.1 7.3 370.3 3470.2 1019.9 | 4.7 12.1 6.6 370.2 3538.8 1011.2 | 14.6 6.3 364.4 3461.7 986.5 | 16.2 6.3 382.9 3601.3 1011.3 | 7.0 17.1 6.6 378.9 3580.6 1001.4 | 7.9 17.3 7.3 381.4 3556.8 1009.7 | 13.4% 1.0% 10.9% 0.7% - 0.7% 0.8% | 0.5% 0.2% 10.7% 100.0% 28.4% |

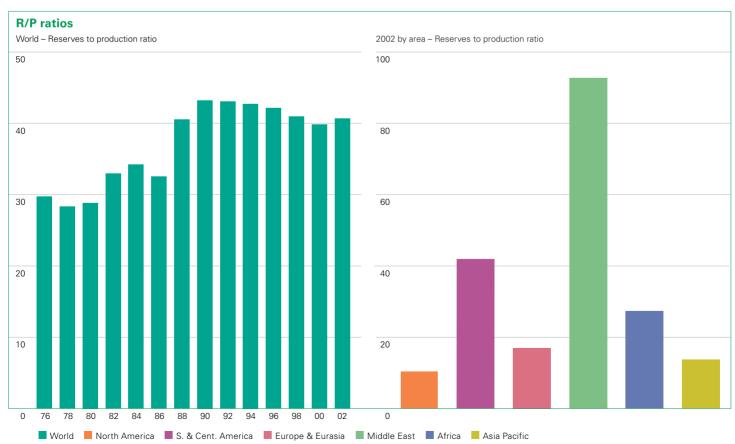
^{*}Includes crude oil, shale oil, oil sands and NGLs (natural gas liquids – the liquid content of natural gas where this is recovered separately). Excludes liquid fuels from other sources such as coal derivatives. ‡Excludes Former Soviet Union.

Note: Because of rounding some totals may not agree exactly with the sum of their component parts.

Oi



Oil production fell in 2002 for the second year running. A large drop in OPEC production outweighed strong growth in the Former Soviet Union and Non-OPEC.



The world's oil R/P ratio increased to 40.6 years in 2002, as the fall in global oil production outweighed a small drop in proven reserves.

| Consumption* | | | | | | | | | | | | Change | 2002 |
|-------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-------------------|-------------------|
| Thousand barrels daily | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2002 over 2001 | share of total |
| USA | 17033 | 17236 | 17719 | 17725 | 18309 | 18621 | 18917 | 19519 | 19701 | 19649 | 19708 | -0.2% | 25.4% |
| Canada | 17033 | 17230 | 17719 | 17725 | 1818 | 1888 | 1913 | 1926 | 19701 | 1964 | 1988 | 1.1% | 25.4 % |
| Mexico | 1543 | 1549 | 1685 | 1561 | 1608 | 1682 | 1763 | 1765 | 1835 | 1828 | 1791 | -3.0% | 2.3% |
| Total North America | 20279 | 20498 | 21145 | 21061 | 21736 | 22191 | 22593 | 23210 | 23473 | 23441 | 23487 | -0.3% | 30.2% |
| Argentina Brazil | 417 1328 | 418 1354 | 416 1418 | 415 1498 | 432 1601 | 451 1729 | 467 1800 | 445 1879 | 431 1855 | 404 1896 | 354 1849 | -11.7% -2.4% | 0.5% 2.4% |
| Chile | 159 | 174 | 190 | 209 | 228 | 242 | 247 | 251 | 238 | 232 | 236 | 1.9% | 0.3% |
| Colombia | 233 | 238 | 246 | 260 | 268 | 272 | 266 | 238 | 232 | 245 | 222 | -9.6% | 0.3% |
| Ecuador | 101 | 106 | 115 | 112 | 125 | 142 | 145 | 131 | 129 | 132 | 131 | -0.9% | 0.2% |
| Peru Venezuela | 118 431 | 123 430 | 134 436 | 150 446 | 155 426 | 154 452 | 155 475 | 159 474 | 155 496 | 148 491 | 148 502 | -0.4% 3.2% | 0.2% 0.7% |
| Other S. & Cent. America | 936 | 963 | 1022 | 1044 | 1065 | 1098 | 1128 | 1129 | 1125 | 1137 | 1148 | 0.9% | 1.6% |
| Total S. & Cent. America | 3723 | 3804 | 3977 | 4136 | 4300 | 4539 | 4683 | 4705 | 4662 | 4684 | 4590 | -1.9% | 6.1% |
| Austria Azerbaijan | 235 162 | 237 165 | 235 163 | 234 171 | 242 140 | 246 120 | 255 151 | 250 149 | 244 124 | 265 74 | 269 73 | 1.2% -1.9% | 0.4% |
| Belarus | 425 | 281 | 257 | 247 | 186 | 193 | 167 | 141 | 132 | 117 | 116 | -0.9% | 0.1% |
| Belgium & Luxembourg | 558 | 546 | 556 | 546 | 606 | 629 | 656 | 670 | 702 | 669 | 679 | 2.2% | 0.9% |
| Bulgaria | 121 | 127 | 118 | 115 | 114 | 92 | 100 | 93 | 84 | 87 | 90 | 3.8% | 0.1% |
| Czech Republic Denmark | 140 186 | 142 196 | 149 209 | 169 217 | 177 235 | 170 229 | 174 223 | 174 222 | 169 215 | 178 205 | 174 205 | -2.0% -0.2% | 0.2% 0.3% |
| Finland | 216 | 206 | 216 | 208 | 216 | 213 | 223 | 224 | 224 | 222 | 226 | 3.4% | 0.3% |
| France | 2011 | 1940 | 1878 | 1893 | 1930 | 1948 | 2016 | 2044 | 2007 | 2023 | 1967 | -2.7% | 2.6% |
| Germany | 2849 | 2904 | 2880 | 2882 | 2921 | 2913 | 2915 | 2824 | 2763 | 2804 | 2709 | -3.3% | 3.6% |
| Greece Hungary | 329 170 | 342 162 | 346 169 | 361 159 | 372 148 | 379 150 | 374 157 | 383 151 | 406 145 | 462 142 | 463 138 | 0.2% -4.0% | 0.6% 0.2% |
| lceland | 170 | 152 | 15 | 16 | 148 | 18 | 18 | 18 | 145 | 142 | 138 | -4.0% 2.4% | 0.2% |
| Republic of Ireland | 105 | 106 | 116 | 118 | 124 | 136 | 152 | 172 | 170 | 185 | 180 | -3.5% | 0.2% |
| Italy | 1950 | 1924 | 1920 | 1987 | 1956 | 1969 | 1974 | 1980 | 1956 | 1946 | 1943 | 0.1% | 2.6% |
| Kazakhstan Lithuania | 407 90 | 315 78 | 247 72 | 242 64 | 204 66 | 207 66 | 165 76 | 133 63 | 140 49 | 136 56 | 130 56 | -5.0% -0.7% | 0.2% |
| Netherlands | 793 | 788 | 792 | 828 | 810 | 856 | 854 | 880 | 899 | 948 | 951 | -0.7 % -0.4% | 1.2% |
| Norway | 196 | 210 | 212 | 212 | 218 | 223 | 215 | 216 | 201 | 213 | 209 | -2.3% | 0.3% |
| Poland | 288 | 296 | 314 | 321 | 368 | 391 | 424 | 431 | 427 | 415 | 422 | 2.4% | 0.6% |
| Portugal | 265 258 | 252 242 | 253 226 | 270 274 | 256 260 | 290 276 | 315 242 | 321 195 | 312 203 | 305 217 | 309 224 | 1.5% 2.8% | 0.4% |
| Romania Russian Federation | 4494 | 3788 | 3267 | 2934 | 2606 | 2593 | 242 | 2534 | 2474 | 2456 | 2469 | 0.5% | 3.5% |
| Slovakia | 81 | 67 | 70 | 69 | 71 | 72 | 80 | 73 | 73 | 68 | 70 | 2.7% | 0.1% |
| Spain | 1113 | 1079 | 1120 | 1177 | 1221 | 1290 | 1381 | 1423 | 1452 | 1508 | 1520 | 1.0% | 2.1% |
| Sweden | 343 | 335 264 | 354 | 338 | 362 | 336 | 338 279 | 337 | 318 | 318 | 315 | -1.4% | 0.4% |
| Switzerland Turkey | 281 499 | 264 574 | 272 553 | 253 610 | 261 635 | 276 646 | 640 | 271 638 | 263 695 | 281 665 | 267 647 | -5.2% -1.8% | 0.4% 0.8% |
| Turkmenistan | 98 | 64 | 74 | 78 | 60 | 60 | 56 | 50 | 46 | 48 | 52 | 8.3% | 0.1% |
| Ukraine | 853 | 498 | 398 | 380 | 284 | 277 | 287 | 255 | 240 | 255 | 259 | 1.6% | 0.4% |
| United Kingdom Uzbekistan | 1775 182 | 1791 163 | 1777 145 | 1757 134 | 1798 148 | 1752 135 | 1750 141 | 1735 143 | 1705 128 | 1675 131 | 1675 133 | -0.1% 1.5% | 2.2% 0.2% |
| Other Europe & Eurasia | 521 | 438 | 381 | 382 | 391 | 432 | 445 | 437 | 427 | 446 | 450 | 1.0% | 0.2 % |
| Total Europe & Eurasia | 22007 | 20535 | 19756 | 19644 | 19404 | 19582 | 19721 | 19630 | 19410 | 19539 | 19406 | -0.6% | 26.3% |
| Iran | 1017 | 1044 | 1099 | 1204 | 1248 | 1221 | 1160 | 1192 | 1158 | 1127 | 1115 | -1.5% | 1.5% |
| Kuwait Qatar | 110 17 | 102 17 | 124 19 | 130 21 | 126 23 | 139 25 | 180 26 | 202 24 | 202 25 | 206 30 | 210 44 | 1.8% 47.4% | 0.3% 0.1% |
| Saudi Arabia | 1095 | 1116 | 1160 | 1123 | 1163 | 1199 | 1267 | 1306 | 1333 | 1347 | 1363 | 1.1% | 1.8% |
| United Arab Emirates | 326 | 335 | 353 | 349 | 346 | 345 | 282 | 266 | 243 | 245 | 248 | 0.9% | 0.4% |
| Other Middle East | 1005 | 1090 | 1135 | 1202 | 1207 | 1261 | 1292 | 1314 | 1358 | 1353 | 1359 | 0.3% | 1.9% |
| Total Middle East Algeria | 3571 211 | 3704 210 | 3891 204 | 4028 198 | 4112 187 | 4189 187 | 4207 194 | 4304 187 | 4320 192 | 4309 208 | 4338 224 | 0.5% | 5.9% 0.3% |
| Egypt | 457 | 438 | 437 | 474 | 501 | 531 | 559 | 573 | 564 | 548 | 550 | -0.1% | 0.7% |
| South Africa | 369 | 383 | 401 | 427 | 437 | 445 | 451 | 462 | 475 | 488 | 501 | 2.7% | 0.7% |
| Other Africa | 1007 | 1042 | 1088 | 1098 | 1114 | 1143 | 1179 | 1216 | 1220 | 1237 | 1253 | 1.2% | 1.7% |
| Total Africa Australia | 2044 679 | 2074 720 | 2130 753 | 2197 781 | 2239 794 | 2305 823 | 2383 825 | 2439 843 | 2451 837 | 2481 845 | 2527 846 | 1.8% -0.4% | 3.4% 1.1% |
| Bangladesh | 38 | 43 | 45 | 59 | 60 | 69 | 76 | 68 | 67 | 69 | 71 | 2.0% | 0.1% |
| China | 2662 | 2913 | 3145 | 3390 | 3672 | 3935 | 4047 | 4416 | 4985 | 5030 | 5362 | 5.8% | 7.0% |
| China Hong Kong SAR | 167 | 174 | 185 | 198 | 194 | 192 | 184 | 193 | 201 | 243 | 272 | 11.8% | 0.4% |
| India Indonesia | 1296 729 | 1313 782 | 1413 774 | 1533 820 | 1663 888 | 1753 963 | 1835 914 | 2016 980 | 2067 1053 | 2066 1090 | 2090 1072 | 1.0% -1.7% | 2.8% 1.5% |
| Japan | 5521 | 5440 | 5745 | 5784 | 5812 | 5761 | 5525 | 5618 | 5576 | 5434 | 5337 | -2.0% | 6.9% |
| Malaysia | 296 | 330 | 372 | 381 | 405 | 431 | 407 | 439 | 441 | 448 | 489 | 9.1% | 0.6% |
| New Zealand | 111 | 112 | 121 | 125 | 127 | 131 | 131 | 134 | 135 | 138 | 145 | 5.6% | 0.2% |
| Pakistan Philippines | 249 278 | 272 290 | 291 306 | 315 344 | 329 360 | 339 389 | 350 392 | 363 375 | 373 348 | 366 347 | 359 333 | -2.5% -5.2% | 0.5% 0.4% |
| Singapore | 276 474 | 516 | 590 | 617 | 586 | 630 | 651 | 619 | 654 | 716 | 699 | -5.2 % -2.6 % | 1.0% |
| South Korea | 1518 | 1675 | 1840 | 2009 | 2144 | 2373 | 2030 | 2178 | 2229 | 2235 | 2288 | 1.8% | 3.0% |
| Taiwan | 583 | 620 | 665 | 713 | 717 | 741 | 766 | 820 | 816 | 819 | 817 | -1.0% | 1.1% |
| Thailand Other Asia Pacific | 489 260 | 556 282 | 617 294 | 717 310 | 776 344 | 785 368 | 736 383 | 734 401 | 725 432 | 701 451 | 746 474 | 6.7% 5.1% | 1.0% 0.6% |
| Total Asia Pacific | 260 15350 | 16038 | 17155 | 18094 | 18868 | 19680 | 19250 | 20198 | 20939 | 21000 | 21399 | 1.5% | 28.1% |
| TOTAL WORLD | 66974 | 66653 | 68054 | 69160 | 70658 | 72485 | 72839 | 74485 | 75254 | 75453 | 75747 | 0.1% | 100.0% |
| of which: European Union 15 | 12726 | 12646 | 12654 | 12816 | 13049 | 13186 | 13422 | 13465 | 13371 | 13535 | 13409 | -0.9% | 18.0% |
| OECD Former Soviet Union | 42503 6969 | 42822 5536 | 44012 4744 | 44383 4357 | 45556 3779 | 46409 3751 | 46513 3632 | 47420 3564 | 47611 3423 | 47608 3363 | 47457 3381 | -0.6% 0.6% | 61.9% 4.8% |
| Other EMEs | 17502 | 18295 | 19298 | 20420 | 21323 | 22325 | 22694 | 23501 | 24220 | 24482 | 24908 | 1.5% | 33.3% |
| | .,002 | . 0200 | .0200 | 20120 | 2.525 | | OO F | | 220 | 102 | 000 | | 23.070 |

*Inland demand plus international aviation and marine bunkers and refinery fuel and loss.

*Less than 0.05%.

*Note: Differences between these world consumption figures and world production statistics on page 6 are accounted for by stock changes, consumption of non-petroleum additives and substitute fuels, and unavoidable disparities in the definition, measurement or conversion of oil supply and demand data. Annual changes and shares of total are calculated using million tonnes per annum figures rather than thousand barrels daily. The US volumetric consumption levels include no adjustment for processing gain (see 'Definitions' on the inside back cover).

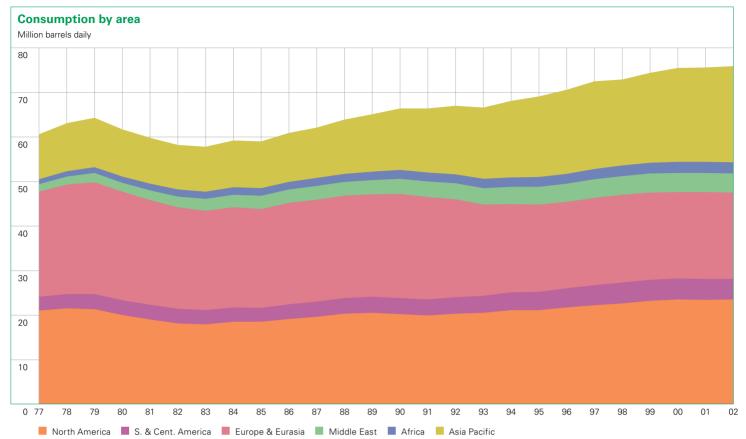


| Consumption* | | | | | | | | | | | | Change | 2002 |
|--------------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-----------------|---------------------|------------------------|
| Million tonnes | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2002 over 2001 | share of total |
| USA | 782.2 | 789.3 | 809.8 | 807.7 | 836.5 | 848.0 | 863.8 | 888.9 | 897.6 | 896.1 | 894.3 | -0.2% | 25.4% |
| Canada Mexico | 76.8 71.2 | 77.1 71.0 | 78.4 77.8 | 79.8 71.4 | 82.1 73.8 | 85.2 77.3 | 86.7 81.2 | 87.2 80.8 | 88.1 84.1 | 88.7 83.4 | 89.7 80.9 | 1.1% -3.0% | 2.5% 2.3% |
| Total North America | 930.2 | 937.4 | 966.0 | 958.9 | 992.4 | 1010.5 | 1031.7 | 1056.9 | 1069.8 | 1068.2 | 1064.9 | -0.3% | 30.2% |
| Argentina | 19.6 | 19.6 | 19.4 | 19.5 | 20.4 | 21.2 | 22.1 | 21.0 | 20.3 | 19.0 | 16.8 | -11.7% | 0.5% |
| Brazil Chile | 62.1 7.4 | 62.9 8.0 | 65.7 8.8 | 69.2 9.7 | 74.1 10.6 | 79.9 11.2 | 83.2 11.4 | 85.7 11.6 | 85.8 10.9 | 87.5 10.6 | 85.4 10.8 | -2.4% 1.9% | 2.4% 0.3% |
| Colombia | 10.6 | 10.8 | 11.1 | 11.8 | 12.2 | 12.3 | 12.0 | 10.6 | 10.5 | 11.1 | 10.0 | -9.6% | 0.3% |
| Ecuador | 4.6 | 4.8 | 5.2 | 5.1 | 5.7 | 6.5 | 6.6 7.4 | 6.0 | 5.8 | 5.9 | 5.9 | -0.9% | 0.2% |
| Peru Venezuela | 5.6 19.7 | 5.9 19.4 | 6.4 19.6 | 7.2 20.0 | 7.4 19.0 | 7.3 20.4 | 21.6 | 7.5 21.3 | 7.4 22.5 | 7.0 22.2 | 7.0 22.9 | -0.4% 3.2% | 0.2% 0.7% |
| Other S. & Cent. America | 46.1 | 47.3 | 50.2 | 51.2 | 52.4 | 53.9 | 55.3 | 55.2 | 55.1 | 55.5 | 56.0 | 0.9% | 1.6% |
| Total S. & Cent. America Austria | 175.7 11.3 | 178.7 11.4 | 186.4 | 193.7 11.3 | 201.8 | 212.7 | 219.6 | 218.9 | 218.3 | 218.8 | 214.8 13.0 | -1.9% 1.2% | 6.1% |
| Azerbaijan | 8.1 | 8.2 | 8.1 | 8.5 | 7.0 | 6.0 | 7.5 | 7.4 | 6.2 | 3.7 | 3.6 | -1.9% | 0.1% |
| Belarius | 21.2 27.1 | 14.0 26.5 | 12.8 27.0 | 12.3 26.4 | 9.3 29.4 | 9.6 30.3 | 8.3 31.6 | 7.0 32.4 | 6.6 33.9 | 5.9 32.2 | 5.8 32.9 | -0.9% 2.2% | 0.2% 0.9% |
| Belgium & Luxembourg Bulgaria | 6.0 | 6.2 | 5.8 | 5.6 | 5.5 | 4.4 | 4.8 | 4.5 | 3.9 | 4.0 | 4.2 | 3.8% | 0.3% |
| Czech Republic | 6.8 | 6.9 | 7.1 | 8.0 | 8.4 | 8.0 | 8.3 | 8.2 | 7.9 | 8.3 | 8.2 | -2.0% | 0.2% |
| Denmark Finland | 9.0 10.3 | 9.5 9.9 | 10.1 10.4 | 10.5 9.9 | 11.4 10.3 | 11.1 10.2 | 10.7 10.5 | 10.6 10.7 | 10.4 10.7 | 9.8 10.5 | 9.8 10.9 | -0.2% 3.4% | 0.3% 0.3% |
| France | 94.4 | 91.1 | 88.2 | 89.0 | 91.0 | 91.7 | 95.0 | 96.4 | 94.9 | 95.5 | 92.8 | -2.7% | 2.6% |
| Germany | 134.3 16.1 | 136.3 16.7 | 135.1 16.9 | 135.1 17.6 | 137.4 18.2 | 136.5 18.4 | 136.6 | 132.4 18.7 | 129.8 19.9 | 131.6 21.7 | 127.2 21.8 | -3.3% | 3.6% 0.6% |
| Greece Hungary | 8.1 | 7.7 | 8.1 | 7.7 | 7.1 | 7.1 | 18.2 7.4 | 7.1 | 6.8 | 6.7 | 6.4 | 0.2% -4.0% | 0.6% |
| Iceland | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 2.4% | • |
| Republic of Ireland Italy | 5.1 94.5 | 5.1 92.6 | 5.6 92.5 | 5.7 95.5 | 6.0 94.2 | 6.6 94.6 | 7.4 94.7 | 8.3 94.4 | 8.2 93.5 | 9.0 92.8 | 8.7 92.9 | -3.5% 0.1% | 0.2% 2.6% |
| Kazakhstan | 20.3 | 15.7 | 12.3 | 12.0 | 10.2 | 10.3 | 8.2 | 6.6 | 7.0 | 6.8 | 6.5 | -5.0% | 0.2% |
| Lithuania | 4.5 | 3.9 | 3.6 | 3.2 | 3.3 | 3.3 | 3.8 | 3.1 | 2.4 | 2.7 | 2.7 | -0.7% | 0.1% |
| Netherlands Norway | 36.5 9.0 | 36.4 9.5 | 36.4 9.6 | 38.0 9.6 | 37.4 10.1 | 39.5 10.3 | 39.4 10.0 | 40.6 10.1 | 41.7 9.4 | 43.9 9.7 | 43.8 9.4 | -0.4% -2.3% | 1.2% 0.3% |
| Poland | 13.6 | 14.0 | 14.8 | 14.9 | 17.2 | 18.2 | 19.9 | 19.9 | 20.0 | 19.2 | 19.7 | 2.4% | 0.6% |
| Portugal Romania | 12.8 12.7 | 12.0 12.1 | 12.0 11.2 | 12.9 13.5 | 12.1 13.0 | 13.7 13.7 | 15.1 12.0 | 15.4 9.5 | 14.9 10.0 | 14.6 10.6 | 14.9 10.9 | 1.5% 2.8% | 0.4% 0.3% |
| Russian Federation | 224.4 | 188.6 | 162.7 | 146.1 | 130.1 | 129.1 | 123.7 | 126.2 | 123.5 | 122.3 | 122.9 | 0.5% | 3.5% |
| Slovakia | 3.9 | 3.2 | 3.3 | 3.2 | 3.4 | 3.4 | 3.8 | 3.4 | 3.4 | 3.2 | 3.3 | 2.7% | 0.1% |
| Spain Sweden | 52.8 16.4 | 51.3 16.1 | 53.5 17.0 | 56.3 16.1 | 58.7 17.4 | 62.0 16.1 | 66.4 16.2 | 68.4 16.1 | 70.0 15.2 | 72.7 15.2 | 73.5 15.0 | 1.0% -1.4% | 2.1% 0.4% |
| Switzerland | 13.1 | 12.3 | 12.7 | 11.8 | 12.2 | 12.8 | 13.0 | 12.6 | 12.2 | 13.1 | 12.4 | -5.2% | 0.4% |
| Turkey Turkmenistan | 23.5 4.9 | 27.0 3.2 | 25.8 3.7 | 28.4 3.9 | 29.8 3.0 | 30.0 | 29.6 2.8 | 29.5 2.5 | 31.6 2.3 | 30.5 2.4 | 29.9 2.6 | -1.8% 8.3% | 0.8% 0.1% |
| Ukraine | 42.6 | 24.8 | 19.8 | 18.9 | 14.2 | 13.8 | 14.3 | 12.7 | 12.0 | 12.7 | 12.9 | 1.6% | 0.1% |
| United Kingdom | 83.6 | 84.0 | 82.9 | 81.9 | 83.9 | 81.3 | 81.2 | 80.1 | 78.9 | 77.3 | 77.2 | -0.1% | 2.2% |
| Uzbekistan Other Europe & Eurasia | 9.1 25.8 | 8.1 21.6 | 7.2 18.7 | 6.7 18.7 | 7.4 19.2 | 6.7 21.0 | 7.0 21.7 | 7.1 21.4 | 6.4 20.8 | 6.5 21.7 | 6.6 21.9 | 1.5% 1.0% | 0.2% 0.6% |
| Total Europe & Eurasia | 1062.5 | 986.6 | 946.9 | 940.0 | 930.2 | 935.5 | 942.3 | 936.3 | 927.1 | 930.5 | 925.2 | -0.6% | 26.3% |
| Iran Kuwait | 50.0 5.6 | 50.9 5.0 | 53.4 6.2 | 58.4 6.5 | 60.6 6.3 | 59.0 6.9 | 55.9 9.1 | 57.3 10.3 | 56.1 10.4 | 54.0 10.5 | 53.2 10.7 | -1.5% 1.8% | 1.5% 0.3% |
| Qatar | 0.8 | 0.8 | 0.9 | 1.0 | 1.1 | 1.1 | 1.2 | 1.1 | 1.2 | 1.4 | 2.0 | 47.4% | 0.1% |
| Saudi Arabia United Arab Emirates | 51.4 16.9 | 52.1 17.2 | 53.5 18.2 | 51.4 18.0 | 53.7 18.0 | 55.3 17.8 | 58.8 14.4 | 60.9 13.5 | 62.4 12.2 | 62.7 12.3 | 63.4 12.4 | 1.1% 0.9% | 1.8% 0.4% |
| Other Middle East | 49.0 | 52.6 | 54.9 | 58.1 | 58.6 | 61.0 | 62.6 | 63.6 | 66.0 | 65.5 | 65.7 | 0.3% | 1.9% |
| Total Middle East | 173.7 | 178.6 | 187.1 | 193.4 | 198.3 | 201.1 | 202.0 | 206.7 | 208.3 | 206.4 | 207.4 | 0.5% | 5.9% |
| Algeria Egypt | 9.1 22.7 | 9.1 21.6 | 8.7 21.5 | 8.4 23.3 | 8.1 24.6 | 8.0 26.0 | 8.2 27.3 | 8.1 27.8 | 8.5 27.2 | 9.1 26.1 | 9.9 26.1 | 8.4% -0.1% | 0.3% 0.7% |
| South Africa | 17.3 | 18.0 | 18.8 | 20.1 | 20.7 | 21.0 | 21.3 | 21.8 | 22.5 | 23.0 | 23.6 | 2.7% | 0.7% |
| Other Africa Total Africa | 47.9 97.0 | 49.4 98.1 | 51.6 100.6 | 51.9 103.7 | 52.7 106.1 | 53.9 108.9 | 55.7 112.5 | 57.4 115.1 | 57.7 115.9 | 58.3 116.5 | 59.0 118.6 | 1.2% | 1.7% 3.4% |
| Australia | 30.9 | 32.7 | 34.0 | 35.3 | 35.9 | 37.0 | 37.0 | 38.0 | 37.7 | 38.1 | 38.0 | -0.4% | 1.1% |
| Bangladesh | 1.8 | 2.1 | 2.2 | 2.9 | 2.9 | 3.3 | 3.7 | 3.3 | 3.3 | 3.3 | 3.4 | 2.0% | 0.1% |
| China China Hong Kong SAR | 129.0 8.1 | 140.5 8.3 | 149.5 8.9 | 160.7 9.5 | 174.4 9.3 | 185.6 9.2 | 190.3 8.8 | 207.2 9.3 | 230.1 9.7 | 232.2 11.7 | 245.7 13.1 | 5.8% 11.8% | 7.0% 0.4% |
| India | 62.1 | 62.7 | 67.4 | 73.0 | 79.4 | 83.3 | 86.8 | 95.2 | 97.5 | 96.7 | 97.7 | 1.0% | 2.8% |
| Indonesia Japan | 35.1 257.5 | 37.6 251.9 | 37.0 267.4 | 39.1 267.6 | 42.4 268.8 | 45.9 265.0 | 43.5 253.6 | 46.8 257.3 | 50.4 255.4 | 52.1 247.5 | 51.2 242.6 | -1.7% -2.0% | 1.5% 6.9% |
| Malaysia | 14.0 | 15.6 | 17.4 | 17.9 | 19.0 | 20.2 | 19.0 | 20.3 | 20.4 | 20.6 | 22.5 | 9.1% | 0.6% |
| New Zealand | 5.2 | 5.2 13.5 | 5.6 | 5.8 15.8 | 5.9 16.6 | 6.1 17.0 | 6.1 17.6 | 6.3 | 6.3 18.8 | 6.4 18.4 | 6.8 17.9 | 5.6% -2.5% | 0.2% 0.5% |
| Pakistan Philippines | 12.4 13.7 | 14.1 | 14.5 14.9 | 16.8 | 17.5 | 17.0 | 17.6 | 18.2 18.0 | 16.6 | 16.5 | 17.9 | -2.5% -5.2% | 0.5% |
| Singapore | 24.7 | 26.7 | 30.6 | 32.0 | 30.3 | 32.4 | 33.3 | 31.6 | 33.5 | 36.4 | 35.5 | -2.6% | 1.0% |
| South Korea Taiwan | 72.3 28.4 | 79.3 30.2 | 87.0 32.3 | 94.8 34.7 | 101.4 34.8 | 111.4 36.0 | 93.9 37.2 | 100.7 39.9 | 103.2 39.8 | 103.1 39.2 | 105.0 38.8 | 1.8% -1.0% | 3.0% 1.1% |
| Thailand | 23.6 | 26.8 | 29.8 | 34.7 | 37.5 | 37.8 | 35.4 | 35.4 | 34.8 | 33.1 | 35.3 | 6.7% | 1.0% |
| Other Asia Pacific | 12.5 | 13.5 | 14.0 | 14.7 | 16.4 | 17.5 | 18.3 | 19.0 | 20.6 | 21.4 | 22.5 | 5.1% | 0.6% |
| Total Asia Pacific TOTAL WORLD | 731.3 3170.4 | 760.7 3140.1 | 812.5 3199.5 | 855.3 3245.0 | 892.5 3321.3 | 926.5 3395.2 | 903.6 3411.7 | 946.5 3480.4 | 978.1 3517.5 | 976.7 3517.1 | 991.6 3522.5 | 1.5% 0.1% | 28.1% 100.0% |
| of which: European Union 15 | 604.2 | 598.9 | 598.9 | 606.2 | 619.0 | 623.9 | 635.3 | 636.6 | 633.8 | 639.6 | 634.4 | -0.9% | 18.0% |
| OECD Former Soviet Union | 1979.0 348.0 | 1986.7 275.7 | 2041.0 236.2 | 2053.0 217.0 | 2112.4 188.7 | 2144.6 186.7 | 2150.5 180.8 | 2187.5 177.4 | 2198.4 170.8 | 2194.5 167.4 | 2181.9 168.3 | -0.6% 0.6% | 61.9% 4.8% |
| Other EMEs | 843.2 | 877.5 | 922.2 | 974.9 | 1020.0 | 1064.0 | 1080.2 | 1115.5 | 1148.0 | 1155.3 | 1172.3 | 1.5% | 33.3% |
| | | | | | | | | | | | | | |

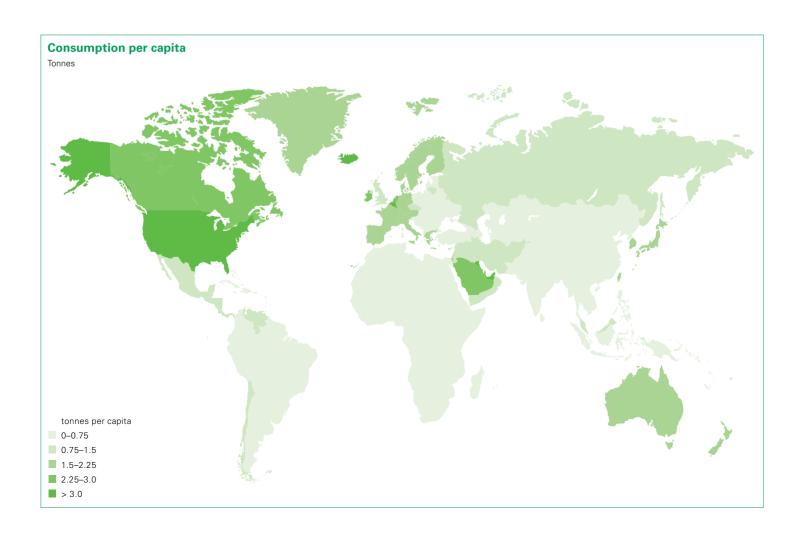
*Inland demand plus international aviation and marine bunkers and refinery fuel and loss.

*Less than 0.05%.

Note: Differences between these world consumption figures and world production statistics on page 7 are accounted for by stock changes, consumption of non-petroleum additives and substitute fuels, and unavoidable disparities in the definition, measurement or conversion of oil supply and demand data. The US volumetric consumption levels include no adjustment for processing gain (see 'Definitions' on the inside back cover).



World oil consumption growth was weak in 2002 for the second year running, growing by less than 300,000 barrels per day. Asia was once again the engine of demand growth.





| Regional consumption – by produ | uct grou | ıp | | | | | | | | | , | Change 2002 over | 2002 share |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------------|-----------------|
| Thousand barrels daily | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2001 | of total |
| North America | | | | | | | | | | | | | |
| Gasolines | 8833 5449 | 8975 | 9100 | 9235 | 9389 | 9560 | 9849 | 9998 | 10106 6811 | 10211 6812 | 10553 | 3.4% -2.5% | 44.9% 28.3% |
| Middle distillates Fuel oil | 1619 | 5600 1571 | 5895 1571 | 5935 1336 | 6194 1348 | 6398 1351 | 6450 1506 | 6628 1415 | 1518 | 1411 | 6643 1161 | -2.5% -17.8% | 4.9% |
| Others | 4378 | 4352 | 4579 | 4555 | 4805 | 4882 | 4788 | 5169 | 5037 | 5007 | 5130 | 2.5% | 21.9% |
| Total North America | 20279 | 20498 | 21145 | 21061 | 21736 | 22191 | 22593 | 23210 | 23473 | 23441 | 23487 | 0.2% | 100.0% |
| of which: USA | 7070 | 7700 | 7000 | 0005 | 04.07 | 0004 | 0570 | 0740 | 0010 | 0000 | 0404 | 0.00/ | 40.00/ |
| Gasolines Middle distillates | 7670 4711 | 7792 4844 | 7880 5084 | 8025 5132 | 8167 5342 | 8324 5502 | 8579 5545 | 8716 5700 | 8813 5852 | 8890 5884 | 9181 5722 | 3.3% -2.7% | 46.6% 29.0% |
| Fuel oil | 1079 | 1062 | 1003 | 835 | 831 | 777 | 869 | 814 | 893 | 794 | | -20.0% | 3.2% |
| Others | 3573 | 3539 | 3751 | 3733 | 3969 | 4017 | 3924 | 4290 | 4143 | 4082 | 4170 | 2.2% | 21.2% |
| Total USA | 17033 | 17236 | 17719 | 17725 | 18309 | 18621 | 18917 | 19519 | 19701 | 19649 | 19708 | 0.3% | 100.0% |
| S. & Cent. America Gasolines | 983 | 1025 | 1105 | 1149 | 1187 | 1257 | 1274 | 1387 | 1273 | 1237 | 1201 | -2.9% | 26.2% |
| Middle distillates | 1276 | 1312 | 1398 | 1476 | 1538 | 1625 | 1700 | 1684 | 1680 | 1700 | 1701 | -2.3 /0 ◆ | 37.1% |
| Fuel oil | 682 | 697 | 721 | 734 | 768 | 827 | 850 | 740 | 789 | 747 | 736 | -1.6% | 16.0% |
| Others | 783 | 770 | 752 | 777 | 807 | 831 | 859 | 896 | 919 | 999 | 953 | -4.6% | 20.7% |
| Total S. & Cent. America | 3723 | 3804 | 3977 | 4136 | 4300 | 4539 | 4683 | 4705 | 4662 | 4684 | 4590 | -2.0% | 100.0% |
| Europe Gasolines | 4213 | 4136 | 4122 | 4194 | 4220 | 4271 | 4309 | 4322 | 4209 | 4127 | 4023 | -2.5% | 25.1% |
| Middle distillates | 5809 | 5871 | 5883 | 6045 | 6356 | 6421 | 6630 | 6700 | 6740 | 6958 | 6892 | -0.9% | 43.0% |
| Fuel oil | 2385 | 2353 | 2280 | 2283 | 2260 | 2206 | 2194 | 2096 | 1975 | 1983 | 2030 | 2.4% | 12.7% |
| Others | 2631 | 2639 | 2727 | 2766 | 2790 | 2933 | 2956 | 2947 | 3063 | 3107 | 3080 | -0.9% | 19.2% |
| Total Europe Middle East | 15038 | 15000 | 15012 | 15287 | 15626 | 15831 | 16090 | 16065 | 15987 | 16176 | 16025 | -0.9% | 100.0% |
| Gasolines | 616 | 635 | 708 | 762 | 773 | 812 | 828 | 842 | 846 | 849 | 904 | 6.5% | 20.8% |
| Middle distillates | 1169 | 1235 | 1336 | 1435 | 1466 | 1463 | 1458 | 1485 | 1499 | 1535 | 1554 | 1.2% | 35.8% |
| Fuel oil | 1167 | 1142 | 1170 | 1187 | 1208 | 1233 | 1219 | 1265 | 1264 | 1221 | 1150 | -5.9% | 26.5% |
| Others Total Middle East | 620 3571 | 691 3704 | 678 3891 | 645 4028 | 664 4112 | 681 4189 | 702 4207 | 712 4304 | 710 4320 | 703 4309 | 730 4338 | 3.9% 0.7% | 16.9% 100.0% |
| Africa | 3371 | 3704 | 3031 | 4020 | 4112 | 4100 | 4207 | 4004 | 4020 | 4000 | 4550 | 0.7 70 | 100.070 |
| Gasolines | 516 | 527 | 539 | 554 | 552 | 559 | 568 | 574 | 578 | 589 | 597 | 1.3% | 23.6% |
| Middle distillates | 795 | 818 | 840 | 866 | 894 | 920 | 950 | 985 | 1009 | 1029 | 1057 | 2.7% | 41.8% |
| Fuel oil Others | 424 308 | 412 317 | 416 334 | 435 342 | 446 347 | 466 360 | 491 374 | 494 385 | 470 394 | 450 412 | 446 427 | -0.9% 3.6% | 17.7% 16.9% |
| Total Africa | 2044 | 2074 | 2130 | 2197 | 2239 | 2305 | 2383 | 2439 | 2451 | 2481 | 2527 | 1.9% | 100.0% |
| Asia Pacific incl. China and Japan | | | | | | | | | | | | | |
| Gasolines | 3540 | 3731 | 4013 | 4317 | 4549 | 4973 | 5018 | 5309 | 5549 | 5610 | 5868 | 4.6% | 27.4% |
| Middle distillates Fuel oil | 5619 3637 | 6014 3622 | 6262 3892 | 6724 3857 | 7160 3795 | 7430 3829 | 7186 3564 | 7595 3549 | 7792 3505 | 7962 3339 | 8054 3144 | 1.1% -5.9% | 37.6% 14.7% |
| Others | 2553 | 2671 | 2988 | 3196 | 3364 | 3447 | 3483 | 3745 | 4092 | 4088 | 4333 | 6.0% | 20.3% |
| Total Asia Pacific | 15350 | 16038 | 17155 | 18094 | 18868 | 19680 | 19250 | 20198 | 20939 | 21000 | 21399 | 1.9% | 100.0% |
| China | | | 0.40 | | | | 4000 | | 4040 | 4050 | | 40.00/ | 0= 00/ |
| Gasolines Middle distillates | 711 790 | 804 898 | 848 878 | 904 997 | 986 1080 | 1111 1202 | 1098 1277 | 1164 1455 | 1313 1633 | 1252 1709 | 1387 1786 | 10.8% 4.5% | 25.9% 33.3% |
| Fuel oil | 674 | 725 | 665 | 669 | 719 | 750 | 725 | 694 | 725 | 728 | | -13.3% | 11.8% |
| Others | 488 | 486 | 755 | 819 | 888 | 871 | 946 | 1103 | 1314 | 1342 | 1558 | 16.1% | 29.0% |
| Total China | 2662 | 2913 | 3145 | 3390 | 3672 | 3935 | 4047 | 4416 | 4985 | 5030 | 5362 | 6.6% | 100.0% |
| Japan Gasolines | 1338 | 1355 | 1442 | 1548 | 1576 | 1646 | 1611 | 1702 | 1735 | 1720 | 1758 | 2.2% | 32.9% |
| Middle distillates | 1824 | 1853 | 1905 | 1971 | 2027 | 1991 | 1949 | 1978 | 1958 | 1957 | 1912 | -2.3% | 35.8% |
| Fuel oil | 1264 | 1112 | 1292 | 1135 | 1067 | 977 | 879 | 861 | 804 | 690 | 647 | -6.3% | 12.1% |
| Others | 1095 | 1120 | 1105 | 1129 | 1142 | 1147 | 1085 | 1077 | 1079 | 1066 | 1020 | -4.3% | 19.2% |
| Total Japan World excl. Former Soviet Union | 5521 | 5440 | 5745 | 5784 | 5812 | 5761 | 5525 | 5618 | 5576 | 5434 | 5337 | -1.8% | 100.0% |
| Gasolines | 18700 | 19029 | 19587 | 20211 | 20670 | 21433 | 21847 | 22433 | 22562 | 22623 | 23145 | 2.3% | 32.0% |
| Middle distillates | 20117 | 20850 | 21614 | 22480 | 23607 | 24257 | 24374 | 25076 | 25531 | 25997 | 25900 | -0.4% | 35.8% |
| Fuel oil | 9915 | 9797 | 10051 | 9832 | 9824 | 9911 | 9825 | 9559 | 9521 | 9152 | 8666 | -5.3% | 12.0% |
| Others Total World excl. Former Soviet Union | 11273 60005 | 11441 61117 | 12058 63310 | 12280 64803 | 12778 66879 | 13134 68735 | 13161 69207 | 13853 70921 | 14216 71831 | 14317 72090 | 14654 72365 | 2.4% 0.4% | 20.2% |
| European Union 15 | 00003 | 01117 | 03310 | 04000 | 00073 | 00733 | 03207 | 70021 | 71001 | 72000 | 72303 | 0.470 | 100.070 |
| Gasolines | 3620 | 3562 | 3512 | 3550 | 3559 | 3590 | 3607 | 3622 | 3545 | 3486 | 3395 | -2.6% | 25.3% |
| Middle distillates | 4978 | 5033 | 5051 | 5179 | 5440 | 5514 | 5677 | 5761 | 5822 | 6005 | 5955 | -0.8% | 44.4% |
| Fuel oil Others | 1887 2241 | 1841 2211 | 1797 2294 | 1791 2296 | 1755 2295 | 1703 2379 | 1736 2402 | 1663 2419 | 1557 2447 | 1543 2500 | 1602 2458 | 3.8% -1.7% | 11.9% 18.4% |
| Total European Union 15 | 12726 | 12646 | 12654 | 12816 | 13049 | 13186 | 13422 | 13465 | 13371 | 13535 | 13409 | -0.9% | 100.0% |
| OECD | | | | | | | | | | | | | |
| Gasolines | 14961 | 15124 | 15379 | 15721 | 15968 | 16415 | 16728 | 17028 | 17070 | 17088 | 17408 | 1.9% | 36.7% |
| Middle distillates Fuel oil | 13647 5539 | 13973 5324 | 14414 | 14777 5115 | 15468 5036 | 15738 4904 | 15751 4831 | 16110 4671 | 16274 4641 | 16491 4408 | 16229 4137 | -1.6% -6.2% | 34.2% |
| Others | 8357 | 8401 | 5505 8714 | 5115 8769 | 9084 | 9353 | 9203 | 9611 | 9626 | 9621 | 9684 | 0.7% | 8.7% 20.4% |
| Total OECD | 42503 | 42822 | 44012 | 44383 | 45556 | 46409 | 46513 | 47420 | 47611 | 47608 | 47457 | -0.3% | 100.0% |
| Other EMEs | 67 | | | | .= | F0:- | | | F | | | | 00.05: |
| Gasolines Middle distillator | 3739 | 3905 | 4209 | 4490 | 4702 | 5018 | 5119 | 5405 | 5492 | 5535 | 5738 9671 | 3.7% | 23.0% |
| Middle distillates Fuel oil | 6470 4376 | 6878 4472 | 7200 4546 | 7703 4716 | 8139 4788 | 8519 5008 | 8623 4994 | 8967 4888 | 9257 4880 | 9507 4744 | 9671 4529 | 1.7% -4.5% | 38.8% 18.2% |
| Others | 2917 | 3040 | 3344 | 3510 | 3694 | 3781 | 3958 | 4242 | 4590 | 4696 | 4970 | 5.8% | 20.0% |
| Total Other EMEs‡ | 17502 | 18295 | 19298 | 20420 | 21323 | 22325 | 22694 | 23501 | 24220 | 24482 | 24908 | | 100.0% |
| Less than 0.05%. | | | | | | | | | | | | | |

Less than 0.05%.

^{*}Less than 0.05%.

‡Excludes Former Soviet Union.

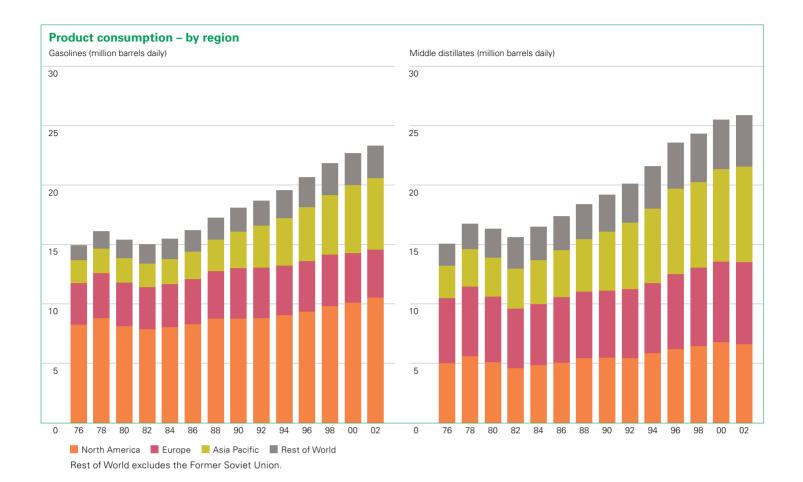
Notes: For the purposes of this table, annual changes and shares of total are calculated using thousand barrels daily figures.

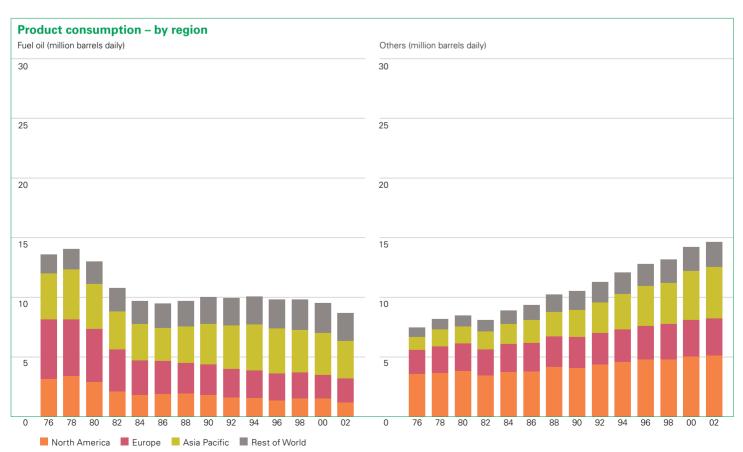
'Gasolines' consists of aviation and motor gasolines and light distillate feedstock (LDF).

'Middle distillates' consists of jet and heating kerosenes, and gas and diesel oils (including marine bunkers).

'Fuel oil' includes marine bunkers and crude oil used directly as fuel.

'Others' consists of refinery gas, LPGs, solvents, petroleum coke, lubricants, bitumen, wax and refinery fuel and loss.





Rest of World excludes the Former Soviet Union.

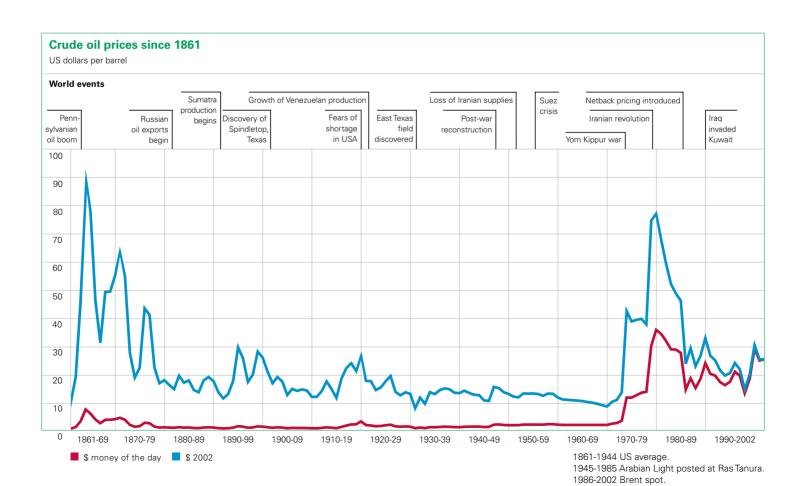
Middle distillates have registered the largest increment in consumption over the last 20 years, followed by gasolines and other oil. Fuel oil use fell sharply in 2002, breaking the pattern of flat consumption since the mid-1980s. The fastest growth in product demand has been in Asia Pacific.



| Spot crude prices | Dubai | Brent | Nigerian Forcados | West Texas Intermediate |
|-----------------------|---------|---------|----------------------|----------------------------|
| US dollars per barrel | \$/bbl* | \$/bbl† | \$/bbl | \$/bbl |
| 1972 | 1.90 | _ | _ | _ |
| 1973 | 2.83 | _ | _ | _ |
| 1974 | 10.41 | _ | - | _ |
| 1975 | 10.70 | _ | _ | _ |
| 1976 | 11.63 | 12.80 | 12.87 | 12.23 |
| 1977 | 12.38 | 13.92 | 14.21 | 14.22 |
| 1978 | 13.03 | 14.02 | 13.65 | 14.55 |
| 1979 | 29.75 | 31.61 | 29.25 | 25.08 |
| 1980 | 35.69 | 36.83 | 36.98 | 37.96 |
| 1981 | 34.32 | 35.93 | 36.18 | 36.08 |
| 1982 | 31.80 | 32.97 | 33.29 | 33.65 |
| 1983 | 28.78 | 29.55 | 29.54 | 30.30 |
| 1984 | 28.06 | 28.66 | 28.14 | 29.39 |
| 1985 | 27.53 | 27.51 | 27.75 | 27.99 |
| 1986 | 13.01 | 14.38 | 14.45 | 15.04 |
| 1987 | 16.91 | 18.42 | 18.40 | 19.19 |
| 1988 | 13.20 | 14.96 | 14.99 | 15.97 |
| 1989 | 15.68 | 18.20 | 18.30 | 19.68 |
| 1990 | 20.50 | 23.84 | 23.85 | 24.50 |
| 1991 | 16.56 | 20.05 | 20.11 | 21.54 |
| 1992 | 17.21 | 19.37 | 19.61 | 20.57 |
| 1993 | 14.90 | 17.07 | 17.41 | 18.45 |
| 1994 | 14.76 | 15.98 | 16.25 | 17.21 |
| 1995 | 16.09 | 17.18 | 17.26 | 18.42 |
| 1996 | 18.56 | 20.80 | 21.16 | 22.16 |
| 1997 | 18.13 | 19.30 | 19.33 | 20.61 |
| 1998 | 12.16 | 13.11 | 12.62 | 14.39 |
| 1999 | 17.30 | 18.25 | 18.00 | 19.31 |
| 2000 | 26.24 | 28.98 | 28.42 | 30.37 |
| 2001 | 22.80 | 24.77 | 24.23 | 25.93 |
| 2002 | 23.85 | 25.19 | 25.04 | 26.16 |

^{*1972-1985} Arabian Light, 1986-2002 Dubai.

Source: Platts.

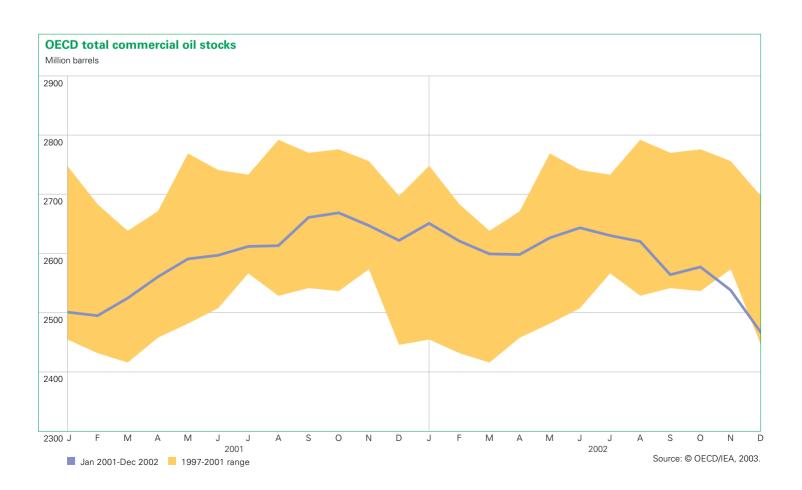


^{†1976-1984} Forties, 1985-2002 Brent.

^{‡1976-1983} Posted WTI prices, 1984-2002 Spot WTI prices.



1985 to 1st quarter 1992: leaded gasoline. From 2nd quarter 1992: unleaded gasoline.





| Refinery capacities | | | | | | | | | | | | Change | 2002 |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------|-------------------|
| Thousand barrels daily* | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2002 over 2001 | share of total |
| USA | 15120 | 15030 | 15434 | 15333 | 15452 | 15711 | 16261 | 16512 | 16595 | 16785 | 16761 | -0.1% | 20.0% |
| Canada | 1911 | 1824 | 1832 | 1792 | 1807 | 1811 | 1844 | 1861 | 1861 | 1917 | 1923 | 0.3% | 2.3% |
| Mexico | 1448 | 1444 | 1444 | 1444 | 1444 | 1449 | 1449 | 1449 | 1481 | 1481 | 1481 | _ | 1.8% |
| Total North America | 18479 | 18298 | 18710 | 18569 | 18703 | 18971 | 19554 | 19822 | 19937 | 20183 | 20165 | -0.1% | 24.0% |
| Argentina | 694 | 688 | 663 | 648 | 651 | 653 | 650 | 650 | 657 | 657 | 657 | - | 0.8% |
| Brazil | 1444 | 1429 | 1473 | 1481 | 1481 | 1739 | 1750 | 1845 | 1863 | 1823 | 1823 | _ | 2.2% |
| Netherlands Antilles & Aruba | 460 | 467 | 485 | 505 | 520 | 520 | 520 | 535 | 535 | 590 | 590 | _ | 0.7% |
| Venezuela | 1224 | 1181 | 1181 | 1181 | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | _ | 1.4% |
| Other S. & Cent. America | 2250 | 2249 | 2224 | 2282 | 2264 | 2288 | 2192 | 2232 | 2240 | 2230 | 2285 | 2.5% | 2.7% |
| Total S. &. Cent. America | 6072 | 6014 | 6026 | 6097 | 6099 | 6383 | 6295 | 6445 | 6478 | 6483 | 6538 | 0.8% | 7.8% |
| Belgium | 690 | 692 | 692 | 692 | 690 | 698 | 732 | 736 | 770 | 785 | 788 | 0.4% | 0.9% |
| France | 1711 | 1687 | 1697 | 1728 | 1749 | 1872 | 1918 | 1933 | 1984 | 1961 | 1987 | 1.3% | 2.4% |
| Germany | 2219 | 2248 | 2272 | 2104 | 2098 | 2170 | 2206 | 2240 | 2262 | 2274 | 2286 | 0.5% | 2.7% |
| Greece | 367 | 295 | 385 | 403 | 403 | 403 | 403 | 403 | 403 | 412 | 412 | _ | 0.5% |
| Italy | 2433 | 2360 | 2272 | 2272 | 2256 | 2241 | 2269 | 2292 | 2292 | 2292 | 2292 | _ | 2.7% |
| Netherlands | 1254 | 1197 | 1197 | 1197 | 1169 | 1196 | 1196 | 1212 | 1212 | 1233 | 1233 | _ | 1.5% |
| Norway | 288 | 288 | 288 | 298 | 308 | 308 | 310 | 323 | 318 | 307 | 310 | 1.0% | 0.4% |
| Russian Federation | 6611 | 6611 | 6671 | 6273 | 6284 | 6119 | 5793 | 5645 | 5597 | 5545 | 5553 | 0.1% | 6.6% |
| Spain | 1232 | 1245 | 1205 | 1215 | 1232 | 1265 | 1247 | 1247 | 1247 | 1247 | 1247 | _ | 1.5% |
| Sweden | 421 | 422 | 422 | 422 | 421 | 422 | 422 | 422 | 422 | 422 | 422 | _ | 0.5% |
| Turkey | 671 | 673 | 673 | 673 | 671 | 673 | 643 | 643 | 643 | 643 | 643 | _ | 0.8% |
| United Kingdom | 1837 | 1844 | 1866 | 1844 | 1873 | 1823 | 1848 | 1777 | 1778 | 1769 | 1785 | 0.9% | 2.1% |
| Other Europe and Eurasia | 7076 | 7054 | 6940 | 6804 | 6660 | 6525 | 6420 | 6246 | 6161 | 6201 | 6341 | 2.3% | 7.6% |
| Total Europe & Eurasia | 26810 | 26616 | 26580 | 25925 | 25814 | 25715 | 25407 | 25119 | 25089 | 25091 | 25299 | 0.8% | 30.2% |
| Iran | 957 | 1092 | 1092 | 1235 | 1330 | 1378 | 1448 | 1450 | 1450 | 1474 | 1474 | _ | 1.8% |
| Iraq | 584 | 634 | 634 | 634 | 634 | 634 | 634 | 634 | 639 | 644 | 644 | _ | 0.8% |
| Kuwait | 380 | 455 | 720 | 795 | 825 | 880 | 895 | 895 | 690 | 745 | 770 | 3.4% | 0.9% |
| Saudi Arabia | 1550 | 1550 | 1670 | 1670 | 1670 | 1693 | 1780 | 1811 | 1811 | 1816 | 1816 | _ | 2.2% |
| United Arab Emirates | 202 | 215 | 220 | 220 | 250 | 298 | 235 | 290 | 440 | 674 | 711 | 5.5% | 0.8% |
| Other Middle East | 1136 | 1137 | 1151 | 1153 | 1172 | 1164 | 1169 | 1175 | 1173 | 1164 | 1254 | 7.7% | 1.5% |
| Total Middle East | 4809 | 5083 | 5487 | 5707 | 5881 | 6047 | 6161 | 6255 | 6203 | 6517 | 6669 | 2.3% | 7.9% |
| Total Africa | 2819 | 2915 | 2847 | 2927 | 3004 | 2945 | 2898 | 2998 | 3049 | 3218 | 3303 | 2.6% | 3.9% |
| Australasia | 782 | 791 | 796 | 818 | 848 | 890 | 916 | 919 | 919 | 926 | 926 | _ | 1.1% |
| China | 3044 | 3334 | 3567 | 4014 | 4226 | 4559 | 4592 | 5401 | 5407 | 5643 | 5744 | 1.8% | 6.8% |
| India | 1041 | 1069 | 1072 | 1133 | 1210 | 1236 | 1356 | 2190 | 2219 | 2261 | 2289 | 1.2% | 2.7% |
| Indonesia | 867 | 867 | 932 | 992 | 992 | 1022 | 1098 | 1120 | 1116 | 1116 | 1116 | _ | 1.3% |
| Japan | 4636 | 4802 | 4862 | 5006 | 5006 | 5056 | 5088 | 5109 | 5029 | 4811 | 4721 | -1.9% | 5.6% |
| Singapore | 1115 | 1160 | 1158 | 1273 | 1245 | 1246 | 1246 | 1246 | 1255 | 1255 | 1255 | _ | 1.5% |
| South Korea | 1370 | 1591 | 1615 | 1727 | 1917 | 2316 | 2316 | 2316 | 2316 | 2316 | 2316 | _ | 2.8% |
| Taiwan | 570 | 570 | 570 | 732 | 732 | 732 | 732 | 732 | 732 | 874 | 1159 | 32.6% | 1.4% |
| Thailand | 383 | 420 | 445 | 529 | 777 | 824 | 855 | 855 | 880 | 992 | 983 | -0.9% | 1.2% |
| Other Asia Pacific | 835 | 846 | 950 | 1051 | 1064 | 1066 | 1193 | 1234 | 1310 | 1413 | 1417 | 0.3% | 1.7% |
| Total Asia Pacific | 14643 | 15450 | 15967 | 17275 | 18017 | 18947 | 19392 | 21122 | 21183 | 21607 | 21926 | 1.5% | 26.1% |
| TOTAL WORLD | 73632 | 74376 | 75617 | 76500 | 77518 | 79008 | 79707 | 81761 | 81939 | 83099 | 83900 | 1.0% | 100.0% |
| of which: European Union 15 | 13090 | 12924 | 12982 | 12887 | 12921 | 13069 | 13237 | 13265 | 13382 | 13421 | 13478 | 0.4% | 16.1% |
| OECD | 40360 | 40412 | 40977 | 40999 | 41359 | 42289 | 43104 | 43443 | 43596 | 43661 | 43723 | 0.1% | 52.1% |
| Former Soviet Union | 10156 | 10156 | 10216 | 9688 | 9600 | 9329 | 8900 | 8674 | 8596 | 8514 | 8522 | 0.1% | 10.2% |
| Other EMEs | 23116 | 23808 | 24424 | 25813 | 26559 | 27390 | 27703 | 29644 | 29747 | 30924 | 31655 | 2.4% | 37.7% |

*Atmospheric distillation capacity on a calendar-day basis.

Note: For the purposes of this table, annual changes and shares of total are calculated using thousand barrels daily figures.

Source: Includes data from Parpinelli Tecnon.

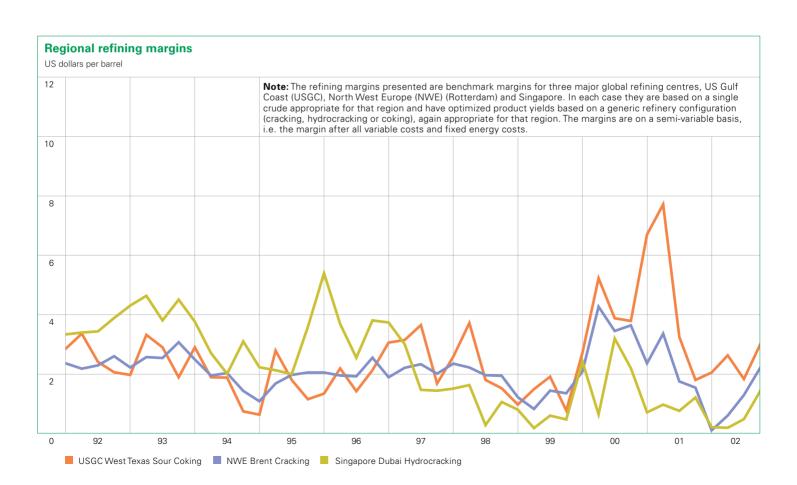
| Refinery throughputs Thousand barrels daily | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | Change 2002 over 2001 | 2002 share of total |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------------------------|---------------------------|
| USA | 13411 | 13613 | 13866 | 13973 | 14195 | 14662 | 14889 | 14804 | 15067 | 15128 | 14926 | -1.3% | 21.5% |
| Canada | 1458 | 1539 | 1580 | 1569 | 1644 | 1694 | 1709 | 1714 | 1765 | 1812 | 1818 | 0.3% | 2.6% |
| Mexico | 1497 | 1540 | 1459 | 1488 | 1491 | 1438 | 1451 | 1389 | 1364 | 1398 | 1387 | -0.8% | 2.0% |
| S. & Cent. America | 4533 | 4552 | 4621 | 4822 | 4887 | 4920 | 5124 | 5192 | 5335 | 5353 | 5063 | -5.4% | 7.3% |
| Europe & Eurasia | 21047 | 19964 | 19290 | 19150 | 19164 | 19402 | 19599 | 19075 | 19336 | 19590 | 19653 | 0.3% | 28.3% |
| Middle East | 4441 | 4501 | 4865 | 5130 | 5477 | 5488 | 5657 | 5784 | 5584 | 5896 | 6068 | 2.9% | 8.7% |
| Africa | 2147 | 2262 | 2275 | 2350 | 2370 | 2318 | 2389 | 2405 | 2301 | 2404 | 2420 | 0.7% | 3.5% |
| Australasia | 747 | 756 | 787 | 788 | 844 | 872 | 865 | 881 | 881 | 878 | 822 | -6.4% | 1.2% |
| China | 2426 | 2570 | 2548 | 2711 | 2850 | 3084 | 3060 | 3686 | 4218 | 4215 | 4409 | 4.6% | 6.4% |
| Japan | 3882 | 3982 | 4167 | 4169 | 4168 | 4319 | 4212 | 4149 | 4145 | 4107 | 3986 | -2.9% | 5.7% |
| Other Asia Pacific | 5717 | 6051 | 6314 | 6822 | 7544 | 8183 | 8010 | 8309 | 8914 | 9054 | 8808 | -2.7% | 12.7% |
| TOTAL WORLD | 61306 | 61330 | 61772 | 62972 | 64634 | 66380 | 66965 | 67388 | 68910 | 69835 | 69360 | -0.7% | 100.0% |
| of which: European Union 15 | 11794 | 11884 | 11950 | 11910 | 12184 | 12351 | 12828 | 12410 | 12528 | 12487 | 12294 | -1.5% | 17.7% |
| OECD | 35667 | 36353 | 36927 | 37273 | 38185 | 39455 | 39936 | 39456 | 39855 | 39862 | 39040 | -2.1% | 56.3% |
| Former Soviet Union | 7288 | 5977 | 5157 | 4950 | 4713 | 4761 | 4473 | 4458 | 4556 | 4847 | 5138 | 6.0% | 7.4% |
| Other EMEs | 18350 | 19001 | 19687 | 20750 | 21736 | 22164 | 22555 | 23474 | 24498 | 25126 | 25182 | 0.2% | 36.3% |

Note: For the purposes of this table, annual changes and shares of total are calculated using thousand barrels daily figures.

Source: Includes data from Parpinelli Tecnon.



Refinery capacity utilization for most regions peaked in the second half of the 1990s. Slower oil demand growth has meant falling utilization for most regions since then.





| Trade movements | | | | | | | | | | | | Change 2002 over | 2002 share |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------------------|---------------|
| Thousand barrels daily | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2002 0001 | of total |
| Imports | | | | | | | | | | | | | |
| USA | 7888 | 8620 | 8929 | 8831 | 9400 | 9907 | 10382 | 10550 | 11092 | 11618 | 11357 | -2.2% | 26.0% |
| Europe‡ | 10319 | 11083 | 10740 | 10436 | 10472 | 10421 | 11017 | 10670 | 11070 | 11531 | 11895 | 3.2% | 27.3% |
| Japan | 5306 | 5307 | 5612 | 5581 | 5685 | 5735 | 5259 | 5346 | 5329 | 5202 | 5070 | -2.5% | 11.6% |
| Rest of World* | 9884 | 9753 | 10464 | 11562 | 12764 | 13721 | 13432 | 14157 | 14911 | 15401 | 15306 | -0.6% | 35.1% |
| TOTAL WORLD | 33397 | 34763 | 35745 | 36410 | 38321 | 39784 | 40090 | 40723 | 42402 | 43752 | 43628 | -0.3% | 100.0% |
| Exports | | | | | | | | | | | | | |
| USA | 918 | 959 | 943 | 949 | 978 | 976 | 1011 | 956 | 890 | 910 | 904 | -0.7% | 2.1% |
| Canada | 1101 | 1215 | 1323 | 1402 | 1484 | 1492 | 1603 | 1520 | 1703 | 1804 | 1959 | 8.6% | 4.5% |
| Mexico | 1469 | 1434 | 1421 | 1422 | 1656 | 1767 | 1770 | 1739 | 1814 | 1882 | 1966 | 4.5% | 4.5% |
| S. & Cent. America | 2374 | 2391 | 2695 | 2797 | 3011 | 3219 | 3240 | 3145 | 3079 | 3143 | 2965 | -5.7% | 6.8% |
| Europe | n/a | 1358 | 1634 | 1472 | 1540 | 1463 | 1344 | 1851 | 1967 | 1947 | 2234 | 14.7% | 5.1% |
| Former Soviet Union# | 2298 | 2436 | 2531 | 2731 | 3239 | 3413 | 3569 | 4019 | 4273 | 4679 | 5370 | 14.8% | 12.3% |
| Middle East | 15453 | 16456 | 16513 | 16651 | 17170 | 18184 | 18702 | 18341 | 18944 | 19098 | 18062 | -5.4% | 41.4% |
| North Africa | 2849 | 2685 | 2652 | 2696 | 2756 | 2743 | 2712 | 2726 | 2732 | 2724 | 2620 | -3.8% | 6.0% |
| West Africa | 2679 | 2676 | 2675 | 2723 | 2916 | 3102 | 3094 | 2985 | 3293 | 3182 | 3134 | -1.5% | 7.2% |
| Asia Pacific† | 2414 | 2420 | 2517 | 2576 | 2790 | 2735 | 2490 | 2650 | 2767 | 2879 | 2863 | -0.6% | 6.6% |
| Rest of World* | 1842 | 733 | 840 | 991 | 780 | 690 | 556 | 791 | 940 | 1506 | 1551 | 3.0% | 3.5% |
| TOTAL WORLD | 33397 | 34763 | 35744 | 36410 | 38320 | 39784 | 40091 | 40723 | 42402 | 43754 | 43628 | -0.3% | 100.0% |

^{*}Includes unidentified trade.

| Inter-area movements 2002 | | | | | | | т. | | | | | | |
|---------------------------|-------|--------|--------|---------|--------|--------|----------|-------|-------|---------|---------|---------|--------|
| | | | | | | | ——То—— | | | Other I | | | |
| | | | | S. & C. | | | Austral- | | | Asia | Rest of | Uniden- | |
| Million tonnes | USA | Canada | Mexico | America | Europe | Africa | asia | China | Japan | Pacific | World | tified* | Total |
| From | | | | | | | | | | | | | |
| USA | _ | 4.9 | 7.7 | 8.2 | 10.7 | 0.5 | 0.8 | 1.1 | 4.0 | 4.4 | 1.0 | - | 43.3 |
| Canada | 95.5 | _ | _ | 0.2 | 0.5 | - | - | _ | 0.2 | 0.1 | - | - | 96.5 |
| Mexico | 76.2 | 1.2 | _ | 7.8 | 9.7 | - | - | _ | 0.6 | 2.0 | 0.2 | - | 97.7 |
| S. & Cent. America | 119.2 | 5.2 | 0.6 | - | 13.5 | 0.6 | _ | 0.9 | 0.3 | 5.6 | - | - | 145.9 |
| Europe | 57.0 | 24.6 | 0.7 | 2.8 | - | 10.0 | _ | 3.6 | 0.7 | 5.4 | 4.7 | - | 109.5 |
| Former Soviet Union | 9.8 | _ | _ | 7.4 | 214.6 | 0.5 | _ | 8.1 | 1.2 | 10.4 | 2.3 | 10.0 | 264.3 |
| Middle East | 114.7 | 6.9 | 0.9 | 13.6 | 161.1 | 36.9 | 8.6 | 38.9 | 195.4 | 315.5 | 2.5 | - | 895.0 |
| North Africa | 13.6 | 5.1 | 1.7 | 4.5 | 87.3 | 4.0 | _ | 0.3 | 3.6 | 5.7 | 3.2 | - | 129.0 |
| West Africa | 55.5 | 1.0 | _ | 9.9 | 35.2 | 2.7 | 0.1 | 9.5 | 3.8 | 38.2 | - | - | 155.9 |
| East & Southern Africa | _ | _ | _ | - | - | - | _ | 6.4 | 1.5 | 0.8 | - | - | 8.7 |
| Australasia | 2.9 | _ | _ | - | - | - | _ | 1.6 | 4.4 | 11.6 | - | - | 20.5 |
| China | 1.3 | _ | _ | 0.5 | 0.3 | - | 0.4 | _ | 4.1 | 9.9 | 0.3 | - | 16.8 |
| Japan | 0.3 | _ | _ | - | 0.1 | - | _ | 1.6 | _ | 2.2 | - | - | 4.2 |
| Other Asia Pacific | 8.3 | 0.1 | _ | - | 4.5 | 0.3 | 18.8 | 28.4 | 28.3 | 13.2 | 0.6 | - | 102.5 |
| Unidentified* | 6.7 | 2.5 | _ | - | 49.9 | - | 1.0 | _ | 2.4 | 0.3 | - | - | 62.8 |
| TOTAL IMPORTS | 561.0 | 51.5 | 11.6 | 54.9 | 587.4 | 55.5 | 29.7 | 100.4 | 250.5 | 425.3 | 14.8 | 10.0 | 2152.6 |
| Thousand barrels daily | | | | | | | | | | | | | |
| From | | | | | | | | | | | | | |
| USA | _ | 102 | 161 | 171 | 224 | 10 | 17 | 23 | 84 | 92 | 21 | _ | 904 |
| Canada | 1938 | _ | _ | 4 | 10 | _ | _ | _ | 4 | 2 | | _ | 1959 |
| Mexico | 1532 | 24 | _ | 158 | 195 | _ | _ | _ | 12 | 40 | 4 | _ | 1966 |
| S. & Cent. America | 2420 | 106 | 13 | _ | 274 | 12 | _ | 19 | 6 | 115 | _ | _ | 2965 |
| Europe | 1161 | 495 | 15 | 58 | | 209 | _ | 73 | 14 | 111 | 98 | _ | 2234 |
| Former Soviet Union | 201 | _ | _ | 149 | 4349 | 10 | _ | 166 | 24 | 214 | 47 | 209 | 5370 |
| Middle East | 2306 | 139 | 19 | 273 | 3241 | 747 | 173 | 785 | 3942 | 6385 | 52 | | 18062 |
| North Africa | 283 | 103 | 36 | 90 | 1768 | 81 | _ | 6 | 73 | 116 | 64 | _ | 2620 |
| West Africa | 1117 | 20 | _ | 199 | 708 | 54 | 2 | 191 | 77 | 767 | _ | _ | 3134 |
| East & Southern Africa | _ | _ | _ | _ | _ | _ | _ | 129 | 30 | 16 | _ | _ | 175 |
| Australasia | 58 | _ | _ | _ | _ | _ | _ | 32 | 90 | 235 | _ | _ | 415 |
| China | 26 | _ | _ | 10 | 6 | _ | 8 | _ | 83 | 205 | 6 | _ | 345 |
| Japan | 6 | _ | _ | _ | 2 | _ | _ | 33 | - | 46 | _ | _ | 88 |
| Other Asia Pacific | 171 | 2 | _ | _ | 94 | 6 | 380 | 585 | 581 | 271 | 13 | _ | 2103 |
| Unidentified* | 138 | 51 | _ | _ | 1023 | _ | 21 | _ | 50 | 6 | - | _ | 1289 |
| TOTAL IMPORTS | 11357 | 1041 | 242 | 1113 | 11895 | 1131 | 601 | 2042 | 5070 | 8622 | 306 | 209 | 43628 |

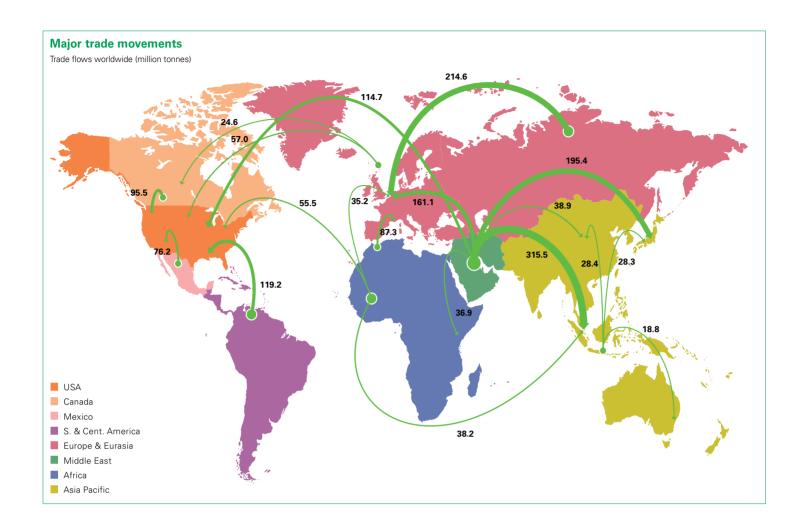
^{*}Includes changes in the quantity of oil in transit, movements not otherwise shown, unidentified military use etc.

[†]Excludes Japan.

[‡]Prior to 1993, excludes Central Europe (Albania, Bulgaria, Czech Republic, Former Republic of Yugoslavia, Hungary, Poland, Romania, Slovakia). n/a not available.

#Prior to 1993, includes Central Europe and excludes movements between Former Soviet Union and Central Europe.

Note: For the purposes of this table, annual changes and shares of total are calculated using thousand barrels daily figures.



| Imports and exports 2002 | | | | | | | | |
|--------------------------|------------------|--------------------|---------------|-----------------|------------------|--------------------|------------------|-----------------|
| • | | Million | tonnes | | | — Thousand I | parrels daily — | |
| | Crude imports | Product imports | Crude exports | Product exports | Crude imports | Product imports | Crude exports | Product exports |
| USA | 450.5 | 110.5 | 1.3 | 42.0 | 9047 | 2310 | 26 | 878 |
| Canada | 43.2 | 8.3 | 71.1 | 25.4 | 868 | 174 | 1428 | 531 |
| Mexico | _ | 11.6 | 93.4 | 4.3 | _ | 242 | 1876 | 90 |
| S. & Cent. America | 42.2 | 12.7 | 103.4 | 42.5 | 847 | 265 | 2076 | 888 |
| Europe | 467.4 | 120.0 | 67.1 | 42.4 | 9386 | 2508 | 1348 | 886 |
| Former Soviet Union | _ | 5.5 | 188.7 | 75.6 | _ | 115 | 3790 | 1580 |
| Middle East | 4.2 | 5.1 | 787.3 | 107.7 | 84 | 107 | 15811 | 2251 |
| North Africa | 8.3 | 6.0 | 93.1 | 35.9 | 167 | 125 | 1870 | 750 |
| West Africa | 2.9 | 8.3 | 151.5 | 4.4 | 58 | 174 | 3042 | 92 |
| East & Southern Africa | 24.7 | 5.3 | 8.4 | 0.3 | 496 | 111 | 169 | 6 |
| Australasia | 24.5 | 5.2 | 16.4 | 4.1 | 492 | 109 | 329 | 86 |
| China | 69.4 | 31.0 | 7.3 | 9.5 | 1394 | 648 | 147 | 199 |
| Japan | 202.2 | 48.3 | _ | 4.2 | 4061 | 1010 | _ | 88 |
| Other Asia Pacific | 327.2 | 98.1 | 48.3 | 54.2 | 6571 | 2051 | 970 | 1133 |
| Unidentified* | _ | 10.0 | 29.4 | 33.4 | _ | 209 | 590 | 698 |
| TOTAL WORLD | 1666.7 | 485.9 | 1666.7 | 485.9 | 33471 | 10157 | 33471 | 10157 |

*Includes changes in the quantity of oil in transit, movements not otherwise shown, unidentified military use etc.

Note: Bunkers are not included as exports. Intra-area movements (for example, between countries in Europe) are excluded.

Natural gas

| Proved reserves | At end 1982 Trillion cubic | At end 1992 Trillion cubic | At end 2001 Trillion cubic | Trillion cubic | At end 2002 Trillion cubic | Share | R/F |
|---|---|----------------------------------|----------------------------------|-------------------|----------------------------------|--------------|--------------|
| | metres | metres | metres | metres | feet | of total | ratio |
| USA | 5.78 | 4.73 | 5.02 | 5.19 | 183.5 | 3.3% | 9.6 |
| Canada Mexico | 2.75 2.15 | 2.71 2.01 | 1.69 0.84 | 1.70 0.25 | 60.1 8.8 | 1.1% 0.2% | 9.3 |
| Total North America | 10.67 | 9.45 | 7.55 | 7.15 | 252.4 | 4.6% | 7.1 9.4 |
| Argentina | 0.71 | 0.64 | 0.78 | 0.76 | 27.0 | 0.5% | 21.1 |
| Bolivia | 0.16 | 0.12 | 0.68 | 0.68 | 24.0 | 0.4% | ٠.١ ٢ |
| Brazil | 0.07 | 0.12 | 0.22 | 0.23 | 8.1 | 0.1% | 25.2 |
| Colombia | 0.13 | 0.20 | 0.12 | 0.13 | 4.5 | 0.1% | 20.7 |
| Peru | 0.03 | 0.20 | 0.25 | 0.25 | 8.7 | 0.2% | |
| Trinidad & Tobago | 0.31 | 0.25 | 0.66 | 0.66 | 23.5 | 0.4% | 39.6 |
| Venezuela | 1.53 | 3.58 | 4.18 | 4.19 | 148.0 | 2.7% | 4 |
| Other S. & Cent. America | 0.19 | 0.22 | 0.28 | 0.18 | 6.4 | 0.1% | + |
| Total S. & Cent. America | 3.14 | 5.34 | 7.16 | 7.08 | 250.2 | 4.5% | 68.8 |
| Azerbaijan | n/a | n/a | 0.85 | 0.85 | 30.0 | 0.5% | + |
| Denmark | 0.07 | 0.11 | 0.08 | 0.08 | 3.0 | 0.1% | 10.0 |
| Germany | 0.18 | 0.34 | 0.34 | 0.32 | 11.3 | 0.2% | 18.4 |
| Italy | 0.12 | 0.37 | 0.23 | 0.23 | 8.0 | 0.1% | 15.0 |
| Kazakhstan | n/a | 1.85 | 1.84 | 1.84 | 65.0 | 1.2% | · · |
| Netherlands | 1.47 | 1.95 | 1.77 | 1.76 | 62.0 | 1.1% | 25.5 |
| Norway | 1.64 | 2.00 | 1.25 | 2.19 | 77.3 | 1.4% | 33.5 |
| Poland | n/a | 0.16 | 0.14 | 0.17 | 5.8 | 0.1% | 41.7 |
| Romania | n/a | 0.21 | 0.10 | 0.10 | 3.6 | 0.1% | 9.4 |
| Russian Federation | n/a | 47.40 | 47.57 | 47.57 | 1680.0 | 30.5% | 81.2 |
| Turkmenistan | n/a | 2.74 | 2.86 | 2.01 | 71.0 | 1.3% | 38.2 |
| Ukraine | n/a | 1.08 | 1.12 | 1.12 | 39.6 | 0.7% | 61.7 |
| United Kingdom Uzbekistan | 0.72 | 0.54 | 0.73 | 0.70 | 24.6 | 0.4% | 6.8 33.0 |
| | n/a 35.76 | 1.84 0.44 | 1.87 0.24 | 1.87 0.24 | 66.2 8.4 | 1.2% 0.2% | 21.3 |
| Other Europe & Eurasia Total Europe & Eurasia | 39.96 | 61.02 | 61.00 | 61.04 | 2155.8 | 39.2% | 58.9 |
| Bahrain | 0.22 | 0.16 | 0.09 | 0.09 | 3.3 | 0.1% | 10.0 |
| Iran | 13.67 | 19.80 | 23.00 | 23.00 | 812.3 | 14.8% | 1 U.C |
| Iraq | 0.82 | 3.10 | 3.11 | 3.11 | 109.8 | 2.0% | -* |
| Kuwait | 0.97 | 1.50 | 1.49 | 1.49 | 52.7 | 1.0% | -* |
| Oman | 0.08 | 0.48 | 0.83 | 0.83 | 29.3 | 0.5% | 56.2 |
| Qatar | 1.76 | 6.43 | 14.40 | 14.40 | 508.5 | 9.2% | * |
| Saudi Arabia | 3.43 | 5.18 | 6.22 | 6.36 | 224.7 | 4.1% | ÷ |
| Syria | 0.04 | 0.20 | 0.24 | 0.24 | 8.5 | 0.2% | 59.0 |
| United Arab Emirates | 0.81 | 5.79 | 6.01 | 6.01 | 212.1 | 3.9% | -> |
| Yemen | _ | 0.39 | 0.48 | 0.48 | 16.9 | 0.3% | * |
| Other Middle East | † | 0.01 | 0.05 | 0.05 | 1.6 | • | -> |
| Total Middle East | 21.78 | 43.05 | 55.91 | 56.06 | 1979.7 | 36.0% | -ж |
| Algeria | 3.15 | 3.62 | 4.52 | 4.52 | 159.7 | 2.9% | 56.3 |
| Egypt | 0.20 | 0.44 | 1.56 | 1.66 | 58.5 | 1.1% | 73.1 |
| Libya | 0.61 | 1.31 | 1.31 | 1.31 | 46.4 | 0.8% | -> |
| Nigeria | 0.92 | 3.40 | 3.51 | 3.51 | 124.0 | 2.3% | ÷ |
| Other Africa | 0.48 | 1.06 | 0.84 | 0.84 | 29.5 | 0.5% | -* |
| Total Africa | 5.36 | 9.82 | 11.74 | 11.84 | 418.1 | 7.6% | 88.9 |
| Australia | 0.50 | 0.52 | 2.55 | 2.55 | 90.0 | 1.6% | 73.9 |
| Bangladesh | 0.20 | 0.72 | 0.30 | 0.30 | 10.6 | 0.2% | 26.8 |
| Brunei | 0.19 | 0.40 | 0.39 | 0.39 | 13.8 | 0.3% | 34.1 |
| China | 0.84 | 1.40 | 1.37 | 1.51 | 53.3 | 1.0% | 46.3 |
| India | 0.41 | 0.73 | 0.65 | 0.76 | 26.9 | 0.5% | 26.9 |
| Indonesia Malayria | 0.84 | 1.82 | 2.62 | 2.62 | 92.5 | 1.7% | 37.1 |
| Malaysia Pakistan | 0.96 | 1.92 | 2.12 | 2.12 | 75.0 | 1.4% | 42.2 |
| Pakistan Papua Now Guinoa | 0.52 | 0.88 | 0.71 | 0.75 | 26.4 | 0.5% | 35.8 |
| Papua New Guinea Thailand | 0.31 | 0.40 0.24 | 0.35 0.36 | 0.35 0.38 | 12.2 13.3 | 0.2% 0.2% | 20.0 |
| Vietnam | 0.31 | 0.24 | 0.36 | 0.38 | 6.8 | 0.2% | 20.0 80.2 |
| Other Asia Pacific | 0.20 | 0.01 | 0.19 | 0.19 | 24.5 | 0.1% | 34.1 |
| Total Asia Pacific | 4.99 | 9.66 | 12.27 | 12.61 | 445.3 | 8.1% | 41.8 |
| TOTAL WORLD | 85.90 | 138.34 | 155.64 | 155.78 | 5501.5 | 100.0% | 60.7 |
| of which: European Union 15 | 2.80 | 3.41 | 3.21 | 3.14 | 111.0 | 2.0% | 14.4 |
| OECD# | 15.81 | 15.80 | 14.87 | 15.38 | 543.2 | 9.9% | 14.1 |
| | | | | | | | |

^{*}Over 100 years.

Proved reserves of natural gas – Generally taken to be those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known reservoirs under existing economic and operating conditions.

Reserves/Production (R/P) ratio – If the reserves remaining at the end of any year are divided by the production in that year, the result is the length of time that those

remaining reserves would last if production were to continue at that level.

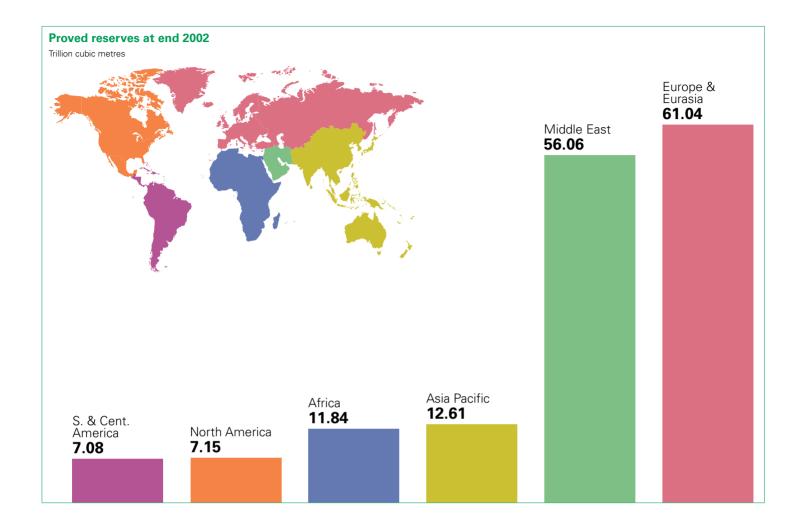
Source of data – With the exception of Azerbaijan and Egypt for 2001, the estimates contained in this table are those published by the Oil & Gas Journal. Trillion equals one million million (10¹²). 1 trillion cubic feet of natural gas = 26 million tonnes of oil (approximately).

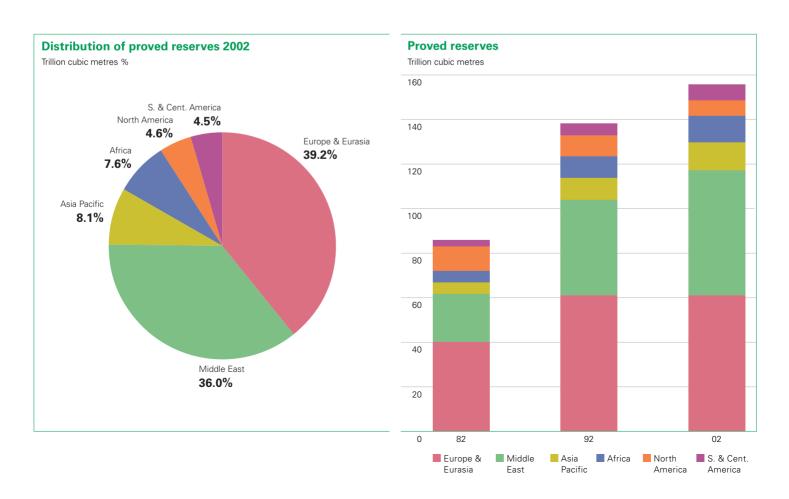
^{*}Less than 0.05.

*Less than 0.05%.

#1982 excludes Central European members.
n/a not available.

Notes:





Natural gas

| Production* | | | | | | | | | | | | Change 2002 over | 2002 share |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------------|----------------|
| Billion cubic metres | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2002 0001 | of tota |
| USA | 514.5 | 520.4 | 541.8 | 534.3 | 541.7 | 543.1 | 549.2 | 541.6 | 551.4 | 557.7 | 547.7 | -1.8% | 21.79 |
| Canada | 127.8 | 139.0 | 149.1 | 158.7 | 163.6 | 165.8 | 171.3 | 177.4 | 183.2 | 186.8 | 183.5 | -1.8% | 7.39 |
| Mexico | 26.2 | 25.4 | 25.9 | 26.6 | 28.0 | 31.7 | 34.3 | 37.2 | 35.8 | 35.3 | 34.8 | -1.4% | 1.49 |
| Total North America | 668.5 | 684.8 | 716.8 | 719.6 | 733.3 | 740.6 | 754.8 | 756.2 | 770.4 | 779.8 | 766.0 | -1.8% | 30.39 |
| Argentina | 20.1 | 21.5 | 22.3 | 25.0 | 28.9 | 27.4 | 29.6 | 34.6 | 37.4 | 37.1 | 36.1 | -2.8% | 1.49 |
| Bolivia | 3.0 | 3.0 | 3.3 | 3.2 | 3.2 | 2.9 | 3.0 | 2.5 | 3.5 | 5.1 | 5.4 | 5.6% | 0.29 |
| Brazil | 4.0 | 4.5 | 4.5 | 4.8 | 5.5 | 6.0 | 6.3 | 6.7 | 7.2 | 7.6 | 9.1 | 20.4% | 0.49 |
| Colombia | 4.0 | 4.2 | 4.2 | 4.4 | 4.7 | 5.9 | 6.3 | 5.2 | 5.9 | 6.1 | 6.2 | 1.0% | 0.29 |
| Trinidad & Tobago | 6.0 | 5.9 | 6.2 | 6.1 | 7.1 | 7.4 | 8.6 | 11.7 | 14.1 | 14.7 | 16.8 | 13.6% | 0.79 |
| Venezuela | 21.6 | 23.3 | 24.7 | 27.5 | 29.7 | 30.8 | 32.3 | 27.4 | 27.9 | 29.1 | 27.3 | -6.0% | 1.19 |
| Other S. & Cent. America | 2.2 | 2.1 | 2.2 | 2.2 | 2.3 | 2.4 | 2.5 | 2.1 | 2.1 | 2.3 | 2.1 | -5.8% | 0.19 |
| Total S. & Cent. America | 60.9 | 64.5 | 67.4 | 73.2 | 81.4 | 82.8 | 88.6 | 90.2 | 98.1 | 102.0 | 103.0 | 1.0% | 4.19 |
| Azerbaijan | 7.4 | 6.3 | 6.0 | 6.2 | 5.9 | 5.6 | 5.2 | 5.6 | 5.3 | 5.2 | 4.8 | -7.3% | 0.29 |
| Denmark | 4.1 | 4.5 | 4.9 | 5.3 | 6.4 | 7.9 | 7.6 | 7.8 | 8.1 | 8.4 | 8.4 | 0.2% | 0.39 |
| Germany | 14.9 | 14.9 | 15.6 | 16.1 | 17.4 | 17.1 | 16.7 | 17.8 | 16.9 | 17.4 | 17.4 | -0.3% | 0.79 |
| Italy | 18.2 | 19.5 | 20.6 | 20.4 | 20.0 | 19.3 | 19.0 | 17.5 | 16.2 | 15.2 | 15.1 | -1.2% | 0.69 |
| Kazakhstan | 7.6 | 6.2 | 4.2 | 5.5 | 6.1 | 7.6 | 7.4 | 9.3 | 10.8 | 10.8 | 12.3 | 13.2% | 0.59 |
| Netherlands | 69.1 | 70.0 | 66.4 | 67.0 | 75.8 | 67.1 | 63.6 | 59.3 | 57.3 | 61.9 | 59.9 | -3.2% | 2.49 |
| Norway | 25.8 | 24.8 | 26.8 | 27.8 | 37.4 | 43.0 | 44.2 | 48.5 | 49.7 | 53.9 | 65.4 | 21.4% | 2.69 |
| Poland | 2.8 | 3.6 | 3.4 | 3.5 | 3.6 | 3.6 | 3.6 | 3.4 | 3.7 | 3.9 | 4.0 | 2.0% | 0.29 |
| Romania | 21.8 | 20.6 | 18.7 | 18.0 | 17.2 | 15.0 | 14.0 | 14.0 | 13.8 | 13.6 | | -20.7% | 0.49 |
| Russian Federation | 597.4 | 576.5 | 566.4 | 555.4 | 561.1 | 532.6 | 551.3 | 551.0 | 545.0 | 542.4 | 554.9 | 2.3% | 22.09 |
| Turkmenistan | 56.1 | 60.9 | 33.3 | 30.1 | 32.8 | 16.1 | 12.4 | 21.3 | 43.8 | 47.9 | 49.9 | 4.3% | 2.09 |
| Ukraine | 19.6 | 17.9 | 17.0 | 17.0 | 17.2 | 17.4 | 16.8 | 16.9 | 16.7 | 17.1 | 17.2 | 0.8% | 0.79 |
| United Kingdom | 51.5 | 60.5 | 64.6 | 70.8 | 84.2 | 85.9 | 90.2 | 99.1 | 108.3 | 105.8 | 103.1 | -2.6% | 4.19 2.19 |
| Uzbekistan | 39.9 15.8 | 42.0 16.2 | 44.0 15.6 | 45.3 15.6 | 45.7 14.0 | 47.8 13.3 | 51.1 12.3 | 51.9 11.4 | 52.6 11.3 | 53.5 11.2 | 53.8 | 0.5% -0.4% | 0.49 |
| Other Europe & Eurasia Total Europe & Eurasia | 952.0 | 944.4 | 907.5 | 904.0 | 944.8 | 899.3 | 915.4 | 934.8 | 959.5 | 968.2 | 11.1 988.1 | 2.0% | 39.1% |
| Bahrain | 6.5 | 6.9 | 7.1 | 7.2 | 7.4 | 8.0 | 8.4 | 8.7 | 8.8 | 9.1 | 9.2 | 1.1% | 0.4% |
| Iran | 25.0 | 27.1 | 31.8 | 35.3 | 39.0 | 47.0 | 50.0 | 56.4 | 60.2 | 63.3 | 64.5 | 1.9% | 2.6% |
| Kuwait | 2.6 | 5.4 | 6.0 | 9.3 | 9.3 | 9.3 | 9.5 | 8.6 | 9.6 | 9.5 | 8.7 | -8.3% | 0.3% |
| Oman | 2.9 | 2.8 | 2.9 | 4.1 | 4.4 | 5.0 | 5.2 | 5.5 | 8.4 | 14.0 | 14.8 | 5.7% | 0.69 |
| Qatar | 12.6 | 13.5 | 13.5 | 13.5 | 13.7 | 17.4 | 19.6 | 22.1 | 24.9 | 27.9 | 29.3 | 5.0% | 1.29 |
| Saudi Arabia | 38.3 | 40.0 | 42.8 | 42.9 | 44.4 | 45.3 | 46.8 | 46.2 | 49.8 | 53.7 | 56.4 | 5.0% | 2.29 |
| Syria | 1.6 | 1.4 | 1.5 | 1.9 | 2.5 | 3.8 | 4.3 | 4.5 | 4.2 | 4.3 | 4.1 | -5.9% | 0.29 |
| United Arab Emirates | 22.2 | 23.0 | 25.8 | 31.3 | 33.8 | 36.3 | 37.1 | 38.5 | 38.4 | 45.0 | 46.0 | 2.2% | 1.89 |
| Other Middle East | 2.4 | 2.8 | 3.4 | 3.4 | 3.5 | 3.3 | 3.2 | 3.4 | 3.4 | 3.0 | | -15.2% | 0.19 |
| Total Middle East | 114.1 | 122.9 | 134.8 | 148.9 | 158.0 | 175.4 | 184.1 | 193.9 | 207.7 | 229.8 | 235.6 | 2.5% | 9.3% |
| Algeria | 55.3 | 56.1 | 51.6 | 58.7 | 62.3 | 71.8 | 76.6 | 86.0 | 84.4 | 78.2 | 80.4 | 2.7% | 3.29 |
| Egypt | 8.4 | 10.0 | 10.6 | 11.0 | 11.5 | 11.6 | 12.2 | 14.7 | 18.3 | 21.5 | 22.7 | 5.5% | 0.9% |
| Libya | 6.1 | 5.8 | 5.8 | 5.8 | 5.8 | 6.0 | 5.8 | 4.7 | 5.4 | 5.6 | 5.7 | 1.0% | 0.29 |
| Nigeria | 4.3 | 4.9 | 4.4 | 4.8 | 5.4 | 5.1 | 5.1 | 6.0 | 12.5 | 18.4 | 17.7 | -3.6% | 0.79 |
| Other Africa | 1.1 | 2.7 | 2.9 | 3.0 | 3.8 | 4.9 | 5.0 | 5.4 | 5.9 | 6.6 | 6.7 | 1.9% | 0.39 |
| Total Africa | 75.2 | 79.5 | 75.3 | 83.3 | 88.8 | 99.4 | 104.7 | 116.8 | 126.5 | 130.3 | 133.2 | 2.2% | 5.3% |
| Australia | 23.5 | 24.5 | 28.1 | 29.3 | 30.1 | 29.9 | 31.1 | 31.6 | 32.8 | 33.6 | 34.5 | 2.7% | 1.49 |
| Bangladesh | 5.7 | 6.1 | 6.6 | 7.4 | 7.6 | 7.6 | 7.8 | 8.3 | 10.0 | 10.7 | 11.2 | 4.3% | 0.49 |
| Brunei | 9.8 | 10.3 | 10.4 | 11.8 | 11.7 | 11.7 | 10.8 | 11.2 | 11.3 | 11.4 | 11.5 | 0.5% | 0.59 |
| China | 15.1 | 16.2 | 16.6 | 17.6 | 19.9 | 22.2 | 22.3 | 24.3 | 27.2 | 30.3 | 32.6 | 7.7% | 1.39 |
| India | 15.3 | 15.9 | 16.6 | 19.6 | 20.7 | 23.0 | 24.7 | 25.9 | 26.9 | 27.3 | 28.4 | 4.0% | 1.19 |
| Indonesia | 54.2 | 55.9 | 62.5 | 63.4 | 67.5 | 67.2 | 64.3 | 71.0 | 68.5 | 66.3 | 70.6 | 6.4% | 2.89 |
| Malaysia | 22.8 | 24.9 | 26.1 | 28.9 | 33.6 | 38.6 | 38.5 | 40.8 | 45.3 | 47.3 | 50.3 | 6.3% | 2.09 |
| New Zealand | 4.7 | 4.9 | 4.4 | 4.1 | 4.9 | 5.1 | 4.5 | 5.2 | 5.5 | 5.8 | 6.3 | 9.5% | 0.39 |
| Pakistan | 11.5 | 12.2 | 13.3 | 14.6 | 15.4 | 15.6 | 16.0 | 17.3 | 18.9 | 19.9 | 20.9 | 5.1% | 0.89 |
| Thailand | 7.5 | 8.4 | 9.5 | 10.4 | 12.2 | 15.2 | 16.3 | 17.7 | 18.6 | 18.0 | 18.9 | 4.8% | 0.79 |
| Other Asia Pacific | 4.4 | 4.6 | 5.0 | 5.1 | 5.4 | 5.7 | 6.1 | 6.4 | 8.5 | 12.6 | 16.5 | 31.2% | 0.79 |
| Total Asia Pacific | 174.5 | 183.9 | 199.1 | 212.2 | 229.0 | 241.8 | 242.4 | 259.7 | 273.5 | 283.2 | 301.7 | 6.5% | 11.99 |
| TOTAL WORLD | 2045.2 | 2080.0 | 2100.9 | 2141.2 | 2235.3 | 2239.3 | 2290.0 | 2351.6 | 2435.7 | 2493.3 | 2527.6 | 1.4% | 100.0% |
| of which: European Union 15 | 165.7 | 177.0 | 179.8 | 187.0 | 210.4 | 203.3 | 202.3 | 206.4 | 211.6 | 213.7 | 208.8 | -2.3% | 8.39 |
| OECD | 897.9 | 926.7 | 966.4 | 978.4 | 1026.6 | 1032.1 | 1047.1 | 1057.5 | 1079.8 | 1096.5 | 1090.8 | -0.5% | 43.2% |
| Former Soviet Union | 728.5 418.7 | 710.3 443.0 | 671.2 463.3 | 659.8 502.8 | 669.0 539.7 | 627.4 579.6 | 644.6 598.0 | 656.3 637.8 | 674.5 681.2 | 677.3 719.6 | 693.2 743.3 | 2.3% 3.3% | 27.4% 29.4% |
| Other EMEs | | | | | | | | | | | | | |

*Excluding gas flared or recycled.

Notes: As far as possible, the data above represents standard cubic metres (measured at 15°C and 1013 mbar); as it is derived directly from tonnes of oil equivalent using an average conversion factor, it does not necessarily equate with gas volumes expressed in specific national terms.

Because of rounding some totals may not agree exactly with the sum of their component parts.

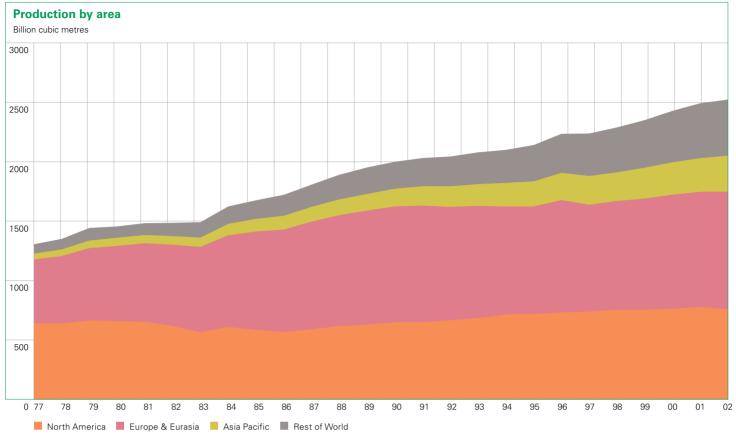
Natural gas production data expressed in billion cubic feet per day is available at www.bp.com/centres/energy.

| Production* | | | | | | | | | | | | Change 2002 over | 2002 |
|--------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------------|-------------------|
| Million tonnes oil equivalent | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2002 over 2001 | share of total |
| USA | 463.1 | 468.3 | 487.6 | 480.9 | 487.5 | 488.8 | 494.3 | 487.4 | 496.3 | 501.9 | 492.9 | -1.8% | 21.7% |
| Canada | 115.0 | 125.1 | 134.2 | 142.8 | 147.3 | 149.2 | 154.1 | 159.7 | 164.9 | 168.1 | 165.2 | -1.8% | 7.3% |
| Mexico | 23.5 | 22.9 | 23.3 | 23.9 | 25.2 | 28.5 | 30.9 | 33.5 | 32.2 | 31.8 | 31.3 | -1.4% | 1.4% |
| Total North America | 601.6 | 616.3 | 645.1 | 647.6 | 660.0 | 666.5 | 679.3 | 680.6 | 693.4 | 701.8 | 689.4 | -1.8% | 30.3% |
| Argentina | 18.1 | 19.4 | 20.0 | 22.5 | 26.0 | 24.6 | 26.6 | 31.1 | 33.7 | 33.4 | 32.5 | -2.8% | 1.4% |
| Bolivia | 2.7 | 2.7 | 3.0 | 2.8 | 2.9 | 2.6 | 2.7 | 2.2 | 3.1 | 4.6 | 4.9 | 5.6% | 0.2% |
| Brazil | 3.6 | 4.0 | 4.1 | 4.3 | 5.0 | 5.4 | 5.6 | 6.1 | 6.5 | 6.8 | 8.2 | 20.4% | 0.4% |
| Colombia | 3.6 | 3.8 5.3 | 3.7 5.6 | 4.0 | 4.2 | 5.3 | 5.6 7.8 | 4.7 10.6 | 5.3 | 5.5 | 5.5 | 1.0% | 0.2% |
| Trinidad & Tobago Venezuela | 5.4 19.5 | 21.0 | 22.2 | 5.5 24.8 | 6.4 26.8 | 6.7 27.7 | 7.6 29.1 | 24.7 | 12.6 25.1 | 13.3 26.2 | 15.1 24.6 | 13.6% -6.0% | 0.7% 1.1% |
| Other S. & Cent. America | 2.0 | 1.9 | 2.0 | 24.0 | 2.0 | 27.7 | 2.3 | 1.9 | 1.9 | 2.0 | 1.9 | -5.8% | 0.1% |
| Total S. & Cent. America | 54.9 | 58.1 | 60.6 | 65.9 | 73.3 | 74.4 | 79.7 | 81.3 | 88.2 | 91.8 | 92.7 | 1.0% | 4.1% |
| Azerbaijan | 6.6 | 5.7 | 5.4 | 5.5 | 5.3 | 5.0 | 4.7 | 5.0 | 4.7 | 4.7 | 4.3 | -7.3% | 0.2% |
| Denmark | 3.7 | 4.1 | 4.4 | 4.8 | 5.8 | 7.1 | 6.8 | 7.0 | 7.3 | 7.5 | 7.6 | 0.2% | 0.3% |
| Germany | 13.4 | 13.4 | 14.0 | 14.5 | 15.7 | 15.4 | 15.0 | 16.1 | 15.2 | 15.7 | 15.7 | -0.3% | 0.7% |
| Italy | 16.3 | 17.5 | 18.6 | 18.3 | 18.0 | 17.3 | 17.1 | 15.7 | 14.6 | 13.7 | 13.6 | -1.2% | 0.6% |
| Kazakhstan | 6.8 | 5.6 | 3.8 | 5.0 | 5.5 | 6.8 | 6.7 | 8.4 | 9.7 | 9.7 | 11.0 | 13.2% | 0.5% |
| Netherlands | 62.2 | 63.0 | 59.7 | 60.3 | 68.2 | 60.4 | 57.2 | 53.3 | 51.6 | 55.7 | 53.9 | -3.2% | 2.4% |
| Norway | 23.3 | 22.3 | 24.2 | 25.0 | 33.7 | 38.7 | 39.8 | 43.6 | 44.8 | 48.5 | 58.9 | 21.4% | 2.6% |
| Poland | 2.5 | 3.3 | 3.1 | 3.1 | 3.2 | 3.2 | 3.2 | 3.1 | 3.3 | 3.5 | 3.6 | 2.0% | 0.2% |
| Romania | 19.6 | 18.5 | 16.8 | 16.2 | 15.5 | 13.5 | 12.6 | 12.6 | 12.4 | 12.2 | | -20.7% | 0.4% |
| Russian Federation | 537.6 | 518.8 | 509.8 | 499.9 | 505.0 | 479.3 | 496.2 | 495.9 | 490.5 | 488.2 | 499.4 | 2.3% | 22.0% |
| Turkmenistan | 50.5 | 54.8 | 30.0 | 27.1 | 29.6 | 14.5 | 11.2 | 19.1 | 39.5 | 43.1 | 44.9 | 4.3% | 2.0% |
| Ukraine | 17.6 | 16.1 | 15.3 58.2 | 15.3 63.7 | 15.4 75.8 | 15.7 77.3 | 15.1 | 15.2 89.2 | 15.0 97.4 | 15.4 95.3 | 15.5 | 0.8% -2.6% | 0.7% |
| United Kingdom Uzbekistan | 46.3 35.9 | 54.5 37.8 | 39.6 | 40.8 | 41.1 | 43.0 | 81.2 46.0 | 46.7 | 97.4 47.4 | 95.3 48.2 | 92.8 48.4 | 0.5% | 4.1% 2.1% |
| Other Europe & Eurasia | 14.2 | 14.6 | 14.0 | 14.1 | 12.6 | 12.0 | 11.1 | 10.3 | 10.2 | 10.1 | 10.0 | -0.4% | 0.4% |
| Total Europe & Eurasia | 856.5 | 850.0 | 816.9 | 813.6 | 850.4 | 809.2 | 823.9 | 841.2 | 863.6 | 871.5 | 889.3 | 2.0% | 39.1% |
| Bahrain | 5.8 | 6.2 | 6.4 | 6.5 | 6.7 | 7.2 | 7.5 | 7.8 | 7.9 | 8.2 | 8.3 | 1.1% | 0.4% |
| Iran | 22.5 | 24.4 | 28.6 | 31.8 | 35.1 | 42.3 | 45.0 | 50.7 | 54.2 | 57.0 | 58.1 | 1.9% | 2.6% |
| Kuwait | 2.4 | 4.9 | 5.4 | 8.4 | 8.4 | 8.3 | 8.5 | 7.8 | 8.6 | 8.6 | 7.8 | -8.3% | 0.3% |
| Oman | 2.6 | 2.5 | 2.6 | 3.6 | 3.9 | 4.5 | 4.7 | 4.9 | 7.6 | 12.6 | 13.3 | 5.7% | 0.6% |
| Qatar | 11.4 | 12.2 | 12.2 | 12.2 | 12.3 | 15.7 | 17.6 | 19.8 | 22.4 | 25.1 | 26.4 | 5.0% | 1.2% |
| Saudi Arabia | 34.4 | 36.0 | 38.5 | 38.6 | 40.0 | 40.8 | 42.1 | 41.6 | 44.8 | 48.3 | 50.7 | 5.0% | 2.2% |
| Syria | 1.4 | 1.3 | 1.3 | 1.7 | 2.2 | 3.5 | 3.8 | 4.0 | 3.8 | 3.9 | 3.7 | -5.9% | 0.2% |
| United Arab Emirates | 20.0 | 20.7 | 23.2 | 28.2 | 30.4 | 32.7 | 33.4 | 34.6 | 34.5 | 40.5 | 41.4 | 2.2% | 1.8% |
| Other Middle East | 2.2 | 2.5 | 3.1 | 3.1 | 3.1 | 3.0 | 2.9 | 3.1 | 3.1 | 2.7 | | -15.2% | 0.1% |
| Total Middle East | 102.7 49.8 | 110.7 50.5 | 121.3 46.5 | 134.1 52.8 | 142.1 56.1 | 158.0 64.6 | 165.5 68.9 | 174.3 77.4 | 186.9 76.0 | 206.9 70.4 | 212.0 72.3 | 2.5% | 9.3% 3.2% |
| Algeria Egypt | 49.6 7.6 | 9.0 | 9.5 | 9.9 | 10.4 | 10.5 | 11.0 | 13.2 | 16.5 | 19.3 | 20.4 | 5.5% | 0.9% |
| Libya | 5.5 | 5.2 | 5.2 | 5.2 | 5.2 | 5.4 | 5.2 | 4.2 | 4.9 | 5.0 | 5.1 | 1.0% | 0.2% |
| Nigeria | 3.8 | 4.4 | 4.0 | 4.4 | 4.9 | 4.6 | 4.6 | 5.4 | 11.3 | 16.6 | 16.0 | -3.6% | 0.7% |
| Other Africa | 1.0 | 2.4 | 2.6 | 2.7 | 3.4 | 4.4 | 4.5 | 4.9 | 5.3 | 6.0 | 6.1 | 1.9% | 0.3% |
| Total Africa | 67.7 | 71.5 | 67.8 | 75.0 | 80.0 | 89.5 | 94.2 | 105.1 | 114.0 | 117.3 | 119.9 | 2.2% | 5.3% |
| Australia | 21.1 | 22.0 | 25.3 | 26.3 | 27.1 | 26.9 | 27.9 | 28.5 | 29.5 | 30.2 | 31.0 | 2.7% | 1.4% |
| Bangladesh | 5.2 | 5.5 | 6.0 | 6.6 | 6.8 | 6.8 | 7.0 | 7.5 | 9.0 | 9.7 | 10.1 | 4.3% | 0.4% |
| Brunei | 8.8 | 9.3 | 9.4 | 10.6 | 10.5 | 10.5 | 9.7 | 10.1 | 10.2 | 10.3 | 10.3 | 0.5% | 0.5% |
| China | 13.6 | 14.6 | 14.9 | 15.8 | 17.9 | 20.0 | 20.1 | 21.9 | 24.5 | 27.3 | 29.3 | 7.7% | 1.3% |
| India | 13.8 | 14.3 | 14.9 | 17.6 | 18.7 | 20.7 | 22.2 | 23.3 | 24.2 | 24.6 | 25.6 | 4.0% | 1.1% |
| Indonesia | 48.8 | 50.3 | 56.2 | 57.0 | 60.7 | 60.4 | 57.8 | 63.9 | 61.7 | 59.7 | 63.5 | 6.4% | 2.8% |
| Malaysia | 20.5 | 22.4 | 23.5 | 26.0 | 30.3 | 34.8 | 34.6 | 36.8 | 40.7 | 42.6 | 45.2 | 6.3% | 2.0% |
| New Zealand Pakistan | 4.3 10.3 | 4.4 10.9 | 4.0 12.0 | 3.7 13.1 | 4.4 13.8 | 4.6 14.0 | 4.0 14.4 | 4.7 15.6 | 4.9 17.0 | 5.2 17.9 | 5.7 18.8 | 9.5% 5.1% | 0.3% 0.8% |
| Thailand | 6.8 | 7.6 | 8.6 | 9.4 | 10.9 | 13.7 | 14.4 | 16.0 | 16.8 | 16.2 | 17.0 | 4.8% | 0.8% |
| Other Asia Pacific | 3.9 | 4.1 | 4.5 | 4.5 | 4.8 | 5.2 | 5.5 | 5.8 | 7.6 | 11.3 | 14.9 | 31.2% | 0.7% |
| Total Asia Pacific | 157.1 | 165.4 | 179.3 | 190.6 | 205.9 | 217.6 | 217.9 | 234.1 | 246.1 | 255.0 | 271.4 | 6.5% | 11.9% |
| TOTAL WORLD | 1840.5 | 1872.0 | 1891.0 | 1926.8 | 2011.7 | 2015.2 | 2060.5 | 2116.6 | 2192.2 | 2244.3 | 2274.7 | 1.4% | 100.0% |
| of which: European Union 15 | 149.2 | 159.3 | 161.8 | 168.3 | 189.3 | 183.0 | 182.1 | 185.7 | 190.4 | 192.3 | 187.9 | -2.3% | 8.3% |
| | | | | | | | | | | | | | |
| OECD | 808.1 | 834.0 | 869.8 | 880.5 | 923.9 | 928.9 | 942.4 | 951.7 | 971.8 | 986.9 | 981.8 | -0.5% | 43.2% |
| OECD Former Soviet Union | 808.1 655.6 | 834.0 639.3 | 869.8 604.1 | 880.5 593.9 | 923.9 602.1 | 928.9 564.7 | 942.4 580.1 | 951.7 590.6 | 971.8 607.1 | 986.9 609.6 | 981.8 623.9 | -0.5% 2.3% | 43.2% 27.4% |

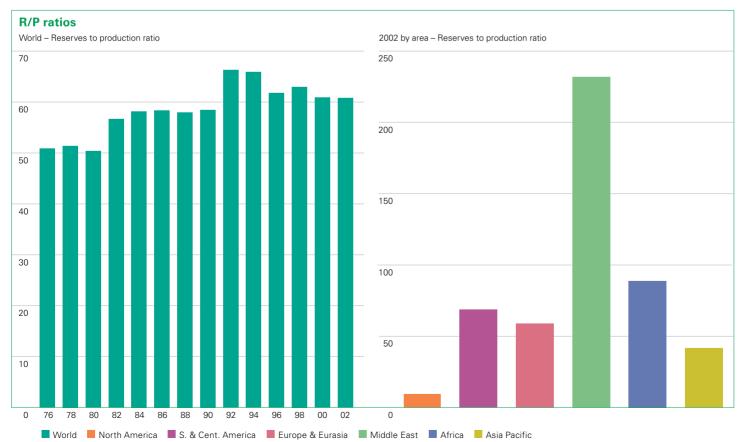
*Excluding gas flared or recycled.

Note: Because of rounding some totals may not agree exactly with the sum of their component parts.

Natural gas



World gas production continued to grow in 2002 despite quite a sharp drop in North American output. Production growth was especially strong in the Asia-Pacific region.



The world's gas R/P ratio fell to 60.7 years in 2002 despite only modest production growth of 1.4%. Gas reserves in 2002 were broadly unchanged from 2001 levels.

| Consumption | | | | | | | | | | | | Change | 2002 |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------------------|-------------------|
| Billion cubic metres | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2002 over 2001 | share of total |
| USA | 583.4 | 597.9 | 611.6 | 638.0 | 649.6 | 653.3 | 642.2 | 644.3 | 673.6 | 642.4 | 667.5 | 3.9% | 26.3% |
| Canada | 71.7 | 76.8 | 78.8 | 80.2 | 85.3 | 83.8 | 84.9 | 83.0 | 83.0 | 82.8 | 80.7 | -2.6% | 3.2% |
| Mexico Total North America | 28.9 684.0 | 26.5 701.2 | 27.0 717.4 | 28.1 746.3 | 28.6 763.5 | 32.3 769.4 | 35.4 762.5 | 37.4 764.7 | 38.5 795.1 | 39.0 764.2 | 42.1 790.3 | 8.0% 3.4% | 1.7% 31.2% |
| Argentina | 22.3 | 23.6 | 24.3 | 27.0 | 28.6 | 28.5 | 30.5 | 32.4 | 33.2 | 31.2 | 30.3 | -3.0% | 1.2% |
| Brazil | 4.0 | 4.5 | 4.5 | 4.8 | 5.5 | 6.0 | 6.3 | 7.1 | 9.3 | 11.7 | 13.7 | 16.7% | 0.5% |
| Chile | 1.7 | 1.6 | 1.7 | 1.6 | 1.7 | 2.8 | 3.3 | 4.6 | 5.2 | 6.3 | 6.5 | 3.2% | 0.3% |
| Colombia Ecuador | 4.0 0.1 | 4.2 0.1 | 4.2 0.1 | 4.4 0.1 | 4.7 0.1 | 5.9 0.1 | 6.2 0.1 | 5.2 0.1 | 5.9 0.1 | 6.1 0.2 | 6.1 0.2 | 1.2% | 0.2% |
| Peru | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.2 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 19.5% | • |
| Venezuela | 21.6 | 23.3 | 24.7 | 27.5 | 29.7 | 30.8 | 32.3 | 27.4 | 27.9 | 29.1 | 27.3 | -6.0% | 1.1% |
| Other S. & Cent. America Total S. & Cent. America | 6.8 | 6.8 | 7.3 | 7.3 | 8.2 | 8.8 | 10.2 | 11.5 | 12.1 | 12.9 | 13.5 | 4.7% | 0.5% |
| Austria | 60.9 | 64.5 | 67.2 6.5 | 73.1 6.8 | 78.9 7.3 | 83.1 | 89.3 7.6 | 88.7 7.7 | 94.0 | 97.9 7.8 | 98.0 8.1 | 0.2% 4.4% | 3.9% |
| Azerbaijan | 11.8 | 8.7 | 8.1 | 8.0 | 5.9 | 5.6 | 5.2 | 5.6 | 5.4 | 7.8 | 7.9 | 1.7% | 0.3% |
| Belarus | 16.8 | 15.6 | 13.6 | 12.3 | 13.0 | 14.8 | 15.0 | 15.3 | 16.2 | 16.1 | 16.6 | 2.9% | 0.7% |
| Belgium & Luxembourg | 10.0 | 11.0 | 10.8 | 11.8 | 13.1 | 12.5 | 13.8 | 14.7 | 14.9 | 14.6 | 14.8 | 1.3% | 0.6% |
| Bulgaria Czech Republic | 4.3 5.8 | 4.1 5.9 | 4.1 6.3 | 5.0 7.3 | 5.2 8.4 | 4.1 8.5 | 3.5 8.5 | 3.0 8.6 | 3.3 8.3 | 3.0 8.9 | 2.9 8.9 | -3.4% -0.5% | 0.1% |
| Denmark | 2.4 | 2.8 | 3.0 | 3.5 | 4.1 | 4.4 | 4.8 | 5.0 | 4.9 | 5.1 | 5.1 | -0.1% | 0.4% |
| Finland | 2.7 | 2.8 | 3.1 | 3.2 | 3.3 | 3.2 | 3.7 | 3.7 | 3.7 | 4.1 | 4.1 | 0.1% | 0.2% |
| France | 31.4 | 32.3 | 30.9 | 32.9 | 36.1 | 34.6 | 37.0 | 37.7 | 39.7 | 41.9 | 42.8 | 2.2% | 1.7% |
| Germany | 63.0 0.1 | 66.4 0.1 | 67.9 † | 74.4 † | 83.6 † | 79.2 0.2 | 79.7 0.8 | 80.2 1.4 | 79.5 1.9 | 82.9 1.9 | 82.6 2.0 | -0.4% 4.4% | 3.3% 0.1% |
| Greece Hungary | 0.1 8.2 | 9.0 | 9.4 | 10.2 | 11.4 | 10.8 | 10.9 | 1.4 | 10.7 | 11.9 | 2.0 11.9 | 4.4% 0.4% | 0.1% |
| Iceland | 0.2 | J.0 — | - | _ | _ | - | _ | _ | - | - | - | 0.4 /0 | J.J /0 — |
| Republic of Ireland | 2.1 | 2.4 | 2.4 | 2.6 | 3.0 | 3.1 | 3.1 | 3.3 | 3.8 | 4.0 | 4.1 | 2.7% | 0.2% |
| Italy | 45.7 | 46.8 | 45.3 | 49.9 | 51.5 | 53.2 | 57.2 | 62.2 | 64.9 | 63.7 | 63.6 | -0.1% | 2.5% |
| Kazakhstan Lithuania | 13.5 3.0 | 13.0 1.7 | 10.3 2.0 | 10.8 2.3 | 9.0 2.5 | 7.1 2.6 | 7.3 2.3 | 7.9 2.4 | 9.7 2.7 | 10.1 2.8 | 9.7 2.9 | -3.7% 1.1% | 0.4% |
| Netherlands | 36.7 | 37.9 | 36.9 | 37.8 | 41.7 | 39.1 | 38.7 | 37.9 | 39.2 | 39.1 | 39.3 | 0.6% | 1.6% |
| Norway | 2.6 | 2.7 | 2.9 | 2.9 | 3.2 | 3.7 | 3.8 | 3.6 | 4.0 | 3.8 | 3.9 | 5.0% | 0.2% |
| Poland | 8.7 | 9.0 | 9.2 | 9.9 | 10.6 | 10.5 | 10.6 | 10.3 | 11.1 | 11.5 | 11.2 | -2.6% | 0.4% |
| Portugal | - | - | - | - | - | 0.1 | 0.8 | 2.3 | 2.4 | 2.5 | 3.0 | 21.0% | 0.1% |
| Romania Russian Federation | 25.4 417.3 | 25.2 416.0 | 24.2 390.9 | 24.0 377.8 | 24.2 379.9 | 20.0 350.4 | 18.7 364.7 | 17.2 363.6 | 17.1 377.2 | 16.6 372.7 | 17.4 388.4 | 4.7% 4.2% | 0.7% 15.3% |
| Slovakia | 5.5 | 5.2 | 5.0 | 5.7 | 6.2 | 6.3 | 6.4 | 6.4 | 6.5 | 6.9 | 7.6 | 10.2% | 0.3% |
| Spain | 6.5 | 6.5 | 7.2 | 8.3 | 9.3 | 12.3 | 13.1 | 15.0 | 16.9 | 18.2 | 20.8 | 14.4% | 0.8% |
| Sweden | 0.7 | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 | 0.9 | 0.8 | 0.7 | 0.7 | 0.8 | 7.7% | • |
| Switzerland | 2.1 | 2.2 | 2.2 | 2.4 | 2.6 | 2.5 | 2.6 | 2.7 | 2.7 | 2.8 | 2.8 | -0.4% | 0.1% |
| Turkey Turkmenistan | 4.5 9.3 | 5.0 9.3 | 6.5 10.2 | 6.8 8.0 | 9.0 10.0 | 9.4 10.1 | 9.9 10.3 | 12.0 11.3 | 14.1 12.6 | 16.0 12.9 | 17.4 13.2 | 8.4% 2.9% | 0.7% 0.5% |
| Ukraine | 103.5 | 92.9 | 81.3 | 76.2 | 82.5 | 74.3 | 68.8 | 73.0 | 73.1 | 70.9 | 69.8 | -1.6% | 2.8% |
| United Kingdom | 56.4 | 64.2 | 66.1 | 70.5 | 82.1 | 84.5 | 87.9 | 93.6 | 96.8 | 96.3 | 94.5 | -1.8% | 3.7% |
| Uzbekistan | 37.3 | 40.7 | 41.3 | 42.4 | 43.3 | 45.4 | 47.0 | 49.3 | 47.1 | 51.1 | 52.4 | 2.6% | 2.1% |
| Other Europe & Eurasia Total Europe & Eurasia | 21.7 965.0 | 16.2 962.8 | 13.3 921.7 | 13.3 927.8 | 13.8 976.7 | 14.8 935.8 | 14.7 959.3 | 13.0 981.7 | 13.2 1011.6 | 14.5 1023.1 | 13.3 1043.8 | -7.9% 2.1% | 0.5% 41.2% |
| Iran | 25.0 | 26.6 | 31.8 | 35.2 | 38.9 | 47.1 | 51.8 | 59.8 | 63.0 | 65.0 | 67.9 | 4.5% | 2.7% |
| Kuwait | 2.6 | 5.4 | 6.0 | 9.3 | 9.3 | 9.3 | 9.5 | 8.6 | 9.6 | 9.5 | 8.7 | -8.3% | 0.3% |
| Qatar | 12.6 | 13.5 | 13.5 | 13.5 | 13.7 | 14.5 | 14.8 | 14.0 | 10.8 | 11.4 | 10.7 | -5.7% | 0.4% |
| Saudi Arabia United Arab Emirates | 38.3 | 40.0 | 42.8 21.7 | 42.9 | 44.4 27.2 | 45.3 29.0 | 46.8 30.4 | 46.2 | 49.8 31.4 | 53.7 38.1 | 56.4 39.3 | 5.0% 3.2% | 2.2% |
| Other Middle East | 18.8 13.3 | 19.6 13.9 | 14.9 | 24.8 16.1 | 17.3 | 19.6 | 20.5 | 31.4 21.5 | 22.1 | 23.0 | 22.7 | -1.5% | 1.5% 0.9% |
| Total Middle East | 110.6 | 119.0 | 130.7 | 141.8 | 150.8 | 164.8 | 173.8 | 181.5 | 186.7 | 200.7 | 205.7 | 2.5% | 8.1% |
| Algeria | 20.7 | 18.6 | 19.6 | 21.0 | 21.6 | 20.2 | 20.9 | 21.3 | 21.8 | 25.9 | 26.3 | 1.6% | 1.0% |
| Egypt | 8.4 | 9.7 | 10.4 | 11.0 | 11.3 | 11.6 | 12.0 | 14.3 | 18.3 | 21.5 | 22.7 | 5.5% | 0.9% |
| South Africa Other Africa | - 11.2 | - 11.6 | 11.9 | - 12.8 | 14.3 | - 14.4 | - 14.9 | - 15.4 | 17.0 | - 17.9 | - 18.4 | 3.0% | 0.7% |
| Total Africa | 40.3 | 39.9 | 41.9 | 44.8 | 47.2 | 46.2 | 47.8 | 51.0 | 57.1 | 65.3 | 67.4 | 3.3% | 2.7% |
| Australia | 16.9 | 17.4 | 19.4 | 20.1 | 20.4 | 20.3 | 21.3 | 21.5 | 22.6 | 23.8 | 24.0 | 0.8% | 0.9% |
| Bangladesh | 5.7 | 6.1 | 6.6 | 7.4 | 7.6 | 7.6 | 7.8 | 8.3 | 10.0 | 10.7 | 11.2 | 4.3% | 0.4% |
| China China Hong Kong SAR | 15.1 – | 16.2 | 16.6 – | 17.7 † | 17.7 1.7 | 19.3 2.6 | 19.3 2.5 | 21.4 2.7 | 24.5 2.5 | 27.8 2.5 | 30.1 2.4 | 8.0% -5.0% | 1.2% 0.1% |
| India | 15.3 | 15.9 | 16.6 | 19.6 | 20.7 | 23.0 | 24.7 | 25.9 | 26.9 | 27.2 | 28.2 | 3.8% | 1.1% |
| Indonesia | 22.6 | 23.9 | 27.3 | 30.1 | 31.4 | 31.9 | 27.8 | 31.8 | 32.3 | 33.4 | 34.7 | 4.0% | 1.4% |
| Japan | 56.0 | 56.3 | 60.3 | 61.2 | 66.1 | 65.1 | 69.5 | 74.6 | 76.2 | 79.0 | 77.4 | -2.0% | 3.1% |
| Malaysia | 11.7 | 13.0 | 13.6 | 13.7 | 17.8 | 16.7 | 17.4 | 16.1 | 24.3 | 25.8 | 27.0 | 4.9% | 1.1% |
| New Zealand Pakistan | 4.9 11.5 | 4.7 12.2 | 4.4 13.3 | 4.2 14.6 | 4.7 15.4 | 5.1 15.6 | 4.5 16.0 | 5.2 17.3 | 5.5 18.9 | 5.7 19.9 | 5.5 20.9 | -3.5% 5.1% | 0.2% 0.8% |
| Philippines | 11.5 | 12.2 | 13.3 | 14.0 | 15.4 | 15.6 | † | 17.3 | 10.9 | 0.1 | | >100.0% | 0.6% |
| Singapore | 1.1 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.3 | 1.8 | 38.6% | 0.1% |
| South Korea | 5.1 | 6.4 | 8.5 | 10.2 | 13.5 | 16.4 | 15.4 | 18.7 | 21.0 | 23.1 | 26.2 | 13.4% | 1.0% |
| Taiwan Thailand | 3.2 | 3.1 | 4.0 | 4.3 | 4.5 | 5.1 | 6.4 | 6.2 | 6.9 | 7.4 | 8.5 | 14.7% | 0.3% |
| Thailand Other Asia Pacific | 7.5 2.7 | 8.4 3.1 | 9.5 3.3 | 10.0 3.4 | 11.8 3.7 | 14.6 4.2 | 15.9 4.5 | 17.4 4.8 | 20.5 4.9 | 22.5 4.9 | 25.9 4.7 | 14.9% -5.2% | 1.0% 0.2% |
| Total Asia Pacific | 179.3 | 188.2 | 204.9 | 218.0 | 238.5 | 249.0 | 254.5 | 273.4 | 298.5 | 315.1 | 330.3 | 4.8% | 13.0% |
| TOTAL WORLD | 2040.1 | 2075.6 | 2083.8 | 2151.8 | 2255.6 | 2248.3 | 2287.2 | 2341.0 | 2443.0 | 2466.3 | 2535.5 | 2.8% | 100.0% |
| of which: European Union 15 | 263.7 | 280.4 | 280.9 | 302.5 | 336.0 | 334.9 | 349.1 | 365.5 | 376.6 | 382.8 | 385.6 | 0.8% | 15.2% |
| OECD Former Soviet Union | 1068.0 628.2 | 1105.4 609.0 | 1132.4 567.0 | 1189.7 547.0 | 1255.6 553.9 | 1262.9 519.1 | 1275.0 529.4 | 1304.8 536.2 | 1354.4 551.9 | 1340.4 553.1 | 1372.7 568.7 | 2.4% 2.8% | 54.1% 22.4% |
| Other EMEs | 343.9 | 361.1 | 384.3 | 415.1 | 446.1 | 466.3 | 482.4 | 500.1 | 536.9 | 572.6 | 594.0 | 3.7% | 23.4% |
| l ess than 0.05 | | | | | | | | | | | | | |

*Less than 0.05.

*Less than 0.05%.

Notes: The difference between these world consumption figures and the world production statistics on page 22 is due to variations in stocks at storage facilities and liquefaction plants, together with unavoidable disparities in the definition, measurement or conversion of gas supply and demand data.

As far as possible, the data above represents standard cubic metres (measured at 15°C and 1013 mbar); as it is derived directly from tonnes of oil equivalent using an average conversion factor, it does not necessarily equate with gas volumes expressed in specific national terms.

Natural gas consumption data expressed in billion cubic feet per day is available at www.bp.com/centres/energy.

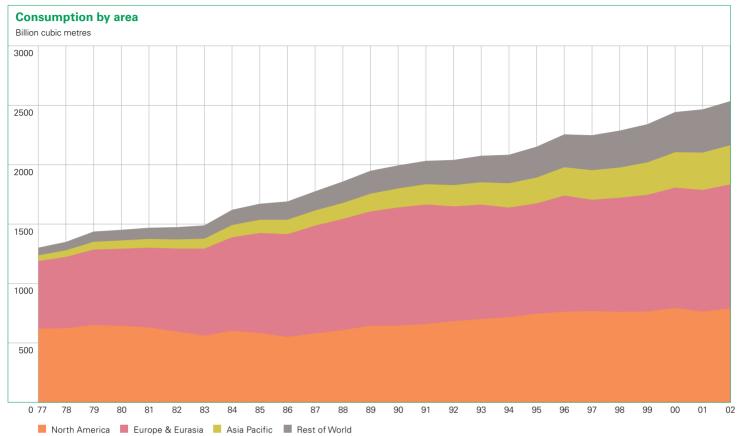
Natural gas

| Consumption | | | | | | | | | | | | Change | 2002 |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-----------------|-------------------|---------------------|
| Million tonnes oil equivalent | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2002 over 2001 | share of total |
| USA | 525.1 | 538.1 | 550.5 | 574.2 | 584.6 | 587.9 | 578.0 | 579.9 | 606.3 | 578.2 | 600.7 | 3.9% | 26.3% |
| Canada Mexico | 64.6 26.0 | 69.1 23.9 | 70.9 24.3 | 72.2 25.3 | 76.7 25.7 | 75.4 29.1 | 76.4 31.9 | 74.7 33.6 | 74.7 34.6 | 74.5 35.1 | 72.6 37.9 | -2.6% 8.0% | 3.2% 1.7% |
| Total North America | 615.7 | 631.1 | 645.7 | 671.7 | 687.0 | 692.4 | 686.3 | 688.2 | 715.6 | 687.8 | 711.2 | 3.4% | 31.2% |
| Argentina Brazil | 20.1 3.6 | 21.2 4.0 | 21.9 4.1 | 24.3 4.3 | 25.7 5.0 | 25.7 5.4 | 27.5 5.6 | 29.1 6.4 | 29.9 8.4 | 28.1 10.5 | 27.2 12.3 | -3.0% 16.7% | 1.2% 0.5% |
| Chile | 1.5 | 1.4 | 1.5 | 1.5 | 1.5 | 2.5 | 2.9 | 4.1 | 4.7 | 5.7 | 5.9 | 3.2% | 0.3% |
| Colombia Ecuador | 3.6 0.1 | 3.8 0.1 | 3.7 0.1 | 4.0 0.1 | 4.2 0.1 | 5.3 0.1 | 5.6 0.1 | 4.7 0.1 | 5.3 0.1 | 5.5 0.1 | 5.5 0.1 | 1.2% | 0.2% |
| Peru | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 19.5% | • |
| Venezuela | 19.5 | 21.0 | 22.2 | 24.8 | 26.8 | 27.7 | 29.1 | 24.7 | 25.1 | 26.2 | 24.6 | -6.0% | 1.1% |
| Other S. & Cent. America Total S. & Cent. America | 6.1 54.8 | 6.1 58.0 | 6.5 60.4 | 6.5 65.9 | 7.4 71.1 | 7.9 74.8 | 9.2 | 10.4 79.9 | 10.9 84.7 | 11.6 88.0 | 12.2 88.2 | 4.7% 0.2% | 0.5% 3.9% |
| Austria | 5.4 | 5.7 | 5.8 | 6.1 | 6.6 | 6.9 | 6.8 | 6.9 | 6.6 | 7.0 | 7.3 | 4.4% | 0.3% |
| Azerbaijan Belarus | 10.6 15.1 | 7.8 14.0 | 7.3 12.3 | 7.2 11.1 | 5.3 11.7 | 5.0 13.3 | 4.7 13.5 | 5.0 13.8 | 4.9 14.6 | 7.0 14.5 | 7.1 14.9 | 1.7% 2.9% | 0.3% 0.7% |
| Belgium & Luxembourg | 9.0 | 9.9 | 9.7 | 10.6 | 11.8 | 11.3 | 12.4 | 13.3 | 13.4 | 13.2 | 13.4 | 1.3% | 0.6% |
| Bulgaria | 3.9 | 3.7 | 3.7 | 4.5 | 4.6 | 3.7 | 3.1 | 2.7 | 2.9 | 2.7 | 2.6 | -3.4% | 0.1% |
| Czech Republic Denmark | 5.2 2.2 | 5.3 2.5 | 5.7 2.7 | 6.5 3.1 | 7.6 3.7 | 7.7 3.9 | 7.7 4.3 | 7.7 4.5 | 7.5 4.4 | 8.0 4.6 | 8.0 4.6 | -0.5% -0.1% | 0.4% 0.2% |
| Finland | 2.5 | 2.6 | 2.8 | 2.9 | 3.0 | 2.9 | 3.3 | 3.3 | 3.4 | 3.7 | 3.7 | 0.1% | 0.2% |
| France Germany | 28.3 56.7 | 29.0 59.8 | 27.8 61.1 | 29.6 67.0 | 32.5 75.2 | 31.2 71.3 | 33.3 71.7 | 33.9 72.1 | 35.7 71.5 | 37.7 74.6 | 38.5 74.3 | 2.2% -0.4% | 1.7% 3.3% |
| Greece | 0.1 | 0.1 | † | † | † | 0.2 | 0.7 | 1.2 | 1.7 | 1.7 | 1.8 | 4.4% | 0.1% |
| Hungary | 7.4 | 8.1 | 8.4 | 9.2 | 10.2 | 9.7 | 9.8 | 9.9 | 9.6 | 10.7 | 10.7 | 0.4% | 0.5% |
| Iceland Republic of Ireland | 1.9 | 2.2 | 2.2 | 2.3 | 2.7 | 2.8 | 2.8 | 3.0 | 3.4 | 3.6 | 3.7 | 2.7% | 0.2% |
| Italy | 41.1 | 42.1 | 40.8 | 44.9 | 46.4 | 47.9 | 51.5 | 56.0 | 58.4 | 57.3 | 57.2 | -0.1% | 2.5% |
| Kazakhstan Lithuania | 12.2 2.7 | 11.7 1.5 | 9.2 1.8 | 9.7 2.1 | 8.1 2.3 | 6.4 2.4 | 6.5 2.1 | 7.1 2.2 | 8.7 2.5 | 9.1 2.5 | 8.7 2.6 | -3.7% 1.1% | 0.4% 0.1% |
| Netherlands | 33.0 | 34.1 | 33.2 | 34.0 | 37.5 | 35.2 | 34.9 | 34.1 | 35.3 | 35.2 | 35.4 | 0.6% | 1.6% |
| Norway | 2.3 7.8 | 2.4 | 2.6 8.2 | 2.7 | 2.9 | 3.3 | 3.4 | 3.2 9.3 | 3.6 | 3.4 | 3.5 | 5.0% | 0.2% |
| Poland Portugal | 7.0 | 8.1 | 0.2 | 8.9 | 9.5 | 9.4 0.1 | 9.5 0.7 | 2.0 | 10.0 2.1 | 10.4 2.3 | 10.1 2.7 | -2.6% 21.0% | 0.4% 0.1% |
| Romania | 22.8 | 22.7 | 21.8 | 21.6 | 21.8 | 18.0 | 16.8 | 15.5 | 15.4 | 14.9 | 15.6 | 4.7% | 0.7% |
| Russian Federation Slovakia | 375.5 4.9 | 374.4 4.6 | 351.8 4.5 | 340.0 5.1 | 341.9 5.5 | 315.3 5.6 | 328.3 5.7 | 327.3 5.8 | 339.5 5.8 | 335.4 6.2 | 349.6 6.9 | 4.2% 10.2% | 15.3% 0.3% |
| Spain | 5.9 | 5.8 | 6.5 | 7.5 | 8.4 | 11.1 | 11.8 | 13.5 | 15.2 | 16.4 | 18.8 | 14.4% | 0.8% |
| Sweden | 0.7 | 0.7 | 0.7 | 0.7 | 0.8 | 0.7 | 0.8 | 0.8 | 0.7 | 0.6 | 0.7 | 7.7% | 0.10/ |
| Switzerland Turkey | 1.9 4.1 | 2.0 4.5 | 2.0 5.9 | 2.2 6.2 | 2.4 8.1 | 2.3 8.5 | 2.4 8.9 | 2.4 10.8 | 2.4 12.7 | 2.5 14.4 | 2.5 15.6 | -0.4% 8.4% | 0.1% 0.7% |
| Turkmenistan | 8.4 | 8.4 | 9.2 | 7.2 | 9.0 | 9.1 | 9.2 | 10.2 | 11.3 | 11.6 | 11.9 | 2.9% | 0.5% |
| Ukraine United Kingdom | 93.2 50.7 | 83.6 57.8 | 73.2 59.5 | 68.6 63.5 | 74.2 73.9 | 66.8 76.0 | 61.9 79.1 | 65.7 84.2 | 65.8 87.1 | 63.8 86.7 | 62.8 85.1 | -1.6% -1.8% | 2.8% 3.7% |
| Uzbekistan | 33.6 | 36.6 | 37.2 | 38.1 | 39.0 | 40.9 | 42.3 | 44.3 | 42.4 | 46.0 | 47.2 | 2.6% | 2.1% |
| Other Europe & Eurasia | 19.5 868.6 | 14.6 866.3 | 12.0 829.6 | 12.0 835.1 | 12.5 879.1 | 13.3 842.2 | 13.2 863.1 | 11.7 883.4 | 11.9 910.4 | 13.0 920.7 | 12.0 939.5 | -7.9% 2.1% | 0.5% 41.2% |
| Total Europe & Eurasia Iran | 22.5 | 23.9 | 28.6 | 31.7 | 35.0 | 42.4 | 46.6 | 53.8 | 56.7 | 58.5 | 61.1 | 4.5% | 2.7% |
| Kuwait | 2.4 | 4.9 | 5.4 | 8.4 | 8.4 | 8.3 | 8.5 | 7.8 | 8.6 | 8.6 | 7.8 | -8.3% | 0.3% |
| Oatar Saudi Arabia | 11.4 34.4 | 12.2 36.0 | 12.2 38.5 | 12.2 38.6 | 12.3 40.0 | 13.1 40.8 | 13.3 42.1 | 12.6 41.6 | 9.7 44.8 | 10.2 48.3 | 9.6 50.8 | -5.7% 5.0% | 0.4% 2.2% |
| United Arab Emirates | 16.9 | 17.7 | 19.5 | 22.3 | 24.4 | 26.1 | 27.4 | 28.3 | 28.3 | 34.3 | 35.4 | 3.2% | 1.5% |
| Other Middle East Total Middle East | 12.0 99.6 | 12.5 107.2 | 13.4 117.6 | 14.5 127.7 | 15.6 135.7 | 17.7 148.4 | 18.5 156.4 | 19.4 163.5 | 19.9 168.0 | 20.7 180.6 | 20.4 185.1 | -1.5% 2.5% | 0.9% 8.1% |
| Algeria | 18.6 | 16.7 | 17.6 | 18.9 | 19.4 | 18.1 | 18.8 | 19.2 | 19.6 | 23.3 | 23.7 | 1.6% | 1.0% |
| Egypt South Africa | 7.5 – | 8.7 | 9.4 | 9.9 | 10.2 | 10.4 | 10.8 | 12.9 | 16.5 | 19.3 | 20.4 | 5.5% | 0.9% |
| Other Africa | 10.1 | 10.5 | 10.7 | 11.5 | 12.9 | 12.9 | 13.4 | 13.9 | 15.3 | 16.1 | 16.6 | 3.0% | 0.7% |
| Total Africa | 36.2 | 35.9 | 37.7 | 40.3 | 42.5 | 41.4 | 43.0 | 46.0 | 51.4 | 58.7 | 60.7 | 3.3% | 2.7% |
| Australia Bangladesh | 15.2 5.2 | 15.7 5.5 | 17.5 6.0 | 18.1 6.6 | 18.3 6.8 | 18.3 6.8 | 19.2 7.0 | 19.3 7.5 | 20.3 9.0 | 21.4 9.7 | 21.6 10.1 | 0.8% 4.3% | 0.9% 0.4% |
| China | 13.6 | 14.6 | 14.9 | 15.9 | 15.9 | 17.4 | 17.4 | 19.3 | 22.1 | 25.0 | 27.0 | 8.0% | 1.2% |
| China Hong Kong SAR India | - 13.8 | 14.3 | - 14.9 | † 17.6 | 1.5 18.7 | 2.4 20.7 | 2.2 22.2 | 2.4 23.3 | 2.2 24.2 | 2.2 24.5 | 2.1 25.4 | -5.0% 3.8% | 0.1% 1.1% |
| Indonesia | 20.3 | 21.5 | 24.6 | 27.0 | 28.2 | 28.7 | 25.0 | 28.7 | 29.1 | 30.1 | 31.3 | 4.0% | 1.4% |
| Japan | 50.4 | 50.7 | 54.3 | 55.0 | 59.5 | 58.6 | 62.5 | 67.1 | 68.6 | 71.1 | 69.7 | -2.0% | 3.1% |
| Malaysia New Zealand | 10.5 4.4 | 11.7 4.3 | 12.3 4.0 | 12.4 3.7 | 16.0 4.3 | 15.0 4.6 | 15.7 4.0 | 14.5 4.7 | 21.9 4.9 | 23.2 5.2 | 24.3 5.0 | 4.9% -3.5% | 1.1% 0.2% |
| Pakistan | 10.3 | 10.9 | 12.0 | 13.1 | 13.8 | 14.0 | 14.4 | 15.6 | 17.0 | 17.9 | 18.8 | 5.1% | 0.8% |
| Philippines Singapore | 1.0 | - 1.4 | † 1.4 | 0.1 1.1 | 1.6 1.6 | >100.0% | 0.1% 0.1% |
| South Korea | 4.6 | 5.7 | 7.6 | 9.2 | 12.2 | 14.8 | 13.8 | 16.8 | 18.9 | 20.8 | 23.6 | 13.4% | 1.0% |
| Taiwan | 2.8 | 2.7 | 3.6 | 3.9 | 4.0 | 4.6 | 5.7 | 5.6 | 6.2 | 6.7 | 7.7 | 14.7% | 0.3% |
| Thailand Other Asia Pacific | 6.8 2.4 | 7.6 2.7 | 8.6 2.9 | 9.0 3.0 | 10.7 3.4 | 13.1 3.8 | 14.3 4.1 | 15.6 4.4 | 18.4 4.4 | 20.3 4.4 | 23.3 4.2 | 14.9% -5.2% | 1.0% 0.2% |
| Total Asia Pacific | 161.3 | 169.3 | 184.6 | 195.9 | 214.7 | 224.2 | 228.9 | 246.2 | 268.6 | 283.7 | 297.3 | 4.8% | 13.0% |
| of which: European Union 15 | 1836.2 237.5 | 1867.8 252.3 | 1875.6 252.8 | 1936.6 272.2 | 2030.1 302.5 | 2023.4 301.5 | 2058.1 314.1 | 2107.2 328.8 | 2198.7 338.9 | 2219.5 344.6 | 2282.0 347.2 | 2.8% 0.8% | 100.0% 15.2% |
| OECD | 961.4 | 994.8 | 1019.2 | 1070.7 | 1130.0 | 1136.7 | 1147.3 | 1174.0 | 1218.8 | 1206.5 | 1235.6 | 2.4% | 54.1% |
| Former Soviet Union | 565.4 | 548.1 | 510.3 | 492.3 | 498.5 | 467.1 | 476.5 | 482.6 | 496.7 | 497.8 | 511.9 524.6 | 2.8% | 22.4% |
| Other EMEs | 309.5 | 325.0 | 345.8 | 373.6 | 401.5 | 419.7 | 434.2 | 450.1 | 483.3 | 515.3 | 534.6 | 3.7% | 23.4% |

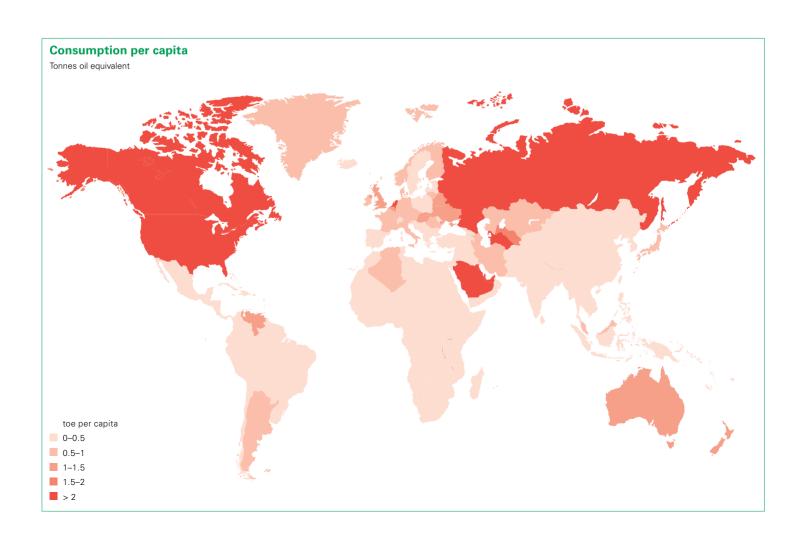
*Less than 0.05.

*Less than 0.05%.

Note: The difference between these world consumption figures and the world production statistics on page 23 is due to variations in stocks at storage facilities and liquefaction plants, together with unavoidable disparities in the definition, measurement or conversion of gas supply and demand data.



Global gas consumption growth was relatively strong in 2002, at 2.8% vs a 10-year average growth rate of 2.2% per annum. Demand in the USA and Non-OECD Asia was especially robust.



Natural gas

Trade movements 2002 - by pipeline

| Billion cubic metres | | | | | | | | | | - From | | | | | | | | | |
|-----------------------|-------|--------|--------|--------|---------|------|--------|------|---------|--------|-------|------------|-------|------|---------|-------|--------|-------|---------|
| | | | | Argen- | D | Den- | _ | | Nether- | | | Russian Tu | | . 1 | ١ ا | Indo- | Malay- | Myan- | |
| To | USA | Canada | Mexico | tina | Bolivia | mark | France | many | lands | Norway | UK | Fed. | istan | Iran | Algeria | nesia | sia | mar | imports |
| North America USA | | 100.00 | 0.11 | | | | | | | | | | | | | | | | 100.01 |
| | | 108.80 | 0.11 | _ | - | _ | _ | _ | _ | _ | _ | _ | - | _ | - | _ | _ | _ | 108.91 |
| Canada | 5.97 | _ | - | _ | - | _ | _ | _ | _ | _ | _ | _ | - | _ | - | _ | _ | _ | 5.97 |
| Mexico | 7.45 | _ | - | _ | _ | _ | _ | _ | _ | _ | - | _ | - | _ | - | _ | _ | _ | 7.45 |
| S. & C. America | | | | | 0.05 | | | | | | | | | | | | | | |
| Brazil | _ | _ | - | 0.48 | 3.95 | _ | _ | _ | _ | _ | _ | _ | - | _ | - | _ | _ | _ | 4.43 |
| Chile | _ | _ | - | 5.34 | - | _ | _ | _ | _ | _ | _ | _ | - | _ | - | _ | _ | _ | 5.34 |
| Uruguay | - | _ | - | 0.02 | - | _ | _ | _ | _ | _ | - | - | - | - | - | _ | _ | _ | 0.02 |
| Europe | | | | | | | | | | | | | | | | | | | |
| Austria | _ | - | - | _ | - | _ | _ | 0.70 | _ | 0.75 | - | 5.20 | - | - | - | _ | _ | - | 6.65 |
| Belgium | _ | _ | - | _ | - | _ | _ | 0.25 | 6.90 | 5.90 | 0.63 | _ | - | _ | - | _ | _ | _ | 13.68 |
| Bulgaria | _ | _ | - | _ | - | - | _ | _ | _ | _ | _ | 2.80 | - | - | - | _ | _ | _ | 2.80 |
| Croatia | _ | - | - | _ | - | - | _ | _ | _ | - | - | 1.08 | - | - | - | _ | _ | _ | 1.08 |
| Czech Republic | _ | _ | - | _ | - | _ | _ | _ | _ | 2.62 | _ | 7.35 | - | _ | - | _ | _ | _ | 9.97 |
| Finland | _ | _ | - | _ | - | _ | _ | _ | _ | _ | _ | 4.50 | - | _ | _ | _ | _ | _ | 4.50 |
| France | _ | _ | - | _ | - | _ | _ | _ | 6.03 | 14.00 | 1.29 | 11.40 | - | _ | _ | _ | _ | _ | 32.72 |
| Germany | _ | _ | - | _ | _ | 2.57 | _ | _ | 20.20 | 23.27 | 4.14 | 31.50 | - | _ | _ | _ | _ | _ | 81.68 |
| Greece | _ | _ | - | _ | _ | _ | _ | _ | _ | _ | _ | 1.59 | - | _ | _ | _ | _ | _ | 1.59 |
| Hungary | _ | _ | _ | _ | _ | _ | 0.45 | 0.90 | _ | _ | _ | 9.20 | _ | _ | _ | _ | _ | _ | 10.55 |
| Ireland | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | 3.50 | _ | _ | _ | _ | _ | _ | _ | 3.50 |
| Italy | _ | _ | _ | _ | _ | _ | _ | _ | 7.57 | 5.05 | _ | 19.30 | _ | _ | 20.56 | _ | _ | _ | 52.48 |
| Luxembourg | _ | _ | _ | _ | _ | _ | _ | 0.40 | 0.40 | - | _ | | _ | _ | _ | _ | _ | _ | 0.80 |
| Netherlands | _ | _ | _ | _ | _ | _ | _ | - | - | 3.13 | 4.60 | 1.40 | _ | _ | _ | _ | _ | _ | 9.13 |
| Poland | _ | _ | _ | _ | _ | _ | _ | _ | _ | 0.60 | - | 7.10 | _ | _ | _ | _ | _ | _ | 7.70 |
| Portugal | _ | _ | _ | _ | _ | _ | _ | _ | _ | 0.00 | _ | 7.10 | _ | _ | 2.20 | _ | _ | _ | 2.20 |
| Romania | | | | | | | | 0.20 | | | _ | 3.50 | | | 2.20 | | | | 3.70 |
| Slovakia | | | | | | | | 0.20 | | | _ | 7.70 | | | | | | | 7.70 |
| Slovenia | | | _ | | _ | | | | | | _ | 0.60 | _ | _ | 0.37 | | | _ | 0.97 |
| | _ | _ | - | _ | _ | _ | _ | _ | _ | 2.27 | | 0.00 | - | | 6.25 | _ | _ | _ | 8.52 |
| Spain Sweden | _ | _ | - | _ | - | 1.05 | _ | _ | _ | 2.21 | _ | _ | - | _ | 0.25 | _ | _ | _ | 1.05 |
| Sweden Switzerland | _ | _ | - | _ | - | | 0.33 | 1 70 | 0.50 | _ | _ | 0.45 | - | _ | - | _ | _ | _ | 2.98 |
| | _ | _ | - | _ | - | _ | 0.33 | 1.70 | 0.50 | _ | - | 0.45 | - | 0.07 | - | _ | _ | _ | |
| Turkey | _ | _ | - | _ | - | - | _ | _ | 1 10 | - 0.00 | - | 11.60 | - | 0.67 | - | _ | _ | _ | 12.27 |
| United Kingdom | _ | - | - | _ | - | _ | _ | _ | 1.10 | 3.60 | _ | - | - | - | - | _ | _ | _ | 4.70 |
| Others | _ | _ | - | _ | - | | _ | _ | _ | _ | _ | 1.95 | - | _ | - | _ | _ | | 1.95 |
| Middle East | | | | | | | | | | | | | 1.00 | | | | | | 4.6. |
| Iran | _ | _ | - | _ | - | _ | _ | _ | _ | _ | _ | - | 4.90 | _ | _ | _ | _ | _ | 4.90 |
| Africa | | | | | | | | | | | | | | | | | | | |
| Tunisia | _ | _ | - | _ | - | _ | _ | _ | _ | _ | - | - | - | - | 1.50 | _ | _ | _ | 1.50 |
| Asia Pacific | | | | | | | | | | | | | | | | | | | |
| Singapore | _ | _ | - | _ | - | _ | _ | _ | _ | _ | - | - | - | _ | - | 1.50 | 0.26 | _ | 1.76 |
| Thailand | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | - | _ | _ | _ | _ | 6.20 | |
| TOTAL EXPORTS | 13.42 | 108.80 | 0.11 | 5.84 | 3.95 | 3.62 | 0.78 | 4.15 | 42.70 | 61.19 | 14.16 | 128.22 | 4.90 | 0.67 | 30.88 | 1.50 | 0.26 | 6.20 | 431.35 |

Notes: Flows are on a contractual basis and may not correspond to physical gas flows in all cases. Data excludes trade within the Former Soviet Union.

Source: Cedigaz (provisional).

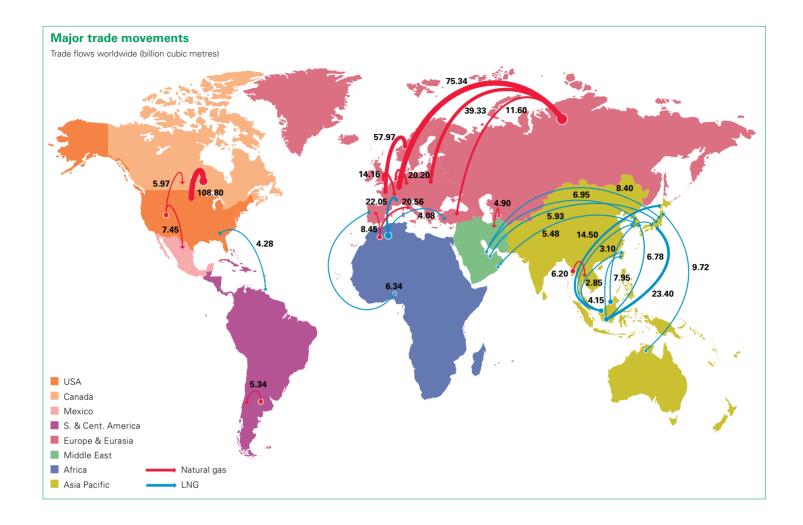
Trade movements 2002 - LNG*

| Billion cubic metres | | | | | | | | — From | | | | | | | |
|----------------------|------|----------------------|------|-------|------|---------|-------|---------|-----------|--------|-----------|-------|----------|----------------|---------------|
| То | USA | Trinidad & Tobago | Oman | Qatar | UAE | Algeria | Libya | Nigeria | Australia | Brunei | Indonesia | Japan | Malaysia | South Korea | Total imports |
| North America | | | | | | | | | | | | | | | |
| USA | _ | 4.28 | 0.09 | 0.99 | - | 0.75 | _ | 0.23 | _ | 0.07 | _ | _ | 0.07 | _ | 6.48 |
| S. & C. America | | | | | | | | | | | | | | | |
| Puerto Rico | - | 0.58 | _ | 0.05 | - | - | - | - | _ | _ | _ | _ | - | _ | 0.63 |
| Europe | | | | | | | | | | | | | | | |
| Belgium | - | - | _ | _ | 0.10 | 3.20 | - | - | _ | _ | _ | _ | - | _ | 3.30 |
| France | _ | - | 0.54 | _ | - | 10.20 | _ | 0.80 | _ | _ | _ | _ | _ | _ | 11.54 |
| Greece | _ | - | _ | _ | - | 0.50 | _ | _ | _ | _ | _ | _ | _ | _ | 0.50 |
| Italy | _ | - | _ | _ | - | 2.20 | _ | 3.50 | _ | _ | _ | _ | _ | _ | 5.70 |
| Portugal | _ | - | _ | _ | - | _ | _ | 0.43 | _ | _ | _ | _ | _ | _ | 0.43 |
| Spain | _ | 0.46 | 0.76 | 2.20 | 0.50 | 5.95 | 0.63 | 1.61 | 0.07 | 0.08 | _ | _ | _ | _ | 12.26 |
| Turkey | _ | - | _ | _ | - | 4.08 | _ | 1.27 | _ | _ | _ | _ | _ | _ | 5.35 |
| Asia Pacific | | | | | | | | | | | | | | | |
| Japan | 1.70 | - | 1.09 | 8.40 | 5.93 | _ | - | _ | 9.72 | 7.95 | 23.40 | _ | 14.50 | 0.05 | 72.74 |
| South Korea | _ | - | 5.48 | 6.95 | 0.32 | _ | _ | _ | 0.24 | 1.04 | 6.78 | 0.15 | 3.10 | _ | 24.06 |
| Taiwan | _ | _ | _ | _ | - | _ | _ | _ | _ | _ | 4.15 | _ | 2.85 | _ | 7.00 |
| TOTAL EXPORTS | 1.70 | 5.32 | 7.96 | 18.59 | 6.85 | 26.88 | 0.63 | 7.84 | 10.03 | 9.14 | 34.33 | 0.15 | 20.52 | 0.05 | 149.99 |

Source: Cedigaz (provisional).

*Liquefied Natural Gas.

Note: Flows are on a contractual basis and may not correspond to physical gas flows in all cases.



| Prices | LNG | | Natu | ral gas | | Crude oil |
|----------------------------|-------|-----------|--------------------|------------|------------|---------------|
| | Japan | European | UK | USA | Canada | OECD |
| US dollars per million Btu | cif | Union cif | (Heren NBP index)† | Henry Hub‡ | (Alberta)‡ | countries cif |
| 1984 | _ | 3.76 | _ | _ | _ | 5.00 |
| 1985 | 5.23 | 3.83 | _ | _ | _ | 4.75 |
| 1986 | 4.10 | 3.65 | _ | _ | _ | 2.57 |
| 1987 | 3.35 | 2.59 | _ | _ | _ | 3.09 |
| 1988 | 3.34 | 2.36 | _ | _ | _ | 2.56 |
| 1989 | 3.28 | 2.09 | _ | 1.70 | _ | 3.01 |
| 1990 | 3.64 | 2.82 | _ | 1.64 | 1.05 | 3.82 |
| 1991 | 3.99 | 3.18 | _ | 1.49 | 0.89 | 3.33 |
| 1992 | 3.62 | 2.76 | _ | 1.77 | 0.98 | 3.19 |
| 1993 | 3.52 | 2.53 | _ | 2.12 | 1.69 | 2.82 |
| 1994 | 3.18 | 2.24 | _ | 1.92 | 1.45 | 2.70 |
| 1995 | 3.46 | 2.37 | _ | 1.69 | 0.89 | 2.96 |
| 1996 | 3.66 | 2.43 | 1.85 | 2.76 | 1.12 | 3.54 |
| 1997 | 3.91 | 2.65 | 2.03 | 2.53 | 1.36 | 3.29 |
| 1998 | 3.05 | 2.26 | 1.92 | 2.08 | 1.42 | 2.16 |
| 1999 | 3.14 | 1.80 | 1.64 | 2.27 | 2.00 | 2.98 |
| 2000 | 4.72 | 3.25 | 2.68 | 4.23 | 3.75 | 4.83 |
| 2001 | 4.64 | 4.15 | 3.22 | 4.07 | 3.61 | 4.08 |
| 2002 | 4.27 | 3.47 | 2.58 | 3.33 | 2.57 | 4.17 |

†Source: Heren Energy Ltd. ‡Source: Natural Gas Week. **Note:** cif = cost+insurance+freight (average prices).

| Proved reserves at end of 2002 | Anthracite | Sub- | | | |
|--------------------------------|------------|-------------|--------|----------|-----------|
| | and | bituminous | | Share | |
| Million tonnes | bituminous | and Lignite | Total | of total | R/P ratio |
| USA | 115891 | 134103 | 249994 | 25.4% | 252 |
| Canada | 3471 | 3107 | 6578 | 0.7% | 97 |
| Mexico | 860 | 351 | 1211 | 0.1% | 101 |
| Total North America | 120222 | 137561 | 257783 | 26.2% | 240 |
| Brazil | _ | 11929 | 11929 | 1.2% | * |
| Colombia | 6267 | 381 | 6648 | 0.7% | 168 |
| Venezuela | 479 | _ | 479 | • | 60 |
| Other S. & Cent. America | 992 | 1704 | 2696 | 0.3% | * |
| Total S. & Cent. America | 7738 | 14014 | 21752 | 2.2% | 404 |
| Bulgaria | 13 | 2698 | 2711 | 0.3% | 100 |
| Czech Republic | 2114 | 3564 | 5678 | 0.6% | 90 |
| France | 22 | 14 | 36 | • | 17 |
| Germany | 23000 | 43000 | 66000 | 6.7% | 317 |
| Greece | _ | 2874 | 2874 | 0.3% | 40 |
| Hungary | _ | 1097 | 1097 | 0.1% | 85 |
| Kazakhstan | 31000 | 3000 | 34000 | 3.5% | 464 |
| Poland | 20300 | 1860 | 22160 | 2.3% | 138 |
| Romania | 1 | 1456 | 1457 | 0.1% | 48 |
| Russian Federation | 49088 | 107922 | 157010 | 15.9% | * |
| Spain | 200 | 460 | 660 | 0.1% | 30 |
| Turkey | 278 | 3411 | 3689 | 0.4% | 68 |
| Ukraine | 16274 | 17879 | 34153 | 3.5% | 412 |
| United Kingdom | 1000 | 500 | 1500 | 0.2% | 50 |
| Other Europe & Eurasia | 1584 | 20761 | 22345 | 2.3% | 327 |
| Total Europe & Eurasia | 144874 | 210496 | 355370 | 36.1% | 306 |
| South Africa | 49520 | _ | 49520 | 5.0% | 221 |
| Zimbabwe | 502 | _ | 502 | 0.1% | 122 |
| Other Africa | 5149 | 196 | 5345 | 0.5% | * |
| Middle East | 1710 | _ | 1710 | 0.2% | * |
| Total Africa & Middle East | 56881 | 196 | 57077 | 5.8% | 247 |
| Australia | 42550 | 39540 | 82090 | 8.3% | 243 |
| China | 62200 | 52300 | 114500 | 11.6% | 82 |
| India | 82396 | 2000 | 84396 | 8.6% | 235 |
| Indonesia | 790 | 4580 | 5370 | 0.5% | 52 |
| Japan | 773 | - | 773 | 0.1% | 404 |
| New Zealand | 33 | 539 | 572 | 0.1% | 134 |
| North Korea | 300 | 300 | 600 | 0.1% | 9 |
| Pakistan | _ | 2265 | 2265 | 0.2% | |
| South Korea | 78 | - | 78 | 0.40/ | 23 |
| Thailand | - | 1268 | 1268 | 0.1% | 64 |
| Vietnam | 150 | - | 150 | • | 10 |
| Other Asia Pacific | 77 | 332 | 409 | | 54 |
| Total Asia Pacific | 189347 | 103124 | 292471 | 29.7% | 126 |
| TOTAL WORLD | 519062 | 465391 | 984453 | 100.0% | 204 |
| of which: OECD | 211084 | 234686 | 445770 | 45.3% | 217 |
| Former Soviet Union | 97362 | 132613 | 229975 | 23.4% | |
| Other EMEs | 210616 | 98092 | 308708 | 31.4% | 130 |

^{*}More than 500 years.
•Less than 0.05%.

Notes:

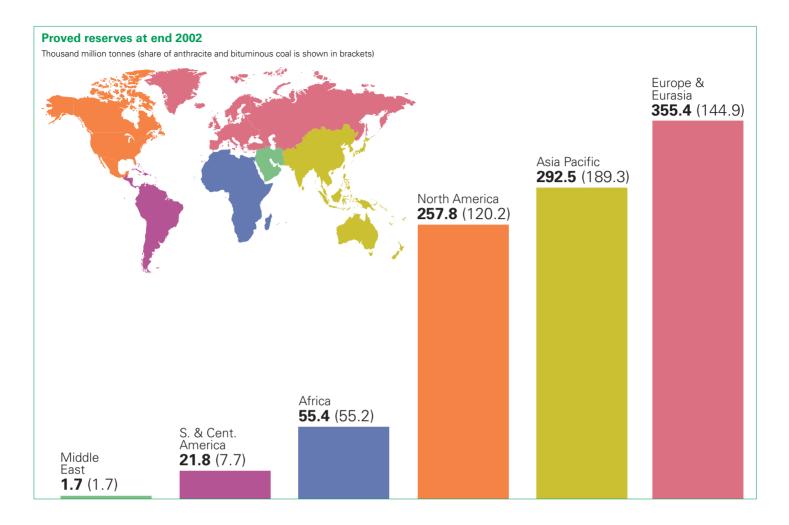
Proved reserves of coal – Generally taken to be those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known deposits under existing economic and operating conditions.

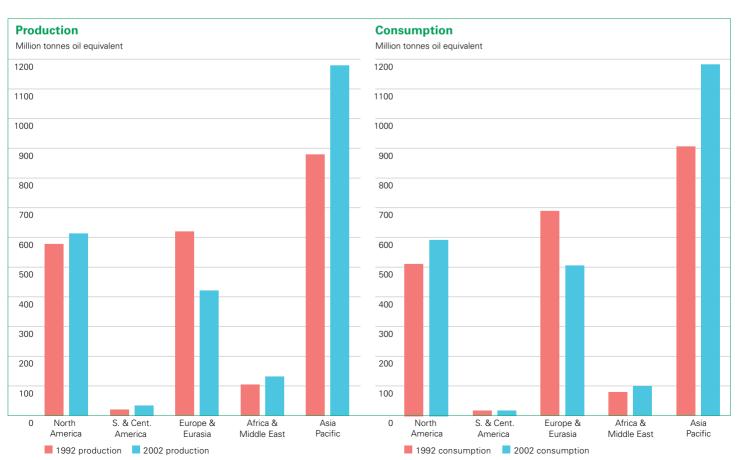
Reserves/Production (R/P) ratio – If the reserves remaining at the end of the year are divided by the production in that year, the result is the length of time that those remaining reserves would last if production were to continue at that level.

Source of reserves data – World Energy Council.

| Prices | | Price of US coal | | |
|----------------------|------------------|------------------|--------------|-------------|
| | Marker Price | receipts at | Japan coking | Japan steam |
| | (basis Northwest | steam-electric | coal import | coal import |
| US dollars per tonne | Europe)* | utility plants | cif price | cif price |
| 1988 | 39.94 | 33.77 | 55.06 | 42.47 |
| 1989 | 42.08 | 33.21 | 58.68 | 48.86 |
| 1990 | 43.48 | 33.57 | 60.54 | 50.81 |
| 1991 | 42.80 | 33.10 | 60.45 | 50.30 |
| 1992 | 38.53 | 32.35 | 57.82 | 48.45 |
| 1993 | 33.68 | 31.51 | 55.26 | 45.71 |
| 1994 | 37.18 | 30.88 | 51.77 | 43.66 |
| 1995 | 44.50 | 29.78 | 54.47 | 47.58 |
| 1996 | 41.25 | 29.16 | 56.68 | 49.54 |
| 1997 | 38.92 | 28.83 | 55.51 | 45.53 |
| 1998 | 32.00 | 28.31 | 50.76 | 40.51 |
| 1999 | 28.79 | 27.35 | 42.83 | 35.74 |
| 2000 | 35.98 | 26.99 | 39.69 | 34.58 |
| 2001 | 39.29 | 27.68 | 41.33 | 37.96 |
| 2002 | 31.65 | 27.46 | 41.91 | 37.04 |

^{*}Source of Marker Price: McCloskey Coal Information Service. **Note:** cif = cost+insurance+freight (average prices).





Global coal production and consumption have grown by less than 1% per annum over the last decade as gains in Asia Pacific and North America have been partially offset by declines in Europe & Eurasia.

| USA 540.7 506.2 552.8 550.7 567.1 580.3 598.4 579.7 566.6 589.4 5 Canada 35.1 37.5 39.4 40.8 41.6 43.0 40.8 39.2 37.1 37.6 37.6 Mexico 2.9 3.1 4.3 4.1 4.6 4.5 4.8 4.9 5.4 5.5 5 Total North America 578.7 546.8 596.5 595.6 613.3 627.8 644.0 623.8 608.1 632.5 67 Brazil 1.8 1.8 2.0 2.0 1.8 2.1 2.0 2.1 2.1 2.1 Colmbia 15.3 14.1 14.7 16.7 19.5 21.0 19.6 21.3 24.8 28.5 5.5 50.5 50.5 50.5 50.5 50.5 50.5 50.5 50.5 50.5 50.5 50.5 50.5 50.5 50.5 50.5 50.5 | | | 2002 |
|--|-----|-------------------|-------------------|
| Canada 35.1 37.5 39.4 40.8 41.6 43.0 40.8 39.2 37.1 37.6 37.6 Mexico 2.9 3.1 4.3 4.1 4.6 4.5 4.8 4.9 5.4 5.5 Total North America 578.7 546.8 596.5 595.6 613.3 627.8 644.0 623.8 608.1 632.5 6 Brazil 1.8 1.8 2.0 595.6 613.3 627.8 644.0 623.8 608.1 632.5 6 Venezuela 1.8 1.8 2.0 59.6 1.8 2.1 2.0 2.1 </th <th>002</th> <th>2002 over 2001</th> <th>share of total</th> | 002 | 2002 over 2001 | share of total |
| Mexico 2.9 3.1 4.3 4.1 4.6 4.5 4.8 4.9 5.4 5.5 Total North America 578.7 546.8 596.5 595.6 613.3 627.8 644.0 623.8 608.1 632.5 6 Brazil 1.8 1.8 2.0 2.0 1.8 2.1 2.0 2.1 0.4 0.5 | 1.7 | -3.0% | 24.0% |
| Total North America 578.7 546.8 596.5 595.6 613.3 627.8 644.0 623.8 608.1 632.5 648.2 632.1 632.1 632.2 648.2 649.2 623.8 649.2 632.3 649.2 632.3 632.3 649.2 632.3 632.3 649.2 632.3 632.3 649.2 632.3 632.5 649.2 632.3 649.2 632.3 632.5 649.2 632.3 632.5 649.2 632.3 632.5 649.2 632.3 632.5 649.2 632.5 649.2 632.3 649.2 632.3 649.2 632.3 632.5 649.2 632.3 649.2 632.3 632.5 649.2 632.3 632.5 649.2 632.3 632.5 649.2 632.3 649.2 632.5 649.2 632.3 632.5 649.2 632.3 649.2 632.5 649.2 632.3 649.2 632.5 649.2 632.3 649.2 632.5 649.2 632.3 649.2 649.2 632.3 649.2 | 5.5 | -5.6% | 1.5% |
| Brazil | 5.7 | 3.3% | 0.2% |
| Colombia 15.3 14.1 14.7 16.7 19.5 21.0 19.6 21.3 24.8 28.5 22.5 Venezuela 1.8 2.9 3.2 3.2 3.1 3.9 4.7 4.8 5.6 5.5 Other S. & Cent. America 1.5 1.2 1.2 1.2 1.1 0.4 0.5 0.5 0.5 Bulgaria 5.1 4.9 4.8 5.2 5.2 4.9 5.0 4.3 4.4 4.4 Czech Republic 31.4 30.8 28.1 27.3 27.0 27.9 26.0 23.1 25.0 25.4 4.6 France 7.1 6.6 5.7 5.3 5.2 4.9 5.0 4.3 4.4 4.4 Czech Republic 31.4 30.8 28.1 27.3 27.0 27.9 26.0 23.1 25.0 25.4 2.8 Germany 93.3 83.7 77.8 74.6 70.0 66. | 2.9 | -3.1% | 25.8% |
| Venezuela 1.8 2.9 3.2 3.2 3.1 3.9 4.7 4.8 5.6 5.5 Other S. & Cent. America 1.5 1.2 1.3 1.2 1.2 1.1 0.4 0.5 0.5 0.5 Total S. & Cent. America 20.4 20.0 21.2 23.1 25.6 28.1 26.7 28.7 33.0 36.6 3 Bulgaria 5.1 4.9 4.8 5.2 5.2 4.9 5.0 4.3 4.4 4.4 Czech Republic 31.4 30.8 28.1 27.3 27.0 27.9 26.0 23.1 25.0 25.4 25.7 France 7.1 6.6 5.7 5.3 5.2 4.3 3.6 3.3 2.3 1.5 Germany 93.3 83.7 77.8 74.6 70.0 66.9 61.3 59.4 56.5 54.1 9.0 Greece 7.0 7.2 7.4 7.5 7. | 2.2 | 2.8% | 0.1% |
| Other S. & Cent. America 1.5 1.2 1.3 1.2 1.2 1.1 0.4 0.5 0.5 0.5 Total S. & Cent. America 20.4 20.0 21.2 23.1 25.6 28.1 26.7 28.7 33.0 36.6 3 Bulgaria 5.1 4.9 4.8 5.2 5.2 4.9 5.0 4.3 4.4 4.4 Czech Republic 31.4 30.8 28.1 27.3 27.0 27.9 26.0 23.1 25.0 25.4 2.7 France 7.1 6.6 5.7 7.7 8.7 4.3 3.6 3.3 2.3 1.5 Germany 93.3 83.7 77.8 74.6 70.0 66.9 61.3 59.4 56.5 54.1 9.8 Greece 7.0 7.2 7.4 7.5 7.2 7.7 8.1 8.0 8.2 8.6 Hungary 3.6 2.8 2.9 2.6 32.2< | 5.7 | -10.0% | 1.1% |
| Total S. & Cent. America 20.4 20.0 21.2 23.1 25.6 28.1 26.7 28.7 33.0 36.6 36.8 36.8 36.8 36.8 36.8 36.8 36.8 36.8 36.8 36.8 36.8 37.1 4.9 4.8 5.2 5.2 4.9 5.0 4.3 4.4 <td>5.8</td> <td>6.1%</td> <td>0.2%</td> | 5.8 | 6.1% | 0.2% |
| Bulgaria 5.1 4.9 4.8 5.2 5.2 4.9 5.0 4.3 4.4 4.4 Czech Republic 31.4 30.8 28.1 27.3 27.0 27.9 26.0 23.1 25.0 25.4 2 France 7.1 6.6 5.7 5.3 5.2 4.3 3.6 3.3 2.3 1.5 Germany 93.3 83.7 77.8 74.6 70.0 66.9 61.3 59.4 56.5 54.1 9 Greece 7.0 7.2 7.4 7.5 7.2 7.7 8.1 8.0 8.2 8.6 Hungary 3.6 2.8 2.9 2.6 3.2 3.3 3.0 3.1 2.9 2.9 Kazakhstan 65.0 57.3 53.5 42.6 39.3 37.3 36.0 30.0 38.5 40.6 3.2 Poland 89.2 89.2 89.3 91.1 94.5 92.1 | 0.4 | -31.2% | • |
| Czech Republic 31.4 30.8 28.1 27.3 27.0 27.9 26.0 23.1 25.0 25.4 25.6 France 7.1 6.6 5.7 5.3 5.2 4.3 3.6 3.3 2.3 1.5 Germany 93.3 83.7 77.8 74.6 70.0 66.9 61.3 59.4 56.5 54.1 9 Greece 7.0 7.2 7.4 7.5 7.2 7.7 8.1 8.0 8.2 8.6 Hungary 3.6 2.8 2.9 2.6 3.2 3.3 3.0 3.1 2.9 2.9 Kazakhstan 65.0 57.3 53.5 42.6 39.3 37.3 36.0 30.0 38.5 40.6 3.2 Poland 89.2 89.2 89.3 91.1 94.5 92.1 79.6 77.0 71.3 71.7 7.7 Romania 8.5 8.9 9.1 9.3 9.6 <td>4.1</td> <td>-7.2%</td> <td>1.4%</td> | 4.1 | -7.2% | 1.4% |
| France 7.1 6.6 5.7 5.3 5.2 4.3 3.6 3.3 2.3 1.5 Germany 93.3 83.7 77.8 74.6 70.0 66.9 61.3 59.4 56.5 54.1 9 Greece 7.0 7.2 7.4 7.5 7.2 7.7 8.1 8.0 8.2 8.6 Hungary 3.6 2.8 2.9 2.6 3.2 3.3 3.0 3.1 2.9 2.9 Kazakhstan 65.0 57.3 53.5 42.6 39.3 37.3 36.0 30.0 38.5 40.6 3.2 Poland 89.2 89.2 89.3 91.1 94.5 92.1 79.6 77.0 71.3 71.7 7.6 Romania 8.5 8.9 9.1 9.3 9.6 7.4 5.7 5.1 6.4 7.3 Russian Federation 148.4 135.1 121.2 118.5 114.4 109 | 4.5 | 1.5% | 0.2% |
| Germany 93.3 83.7 77.8 74.6 70.0 66.9 61.3 59.4 56.5 54.1 9.5 Greece 7.0 7.2 7.4 7.5 7.2 7.7 8.1 8.0 8.2 8.6 Hungary 3.6 2.8 2.9 2.6 3.2 3.3 3.0 3.1 2.9 2.9 Kazakhstan 65.0 57.3 53.5 42.6 39.3 37.3 36.0 30.0 38.5 40.6 3.2 Poland 89.2 89.2 89.3 91.1 94.5 92.1 79.6 77.0 71.3 71.7 7.8 Romania 8.5 8.9 9.1 9.3 9.6 7.4 5.7 5.1 6.4 7.3 Russian Federation 148.4 135.1 121.2 118.5 114.4 109.3 103.9 112.0 115.8 121.5 1 Spain 11.4 11.0 10.6 10.2 | 4.3 | -4.2% | 1.0% |
| Greece 7.0 7.2 7.4 7.5 7.2 7.7 8.1 8.0 8.2 8.6 Hungary 3.6 2.8 2.9 2.6 3.2 3.3 3.0 3.1 2.9 2.9 Kazakhstan 65.0 57.3 53.5 42.6 39.3 37.3 36.0 30.0 38.5 40.6 3.0 Poland 89.2 89.2 89.3 91.1 94.5 92.1 79.6 77.0 71.3 71.7 7.8 Romania 8.5 8.9 9.1 9.3 9.6 7.4 5.7 5.1 6.4 7.3 Russian Federation 148.4 135.1 121.2 118.5 114.4 109.3 103.9 112.0 115.8 121.5 1 Spain 11.4 11.0 10.6 10.2 10.0 9.8 9.3 8.6 8.0 7.6 Urkey 12.1 11.7 12.1 12.1 12.1 | 1.2 | -23.9% | • |
| Hungary 3.6 2.8 2.9 2.6 3.2 3.3 3.0 3.1 2.9 2.9 Kazakhstan 65.0 57.3 53.5 42.6 39.3 37.3 36.0 30.0 38.5 40.6 38.5 Poland 89.2 89.2 89.3 91.1 94.5 92.1 79.6 77.0 71.3 71.7 77.0 Romania 8.5 8.9 9.1 9.3 9.6 7.4 5.7 5.1 6.4 7.3 Russian Federation 148.4 135.1 121.2 118.5 114.4 109.3 103.9 112.0 115.8 121.5 1 Spain 11.4 11.0 10.6 10.2 10.0 9.8 9.3 8.6 8.0 7.6 Turkey 12.1 11.7 12.1 12.1 12.3 13.1 13.9 13.3 13.9 14.2 4 Ukraine 68.4 59.4 48.5 44.2 <td>4.8</td> <td>1.3%</td> <td>2.3%</td> | 4.8 | 1.3% | 2.3% |
| Kazakhstan 65.0 57.3 53.5 42.6 39.3 37.3 36.0 30.0 38.5 40.6 20.0 Poland 89.2 89.2 89.3 91.1 94.5 92.1 79.6 77.0 71.3 71.7 77.0 Romania 8.5 8.9 9.1 9.3 9.6 7.4 5.7 5.1 6.4 7.3 Russian Federation 148.4 135.1 121.2 118.5 114.4 109.3 103.9 112.0 115.8 121.5 11 Spain 11.4 11.0 10.6 10.2 10.0 9.8 9.3 8.6 8.0 7.6 Turkey 12.1 11.7 12.1 12.1 12.3 13.1 13.9 13.3 13.9 14.2 14.8 Ukraine 68.4 59.4 48.5 44.2 39.1 39.8 39.9 42.8 42.2 43.8 40.0 40.0 40.0 40.0 40.0 | 9.2 | 7.0% | 0.4% |
| Poland 89.2 89.2 89.3 91.1 94.5 92.1 79.6 77.0 71.3 71.7 71.7 Romania 8.5 8.9 9.1 9.3 9.6 7.4 5.7 5.1 6.4 7.3 Russian Federation 148.4 135.1 121.2 118.5 114.4 109.3 103.9 112.0 115.8 121.5 1 Spain 11.4 11.0 10.6 10.2 10.0 9.8 9.3 8.6 8.0 7.6 Turkey 12.1 11.7 12.1 12.1 12.3 13.1 13.9 13.3 13.9 14.2 14.8 14.1 14.2 14.8 14.2 14.8 14.2 14.8 14.2 14.8 14.2 14.8 14.2 14.8 14.2 14.8 14.2 14.8 14.2 14.8 14.2 14.8 14.2 14.8 14.2 14.8 14.2 14.8 14.2 14.8 14.2 < | 2.7 | -7.2% | 0.1% |
| Romania 8.5 8.9 9.1 9.3 9.6 7.4 5.7 5.1 6.4 7.3 Russian Federation 148.4 135.1 121.2 118.5 114.4 109.3 103.9 112.0 115.8 121.5 1 Spain 11.4 11.0 10.6 10.2 10.0 9.8 9.3 8.6 8.0 7.6 Turkey 12.1 11.7 12.1 12.1 12.3 13.1 13.9 13.3 13.9 14.2 14.8 14.4 14.9 14.9 14.9 14.8 14.9 | 7.6 | -7.4% | 1.6% |
| Russian Federation 148.4 135.1 121.2 118.5 114.4 109.3 103.9 112.0 115.8 121.5 1 Spain 11.4 11.0 10.6 10.2 10.0 9.8 9.3 8.6 8.0 7.6 Turkey 12.1 11.7 12.1 12.1 12.3 13.1 13.9 13.3 13.9 14.2 14.2 Ukraine 68.4 59.4 48.5 44.2 39.1 39.8 39.9 42.8 42.2 43.8 4 United Kingdom 50.0 40.3 28.3 31.8 30.2 29.4 25.0 22.5 19.0 19.4 19.1 15.1 15.1 15.7 16.5 13.3 14.4 15.1 | 8.0 | -1.3% | 3.0% |
| Russian Federation 148.4 135.1 121.2 118.5 114.4 109.3 103.9 112.0 115.8 121.5 1 Spain 11.4 11.0 10.6 10.2 10.0 9.8 9.3 8.6 8.0 7.6 Turkey 12.1 11.7 12.1 12.1 12.3 13.1 13.9 13.3 13.9 14.2 14.2 Ukraine 68.4 59.4 48.5 44.2 39.1 39.8 39.9 42.8 42.2 43.8 4 United Kingdom 50.0 40.3 28.3 31.8 30.2 29.4 25.0 22.5 19.0 19.4 19.1 15.1 15.1 15.7 16.5 13.3 14.4 15.1 | 6.7 | -8.0% | 0.3% |
| Turkey 12.1 11.7 12.1 12.1 12.3 13.1 13.9 13.3 13.9 14.2 14.3 13.9 13.3 13.9 14.2 43.8 44.2 14.3 13.3 13.9 14.2 43.8 44.2 14.3 14.2 14.3 13.3 13.9 14.2 43.8 44.2 14.3 13.3 13.9 14.2 43.8 44.2 14.3 13.3 13.9 14.2 43.8 44.2 14.3 13.3 14.2 24.3 44.2 14.3 13.3 14.2 24.3 24.2 24.3 33.3 14.2 24.2 43.8 44.2 24.3 24.2 24.3 24.2 24.3 24.2 24.3 24.2 24.3 24.2 < | 3.8 | -6.4% | 4.8% |
| Turkey 12.1 11.7 12.1 12.1 12.3 13.1 13.9 13.3 13.9 14.2 14.3 13.3 13.9 14.2 43.8 44.2 14.3 13.3 13.9 14.2 43.8 44.2 14.3 14.3 13.9 14.2 43.8 44.2 14.3 14.3 13.9 14.2 43.8 44.2 14.3 14.2 14.2 14.3 13.3 13.9 14.2 43.8 44.2 14.3 13.3 14.2 43.8 44.2 14.3 14.2 < | 7.4 | -2.3% | 0.3% |
| Ukraine 68.4 59.4 48.5 44.2 39.1 39.8 39.9 42.8 42.2 43.8 4.0 United Kingdom 50.0 40.3 28.3 31.8 30.2 29.4 25.0 22.5 19.0 19.4 20.0 20.0 20.5 19.0 19.4 20.0 20.0 20.0 20.0 19.4 20.0 20.0 19.4 20.0 20.0 19.0 19.4 20.0 20.0 20.0 19.0 19.4 20.0 20.0 20.0 20.0 19.4 20.0 20.0 19.4 20.0 20.0 19.4 20.0 20.0 19.4 20.0 20.0 19.4 20.0 20.0 19.4 20.0 20.0 19.4 20.0 20.0 19.0 20.0 | 1.5 | -18.9% | 0.5% |
| United Kingdom 50.0 40.3 28.3 31.8 30.2 29.4 25.0 22.5 19.0 19.4 | 3.0 | -1.9% | 1.8% |
| Other Europe & Eurasia 19.1 17.3 13.8 14.0 13.4 15.7 16.5 13.3 14.4 15.1 15. | 8.3 | -6.0% | 0.8% |
| Total Europe & Eurasia 619.6 566.2 513.1 496.3 480.6 468.9 436.8 425.8 428.8 438.1 42.7 Total Middle East 0.6 0.6 0.8 0.7 0.7 0.6 0.6 0.7 0.6 0.5 | 6.0 | 6.1% | 0.7% |
| Total Middle East 0.6 0.6 0.8 0.7 0.7 0.6 0.6 0.7 0.6 0.5 | 1.8 | -3.8% | 17.7% |
| South Africa 100.0 103.5 111.1 116.9 124.6 127.1 125.6 126.6 126.3 1 | 0.4 | -22.0% | • |
| 000ttt /https://doi.org/10.00/10.00/10.00/10.00/10.00/124.00/127.10/120.00/120. | 6.8 | 0.4% | 5.3% |
| Zimbabwe 3.6 3.4 3.5 3.6 3.3 3.4 3.5 3.2 2.8 2.9 | 2.7 | -8.0% | 0.1% |
| Other Africa 1.4 1.3 1.4 1.3 1.2 1.4 1.3 1.1 1.1 | 1.1 | -2.7% | • |
| Total Africa 105.0 108.2 116.0 121.9 121.5 129.2 132.0 130.1 130.5 130.3 13 | 0.6 | 0.2% | 5.5% |
| | 3.6 | 5.4% | 7.7% |
| China 559.9 580.7 619.4 650.9 691.5 665.5 619.7 523.9 501.8 547.8 7 6 | 3.0 | 28.3% | 29.5% |
| | 8.4 | 5.0% | 7.1% |
| | 3.3 | 11.2% | 2.7% |
| Japan 4.2 4.0 3.8 3.4 3.6 2.4 2.0 2.2 1.7 1.8 | | -100.0% | _ |
| New Zealand 1.7 1.8 1.8 2.1 2.2 2.0 2.0 2.2 2.2 2.4 | 2.6 | 9.2% | 0.1% |
| Pakistan 1.3 1.4 1.4 1.5 1.5 1.5 1.5 1.4 1.5 | 1.6 | 9.2% | 0.1% |
| South Korea 5.4 4.2 3.3 2.6 2.2 2.0 2.0 1.9 1.9 1.7 | | -13.1% | 0.1% |
| Thailand 4.4 4.6 5.2 5.5 6.3 6.9 6.1 5.7 5.1 5.6 | 5.7 | 1.2% | 0.2% |
| Vietnam 2.9 3.6 3.4 3.9 4.9 6.4 6.4 4.9 6.4 7.2 | 8.4 | 16.3% | 0.4% |
| | 1.5 | -0.7% | 1.7% |
| Total Asia Pacific 880.4 910.2 954.3 1003.2 1064.2 1054.8 1018.7 930.2 929.1 1001.1 11: | | 17.8% | 49.6% |
| TOTAL WORLD 2204.7 2152.0 2201.9 2240.8 2305.9 2309.4 2258.8 2139.3 2130.1 2239.1 23 | | 6.2% | |
| | 3.4 | -1.7% | 42.2% |
| | 5.3 | -5.6% | 8.2% |
| Other EMEs 903.6 935.0 986.0 1039.7 1099.2 1090.0 1047.4 950.2 948.0 1011.9 11 8 | | 16.7% | 49.6% |

*Commercial solid fuels only, i.e. bituminous coal and anthracite (hard coal), and lignite and brown (sub-bituminous) coal.

*Less than 0.05%.

Note: Because of rounding some totals may not agree exactly with the sum of their component parts.

Coal production data expressed in million tonnes is available at www.bp.com/centres.energy.

| Consumption* | | | | | | | | | | | | Change | 2002 |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-----------------|-------------------|--------------------|
| Million tonnes oil equivalent | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2002 over 2001 | share of total |
| USA | 481.9 | 499.9 | 501.7 | 506.3 | 529.3 | 540.4 | 545.8 | 544.9 | 569.1 | 545.9 | 553.8 | 1.4% | 23.1% |
| Canada Mexico | 26.2 3.4 | 23.7 3.8 | 24.5 4.5 | 25.2 5.0 | 25.7 5.7 | 26.8 5.7 | 28.1 5.9 | 27.8 6.0 | 29.4 6.2 | 30.3 6.8 | 30.7 7.0 | 1.4% 3.6% | 1.3% 0.3% |
| Total North America | 511.5 | 527.4 | 530.7 | 536.5 | 560.7 | 572.9 | 579.8 | 578.7 | 604.7 | 583.0 | 591.5 | 1.5% | 24.7% |
| Argentina Brazil | 0.8 9.9 | 0.7 10.2 | 1.2 10.2 | 0.9 10.7 | 0.9 11.2 | 0.8 11.4 | 0.7 11.2 | 0.7 11.7 | 0.7 11.9 | 0.7 12.2 | 0.6 12.0 | -14.3% -2.0% | 0.5% |
| Chile | 1.8 | 1.8 | 2.2 | 2.4 | 3.2 | 4.2 | 3.7 | 3.5 | 3.9 | 2.1 | 2.0 | -5.2% | 0.1% |
| Colombia | 3.6 | 3.7 | 3.6 | 3.4 | 3.2 | 3.1 | 2.8 | 2.1 | 2.2 | 3.3 | 2.0 | -38.0% | 0.1% |
| Ecuador Peru | 0.3 | 0.4 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 0.4 | 0.4 | -7.4% | • |
| Venezuela | † | † | 0.1 | † | † | † | † | 0.1 | † | † | t | _ | • |
| Other S. & Cent. America Total S. & Cent. America | 0.5 16.9 | 0.5 17.3 | 0.4 18.1 | 0.4 18.2 | 0.5 19.3 | 0.4 20.3 | 0.5 19.3 | 0.6 19.2 | 0.6 19.8 | 0.8 19.5 | 0.8 17.8 | 10.0% -8.4% | 0.7% |
| Austria | 2.8 | 2.4 | 2.5 | 2.4 | 2.7 | 3.1 | 3.0 | 3.2 | 3.2 | 2.9 | 3.5 | 22.3% | 0.7 % |
| Azerbaijan | - 0.7 | _ | _ | _ | _ | _ | _ | _ | _ | † | | -33.3% | • |
| Belgium & Luxembourg | 0.7 10.2 | 0.6 8.7 | 0.2 8.5 | 0.3 9.8 | 0.5 7.6 | 0.6 7.5 | 0.4 7.9 | 0.3 6.9 | 0.3 7.6 | 0.3 7.6 | 0.3 7.3 | -4.0% | 0.3% |
| Bulgaria | 7.3 | 8.2 | 7.6 | 7.8 | 8.4 | 7.8 | 8.2 | 6.6 | 6.3 | 6.9 | 6.8 | -1.5% | 0.3% |
| Czech Republic | 25.4 | 23.7 | 23.2 | 23.5 | 23.6 | 22.8 | 20.5 | 19.0 | 21.0 | 21.4 | 20.4 | -4.6% | 0.9% |
| Denmark Finland | 6.7 2.7 | 7.2 3.1 | 7.8 4.1 | 6.6 3.1 | 9.0 4.0 | 6.7 4.5 | 5.6 3.4 | 4.7 3.6 | 4.0 3.5 | 4.2 4.0 | 4.2 4.5 | 0.4% 10.9% | 0.2% 0.2% |
| France | 17.9 | 14.7 | 13.7 | 14.5 | 15.4 | 13.4 | 16.1 | 14.3 | 13.9 | 11.6 | 12.7 | 9.3% | 0.5% |
| Germany | 104.4 | 97.9 | 95.6 | 90.6 | 89.9 | 86.8 | 84.8 | 80.2 | 84.9 | 85.0 | 84.6 | -0.4% | 3.5% |
| Greece Hungary | 8.4 4.6 | 7.9 4.0 | 8.4 3.6 | 8.2 3.6 | 7.8 3.7 | 7.6 3.7 | 8.8 3.4 | 9.1 3.4 | 9.2 3.2 | 9.3 3.4 | 9.9 3.3 | 6.4% -4.0% | 0.4% 0.1% |
| Iceland | † | † | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | _ | • |
| Republic of Ireland Italy | 2.0 12.4 | 1.9 10.0 | 1.9 10.7 | 1.9 12.5 | 1.9 11.2 | 2.0 11.0 | 1.9 11.6 | 1.6 11.6 | 1.9 13.0 | 1.9 13.7 | 1.8 13.8 | -4.3% 0.7% | 0.1% 0.6% |
| Kazakhstan | 39.9 | 36.4 | 34.5 | 27.5 | 25.9 | 22.4 | 22.9 | 19.8 | 23.2 | 22.5 | 21.7 | -3.3% | 0.0% |
| Lithuania | 0.5 | † | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | -3.8% | • |
| Netherlands Norway | 7.7 0.4 | 8.2 0.5 | 9.0 0.6 | 9.8 0.7 | 9.3 0.6 | 9.5 0.6 | 9.4 0.7 | 7.7 0.7 | 8.6 0.7 | 8.5 0.6 | 8.9 0.5 | 4.9% -11.0% | 0.4% |
| Poland | 73.0 | 74.0 | 72.3 | 71.7 | 73.2 | 70.1 | 63.8 | 61.0 | 57.6 | 58.0 | 56.4 | -2.8% | 2.4% |
| Portugal | 3.0 | 3.3 | 3.4 | 4.2 | 3.9 | 3.6 | 3.6 | 3.6 | 3.6 | 4.9 | 5.0 | 3.7% | 0.2% |
| Romania Russian Federation | 10.3 154.7 | 9.5 140.8 | 9.4 126.4 | 9.7 119.4 | 9.5 115.7 | 8.4 106.3 | 7.0 100.0 | 6.7 104.1 | 7.0 106.0 | 7.2 110.2 | 6.9 98.5 | -3.4% -10.6% | 0.3% 4.1% |
| Slovakia | 6.2 | 5.6 | 5.0 | 5.1 | 5.0 | 4.7 | 4.5 | 4.3 | 4.0 | 4.1 | 3.9 | -5.2% | 0.2% |
| Spain | 19.1 | 18.2 | 18.0 | 18.5 | 15.5 | 17.7 | 17.7 | 20.5 | 21.6 | 19.5 | 21.9 | 12.0% | 0.9% |
| Sweden Switzerland | 2.2 0.2 | 2.1 0.1 | 2.1 0.2 | 2.1 0.2 | 2.4 0.1 | 2.1 0.1 | 2.0 0.1 | 2.0 0.1 | 1.9 0.1 | 2.0 0.1 | 2.2 0.1 | 6.7% -0.8% | 0.1% |
| Turkey | 19.0 | 18.7 | 17.6 | 17.5 | 20.7 | 22.3 | 22.5 | 20.8 | 22.3 | 20.4 | | -11.4% | 0.8% |
| Turkmenistan | 0.1 | - | 10.2 | 10.1 | † | - | - | _ 20 F | - | - 20.4 | - | - 0.0/ | 1 00/ |
| Ukraine United Kingdom | 63.9 61.2 | 56.3 53.3 | 46.3 49.7 | 42.1 47.5 | 33.2 44.4 | 38.0 39.6 | 36.9 39.7 | 38.5 35.6 | 38.8 36.9 | 39.4 40.3 | 38.3 36.5 | -2.8% -9.3% | 1.6% 1.5% |
| Uzbekistan | 2.9 | 1.9 | 1.8 | 1.4 | 1.2 | 1.2 | 1.2 | 0.9 | 1.0 | 1.1 | 1.0 | -1.9% | • |
| Other Europe & Eurasia Total Europe & Eurasia | 19.4 689.2 | 17.4 636.6 | 14.0 598.3 | 13.9 576.3 | 13.7 560.2 | 14.7 539.0 | 15.4 523.2 | 11.8 502.8 | 12.5 518.0 | 12.1 523.3 | 12.9 506.1 | 7.3% -3.2% | 0.5% |
| Iran | 1.2 | 1.3 | 1.3 | 1.4 | 1.2 | 0.9 | 1.0 | 1.0 | 1.1 | 0.8 | 0.8 | -5.4% | ∠1.170 |
| Kuwait | _ | _ | _ | _ | _ | - | _ | _ | _ | - | - | - | _ |
| Qatar Saudi Arabia | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| United Arab Emirates | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| Other Middle East | 3.1 | 3.5 | 3.8 | 4.1 | 5.0 | 5.4 | 5.8 | 5.7 | 6.2 | 7.2 | 7.6 | 5.7% | 0.3% |
| Total Middle East Algeria | 4.3 0.6 | 4.8 0.6 | 5.1 0.6 | 5.5 0.6 | 6.2 0.5 | 6.3 0.3 | 6.8 0.5 | 6.7 0.5 | 7.3 0.5 | 8.0 0.5 | 8.4 0.5 | 4.6% | 0.3% |
| Egypt | 0.8 | 0.9 | 1.0 | 0.7 | 0.9 | 0.8 | 0.8 | 0.6 | 0.7 | 0.8 | 0.8 | - | • |
| South Africa | 67.3 | 69.8 | 73.6 | 77.4 | 81.7 | 84.3 | 83.4 | 82.3 | 81.9 | 80.7 | 81.8 | 1.4% | 3.4% |
| Other Africa Total Africa | 6.1 74.8 | 6.8 78.1 | 6.5 81.7 | 6.7 85.4 | 6.8 89.9 | 6.9 92.3 | 7.0 91.7 | 6.5 89.9 | 6.3 89.4 | 7.2 89.2 | 7.5 90.6 | 3.7% 1.6% | 0.3% 3.8% |
| Australia | 39.0 | 36.4 | 38.7 | 38.4 | 42.9 | 44.2 | 46.4 | 47.2 | 47.6 | 49.3 | 49.5 | 0.5% | 2.1% |
| Bangladesh | 0.1 | † 570.2 | † 606.4 | 0.3 | 0.2 | 0.3 | 0.1 | 102.2 | 0.3 | 0.4 | 0.4 | 8.1% | 27.70/ |
| China China Hong Kong SAR | 549.5 6.3 | 570.3 7.3 | 606.4 5.2 | 671.9 5.6 | 681.6 4.2 | 681.7 3.5 | 608.3 4.4 | 492.3 3.9 | 454.7 3.7 | 518.7 4.9 | 663.4 5.4 | 27.9% 8.5% | 27.7% 0.2% |
| India | 123.3 | 128.0 | 133.9 | 142.8 | 154.4 | 160.2 | 159.8 | 158.1 | 169.3 | 172.5 | 180.8 | 4.8% | 7.5% |
| Indonesia | 4.1 78.0 | 4.0 | 4.8 | 5.7 | 6.9 | 8.2 89.8 | 9.3 | 11.6 | 13.7 98.9 | 16.7 | 17.8 | 6.6% | 0.7% |
| Japan Malaysia | 1.3 | 79.2 1.3 | 82.0 1.1 | 86.2 1.5 | 88.3 1.5 | 1.6 | 88.4 1.7 | 91.5 1.8 | 1.9 | 103.0 2.6 | 105.3 3.3 | 2.2% 27.5% | 4.4% 0.1% |
| New Zealand | 1.3 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.1 | 1.2 | 1.1 | 1.3 | 1.3 | -4.8% | 0.1% |
| Pakistan Philippings | 2.1 1.1 | 2.2 1.3 | 2.2 1.3 | 2.2 1.4 | 2.2 2.0 | 2.1 2.4 | 2.1 2.7 | 2.1 2.9 | 2.0 4.3 | 2.1 4.5 | 2.1 | 4.1% | 0.1% |
| Philippines Singapore | 1.1 | 1.3 | 1.3 | 1.4 | 2.0 | 2.4 | 2.7 | 2.9 | 4.3 | 4.5 | 3.5 | -22.1% - | 0.1% |
| South Korea | 23.6 | 25.9 | 26.7 | 28.1 | 32.2 | 34.8 | 36.1 | 38.2 | 43.0 | 45.7 | 49.1 | 7.4% | 2.0% |
| Taiwan Thailand | 14.3 4.8 | 15.6 5.4 | 16.6 6.1 | 17.1 7.1 | 19.4 8.7 | 21.9 8.7 | 23.8 7.3 | 24.9 7.9 | 28.9 7.8 | 30.8 8.8 | 32.5 8.6 | 5.4% -2.7% | 1.4% 0.4% |
| Other Asia Pacific | 57.3 | 59.1 | 58.7 | 58.9 | 58.7 | 59.2 | 56.5 | 55.8 | 57.9 | 58.8 | 60.5 | 3.0% | 2.5% |
| Total Asia Pacific | 906.1 | 937.2 | 984.9 | 1068.4 | 1104.4 | 1119.8 | 1048.0 | 939.4 | 935.1 | 1020.1 | 1183.5 | 16.0% | 49.4% |
| TOTAL WORLD of which: European Union 15 | 2202.8 260.7 | 2201.4 238.9 | 2218.8 235.4 | 2290.3 231.7 | 2340.7 225.0 | 2350.6 215.1 | 2268.8 215.5 | 2136.7 204.6 | 2174.3 213.8 | 2243.1 215.4 | 2397.9 216.8 | 6.9% 0.7% | 100.0% 9.0% |
| OECD | 1042.9 | 1035.6 | 1037.3 | 1044.5 | 1077.3 | 1082.4 | 1082.9 | 1070.8 | 1118.1 | 1105.8 | 1116.3 | 0.9% | 46.6% |
| Former Soviet Union | 265.6 | 238.7 | 211.5 | 192.4 | 178.6 | 171.2 | 163.2 | 164.5 | 170.1 | 174.1 | 160.5 | -7.8% | 6.7% |
| Other EMEs | 894.3 | 927.2 | 969.8 | 1053.0 | 1084.6 | 1097.3 | 1022.7 | 901.6 | 886.1 | 962.9 | 1121.0 | 16.4% | 46.7% |

^{*}Commercial solid fuels only, i.e. bituminous coal and anthracite (hard coal), and lignite and brown (sub-bituminous) coal. †Less than 0.05.

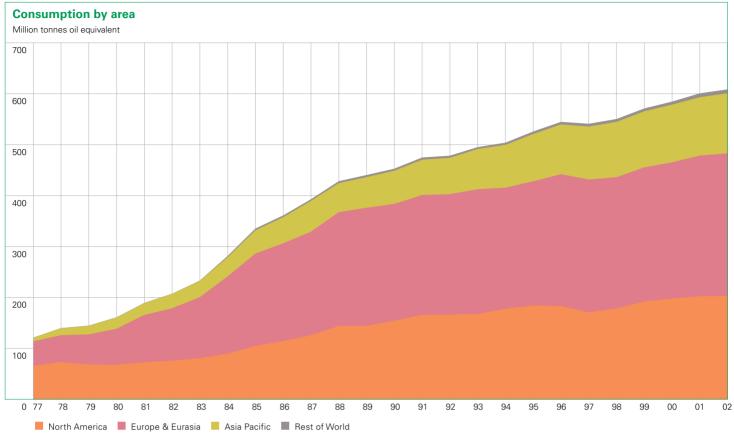
*Less than 0.05%.

Nuclear energy

| Consumption* | | | | | | | | | | | | Change | 2002 |
|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------------|-------------------|
| Million tonnes oil equivalent | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2002 over 2001 | share of total |
| USA | 147.4 | 145.4 | 152.6 | 160.4 | 160.7 | 149.8 | 160.5 | 173.5 | 179.6 | 183.2 | 185.8 | 1.5% | 30.5% |
| Canada Mexico | 18.2 0.9 | 21.3 1.1 | 24.4 1.0 | 22.1 1.9 | 21.0 1.8 | 18.7 2.4 | 16.2 2.1 | 16.6 2.3 | 16.5 1.9 | 17.4 2.0 | 17.0 2.2 | -1.9% 11.8% | 2.8% 0.4% |
| Total North America | 166.5 | 167.8 | 178.0 | 184.4 | 183.5 | 170.9 | 178.8 | 192.4 | 198.0 | 202.6 | 205.0 | 1.3% | 33.6% |
| Argentina Brazil | 1.6 0.4 | 1.8 0.1 | 1.9 † | 1.6 0.6 | 1.7 0.5 | 1.8 0.7 | 1.7 0.7 | 1.6 0.9 | 1.4 1.4 | 1.6 3.5 | 1.3 3.4 | -17.6% -3.6% | 0.2% 0.6% |
| Chile | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | - | _ | _ |
| Colombia Ecuador | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| Peru Venezuela | _ | _ | - | _ | _ | _ | _ | _ | _ | - | _ | _ | - |
| Other S. & Cent. America | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| Total S. & Cent. America Austria | 2.0 | 1.9 | 1.9 | 2.2 | 2.2 | 2.5 | 2.4 | 2.5 | 2.8 | 5.1 | 4.7 | -7.9% - | 0.8% |
| Azerbaijan | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| Belgium & Luxembourg | 9.8 | 9.5 | 9.2 | 9.4 | 9.8 | _ 10.7 | - 10.5 | - 11.1 | 10.9 | - 10.5 | 9.7 | -7.6% | 1.6% |
| Bulgaria | 2.6 | 3.2 | 3.5 | 3.9 | 4.1 | 4.0 | 3.8 | 3.6 | 4.1 | 4.1 | 4.6 | 10.9% | 0.7% |
| Czech Republic Denmark | 2.8 | 2.9 | 2.9 | 2.8 | 2.9 | 2.8 | 3.0 | 3.0 | 3.1 | 3.3 | 4.2 | 27.1% | 0.7% |
| Finland | 4.3 | 4.5 | 4.4 | 4.3 | 4.4 | 4.8 | 5.0 | 5.3 | 5.1 | 5.2 | 5.1 | -1.7% | 0.8% |
| France Germany | 76.6 35.9 | 83.3 34.7 | 81.5 34.2 | 85.4 34.9 | 89.9 36.6 | 89.5 38.5 | 87.8 36.6 | 89.2 38.5 | 94.0 38.4 | 95.5 38.7 | 98.9 37.3 | 3.6% -3.7% | 16.2% 6.1% |
| Greece | 3.2 | - 3.1 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | - 3.2 | 3.2 | 3.2 | -1.2% | 0.5% |
| Hungary Iceland | 3.2 | 3.1 – | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | -1.2% | U.5% - |
| Republic of Ireland Italy | _ | _ | _ | _ | _ | _ | _ | _ | - | _ | _ | - | _ |
| Kazakhstan | 0.1 | 0.1 | 0.1 | † | † | 0.1 | † | _ | _ | _ | _ | _ | - |
| Lithuania Netherlands | 3.3 0.9 | 2.8 0.9 | 1.7 0.9 | 2.7 0.9 | 3.2 0.9 | 2.7 0.5 | 3.1 0.9 | 2.2 0.9 | 1.9 0.9 | 2.6 0.9 | 3.2 0.9 | 24.5% -1.6% | 0.5% 0.1% |
| Norway | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Poland Portugal | _ _ | _ _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| Romania | - | _ | - | _ | 0.3 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.3 | 1.5% | 0.2% |
| Russian Federation Slovakia | 27.1 2.5 | 27.0 2.7 | 22.1 2.7 | 22.5 2.6 | 24.7 2.6 | 24.5 2.4 | 23.6 2.6 | 27.1 3.0 | 29.5 3.7 | 31.0 3.9 | 32.0 4.1 | 3.4% 6.1% | 5.3% 0.7% |
| Spain | 12.6 | 12.7 | 12.5 | 12.5 | 12.7 | 12.5 | 13.4 | 13.3 | 14.1 | 14.4 | 14.3 | -1.1% | 2.3% |
| Sweden Switzerland | 14.4 5.3 | 13.9 5.3 | 16.6 5.5 | 15.8 5.6 | 16.6 5.7 | 15.8 5.8 | 15.9 5.8 | 16.6 5.6 | 13.0 6.0 | 16.3 6.1 | 15.6 6.2 | -4.6% 1.6% | 2.6% 1.0% |
| Turkey | - - | _ | - | _ | _ | _ | - | _ | - | - | - | _ | _ |
| Turkmenistan Ukraine | 16.7 | 17.0 | 15.6 | 16.0 | 18.0 | 18.0 | 17.0 | 16.3 | 17.5 | 17.2 | 17.7 | 2.4% | 2.9% |
| United Kingdom Uzbekistan | 17.4 – | 20.2 | 20.0 | 20.1 | 21.4 | 22.2 | 22.5 | 21.5 | 19.3 | 20.4 | 19.9 | -2.3% | 3.3% |
| Other Europe & Eurasia | 0.9 | 0.9 | 1.0 | 1.1 | 1.6 | 1.5 | 1.5 | 1.5 | 1.5 | 1.6 | 1.8 | 7.7% | 0.3% |
| Total Europe & Eurasia Iran | 236.4 | 244.7 | 237.6 | 243.7 | 258.6 | 260.7 | 257.4 | 263.1 | 267.4 | 276.1 | 280.0 | 1.3% | 45.8% |
| Kuwait | - | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| Qatar Saudi Arabia | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| United Arab Emirates Other Middle East | _ | _ | - | _ | _ | _ | _ | _ | _ | - | - | _ | _ |
| Total Middle East | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | - | _ | _ |
| Algeria Egypt | _ | _ | - | _ | _ | _ | _ | _ | _ | - | - | _ | _ |
| South Africa | 2.2 | 1.7 | 2.3 | 2.7 | 2.8 | 3.0 | 3.2 | 3.1 | 3.1 | 2.6 | 2.9 | 11.9% | 0.5% |
| Other Africa Total Africa | 2.2 | - 1.7 | 2.3 | 2.7 | 2.8 | 3.0 | 3.2 | 3.1 | 3.1 | 2.6 | 2.9 | 11.9% | 0.5% |
| Australia | - | - | - | _ | - | - | - | _ | - | - | - | - | - |
| Bangladesh China | 0.1 | 0.4 | 3.1 | 2.9 | 3.2 | 3.3 | 3.4 | 3.4 | 3.8 | 4.0 | 5.9 | 48.3% | 1.0% |
| China Hong Kong SAR | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| India Indonesia | 1.4 | 1.4 | 1.1 | 1.7 | 1.9 | 2.3 | 2.6 | 2.9 | 3.6 | 4.3 | 4.4 | 2.6% | 0.7% |
| Japan Malaysia | 49.3 | 56.3 | 58.7 | 65.1 – | 67.3 | 72.8 | 74.0 | 71.9 | 72.3 | 72.7 | 71.3 | -1.9% | 11.7% |
| New Zealand | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| Pakistan Philippines | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | † _ | 0.3 | 0.2 | 0.4 | 54.6% | 0.1% |
| Singapore | _ | _ | - | _ | _ | _ | - | _ | _ | _ | _ | | |
| South Korea Taiwan | 12.8 7.7 | 13.2 7.8 | 13.3 7.9 | 15.2 8.0 | 16.7 8.6 | 17.4 8.2 | 20.3 8.3 | 23.3 8.7 | 24.7 8.7 | 25.4 8.0 | 27.0 9.0 | 6.2% 11.5% | 4.4% 1.5% |
| Thailand | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | - | - |
| Other Asia Pacific Total Asia Pacific | 71.4 | 79.2 | 84.2 | 93.0 | 97.8 | 104.1 | 108.7 | 110.2 | 113.4 | 114.6 | 118.0 | 2.8% | 19.3% |
| TOTAL WORLD | 478.5 | 495.3 | 504.0 | 526.0 | 544.9 | 541.2 | 550.5 | 571.3 | 584.7 | 601.0 | 610.6 | 1.5% | 100.0% |
| of which: European Union 15 OECD | 171.9 414.3 | 179.7 431.0 | 179.3 443.6 | 183.3 462.2 | 192.3 474.2 | 194.5 469.8 | 192.6 480.3 | 196.4 498.8 | 195.7 506.7 | 201.9 519.1 | 201.7 522.7 | -0.2% 0.7% | 33.0% 85.6% |
| Former Soviet Union Other EMEs | 47.2 17.1 | 46.9 17.3 | 39.6 | 41.2 22.6 | 46.4 24.2 | 45.6 25.8 | 44.0 26.3 | 46.2 26.3 | 49.4 28.6 | 51.2 30.7 | 53.4 34.2 | 4.2% | 8.8% 5.6% |
| OUIGI EIVIES | 17.1 | 17.3 | 21.0 | 22.0 | 24.2 | 20.8 | 26.3 | 26.3 | 28.6 | 30.7 | 34.2 | 11.4% | 5.6% |

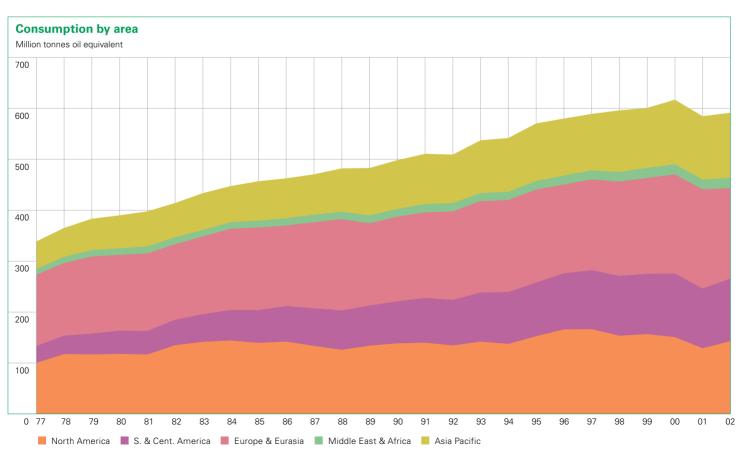
^{*}Converted on the basis of thermal equivalence assuming 38% conversion efficiency in a modern thermal power station. †Less than 0.05.

Note: Nuclear energy data expressed in terawatt-hours is available at www.bp.com/centres/energy.



Nuclear energy maintained its record of steady growth during 2002, registering a 1.5% increase, somewhat below the 10-year annual average of 2.5%.

Hydroelectricity



In 2002, global hydroelectric output achieved only a partial rebound from a very weak 2001. Strong recoveries in North and South America were partially offset by falling output in Europe & Eurasia.

Hydroelectricity

| Second processor 1985 1986 19 | Consumption* | | | | | | | | | | | | Change 2002 over | 2002 share |
|--|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------------------|---------------------|
| Cameda | Million tonnes oil equivalent | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | | | of total |
| Messar 1961 1962 1963 1964 1965 1969 | | | | | | | | | | | | | | 9.8% |
| Argentine 44 5.5 6.2 6.1 5.2 6.4 6.0 6.9 6.5 6.4 7.6 10.00 1.7 16 12 12 12 12 12 12 12 12 12 12 12 12 12 | | | | | | | | | | | | | | 1.0% |
| Simple S | | | | | | | | | | | | | | 24.1% |
| Chier Collerion | 9 | | | | | | | | | | | | | 1.3% 10.9% |
| Exador 12 13 15 12 14 15 15 16 17 18 17 72 72 10 | | | | | | | | | | | | | | 0.9% |
| Reru | | | | | | | | | | | | | | 1.3% |
| Wenezouldo | | | | | | | | | | | | | | 0.3% 0.7% |
| Total Sx Cont. America 80.2 86.2 91.7 90.5 1 110.0 115.6 917.5 118.2 124.7 17.2 122.7 4.7% 2. 124. Martiri 80.2 86.8 8.4 8.7 8.1 8.4 8.8 9.8 9.9 9.5 91.5 10.5 2. 124.7 17.2 122.7 4.7% 2. 124. Americal model of the control of the | | | | | | | | | | | | | | 2.4% |
| Austraig | | | | | | | | | | | | | | 3.1% |
| Azerbaijan 0.4 0.5 0.4 0.4 0.3 0.4 0.4 0.3 0.3 0.3 0.5 65.4% 0.9 0.8 Bellarus 0.4 0.5 0.4 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 | | | | | | | | | | | | | | 20.7% |
| Belguins & Luxembourg 0.4 0.3 0.4 0.5 0.5 0.5 0.6 0.6 0.5 0.6 0.6 0.5 0.5 0.9 0.8 0.5 0.5 0.9 0.8 0.5 0.5 0.5 0.5 0.5 0.7 0.6 0.5 0.5 0.5 0.7 0.6 0.5 0.5 0.5 0.5 0.6 0.5 0.5 0.5 0.6 0.5 0.5 0.5 0.6 0.5 0.5 0.6 0.5 0.5 0.6 0.6 0.6 15.4% 0.5 0.5 0.5 0.5 0.4 0.5 0.5 0.6 0.6 0.6 15.4% 0.5 0.5 0.5 0.5 0.5 0.4 0.5 0.5 0.5 0.6 0.6 0.6 15.4% 0.5 0.5 0.6 0.6 0.6 15.4% 0.5 0.5 0.6 0.6 0.6 15.4% 0.5 0.5 0.6 0.6 0.6 15.4% 0.5 0.5 0.6 0.6 0.6 15.4% 0.5 0.5 0.6 0.6 0.6 15.4% 0.5 0.5 0.6 0.6 0.6 15.4% 0.5 0.5 0.6 0.6 0.6 0.6 15.4% 0.5 0.5 0.6 0.6 0.6 0.6 15.4% 0.5 0.6 0.6 0.6 15.4% 0.5 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 | Azerbaijan | 0.4 | 0.5 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.5 | 55.4% | 0.1% |
| Bulgaries | | | | | | | | | | | | | | 0.1% |
| Denmark | | | | | | | | | | | | | | 0.1% |
| Finland Finlan | | | | | | | | | | | | | | 0.1% |
| France 18.4 15.4 18.3 17.2 15.9 15.3 14.9 17.4 16.3 17.9 15.0 16.3 18.9 17.6 Germeny 4.8 4.9 5.1 5.5 4.9 4.7 4.8 5.3 5.9 5.5 5.9 16.9 16.5 Greece 0.5 0.6 0.7 0.9 1.0 0.9 0.9 1.1 0.9 0.8 0.8 26.6% Hungary 1 1.0 1.0 1.0 1.0 1.1 1.1 1.2 1.3 1.4 1.4 1.5 1.6 6.8 Hungary 1 1.0 1.0 1.0 1.0 1.1 1.1 1.2 1.3 1.4 1.4 1.5 1.6 6.8 0.8 Hungary 1 1.0 1.0 1.0 1.0 1.1 1.1 1.2 1.3 1.4 1.4 1.5 1.6 6.8 0.5 Hungary 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 0.9 0.9 1.1 1.5 1.4 1.4 1.7 1.5 1.6 1.6 Hungary 1.0 1.0 1.0 1.0 1.0 1.0 1.0 0.9 0.9 1.1 1.5 1.4 1.4 1.7 1.5 1.2 1.9 Hungary 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 Hungary 1.0 | | | | | | | | | | | | | | 0.4% |
| Greece 0.5 0.6 0.7 0.9 1.0 0.9 0.9 1.1 0.9 0.6 0.8 26.8 0.1 Hungary 1 1 1 1 1 1 1 1 1 | | | | | | | | | | | | | | 2.5% |
| Hungary | • | | | | | | | | | | | | | 1.0% |
| Incheminary Company | | | | | | | | | | | | | | 0.1% |
| Italy | Iceland | 1.0 | 1.0 | 1.0 | 1.1 | 1.1 | 1.2 | 1.3 | 1.4 | 1.4 | 1.5 | 1.6 | 6.0% | 0.3% |
| Kazishkstan | | | | | | | | | | | | | | 1 0 0/ |
| Lithuania 0.1 0.1 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.2 0.2 1.3 % Norway 26.5 7.1 25.5 27.7 25.5 25.1 26.3 27.6 32.2 27.4 29.4 7.2% 56. Poland 0.8 0.8 0.9 0.9 0.9 0.9 0.9 1.0 1.0 0.9 1.0 0.9 -7.6% 0.9 Portugal 1.1 2.0 2.4 1.9 3.4 3.0 3.0 1.7 2.7 3.3 15.5-61.7% 0.0 Portugal 1.1 2.0 2.4 1.9 3.4 3.0 3.0 1.7 2.7 3.3 15.5-61.7% 0.0 Portugal 1.1 2.0 2.4 1.9 3.4 3.0 3.0 1.7 2.7 3.3 15.5-61.7% 0.0 Portugal 1.1 2.0 2.4 1.9 3.4 3.0 3.0 1.7 2.7 3.3 15.5-61.7% 0.0 Portugal 1.1 2.0 2.4 1.9 3.4 3.0 3.0 1.7 2.7 3.3 15.5-61.7% 0.0 Portugal 1.1 2.0 2.0 2.4 1.9 3.4 3.0 3.0 1.7 2.7 3.3 15.5-61.7% 0.0 Portugal 1.1 2.0 1.0 1.0 1.0 1.0 1.0 1.1 1.1 1.2 1.2 3.4% 0.0 3.0 1.7 1.2 1.2 3.4% 0.0 1.2 1.0 1.0 1.0 1.0 1.0 1.1 1.1 1.2 1.2 3.4% 0.0 1.2 1.0 1.0 1.0 1.0 1.0 1.0 1.1 1.1 1.2 1.2 3.4% 0.0 1.2 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.1 1.1 1.2 1.2 3.4% 0.0 1.2 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | • | | | | | | | | | | | | | 1.8% 0.3% |
| Norway 265 27, 1 255 27, 2 25 26, 2 23 27, 6 32, 2 27, 4 294, 7,2% 50, 50, 50, 50, 50, 50, 50, 50, 50, 50, | Lithuania | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 11.3% | • |
| Poland 0.8 | | | | | | | | | | | | | | 5.0% |
| Romania 2.6 2.9 3.0 3.8 3.6 4.0 4.3 4.1 3.3 3.4 3.6 7.8 5.0 | | | | | | | | | | | | | | 0.1% |
| Russian Federation | | | | | | | | | | | | | | 0.2% |
| Slovakis | | | | | | | | | | | | | | 0.6% 6.3% |
| Śwelen 16.9 17.1 13.4 15.3 11.7 16.6 16.7 16.2 17.9 15.1 15.8% 2.1 2.7 80.9 7.8 9.3 8.7 9.7 8.3 -13.6 2.1 2.7 80.9 9.8 9.0 7.8 7.0 5.4 5.0 -8.9% 0.8 1.2 1.8 7.0 5.4 5.0 -8.9% 0.8 0.1 7.7 6.9 8.0 9.2 8.8 9.6 7.8 7.0 5.4 5.0 -8.9% 0.0 | | | | | | | | | | | | | | 0.2% |
| Switzerland T.7 | • | | | | | | | | | | | | | 1.0% |
| Turkey 60 7.7 6.9 8.0 9.2 8.8 9.6 7.8 7.0 5.4 5.0 8.9% 9.8% 9.0 1.1 1.1 1.2 1.1 1.3 1.5 1.9 1.8 1.5 1.7 12.4 1.4 1.5 1.3 1.5 1.9 1.8 1.5 1.7 12.4 1.5 1.9 1.8 1.5 1.7 12.4 1.5 1.5 1.9 1.8 1.5 1.7 12.4 1.5 1.5 1.9 1.8 1.5 1.7 12.4 1.5 1.5 1.9 1.8 1.5 1.7 12.4 1.6 36.1% 10. 1.5 1.9 1.8 1.5 1.7 12.5 1.5 1.9 1.8 1.5 1.7 12.5 1.5 1.9 1.5 1.7 12.5 1.5 1.9 1.5 1.7 12.5 1.5 1.9 1.5 1.7 12.5 1.7 12.5 1.5 1.5 1.9 1.8 1.5 1.7 12.5 1.5 1.5 1.9 1.2 1.6 36.1% 10. 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1. | | | | | | | | | | | | | | 2.5% 1.4% |
| Ukraine | | 6.0 | | | | | | | | | | | | 0.8% |
| United Kingdom United | | | | | | | | | | | | - | - | - 0.40/ |
| Uzbekistar | | | | | | | | | | | | | | 0.4% 0.3% |
| Total Europe & Eurasia 173.8 179.6 180.8 182.8 174.4 178.4 185.1 188.4 194.6 194.9 178.9 -8.1% 30.2 | | 1.4 | | | | | | 1.3 | | | | | | 0.3% |
| Iran | | | | | | | | | | | | | | 2.5% |
| Catar | | | | | | | | | | | | | | 0.2% |
| Saudi Arabia | | _ | - | _ | _ | _ | - | _ | _ | - | _ | - | _ | - |
| United Arab Emirates | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| Total Middle East | | | | | | | _ | | | | | | _ | _ |
| Aggeria | | | | | | | | | | | | | | 0.1% |
| Egypt 2.3 2.4 2.5 2.6 2.7 2.7 3.1 3.4 3.2 3.0 3.1 3.3% 0.1 South Africa 0.5 0.3 0.6 0.4 0.8 1.1 0.9 0.8 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 0.2 0.2 < | | | | | | | | | | | | | | 0.3% |
| Other Africa 10.9 10.3 10.5 11.1 11.2 11.6 12.2 13.7 14.0 14.1 14.5 3.2% 2.8 Total Africa 13.7 13.1 13.6 14.1 14.7 15.4 16.2 17.9 18.1 17.9 18.5 3.7% 3.8 Australia 3.5 3.9 3.7 3.5 3.6 3.5 3.8 4.0 3.7 3.8 3.2 3.2 42.9 44.1 45.0 3. | Egypt | 2.3 | 2.4 | 2.5 | 2.6 | 2.7 | 2.7 | 3.1 | 3.4 | 3.2 | 3.0 | 3.1 | 3.3% | 0.5% |
| Total Africa 13.7 13.1 13.6 14.1 14.7 15.4 16.2 17.9 18.1 17.9 18.5 3.7% 3.7 Australia 3.5 3.9 3.7 3.5 3.6 3.5 3.8 4.0 3.7 3.8 3.8 1.3% 0.6 Bangladesh 0.2 0.1 0.2 0.1 0.2 < | | | | | | | | | | | | | | 0.2% 2.5% |
| Australia 3.5 3.9 3.7 3.5 3.6 3.5 3.8 4.0 3.7 3.8 3.8 1.3% 0.6 Bangladesh 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 | | | | | | | | | | | | | | 3.1% |
| China 30.0 32.7 37.8 42.2 42.3 42.5 44.9 44.1 55.0 53.7 55.8 3.8% 9.4 China Hong Kong SAR - | | 3.5 | | | | | | | | 3.7 | 3.8 | | 1.3% | 0.6% |
| China Hong Kong SAR - | | | | | | | | | | | | | | 9.4% |
| Indonesia 1.9 1.8 1.6 1.7 1.8 1.2 2.2 2.1 2.1 2.1 2.1 2.1 2.0 3.9 3.9 4.0 4.1 4.6 10.7 0.5 4.0 2.0 | | | | | | _ | | | | | | | | J.4 70 — |
| Japan 20.0 23.8 17.4 19.9 19.7 21.2 23.6 21.0 20.7 20.4 20.5 0.4% 3.9 Malaysia 1.0 1.1 1.5 1.4 1.2 0.9 1.1 1.7 1.6 1.7 1.7 - 0.3 New Zealand 4.7 5.3 5.8 6.2 5.8 5.3 5.5 5.3 5.5 4.8 5.4 11.4% 0.9 Pakistan 4.5 5.0 4.9 5.1 5.6 4.2 5.5 4.9 4.0 4.1 4.6 10.7% 0.8 Philippines 1.0 1.1 1.3 1.4 1.6 1.4 1.1 1.8 1.6 1.6 -0.3% 0.3 Singapore - | | | | | | | | | | | | | | 2.8% |
| Malaysia 1.0 1.1 1.5 1.4 1.2 0.9 1.1 1.7 1.6 1.7 1.7 - 0.3 New Zealand 4.7 5.3 5.8 6.2 5.8 5.3 5.5 5.3 5.5 4.8 5.4 11.4% 0.9 Pakistan 4.5 5.0 4.9 5.1 5.6 4.2 5.5 4.9 4.0 4.1 4.6 10.7% 0.8 Philippines 1.0 1.1 1.3 1.4 1.6 1.4 1.1 1.8 1.8 1.6 1.6 -0.3% 0.3 Singapore - | | | | | | | | | | | | | | 0.4% 3.5% |
| Pakistan 4.5 5.0 4.9 5.1 5.6 4.2 5.5 4.9 4.0 4.1 4.6 10.7% 0.8 Philippines 1.0 1.1 1.3 1.4 1.6 1.4 1.1 1.8 1.8 1.6 1.6 -0.3% 0.3 Singapore - | | | | | | | | | | | | | | 0.3% |
| Philippines 1.0 1.1 1.3 1.4 1.6 1.4 1.1 1.8 1.8 1.6 1.6 -0.3% 0.3 Singapore - | | | | | | | | | | | | | | 0.9% |
| Singapore - | | | | | | | | | | | | | | 0.8% 0.3% |
| Taiwan 1.9 1.5 2.0 2.0 2.0 2.2 2.4 2.0 2.0 2.0 2.1 1.4 -30.8% 0.2 Thailand 1.0 0.8 1.0 1.5 1.7 1.6 1.2 0.8 1.4 1.4 1.6 15.1% 0.3 Other Asia Pacific 8.6 9.1 9.3 9.6 9.7 9.5 9.1 9.8 10.1 11.1 10.9 -1.8% 1.6 Total Asia Pacific 95.3 103.6 105.6 113.0 112.0 110.8 120.9 117.7 126.8 124.2 127.7 2.7% 21.6 TOTAL WORLD 509.2 537.3 541.8 570.3 580.0 588.6 596.1 601.0 616.3 584.7 592.1 1.3% 100.0 of which: European Union 15 68.6 69.4 70.5 69.5 69.6 71.7 74.3 75.3 79.3 82.5 69.2 -16.1% 11.1 OECD 275.3 292.0 280.5 300.3 308.8 314.5 309.6 312.6 312.5 288.2 289.5 0.5% 48.9 Former Soviet Union 53.1 55.4 56.0 54.6 48.9 49.3 51.1 51.5 52.1 54.1 52.0 -3.9% 8.8 | Singapore | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | - | _ | _ |
| Thailand 1.0 0.8 1.0 1.5 1.7 1.6 1.2 0.8 1.4 1.4 1.6 15.1% 0.3 Other Asia Pacific 8.6 9.1 9.3 9.6 9.7 9.5 9.1 9.8 10.1 11.1 10.9 -1.8% 1.8 Total Asia Pacific 95.3 103.6 105.6 113.0 112.0 110.8 120.9 117.7 126.8 124.2 127.7 2.7% 21.6 TOTAL WORLD 509.2 537.3 541.8 570.3 580.0 588.6 596.1 601.0 616.3 584.7 592.1 13.8 10.0 of which: European Union 15 68.6 69.4 70.5 69.5 69.6 71.7 74.3 75.3 79.3 82.5 69.2 -16.1% 11.3 OECD 275.3 292.0 280.5 300.3 308.8 314.5 309.6 312.6 312.5 288.2 289.5 0.5% 48.9 < | | | | | | | | | | | | | | 0.2% |
| Other Asia Pacific 8.6 9.1 9.3 9.6 9.7 9.5 9.1 9.8 10.1 11.1 10.9 -1.8% 1.8 Total Asia Pacific 95.3 103.6 105.6 113.0 112.0 110.8 120.9 117.7 126.8 124.2 127.7 2.7% 21.6 TOTAL WORLD 509.2 537.3 541.8 570.3 580.0 588.6 596.1 601.0 616.3 584.7 592.1 1.3% 100.0 of which: European Union 15 68.6 69.4 70.5 69.5 69.6 71.7 74.3 75.3 79.3 82.5 69.2 -16.1% 11.3 OECD 275.3 292.0 280.5 300.3 308.8 314.5 309.6 312.6 312.5 282.2 289.5 0.5% 48.9 Former Soviet Union 53.1 55.4 56.0 54.6 48.9 49.3 51.1 51.5 52.1 54.1 52.0 -3.9% 8.8 | | | | | | | | | | | | | | 0.2% 0.3% |
| Total Asia Pacific 95.3 103.6 105.6 113.0 112.0 110.8 120.9 117.7 126.8 124.2 127.7 2.7% 21.6 TOTAL WORLD 509.2 537.3 541.8 570.3 580.0 588.6 596.1 601.0 616.3 584.7 592.1 1.3% 100. of which: European Union 15 68.6 69.4 70.5 69.5 69.6 71.7 74.3 75.3 79.3 82.5 69.2 -16.1% 11.7 OECD 275.3 292.0 280.5 300.3 308.8 314.5 309.6 312.6 312.5 288.2 289.5 0.5% 48.9 Former Soviet Union 53.1 55.4 56.0 54.6 48.9 49.3 51.1 51.5 52.1 54.1 52.0 -3.9% 8.8 | Other Asia Pacific | 8.6 | | 9.3 | | 9.7 | 9.5 | 9.1 | | 10.1 | 11.1 | 10.9 | -1.8% | 1.8% |
| of which: European Union 15 68.6 69.4 70.5 69.5 69.6 71.7 74.3 75.3 79.3 82.5 69.2 -16.1% 11.7 OECD 275.3 292.0 280.5 300.3 308.8 314.5 309.6 312.6 312.5 288.2 289.5 0.5% 48.5 Former Soviet Union 53.1 55.4 56.0 54.6 48.9 49.3 51.1 51.5 52.1 54.1 52.0 -3.9% 8.8 | Total Asia Pacific | | | | | | | | | | | | | 21.6% |
| OECD 275.3 292.0 280.5 300.3 308.8 314.5 309.6 312.6 312.5 288.2 289.5 0.5% 48.9 Former Soviet Union 53.1 55.4 56.0 54.6 48.9 49.3 51.1 51.5 52.1 54.1 52.0 -3.9% 8.8 | | | | | | | | | | | | | | 100.0% 11.7% |
| | OECD | 275.3 | 292.0 | 280.5 | 300.3 | 308.8 | 314.5 | 309.6 | 312.6 | 312.5 | 288.2 | 289.5 | 0.5% | 48.9% |
| Other EMEs 180.6 190.2 205.2 215.5 222.4 224.6 235.4 236.9 251.8 242.5 250.6 3.3% 42.3 | | | | | | | | | | | | | | 8.8% 42.3% |

^{*}Converted on the basis of thermal equivalence assuming 38% conversion efficiency in a modern thermal power station. †Less than 0.05.

*Less than 0.05%.

Note: Hydroelectricity data expressed in terawatt-hours is available at www.bp.com/centres/energy.

Primary energy

| Consumption* | | | | | | | | | | | | Change | 2002 |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|-------------------|
| Million tonnes oil equivalent | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2002 over 2001 | share of total |
| USA Canada | 1993.5 257.4 | 2035.9 264.1 | 2073.2 272.4 | 2119.1 275.2 | 2189.8 285.7 | 2206.7 285.5 | 2220.9 282.6 | 2258.9 284.1 | 2314.3 289.7 | 2250.9 285.9 | 2293.0 288.7 | 1.9% 1.0% | 24.4% 3.1% |
| Mexico | 107.4 | 105.8 | 112.2 | 109.9 | 114.2 | 120.5 | 126.6 | 130.1 | 134.3 | 133.7 | 133.7 | 1.0 % | 1.4% |
| Total North America Argentina | 2358.3 46.5 | 2405.8 48.7 | 2457.8 50.6 | 2504.2 52.4 | 2589.7 53.9 | 2612.7 55.9 | 2630.1 57.9 | 2673.1 57.3 | 2738.3 58.8 | 2670.5 57.8 | 2715.4 53.5 | 1.7% -7.4% | 28.9% |
| Brazil | 126.5 | 130.4 | 135.0 | 142.3 | 151.0 | 160.5 | 166.8 | 171.1 | 176.4 | 174.5 | 177.5 | 1.7% | 1.9% |
| Chile Colombia | 14.4 23.0 | 15.1 24.7 | 16.4 25.7 | 17.7 26.4 | 19.1 27.7 | 22.1 27.9 | 21.6 27.3 | 22.3 25.0 | 23.8 24.9 | 23.3 26.9 | 23.9 25.2 | 2.3% -6.5% | 0.3% 0.3% |
| Ecuador | 5.8 | 6.2 | 6.8 | 6.4 | 7.2 | 8.1 | 8.2 | 7.7 | 7.7 | 7.7 | 7.7 | 0.8% | 0.1% |
| Peru Venezuela | 8.4 49.8 | 9.3 51.1 | 10.1 53.4 | 10.9 56.4 | 11.1 58.0 | 10.9 61.1 | 11.3 63.8 | 11.7 59.8 | 11.9 61.9 | 11.7 62.1 | 11.8 61.5 | 0.9% -0.9% | 0.1% 0.7% |
| Other S. & Cent. America | 64.0 | 66.5 | 70.5 | 72.5 | 76.6 | 79.4 | 82.3 | 83.9 | 85.0 | 84.7 | 87.1 | 2.8% | 0.9% |
| Total S. & Cent. America Austria | 338.4 27.7 | 352.0 28.2 | 368.5 27.9 | 385.0 28.5 | 404.6 | 425.9 30.3 | 439.2 | 438.8 31.6 | 450.4 31.5 | 448.7 32.2 | 448.2 32.7 | -0.1% 1.7% | 4.8% 0.3% |
| Azerbaijan | 19.1 | 16.6 | 15.8 | 16.1 | 12.6 | 11.4 | 12.6 | 12.8 | 11.4 | 11.0 | 11.2 | 1.9% | 0.1% |
| Belarus Belgium & Luxembourg | 37.1 56.6 | 28.6 54.8 | 25.3 54.7 | 23.6 56.7 | 21.4 59.1 | 23.5 60.3 | 22.2 63.0 | 21.0 64.1 | 21.5 66.4 | 20.6 64.0 | 21.0 63.8 | 1.8% -0.4% | 0.2% 0.7% |
| Bulgaria | 20.3 | 21.7 | 20.8 | 22.3 | 23.3 | 20.7 | 20.7 | 18.0 | 17.8 | 18.1 | 18.7 | 2.9% | 0.2% |
| Czech Republic Denmark | 40.5 17.9 | 39.1 19.2 | 39.3 20.7 | 41.3 20.2 | 43.0 24.1 | 41.7 21.7 | 39.9 20.6 | 38.5 19.9 | 40.0 18.8 | 41.7 18.6 | 41.5 18.6 | −0.5% ◆ | 0.4% 0.2% |
| Finland | 23.3 | 23.1 | 24.3 | 23.1 | 24.5 | 25.1 | 25.6 | 25.7 | 26.0 | 26.4 | 26.6 | 0.6% | 0.3% |
| France Germany | 233.7 336.2 | 233.5 333.6 | 229.5 331.1 | 235.7 333.1 | 244.7 344.0 | 241.0 337.8 | 247.2 334.5 | 251.3 328.5 | 254.8 330.5 | 258.2 335.7 | 258.0 329.4 | -0.1% -1.9% | 2.7% 3.5% |
| Greece | 25.1 | 25.2 | 25.9 | 26.7 | 27.0 | 27.2 | 28.6 | 30.1 | 31.8 | 33.4 | 34.2 | 2.7% | 0.4% |
| Hungary Iceland | 23.3 1.7 | 22.9 1.8 | 23.4 1.8 | 23.6 1.9 | 24.2 1.9 | 23.8 2.1 | 23.8 2.2 | 23.7 2.3 | 23.0 2.4 | 24.0 2.5 | 23.6 2.6 | -1.7% 4.5% | 0.3% |
| Republic of Ireland | 9.2 | 9.5 | 10.0 | 10.2 | 10.8 | 11.6 | 12.4 | 13.2 | 13.9 | 14.6 | 14.4 | -1.5% | 0.2% |
| Italy Kazakhstan | 158.3 74.1 | 154.9 65.6 | 154.7 58.2 | 162.4 51.2 | 162.4 45.9 | 163.9 40.7 | 168.5 39.1 | 173.7 35.0 | 176.4 40.6 | 176.0 40.2 | 174.8 38.9 | -0.7% -3.1% | 1.9% 0.4% |
| Lithuania | 11.0 | 8.3 | 7.3 | 8.2 | 9.0 | 8.6 | 9.2 | 7.8 | 7.0 | 8.1 | 8.7 | 8.1% | 0.1% |
| Netherlands Norway | 78.1 38.2 | 79.6 39.5 | 79.5 38.4 | 82.7 40.7 | 85.2 37.1 | 84.7 39.3 | 84.5 40.4 | 83.2 41.5 | 86.5 45.9 | 88.5 41.0 | 89.0 42.9 | 0.5% 4.5% | 0.9% 0.5% |
| Poland | 95.2 | 97.0 | 96.2 | 96.4 | 100.8 | 98.6 | 94.1 | 91.1 | 88.4 | 88.6 | 87.1 | -1.7% | 0.9% |
| Portugal Romania | 17.0 48.5 | 17.3 47.3 | 17.9 45.4 | 19.0 48.6 | 19.4 48.2 | 20.4 45.2 | 22.4 41.3 | 22.8 36.9 | 23.3 37.0 | 25.0 37.3 | 24.1 38.3 | -3.6% 2.8% | 0.3% 0.4% |
| Russian Federation | 820.8 | 770.4 | 702.8 | 668.1 | 647.2 | 610.9 | 611.4 | 621.1 | 636.0 | 638.7 | 640.2 | 0.2% | 6.8% |
| Slovakia Spain | 18.1 95.1 | 17.1 93.9 | 16.6 96.9 | 17.3 100.5 | 17.5 104.8 | 17.1 111.7 | 17.6 118.1 | 17.5 122.7 | 18.1 129.2 | 18.6 133.0 | 19.4 134.5 | 4.2% 1.1% | 0.2% 1.4% |
| Sweden | 50.5 | 49.9 | 49.8 | 50.1 | 48.8 | 50.4 | 51.6 | 51.6 | 48.6 | 52.1 | 48.5 | -6.9% | 0.5% |
| Switzerland Turkey | 28.3 52.5 | 28.1 57.8 | 29.4 56.2 | 27.9 60.1 | 27.1 67.7 | 28.9 69.6 | 29.1 70.6 | 30.1 68.9 | 29.4 73.7 | 31.5 70.8 | 29.6 68.6 | -6.1% -3.0% | 0.3% 0.7% |
| Turkmenistan | 13.6 | 11.6 | 12.9 | 11.1 | 12.0 | 12.1 | 12.0 | 12.7 | 13.6 | 14.0 | 14.5 | 3.8% | 0.2% |
| Ukraine United Kingdom | 218.3 214.5 | 184.3 216.6 | 157.7 213.6 | 147.8 214.4 | 141.6 224.8 | 138.9 220.4 | 133.7 224.0 | 136.5 223.3 | 136.7 224.0 | 135.9 226.0 | 133.8 220.3 | -1.5% -2.5% | 1.4% 2.3% |
| Uzbekistan | 47.0 | 48.3 | 47.8 | 47.6 | 49.0 | 50.1 | 51.8 | 53.6 | 51.2 | 54.8 | 56.5 | 3.1% | 0.6% |
| Other Europe & Eurasia Total Europe & Eurasia | 80.2 3031.0 | 69.1 2914.4 | 61.1 2792.9 | 60.9 2778.0 | 63.9 2802.1 | 65.6 2755.3 | 67.2 2770.8 | 63.1 2773.8 | 63.0 2818.4 | 64.2 2845.3 | 63.5 2829.5 | -1.1% -0.6% | 0.7% 30.1% |
| Iran Kunasit | 75.7 7.9 | 78.3 | 85.2 | 93.3 14.8 | 98.5 | 103.7 | 105.2 | 113.4 | 115.0 | 114.1 | 116.2 | 1.8% | 1.2% |
| Kuwait Qatar | 12.2 | 9.9 13.0 | 11.6 13.0 | 13.1 | 14.6 13.4 | 15.3 14.2 | 17.7 14.5 | 18.1 13.7 | 19.0 10.9 | 19.1 11.6 | 18.6 11.7 | -2.7% 0.6% | 0.2% 0.1% |
| Saudi Arabia United Arab Emirates | 85.8 33.8 | 88.1 34.9 | 92.0 37.7 | 90.1 40.3 | 93.7 42.4 | 96.1 43.9 | 101.0 41.8 | 102.5 41.8 | 107.2 40.5 | 111.0 46.6 | 114.2 47.8 | 2.8% 2.6% | 1.2% 0.5% |
| Other Middle East | 64.8 | 69.3 | 72.9 | 77.6 | 80.3 | 85.2 | 88.0 | 89.4 | 92.9 | 94.1 | 94.6 | 0.4% | 1.0% |
| Total Middle East | 280.2 28.4 | 293.5 26.5 | 312.4 26.9 | 329.2 28.0 | 342.9 28.0 | 358.4 26.5 | 368.2 27.5 | 378.9 27.9 | 385.5 28.6 | 396.5 32.9 | 403.1 34.0 | 1.6% 3.4% | 4.3% 0.4% |
| Algeria Egypt | 33.3 | 33.7 | 34.4 | 36.4 | 38.4 | 39.9 | 41.9 | 44.7 | 47.6 | 49.2 | 50.3 | 2.3% | 0.4 % |
| South Africa Other Africa | 87.2 75.0 | 89.8 76.9 | 95.3 79.2 | 100.5 81.2 | 106.0 83.6 | 109.4 85.4 | 108.8 88.2 | 107.9 91.6 | 108.4 93.3 | 107.0 95.6 | 109.2 97.5 | 2.0% 2.0% | 1.2% 1.0% |
| Total Africa | 223.9 | 226.9 | 235.8 | 246.1 | 256.0 | 261.2 | 266.4 | 272.1 | 277.9 | 284.7 | 291.0 | 2.0% | 3.1% |
| Australia Bangladesh | 88.5 7.2 | 88.6 7.8 | 93.9 8.4 | 95.2 9.9 | 100.8 10.0 | 103.1 10.6 | 106.4 11.0 | 108.6 11.0 | 109.4 12.8 | 112.6 13.6 | 112.9 14.1 | 0.3% 3.8% | 1.2% 0.1% |
| China | 722.2 | 758.4 | 811.8 | 893.6 | 917.4 | 930.4 | 864.3 | 766.2 | 765.7 | 833.6 | 997.8 | 19.7% | 10.6% |
| China Hong Kong SAR India | 14.4 216.4 | 15.6 222.4 | 14.1 235.5 | 15.1 252.3 | 15.0 270.0 | 15.1 282.4 | 15.4 290.3 | 15.6 298.1 | 15.6 312.0 | 18.9 314.2 | 20.6 325.1 | 9.0% 3.4% | 0.2% 3.5% |
| Indonesia | 61.4 | 64.9 | 67.9 | 73.5 | 79.4 | 84.0 | 80.0 | 89.1 | 95.3 | 101.0 | 102.4 | 1.4% | 1.1% |
| Japan Malaysia | 455.2 26.9 | 461.8 29.6 | 479.8 32.3 | 493.8 33.1 | 503.6 37.7 | 507.4 37.7 | 502.2 37.4 | 508.7 38.3 | 515.9 45.7 | 514.8 48.1 | 509.4 51.8 | -1.1% 7.7% | 5.4% 0.6% |
| New Zealand | 15.6 | 16.0 | 16.5 | 16.9 | 17.2 | 17.3 | 16.8 | 17.4 | 17.8 | 17.8 | 18.4 | 3.7% | 0.0% |
| Pakistan Philippines | 29.5 15.8 | 31.7 16.5 | 33.7 17.5 | 36.4 19.6 | 38.3 21.1 | 37.4 22.6 | 39.6 22.9 | 40.8 22.7 | 42.0 22.6 | 42.7 22.7 | 43.8 22.3 | 2.6% -1.8% | 0.5% 0.2% |
| Singapore | 25.7 | 28.1 | 32.0 | 33.3 | 31.6 | 33.8 | 34.7 | 32.9 | 34.8 | 37.6 | 37.1 | -1.3% | 0.4% |
| South Korea Taiwan | 114.4 55.1 | 125.4 57.9 | 135.5 62.3 | 148.6 65.7 | 163.8 68.9 | 179.6 72.9 | 165.5 77.5 | 180.5 81.1 | 191.1 85.6 | 195.9 86.8 | 205.8 89.3 | 5.0% 2.9% | 2.2% 0.9% |
| Thailand | 36.1 | 40.6 | 45.5 | 52.4 | 58.4 | 61.2 | 77.5 58.2 | 59.7 | 62.4 | 63.6 | 68.9 | 8.2% | 0.9% |
| Other Asia Pacific Total Asia Pacific | 80.9 1965.3 | 84.3 2049.6 | 84.9 2171.6 | 86.4 2325.8 | 88.1 2421.3 | 90.0 2485.5 | 88.0 2410.2 | 89.0 2359.7 | 93.0 2421.7 | 95.7 2519.6 | 98.1 2717.8 | 2.5% 7.9% | 1.0% 28.9% |
| TOTAL WORLD | 8197.1 | 8242.2 | 8339.0 | 8568.3 | 8816.6 | 8899.0 | 8884.9 | 8896.4 | 9092.2 | 9165.3 | 9405.0 | 2.6% | 100.0% |
| of which: European Union 15 OECD | 1343.2 4673.0 | 1339.3 4740.2 | 1336.5 4821.3 | 1363.3 4931.2 | 1408.7 5103.1 | 1406.5 5147.7 | 1431.9 5170.6 | 1441.7 5243.6 | 1461.7 5355.1 | 1483.7 5314.0 | 1468.9 5346.1 | -1.0% 0.6% | 15.6% 56.8% |
| Former Soviet Union | 1279.2 | 1164.8 | 1053.5 | 997.5 | 961.1 | 920.0 | 915.7 | 922.2 | 939.0 | 944.6 | 946.1 | 0.2% | 10.1% |
| Other EMEs | 2244.7 | 2337.1 | 2464.0 | 2639.6 | 2752.7 | 2831.3 | 2798.8 | 2730.4 | 2797.9 | 2906.7 | 3112.8 | 7.1% | 33.1% |

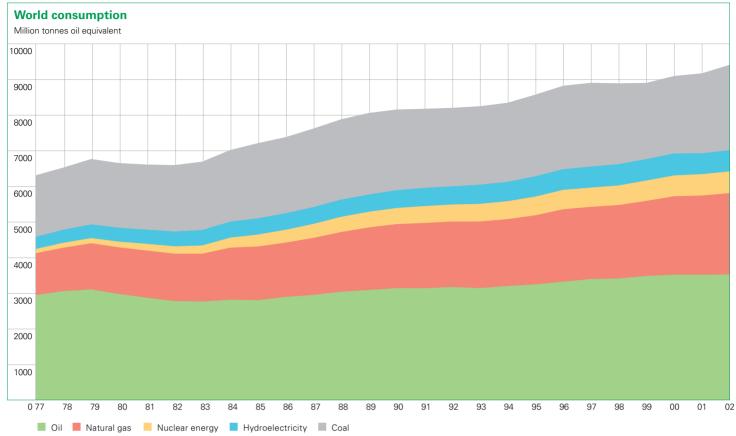
^{*}In this Review, primary energy comprises commercially traded fuels only. Excluded, therefore, are fuels such as wood, peat and animal waste which, though important in many countries, are unreliably documented in terms of consumption statistics.

*Less than 0.05%.

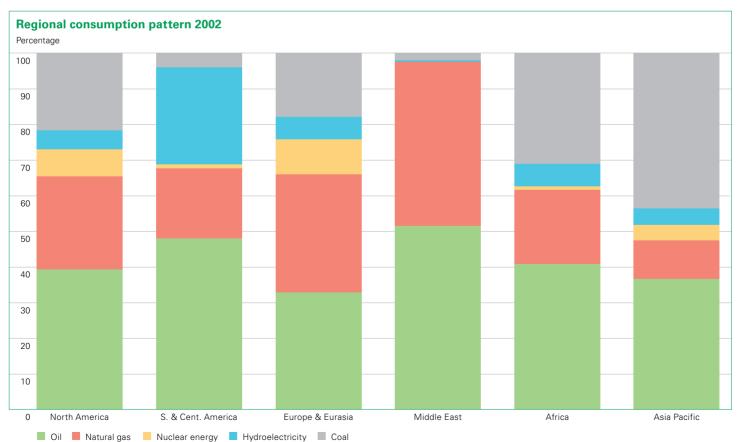
Primary energy

| Consumption by fuel* | | | 200 | 01 | | | | | 200 |)2 ——— | | |
|---|-----------------|-----------------|-----------------|----------------|-----------------------|------------------|-----------------|-----------------|-----------------|----------------|-----------------------|------------------|
| Million tonnes oil equivalent | Oil | Natural gas | Coal | Nuclear | Hydro- electricity | Total | Oil | Natural gas | Coal | Nuclear | Hydro- electricity | Total |
| USA | 896.1 | 578.2 | 545.9 | 183.2 | 47.6 | 2250.9 | 894.3 | 600.7 | 553.8 | 185.8 | 58.2 | 2293.0 |
| Canada Mexico | 88.7 83.4 | 74.5 35.1 | 30.3 6.8 | 17.4 2.0 | 75.0 6.4 | 285.9 133.7 | 89.7 80.9 | 72.6 37.9 | 30.7 7.0 | 17.0 2.2 | 78.6 5.6 | 288.7 133.7 |
| Total North America | 1068.2 | 687.8 | 583.0 | 202.6 | 129.0 | 2670.5 | 1064.9 | 711.2 | 591.5 | 205.0 | 142.4 | 2715.4 |
| Argentina | 19.0 | 28.1 | 0.7 | 1.6 | 8.4 | 57.8 | 16.8 | 27.2 | 0.6 | 1.3 | 7.6 | 53.5 |
| Brazil Chile | 87.5 10.6 | 10.5 5.7 | 12.2 2.1 | 3.5 | 60.7 4.9 | 174.5 23.3 | 85.4 10.8 | 12.3 5.9 | 12.0 2.0 | 3.4 | 64.4 5.2 | 177.5 23.9 |
| Colombia | 11.1 | 5.5 | 3.3 | _ | 7.1 | 26.9 | 10.0 | 5.5 | 2.0 | _ | 7.6 | 25.2 |
| Ecuador Peru | 5.9 7.0 | 0.1 0.3 | 0.4 | _ | 1.6 4.0 | 7.7 11.7 | 5.9 7.0 | 0.1 0.4 | 0.4 | _ | 1.7 4.1 | 7.7 11.8 |
| reru Venezuela | 22.2 | 26.2 | 1 0.4 | _ | 13.7 | 62.1 | 22.9 | 24.6 | 1.4 | _ | 14.0 | 61.5 |
| Other S. & Cent. America | 55.5 | 11.6 | 0.8 | _ | 16.8 | 84.7 | 56.0 | 12.2 | 0.8 | _ | 18.1 | 87.1 |
| Total S. & Cent. America | 218.8 12.8 | 88.0 7.0 | 19.5 2.9 | 5.1 | 117.2 9.5 | 448.7 32.2 | 214.8 | 88.2 7.3 | 17.8 3.5 | 4.7 | 122.7 8.9 | 448.2 32.7 |
| Austria Azerbaijan | 3.7 | 7.0 | 2.9 | _ | 0.3 | 11.0 | 3.6 | 7.3 | 5.5 | _ | 0.5 | 11.2 |
| Belarus | 5.9 | 14.5 | 0.3 | _ | † | 20.6 | 5.8 | 14.9 | 0.3 | _ | † | 21.0 |
| Belgium & Luxembourg | 32.2 4.0 | 13.2 2.7 | 7.6 6.9 | 10.5 4.1 | 0.6 0.4 | 64.0 18.1 | 32.9 4.2 | 13.4 2.6 | 7.3 6.8 | 9.7 4.6 | 0.5 0.5 | 63.8 18.7 |
| Bulgaria Czech Republic | 8.3 | 8.0 | 21.4 | 3.3 | 0.4 | 41.7 | 8.2 | 8.0 | 20.4 | 4.0 | 0.6 | 41.5 |
| Denmark . | 9.8 | 4.6 | 4.2 | _ | † | 18.6 | 9.8 | 4.6 | 4.2 | _ | † | 18.6 |
| Finland France | 10.5 95.5 | 3.7 37.7 | 4.0 11.6 | 5.2 95.5 | 3.1 17.9 | 26.4 258.2 | 10.9 92.8 | 3.7 38.5 | 4.5 12.7 | 5.1 98.9 | 2.5 15.0 | 26.6 258.0 |
| Germany | 131.6 | 74.6 | 85.0 | 38.7 | 5.8 | 335.7 | 127.2 | 74.3 | 84.6 | 37.3 | 5.9 | 329.4 |
| Greece | 21.7 | 1.7 | 9.3 | _ | 0.6 | 33.4 | 21.8 | 1.8 | 9.9 | _ | 0.8 | 34.2 |
| Hungary | 6.7 | 10.7 | 3.4 | 3.2 | 1 5 | 24.0 | 6.4 | 10.7 | 3.3 | 3.2 | 16 | 23.6 |
| lceland Republic of Ireland | 0.9 9.0 | 3.6 | 0.1 1.9 | _ | 1.5 0.2 | 2.5 14.6 | 0.9 8.7 | 3.7 | 0.1 1.8 | _ | 1.6 0.3 | 2.6 14.4 |
| Italy | 92.8 | 57.3 | 13.7 | _ | 12.2 | 176.0 | 92.9 | 57.2 | 13.8 | _ | 10.9 | 174.8 |
| Kazakhstan | 6.8 | 9.1 | 22.5 | _ 2.6 | 1.8 | 40.2 | 6.5 | 8.7 | 21.7 | - | 2.0 | 38.9 |
| Lithuania Netherlands | 2.7 43.9 | 2.5 35.2 | 0.1 8.5 | 2.6 0.9 | 0.2 | 8.1 88.5 | 2.7 43.8 | 2.6 35.4 | 0.1 8.9 | 3.2 0.9 | 0.2 | 8.7 89.0 |
| Norway | 9.7 | 3.4 | 0.6 | - | 27.4 | 41.0 | 9.4 | 3.5 | 0.5 | - | 29.4 | 42.9 |
| Poland | 19.2 | 10.4 | 58.0 | - | 1.0 | 88.6 | 19.7 | 10.1 | 56.4 | _ | 0.9 | 87.1 |
| Portugal Romania | 14.6 10.6 | 2.3 14.9 | 4.9 7.2 | 1.2 | 3.3 3.4 | 25.0 37.3 | 14.9 10.9 | 2.7 15.6 | 5.0 6.9 | 1.3 | 1.5 3.6 | 24.1 38.3 |
| Russian Federation | 122.3 | 335.4 | 110.2 | 31.0 | 39.8 | 638.7 | 122.9 | 349.6 | 98.5 | 32.0 | 37.2 | 640.2 |
| Slovakia | 3.2 | 6.2 | 4.1 | 3.9 | 1.2 | 18.6 | 3.3 | 6.9 | 3.9 | 4.1 | 1.2 | 19.4 |
| Spain Sweden | 72.7 15.2 | 16.4 0.6 | 19.5 2.0 | 14.4 16.3 | 9.9 17.9 | 133.0 52.1 | 73.5 15.0 | 18.8 0.7 | 21.9 2.2 | 14.3 15.6 | 6.1 15.1 | 134.5 48.5 |
| Switzerland | 13.1 | 2.5 | 0.1 | 6.1 | 9.7 | 31.5 | 12.4 | 2.5 | 0.1 | 6.2 | 8.3 | 29.6 |
| Turkey | 30.5 | 14.4 | 20.4 | - | 5.4 | 70.8 | 29.9 | 15.6 | 18.1 | - | 5.0 | 68.6 |
| Turkmenistan Ukraine | 2.4 12.7 | 11.6 63.8 | 39.4 | - 17.2 | 2.7 | 14.0 135.9 | 2.6 12.9 | 11.9 62.8 | 38.3 | - 17.7 | 2.2 | 14.5 133.8 |
| United Kingdom | 77.3 | 86.7 | 40.3 | 20.4 | 1.5 | 226.0 | 77.2 | 85.1 | 36.5 | 19.9 | 1.7 | 220.3 |
| Uzbekistan | 6.5 | 46.0 | 1.1 | _ | 1.2 | 54.8 | 6.6 | 47.2 | 1.0 | _ | 1.6 | 56.5 |
| Other Europe & Eurasia Total Europe & Eurasia | 21.7 930.5 | 13.0 920.7 | 12.1 523.3 | 1.6 276.1 | 15.8 194.9 | 64.2 2845.3 | 21.9 925.2 | 12.0 939.5 | 12.9 506.1 | 1.8 | 14.9 178.9 | 63.5 2829.5 |
| Iran | 54.0 | 58.5 | 0.8 | 270.1 | 0.8 | 114.1 | 53.2 | 61.1 | 0.8 | 200.0 | 1.1 | 116.2 |
| Kuwait | 10.5 | 8.6 | _ | _ | - | 19.1 | 10.7 | 7.8 | _ | _ | _ | 18.6 |
| Qatar Saudi Arabia | 1.4 62.7 | 10.2 48.3 | _ | _ | _ | 11.6 111.0 | 2.0 63.4 | 9.6 50.8 | _ | _ | _ | 11.7 114.2 |
| United Arab Emirates | 12.3 | 34.3 | _ | _ | _ | 46.6 | 12.4 | 35.4 | _ | _ | _ | 47.8 |
| Other Middle East | 65.5 | 20.7 | 7.2 | _ | 0.7 | 94.1 | 65.7 | 20.4 | 7.6 | _ | 0.8 | 94.6 |
| Total Middle East Algeria | 206.4 | 180.6 23.3 | 8.0 0.5 | - - | 1.5 | 396.5 32.9 | 207.4 | 185.1 23.7 | 8.4 0.5 | - - | 1.9 | 403.1 34.0 |
| Egypt | 26.1 | 19.3 | 0.8 | _ | 3.0 | 49.2 | 26.1 | 20.4 | 0.8 | _ | 3.1 | 50.3 |
| South Africa | 23.0 | _ | 80.7 | 2.6 | 0.8 | 107.0 | 23.6 | _ | 81.8 | 2.9 | 0.9 | 109.2 |
| Other Africa Total Africa | 58.3 116.5 | 16.1 58.7 | 7.2 89.2 | 2.6 | 14.1 17.9 | 95.6 284.7 | 59.0 118.6 | 16.6 60.7 | 7.5 90.6 | 2.9 | 14.5 18.5 | 97.5 291.0 |
| Australia | 38.1 | 21.4 | 49.3 | _ | 3.8 | 112.6 | 38.0 | 21.6 | 49.5 | _ | 3.8 | 112.9 |
| Bangladesh | 3.3 | 9.7 | 0.4 | _ | 0.2 | 13.6 | 3.4 | 10.1 | 0.4 | _ | 0.2 | 14.1 |
| China China Hong Kong SAR | 232.2 11.7 | 25.0 2.2 | 518.7 4.9 | 4.0 | 53.7 | 833.6 18.9 | 245.7 13.1 | 27.0 2.1 | 663.4 5.4 | 5.9 | 55.8 – | 997.8 20.6 |
| ndia | 96.7 | 24.5 | 172.5 | 4.3 | 16.3 | 314.2 | 97.7 | 25.4 | 180.8 | 4.4 | 16.9 | 325.1 |
| ndonesia | 52.1 | 30.1 | 16.7 | 70.7 | 2.1 | 101.0 | 51.2 | 31.3 | 17.8 | 71.0 | 2.1 | 102.4 |
| Japan Malaysia | 247.5 20.6 | 71.1 23.2 | 103.0 2.6 | 72.7 – | 20.4 1.7 | 514.8 48.1 | 242.6 22.5 | 69.7 24.3 | 105.3 3.3 | 71.3 | 20.5 1.7 | 509.4 51.8 |
| New Zealand | 6.4 | 5.2 | 1.3 | _ | 4.8 | 17.8 | 6.8 | 5.0 | 1.3 | _ | 5.4 | 18.4 |
| Pakistan | 18.4 | 17.9 | 2.1 | 0.2 | 4.1 | 42.7 | 17.9 | 18.8 | 2.1 | 0.4 | 4.6 | 43.8 |
| Philippines Singapore | 16.5 36.4 | 0.1 1.1 | 4.5 - | _ | 1.6 | 22.7 37.6 | 15.6 35.5 | 1.6 1.6 | 3.5 | _ | 1.6 | 22.3 37.1 |
| South Korea | 103.1 | 20.8 | 45.7 | 25.4 | 0.9 | 195.9 | 105.0 | 23.6 | 49.1 | 27.0 | 1.2 | 205.8 |
| Taiwan | 39.2 | 6.7 | 30.8 | 8.0 | 2.1 | 86.8 | 38.8 | 7.7 | 32.5 | 9.0 | 1.4 | 89.3 |
| Thailand Other Asia Pacific | 33.1 21.4 | 20.3 4.4 | 8.8 58.8 | _ | 1.4 11.1 | 63.6 95.7 | 35.3 22.5 | 23.3 4.2 | 8.6 60.5 | _ | 1.6 10.9 | 68.9 98.1 |
| Total Asia Pacific | 976.7 | 283.7 | 1020.1 | 114.6 | 124.2 | 2519.6 | 991.6 | 297.3 | 1183.5 | 118.0 | 127.7 | 2717.8 |
| TOTAL WORLD | 3517.1 | 2219.5 | 2243.1 | 601.0 | 584.7 | 9165.3 | 3522.5 | 2282.0 | 2397.9 | 610.6 | 592.1 | 9405.0 |
| of which: European Union 15 OECD | 639.6 2194.5 | 344.6 1206.5 | 215.4 1105.8 | 201.9 519.1 | 82.5 288.2 | 1483.7 5314.0 | 634.4 2181.9 | 347.2 1235.6 | 216.8 1116.3 | 201.7 522.7 | 69.2 289.5 | 1468.9 5346.1 |
| Former Soviet Union | 167.4 | 497.8 | 174.1 | 51.2 | 288.2 54.1 | 944.6 | 168.3 | 511.9 | 160.5 | 522.7 | 52.0 | 946.1 |
| Other EMEs | 1155.3 | 515.3 | 962.9 | 30.7 | 242.5 | 2906.7 | 1172.3 | 534.6 | 1121.0 | 34.2 | 250.6 | 3112.8 |
| | | | | | | | | | | | | |

^{*}In this Review, primary energy comprises commercially traded fuels only. Excluded, therefore, are fuels such as wood, peat and animal waste which, though important in many countries, are unreliably documented in terms of consumption statistics.
†Less than 0.05.

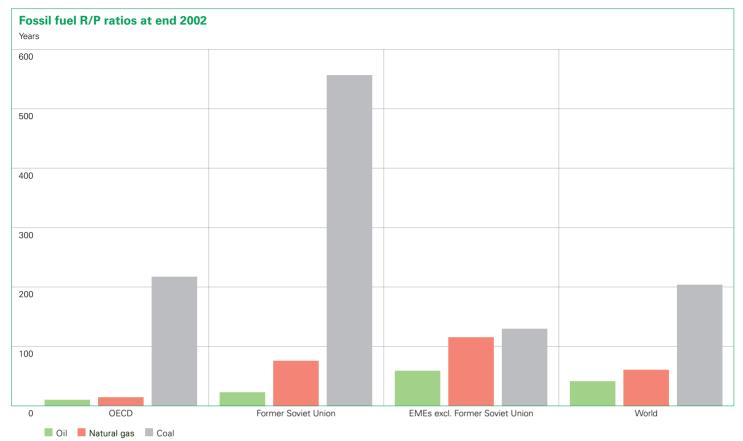


World primary energy consumption grew by a relatively strong 2.6% in 2002, largely as the result of a near 20% increase in reported Chinese energy consumption. Excluding China, consumption growth was less than 1%. Coal increased its share of the overall energy market for the second year running.

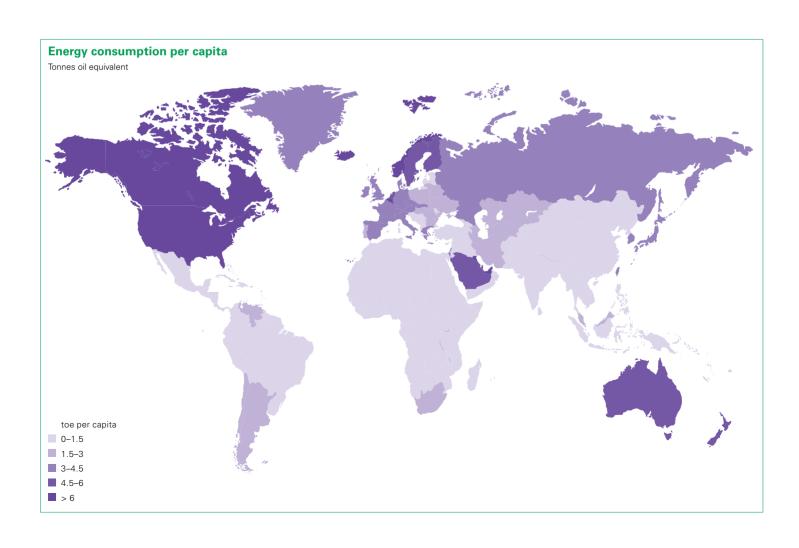


Oil remains the largest single source of energy in most parts of the world. The exceptions are the Former Soviet Union, where gas dominates and Asia Pacific where coal is the dominant fuel.

Primary energy



The world's reserves-to-production ratio for coal is around five times that for oil and more than three times that for natural gas. Coal's dominance in R/P ratio terms is particularly pronounced in the OECD and the Former Soviet Union.



Appendices

Approximate conversion factors

| Crude oil* | To tonnes (metric) | kilolitres | barrels | US gallons | tonnes/ year |
|-----------------|---------------------------------|------------|--------------|---------------|-----------------|
| From | | | -Multiply by | | |
| Tonnes (metric) | 1 | 1.165 | 7.33 | 307.86 | _ |
| Kilolitres | 0.8581 | 1 | 6.2898 | 264.17 | _ |
| Barrels | 0.1364 | 0.159 | 1 | 42 | |
| US gallons | 0.00325 | 0.0038 | 0.0238 | 1 | |
| Barrels/day | _ | _ | - | - | 49.8 |

^{*}Based on worldwide average gravity.

| Products | To convert barrels to tonnes | tonnes to barrels | kilolitres to tonnes | tonnes to kilolitres |
|----------------|-------------------------------------|----------------------|-------------------------|-------------------------|
| | | Multipl | y by | |
| LPG | 0.086 | 11.6 | 0.542 | 1.844 |
| Gasoline | 0.118 | 8.5 | 0.740 | 1.351 |
| Kerosene | 0.128 | 7.8 | 0.806 | 1.240 |
| Gas oil/diesel | 0.133 | 7.5 | 0.839 | 1.192 |
| Fuel oil | 0.149 | 6.7 | 0.939 | 1.065 |

| Natural gas and LNG | billion cubic metres NG | billion cubic feet NG | | million tonnes LNG | trillion British thermal units | million barrels oil equivalent |
|----------------------------------|----------------------------|--------------------------|-------|-----------------------|-----------------------------------|-----------------------------------|
| From | | | Mult | iply by | | |
| 1 billion cubic metres NG | 1 | 35.3 | 0.90 | 0.73 | 36 | 6.29 |
| 1 billion cubic feet NG | 0.028 | 1 | 0.026 | 0.021 | 1.03 | 0.18 |
| 1 million tonnes oil equivalent | 1.111 | 39.2 | 1 | 0.805 | 40.4 | 7.33 |
| 1 million tonnes LNG | 1.38 | 48.7 | 1.23 | 1 | 52.0 | 8.68 |
| 1 trillion British thermal units | 0.028 | 0.98 | 0.025 | 0.02 | 1 | 0.17 |
| 1 million barrels oil equivalent | 0.16 | 5.61 | 0.14 | 0.12 | 5.8 | 1 |

Units

- 1 metric tonne = 2204.62 lb. = 1.1023 short tons
- 1 kilolitre = 6.2898 barrels
- 1 kilolitre = 1 cubic metre
- 1 kilocalorie (kcal) = 4.187 kJ = 3.968 Btu
- 1 kilojoule (kJ) = 0.239 kcal = 0.948 Btu
- 1 British thermal unit (Btu) = 0.252 kcal = 1.055 kJ
- 1 kilowatt-hour (kWh) = 860 kcal = 3600 kJ = 3412 Btu

Calorific equivalents

One tonne of oil equivalent equals

| approximately: | |
|----------------|-------------------------|
| Heat units | 10 million kilocalories |
| | 42 gigajoules |
| | 40 million Btu |
| Solid fuels | 1.5 tonnes of hard coal |
| | 3 tonnes of lignite |
| Gaseous fuels | See natural gas and |
| | LNG table |
| Electricity | 12 megawatt-hours |
| 0 :11: 1 - | |

One million tonnes of oil produces about 4500 gigawatt-hours (= 4.5 terawatt-hours) of electricity in a modern power station.

Definitions

Statistics published in this Review are taken from government sources and published data. No use is made of confidential information obtained by BP in the course of its business.

North America

USA (excluding Puerto Rico), Canada and Mexico.

South and Central America

Caribbean (including Puerto Rico), Central and South America.

Europe

European members of the OECD plus Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Former Yugoslav Republic of Macedonia, Gibraltar, Malta, Romania, Slovenia, Yugoslavia.

Former Soviet Union

Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Krgyzstan, Latvia, Lithuania, Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine. Uzbekistan.

Europe & Eurasia

This includes all countries listed above under the headings *Europe* and the *Former Soviet Union*.

Middle East

Arabian Peninsula, Iran, Iraq, Israel, Jordan, Lebanon, Syria.

North Africa

Territories on the north coast of Africa from Egypt to Western Sahara.

West Africa

Territories on the west coast of Africa from Mauritania to Angola, including Cape Verde.

East and Southern Africa

Territories on the east coast of Africa from Sudan to Republic of South Africa. Also Botswana, Madagascar, Malawi, Namibia, Uganda, Zambia, Zimbabwe.

Asia Pacific

Brunei, Cambodia, China, China Hong Kong SAR*, Indonesia, Japan, Laos, Malaysia, Mongolia, North Korea, Philippines, Singapore, South Asia (Afghanistan, Bangladesh, India, Myanmar, Nepal, Pakistan and Sri Lanka), South Korea, Taiwan, Thailand, Vietnam, Australia, New Zealand, Papua New Guinea and Oceania.

*Special Administrative Region.

Australasia

Australia, New Zealand.

Country groupings are made purely for statistical purposes and are not intended to imply any judgement about political or economic standings.

OECD members

Europe: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Republic of Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, Turkey, United Kingdom.

Other member countries: Australia, Canada, Japan, Mexico, New Zealand, South Korea, USA.

OPEC members

Middle East: Iran, Iraq, Kuwait, Qatar, Saudi Arabia, United Arab Emirates (Abu Dhabi, Dubai, Ras-al-Khaimah and Sharjah). North Africa: Algeria, Libya. West Africa: Nigeria. Asia Pacific: Indonesia. South America: Venezuela. (Since Ecuador and Gabon have withdrawn from OPEC, they are excluded from all OPEC totals.)

European Union members

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Republic of Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, UK.

Other EMEs (Emerging Market Economies)

South and Central America, Africa, Middle East, Non-OECD Asia and Non-OECD Europe.

Other terms

Tonnes: Metric tons.

Percentages: Calculated before rounding of actuals. All annual changes and shares of totals are on a weight basis except on pages 12, 16 and 18.

Rounding differences: Because of rounding, some totals – including the 2002 share of total – may not agree exactly with the sum of their component parts.

US processing gain: In previous years we have deducted processing gain from volumetric consumption levels. Since the 2001 Review, in order to retain consistency across regions, we are no longer deducting US processing gain.

Questions on data

BP regrets it is unable to deal with enquiries about the data in the Statistical Review of World Energy.

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Paper

The paper used for this Review meets the strictest environmental standards set by the Nordic Swan Council and is fully recyclable. It is made at a mill accredited to ISO 14001. The pulp used to produce the paper is generated locally and bleached without the use of elemental chlorine.

Acknowledgements

Designed and typeset by Pauffley, London Printed in England by the colourhouse

WORLDWIDE LOOK AT RESERVES AND PRODUCTION

| ESTIMATED PROVED RESERVES | | | | | | OIL PRODUCTION | | | |
|---------------------------------|---------------------------|--------------------|---------------------------|--------------------|--|----------------------------------|----------------------------|-------------------------------|--|
| | Jan. 1, 2 | 2001 | Jan. 1, | 2000 | | | | | |
| COUNTRY | Oil (1,000 bbl) | Gas (bcf) | Oil (1,000 bbl) | Gas (bcf) | Producing oil wells* Dec. 31, 1999 | Estimated 2000 (1,000 b/d) | Change from 1999 (%) | Actual 1999 (1,000 b/d) | |
| ASIA-PACIFIC | | | | | | | | | |
| Afghanistan | _ | 3,530 | _ | 3,530 | _ | _ | _ | _ | |
| Australia | 2,895,000 | 44,638 | 2,895,000 | 44,638 | 1,384 | 720.0 | 36.7 | 526.8 | |
| Bangladesh | 56,902 | 10,615 | 56,902 | 10,615 | 37 | 3.3 | 16.6 | 2.8 | |
| Brunei | 1,350,000 24,000,000 | 13,800 | 1,350,000 | 13,800 | 779 | 168.7 | 1.8 | 165.7 3,224.5 | |
| China | 4,000 | 48,300 2,700 | 24,000,000 4,000 | 48,300 2,700 | 72,255 73 | 3,255.0 0.6 | 0.9 -24.9 | 0.8 | |
| India | 4,727,850 | 22,849 | 4,837,800 | 22,884 | 3,497 | 639.1 | -1.9 | 651.8 | |
| Indonesia | 4,979,710 | 72,268 | 4,979,710 | 72,268 | 8,457 | 1,298.8 | 1.5 | 1,280.0 | |
| Japan | 58,577 3,900,000 | 1,414 81,700 | 58,577 3,900,000 | 1,414 81,700 | 189 788 | 12.3 670.8 | 6.1 -7.3 | 11.6 723.3 | |
| Myanmar | 50,000 | 10,000 | 50,000 | 10,000 | 450 | 15.0 | | 15.0 | |
| New Zealand | 127,000 | 2,450 | 127,000 | 2,450 | 70 | 40.0 | -11.0 | 45.0 | |
| Pakistan | 208,000 | 21,600 | 208,000 | 21,600 | 231 | 54.6 | 2.2 | 53.4 | |
| Papua New Guinea Philippines | 359,800 289,000 | 7,900 2,800 | 333,000 289,000 | 5,442 2,800 | 43 8 | 68.5 1.2 | -22.7 34.5 | 88.6 0.9 | |
| Thailand | 351,635 | 11,764 | 296,250 | 12,529 | 543 | 110.2 | 34.6 | 81.9 | |
| Viet Nam | 600,000 | 6,800 | 600,000 | 6,800 | 28 | 303.5 | 2.8 | 295.2 | |
| Total Asia-Pacific | 43,957,474 | 365,128 | 43,985,239 | 363,470 | 88,832 | 7,361.6 | 2.7 | 7,167.1 | |
| WESTERN EUROPE | | | | | | | | | |
| Austria | 85,680 | 915 | 85,680 | 915 | 1,048 | 20.2 | 0.1 | 20.2 | |
| Denmark | 1,069,268 145,170 | 3,390 506 | 1,069,268 107,047 | 3,390 509 | 178 407 | 357.2 28.5 | 19.4 -7.7 | 299.3 30.9 | |
| Germany | 379,694 | 11,498 | 356,971 | 11,989 | 1,141 | 60.8 | 12.0 | 54.3 | |
| Greece | 10,000 | 35 | 10,000 | 35 | 7 | 5.2 | 1475.8 | 0.3 | |
| Ireland | _ | 700 | | 700 | _ | _ | _ | _ | |
| Italy | 621,763 106,927 | 8,072 62,542 | 621,763 106,927 | 8,072 62,542 | 213 195 | 91.8 51.3 | -8.1 -6.2 | 99.9 54.7 | |
| Norway | 9,447,290 | 44,037 | 10,787,024 | 41,389 | 606 | 3,216.2 | 6.6 | 3,017.6 | |
| Spain | 21,009 | 18 | 13,999 | 60 | 24 | 4.5 | -26.1 | 6.1 | |
| Turkey | 295,760 | 310 | 298,650 | 314 | 833 | 57.0 | 1.3 | 56.3 | |
| United Kingdom | 5,002,795 | 26,839 | 5,153,255 | 26,663 | 1,453 | 2,536.9 | -6.9 | 2,724.9 | |
| Total Western Europe | 17,185,356 | 158,863 | 18,610,584 | 156,578 | 6,105 | 6,429.6 | 1.0 | 6,364.4 | |
| EASTERN EUROPE and F.S.U. | 105.000 | 400 | 105.000 | 400 | 0.075 | | | | |
| Albania | 165,000 1,178,000 | 100 4,400 | 165,000 1,178,000 | 100 4,400 | 2,275 2,102 | 5.9 257.8 | 6.9 3.1 | 5.5 250.0 | |
| Belarus | 198,000 | 100 | 198,000 | 100 | 2,102 | 36.0 | 0.4 | 35.9 | |
| Bulgaria | 15,000 | 210 | 15,000 | 210 | 100 | 1.0 | _ | 1.0 | |
| Croatia | 92,196 | 1,237 | 92,196 | 1,237 | 723 | 23.0 | -6.5 | 24.6 | |
| Czech Republic | 15,000 35,000 | 140 300 | 15,000 35,000 | 140 300 | 200 | 7.4 2.0 | -6.3 100.0 | 7.9 1.0 | |
| Hungary | 109,716 | 2,871 | 109,716 | 2,871 | 934 | 27.1 | 12.0 | 24.2 | |
| Kazakhstan | 5,417,000 | 65,000 | 5,417,000 | 65,000 | 11,715 | 627.0 | 11.2 | 563.8 | |
| Kyrgyzstan | 40,000 | 200 | 40,000 | 200 | _ | 1.0 | _ | 1.0 | |
| Lithuania | 12,000 114,883 | 5,119 | 12,000 114,883 | 5,119 | — 1,772 | 3.0 7.3 | 75.8 | 3.0 4.2 | |
| Romania | 1,426,140 | 13,200 | 1,426,140 | 13,200 | 6,000 | 122.6 | -0.2 | 122.9 | |
| Russia | 48,573,000 | 1,700,000 | 48,573,000 | 1,700,000 | 104,150 | 6,350.8 | 7.1 | 5,930.0 | |
| Serbia | 77,500 9,000 | 1,700 530 | 77,500 9,000 | 1,700 530 | 646 200 | 18.0 1.0 | _ | 18.0 1.0 | |
| Tajikistan | 12,000 | 200 | 12,000 | 200 | 200 | 1.0 | _ | 1.0 | |
| Turkmenistan | 546,000 | 101,000 | 546,000 | 101,000 | 2,460 | 143.0 | 2.1 | 140.0 | |
| Ukraine | 395,000 594,000 | 39,600 66,200 | 395,000 594,000 | 39,600 66,200 | 1,353 2,190 | 47.7 152.0 | -2.7 0.7 | 49.0 151.0 | |
| Total Eastern Europe and F.S.U. | 59,024,435 | 2,002,107 | 59,024,435 | 2,002,107 | 136,820 | 7,834.5 | 6.8 | 7,334.9 | |
| MIDDLE EAST | | | | | | | | | |
| Abu Dhabi | 92,200,000 | 196,100 | 92,200,000 | 196,100 | 1,200 | 1,850.0 | 8.8 | 1,700.0 | |
| Bahrain | 148,110 | 3,875 | 148,110 | 3,875 | 392 | 102.4 | 0.2 | 102.2 | |
| Dubai | 4,000,000 | 4,100 | 4,000,000 | 4,100 | 200 | 332.5 | 10.8 | 300.0 | |
| Iran | 89,700,000 112,500,000 | 812,300 109,800 | 89,700,000 112,500,000 | 812,300 109,800 | 1,120 1,685 | 3,567.5 2,681.7 | 1.8 6.2 | 3,504.2 2,525.0 | |
| Israel | 3,870 | 1,470 | 3,900 | 10 | 7 | 0.1 | -15.4 | 0.1 | |
| Jordan | 890 94,000,000 | 230 52,200 | 900 94,000,000 | 240 52,200 | 4 790 | 0.0 1,774.0 | 7.3 | 0.0 1,653.3 | |
| Nuvall | 3-1,000,000 | JZ,ZUU | 1 37,000,000 | JZ,ZUU | 790 | 1,774.0 | 1.3 | 1,000.0 | |

| | | | OIL PRODUC | TION | | | | |
|--------------------------|--------------------------|-------------------|--------------------------|-------------------|--|----------------------------------|----------------------------|-------------------------------|
| | Jan. 1, | 2001 | Jan. 1, | 2000 | | | | |
| COUNTRY | Oil (1,000 bbl) | Gas (bcf) | Oil (1,000 bbl) | Gas (bcf) | Producing oil wells* Dec. 31, 1999 | Estimated 2000 (1,000 b/d) | Change from 1999 (%) | Actual 1999 (1,000 b/d) |
| Neutral Zone | 5,000,000 | 1,000 | 5,000,000 | 1,000 | 530 | 628.0 | 6.4 | 590.0 |
| Oman | 5,506,000 | 29,280 | 5,283,000 | 28,416 | 2,298 | 891.2 | 7.1 | 832.2 |
| Qatar | 13,157,000 | 393,830 | 3,700,000 | 300,000 | 379 | 680.8 | 5.1 | 647.7 |
| Ras al Khaimah | 100,000 | 1,200 | 100,000 | 1,100 | 7 | 0.5 | 7.0 | 0.5 |
| Saudi Arabia | 259,200,000 1,500,000 | 213,300 10,700 | 261,000,000 1,500,000 | 204,000 10,700 | 1,560 49 | 8,064.0 45.0 | 7.2 2.3 | 7,521.3 44.0 |
| Syria | 2,500,000 | 8,500 | 2,500,000 | 8,500 | 964 | 510.2 | -5.9 | 542.0 |
| Yemen | 4,000,000 | 16,900 | 4,000,000 | 16,900 | 299 | 440.8 | 8.2 | 407.5 |
| Total Middle East | 683,515,870 | 1,854,785 | 675,635,910 | 1,749,241 | 11,484 | 21,568.7 | 5.9 | 20,369.9 |
| AFRICA | | | | | | | | |
| Algeria | 9,200,000 | 159,700 | 9,200,000 | 159,700 | 1,281 | 800.0 | 7.4 | 745.0 |
| Angola | 5,412,000 | 1,620 | 5,412,000 | 1,620 | 521 | 743.5 | -2.4 | 761.8 |
| Benin | 8,210 | 43 | 8,210 | 43 | 8 | 2.0 | _ | 2.0 |
| Cameroon | 400,000 | 3,900 | 400,000 | 3,900 | 255 | 100.7 | 0.7 | 100.0 |
| Congo Ropublic of | 187,000 | 35 | 187,000 | 35 | 151 | 25.0 | 5.5 | 23.7 |
| Congo, Republic of | 1,505,913 2,947,560 | 3,200 35,180 | 1,505,913 2,947,560 | 3,200 35,180 | 400 1,331 | 265.0 810.8 | 0.3 -0.5 | 264.3 815.0 |
| Equatorial Guinea | 12,000 | 1,300 | 12,000 | 1,300 | 1,331 | 107.0 | 13.8 | 94.0 |
| Ethiopia | 428 | 880 | 428 | 880 | _ | _ | - | _ |
| Gabon | 2,499,000 | 1,200 | 2,499,000 | 1,200 | 375 | 330.9 | -2.7 | 340.0 |
| Ghana | 16,510 | 840 | 16,510 | 840 | 3 | 6.0 | _ | 6.0 |
| Ivory Coast | 100,000 | 1,050 | 100,000 | 1,050 | 7 | 19.3 | -3.5 | 20.0 |
| Libya | 29,500,000 | 46,400 70 | 29,500,000 | 46,400 70 | 1,470 | 1,407.5 | 4.5 | 1,346.7 |
| Morocco | 1,800 | 47 | 1,904 | 49 | 8 | 0.3 | 43.7 | 0.2 |
| Mozambique | | 2,000 | | 2,000 | _ | _ | _ | _ |
| Namibia | _ | 3,000 | _ | 3,000 | _ | _ | _ | _ |
| Nigeria | 22,500,000 | 124,000 | 22,500,000 | 124,000 | 2,374 | 1,990.8 | 1.4 | 1,964.2 |
| Rwanda | _ | 2,000 | _ | 2,000 | _ | _ | _ | _ |
| Somalia | — 29,362 | 200 780 | 29,362 | 200 780 | 11 | 10.0 | _ | — 10.0 |
| Sudan | 262,100 | 3,000 | 262,100 | 3,000 | 9 | 12.0 | | 12.0 |
| Tanzania | | 980 | | 980 | _ | _ | _ | _ |
| Tunisia | 307,560 | 2,750 | 307,560 | 2,750 | 210 | 74.5 | -8.7 | 81.6 |
| Total Africa | 74,889,443 | 394,175 | 74,889,547 | 394,177 | 8,429 | 6,705.3 | 1.8 | 6,586.4 |
| WESTERN HEMISPHERE | | | | | | | | |
| Argentina | 3,071,195 | 26,420 | 2,753,416 | 24,247 | 14,461 | 749.4 | -6.5 | 801.8 |
| Barbados | 2,508 396,500 | 5 18,300 | 3,156 131,931 | 7 4,340 | 117 328 | 1.6 33.8 | -14.6 4.1 | 1.9 32.5 |
| Brazil | 8,100,000 | 8,228 | 7,357,476 | 7,979 | 6,888 | 33.6 1,139.2 | 4.1 | 1,085.9 |
| Canada | 4,706,104 | 61,010 | 4,930,827 | 63,874 | 50,919 | 1,998.5 | 5.1 | 1,900.8 |
| Chile | 150,000 | 3,460 | 150,000 | 3,460 | 315 | 9.0 | _ | 9.0 |
| Colombia | 2,577,200 | 6,937 | 2,577,200 | 6,937 | 3,072 | 688.7 | -15.6 | 815.6 |
| Cuba | 283,500 | 636 | 283,500 | 636 | 245 | 27.0 | _ | 27.0 |
| Ecuador | 2,115,000 526,000 | 3,670 | 2,115,000 526,000 | 3,670 109 | 1,041 20 | 390.3 22.1 | 3.9 -4.8 | 375.7 23.2 |
| Mexico | 28,260,000 | 30,394 | 28,399,000 | 30,064 | 2,991 | 3,050.4 | -4.8 5.0 | 2,906.4 |
| Peru | 310,000 | 8,700 | 355,000 | 9,000 | 4,704 | 97.1 | -5.2 | 102.5 |
| Suriname | 74,000 | _ | 74,000 | _ | 317 | 12.1 | 0.9 | 12.0 |
| Trinidad & Tobago | 686,000 | 21,351 | 605,000 | 19,770 | 3,867 | 119.6 | -4.3 | 125.0 |
| United States | 21,765,000 | 167,406 | 21,034,000 | 164,041 | 557,592 15,590 | 5,823.0 | -1.0 8.0 | 5,881.5 |
| Venezuela | 76,862,000 | 146,800 | 72,600,000 | 142,500 | 15,580 | 3,035.0 | 8.9 | 2,786.7 |
| Total Western Hemisphere | 149,885,007 | 503,426 | 143,895,506 | 480,634 | 662,457 | 17,196.7 | 1.8 | 16,887.4 |
| | | | | | | | | |
| TOTAL WORLD | 1,028,457,585 | 5,278,484 | 1,016,041,221 | 5,146,207 | 914,127 | 67,096.3 | 3.7 | 64,710.1 |
| | | | | | | | | |
| Total OPEC | 814,398,710 | 2,343,698 | 802,479,710 | 2,236,168 | 36,682 | 28,156 | 5.8 | 26,608 |
| | | 1 | 1 | | | | | |

EDITOR'S NOTE: All reserves figures except those for the F.S.U. (and gas for Canada) are reported as proved reserves recoverable with present technology and prices. F.S.U. figures are "explored reserves" which are understood to be proved plus some probable. Canadian gas figure, under criteria adopted by Canadian Petroleum Association in 1980, includes proved and some probable. *Does not include shut in, injection, or service wells.

Worldwide Production

• Offshore

(e) Estimated

(c) Condensate

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity |
|---|--|---|--|--|
| ABU DHABI (e |) | | | |
| ADNOC, OTHERS • Abu Al Bukhoosh, 1969 • Arzanah, 1973 Asab, 1965 Bab, 1958 Bu-Hasa, 1962 • Bunduq, 1964 • Mubarraz, 1969 | 8,900-10,900 - 11,000-11,300 8,000-8,700 8,600-9,300 8,300-9,200 9,400-10,900 8,300-10,000 | | | 32.0 42.0 41.0 44.0 39.0 40.0 37.0 |
| Sahil, 1967 • Satah, 1975 • Umm Addalkh, 1969 • Umm Shaif, 1958 • Zakum Lower, 1963 • Zakum Upper, 1963 | 9,500-9,800 8,550-9,550 7,700-8,500 9,800-12,000 8,000-9,000 7,000-8,000 | _ 1,200 | 1,700,000 | 39.7 39.8 32.5 37.0 39.0 35.0 |
| Total Abu Dhabi | | 1,200 | 1,700,000 | |
| ALBANIA | | | | |
| ALB PETROL Ballsh-Hekal, 1967 | 4,921 10,826 12,800 3,609 1,970-4,265 4,265-4,920 6,234 4,921 | 114 — 25 — 2 — 155 — 1,039 — 852 — 23 — 65 — | _ 5,500 | 13.0 24.0 31.0 19.0 16.0 13.0 22.0 |
| Total Albania | | 2,275 | 5,500 | |
| ALGERIA | | | | |
| ANADARKO | 10.000 | 11 | 40.050 | 44.0 |
| Hassi Berkine South, 1995 SONATRACH | 10,000 | 11 | 43,253 | 44.3 |
| Acheb West, 1963 Acheb, 1963 Ait Kheir, 1971 Amassak/Tin-Yaguene, 1970 Askarene, 1962 Assekaifaf South, 1958 Bab El Hattabet, 1982 Benkahla Bir Rebaa North Bir Rebaa West BRSW Djebel Onk, 1960 Djoua West, 1967 | 7,360 7,360 8,860 6,565 8,200 2,800 11,880 3,940 5,580-6,240 | 7 16 22 3 2 1 5 3 | 1,535 469 10,329 7,234 1,334 263 761 12,044 16,843 9,504 8,724 493 1,864 | 47.4 44.3 52.3 42.5 43.2 41.5 44.5 48.3 48.3 48.3 48.3 48.3 48.3 48.3 |
| Draa Tamra, 1971. Edeyen, 1964. Edjeleh, 1956. El Adeb Larache, 1958. El Agreb, 1959. El Borma, 1967. El Gassi, 1959. Gara, 1962. Gara South. Garet Ben Chentir. Gassi-Touil (c), 1961. | 11,600 5,580 1,500-2,800 4,100 10,170 8,200 10,170 9,420 6,562 6,890 | 68 3 144 3 23 25 2 8 | 19 459 5,633 140 12,484 4,387 4,346 173 115 25 6,436 | 44.5 43.0 38.2 41.5 48.8 41.7 48.8 45.8 45.8 49.7 47.4 |
| Gassi-Touil/East, 1961 Guellala, 1969 Guellala N/E Guelta, 1962 Haoud Berkaoui Hassi Chergui, 1963 Hassi Guettar Hasi Keskassa Hassi Mazoula South, 1963 | 8,960 8,960 8,200 4,430 | 30 17 3 5 | 477 7,409 909 2,232 16,963 852 4,480 538 604 | 43.8 44.5 43.0 43.8 50.4 49.7 42.5 40.0 |
| Hassi Mazoula (B)/North, 1965 | 4,920-5,118 | | 287 | 40.2 |
| | | | | |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity |
|---|----------------------|---------------------|---------------------------------|-----------------|
| Hassi Messaoud North, | | | | |
| 1956 | 10,500 | 173 | 148,804 | 47.2 |
| 1956 | 10,500 | 198 | 187,258 | 49.7 |
| Hassi R'Mel, 1979 | 7,760 | 34 7 | 9,973 | 44.3 |
| La Reculee, 1957 | 5,414-5,742 6,000 | 1 | 202 42 | 40.4 52.3 |
| Mereksen, 1974 | 8,200 | 11 | 10,213 | 49.9 |
| Mesdar East & West, 1972 Mokh El Kebch, 1984 | 11,155 12,870 | 8 2 | 7,011 652 | 39.8 44.5 |
| N'Goussa, 1974 | 11,715 | | 922 | 44.5 |
| Ohanet North, 1960 | 7,878 | 28 | 2,157 | 44.9 |
| Ohanet South, 1960 Oued Gueterini, 1946 | 7,878 6,600 | 12 | 255 24 | 45.4 36.2 |
| Oued Noumer, 1969 | 8,860 | 11 | 4,350 | 52.0 |
| Ras Toumb, 1976 | 9,190 10,170 | 4 1 | 152 1,995 | 36.2 47.2 |
| Rhourde El Baguel, 1962 | 9,850 | 16 | 35,140 | 42.3 |
| Rhourde Khrouf | · | | 16,659 | 50.6 |
| Rhourde Messaoud Rhourde Nouss, 1972 | 8,530 | 9 | 827 2,648 | 48.3 36.3 |
| Sahane, 1972 | 12,649 | 2 | 46 | 44.5 |
| Sidi Mezriche, 1976 | 8,085 | 1 18 | 277 | 52.0 |
| Stah, 1971 | 9,515 8,724 | 3 | 18,167 5,560 | 47.2 44.0 |
| Tamendjelt, 1970 | 5,585-6,890 | 3 | 811 | 42.5 |
| Tifernine, 1993 | 5,000 2,160-4,265 | 36 | 7,227 1,719 | 44.5 45.6 |
| Timedratine, 1964 | 8,155 | | 2,460 | 42.3 |
| Timedratine East, 1964 | 8,155 | 17 | 368 | 41.7 |
| Timellaline-2H | 4,600-6,560 | 106 | 31 437 | 39.6 39.4 |
| Tin Fouye North, 1962 | 4,600-6,560 | | 1,559 | 39.4 |
| Tin Fouve F6 | | | 5,263 | 38.6 |
| Tin Fouye Tabankort (c), 1962 | 4,600-6,560 | | | |
| Tiraremine North/West | 6,565 | 1 | 113 | 42.5 |
| T.F.T. ORD | •••• | | 51,470 | 42.1 |
| Tml., 1962 | 4,265 | 32 | 157 | 42.5 |
| T.F.T. Devo East/Zone 100, 1966 | 4,600-6,560 | 14 | 2,370 | 42.5 |
| Zarzaitine, 1957 | 4,700 | 132 | 27,122 | 42.3 |
| Zemlet Nouss | | | 1,237 | 43.0 |
| Zotti | | | 5,704 | 48.8 |
| Total Algeria | | 1,284 | 745,000 | |
| ANGOLA | | | | |
| • Safueiro, 1985 | 13,830 | 1 | 1,176 | 38.5 |
| Saluello, 1905 | 13,030 | | 1,170 | 30.3 |
| CHEVRON | | | F 0F0 | |
| Banzala, 1997 | 10,278 | 4 | 5,056 21,419 | 32.8 |
| Kokongo, 1992 | 10,800 | 18 | 31,818 | 37.7 |
| Kuito, 1997 | 8,000 | 25 | 1,464 20,409 | 32.2 |
| • Lifuma, 1984 | 7,800 | 2 | 239 | 31.4 |
| • Limba SW | | | 5,008 | |
| Limba, 1965 | 2,660 8,000 | 13 4 | 3,374 73 | 31.6 31.7 |
| Lomba, 1992 | 8,298 | | 17,003 | |
| Malongo North, 1966Malongo South, 1966 | 1,170 1,150 | 57 26 | 11,952 6,982 | 30.0 25.0 |
| Malongo South, 1966 Malongo West, 1969 | 1,660 | 26 18 | 8,916 | 22.5 |
| N'Dola, 1972 | 10,500 | | 13,085 | |
| Nemba, 1990 | 8,741 8,770 | 3 7 | 53,927 16,930 | 37.7 34.0 |
| • Numbi, 1980 | 3,446 | 45 | 60,427 | 34.0 |
| Sanha, 1987 | 9,595 3,070 | 82 | 24,625 131,206 | 31.5 |
| Vuko, 1983 | 3,070 3,572 | 8 | 7,232 | 35.0 |
| • Wamba, 1982 | 2,507 | 14 | 19,979 | 29.0 |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity |
|---|---|---|---|--|
| TOTALFINAELF Bufalo, 1982. Cobo-Pambi, 1990. Impala, 1983. Impala SE, 1985. Pacassa, 1982. Palanca, 1981. Combo, 1992 | 10,500 10,177 9,022 8,500 11,500 8,860 | 8 15 1 7 26 8 | | 39.5 37.6 37.5 37.0 38.0 40.0 |
| Benfica, 1955 Bento, 1972 Cacuaco, 1958 Cabeca de Cobra, 1969 Galinda, 1959 Ganda, 1973 Kitona, 1973 Legua, 1972 Luango, 1977 Lumueno, 1977 Mulenvos, 1966 N/ Zombo, 1973 N/ Z Pangala, 1973 | 7,350 8,100 4,200 7,270 5,000 5,200-6,102 6,300 3,800 4,300 5,900-6,600 5,000-6,300 | | | 30.0 30.0 41.0 30.0 39.0 27.0 32.0 39.0 39.0 25.0 33.0 |
| N'Z Kitona D & I, 1973 Pambo, 1982 | 4,400 5,200 6,000 | _ 129 | 299,500 | 39.0 31.0 32.0 |
| Quinfuquena, 1975 Quinguila, 1972 Sereia, 1974 Tobias, 1961 | 5,462-7,100 3,400 6,200 5,900 | | | 30.0 34.0 28.0 30.0 |
| TEXACO-SONANGOL TOTALFINAELF-BRASPETRO (e) Cuntala, 1978. Essungo, 1975. Lombo Este, 1984. Raia, 1988. Sulele, 1982. Sulele South, 1986. Sulele West, 1985. Tubarao, 1984. | 7,200 6,500 7,800 8,700 6,900 7,600 7,600 | | | 31.0 35.0 41.0 36.4 40.0 39.0 41.0 38.2 |
| Total Angola | | 521 | 761,800 | |
| | | | | |
| ARGENTINA | | | | |
| ALIANZA PETROLERA Llancanelo | | 4 | 184 | |
| ALIANZA PETROLERA Llancanelo ANADARKO PETROLEUM El Santiagueno | | 4 17 | 184 454 | |
| ALIANZA PETROLERA Liancanelo | | | | |
| ALIANZA PETROLERA Llancanelo ANADARKO PETROLEUM El Santiagueno. CAPSA - CAPEX Agua del Cajon Diadema. | | 17 28 274 | 454 1,534 8,992 | |
| ALIANZA PETROLERA Llancanelo ANADARKO PETROLEUM El Santiagueno. CAPSA - CAPEX Agua del Cajon Diadema. K20. CHANARES HERRADOS Chanares Herrados | | 17 28 274 59 | 454 1,534 8,992 1,061 705 | |
| ALIANZA PETROLERA Llancanelo ANADARKO PETROLEUM El Santiagueno. CAPSA - CAPEX Agua del Cajon Diadema K20. CHANARES HERRADOS Chanares Herrados Puesto Pozo Cercado. CHEVRON SAN JORGE Angostura, 1961. Catriel Oeste, 1959. Chorrillos, 1965. Confluencia Sur, 1995. El Sauce. El Trapial, 1991. Glaco Blocks, 1972. Loma Negra Comp., 1997. Anticlinal Campamento. | 6,410 2,950 5,648 6,522 8,615 2,674 4,111 5,833-4,806 8,661 | 17 28 274 59 15 1 14 135 116 17 2 121 289 41 42 22 | 1,534 8,992 1,061 705 19 137 2,400 546 2,570 78 99 55,017 412 12,102 | 36.0 22.0 48.0 36.0 50.0 36.0 41.0 39.0 |
| ALIANZA PETROLERA Llancanelo ANADARKO PETROLEUM El Santiagueno. CAPSA - CAPEX Agua del Cajon Diadema. K20. CHANARES HERRADOS Chanares Herrados Puesto Pozo Cercado. CHEVRON SAN JORGE Angostura, 1961. Catriel Oeste, 1959. Chorrillos, 1965. Confluencia Sur, 1995 El Sauce. El Trapial, 1991 Glaco Blocks, 1972. Loma Negra Comp., 1997 Anticlinal Campamento. E. Viega-P.Prado (RNN). COLHUE HUAPI SA | 6,410 2,950 5,648 6,522 8,615 2,674 4,111 5,833-4,806 8,661 | 17 28 274 59 15 1 14 135 116 17 2 121 289 41 42 22 18 | 1,534 8,992 1,061 705 19 137 2,400 546 2,570 78 99 55,017 412 12,102 117 1,629 | 36.0 22.0 48.0 36.0 50.0 36.0 36.0 39.0 |
| ALIANZA PETROLERA Llancanelo ANADARKO PETROLEUM El Santiagueno. CAPSA - CAPEX Agua del Cajon Diadema K20. CHANARES HERRADOS Chanares Herrados Puesto Pozo Cercado CHEVRON SAN JORGE Angostura, 1961. Catriel Oeste, 1959. Chorrillos, 1965. Confluencia Sur, 1995. El Sauce El Trapial, 1991. Glaco Blocks, 1972. Loma Negra Comp., 1997. Anticlinal Campamento E. Viega-P.Prado (RNN). COLHUE HUAPI SA Colhue Huapi C.G.CQUINTANA Santa Cruz I C.G.C.S.A. Santa Victoria. | 6,410 2,950 5,648 6,522 8,615 2,674 4,111 5,833-4,806 8,661 | 17 28 274 59 15 1 14 135 116 17 2 121 289 41 42 22 18 | 1,534 8,992 1,061 705 19 137 2,400 546 2,570 78 99 55,017 412 12,102 117 1,629 | 36.0 22.0 48.0 36.0 50.0 36.0 36.0 39.0 |
| ALIANZA PETROLERA Llancanelo ANADARKO PETROLEUM El Santiagueno. CAPSA - CAPEX Agua del Cajon Diadema K20. CHANARES HERRADOS Chanares Herrados Puesto Pozo Cercado. CHEVRON SAN JORGE Angostura, 1961. Catriel Oeste, 1959. Chorrillos, 1965. Confluencia Sur, 1995 El Sauce El Trapial, 1991. Glaco Blocks, 1972. Loma Negra Comp., 1997 Anticlinal Campamento E. Viega-P.Prado (RNN). COLHUE HUAPI SA Colhue Huapi C.G.CQUINTANA Santa Cruz I C.G.C.S.A. | 6,410 2,950 5,648 6,522 8,615 2,674 4,111 5,833-4,806 8,661 | 17 28 274 59 15 1 14 135 116 17 2 121 289 41 42 22 18 | 1,534 8,992 1,061 705 19 137 2,400 546 2,570 78 99 55,017 412 12,102 12,102 117 1,629 | 36.0 22.0 48.0 36.0 50.0 36.0 41.0 39.0 |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production avg. b/d | , °API gravity |
|---|-----------------|---------------------|--------------------------------|-------------------|
| HOME OIL INT. ARGENTINA Refugio Tupungato | | 39 | 1,397 | |
| INGENIERIA ALPA SA | | | | |
| El Valle Rinconada - Puesto Morales | | 21 9 | 307 81 | |
| MISAHAR ARGENTINA Mata Magallanes Oeste, | | | | |
| 1985 | 5,900 | 22 | 221 | |
| OILGENER ARGENTINA LTD. Del Mosquito | | 3 5 | 2 74 | |
| PAN AMERICAN ENERGY LLC | | | | |
| Acambuco | 7,218 | 5 4 | 111 112 | |
| Anticlinal Grande - | | | | |
| Cerro Dragon, 1932 Koluel Kaike - El Valle, 1957 | 7,218 5,413 | 1,462 167 | 50,166 3,786 | 24.0 |
| Lindero Atravesado (c), 1961 Los Chorrillos | 6,550-9,850 | 4 8 | 1,161 199 | 63.3 |
| Piedra Clavada, 1964 Tierra del Fuego | 4,900-6,230 | 266 90 | 7,402 4,060 | 21.0 |
| PEREZ COMPANC 25 de Mayo-Medanito | | | | |
| S.E. (Rio Negro & La Pampa) | | 289 | 9,685 | 30.0 |
| Aguada de la Arena (Anelo) Bajada del Palo, 1978 | 7,874 | 1 12 | 50 72 | 30.0 |
| Cacheuta, 1886 | 2,100 | 31 | 92 | 30.0 |
| El Manzano, 1978 Faro Virgenes, 1977 | 5,906 5,000 | 5 | 16 336 | 25.0 64.0 |
| Jaguel de los Machos (La Pampa & Rio Negro) | 4,757 | 17 | 477 | 30.0 |
| Pampa del Castillo-La | | | | |
| Guitarra Piedra Colorada-Estruct | 5,906 | 166 | 8,027 | 22.5 |
| Intermedia | | 78 | 2,445 | |
| (Mendoza & Neuquen), 1969 | 3,937 | 465 | 35,829 | 33.5 |
| Puntilla del Huincan Rio Neuquen (Rio Negro & | | 1 | 1 | |
| Neuquen) | 6,070 | 45 26 | 3,051 18,625 | 46.8 |
| PETROLEOS SUD-AMERCANOS N | IECON U.T.E. | | | |
| Caimancito | | 12 24 | 483 959 | |
| Loma Montosa Oeste | | 4 | 199 | |
| PETROLERA PEREZ COMPANC | | | | |
| Entre Lomas (Neuquen & Rio Negro), 1966 | 4,757 | 259 | 9,779 | 33.0 |
| PETROLERA SANTA FE | | | | |
| Sierra Chata (Chihuidos) | | | 807 | |
| PETROQ. COMOD. RIVADAVIA El Sosneado, 1965 | 3,770-4,900 | 52 | 1,128 | 19.0 |
| Medanito, 1963 | 3,280-3,600 | 24 | 716 | 28.0 |
| PETR. CUTRAL CO SA Cutral | | 5 | 102 | |
| PIONEER NATURAL RESOURCES Al Norte de la Dorsal | ARG. SA | 139 | 4,055 | |
| Al Sur de la Dorsal, 1941 | 2,850-4,265 | 59 | 1,303 | 24.6 |
| Dadin Estacion Fernadez Oro | 8,530 | 23 15 | 864 848 | 38.6 |
| La Calera | | 8 | 12 90 | |
| Zona Ni | | 1 | 27 | |
| PLUSPETROL EXPLORATION AND | | | 4.055 | 20.0.20.0 |
| Aguada Baguales, 1963 Balbuena Este, 1990 | 3,300 13,549 | 32 3 | 1,355 248 | 38.0-39.0 |
| Centenario, 1961 El Porvenir, 1941 | 8,200 3,800 | 71 84 | 2,853 2,754 | 39.2 24.0 |
| Loma Jarillosa-Pto Silva | | | 9 | |
| Palmar Largo, 1983 Pueston Touquet | 12,600 | 18 | 4,268 16 | 41.5 |
| Ramos, 1975 | 13,000 | | 6,940 | 61.0 |
| REPSOL-YPF Chi. de la Salina (YBR) | | 50 | 31,601 | |

| | | | 1999 | | | | | 1999 | |
|--|----------------|---------------------|-------------------------|-----------------|---|-----------------|---------------------|-------------------------|-----------------|
| Name of field, discovery date | Depth, ft | Producing oil wells | production, avg. b/d | °API gravity | Name of field, discovery date | Depth, ft | Producing oil wells | production, avg. b/d | °API gravity |
| El Porton | | 11 | 4,764 | | Senal Picada-Punta Barda | | | | |
| La Ventana, 1957 | 7,500 8,500 | 236 175 | 13,473 7,346 | 29.5 21.3 | (Rio Negro & Neuquen) Valle del Rio Grande | | 226 136 | 9,287 7,452 | |
| Rio Tunuyan, 1957 | 7,500 | 12 | 354 | 29.7 | | •••• | 100 | 7,402 | |
| Vizacheras, 1962 | 6,000 | 161 | 11,096 | 28.5 | OTHER Arroyo Mutrenguel | | 1 | 4 | |
| ROCH | | | | | Bajo Baguales | | 1 | | |
| Bella Vista Oeste, 1970 Caion de los Caballos, 1966. | 9,200 6,240 | 44 24 | 2,102 1,786 | 25.7 19.0 | Canadon Amarillo, 1969 El Chivil | 6,234 | 8 2 | 55 | 32.5 |
| Las Violetas, 1949 | 6,560 | 12 | 412 | 39.0 | El Moro | | | 1 | |
| Rio Cullen, 1949 | 6,560 | 1 | 81 | 39.0 | El Vinalar | | 1 | 2 | |
| SIPETROL | | | | | Loma Cortaderal | | | 1 7 | |
| Magallanes (Tierra del | | 0.4 | 7.740 | | Restinga Ali, 1933 | 7,200 | 7 | 2 | 25.3 |
| Fuego & Santa Cruz) | | 24 | 7,740 | | Sarmiento | | 2 | 12 42 | |
| TECNICAGUA | 1.000 | 0 | 222 | 10.0 | Takal Amandina | | | | |
| Cerro Mollar Oeste, 1990 Puesto Rojas | 1,800 | 2 14 | 233 196 | 18.0 | Total Argentina | | 14,461 | 801,813 | |
| • | | | | | | | | | |
| TECPETROL | E 455 | 10 | 1.044 | F0.0 | AUSTRALIA | | | | |
| Agua Salada Atamisqui | 5,455 7,193 | 12 19 | 1,644 597 | 53.0 29.0 | APACHE | | | | |
| Atuel Norte | 6,262 | 6 | 40 | 22.0 | + Agincourt, 1996 | 6,000 | 1 | 793 | 44.0 |
| El Tordillo | 7,640 6,645 | 396 21 | 19,620 1,417 | 23.0 24.0 | + Alkimos, 1994 Campbell (c) | 6,207 | | 625 | 39.0 |
| Los Bastos | 5,731 | 16 | 77 | 37.0 | + Chervil, 1983 | 3,450 | 2 | 461 | 44.0 |
| Puesto Quiroga | 29,445 | 1 6 | 2 7,508 | 56.0 | + East Spar, 1994 | 9,520 6,200 | 2 8 | 3,770 3,690 | 58.0 38.2 |
| Sierra de Aguarague | 29,445 | b | 7,506 | 30.0 | + North Herald, 1983 | 4,000 | | · | 42.0 |
| TOTAL AUSTRAL | | | | | Rosette (c) | | | 183 367 | |
| Aguada Pichana | | 0 | 2,403 7,834 | | + South Pepper, 1982 | 4,000 | | | 42.0 |
| Argo | 5,250 | 31 | 11,414 | 38.0 | + Stag, 1993 | 2,283 | 8 | 11,975 | 19.0 |
| • Hidra, 1982 | 5,410 | 10 | 6,769 | 38.0 | + Tanami, 1991 | 6,010 | 1 | 787 177 | 38.0 |
| Kaus | | 1 27 | 4,165 10,472 | | i i | | | | |
| | | | ., | | ARC ENERGY Dongara, 1969 | 5,250-5,577 | 1 | 22 | |
| VINTAGE OIL ARGENTINA | 4.200 | 22 | 306 | 23.6 | Yardarino | | | 0 | |
| Bloque 127, 1970 | 4,200 | 22 | 101 | 23.0 | BHP PETROLEUM PTY, LTD. | | | | |
| Canadon Minerales | | 173 | 4,530 | | Buffalo | | | 229 | |
| Canadon Seco-Mesta Expinosa, 1943 | 6,400 | 170 | 3,761 | 23.6 | Chinook/Scindian | | 9 | 3,815 | |
| Cerro Overo, 1959 | 3,600 | 3 | 49 | 23.6 | + Griffin area, 1989 | 8,630 | 9 | 35,940 | 55.0 |
| Cerro Wenceslao El Cordon, 1955 | 3,600-5,900 | 118 34 | 1,833 637 | 27.5 | CHEVRON | 4 000 0 700 | 470 | 40 | 07.7 |
| El Huemul, 1957 | 5,250 | 443 | 10,262 | 31.0 | Barrow Island, 1964 | 1,200-6,700 | 472 | 12 412 | 37.7 |
| Las Heras | | 83 | 1,057 2,866 | | Crest | | | 0 | |
| Mesta Espinosa Norte, 1949 | 6,700 | 45 | 2,059 | 23.6 | Roller | | | 6,700 9,414 | |
| Sur Piedra Clavada | 9,200 | 1 24 | 16 473 | 23.6 | Skate | | | 471 | |
| Tres Picos, 1951 | 9,200 | 24 | 4/3 | 23.0 | Yammaderry | | | 6 | |
| YPF SA | | | | | ESSO-BHP | | | | |
| Bajo del Piche | | 40 325 | 719 16,280 | | + Barracouta, 1965 | 4,550 13,325 | 8 3 | 1,376 3,654 | 62.8 55.0 |
| Barrancas de Los Loros | | 76 | 309 | | + Bream, 1969 | 6,200 | 28 | 15,638 | 45.4 |
| Campamento Central- Canadon Perdido | | 299 | 7.010 | | + Cobia, 1972 | 7,700 4,000 | 18 2 | 11,980 | 44.6 45.0 |
| Canadon Perdido | •••• | 299 | 7,010 | | + Dolphin, 1967 + Flounder, 1968 | 4,000 8,200 | 21 | 4,173 26.850 | 46.7 |
| Las Heras | | 888 | 21,462 | | + Fortescue, 1978 | 7,700 | 23 | 9,205 | 43.0 |
| Canadon Leon-Meseta Espinosa | | 542 | 12,944 | | + Halibut, 1967 | 7,700 7,500 | 16 17 | 15,953 12,815 | 43.3 46.9 |
| Canadon Yatel | | 4 | 25 | | + Mackerel, 1969 | 7,700 | 21 | 7,266 | 45.6 |
| Cerro Bandera | •••• | 36 91 | 662 4,728 | | + Marlin/Turrum, 1966 | 5,100 3,700 | 15 2 | 4,834 8 | 50.0 41.0 |
| Cerro Hamaca Oeste | | 11 | 549 | | + Seahorse, 1978 | 4,700 | 1 | 65 | 53.0 |
| Cerro Mollar Norte | | 2 | 126 | | + Snapper/Moonfish, 1968 | 4,350 | 19 | 7,387 | 47.0 |
| Cerro Piedras-C. Guadal N Chi. de la Sierra Negra | •••• | 42 | 2,200 | | + Tarwhine, 1981 + Tuna, 1968 | 4,500 6,500 | 1 25 | 408 27,145 | 65.0 40.5 |
| (Neuquen & Mendoza) | | 825 | 147,435 | | + West Kingfish, 1968 | 7,500 | 21 | 13,799 | 46.9 |
| El Guadal-Loma del Cuy El Medanito | | 696 94 | 12,451 1,782 | | + West Tuna, 1968 | 8,300 4,800 | 40 0 | 47,795 0 | 43.4 52.9 |
| Escalante-El Trebol | | 417 | 11,182 | | <u>.</u> | .,555 | · | ŭ | 02.0 |
| Filo Morado | | 24 3 | 3,491 151 | | EXXON MOBIL + Wandoo, 1991 | 2,000 | 15 | 18,911 | 19.5 |
| Laguna Atamisqui | | | 37 | | · | 2,000 | 13 | 10,011 | 13.3 |
| Loma de La Mina | | 11 | 298 | | KIMBERLY OIL NL | 4.200 | 4 | FO | 27.0 |
| Loma La Lata-S. Barrosa Los Monos | | 158 19 | 21,747 298 | | Blina, 1981 | 4,300 3,940 | 4 1 | 59 12 | 37.0 37.0 |
| | | 1,148 | 25,553 | | Lloyd, 1987 | 4,806 | 1 | 27 | 39.0 |
| Los Perales-Las Mesetas | | 38 | 292 | | Sundown, 1983 | 3,600 | 3 | 13 | 45.0 |
| Octogono Fiscal | | | | | West Terrace 1985 | 3 800 | 1 | 12 | 33 U |
| Octogono Fiscal Paso de Las Bardas Norte (Neuquen & Mendoza) | | 6 | 334 | | West Terrace, 1985 | 3,800 | 1 | 13 | 33.0 |
| Octogono Fiscal Paso de Las Bardas Norte | | | 334 10,204 11 | | West Terrace, 1985 | 3,800 10,827 | 3 | 13 11 | 33.0 62.0 |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity |
|---|------------------|---------------------|---------------------------------|-----------------|
| PHOENIX Woodada (c), 1980 | 7,800 | 6 | 4 | 53.6 |
| PREMIER OIL AUSTRALIA Mount Horner, 1965 | 4,987 | 8 | 125 | 36.7 |
| WOODSIDE OFFSHORE PETROLEUM PTY | | | | |
| + Corallina, 1995 | 10,490 | 2 | 2,494 | 60.0 |
| + Cossack, 1989 | 9,430 | 1 | 10,721 | 47.0 |
| + Goodwyn (c), 1972 | 9,680 | 12 | 79,596 | 54.5 |
| + Hermes, 1973 | 10,040 | 2 | 8,730 3,010 | 46.0 |
| Laminaria East | | | 1,362 | |
| + Laminaria, 1994 | 10,720 | 4 | 13,427 | 59.0 |
| + North Rankin (c), 1972 | 9,840 | 19 | 21,299 | 54.5 |
| Perseus (c) | 9,430 | 5 | 6,044 18,029 | 49.0 |
| BHP PETROLEUM PTY. LTD. | | | | |
| + Challis/Cassini, 1984 | 5,000 | 7 - | 1 | 39.5 |
| + Jabiru, 1983 | 4,786 | 5 | | 42.3 |
| CULTUS PETROLEUM | | | | |
| lona, 1988 | 4,397 | 2 | | |
| N. Paaratte, 1979 Wallaby Creek, 1981 | 4,839 4,979 | 2 1 | | |
| , | 4,373 | ' | | |
| MOSAIC OIL NL Fairymount, 1985 | 6,700 | 4 | | 50.3 |
| OIL COMPANY OF AUSTRALIA LTD. | | | | |
| Bargie, 1994 | 5,682 | 1 | | 45.6 |
| Black Stump, 1986 | 3,815 9-5,215 | 1 7 | | 45.2 47.8 |
| Bodalla South, 1984 4,78 Cogoon River West, 1990 | 4,660 | | | 47.0 |
| Kenmore, 1985 4,59 | 3-4,986 | 15 | | 48.2 |
| New Royal, 1995 | 4,990 | 3 | | 41.0 |
| Riverslea, 1981 Waratah, 1982 | 4,950 5,350 | 2 1 | | 37.0 34.0 |
| Washpool, 1985 | 5250 | i | | 35.0 |
| Wilga, 1991 | 4,884 | 1 | | 38.0 |
| DRIGIN ENERGY Katnook (c), 1989 | 9,394 | 5 | | 52.0 |
| CANTOS (POL) | | | | |
| SANTOS (BOL) Beechwood (c), 1981 | 5,692 | 1 | | |
| Boxleigh (c), 1970 | 5,300 | 2 | | |
| Broadway (c), 1983 | | 1 | | |
| Glen Fosslyn (c), 1970 Lark (c), 1993 | 5,790 5,817 | 1 1 | | |
| North Boxleigh (c), 1991 | 5,463 | 1 | _ 52,665 | |
| Roswin North (c), 1992 | 5,873 | 1 | , | |
| Roswin (c), 1984 | 5,756 | 1 | | |
| Silver Springs/Renlim (c), 1974 | 5,300 | 6 | | |
| Sirrah (c), 1982 | 5,430 | 2 | | |
| Taylor (c), 1988 | 5,538 | 5 | | 47.0 |
| Tinker (c), 1989 | 5,817 | 1 | | |
| SANTOS EXP Moonie, 1961 | 58,000 | 19 | | 44.5 |
| SANTOS (MOONIE) | | | | 40.0 |
| Mereenie, 1964 | 4,000 | 24 | | 48.9 |
| SANTOS (TRANSOIL) | 3,446 | 1 | | 45.0 |
| Dilkera, 1986 | 3,446 | 1 | | 45.0 |
| Maxwell South, 1989 | 2,890 | 1 | | 45.0 |
| Maxwell, 1987 | 2,952 | 3 | | 45.0 |
| Muthero, 1989 | 4,367 3,318 | 2 | | 45.0 45.0 |
| Thungo, 1986 | 3,998 | 3 5 | | 45.0 |
| Winna, 1985 | 3,334 | 2 | | 45.0 |
| SANTOS QLD | | | | |
| Bogala, 1984 | 6,900 - |] | | |
| Bolan | | | | |
| Challum, 1983 | | | | |
| Chookoo, 1985 | 6,000 | | | 45.0 |
| Cook, 1985 | | | | |
| | | | | |
| Cooroo, 1986 | | | | |
| | | | | |
| Cooroo, 1986 Corella, 1989 Echuburra. Genoa. | | | | |
| Cooroo, 1986 | | | | |

| | Depth. | Producing | 1999 production, | °API |
|---|----------------------------|------------------|---------------------|--------------|
| Name of field, discovery date | ft | oil wells | avg. b/d | gravity |
| Jackson South, 1982 | 4,800 | | | 40.0 |
| Jarran Judga | | | | |
| Mooliampah, 1985 | 6,000 | | | |
| Munro, 1988 Naccowlah, 1989 | | | | |
| Naccowlah, 1989 | 6,000 5,700 | | | |
| Patroclus | 5,700 | | | |
| Patroclus East | | 346 | | |
| Sigma, 1983 | 5700 | 0.10 | | |
| Tickalara, 1984 | 5,600 6,000 | | | |
| Wandillo | · | | | |
| Watson, 1985 | 5,500 | | | 40.0 |
| Wilson, 1983 | 5,000 8,000 - | | | |
| | 0,000 - | _ | | |
| Thevenard Island, 1985 | 4,600-5,750 | 18 | | 48.2 |
| OTHER + Talisman, 1984 | 9,600 | | | 42.0 |
| Total Australia | | 1,384 | 526,750 | |
| Total Australia | | 1,304 | 320,730 | |
| AUSTRIA | | | | |
| OMV Hochleiten, 1977 | 3,100-5,000 | 45 | 2,024 | 21.3 |
| Matzen, 1949 | 6,100 | 645 | 10,296 | 25.7 |
| Muehlberg, 1942 Piperbach, 1938 | 3,900-5,500 3,500 | 21 0 | 160 0 | 35.0 39.0 |
| Pirawarth, 1957 | 1,600-6,500 | 52 | 927 | 28.4 |
| 1962 | 7,800-10,100 | 15 | 1,473 | 31.1 |
| St. Ulrich, 1938 Other | 1,600-4,300 | 40 159 | 685 3,773 | 31.1 27.0 |
| | •••• | 100 | 3,773 | 27.0 |
| RAG Gaieselberg, 1938 | 5,200 | 27 - | 1 | 24.0 |
| Voitsdorf, 1962 | 7,000 | 11 | - 848 | 36.0 |
| Other | | 33 _ | | 31.0 |
| Total Austria | | 1,048 | 20,186 | |
| BAHRAIN | | | | |
| BANOCO Awali, 1932 | 1,850-4,600 | 392 | 32,000 | 33.0 |
| Total Bahrain* | ,, | 392 | 32,000 | |
| Total Banrain* | | 392 | 32,000 | |
| *In addition, Bahrian receives 70,00 Saudi Arabia. | 00 b/d from a joir | ntly owned of | fshore field ope | rated by |
| BANGLADESH | | | | |
| PETRO-BANGLA | | _ | 1 | |
| Bakhrabad (c), 1969 | 9,309 10,496 | 8 1 | | 40.2 42.7 |
| Habiganj (c), 1963 | 11,506 | 6 | | 29.2 |
| Kailastila (c), 1962 | 13,576 10,069 | 4 1 | | 50.0 43.0 |
| Narsingdi (c), 1990 | 11,319 | 1 | 2,848 | 43.7 |
| Rashidpur (c), 1960 Shahbazpur (c), 1995 | 9,886 10,929 | 4 | | 31.1 |
| Syl-7 (c), 1986 | 6,773 | | | |
| Sylhet (c), 1955 | 7,803 12,326 | 1 11 - | J | 42.1 39.1 |
| Total Bangladesh | | 37 | 2,848 | |
| BARBADOS | | | | |
| Boarded Hall, 1990 | 2,922-6,380 | 3 | 12 | 26.3 |
| Edgecumbe, 1984 | 2,044-3,734 | 35 | 834 | 23.3 |
| Lower Greys, 1985 Woodbourne, 1966 | 2,154-4,642 1,665-6,563 | 11 6 8 | 420 608 | 25.3 26.2 |
| Total Barbados | | 117 | 1,874 | |
| TOtal DalbauUS | | 117 | 1,0/4 | |

| Name of field, discovery date | Depth, | Droducina | 1999 | | | | | 1999 | |
|-------------------------------------|-----------------------|------------------|-------------------------|-----------------|---|-----------------------------------|---------------------|-------------------------|----------------|
| DENIINI (a) | ft | oil wells | production, avg. b/d | °API gravity | Name of field, discovery date | Depth, ft | Producing oil wells | production, avg. b/d | °API gravit |
| DEIMIN IEI | | | | | Sao Miguel dos Campos, | | | | |
| PROJET PETROLIER DE SEME | | | | | 1973 | 5,369 - 8,931 7,400 | | | 39.0 31.0 |
| Seme, 1968 | 6,500 | 8 | 2,000 | 23.0 | Tabuleiro do Martins, | | | | 27.0 |
| Total Benin | | 8 | 2,000 | | 1957 | 3,710 - 7,341 _ | J | | 27.0 |
| | | , and the second | _,,,,, | | AMAZONAS Leste do Urucu, 1988 | 10,224 | L 44 | | 40.0 |
| BOLIVIA | | | | | Rio Urucu, 1983 | 9,722 _ | | | 42.0 |
| | | | | | ВАНІА | | | | |
| ANDINA Arroyo Negro, 1999 | 6,921 | 1 | 11 | | Agua Grande, 1951 Apraius, 1973 | 752 - 5,796 — 6,347 - 6,560 | | | |
| Camiri, 1927 | 3,936 11,319 | 31 2 | 243 34 | 55.0 45.6 | Aracas, 1960 | 2,758 - 11,513 | | | |
| Guayruy, 1950 | 3,300 | 4 | 61 | 50.0 | Aratu, 1942 | 1,715 10,460 - 11,662 | | | 35.0 40.0 |
| La Pena, 1965 Los Penocos, 1999 | 8,856 5,740 | 14 1 | 839 10 | 43.0 34.7 | Bom Lugar, 1968 | 10,919 | | | |
| Patuju | 7,216 | 1 | 109 | | Bom Sucesso, 1992 Brejinho, 1961 | 6,265 - 6,724 4,854 - 6,314 | | | 33.0 31.0 |
| Rio Grande, 1962 | 8,220 13,999 | 22 13 | 1,387 1,463 | 57.0 65.0 | Buracica, 1959 Canabrava, 1961 | 3,618 4,772 - 5,025 | | | 35.0 31.0 |
| Tundy, 1992 | 10,597 | 2 | 971 | 48.6 | Candeias, 1941 | 5,281 - 7,656 | | | 31.0 |
| Vibora, 1988 Yapacani, 1968 | 12,949 8,400 | 26 4 | 3,537 210 | 67.9 34.1 | Candeias, 1941 | 2,615 - 9,099 9,643 | | | |
| P.C. | , | | | | Cassarongongo, 1959 | 1,774 - 7,669 | | | |
| BG Escondido, 1980 | 11,293 | 7 | 270 | 60.0 | Cexis, 1960 | 13,048 4,625 | | | |
| La Vertiente, 1977 Los Suris | 9,938 13,776 | 1 3 | 191 194 | 50.0 68.0 | Conceigao, 1967 | 8,151 - 9,750 | | | 39.5 |
| Taiguati, 1981 | 10,174 | 1 | 25 | 63.0 | Dias DÕavila, 1967 | 16,507 945 - 2,780 | | | |
| CANADIAN | | | | | Dom Joao Terra, 1947 Faz. Boa ESperanca/ | 997 - 1,581 | | | |
| Tatarenda, 1964 | 2,296 | 9 | 74 | 65.3 | Salgado, 1966 | 7,970 - 9,564 | | | 20.0 |
| CHACO | | | | | Faz.Álto Das Pedras, 1997 Fazenda Alvorada, 1983 | 1,164 - 3,536 | | | |
| Carrasco, 1991 | 15,650 | 7 1 | 2,922 | 56.1 35.0 | Fazenda Azevedo, 1962 | 7,544 - 8,364 | | | |
| Los Cusis, 1994 | 7,820 8,100 | 9 | 79 1,340 | 33.6 | Fazenda Balsamo, 1983 Fazenda Belem, 1987 | 3,939 - 5,592 8,476 - 9,574 | | | 14.0 |
| Montecristo, 1976 Patujusal, 1993 | 11,349 7,200 | 1 11 | 22 1,910 | 49.5 66.0 | Fazenda Imbe, 1964 | 8,164 | | | |
| San Roque, 1981 | 7,170 | 13 | 458 | 71.0 | Fazenda Onca, 1966 Fazenda Panelas, 1962 | 8,266 4,667 - 5,809 | | | 33.0 |
| Vuelta Grande, 1978 | 8,220 | 24 | 1,928 | 57.0 | Fazenda Rio Branco, 1994 Fazenda Santo Estevao, | 6,626 - 6,691 | | | 34.8 |
| DONG WON Palmar, 1964 | 10758 | 1 | 11 | 65.0 | 1967 | 7,854 - 8,325 2,827 - 3,477 | - 1,464 | | |
| | 10700 | · | | 00.0 | Gomo, 1961 Ilha Da Cacumba, 1988 | 6,235 - 6,298 | 1,404 | | 29.0 |
| MAXUS ENERGY Cambeiti, 1976 | 5,787 | 6 | 52 | 48.0 | Jacuipe, 1956 | 4,159 - 10,716 5,215 - 5,422 | | | 39.5 |
| Magarita, 1997 | 18,040 4,592 | 16 | 1,031 | 41.0 | Lagoa do Paulo Norte, | | | | |
| Paloma | 17,384 | 10 | 7,779 | 53.6 | 1967 | 6,445 - 13,861 10,070 - 10,440 | | | 40.0 |
| Surubi BB Surubi, 1992 | 12,746 14,078 | 2 10 | 525 3,547 | 35.2 39.8 | Leodorio, 1968 | 10,512 | | | 36.0 |
| | 14,070 | 10 | 0,547 | 55.0 | Malombe, 1966 | 3,608 - 4,108 8,174 - 12,825 | | | |
| PEREZ COMPANC Caranda, 1960 | 13,032 | 27 | 312 | 60.0 | Massui, 1964 Mata de Sao Joao, 1951 | 8,725 | | | |
| Colpa, 1962 | 9,184 | 14 | 202 | 65.0 | Miranga, 1965 | 3,769 - 5,294 1,886 - 11,644 | | | |
| PETROBRAS | | | | | Miranga Norte, 1971 Norte Fazenda Caruacu/FC/ | 8,881 - 9,656 | | | |
| San Alberto, 1967 San Antonio, 1999 | 18,040 16,400 | | | | SSB, 1949 | 3,926 - 9,591 | | | |
| | 10,400 | | | | Paramirim Do Vencimento, 1950 | 3,774 | | | 33.7 |
| PLUSPETROL Bermejo, 1925 | 2,085 | 10 | 143 | 42.0 | Quiambina, 1956 Remanso, 1959 | 2,181 2,908 - 4,592 | | | |
| Madrejones, 1999 | 14,330 | | | | Riacho Da Barra, 1982 | 5,871 - 7,167 | | | |
| Toro, 1954 | 2,982 | 17 | 137 | 27.0 | Riacho De Sao Pedro, 1973 | 5,084 | | | 34.7 |
| /INTAGE Chaco Sur, 1999 | 6,560 | 1 | 120 | 66.7 | Riacho Ouricuri, 1981 | 4,605 - 4,953 | | | |
| Naranjillos, 1964 | 4,806 | 2 | 21 | 65.3 | Rio Da Serra, 1950 Rio Do Bu, 1972 | 1,075 3,411 - 6,435 | | | 34.2 |
| Nupucu Porvenir | 8,420 9,600 | 1 3 | 233 60 | 68.0 60.5 | Rio Dos Ovos, 1974 Rio ITariri, 1985 | 4,940 - 5,773 4,664 - 6,022 | | | 32.0 |
| | -,,- | | | | Rio Pipiri, 1995 | 10,489 | | | 32.0 |
| Total Bolivia | | 328 | 32,461 | | Rio Pojuca, 1982 Rio Subauma, 1993 | 6,143 - 6547 5,576 - 5,586 | | | 34.4 |
| DD 4 711 | | | | | Santana, 1960 | 6,071 4,130 - 4,615 | | | 35.2 |
| BRAZIL | | | | | Sao Pedro, 1962 | 4,792 - 5,983 | | | 35.2 |
| PETROBRAS | | | | | Sesmaria, 1966 | 6,694 - 8,630 4,067 - 4,459 | | | 37.0 |
| ALAGOAS Cidade Sao Miguel dos | | | | | Taquipe, 1958 | 3,122 - 7,939 | | | |
| Campos, 1969 8,7 | 741 - 9,217 - |] 7 | | 20.0 | Vale Do Quirico, 1990 | 9,840 _ | J | | 39.0 |
| Fazenda Pau Brazil, 1979 | 470 - 2,893 12,241 | | | 20.0 38.0 | CEARÁ | | | | |
| Furado, 1968 | 8,072 11,006 | - 121 | | 34.0 | Atum, 1979 | 462 - 11,595 | | | |
| godula, 1997 | 7,373 | | | 34.0 | Curima, 1978 | 7,314 - 8,794 | _ 507 | | |
| • Paru, 1985 | 7,373 204 - 6,061 | | | | Espada, 1978 | 11,788 | | | |

| | Name of field, discovery date | | Producing oil wells | 1999 production, avg. b/d | °API gravity |
|-----|---|---|---------------------|---------------------------------|-----------------|
| | Icapui, 1996 | | | | 21.6 |
| • | Xareu, 1977 | 5,838 - 7,308 - | _ | | |
| | PIRITO SANTO Barra Do Ipiranga, 1986 | - |] | | 23.0 |
| • | Cacao, 1977 | 9,758 - 11,224 8,731 - 9,499 | | | 36.0 31.0 |
| | Campo Grande, 1975 Corrego Cedro Norte, 1982. | 7,856 - 7,888 2,886 - 3,395 | | | 20.0 |
| | Corrego Das Pedras, 1985 . Corrego Dourado, 1995 | 2,371 | | | 16.0 16.0 |
| | Corrego Grande, 1984 | 2,854 | | | 15.0 |
| | Faz. Cedro Norte, 1976 Faz. Queimadas, 1981 | 5,117 - 6,563 6,511 | | | |
| | Faz. Sao Jorge, 1983 Fazenda Alegre, 1996 Fazenda Cedro, 1972 | 3,241 - 4,034 | | | 14.0 17.0 |
| | Fazenda Cedro, 1972 Fazenda Juerana, 1986 | 5,671 - 6,806 7,987 | | | 29.0 |
| | Fazenda Santa Luzia, 1992 . Fazenda Sao Rafael, 1996 . | | | | 27.0 |
| | Guriri, 1984 | 5,753 - 5,806 | | | 30.0 14.0 |
| | Lagoa Bonita, 1993 Lagoa Parda, 1978 Lagoa Parda Norte, 1982 | 5,248 - 7,675 4,435 - 7,380 | _ 268 | -1,085,900 | |
| | Lagoa Parda Sul, 1982 Lagoa Piabanha, 1984 | 5,904 4,631 - 5,583 | | | 15.0 11.0 |
| | Lagoa Suruaca, 1981 | 7,865 - 9,840 | | | |
| | Mariricu, 1981 Mariricu Norte, 1981 Mariricu Oeste, 1981 | 4,986 - 5,117 5,461 | | | 24.0 20.0 |
| | Nativo Oeste, 1994 | 4,920 | | | 18.0 |
| | Rio Barra Seca, 1990 Rio Doce, 1980 | 8,006 7,393 - 7,551 | | | 21.0 30.0 |
| | Rio Ibiribas, 1988 Rio Itaunas, 1977 | 2,896 3,660 - 4,582 | | | 14.0 |
| | Rio Itaunas Leste, 1994 | 6,019 - 6,307 | | | 25.0 26.0 |
| | Rio Preto, 1976 Rio Preto Oeste, 1979 | 4,959 4,103 - 4,379 | | | 23.0 17.0 |
| | Rio Sao Mateus, 1979 Sao Mateus, 1969 | 4,057 5,510 _ | | | |
| РΔ | RANÁ | 5,5.0 | - | | |
| | Caravela, 1992 | | 2 | | 39.5 |
| RIG | D DE JANEIRO Albacora, 1984 | 11,913 | ٦ | | |
| : | Aneguim, 1981 | 9,348 - 10,936 623 - 11,742 | | | 27.0 |
| ٠ | Badejo, 1979 | 13,819 | | | |
| • | Bicudo, 1976 | 9,761 | | | 23.0 |
| : | Bijupira, 1990 | | | | 28.0 |
| : | Carapeba, 1982 Caratinga, 1994 | 12,776 | | | |
| : | Cherne, 1976 | 14,235 11,086 - 15,623 | | | 27.0 |
| : | Corvina, 1978 Enchova, 1976 | 11,467 10,319 | | | 28.0 |
| : | Enchova Oeste, 1983 Garoupa, 1974 | 8,410 10,972 - 13,612 | 454 | | 25.0 30.0 |
| : | Garoupinha, 1975 | 9,194 - 11,480 11,182 | | | 29.0 |
| • | Linguado, 1978 Malhado, 1986 | 10,673 11,710 | | | 29.0 |
| : | Marlim, 1985 | 11,152 | | | 20.0 26.0 |
| : | Moreia, 1983 | 11,109 | | | |
| : | Namorado, 1975 Nordeste de Namorado, | 13,304 | | | |
| | 1987 | 11,316 - 11,447 11,513 | | | 36.0 |
| • | Parati, 1980 | 8,728 10,512 - 12,549 | | | 27.0 23.0 |
| : | Pirauna, 1981 | 10,407 | | | 31.0 |
| | Trilha, 1982 Vermelho, 1985 | 10,447 - 11,247 11,283 | | | 31.0 |
| : | Viola, 1979 | 10,250 - 12,205 10,211 - 12,300 <i>-</i> | | | 25.0 |
| RIG | O GRANDE DO NORTE | , ,,,,,,, | | | |
| • | Agulha, 1975 Alto Alegre, 1993 | 649 - 8,987 - |] | | 38.0 |
| | Alto Do Rodrigues, 1981 Aratum, 1982 | 3,018 4,841 | | | |
| • | Area Do Rns-105, 1996 Baixa Do Algodao, 1986 | 1,345 - 2,614 | | | |
| | Daina Do Aigodau, 1300 | 1,040 - 2,014 | | | |

| Baixo Vermelho, 1988 9,397 | |
|---|--------------|
| | |
| Barrinha, 1990 5,350 Benfica, 1997 | 31.0 |
| Boa Esperanca, 1997 | |
| Brejinho, 1961 9,958 | 31.0 |
| Cachoeirinha, 1986 7,246 Canto Do Amaro, 1983 5,100 | |
| Estreito. 1981 1.814 | |
| Fazenda Canaa, 1990 5,100 - 5,353 Fazenda Curral, 1988 3,280 - 4,169 | 25.5 |
| Fazenda Malaquias, 1989 . 3,739 Fazenda Pocinho, 1981 3,510 | 36.0 |
| Guamare, 1980 2,152 - 3,228 | 22.0 |
| Jandui, 1984 5,829 - 6,117 Juazeiro, 1990 6,445 | 39.0 |
| Lagoa Aroeira, 1982 2,624 | 17.9 |
| Livramento, 1983 3,136 - 7,879 Logradouro, 1991 3,664 | |
| Lorena, 1984 5,724 Macau, 1981 3,332 - 4,300 | |
| Monte Alegre, 1981 1,706 | |
| Morrinho, 1994 | 35.0 |
| Noroeste Do Morro Do Rosado, 1987 7,459 - 10,076 | 36.0 |
| Pajeu, 1995 | 32.0 |
| Pedra Sentada, 1997 Pereiro, 1991 5,658 | |
| Poco Verde, 1990 5,630 | 30.0 42.0 |
| Ponta Do Mei, 1986 2,952 - 6,807 | |
| Porto Carao, 1992 2,736 Porto Do Mangue, 1981 4,986 | 16.7 |
| Redonda, 1984 2,575 - 2,795 | 18.0 |
| Redonda Profundo, 1990 4,828 Riacho Alazao, 1993 | 35.0 |
| Rlacho Da Forquilha, 1988 . 13,366 Riacho Velho, 1988 6,560 | |
| Rio Do Carmo, 1985 | |
| Rio Mossoro, 1984 5,943 - 6,462 Salina Cristal, 1982 4,412 | 34.0 |
| Salina Cristal, 1982. 4,412 Sao Manuel, 1987. 8,088 Sao Miguel, 1990. 2,719 | 28.0 |
| Serra Do Mei, 1997 | |
| Serra Vermelha, 1986 3,319 - 3,346 Serraria, 1982 4,520 - 5,825 | 39.0 |
| Tres Marias, 1981 3,493 - 5,136 | |
| • Ubarana, 1973 | |
| Varzea Redonda, 1986 9,079 | |
| • Merluza, 1990 | |
| Aguilhadas, 1966 3,044 - 4,654 | 31.0 |
| Angelim, 1968 | 42.0 |
| Area Ses-107D, 1994 10,896 | 41.1 |
| Aruarl, 1986 | 24.8 |
| Brejo Grande, 1969 4,264 - 5,678 • Caioba, 1971 | 32.0 |
| • Camorim, 1971 1,856 - 10,102 | |
| Carmopolis, 1963 5,924 Castanhal, 1967 1,312 - 1,612 1,225 | 15.5 |
| Cidade de Aracaju, 1982 7,068 | |
| Foz Do Vaza Barris, 1988 9,118 | |
| Guaricema, 1968 6,153 Ilha Pequena, 1983 3,608 - 10,056 | 41.0 |
| Mato Grosso, 1969 2,034 - 2,444 | 28.0 |
| Riachuelo, 1961 | 28.4 28.0 |
| Sirifizinho, 1967 | 25.0 |
| Total Brazil | |
| BRUNEI | |
| • Ampa SW, 1963 | 41.0 |
| Asam Paya, 1989 | 23.0 |
| • Champion West, 1975 | |
| • Enggang, 1992 | 40.0 |

| WORLDWIDE PRODUCTION | ON | | | | | | | | |
|--|----------------------------|---------------------|--------------------------------|-------------------|--|-----------------------------|---------------------|--------------------------------|-------------------|
| Name of field, discovery date | Depth, | Producing oil wells | 1999 production avg. b/d | , °API gravity | Name of field, discovery date | Depth, | Producing oil wells | 1999 production avg. b/d | , °API gravity |
| • Fairley-Baram, 1973 | 9,500 | 3 | ĺ | 40.0 | Harmattan East, 1954 | 6,358-8,766 | 57 | 1,826 | |
| Gannet, 1,977 | | 4 | _ 164,171 | 40.0 | Harmatton Elkton, 1955 Hayter, 1968 | 8,796-10,757 2,030-2,815 | 56 633 | 1,533 16,100 | |
| Magpie, 1975 | | 20 | | 31.0 | Innisfail, 1956 Joarcam, 1949 | 6,730-8,440 3,179 | 20 142 | 567 3,745 | |
| Rasau, 1929 | | 27 292 - | | 30.0 34.0 | Joffre, 1953 Judy Creek, 1951 | 4,983-6,779 8,307-8,701 | 107 154 | 2,687 10,850 | 43.0 |
| | | 232 | | 34.0 | Kaybob, 1957 | 4,870-9,577 | 61 | 2,713 | 43.0 |
| TOALFINAELF Maharaja Lela, 1989 | 12,205 | 7 | 1,500 | | Kaybob S., 1958 Leduc-Woodbend, 1947 | 5,600-10,042 3,062-5,380 | 44 123 | 3,445 1,841 | |
| Total Brunei | | 779 | 165,671 | | Lloydminster, 1933 Medicine River, 1954 | 1,690-1,945 5,435-7,600 | 413 250 | 7,969 9,352 | |
| | | | 100,071 | | Mitsue, 1964 | 5,908 5,648-5,726 | 238 229 | 9,108 10,331 | 41.0 |
| BULGARIA (e) | | | | | Pembina, 1953 | 3,000-6,133 | 3,330 | 48,088 | 32.0-37.0 |
| PLEVEN OIL & GAS | | | | | Provost, 1946 | 2,760-2,898 4,994-6,160 | 3,246 254 | 62,618 23,723 | 38.0-42.0 |
| Bazoveta (c), 1985 | |] | | 42.3 | Rainbow South, 1965 Red Earth, 1956 | 6,102-6,400 4,184-4,878 | 57 227 | 5,947 5,531 | |
| Budarski Geran, 1976 | | | | 38.0 49.9 | Redwater, 1948 | 2,012-3,200 10,500 | 645 33 | 7,648 12,833 | 35.0 |
| Doini Dubnik, 1962 | 10,827-11,423 | | | 42.3 | Snipe Lake, 1962 | 8,500 | 33 | 1,421 | |
| Doini Lucovit, 1975 Gigen | 10,170-10,827 312-3,201 | _ 100 | 1,000 | 39.0 | Sturgeon Lake S., 1953 Swan Hills, 1957 | 4,912-8,471 8,100 | 119 512 | 6,167 25,204 | 37.0 40.0 |
| Gorni Dubnik, 1965 Kriva Bara | 10,827-11,423 | | | 40.0 54.4 | Swan Hills S., 1959 | 8,400 3,110-3,270 | 138 282 | 5,829 7,316 | |
| Starosaltsi | 1,148-1,312 | | | 39.0 19.4 | Turner Valley, 1913 Utikuma Lake, 1963 | 3,100-9,150 5,624 | 113 111 | 2,241 5,936 | 39.0 |
| Uglen (c), 1987 | 16,732-17,388 | _ | | 49.9 | Valhalla, 1973 | 1,815-7,060 | 540 | 17,441 | |
| Total Bulgaria | | 100 | 1,000 | | Virginia Hills, 1957 | 9,210 1,903-2,200 | 112 535 | 8,082 5,496 | 34.0 |
| | | | | | Westerose, 1952 | 6,818 | 29 19 | 2,293 1,395 | |
| CAMEROON (| e) | | | | Willisden Green, 1956 Wizard Lake, 1951 | 5,157 4,044-5,973 | 535 42 | 6,841 2,024 | |
| ELF | | | _ | | Zama, 1966 | 3,702 | 55 | 2,564 | 33.0-37.0 |
| Asoma Centre, 1977 Asoma Marine, 1973 | 4,000 3,600 | 10 ⁻ | | 26.1 19.0 | Other BRITISH COLUMBIA | | 12,806 | 380,105 | |
| Bakassi Marine, 1976Barombi Marine, 1975 | 6,500 7,400 | 1 2 | | 37.1 34.1 | Boundary Lake, 1957 | 3,418-4,575 | 474 | 6,717 | 40.0 |
| • Bavo, 1976 | 5,600 | 23 | | 29.3 | Eagle West, 1976 Other | 2,170-3,940 | 137 314 | 1,454 32,251 | |
| Betika, 1972 | 5,300 5,530 | 5 4 | | 42.5 36.2 | EAST COAST | | | | |
| Betika Sud Marine, 1979Biboundi, 1974 | 6,300 6,400 | 2 0 | | 30.0 34.6 | Cohasset Hibernia | | 0 7 | 2,417 99,752 | |
| Boa, 1976 | 5,900 | 4 | | 35.0 | Panuke | | 0 | 3,709 | |
| Center, 1972 | 7,200 | 22 | | 29.0 | MANITOBA Total for all fields | | 1,246 | 10,020 | |
| 1977 | 5,250 6,200 | 12 11 | _ 100,000 | 36.0 24.0 | NEW BRUNSWICK | | 0 | 0 | |
| Inoua Marine, 1976 | 6,200 5,600 | 9 14 | | 32.8 26.1 | Total for all fields | TIC ICI ANDC | 0 | 0 | |
| Kita É. Marine, 1978 | 6,900 | 9 | | 40.8 | NORTHWEST TERRITORIES & ARC Bent Horn | TIC ISLANDS | 0 | 0 | |
| Kole, 1974Kole Superieur, 1978 | 5,500 4,100 | 6 | | 31.0 23.0 | Norman Wells | •••• | 185 | 26,707 | |
| Kombo Center, 1976Kombo Nord, 1978 | 5,900 5,700 | 14 4 | | 37.0 36.0 | ONTARIO Total for all fields | | 1,170 | 4,212 | |
| Kombo Sud, 1979 | 5,700 5,100 | 2 5 | | 42.1 29.8 | SASKATCHEWAN | | | | |
| PERENCO | 3,100 | ŭ | | 20.0 | Steelman, 1950 | 4,600 | 575 957 | 7,160 24,004 | |
| Moudi, 1979 | 5,250-5,900 | 3 | | 40.0 | Other | | 17,447 | 342,955 | |
| • Moudi D., 1980 | 3,300 | 5 | | 21.3 | Total Canada | | 50,919 | 1,346,528 | |
| PECTEN INERNATIONAL Makoko NE plus Abana, | | | | | | | | | |
| 1977 | 4,600 3,300 | 45 27 - | | 29.0 17.0 | CHILE (e) | | | | |
| Total Cameroon | | 255 | 100,000 | | ENAP-CONTINENTE Canadon, 1962 Daniel, 1960 | 6,090 5,806 | 3 29 |] | 38.4 25.4 |
| CANADA | | | | | Daniel Este, 1961 | 5,523 7,694 | 8 12 | | 25.0 35.0 |
| ALBERTA | | | | | Dungeness, 1962 | 5,251 | 7 | | 28.6 |
| Acheson, 1950 | 3,390 | 50 | 1,330 | 38.0 | Faro Este, 1959 Posesion, 1960 | 7,381 5,622 | 5 36 | | 35.0 63.6 |
| Bantry, 1940 | 2,574-3,300 2,950 | 229 463 | 5,950 6,937 | | ENAP-COSTA AFUERA | | | | |
| Bonnie Glen, 1952 | 3,959-6,779 | 44 182 | 1,515 3,415 | 34.0-44.0 | Anguila AN-1, 1989 | 5,758 5,722 | 8 5 | | 32.0 33.0 |
| Carson Creek N., 1958 Cessford, 1950 | 8,787-8,935 2,800-3,028 | 42 217 | 4,374 3,629 | 44.0 | Catalina Norte, 1989 Daniel, 1990 | 5,807 5,840 | 13 17 | | 38.0 35.0 |
| Clive, 1951 | 6,074-6,208 | 89 | 1,983 | | Daniel Este-Dungeness, | | | 0.000 | |
| Countess, 1951 Fenn Big Valley, 1950 | 2,858-4,272 3,900-5,400 | 142 78 | 9,475 1,703 | 32.0 | 1984 | 6,126 7,156 | 18 11 | 9,000 | 35.9 33.0 |
| Gilby, 1962 | 4,201-7,000 3,570-5,961 | 121 44 | 4,674 1,024 | 36.0 | Pejerrey, 1984 | 7,229 6,727 | 16 12 | | 39.0 34.5 |
| Grand Forks | | 406 | 10,351 | | Skua, 1988 | 5,932 | 24 | | 32.0 |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity | Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity |
|---|-------------------------|---------------------|---------------------------------|----------------------|---|------------------|---------------------|---------------------------------|-----------------|
| Spiteful, 1979 | 6,288 7,150 6,211 | 15 5 7 | | 34.5 39.0 33.0 | BP EXPLORATION Cusiana, 1988 Cupiagua, 1993 | 14,200 16,500 | 46 6 | | 36.4 41.0 |
| NAP-ISLA Calafate, 1956 | 6,045 | 6 | | 49.3 | ECOPETROL ALTO MAGDALENA | | | | |
| Catalina, 1956 | 5,756 | 3 | | 38.7 | Brisas, 1973 | 5,900 | 4 2 | | 22.9 |
| Catalina Sur, 1962 Cullen, 1954 | 5,779 5,730 | 3 16 | | 44.0 41.8 | Cebu, 1981 | 6,800 | 8 36 | | 20.1 |
| Cullen Este, 1988 Flamenco, 1954 | 5,479 6,545 | 1 | | 40.0 40.2 | Dina Cretaceos, 1961 | 7,000 | 18 | | 22.0 |
| Gaviota Norte, 1990 | 7,000 | 5 5 | | 38.0 | Dina Terciarios, 1961 Hato Nuevo Loma Larga, | 4,100 | 57 | | 19.8 |
| Golondrina, 1978 | 5,906 6,025 | 2 2 | | 37.0 39.0 | 1969 | 7,500 | 2 5 | | 36.4 |
| Lago Mercedes, 1992 Punta Baja, 1954 | 12,468 7,545 | 1 3 | | 39.0 | Pacande | | 2 | | |
| Sombrero Este, 1992 | 6,506 | 2 | | 36.0 | Palagua Palogrande, 1971 | 6,700 | 101 26 | | 20.3 |
| Tres Lagos, 1957 | 5,724 | 15 | | 40.1 | Pijao, 1981 | 7,900 | 7 2 | | 20.4 |
| Total Chile | | 315 | 9,000 | | Santa Clara, 1987 | 3,000 | 10 | | 18.4 |
| CHINA (e) | | | | | Tenay, 1985 | 12,400 | 3 5 2 | | 36.5 |
| CNPC | | | | | Toy | | 2 | | |
| Northeast: | | 20.704 | 1 100 000 | | Apiay, 1981 | 10,650 | 13 | | 22.0 |
| Daqing Liaohe | | 20,784 9,808 | 1,108,000 291,040 | | Apiay Este, 1987 Castilla Este, 1989 | 10,650 7,050 | 1 | | 18.0 13.0 |
| Jilin | | 5,695 | 77,370 | | Castilla Norte, 1988 | 7,050 | 2 | | 13.0 |
| Huabei | | 2,886 | 95,930 | | Gavan, 1995 | 11,200 10,750 | 1 3 | | 14.2 25.0 |
| Dagang | | 2,137 193 | 84,170 12,810 | | La Reforma, 1985 Libertad, 1985 | 11,050 11,200 | 1 2 | | 33.7 36.0 |
| East: Shengli | | 14,367 | 540,620 | | Libertad Norte, 1987 | 11,050 | 3 | | 33.0 |
| Zhongyuan | | 2,499 | 76,040 | | Pompeya, 1988 | 10,400 11,900 | 1 1 | | 33.0 29.5 |
| Jiangsu | | 539 | 28,720 | | Saurio, 1988 Suria, 1985 | 10,858 10,350 | 1 5 | | 42.8 35.0 |
| Central & South: Henan | | 1,205 | 37,060 | | Suria Sur, 1985 | 10,350 | 4 | | 33.0 |
| Jianghan | | 461 | 16,460 | | Tanane, 1986 | 10,600 | 1 | | 33.0 |
| Northwest: Xinjiang | | 6,904 | 181,420 | | ECOPETROL CENTRO ORIENTE Aguas Blancas, 1962 | 7,000 | 4 | | 30.0 |
| Changqing | | 2,213 351 | 86,570 37,970 | | Bajo Rio, 1958 | 8,000 | 1 | | 23.0 |
| Yanchang | | | 41,130 | | Bonanza, 1962 | 4,400 | 12 7 | | 21.6 |
| Tarim Turpan-Hami | | 118 | 85,240 59,780 | | Cantagallo, 1943 Carbonera, 1939 | 7,500 3,000 | 9 | | 20.0 21.0 |
| Yumen | | 1,139 | 8,480 | | Casabe, 1941 | 4,000 | 316 | | 19.0 |
| Sichuan | | 243 | 4,180 | | Cerrito | | 1 6 | | |
| , | | | 670 | | Colorado, 1925 | 4,000 9,900 | 16 12 | | 30.0 26.7 |
| Others | | 713 | 28,010 | | Cristalina, 1959 | 9,500 | 1 | | 29.0 |
| • Offshore | | , | 322,780 | | Gala, 1985 | 7,500 5,000 | 10 35 | | 20.0 19.0 |
| Total China | | 72,255 | 3,224,450 | | Garzas, 1957 La Cira, 1926 | 6,000 3,300 | 1 739 | | 31.0 23.0 |
| | | | | | Lisama, 1965 | 8,000 | 77 | | 30.0 |
| CHINA, TAIWA | N | | | | Llanito, 1961 Nutria, 1981 | 7,000 8,000 | 42 18 | | 20.0 30.0 |
| | I V | | | | Penas Blancas, 1957 | 4,000 7,000 | 4 7 | | 22.0 30.0 |
| CHINESE PETROLEUM Chingtsohu, 1967 | 5,346-12,000 | 6 | 125 | 60.0 | Petrolea, 1933 | 600 7,000 | 5 3 | | 44.0 43.0 |
| Chinshui & Yunghoshan, 1971 | 5,248-12,000 | 20 | 59 | 45.0 | Puerto Barco, 1958 Rio de Oro, 1920 | 8,000 | 14 | | 35.0 |
| Chuhuangkeng, 1904 | 6,560-15,600 | 27 | 125 | 35.0 | Rio Zulia, 1962 | 6,200 10,200 | 17 3 | | 41.1 26.7 |
| Tiechengshan, 1962 Other | 9,840 6,560-8,800 | 14 6 | 498 6 | 51.0 30.0 | San Luis, 1926 San Silvestre, 1958 | 5,000 3,500 | 2 | | 35.0 19.0 |
| Total China, Taiwan | | 73 | 813 | | Santos, 1960 | 9,500 | 78 | | |
| , | | | | | Sardinata, 1941 Sogamoso, 1973 | 7,000 10,000 | 6 2 | | 36.0 29.0 |
| | | | | | Suerte, 1963 | 9,600 8,000 | 33 23 | | 26.7 30.0 |
| COLOMBIA | | | | | Tibu, 1940 | 4,500 | 183 | | 35.0 |
| CHEVRON PETROLEUM Castilla, 1969 | 6,500 | 21 | 20,081 | 13.5 | Yarigui, 1955 | 8,500 | 52 | | 16.0 |
| Chichimene, 1969 | 6,500 | 13 | 7,831 | 21.3 | ECOPETROL D. SUR | 40.000 | 40 | | 00.5 |
| Tello, Dino, Chino, L.C | | | 201 | | Acae San Miguel, 1965 Caribe, 1959 | 10,800 7,900 | 13 3 | | 30.1 30.7 |
| MERICAN INTERNATIONAL PETR Togui Togui, 1985 | OLEUM CORP. 3,000 | 23 - | 1 | 21.4 | Cencella, 1991 | 9,620 9,200 | 1 3 | | 32.0 31.9 |
| | | 23 | | 21.4 | Loro, 1968 | 10,600 | 5 | | 30.5 |
| ARGOSY ENERGY INTERNATIONA Linda, 1990 | L 9,100 | 4 | | 28.0 | Mansoya, 1929 Orito, 1963 | 9,600 6,800 | 1 56 | | 32.7 32.6 |
| Mary, 1990 | 8,000 | 4 | | 28.3 | Quilili, 1958 | 9,600 | 2 | | 30.0 |
| Miraflor, 1991 | 7,000 9,400 | 4 | | 27.5 27.6 | San Antonio, 1969 Sibundoy, 1988 | 9,600 9,600 | 1 1 | | 31.9 27.6 |

| Name of field, discovery date | 38.7 33.0 33.2 33.2 33.0 32.0 31.5 31.0 31.0 31.0 31.0 31.0 31.0 31.0 34.0 |
|--|--|
| Sucombios, 1959 9,000 3 32.6 Total Colombia 3,072 815,482 | 38.7 33.0 33.2 30.0 32.0 31.5 31.0 31.0 31.0 31.0 31.0 31.0 31.0 |
| Varilla, 1991 | 33.0 33.2 30.0 32.0 31.5 31.0 34.0 31.0 31.0 31.0 31.0 34.0 |
| Rubiales, 1989 2,600 3 12.6 CONGO, (FORMER ZAIRE) | 33.0 33.2 30.0 32.0 31.5 31.0 34.0 31.0 31.0 31.0 31.0 34.0 |
| Arauca, 1980 | 33.0 33.2 30.0 32.0 31.5 31.0 34.0 31.0 31.0 31.0 31.0 34.0 |
| Rio Ceibas, 1988. 4,500 4 22.9 22.6 | 33.0 33.2 30.0 32.0 31.5 31.0 34.0 31.0 31.0 31.0 31.0 34.0 |
| RELT DE COLOMBIA Abejas, 1990. 5,600 1 33.0 Moko, 1972. 12,310 1 67 67 67 67 67 67 67 | 30.0 32.0 31.5 31.0 31.0 31.0 31.0 31.0 31.0 31.0 34.0 |
| Abejas, 1990. 5,600 1 33.0 2 32.3 3.0 | 31.5 31.0 34.0 31.0 31.0 31.0 31.0 34.0 |
| Cano Garza 1979. 7,900 2 Cano Garza Este, 1992. 8,490 1 Cano Garza Stete, 1992. 8,490 1 Cano Garza Stete, 1992. 8,490 1 Cano Garza Norte, 1983. 7,900 1 Chaparrito, 1988. 5,400 1 Chaparrito, 1988. 5,470 1 Cano Carza Stete, 1997. 11,376 1 Cravo Este, 1987. 11,376 1 Cravo Este, 1987. 11,376 1 Cravo Este, 1987. 11,376 1 Cravo Stur, 1982. 10,600 2 Cravo Este, 1987. 11,376 1 Cravo Este, 1987. 10,600 2 Cravo Este, 1987. 10,600 3 Clavaria, 1978. 10,600 3 Clavaria, 1978. 10,600 1 Cravo Este, 1987. 10,600 1 Cravo Este, 1988. 10,600 1 Cravo Este, 1987. 10,600 1 Cravo Este, 1988. 10,600 1 Crav | 34.0 31.0 31.0 31.0 31.0 31.0 34.0 |
| Cano Garza Norte, 1983. 7,900 1 40.2 | 31.0 31.0 31.0 31.0 31.0 34.0 |
| Chap. Nte., 1989. 5,470 1 33.0 Kinkasi, 1972 3,700 36 1,222 Crave Este, 1987 11,376 1 42.0 Liawenda, 1972 3,900 54 2,215 Crave Sur, 1982. 10,600 2 40.2 Makelekese, 1983. 3,600 8 251 Guanapalo, 1986 5,640 1 29.8 Muanda, 1972 3,600 6 239 Guarilaque, 1988 5,430 3 24.4 Nsiamfuru, 1977 8,300 0 0 0 Guasar, 1991 5,430 1 25.0 Jordan Nte., 1986. 5,570 1 29.3 Total Congo, Democratic Republic of Total Congo, Democratic Republic of Total Congo, Democratic Republic of Total Congo, 1987 14,000 4 17.2 La Gloria, 1987 14,000 4 17.2 Los Toros, 1989 5,300 3 34.2 La Gloria, 1984 15,500 2 30.0 Morichal, 1984 15,500 2 30.0 Paravare, 1986 6,240 1 28.0 Sardinas, 1982 5,420 2 26.3 Tierra Blanca, 1987 14,493 1 70caria, 1980 13,500 3 32.1 Total Congo, Democratic Republic of Loango, 1972 3,000 52 7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | 31.0 31.0 31.0 34.0 |
| Cravo Sur, 1982. 10,600 2 40.2 Guanapalo, 1986. 5,640 1 29.8 Makelekese, 1983. 3,600 8 251 Guanapalo, 1986. 5,640 1 29.8 Muanda, 1972. 3,600 6 239 Muanda, 1977. 8,300 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 31.0 34.0 |
| Guarilaque, 1988 | |
| Jordan Nte. 1986 | 34.0 |
| La Flora, 1985 | |
| Paravare, 1986 . 6,240 1 28.0 2 Zatchi, 1980 . 2,000 51 Sardinas, 1982 . 5,420 2 26.3 Tierra Blanca, 1987 . 14,493 1 32.0 Tocaria, 1980 . 13,500 3 32.1 Emeraude, 1969 . 820 82 Trinidad, 1974 . 9,000 6 32.4 Likouala, 1979 . 4,270 26 • Nkossa, 1984 . 11,000 17 Pointe Indienne, 1951 . 5,000 3 Juncal, 1991 . 9,190 1 28.7 Sendji, 1973 . 3,940 55 Los Trompillos, 1990 . 8,840 1 29.5 Tchendo, 1979 . 1,600 21 | |
| Paravare, 1986 . 6,240 1 28.0 2 Zatchi, 1980 . 2,000 51 Sardinas, 1982 . 5,420 2 26.3 Tierra Blanca, 1987 . 14,493 1 32.0 Tocaria, 1980 . 13,500 3 32.1 Emeraude, 1969 . 820 82 Trinidad, 1974 . 9,000 6 32.4 Likouala, 1979 . 4,270 26 • Nkossa, 1984 . 11,000 17 Pointe Indienne, 1951 . 5,000 3 Juncal, 1991 . 9,190 1 28.7 Sendji, 1973 . 3,940 55 Los Trompillos, 1990 . 8,840 1 29.5 Tchendo, 1979 . 1,600 21 | |
| Tierra Blanca, 1987 | 27.0 26.6 |
| Trinidad, 1974 9,000 6 32.4 Likouala, 1979 4,270 26 • Nkossa, 1984 11,000 17 LASMO OIL (COLOMBIA) LTD. Juncal, 1991 9,190 1 28.7 Sendiji, 1973 3,940 55 Los Trompillos, 1990 8,840 1 29.5 Tchendo, 1979 1,600 21 | 22.3 |
| LASMO OIL (COLOMBIA) LTD. Pointe Indienne, 1951 5,000 3 Juncal, 1991 9,190 1 28.7 Sendji, 1973 3,940 55 Los Trompillos, 1990 8,840 1 29.5 Tchendo, 1979 1,600 21 | 33.0 40.7 |
| Los Trompillos, 1990 | 35.0 29.3 |
| | 33.0 26.0 |
| Matachin Sur, 1994 6,700 2 24.0 • Yanga, 1979 2,950 43 🗆 | 29.4 |
| Palmar, 1990 | 16.2 |
| Santiago, 1985 | |
| NOMECO Other fields | |
| Guacamayo, 1988 6,700 1 40.0 Total Congo, Republic of | |
| OCCIDENTAL Cano Limon, 1983 | |
| Cano Yarumal, 1987 7,600 16 29.0 INA-NAFTAPLIN Redondo, 1984 7,600 8 30.2 Benicanci, 1966 6,752-5,938 18 588 | 30.2 |
| OMINEX DE COLOMBIA LTD. Bilogora, 1966. 3,346-5,052 17 314 Bizovac, 1989. 5,483-5,499 8 551 | 40.8 33.8 |
| Cocorna | 31.0 30.2 |
| 1eca, 1981 | 34.6 28.9 |
| | 31.1 36.0 |
| PETROLEOS COLOMBIANOS Galovac-Pavljani 1,250-1,938 4 301 Ilaca, 1982 3,445-4,183 7 220 | 34.4 31.1 |
| Andalucia, 1980 | 33.4 33.0 |
| Dona Maria, 1989 8,500 2 Jezevo, 1963 6,234-7,382 7 125 | 37.6 36.7 |
| Rio Zulia 6,650 41.0 Klostar, 1952 2,297-4,593 41 597 | 51.5 36.3 |
| Santa Lucia, 1988 9,700 3 20.3 Kozarica, 1972 3,281-3,609 15 202 Tisquirama 4 Kucanci-Kapelna, 1973 6,562-7,218 9 373 | 23.6 25.2 |
| PETROMINEROS Legrad 1 20 Totare, 1987 1,200 4 22.0 Leticani, 1989 4,584-4,817 3 20 | 22.8 35.0 |
| PETROSANTANDER COLOMBIA Lipovljani, 1960 | 36.7 |
| Payoa, 1961 | 32.5 57.2 |
| | 31.1 |
| Balcon/Colomb., 1988 10,200 5 34.0 Obod, 1967 6,378-7,550 2 122 | |
| Palermo, 1988 | 32.5 |
| San Francisco, 1985 2,800 61 27.0 Sandrovac, 1962 2,250-3,700 78 1,613 | |

| WONEDWIDE THOOGOTH | | | 1999 | |
|---|---|---------------------|------------------------|------------------------|
| Name of field, discovery date | Depth, ft | Producing oil wells | production avg. b/d | , °API gravity |
| Stari Gradac (c), 1980 Stevkovica, 1978 Struzec, 1956 | 11,720-13,630 7,710-9,843 2,362-3,773 | 5 13 56 | 757 329 2,809 | 51.4 31.9 38.8 |
| Sumecani | 6,135-6,562 | 0 2 | 0 6 | 31.6 |
| Voloder, 1979 Zutica (c), 1963 | 6,562-6,595 | 2 6 | 122 21 | 35.2 87.9 |
| Zutica, 1963 | 5,742-6,923 | 126 | 2,665 | 33.8 |
| Total Croatia | | 723 | 24,559 | |
| CUBA (e) | | | | |
| CUBAPETROLEO Boca Jaruco, 1968 | 5,000 | 75 7 | | 13.0 |
| Mataguillar, 1996 Perifericos, 1972 | 4,000 5,000 | 4 17 | | 15.0 21.0 |
| Pina, 1989 Puerto Escondido, 1992 | 3,500 5,000 | 51 5 | | 27.0 13.0 |
| Varadero, 1969 | 6,000 | 93 | - 37,000 | 10.0 |
| • Canasi, 1999 | 7,500 | 3 | | 10.6-11.1 |
| Puerto Escondido, 1998 Seboruco, 1999 | 7,700 11,900 | | | 10.7-12.3 11.6-12.1 |
| Yumuri, 1999 | | 1 _ | | 11.6-12.1 |
| Total Cuba | | 245 | 37,000 | |
| DENMARK | | | | |
| • Dagmar, 1983 | 4,600 | 2 | 200 | 37.0 |
| • Dan, 1971 | 6,070 6,900 | 52 31 | 99,000 58,400 | 31.0 34.0 |
| Harold, 1980Kraka, 1966 | 8,900-12,000 5,900 | 3 7 | 22,800 7,000 | 44.0 33.0 |
| Lulita, 1992 | 11,600 | 2 1 | 3,900 | 32.0 |
| • Roar, 1968 | 5,600 6,800 | 3 | 500 4,600 | 33.0 52.0 |
| Rolf, 1981Skjold, 1977 | 5,900 5,200 | 2 18 | 1,300 31,500 | 31.0 29.0 |
| Svend, 1975 | 8,200 6,600 | 3 38 | 9,100 15,300 | 36.0 40.0 |
| Valdemar, 1977 | 8,500 6,900 | 4 2 | 1,500 3,800 | 42.0 29.0 |
| Siri, 1995 | 6,800 9,200 | 5 5 | 27,500 13,000 | 37.0 36.0 |
| Total Denmark | 0,200 | 178 | 299,400 | 55.5 |
| DLIDAL (a) | | | | |
| DUBAI (e) | | | | |
| Margham, 1981 | 11,200 | | | 43.5 |
| DUPETCO • Falah, 1972 | 8,100 | _ 200 | 300,000 | 25.5 |
| Fateh, 1966Rashid, 1973 | 7,900-9,000 9,400-11,500 | | | 31.8 38.0 |
| • S.W. Fateh, 1970 | 7,500-9,000 - | | | 30.3 |
| Total Dubai | | 200 | 300,000 | |
| ECUADOR | | | | |
| AGIP Villano, 1991 | 11,600 | 4 | 4,732 | 24.5 |
| PETROECUADOR - ORIENTE | 0=00 | | 4.670 | |
| Aguarico Anaconda, 1991 | 9500 10,200 | 2 | 1,979 1,020 | 25.0 |
| Atacapi, 1968 | 9,855 10,578 | 6 38 | 5,955 13,689 | 31.0 28.0 |
| Auca Este, 1992 | 10,330 9,100-10,300 | | 664 | 25.6 |
| Bermejo Norte, 1967 | 6,000 6,000 | | | 32.5 32.5 |
| Biguno | | 1 | 213 | |
| Charapa, 1967 | 10,000 | 1 | 202 | 29.0 |
| Conga Sur | | 1 | 303 | |
| Cononaco, 1972 | 10,500 | 17 | 7,975 | 33.3 |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | , °API gravity |
|--|-----------------------|---------------------|---------------------------------|-------------------|
| Culebra, 1973 | 10,626 | 5 | 2,618 | 17.5 |
| Cuyabeno, 1972 | 8,050 9,575-10,290 | 16 | 8,935 | 27.4 31.0 |
| Frontera, 1991 | 10,175 | | 1,915 | 29.0 |
| Guanta | 9,000 | 9 | 3,282 | |
| Huachito Lago Agrio, 1967 | 9,000 10,175 | 1 17 | 250 4,497 | 28.5 |
| Limoncocha, 1993 | 9,850 | | · | |
| Ocano Pacayacu | | 3 3 | 2,382 1,298 | |
| Palanda, 1991 | 10,700 | | | 29.0 |
| Parahuaco, 1968 Parahuacu Sur | 10,173 | 5 | 1,268 | 30.0 |
| Pena Blanca | | 6 | 1,554 | |
| Pichincha | | 4 | 3,525 | |
| Pindo | 9,500 | | 2,634 | 30.0 |
| Sacha, 1972 | 10,300 | 92 | 43,607 | 28.0 |
| Sansahuari, 1984 | 8,300 | 8 | 2,507 | 26.0 |
| Secoya | | 21 6 | 31,319 2,455 | |
| Shushufindi, 1972 | 10,900 | 60 | 70,569 | 30.0 |
| Shushuqui | | 7 | 3,015 | |
| Tapi, 1991 | 9,400 | | | 29.1 |
| Tetete, 1984 | 9,400 | 5 | 2,538 | 29.1 |
| Tiguino, 1990 | 11,150 8,400 | 8 | 3,550 | 27.0 31.0 |
| Yuca, 1980 | 10,300 | 7 | 5,077 | 28.0 |
| Yuca Sur, 1985 Yulebra, 1981 | 10,300 10,400 | | 4,139 | 14.5 21.4 |
| Tulebia, 1301 | 10,400 | U | 4,133 | 21.4 |
| CITY INVESTING (e) Fanny-18B, 1972 | 7,700 | 8 - | 1 | 22.5 |
| Joan | 7,700 | | | 20.0 |
| Mariann, 1971 | 7,700 | 5 | | 20.0 |
| Tarapoa, 1973 | 8,300 | 1 | | 20.0 |
| CONOCO (e) | | | | |
| Coca-Payamino (46%), 1991 Gacela, 1993 | 8,500 8,800 | | | 24.0 |
| Lobo, 1994 | 0,000 | | | |
| | | | | |
| ESPOL (e) Ancon, 1921 | 4,000 | 439 | | 35.7 |
| Carpet Zona Norte, 1921 | 4,000 | 99 | | 36.4 |
| Cautivo, 1921 | 4,000 | 79 | | 36.4 |
| MAXUS - YPF (e) | | | | |
| Amo, 1994 | 9,300 | | 126 226 | |
| Tivacuno, 1994 | 3,300 | | → 136,236 | |
| OCCIDENTAL (e) | | | | |
| Indillana, 1988 | 10,000 | 2 | | 17.0-22.0 |
| Itaya, 1985 | 9,280 | 1 8 | | 17.0-22.0 18.3 |
| Jivino-Laguna, 1990 Laguna, 1991 | 10,000 10,000 | 7 | | 18.3 |
| Limoncocha, 1985 | 9,800 | 8 | | 19.0 |
| Napo, 1994 | 9,900 | 2 | | 18.3 |
| TRIPETROL (e) | | | | |
| Pacoa, 1992 | **** | | | |
| VINTAGE (e) Hormiguret, 1996 | 9,670 | 2 | | 18.0 |
| Nanka, 1995 | 9,990 | 2 | | 20.0 |
| Shiripuno, 1994 | 9,050 | 0 | | 18.5 |
| Sunka-Wanke, 1993 | 9,300 | 4 - | · | 18.5 |
| Total Ecuador | | 1,041 | 375,700 | |
| | | | | |
| EGYPT | | | | |
| AGIP | | | | |
| Abu Madi (c), 1968 | 12,600 | 11 | 5,126 | 55.4 |
| Abu Madi W. (c), 1989 Ashrafi, 1987 | 11,200 6,000 | 4 11 | 2,489 18,624 | 55.4 39.0 |
| Baltim S. (c), 1995 | 12,000 | 1 | 128 | 55.0 |
| Belayim Marine, 1961 | 8,300 | 88 | 129,724 | 28.9 |
| Belayim Land, 1953 East Delta (c), 1990 | 8,600 11,500 | 106 2 | 51,278 1,883 | 21.5 55.4 |
| East Delta S. (c), 1996 El Qara (c), 1985 | 10,700 | 1 | 32 | 55.4 |
| El Qara (c), 1985 | 12,000 | 2 6 | 628 4.856 | 55.4 31.0 |
| El Faras, 1996 Meleiha, 1986 | 3,300 5,000-9,100 | 61 | 4,856 17,423 | 31.0 41.5 |
| Port Fouad (c), 1982 | 11,000-14,100 | 7 | 6,140 | 55.4 |
| Raml, 1996 | 4,400 6,500 | 3 4 | 2,974 4,811 | 36.6 35.2 |
| | 0,000 | | ., | 00.2 |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity | Name of |
|---|------------------|---------------------|---------------------------------|-----------------|--|
| W. Razzak, 1985 | 6,000 | 8 | 4,523 | 36.0 | • GH 376, |
| • Wakar (c), 1983 | 11,800 | 2 | 2,292 | 55.4 | • GS 160, |
| Zarif, 1993 | 6,000 | 7 | 2,082 | 28.0 | • GS 172, |
| PEDECO | 4.000 | 01 | 4.700 | 40.5 | • GS 277, |
| West Bakr, 1978 | 4,200 | 31 | 4,708 | 18.5 | • GS 327, 7 • GS 345, 7 |
| CIMITAR HYDROCARBONS CORP. | 4.050 | | | 40.0 | • GS 365, |
| Issaran, 1981 | 1,950 | 4 | 1,000 | 13.0 | • GS 373, 7 |
| AMAPETCO | | | | | Hilal, 198 |
| • Al-Amal, 1983 | 6,420 | 4 - | | 37.0 | July, 197Morgan, |
| BAPETCO (SHELL) | 11 405 | 11 | | 20.0 | Nessim, |
| Badr El Din-1, 1981 | 11,485 10,368 | 11 3 | | 39.0 38.0 | N. October, |
| Badr El Din-2, 1982 | 7,900 | 8 | | 53.0 | Ramadar |
| Badr El Din-3, 1982 | 12,130 12,140 | 11 | | 29.0 50.0 | • SB 294, 1 |
| Sitra-5, 1985 | 10,378 | 1 | | 32.0 | SB 305, 1 SB 367, 1 |
| Sitra-8, 1993 | 9,198 | 1 | | 40.0 | • SB 339, 1 |
| BP EGYPT | | | | | • SG 184, 1 • SG 300, 1 |
| Abu El Gharadig, 1971 | 9,550 | 12 | | 33.0 | SG 325, 1 |
| East Razzak, 1972 N. Abu el Gharadig, 1985 | 5,555 11,900 | 3 2 | | 37.0 33.0 | • SG 374, 1 |
| NE Abu el Gharadig, 1984 | 10,620 | 2 | | 34.0 | Shoab Al Sidki, 197 |
| Razzak, 1972 WD 19/1, 1972 | 5,550 8,425 | 8 | | 37.0 45.0 | Waly, 198 |
| WD 13/1, 13/2 | 10,000 | 1 | | 35.0 | Younis, 1 |
| WD 33/15, 1985 | 4,750 | 2 | | 30.0 | Salam, 1: Shurouk, |
| BORAPETCO | | | | | Tut, 1986 |
| Borg el Arab, 1996 | 7,700 | 2 | | 36.0 | Tut West Yaser, 19 |
| CENTURION El Wastoni | | | | | MAGAPETC |
| GYPTIAN GENERAL | F 050 | 44 | | 40.0 | East Esh |
| Abu Sennan, 1981 | 5,950 5,950 | 41 | | 42.3 57.0 | PETROZEIT |
| Amer, 1965 | 3,400 | 31 | | 21.8 | Gazwarin Ras El Us |
| Assal, 1981 | 3,750 3,600 | 3 | | 21.3 12.0 | |
| Assran, 1981 | 3,110 | 54 | | 18.7 | PETROBEL |
| Behar, 1981 | 4,850 | 5 | | 30.8 | Sinai, 198 |
| El Eyon, 1968 | 3,450 2,430 | 3 96 | | 19.5 26.0 | QARUN |
| H-4 | · | | | | Qarun, 19 N. Qarun |
| Hurghada, 1913 | 2,000 1,700 | 15 | | 23.0 17.2 | S.W. Qar |
| Kheir 1973 | 3,400 | 1 | | 21.5 | Sakr, 199 Wady al I |
| Matarma, 1982 | 2,050 | 3 | | 21.3 | vvauy ai i |
| North Amer, 1965 | 5,300 | 6 6 | | 34.0 | RACEBROOK |
| Sudr, 1981 | 3,000 | 14 | | 21.9 | S. Ramac |
| Um-El Yusr, 1968 Ush-El-Malaha, 1982 | 4,500 | 20 4 | | 21.5 41.4 | SUCO OIL CO |
| | 3,280 | + | | 41.4 | Ras Budr Ras Fana |
| EL-ALAMEIN Horus, 1984 | 6,230 | 5 | | 35.6 | Ras FanaZeit Bay, |
| | 0,200 | 3 | | 55.0 | Zeit Bay |
| ESSO East Zeit, 1981 | 11,600 | 12 | | 40.0 | SUMPETCO |
| East Zeit (c), 1981 | 11,600 | | | 58.0 | S. Umbai |
| Wady el Sahl, 1994 | 8,273 | 3 | | 40.0 | Umbarka |
| ESHPETCO | 0.000 | | | 00.5 | WEPCO |
| East Rabeh, 1997 | 6,300 6,300 | 1 2 | | 26.5 26.5 | Alamein, |
| , | 0,000 | 2 | | 20.5 | Yidma, 1 |
| OASIS West Qarun, 1993 | 6,850 | 4 | | 40.0 | ZAAFARANA |
| W.G. Zeit, 1997 | 10,140 | 1 | | 37.0 | Warda, 1 |
| OSOCO | | | | | Total Egy |
| Gama, 1990 | 4,240 | 1 | | 45.0 | |
| Shukeir Bay, 1980 | 4,660 | 2 | | 44.6 | EQU/ |
| GEISUM | | | | | |
| N. Geisum, 1981S. Geisum, 1981 | 3,850 4,500 | 11 9 | | 27.0 17.5 | CMS NOME |
| N.E. Geisum, 1981 | 4,500 | 3 | | 17.5 | Alba (c), |
| • West Tawila, 1980 | 8,380 | 2 | | 41.0 | EXXONMOB |
| GEMPETCO 1000 | 0.400 | • | | 20.0 | • Zafiro, 19 |
| Gemsa, 1989 | 6,480 | 2 | | 33.0 | Total Equ |
| | 6,000 | 37 | | 32.0 | |
| • Badri, 1981 | | | | | |
| • E-Tanka, 1995 | 11,500 6,000 | 3 4 | | 32.0 37.0 | FORM |

| OADI. | | Danah | Duaduaina | 1999 | · · · · · · · · · · · · · · · · · · · |
|-----------------|---|------------------|------------------------|------------------------|---------------------------------------|
| °API gravity | Name of field, discovery date | | Producing oil wells | production avg. b/d | , °API gravity |
| 36.0 | • GH 376, 1981 | 9,000 | 4 | | 24.0 |
| 55.4 | • GS 160, 1977 | 11,200 | | | 31.0 |
| 28.0 | • GS 172, 1988 | 10,800 10,700 | 10 1 | | 27.0 31.0 |
| | • GS 277, 1982 | 9,028 | 1 | | 33.0 |
| 18.5 | • GS 327, 1987 | 5,770 | 2 | | 20.0 |
| | • GS 365, 1980 | 9,970 | 1 | | 35.0 32.0 |
| 13.0 | • GS 373, 1978 | 10,130 | 2 | | 30.0 |
| | GS 381, 1985 | 10,500 9,600 | 15 | | 37.0 32.0 |
| 37.0 | GS 100, 1977 GS 172, 1988 GS 173, 1978 GS 277, 1982 GS 277, 1982 GS 365, 1980 GS 365, 1980 GS 373, 1978 GS 381, 1985 Hilal, 1982 July, 1973 Morgan, 1965 Nessim, 1981 N. October, 1978 Ramadan, 1974 SB 294, 1986 SB 305, 1977 SB 367, 1983 SB 339, 1981 SG 184, 1994 SG 300, 1974 SG 305, 1975 | 10,000 | 34 | | 32.0 |
| | • Morgan, 1965 | 6,300 | 81 | | 31.0 |
| 39.0 | N. October, 1989 | 9,500 | 1 1 | | 30.0 40.0 |
| 38.0 | October, 1978 | 12,000 | 49 | | 31.0 |
| 53.0 29.0 | Ramadan, 1974 | 11,500 11 123 | 34 3 | | 33.0 29.5 |
| 50.0 | • SB 305, 1977 | 7,500 | | | 30.0 |
| 32.0 40.0 | • SB 367, 1983 | 7,450 | | | 39.0 |
| 40.0 | • SG 184, 1994 | 4,200 11,250 | 1 2 | 554,279 | 30.0 31.0 |
| 33.0 | • SG 300, 1974 | 6,500 | 3 | | 24.0 |
| 37.0 | SG 325, 1995 | 10,590 11,150 | | | 32.0 36.0 |
| 33.0 | Shoab Ali, 1977 | 5,500 | 18 | | 33.0 |
| 34.0 37.0 | Sidki, 1976 | 10,500 | 6 | | 36.0 |
| 45.0 | Waly, 1982 | 6,850 4,700 | 2 4 | | 35.0 35.0 |
| 35.0 30.0 | Salam, 1986 | 7,975 | 22 | | 44.0 |
| 30.0 | Shurouk, 1994 | 6,280 | 9 | | 43.0 |
| 36.0 | Tut West. 1986 | 8,220 8,119 | 17 1 | | 44.0 40.0 |
| 00.0 | • SG 300, 1974 SG 325, 1995 • SG 374, 1987 Shoab Ali, 1977 Sidki, 1976 Waly, 1982 Younis, 1981. Salam, 1986 Shurouk, 1994 Tut, 1986 Tut West, 1986 Yaser, 1987 | 6,172 | 7 | | 46.0 |
| | MAGAPETCO | | | | |
| 40.0 | East Esh El Mellaha, 1988 | 3,980 | 2 | | 47.0 |
| 42.3 57.0 | PETROZEIT • Gazwarina, 1987 Ras El Ush. 1996 | 2.764 | 1 | | 42.0 |
| 21.8 | Ras El Ush, 1996 | 2,764 4,140 | 7 | | 43.0 34.0 |
| 21.3 12.0 | | , | | | |
| 18.7 | • Sinai, 1987 | 8,000 | 4 | | 27.0 |
| 30.8 | - Jillai, 1307 | 0,000 | 4 | | 27.0 |
| 19.5 26.0 | QARUN | 0.400 | 00 | | 40.0 |
| | Qarun, 1995 | 9,180 8,835 | 28 5 | | 40.0 35.8 |
| 23.0 17.2 | S.W. Qarun, 1996 | 9,940 | 4 | | 39.2 |
| 21.5 | Sakr, 1997 | 9,220 6,000 | 1 7 | | 34.0 26.0 |
| 21.3 34.0 | waay ai nayan, 1997 | 0,000 | , | | 20.0 |
| 34.0 | RACEBROOK | 11.060 | 1 | | 20.0 |
| 21.9 | • S. Ramadan, 1984 | 11,960 | ' | | 28.0 |
| 21.5 41.4 | SUCO OIL CO. | 44.400 | 40 | | 00.0 |
| | Ras Budran, 1979Ras Fanar, 1980 | 11,400 2,200 | 13 10 | | 26.0 31.0 |
| 35.6 | Zeit Bay, 1980 | 4,450 | 32 | | 36.0 |
| | • Zeit Bay (c), 1980 | 4,450 | | | 59.0 |
| 40.0 | SUMPETCO | | | | |
| 58.0 40.0 | S. Umbarka, 1989 | 14,500 11,117 | 11 8 | | 40.0 44.0 |
| 40.0 | Ollibarka, 1909 | 11,117 | 0 | | 44.0 |
| 26.5 | WEPCO | 0.000 | 40 | | 00.0 |
| 26.5 | Alamein, 1966 | 8,000 8,000 | 18 4 | | 38.0 44.0 |
| | | 0,000 | • | | 44.0 |
| 40.0 | ZAAFARANA Warda, 1995 | 6,700 | 7 - | | 23.0 |
| 37.0 | | 0,700 | | | 20.0 |
| 45.0 | Total Egypt | | 1,331 | 815,000 | |
| 45.0 44.6 | | | | | |
| | EQUATORIAL | GUINEA | (e) | | |
| 27.0 | CMS NOMECO OIL & GAS | | | | |
| 17.5 | Alba (c), 1984 | 8,528 | | | 47.0-48.0 |
| 17.5 41.0 | EXXONMOBIL-OCEAN ENERGY | | | — 94,000 | |
| | • Zafiro, 1995 | 3,500-6,000 | 15 — | | 34.0-38.0 |
| 33.0 | Total Equatorial Guinea | | 15 | 94,000 | |
| | Total Equatorial Guillea | | 10 | 34,000 | |
| 32.0 | EODMED COM | IET LINU | ONL /c | 1 | |
| 32.0 37.0 | FORMER SOV | IET UNI | ON (e | 1 | |
| 36.0 | Azerbaijan | | 2,102 | 250,000 | |
| | | | | | |

| Georgia | Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production avg. b/d | , °API gravity |
|--|-------------------------------|---------------|---------------------|--------------------------------|-------------------|
| Kazakhstan: Arman, 1980s. 1,100-1,300 | Belarus: | | | | |
| Arman, 1980s. 1,100-1,300 | | | | 1,000 | |
| Kumkol S., 1985 3,300-4,600 226 63,013 36.0-42 528 5 | | 1,100-1,300 | | 4,400 | |
| Sazankurak | | 2 200 4 200 | | | |
| Tengiz, 1979. 14,700 40 214,000 14,749 217,387 14,749 217,387 14,749 217,387 14,749 217,387 14,749 217,387 14,749 217,387 14,749 217,387 14,749 | | | | | 30.0-42.0 |
| Ryrgystan: Beshkent-Togap, 1976 5,249 1,608-1,804 32.0-34 1,608-1,804 32.0-34 1,608-1,804 1,000 33 1,0-31 1,000 33 1,0-31 1,000 33 1,0-31 1,000 33 1,0-31 1,000 33 1,0-31 1,000 33 1,0-31 1,000 33 1,0-31 1,000 33 1,0-31 1,000 33 1,0-31 1,000 33 1,0-31 1,000 33 1,0-31 1,000 33 1,0-31 1,000 33 1,0-31 1,000 33 1,0-31 1,000 33 1,0-31 1,000 33 1,0-31 1,000 33 1,0-31 1,000 33 1,0-31 1,000 | | | | | 44.0 |
| Beshkent-Togap, 1976 5,249 Chanyrtsah, 1932 1,6081,8004 Chaur-Yarkutan-Chimion, 1904 948-1,148 Chigirchik, 1976 3,281 | | | 11,449 | 217,387 | |
| Changyrtash, 1932 | | 5.249 | 1 | | 31.0 |
| 1904 948-1,148 310-31 Chigirchik, 1976 3,281 1,000 33 1,000 1,000 33 1,000 1,000 33 1,000 1,000 33 1,000 34 1,000 35 1, | Changyrtash, 1932 | | | | 32.0-34.0 |
| Chigirchik, 1976. 1,2321. 5.09 Izbaskent, 1972. 6,4407,874 Maylisay, 1901. 1,640 Maylisu III, 1962. 2,133-2,379 Maylisu IV-Izbaskent E. 1,948 Izbaskent, 1978. 3,822-4,692 Izbaskent, 1979. 4,101-4,708 Izbaskent, 1979. 8,9596 Izbaskent, 1979. 1,1483 Izbas | | 040 1 140 | | | 21 0 21 7 |
| Chongara-Gal'cha, 1949. 1,312-1,509 Izbaskent, 1972. 6,440-7,874 Maylisu, 1901. 1,640 Maylisu III, 1962. 2,133-2,379 Maylisu, III, 1962. 3,133-2,379 Maylisu, IV-Izbaskent E. 1948. 38,22-4,692 Lithuania: Ablinga. | | | L | 1.000 | 33.0 |
| Maylisul II 1962. 2,133-2,379 Maylisul IV-Izbaskent E. 1948 33.0-34 Mallinga | Chongara-Gal'cha, 1949 | 1,312-1,509 | | , | 31.0 |
| Maylisu IV-Izbaskent E. 1948 3,822-4,692 | Izbaskent, 1972 | | | | 33.5-34.0 |
| Maylisu IV-Izbaskent E. 1948 3,822-4,692 | Maylisu III, 1962 | | | | 33.0-34.0 |
| Lithuania: Ablinga D6 . Degliai | Maylisu IV-Izbaskent E., | | | | |
| Ablinga DeG | | 3,822-4,692 - | J | | 31.0-43.0 |
| D6. Degliai | | | 1 | | |
| Gargizdai | | | | | |
| Genciai Kretinga Kybartai Nausodis Plunge Potsiai Sakuciai Silute Suparai Vezaiciai Vilkicai Tajikistan: Ayritan, 1967 Kanibadam, 1966 9,777-10,308 Kanibadam, 1970 9,596 Karagachi-Tamchi, 1974 8,054 Kim, 1908 Karagachi-Tamchi, 1974 8,054 Kim, 1908 Madaniyat, 1978 12,467-12,730 Nefteabad, 1933 Nyatek-Karakchikum, 1974 12,303-12,795 Ravat, 1961 10,335-11,647 Turkmenistan: Achisu, 1979 11,483 Alamyshik N., 1973 8,038 Alamyshik S., 1945 1,444-5,249 Andizhan, 1935 1,089-2,953 Avval E, 1954 3,609 Boston, 1952 1,148-8,658 Chaur-Yarkutan-Chimion, 1904 1904 1,353 1,148-8,658 Chaur-Yarkutan-Chimion, 1904 1,986 Ehalian, 1976 1,148-1,148 Chongara-Gal'cha, 1949 1,312 Gumkhana, 1976 1,148-1,148 Chongara-Gal'cha, 1949 1,312 Gumkhana, 1976 1,462-5,577 Khartum, 1957 7,093-13,451 Khartum E, 1984 1,483 Mingbulak, 1983 1,7,08-19,354 Namagan, 1959 1,1647 Obi-Shifo, 1982 2,297 Robi-Shifo, 1982 3,000 3,0 | | | | | |
| Kretinga Kybartai | | | | | |
| Nausodis Plunge | | | | | |
| Plunge Potsiai | | | | | |
| Potsiai | | | | | |
| Silale Silute Silute Suparai Vezaiciai Vilkicai Tajikistan: Ayritan, 1967 A, 1966 9,777-10,308 Kanibadam, 1966 9,777-10,308 Kanibadam, 1966 Silute Ayritan, 1967 A, 1969 Alagadaniyat, 1978 Aladaniyat, 1978 Niyazbek-Karakchikum, 1974 1974 104 107 107 107 107 107 107 107 107 107 107 | | | | 3,000 | |
| Silute | Sakuciai | | | | |
| Suparai Vezaiciai Vezaiciai Vezaiciai Vezaiciai Vilkicai Tajikistan: | Silale | | | | |
| Vezaiciai Vilkicai Tajikistan: Ayritan, 1967 4,101-4,708 Kanibadam, 1966 9,777-10,308 35,5-36 Kanibadam N., 1970 9,596 39 Kanibadam N., 1970 9,596 39 Kim, 1908 1,969-2,198 34,0-36 Madaniyat, 1978 12,467-12,730 33 Nefteabad, 1933 3,478 35 Niyazbek-Karakchikum, 1974 12,303-12,795 33 Ravat, 1961 10,335-11,647 2,460 140,000 Utraine: 2,460 140,000 29.0-41 Uzbekistan: 2,460 140,000 29.0-41 Alamyshik N., 1973 8,038 39 39.0-44 Alamyshik S., 1945 1,444-5,249 39.0-44 39.0-44 Andizhan, 1935 1,089-2,953 32.0-36 32.0-36 Avval E., 1954 3,609 35 34.4-43 Chaur-Yarkutan-Chimion, 1904 98-1,148 31.0-31 31.0-31 Gumkhana, 1976 14,108-15,420 34 34 | | | | | |
| Tajikistan: | Vezaiciai | | | | |
| Ayritan, 1967. 4,101-4,708 35.5-36 Kanibadam, 1966. 9,777-10,308 32 Kanibadam N., 1970. 9,596 32 Karagachi-Tamchi, 1974 8,054 1,000 33 Kim, 1908. 1,969-2,198 34.0-36 Madaniyat, 1978. 12,467-12,730 33 Nefteabad, 1933. 3,478 35 Niyazbek-Karakchikum, 1974. 12,303-12,795 33 Ravat, 1961. 10,335-11,647 2,460 140,000 Ukraine: 2,460 140,000 29.0-41 Ukraine: 2,460 140,000 35 Uzhekistan: 2,460 140,000 36 Alamyshik N., 1973. 8,038 39 39 Alamyshik S., 1945. 1,444-5,249 39.0-44 39.0-44 Andizhan, 1935. 1,089-2,953 32.0-36 35 Avval E., 1954. 3,609 35 36 Boston, 1952. 1,148-8,858 34.4-43 31.0-31 Chaur-Yarkutan-Chimion, 1904. 984-1,148 31.0-31 31.0-31 Khartum, 1957. 4,62-5,577 <td< td=""><td></td><td></td><td>J</td><td></td><td></td></td<> | | | J | | |
| Kanibadam, 1966. 9,777-10,308 Kanibadam N., 1970. 9,596 Karagachi-Tamchi, 1974 8,054 Kim, 1908 1,969-2,198 Madaniyat, 1978. 12,467-12,730 Nefteabad, 1933 3,478 Niyazbek-Karakchikum, 1974 12,303-12,795 Ravat, 1961. 10,335-11,647 Turkmenistan: 2,460 140,000 Ukraine: 1,353 49,000 Ukraine: 1,353 49,000 Uzbekistan: 1,444-5,249 Alamyshik N., 1973 8,038 Alamyshik N., 1973 8,038 Alamyshik N., 1973 8,038 Alamyshik S., 1945 1,444-5,249 Andizhan, 1935 1,089-2,953 32.0-36 Avval E., 1954 3,609 Boston, 1952 1,148-8,858 Chaur-Yarkutan-Chimion, 1904 984-1,148 Chongara-Gal'cha, 1949 1,312 Gumkhana, 1976 14,108-15,420 Kassansay, 1986 5,577 Khartum, 1957 7,093-13,451 Khartum E., 1984 6,562 Khodzhaosman, 1956 1,886 Makhram, 1984 11,483 Mingbulak, 1983 17,208-19,354 Namagan, 1959 1,148-2,690 Roston, 1952 2,297 Palvantash W., 1955 4,593-7,776 Sharikhan-Khodzhiabad, 1948 1,706-7,930 Shorbulak, 1973 10,897-776 Sharikhan-Khodzhiabad, 1978 10,897-8 | | 4.101-4.708 | 1 | | 35.5-36.5 |
| Karagachi-Tamchi, 1974 8,054 Kim, 1908. 1,969-2,198 Madaniyat, 1978. 12,467-12,730 Nefteabad, 1933. 34,78 Niyazbek-Karakchikum, 1974 12,303-12,795 Ravat, 1961. 10,335-11,647 Turkmenistan: 2,460 140,000 Ukraine: 1,353 49,000 Uzbekistan: Achisu, 1979. 11,483 Alamyshik N., 1973 8,038 Alamyshik N., 1973 8,038 Alamyshik N., 1973 8,038 Alamyshik N., 1945 1,444-5,249 Andizhan, 1935 1,089-2,953 Avval, 1955. 2,953 Avval, 1954 3,609 Boston, 1952 1,148-8,858 Chaur-Yarkutan-Chimion, 1904 9,1312 Gumkhana, 1976 14,108-15,420 Kassansay, 1986. 5,577 Khartum, 1957 7,093-13,451 Khartum E., 1984 6,562 Khodzhaosman, 1956. 1,886 Makhram, 1984 11,483 Mingbulak, 1983. 17,208-19,354 Khartum E., 1984 5,562 Khodzhaosman, 1956 1,886 Makhram, 1984 11,483 Mingbulak, 1983. 17,208-19,354 Namagan, 1959 11,647 Obi-Shifo, 1982 2,297 Palvantash W., 1955 4,593-7,776 Sharikhan-Khodzhiabad, 1948 1,706-7,930 Sharikhan-Khodzhiabad, 1948 1,706-7,930 Sharikhan-Khodzhiabad, 1948 1,706-7,930 Sharikhan-Khodzhiabad, 1948 1,706-7,930 Shorsu IV, 1927 984-1,640 Sokh N., 1956 3,510-6,890 Tasravet, 1983 12,625 Tergachi, 1978 10,499-12,467 Varyk II, 1978 14,764-16,732 Russia: Lukoil 7,705-75,000 Liz,298 687,000 Surgutneftegaz. 12,836 750,000 | Kanibadam, 1966 | 9,777-10,308 | | | 32.0 |
| Kim, 1908. 1,969-2,198 Madaniyat, 1978. 12,467-12,730 Nefteabad, 1933. 3,478 Niyazbek-Karakchikum, 1974 12,303-12,795 Ravat, 1961. 10,335-11,647 Turkmenistan: 2,460 140,000 Uzbekistan: Achisu, 1979. 11,483 Alamyshik N., 1973 8,038 Alamyshik S., 1945 1,444-5,249 Andizhan, 1935 1,089-2,953 Avval, 1955. 2,953 Avval, 1955. 2,953 Avval E., 1954 3,609 Boston, 1952 1,148-8,858 Chaur-Yarkutan-Chimion, 1904 984-1,148 Chongara-Gal'cha, 1949. 1,312 Gumkhana, 1976 14,108-15,420 Kassansay, 1986. 5,577 Khartum, 1957 7,093-13,451 Khartum E., 1984 6,562 Khodzhaosman, 1956 1,886 Makhram, 1984 11,483 Mingbulak, 1983. 17,208-19,354 Namagan, 1959 11,647 Obi-Shifo, 1982 2,297 Palvantash W., 1955. 4,593-7,776 Sharikhan-Khodzhiabad, 1948. 1,706-7,930 Shorsu IV, 1927 984-1,640 Sokh N., 1956 3,510-6,890 Tasravet, 1983 10,827-14,108 Varyk, 1971. 10,499-12,467 Varyk II, 1978 750,000 Surgutneftegaz. 12,836 Surgutneftegaz. 12,836 Solon 140,000 13,400 33,40-43 34,0-36 34, | | | | 1 000 | 39.0 |
| Madaniyat, 1978. 12,467-12,730 Nefteabad, 1933. 3,478 Niyazbek-Karakchikum, 1974. 12,303-12,795 Ravat, 1961. 10,335-11,647 Turkmenistan: 2,460 140,000 Uzbekistan: 2,460 140,000 Uzbekistan: 2,460 140,000 Uzbekistan: 3,353 49,000 Uzbekistan: 4,900 Uzbekistan: 4 | | | | 1,000 | 34.0-36.0 |
| Niyazbek-Karakchikum, 1974 12,303-12,795 Ravat, 1961. 10,335-11,647 Turkmenistan: 2,460 140,000 Libekistan: Achisu, 1979. 11,483 Alamyshik N., 1973 8,038 Alamyshik S., 1945 1,444-5,249 Andizhan, 1935 1,089-2,953 Avval E., 1954 3,609 Boston, 1952 1,148-8,858 Chaur-Yarkutan-Chimion, 1904 984-1,148 Chongara-Gal'cha, 1949 1,312 Gumkhana, 1976 14,108-15,420 Kassansay, 1986. 5,577 Khankyz, 1957 4,462-5,577 Khartum, 1957 7,093-13,451 Khartum E., 1984 6,662 Khodzhaosman, 1956 1,886 Makhram, 1984 11,483 Mingbulak, 1983. 17,208-19,354 Namagan, 1959 11,647 Obi-Shifo, 1982 2,297 Palvantash W., 1955. 4,593-7,776 Sharikhan-Khodzhiabad, 1948 1,706-7,930 Shorbulak, 1973 10,827-14,108 Varyk, 1971 10,499-12,467 Varyk II, 1978 10,827-14,108 Varyk, 1971 10,499-12,467 Varyk II, 1978 750,000 Surgutneftegaz. 12,836 750,000 | | 12,467-12,730 | | | 33.0 |
| 1974 12,303-12,795 Ravat, 1961 10,335-11,647 Turkmenistan: 2,460 140,000 Ukraine: 11,483 Alamyshik N., 1973 8,038 Alamyshik N., 1973 8,038 Alamyshik N., 1945 1,444-5,249 Andizhan, 1935 2,953 Avval, 1955 2,953 Avval E, 1954 3,609 Boston, 1952 1,148-8,858 Chaur-Yarkutan-Chimion, 1904 984-1,148 Chongara-Gal'cha, 1949 1,312 Gumkhana, 1976 14,108-15,420 Kassansay, 1986 5,577 Khartum, 1957 7,093-13,451 Khartum E, 1984 6,562 Khodzhaosman, 1956 1,886 Makhram, 1984 11,483 Mingbulak, 1983 17,208-19,354 Namagan, 1959 11,647 Obi-Shifo, 1982 2,297 Palvantash W, 1955 4,593-7,776 Sharikhan-Khodzhiabad, 1948 1,706-7,930 Shorsu IV, 1927 984-1,640 Sokh N, 1956 3,510-6,890 Tasravet, 1983 10,827-14,108 Varyk, 1971 10,499-12,467 Varyk II, 1978 10,499-12,467 Varyk II, 1978 11,674 Varyk, 1971 10,499-12,467 Varyk II, 1978 10,499-12,467 Varyk II, 1978 11,4764-16,732 Russia: Lukoil 7,708-13,510-12,298 687,000 Surgutneftegaz 12,836 750,000 | | 3,478 | | | 35.0 |
| Ravat, 1961. 10,335-11,647 | | 12.303-12.795 | | | 33.0 |
| Uzhekistan: 1,353 49,000 Uzbekistan: Achisu, 1979. 11,483 36. Alamyshik N., 1973 8,038 39.044 Alamyshik S., 1945 1,444-5,249 39.0-44 Andizhan, 1935 1,089-2,953 32.0-36 Avval, 1955 2,953 36. Avval E., 1954 3,609 36. Boston, 1952 1,148-8,858 34.4-43 Chaur-Yarkutan-Chimion, 1904 984-1,148 31.0-31 Chongara-Gal'cha, 1949 1,312 31. Gumkhana, 1976 14,108-15,420 34 Kassansay, 1986 5,577 33. Khartum, 1957 7,093-13,451 40.0-44 Khartum, 1984 1,386 40 Makhram, 1984 11,483 36 Mingbulak, 1983 17,208-19,354 30.2-42 Namagan, 1959 11,647 35 Obi-Shifo, 1982 2,297 34 Palvantash, 1943 1,148-2,690 31.0-34 Sharikhan-Khodzhiabad, 1948 1,2631 36 <td>_Ravat, 1961</td> <td></td> <td>_</td> <td></td> <td>29.0-41.0</td> | _Ravat, 1961 | | _ | | 29.0-41.0 |
| Uzbekistan: Achisu, 1979. 11,483 36. Alamyshik N., 1973. 8,038 39. Alamyshik S., 1945. 1,444-5,249 39.0-44. Andizhan, 1935. 1,089-2,953 32.0-36. Avval E., 1954. 3,609 35. Boston, 1952. 1,148-8,858 34.4-43. Chaur-Yarkutan-Chimion, 1904. 984-1,148 31.0-31. Chongara-Gal'cha, 1949. 1,312 31. Gumkhana, 1976. 14,108-15,420 34. Kassansay, 1986. 5,577 33. Khartum, 1957. 7,093-13,451 40.0-44. Khartum E., 1984. 6,562 2,190 151,000 40. Khodzhaosman, 1956. 1,886 40. Makhram, 1984. 11,483 36. 40. Makhram, 1984. 11,483 36. 40. Mamagan, 1959. 11,647 35. 35. Obi-Shifo, 1982. 2,297 34. 36. Palvantash, 1943. 1,148-2,690 31.0-34. Palvantash, 1943. 1,145-2,690 36. Sokh N., 1 | | | | | |
| Alamyshik N., 1973 8,038 Alamyshik S., 1945 1,444-5,249 Andizhan, 1935 1,089-2,953 32.0-36. Avval, 1955 2,953 Avval E., 1954 3,609 Boston, 1952 1,148-8,558 Chaur-Yarkutan-Chimion, 1904 984-1,148 Chongara-Gal'cha, 1949 1,312 Gumkhana, 1976 14,108-15,420 Kassansay, 1986 5,577 Khartum, 1957 7,093-13,451 Khartum, 1957 7,093-13,451 Khartum E., 1984 6,562 Khodzhaosman, 1956 1,886 Makhram, 1984 11,483 Mingbulak, 1983 17,208-19,354 Namagan, 1959 11,647 Obi-Shifo, 1982 2,297 Palvantash, 1943 1,148-2,690 Palvantash W., 1955 4,593-7,776 Sharikhan-Khodzhiabad, 1948 1,095 3,510-6,890 Shorbulak, 1973 12,631 Shorsu IV, 1927 984-1,640 Sokh N., 1956 3,510-6,890 Tasravet, 1983 10,497-12,467 Varyk II, 1978 10,499-12,467 Varyk II, 1978 11,4764-16,732 Russia: Lukoil 7,476 12,298 687,000 Surgutneftegaz 12,836 750,000 | | •••• | 1,333 | 49,000 | |
| Andizhan, 1935 1,089-2,953 32,0-36 Avval, 1955. 2,953 Avval E, 1954 3,609 Boston, 1952 1,148-8,858 Chaur-Yarkutan-Chimion, 1904 984-1,148 Chongara-Gal'cha, 1949 1,312 Gumkhana, 1976 14,108-15,420 Kassansay, 1986 5,577 Khankyz, 1957 4,462-5,577 26,0-29 Khartum, 1957 7,093-13,451 Khartum E, 1984 6,562 Khodzhaosman, 1956 1,886 Makhram, 1984 11,483 30.2-42 Namagan, 1959 11,647 Obi-Shifo, 1982 2,297 Palvantash, 1943 1,148-2,690 Palvantash W., 1955 4,593-7,776 Sharikhan-Khodzhiabad, 1948 1,706-7,930 Shorbulak, 1973 12,631 Shorsu IV, 1927 984-1,640 Sokh N., 1956 3,510-6,890 Tasravet, 1983 10,492-12,467 Varyk II, 1978 10,499-12,467 Varyk II, 1978 10,499-12,467 Vyukos 12,298 687,000 Surgutneftegaz 12,836 750,000 | Achisu, 1979 | | | | 36.0 |
| Andizhan, 1935 1,089-2,953 32,0-36 Avval, 1955. 2,953 Avval E, 1954 3,609 Boston, 1952 1,148-8,858 Chaur-Yarkutan-Chimion, 1904 984-1,148 Chongara-Gal'cha, 1949 1,312 Gumkhana, 1976 14,108-15,420 Kassansay, 1986. 5,577 Khankyz, 1957 4,462-5,577 26,0-29 Khartum, 1957 7,093-13,451 Khartum E, 1984 6,562 Khodzhaosman, 1956 1,886 Makhram, 1984 11,483 30.2-42 Namagan, 1959 11,647 Obi-Shifo, 1982 2,297 Palvantash, 1943 1,148-2,690 Palvantash W., 1955. 4,593-7,776 Sharikhan-Khodzhiabad, 1948 1,706-7,930 Shorbulak, 1973 12,631 Shorsu IV, 1927 984-1,640 Sokh N., 1956 3,510-6,890 Tasravet, 1983 10,499-12,467 Varyk II, 1978 10,499-12,467 Varyk II, 1978 10,499-12,467 Vukos 12,298 687,000 Surgutneftegaz 12,836 750,000 | Alamyshik N., 1973 | | | | 39.0 |
| Avval, 1955. 2,953 Avval E, 1954 3,609 Boston, 1952 1,148-8,858 Chaur-Yarkutan-Chimion, 1904 984-1,148 Chongara-Gal'cha, 1949. 1,312 Gumkhana, 1976 14,108-15,420 Kassansay, 1986. 5,577 Khartum, 1957 7,093-13,451 Khartum E, 1984 6,562 Khodzhaosman, 1956 1,886 Makhram, 1984 11,483 Mingbulak, 1983. 17,208-19,354 Namagan, 1959 11,647 Obi-Shifo, 1982 2,297 Palvantash, 1943 1,148-2,690 Palvantash W, 1955 4,593-7,776 Sharikhan-Khodzhiabad, 1948 1,706-7,930 Sharikhan-Khodzhiabad, 1948 1,706-7,930 Shorbulak, 1973 12,631 Shorsu IV, 1927 984-1,640 Sokh N, 1956 3,510-6,890 Tasravet, 1983 10,827-14,108 Varyk, 1971. 10,499-12,467 Varyk II, 1978 10,827-14,108 Varyk, 1971. 10,499-12,467 Varyk II, 1978 11,764-16,732 Russia: Lukoil 7,706 750,000 Surgutneftegaz 12,298 687,000 | Andizhan, 1935 | | | | 32.0-36.0 |
| Boston, 1952 | Avval, 1955 | 2,953 | | | 36.0 |
| Chaur-Yarkutan-Chimion, 1904 984-1,148 31.0-31 Chongara-Gal'cha, 1949. 1,312 31 Gumkhana, 1976 14,108-15,420 34 Kassansay, 1986. 5,577 33 Khankyz, 1957 4,462-5,577 26.0-29 Khartum, 1957 7,093-13,451 40.0-44 Khartum E., 1984 6,562 2,190 151,000 40 Khodzhaosman, 1956 1,886 40 40 40 Mahkhram, 1984 11,483 36 36 Mingbulak, 1983 17,208-19,354 30.2-42 30 Namagan, 1959 11,647 35 30 32 Obi-Shifo, 1982 2,297 34 34 34 Palvantash W., 1955 4,593-7,776 30.0-39 31.0-34 Shorbulak, 1973 12,631 36 Shorbulak, 1973 12,631 36 Sokh N., 1956 3,510-6,890 35.0-37 Tasravet, 1983 2,625 37 Tagachi, 1978 10,827-14,108 36 Varyk II, 1978 14,764-16,732 36.0-41 < | | 3,609 | | | 35.0 |
| 1904 | | 1,146-8,838 | | | 34.4-43.0 |
| Gumkhana, 1976 | | 984-1,148 | | | 31.0-31.7 |
| Khankyz, 1957 4,462-5,577 26,0-29 Khartum, 1957 7,093-13,451 40.0-44 Khartum E., 1984 6,562 2,190 151,000 Khodzhaosman, 1956 1,886 40 Makhram, 1984 11,483 36 Mingbulak, 1983 17,208-19,354 30.2-42 Namagan, 1959 11,647 35 Obi-Shifo, 1982 2,297 34 Palvantash, 1943 1,148-2,690 31.0-34 Palvantash W., 1955 4,593-7,776 30.0-39 Sharikhan-Khodzhiabad, 1948 1,706-7,930 34.0-43 Shorsu IV, 1927 984-1,640 31.0-34 Sokh N., 1956 3,510-6,890 35.0-37 Tasravet, 1983 2,625 37 Tergachi, 1978 10,827-14,108 36 Varyk, 1971 10,499-12,467 31.0-40 Varyk, 1971 10,499-12,467 31.0-40 Varyk II, 1978 14,764-16,732 36.0-41 Russia: Lukoil 71,555 1,073,000 Yukos 71,298 687,000 Surgutneftegaz 12,298 687,000 | Chongara-Gal'cha, 1949 | | | | 31.0 |
| Khankyz, 1957 4,462-5,577 26,0-29 Khartum, 1957 7,093-13,451 40.0-44 Khartum E., 1984 6,562 2,190 151,000 Khodzhaosman, 1956 1,886 40 Makhram, 1984 11,483 36 Mingbulak, 1983 17,208-19,354 30.2-42 Namagan, 1959 11,647 35 Obi-Shifo, 1982 2,297 34 Palvantash, 1943 1,148-2,690 31.0-34 Palvantash W., 1955 4,593-7,776 30.0-39 Sharikhan-Khodzhiabad, 1948 1,706-7,930 34.0-43 Shorsu IV, 1927 984-1,640 31.0-34 Sokh N., 1956 3,510-6,890 35.0-37 Tasravet, 1983 2,625 37 Tergachi, 1978 10,827-14,108 36 Varyk, 1971 10,499-12,467 31.0-40 Varyk, 1971 10,499-12,467 31.0-40 Varyk II, 1978 14,764-16,732 36.0-41 Russia: Lukoil 71,555 1,073,000 Yukos 71,298 687,000 Surgutneftegaz 12,298 687,000 | Kassansay 1986 | | | | 34.0 33.0 |
| Khartum, 1957. 7,093-13,451 40.0-44 Khartum E., 1984. 6,562 2,190 151,000 40. Khodzhaosman, 1956. 1,886 40.0-44 40.0-43 40.0-44 40.0-43 40.0-43 40.0-43 40.0-43 40.0-43 40.0-43 40.0-43 40.0-43 40.0-43 40.0-43 40.0-43 <t< td=""><td>Khankyz, 1957</td><td></td><td></td><td></td><td>26.0-29.0</td></t<> | Khankyz, 1957 | | | | 26.0-29.0 |
| Khodzhaosman, 1956. 1,886 Makhram, 1984 11,483 Mingbulak, 1983. 17,208-19,354 Namagan, 1959 11,647 Obi-Shifo, 1982 2,297 34. Palvantash, 1943 1,148-2,690 31.0-34 Palvantash, 1943 1,148-2,690 31.0-34 Palvantash W., 1955. 4,593-7,776 Sharikhan-Khodzhiabad, 1948 17,706-7,930 34.0-43 Shorbulak, 1973 12,631 36. Shorsu IV, 1927 984-1,640 31.0-35 Sokh N., 1956 3,510-6,890 35.0-37. Tasravet, 1983 2,625 Tergachi, 1978 10,827-14,108 Varyk, 1971. 10,499-12,467 Varyk II, 1978 14,764-16,732 Russia: Lukoil 7,755 1,073,000 Surgutneftegaz 2,298 687,000 Surgutneftegaz 12,836 750,000 | Khartum, 1957 | 7,093-13,451 | | | 40.0-44.0 |
| Makhram, 1984 11,483 36 Mingbulak, 1983. 17,208-19,354 30.2-42 Namagan, 1959 11,647 35 Obi-Shifo, 1982 2,297 34 Palvantash, 1943 1,148-2,690 31.0-34 Palvantash W., 1955. 4,593-7,776 30.0-39 Sharikhan-Khodzhiabad, 1948 1,706-7,930 34.0-43 Shorbulak, 1973 12,631 36 Shorsu IV, 1927 984-1,640 31.0-35 Sokh N., 1956 3,510-6,890 35.0-37 Tasravet, 1983 2,625 37 Tergachi, 1978 10,827-14,108 36 Varyk, 1971. 10,499-12,467 31.0-40 Varyk II, 1978 14,764-16,732 36-0-41 Russia: Lukoil 71,555 1,073,000 Yukos 12,298 687,000 Surgutneftegaz 12,836 750,000 | | | 2,190 | 151,000 | 40.0 |
| Mingbulak, 1983. 17,208-19,354 Namagan, 1959 11,647 Obi-Shifo, 1982 2,297 Palvantash, 1943 1,148-2,690 31.0-34. Palvantash W., 1955. 4,593-7,776 Sharikhan-Khodzhiabad, 1948 17,706-7,930 Shorbulak, 1973 12,631 Shorsu IV, 1927 984-1,640 Sokh N., 1956 3,510-6,890 35.0-37. Tasravet, 1983 2,625 Tergachi, 1978 10,827-14,108 Varyk, 1971. 10,499-12,467 Varyk II, 1978 14,764-16,732 Russia: Lukoil 7,755 1,073,000 Surgutneftegaz 750,000 | | | | | 36.0 |
| Obi-Shifo, 1982 . 2,297 Palvantash, 1943 . 1,148-2,690 Palvantash W., 1955 4,593-7,776 Sharikhan-Khodzhiabad, 1948 . 1,706-7,930 Shorbulak, 1973 . 12,631 Shorsu IV, 1927 . 984-1,640 Sokh N., 1956 3,510-6,890 Tasravet, 1983 . 2,625 Tergachi, 1978 . 10,827-14,108 Varyk, 1971 10,499-12,467 Varyk II, 1978 . 14,764-16,732 Russia: Lukoil . 7 Yukos | Mingbulak, 1983 | 17,208-19,354 | | | 30.2-42.1 |
| Palvantash, 1943 | Namagan, 1959 | | | | 35.0 |
| Palvantash W., 1955. 4,593-7,776 30.0-39. Sharikhan-Khodzhiabad, 1948 1,706-7,930 34.0-43. Shorbulak, 1973. 12,631 36. Shorsu IV, 1927 984-1,640 31.0-36. Sokh N., 1956. 3,510-6,890 35.0-37. Tasravet, 1983. 2,625 37. Tergachi, 1978. 10,827-14,108 36. Varyk, 1971. 10,499-12,467 31.0-40. Varyk II, 1978. 14,764-16,732 36.0-41. Russia: Lukoil 71,555 1,073,000 1,073,000 Yukos 12,298 687,000 Surgutneftegaz 12,836 750,000 | Palvantash. 1943 | | | | |
| 1948 | Palvantash W., 1955 | | | | 30.0-39.0 |
| Shorbulak, 1973. 12,631 Shorsu IV, 1927. 984-1,640 Sokh N., 1956. 3,510-6,890 Tasravet, 1983. 2,625 Tergachi, 1978. 10,827-14,108 Varyk, 1971. 10,499-12,467 Varyk II, 1978. 14,764-16,732 Russia: Lukoil — Yukos — Surgutneftegaz 12,836 750,000 12,836 750,000 | | 1 706 7 020 | | | 24 0 42 0 |
| Shorsu IV, 1927. 984-1,640 31.0-35 Sokh N., 1956. 3,510-6,890 35.0-37 Tasravet, 1983. 2,625 37 Tergachi, 1978. 10,827-14,108 36 Varyk, 1971. 10,499-12,467 31.0-40 Varyk II, 1978. 14,764-16,732 36.0-41 Russia: Lukoil 717,555 1,073,000 Yukos 12,298 687,000 Surgutneftegaz 12,836 750,000 | | | | | 34.0-43.0 |
| Sokh N., 1956. 3,510-6,890 Tasravet, 1983. 2,625 Tergachi, 1978. 10,827-14,108 Varyk, 1971. 10,499-12,467 Varyk II, 1978. 14,764-16,732 Russia: Lukoil 717,555 1,073,000 Yukos 12,298 687,000 Surgutneftegaz 12,836 750,000 | Shorsu IV, 1927 | | | | 31.0-35.0 |
| Tergachi, 1978. 10,827-14,108 Varyk, 1971. 10,499-12,467 Varyk II, 1978. 14,764-16,732 36.0-41. Russia: Lukoil 17,408 687,000 12,298 687,000 Surgutneftegaz. 12,836 750,000 | Sokh N., 1956 | 3,510-6,890 | | | 35.0-37.0 |
| Varyk, 1971. 10,499-12,467 31.0-40. Varyk II, 1978. 14,764-16,732 36.0-41. Russia: Lukoil 717,555 1,073,000 Yukos 12,298 687,000 Surgutneftegaz 12,836 750,000 | | | | | 37.0 36.0 |
| Varyk II, 1978 14,764-16,732 | Varyk, 1971 | | | | 31.0-40.0 |
| Lukoil 7 17,555 1,073,000 Yukos 12,298 687,000 Surgutneftegaz 12,836 750,000 | | | J | | 36.0-41.0 |
| Surgutneftegaz | | | 47.555 | 4.070.000 | |
| Surgutneftegaz | | | 17,555 | | |
| | | | | | |
| Tatneft 483,000 Tyumen 400,000 | Tatneft | | , | 483,000 | |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity |
|---|---|--|---|--|
| Sidanco Sibneft (Siberian Oil Co.) Bashneft Slavneft Rosneft Eastern Oil Co. Onako Komitek Gazprom and other | | — 61,461 | 390,000 325,000 246,000 240,000 253,000 211,000 160,000 73,000 | |
| companies Private companies Joint Ventures Others | | | 231,000 187,000 418,000 17,000 | |
| Total Former Soviet Union . *Includes condensate. | | 123,970 | 7,339,700 | |
| FRANCE | | | | |
| ALSACE GEOPETROL Eschau, 1956 | 2,360 1,280-2,430 1,200 | 2 6 3 | 25 86 38 | 33.0 31.5-40.6 38.8 |
| OELWEG Muehlweg | | | 3 | |
| AQUITAINE EAEPF Lacq Superieur, 1949 | 1,620 | 11 | 214 | 22.3 |
| Lagrave, 1984 Pecorade, 1974 Vic Bilh, 1979 | 5,220 7,610 6,230 | 3 4 23 | 1,466 1,052 1,556 | 42.4 29.3 23.1 |
| ESSOREP Cazaux, 1959 | 7,840-9,970 9,290 9,410 9,120 | 26 1 2 3 | 2,132 1,547 545 1,403 | 34.4 29.8 33.3 30.2 |
| Tamaris, 1998 | | | 137 | 21.2 |
| Castera-Lou, 1976 | 8,570 | 6 | 256 200 | 29.7 |
| VERMILION REP Cabell, 1965 Lucats, 1956 Lugos, 1956 Mothes, 1955 Parentis, 1954 | 6,400 6,560 4,890 7,710 6,510 | 1 1 17 4 47 | 28 18 320 179 3,120 | 37.1 38.6 20.8 21.1 33.4 |
| BASSIN DE PARIS COPAREX | 4.050 | | | 04.0 |
| Courdemanges, 1983 Dommartin-Lettree, 1985 Fontaine-au-Bron Sud, 1958 Grandville, 1959 Grandville Est, 1983 Hautefeuille, 1987 La Motte Noire, 1987 Linthelles, 1981 Soudron, 1976 Vert-la-Gravelle, 1985 | 4,950 6,460 5,350 6,230 6,220 5,380 7,005 7,710 4,010-6,470 7,480 5,350 | 3 3 3 2 3 2 1 16 1 91 | 44 393 49 81 44 37 113 8 218 75 2,449 | 34.3 34.1 34.4 36.0 35.8 36.0 32.3 37.0 34.2 34.4 36.2 |
| EAEPF Itteville, 1990 | 4,780 | 7 | 2,989 | 32.4 |
| La Croix Blanche, 1987 Vert-le-Grand, 1986 Vert-le Petit, 1987 | 5,910 5,910 4,760 | 2 5 2 | 412 1,066 62 | 34.8 33.3 32.3 |
| ESSOREP Chaunoy, 1983 | 7,050 | 41 | 4,342 | 36.8 |
| GEOPETROL Bagneaux, 1988 Brie, 1968 Fontaine-au-Bron, 1986 L'Orme, 1990 La Vignotte, 1991 Nesles, 1995 Pezarches, 1994 StGermain, 1984 Slvry, 1984 | 3,580 6,920 5,350 4,720 7,660 7,450 7,630 7,040 7,020 | 3 1 9 1 1 1 1 2 3 | 36 36 347 16 72 3 119 87 84 | 34.6 34.6 36.0 34.5 34.6 34.4 34.5 34.6 |
| MADISON/CHART Charmottes, 1984 | 5,480-8,040 | 8 | 247 | 34.8 |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production avg. b/d | , °A grav |
|---|-----------------------------|---------------------|--------------------------------|--------------|
| Neocomien | | | 886 | |
| PETROREP | | | | |
| Bechevret, 1988 | 5,840 5,510 | 1 13 | 26 123 | 32 33 |
| lle-du-Gord, 1986 | 7,090 5,560 | 6 1 | 508 27 | 34 33 |
| VERMILION REP | | | | |
| Bremonderie, 1984 Champotran, 1985 | 8,200 7,830 | 1 4 | 26 544 | 35 |
| Donnemarie, 1979 | 8,380 | 1 | 58 | 3 |
| Malnoue, 1985 Vulaines, 1977 | 6,020-8,330 5,580 | 3 2 | 588 327 | 34.4-3 |
| Total France | | 407 | 30,867 | |
| GABON | | | | |
| AGIP | | | | |
| Limande, 1997 | 5500 | 4 | 3,681 | |
| TOTALFINAELF • Anguille, 1962 | 7,380-9,350 | 21 - |] | 3 |
| Anguille NE, 1968Anguille SE, 1962 | 6,200-7,050 8,200-9,200 | 7 2 | | 3: |
| Avocette, 1989 | 5,610-5,975 | 4 | | 3! |
| Ayol Marine, 1978 | 7,320-7,580 4,900-′5,050 | 4 5 | | 2 |
| Barbier, 1972 | 5,700-6,300 | 6 | | 2 |
| Baudroie, 1984Baudroie N., 1980 | 8,200-9,200 7,100-7,850 | 5 4 | | 2: |
| Coucal, 1987 | 3,800-4,000 | 4 2 | | 3: |
| Girelle, 1973Gonelle, 1972 | 9,400 5,500-6,000 | 15 | | 2 |
| Grand-Anguille, 1983Grondin, 1971 | 8,400 7,150-7,770 | 5 14 | | 25 |
| Hylia, 1993 | 4,200-5,100 | 7 | | 20 |
| Konzi, 1962Mandaros, 1972 | 3,450-3,700 4,900-6,150 | 5 9 | | 3 |
| M'Boumba, 1978 | 2,300-3,180 8,600-9,400 | 4 1 | | 3 |
| N'Tchengue 1957 | 2,800-5,700 | 2 | | 30 |
| Pageau, 1972 | 8,950-9,100 8,800-9,500 | 1 1 | _ 336,319 | 19 |
| Port Gentil Ocean, 1964Port Gentil Sud Marine, | 6,500 | 2 | | 3 |
| 1975 | 7,300-8,000 | 2 | | 3 |
| Torpille, 1968 | 8,530-9,450 8,150-8,700 | 14 4 | | 3! 28 |
| • Vanneau, 1993 | 7,400-9,200 | 3 | | 3 |
| • Breme/NAT, 1976 | 4,460-5,310 | 1 | | 3 |
| Echira, 1984 | 4,745-4,810 2,500-3,900 | | | 3 |
| Lucina, 1972Lucina West, 1982 | 4,290-4,930 4,530-5,580 | | | |
| • M'Bya, 1969 | 5,700-6,800 | | | 3! |
| M'Polunie, 1980 M'Polunie W., 1982 | 1,950-2,070 1,700-1,950 | _ 218 | | 2° |
| Obando, 1984 | 8,200-8,680 | | | 3 |
| Octopus, 1984 | 9,850-10,365 3,800-5,100 | | | 3 |
| Oguendjo Z, 1988 Olende, 1976 | 4,600-5,300 6,600-6,800 | | | 3 |
| • Pelican, 1985 | 6,700-9,580 | | | 3 |
| SHELL Gamba/Ivinga, 1963 | 2,800-3,100 | | | 3: |
| Rabi, 1985 | 3,500-3,640 - | | 340,000 | 3 |
| | | 3/3 | 540,000 | |
| GERMANY BEB | | | | |
| Barenburg, 1953 | 2,300-3,300 | 7 | 1,084 | 3 |
| Bodenteich, 1960 | 4,641 | | 28 3 | 3 |
| Eich, 1983 | 5,995 | | 1,080 | 39 |
| Eldingen, 1949 Friedrichseck | 5,028 | | 430 9 | 3 |
| Georgsdorf, 1944 Grauen K | 1,800-2,600 | | 3,386 0 | 2 |
| Greetsiel K | | | 2 | |
| Gross Lessen, 1969 | 3,300 | | 393 | 3 |

| , °API gravity | Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production avg. b/d | , °API gravity |
|-------------------|---|------------------------|---------------------|--------------------------------|-------------------|
| | Hankensbuttel Pool, 1954 | 5,182 | | 811 | 31.3 |
| | Hemsbunde Pool | | | 1 3 | |
| 32.7 | Loningen SO/Menslage K | | | 8 | |
| 33.5 34.3 | Loningen W/Hoite K Luben, 1955 | 3,950 | | 7 814 | 33.6 |
| 33.3 | Manslagt K | | | 4 | |
| | Meppen-Schwefingen, 1959 Mulmstrom Z 3A, Z6 | 4,257 | | 1,533 0 | 29.5 |
| 35.1 | Munster | | _ 558 | 0 | |
| 37.0 34.9 | Nienhagen Feld, 1909 Preyersmahle-Hastedt K | 3,079 | | 104 0 | 30.2 |
| 34.4-37.2 24.1 | Ruhlermoor-Valendis, 1949 . | 2,381 1,950 | | 6,597 880 | 24.5 33.4 |
| 24.1 | Ruhme, 1954 | 1,950 | | 1 | |
| | Sagermeer K | | | 3 1 | |
| | Sagermeer-Ost K | | | 2 | |
| | Soitau K | 3,345 | | 0 193 | 30.0 |
| | Taaken K | · | | 1 | |
| 24 | Thonse K | | | 101 3 | |
| | Varenesch | 2.400 | | 0 | |
| 30.6 32.7 | Wehrbleck, 1947 Wietingsmoor, 1954 | 3,400 2,820 - | | 304 240 | 32.1 30.6 |
| 27.5 | ERDOL-ERDGAS GOMMERN | | | | |
| 35.4 20.3 | Kietz | | ٦ | 87 | |
| 28.9 | Lutow | | _ 20 | 171 69 | |
| 28.6 29.7 | MEEG | - | _ | | |
| 31.9 32.6 | Ahrensheide | | ٦ | 172 | |
| 28.9 | Einloh | | | 0 | |
| 25.5 29.8 | Schlingen K | | | 18 | |
| 27.1 | Walsrode K | | F | 13 6 | |
| 26.6 37.4 | Siedenburg | | | 187 | |
| 20.2 | Voigtei | | | 831 229 | |
| 31.7 30.8 | Lastrup West | | J | 395 | |
| 30.0 | PREUSSAG ENERGIE | 6.700 | 1 | 200 | 20.0 |
| 19.2 31.3 | Allermohe, 1979 Borger-Werlte, 1977 | 6,700 | 1 1 | 26 10 | 28.0 35.2 |
| 34.2 | Bramberge, 1958 | 2,560-3,300 460 | 50 15 | 5,341 55 | 29.0 26.0 |
| 31.0 | Eddesse-Nord, 1950 Grosses Meer K, 1978 | | | 1 | 54.5 |
| 35.0 28.9 | Hover, 1957 | 2,200 | 9 | 43 0 | 25.0 46.2 |
| 34.8 | Leybucht K, 1978 | | | 0 | 56.4 |
| | Ochtrup L, 1990 Oelheim-Sud/Rhat, 1968 | 2,000 | 21 | 22 445 | 51.8 33.0 |
| 36.5 | Ratzel Z 1b, 1996 | | | 5 | 55.9 |
| 36.3 24.0 | Reitbrook-Alt, 1937 Reitbrook-West, 1960 | 6,100 | 7 5 | 303 126 | 20.6 26.7 |
| | Scheerhorn/Adorf, 1949 Sinstorf, 1960 | 3,550-3,750 7,100 | 64 5 | 1,700 244 | 30.0 |
| 35.9 | Sogel, 1983 | 4,570 | 2 | 16 | 30.0 34.0 |
| 27.2 18.0 | Vorhop-Knesebeck, 1958 Vorhop, 1952 | 4,100 5,000 | 24 24 | 504 444 | 35.0 39.0 |
| 32.0 | WEK, 1952 | | | 38 | 54.7 |
| 33.0 36.0 | Wittingen-Sudost, 1970 | | 1 | 26 | 33.1 |
| 36.0 | RWE-DEA Botersen Pool, 1987 | 15,420-16,030 | 3 | 4 | |
| 34.3 31.0 | Hankensbuettel-Sued, 1954. Hankensbuettel-Sued 76, | 4,530 | 16 | 626 | 27.0-35.0 |
| 32.2 | 1954 | 2,840 | 1 | 46 84 | 26.0 |
| 34.2 | Hemsbunde Pool, 1985 Hohne, 1951 | 15,710 4,170-5,955 | 9 | 20 0 | 33.0-34.0 |
| | Holzkirchen, 1969 | 12,075 | 1 | 131 | 39.0 |
| | Leiferde, 1956 | 2,360 7,005-8,860 | 5 10 | 60 16,469 | 33.0 18.0-30.0 |
| | Osterheide, 1999 | 14,630 | 1 | 0 | |
| | Ploen-Ost, 1958 | 7,860 | 4 | 101 0 | 34.0 24.0-35.0 |
| 31.1 | Schwedeneck-See, 1978 Volkersen K, 1992 | 4,495 15,700-16,260 | 14 8 | 1,462 11 | 28.0 |
| 31.3 | Wardboehmen K, 1987 | 15,420 | 1 | 0 | |
| 39.4 | Weisenmoor, 1998 Wolfersberg K, 1958 | 15,355 | 1 | 2 | |
| 36.2 | WINTERSHALL | | | J | |
| 24.5 | Aitingen, 1977 | 6,232 | 3 | 574 | 31.1 |
| | Aitingen K | 4,100 | 16 | 12 111 | 33.0 |
| 31.4 | Bockstedt, 1954 | 4,264 | 17 | 642 | 27.4 |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production avg. b/d | , °API gravit |
|--|---|--|--|---|
| Dueste/Valendis, 1954 | 3,936 | 24 | 172 | 33.0 |
| Emlichheim Pool, 1944 | 3,116 | 90 | 3,243 | 24.5 |
| Landau, 1955 Ruehlertwist, 1949 | 3,936 2,350-2,900 | 71 38 | 726 192 | 36.9 25.0 |
| Ruelzheim, 1984 | 7,544 | 1 | 36 | 37.7 |
| Total Germany | | 1,141 | 54,282 | |
| GHANA (e) | | | | |
| HANA NATIONAL PETROLEUM (North Tano, 1980 | 7,500 | ٦ | | 32.0 |
| Saltpond, 1977 South Tano, 1978 | 8,500 6,000 | 3 | 6,000 | 36.0-39.0 29.0-32.0 |
| Total Ghana | | 3 | 6,000 | |
| GREECE | | | | |
| AVALA OIL Prinos, 1974 | 8,000-10,000 | 6 | 250 | 28.5 |
| Prinos, 1974 Prinos North, 1994 | 7,000-10,000 | 1 | 250 80 | 28.5 22.0 |
| Total Greece | • | 7 | 330 | |
| GUATEMALA | | , | 300 | |
| IINISTERIO DE ENERGIA Y MINA | - | | | |
| Atzam, 1993 | 4,274 6,830-7,280 | 1 2 | 0 9 | 38.0 22.0-24.0 |
| Chocop, 1985 | 5,014 | 3 | 217 | 13.0 |
| Rubelsanto, 1974 | 5,300-7,000 | 2 | 420 | 26.0-30.0 |
| San Diego, 1981 | 17,150 11 230 | 1 2 | 0 113 | 35.0 19.5-23.0 |
| Tierra Blanca, 1983 Tortugas, 1970 | 11,230 2,300 | 2 | 0 | 25.0 |
| West Chinaja, 1977 | 3,200-3,800 | 0 | 1 | 31.0-35.0 |
| Xan, 1985 | 8,427 | 6 1 | 22,431 13 | 17.0 |
| • | 15,351 | | | 31.0-35.0 |
| Total Guatemala | | 20 | 23,204 | |
| II INIC A DV | | | | |
| HUNGARY | | | | |
| IOL HUNGARIAN OIL & GAS CO. Algyo, 1965 | 5,301-8,136 | 412 | 13,007 | |
| IOL HUNGARIAN OIL & GAS CO. Algyo, 1965 | 5,301-8,136 2,493-3,199 | 9 | 368 | 31.1-65.2 32.1 |
| IOL HUNGARIAN OIL & GAS CO. Algyo, 1965 | 5,301-8,136 2,493-3,199 6,521-6,767 | 9 | 368 63 | 32.1 32.1 |
| IOL HUNGARIAN OIL & GAS CO. Algyo, 1965 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 | 9 2 4 | 368 63 53 | 32.1 32.1 15.9 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967 Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya-East, 1970 | 5,301-8,136 2,493-3,199 6,521-6,767 | 9 | 368 63 | 32.1 32.1 15.9 36.0 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 | 9 2 4 3 108 5 | 368 63 53 44 636 5 | 32.1 32.1 15.9 36.0 45.4 41.1 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 | 9 2 4 3 108 5 33 | 368 63 53 44 636 5 230 | 32.1 32.1 15.9 36.0 45.4 41.1 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967 Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya-East, 1970 Belezna, 1963 Budafa-Kiscsehi, 1937 Csanádalberti, 1991 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 | 9 2 4 3 108 5 33 1 | 368 63 53 44 636 5 230 | 32.1 32.1 15.9 36.0 45.4 41.1 41.1-45.4 39.4 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 | 9 2 4 3 108 5 33 | 368 63 53 44 636 5 230 | 32.1 32.1 15.9 36.0 45.4 41.1 41.1-45.4 39.4 37.0 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967. Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya-East, 1970 Belezna, 1963 Budafa-Kiscsehi, 1937 Csanádalberti, 1991 Csanadapaca, 1967 Dany, 1994 Demjen, 1954 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 | 9 2 4 3 108 5 33 1 3 1 26 | 368 63 53 44 636 5 230 11 56 299 | 32.1 32.1 15.9 36.0 45.4 41.1 41.1-45.4 39.4 37.0 17.4 31.4-39 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967 Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya-East, 1970 Belezna, 1963 Budafa-Kiscsehi, 1937 Csanádalberti, 1991 Csanadapaca, 1967 Dany, 1994 Demjen, 1954 Ferencszallas, 1969 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 | 9 2 4 3 108 5 33 1 3 | 368 63 53 44 636 5 230 11 56 299 | 32.1 32.1 15.9 36.0 45.4 41.1 41.1-45.4 39.4 37.0 17.4 31.4-39 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967 Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya-East, 1970 Belezna, 1963 Budafa-Kiscsehi, 1937 Csanádalberti, 1991 Csanadapaca, 1967 Dany, 1994 Demjen, 1954 Ferencszallas, 1969 Ferencszallas East- Kiszomber, 1973 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 | 9 2 4 3 108 5 5 33 1 3 1 26 8 | 368 63 53 44 636 5 230 11 56 299 103 119 | 32.1 32.1 15.9 36.0 45.4 41.1 41.1-45.4 39.4 37.0 17.4 31.4-39 41.1-50 |
| IOL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967 Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya, 1959 Battonya, 1959 Belezna, 1963 Budafa-Kiscsehi, 1937 Csanádalberti, 1991 Csanadalpera, 1967 Dany, 1994 Demjen, 1954 Ferencszallas, 1969 Ferencszallas, 1969 Ferencszallas East- Kiszomber, 1973 Hahót, 1942 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 5,101-7,674 7,012-7,283 | 9 2 4 3 108 5 33 1 3 1 26 8 | 368 63 53 44 636 5 230 11 56 299 103 119 | 32.1 32.1 15.9 36.0 41.1 41.1-45.4 39.4 37.0 17.4 31.4-39 41.1-50 41.1 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 | 9 2 4 3 108 5 33 1 26 8 | 368 63 53 44 636 5 230 11 56 299 103 119 27 8 | 32.1 32.1.15.9 36.0 45.4 41.1 41.1-45.4 39.4 37.0 17.4 31.4-39 41.1-50 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967 Asotthalom, 1967 Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya, 1959 Battonya, 1959 Belezna, 1963 Budafa-Kiscsehi, 1937 Csanádalberti, 1991 Csanadapaca, 1967 Dany, 1994 Demjen, 1954 Ferencszallas, 1969 Ferencszallas East- Kiszomber, 1973 Hahót, 1942 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 5,101-7,674 7,012-7,283 | 9 2 4 3 108 5 33 1 3 1 26 8 | 368 63 53 44 636 5 230 11 56 299 103 119 | 32.1 32.1 15.5 36.0 45.4 41.1 41.1-45.4 39.4 37.0 17.4 31.4-38 41.1-50 41.1 31.3 34.1 24.0 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 6 3,011-3,258 2,171-2,428 | 9 2 4 3 108 5 33 1 26 8 4 2 1 1 1 6 | 368 63 53 44 636 5 230 11 56 299 103 119 27 8 37 26 9 | 32.1 32.1 35.5 36.0 45.4 41.1-45.4 39.4 37.0 17.4 31.4-33 41.1-50 41.1 24.0 37.0 17.4 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967. Asotthalom, 1967. Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya-East, 1970 Belezna, 1963 Budafa-Kiscsehi, 1937 Csanádalberti, 1991 Csanadapaca, 1967 Dany, 1994 Demjen, 1954 Ferencszallas, 1969 Ferencszallas East- Kiszomber, 1973. Hahót, 1942 Kaba South, 1978. Kápolnapuszta, 1998 Kelebia NE, 1968 Kelebia South, 1970 Kiskundorozsma, 1964 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 6 3,011-3,258 2,171-2,428 4,824-9,711 | 9 2 4 3 108 5 5 33 1 26 8 4 2 1 1 1 1 1 6 | 368 63 53 44 636 5 230 11 56 299 103 119 27 8 37 26 9 277 1,682 | 32.1 32.1 15.9 36.0 45.4 41.1 41.1-45.4 39.4 37.0 31.4-33 41.1-50 41.1 31.3 34.1, 34.1, 34.1 34.1 34.0 34.1 34.1 34.1 34.1 34.1 34.0 37.0 37.0 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967 Asotthalom, 1967 Battonya, 1959 Battonya, 1959 Battonya, 1959 Battonya-East, 1970 Belezna, 1963 Budafa-Kiscsehi, 1937 Csanádalberti, 1991 Csanadapaca, 1967 Dany, 1994 Demjen, 1954 Ferencszallas, 1969 Ferencszallas, 1969 Ferencszallas East- Kiszomber, 1973 Hahót, 1942 Kaba South, 1978 Kápolnapuszta, 1998 Kelebia NE, 1968 Kelebia NE, 1968 Kelebia South, 1970 Kiskundorozsma, 1964 Kiskunhalas NE, 1974 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 2,171-2,428 4,824-9,711 5,380-6,594 | 9 2 4 3 108 5 33 1 3 1 26 8 4 2 1 1 6 1 9 | 368 63 53 44 636 5 230 11 56 299 103 119 27 8 37 26 9 277 1,682 391 | 32.1 32.1 15.5 36.0 45.4 41.1 41.1-45.4 39.4 37.0 17.4 31.3 34.1 34.1 24.0 37.0 37.0 34.1 34.1 34.1 34.1 34.1 34.1 35.1 36.0 37.0 37.0 37.0 37.0 37.0 37.0 37.0 37 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967 Asotthalom, 1967 Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya-East, 1970 Belezna, 1963 Budafa-Kiscsehi, 1937 Csanadalberti, 1991 Csanadapaca, 1967 Dany, 1994 Demjen, 1954 Ferencszallas East- Kiszomber, 1973 Hahót, 1942 Kaba South, 1978 Kápolnapuszta, 1998 Kelebia NE, 1968 Kelebia South, 1970 Kiskundorozsma, 1964 Kiskunhalas NE, 1974 Lovaszi, 1940 Martfu. | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 6,3011-3,258 2,171-2,428 4,824-9,711 5,380-6,594 3,083-5,692 6,666-6,754 | 9 2 4 3 108 5 5 33 1 26 8 4 2 1 1 1 1 6 19 24 26 2 | 368 63 53 44 636 5 230 11 56 299 103 119 27 8 37 26 9 277 1,682 391 63 54 | 32.1 32.1 15.9 36.0 45.4 41.1 41.1-45.4 39.4 37.0 31.4-33 41.1-50 41.1 24.0 37.0 17.4 36.0-43.4 27.5-31.2 41.1-45.4 |
| IOL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967 Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya, 1959 Battonya, 1959 Battonya, 1963 Budafa-Kiscsehi, 1937 Csanádalberti, 1991 Csanadapaca, 1967 Dany, 1994 Demjen, 1954 Ferencszallas, 1969 Ferencszallas, 1969 Ferencszallas, 1969 Ferencszallas East- Kiszomber, 1973 Hahót, 1942 Kaba South, 1978 Kápolnapuszta, 1998 Kelebia NE, 1968 Kelebia South, 1970 Kiskundorozsma, 1964 Kiskunhalas NE, 1974 Lovaszi, 1940 Martfu. Mezocsokonya West, 1987. | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 2,171-2,428 4,824-9,711 5,380-6,594 3,083-5,692 6,666-6,754 5,785-5,938 | 9 2 4 3 108 5 33 1 26 8 4 2 1 1 1 6 19 24 26 2 | 368 63 53 44 636 5 230 11 56 299 103 119 27 8 37 26 9 277 1,682 391 63 54 27 | 32.1 32.1 15.9 36.0 45.4 41.1-45.4 39.4 37.0 17.4 31.3 34.1 24.0 37.0 37.0 37.0 34.1 24.0 27.5-31.2 41.1-45.4 37.0 27.5-31.2 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 2,171-2,428 4,824-9,711 5,380-6,594 3,083-5,692 6,666-6,754 5,785-5,938 2,285-3,589 | 9 2 4 3 108 5 33 1 26 8 4 2 1 1 1 6 19 24 26 2 | 368 63 53 44 636 5 230 11 56 299 103 119 27 8 37 26 9 277 1,682 391 63 54 27 27 | 32.1 32.1 35.9 36.0 45.4 41.1-45.4 37.0 37.0 41.1-50 41.1-50 41.1-50 41.1 24.0 33.4 34.1 24.0 37.0 27.5-31.2 41.1-45.4 37.0 37.0 37.0 37.0 37.0 37.0 37.0 37.0 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 2,171-2,428 4,824-9,711 5,380-6,594 3,083-5,692 6,666-6,754 5,785-5,938 | 9 2 4 3 108 5 33 1 26 8 4 2 1 1 1 6 19 24 26 2 | 368 63 53 44 636 5 230 11 56 299 103 119 27 8 37 26 9 277 1,682 391 63 54 27 | 32.1 32.1 15.9 36.0 45.4 41.1-45.4 39.4 37.0 31.4-33 41.1-50 41.1 24.0 37.0 17.4 36.0-43.4 27.5-31.2 41.1-45.4 37.0 37.0 37.0 37.0 37.0 37.0 37.0 37.0 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967 Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya-East, 1970 Belezna, 1963 Budafa-Kiscsehi, 1937 Csanadalberti, 1991 Csanadapaca, 1967 Dany, 1994 Demjen, 1954 Ferencszallas, 1969 Ferencszallas East- Kiszomber, 1973 Hahót, 1942 Kaba South, 1978 Kápolnapuszta, 1998 Kelebia NE, 1968 Kelebia NE, 1968 Kelebia South, 1970 Kiskundorozsma, 1964 Kiskunhalas NE, 1974 Lovaszi, 1940 Martfu Mezocsokonya West, 1987 Mezohegyes, 1960 Mezosas, 1978 Mezosas West, 1994 Monor. | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 2,171-2,428 4,824-9,711 5,380-6,594 3,083-5,692 6,666-6,754 5,785-5,938 2,285-3,589 7,349-8,394 8,855 | 9 2 4 3 108 5 33 1 26 8 4 2 1 1 1 6 19 24 26 2 1 5 6 2 1 | 368 63 53 44 636 5 230 11 56 299 103 119 27 8 37 266 9 277 1,682 391 63 54 27 27 27 125 78 | 32.1 32.1 35.9 36.0 45.4 41.1-45.4 39.4 37.0 17.4 31.4-33 41.1-50 41.1 24.0 37.0 27.5-31.2 41.1-45.4 37.0 37.0 38.9 36.4-48.3 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 6 3,011-3,258 2,171-2,428 4,824-9,711 5,380-6,594 3,083-5,692 6,666-6,754 5,785-5,938 2,285-3,589 7,349-8,394 8,855 7 6 | 9 2 4 3 108 5 33 1 26 8 4 2 1 1 1 1 6 19 24 26 2 1 5 5 | 368 63 53 44 636 5 230 11 56 299 103 119 27 8 37 26 9 277 1,682 391 63 54 27 125 78 | 32.1 32.1 15.9 36.0 45.4 41.1-45.4 39.4 37.6 41.1-50 41.1 24.0 37.0 17.4 36.0-43.4 27.5-31.2 41.1-45.4 37.0 27.5-31.2 41.1-45.4 37.0 27.5-31.2 41.1-45.4 37.0 27.5-31.2 41.1-45.4 37.0 27.5-31.2 41.1-45.4 37.0 27.5-31.2 41.1-45.4 |
| IOL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967 Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya, 1959 Battonya, 1959 Battonya, 1959 Battonya, 1963 Budafa-Kiscsehi, 1937 Csanádalberti, 1991 Csanadapaca, 1967 Dany, 1994 Demjen, 1954 Ferencszallas, 1969 Ferencszallas, 1969 Ferencszallas, 1969 Ferencszallas, 1973 Hahót, 1942 Kaba South, 1973 Hahót, 1942 Kaba South, 1978 Kápolnapuszta, 1998 Kelebia NE, 1968 Kelebia South, 1970 Kiskundorozsma, 1964 Kiskunhalas NE, 1974 Lovaszi, 1940 Martfu. Mezosokonya West, 1987 Mezosas, 1978 Mezosas 1978 Mezosas West, 1994 Monor. Nagybánhegyes, 1990 Nagylengyel 1951 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 6 3,011-3,258 2,171-2,428 4,824-9,711 5,380-6,594 3,083-5,692 4,824-9,711 5,380-6,594 3,083-5,692 6,666-6,754 5,785-5,938 2,285-3,589 7,349-8,394 8,855 7 6 5,545-8,235 | 9 2 4 3 108 5 5 33 1 26 8 4 2 1 1 1 1 6 19 24 26 2 1 1 5 6 2 1 1 5 6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 368 63 53 44 636 5 230 11 56 299 103 119 27 8 37 26 9 277 1,682 391 63 391 63 54 27 27 27 27 125 78 5 5 | 32.1 32.1 32.1 35.9 36.0 45.4 41.1-45.4 39.4 37.0 31.4-33 41.1-50 41.1 34.1 34.1 34.1 34.1 34.1 34.1 34.1 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967 Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya, 1959 Battonya, 1959 Battonya, 1959 Battonya, 1963 Budafa-Kiscsehi, 1937 Csanadalberti, 1991 Csanadapaca, 1967 Dany, 1994 Demjen, 1954 Ferencszallas, 1969 Ferencszallas East- Kiszomber, 1973 Hahót, 1942 Kaba South, 1978 Kápolnapuszta, 1998 Kelebia NE, 1968 Kelebia NE, 1968 Kelebia South, 1970 Kiskundorozsma, 1964 Kiskunhalas NE, 1974 Lovaszi, 1940 Marffu Mezocsakonya West, 1987 Mezohegyes, 1960 Mezosas, 1978 Mezosas West, 1994 Monor. Nagybánhegyes, 1990 Nagylengyel 1951 Ortahaza, 1970 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 3,011-3,258 2,171-2,428 4,824-9,711 5,380-6,594 3,083-5,692 6,666-6,754 5,785-5,938 2,285-3,589 7,349-8,394 8,855 7 6 5,545-8,235 4,460-6,089 | 9 2 4 3 108 5 33 1 26 8 4 2 1 1 1 1 6 19 24 26 2 1 5 5 | 368 63 53 44 636 5 230 11 56 299 103 119 27 8 37 26 9 277 1,682 391 63 54 27 125 78 | 32.1 32.1 35.9 36.0 45.4 41.1-45.4 39.4 31.4-33 41.1-50 41.1 24.0 37.0 27.5-31.2 41.1-45.4 36.0-43.4 27.5-31.2 31.3 31.3 31.3 31.3 31.3 31.3 31.3 |
| IOL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967 Asotthalom, 1967 Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya, 1959 Battonya, 1959 Battonya, 1954 Battonya, 1967 Csanádalberti, 1991 Csanadapaca, 1967 Dany, 1994 Demjen, 1954 Ferencszallas, 1969 Ferencszallas, 1969 Ferencszallas, 1969 Ferencszallas, 1969 Kelebia Ne, 1973 Hahót, 1942 Kaba South, 1978 Kápolnapuszta, 1998 Kelebia Ne, 1968 Kelebia South, 1970 Kiskundorozsma, 1964 Kiskunhalas NE, 1974 Lovaszi, 1940 Martfu. Mezosokonya West, 1987 Mezosas, 1978 Mezosas West, 1994 Monor. Nagybánhegyes, 1990 Nagylengyel 1951 Ortahaza, 1970 Ortahaza, 1970 Ortahaza East, 1986 Ottomos East, 1992 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 6 3,011-3,258 2,171-2,428 4,824-9,711 5,380-6,594 3,083-5,692 4,824-9,711 5,380-6,594 3,083-5,692 6,666-6,754 5,785-5,938 2,285-3,589 7,349-8,394 8,855 7 6 5,545-8,235 4,460-6,089 4,347-5,413 2,936-2,573 | 9 2 4 3 108 5 33 1 26 8 4 2 1 1 1 6 19 24 26 2 1 5 1 5 6 6 2 1 1 5 6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 368 63 53 44 636 5 230 11 56 299 103 119 27 8 37 26 9 277 1,682 391 63 54 27 27 27 27 125 78 5 15 11 125 11 127 | 32.1 32.1 15.9 36.0 45.4 41.1 41.1-45.4 39.4 37.0 41.1-50 41.1 31.3 34.1 24.0 37.0 17.4 36.0-43.4 27.5-31.2 41.1-45.4 37.0 27.5 38.9 36.4-48.3 41.1 28.2 31.7 11.4-35.0 31.1-45.4 31.1 27.5 |
| IOL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967 Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya-East, 1970 Belezna, 1963 Budafa-Kiscsehi, 1937 Csanadalberti, 1991 Csanadapaca, 1967 Dany, 1994 Demjen, 1954 Ferencszallas, 1969 Ferencszallas, 1969 Ferencszallas, 1969 Ferencszallas, 1989 Kapolnapuszta, 1998 Kapolnapuszta, 1998 Kelebia NE, 1968 Kelebia South, 1970 Kiskundorozsma, 1964 Kiskunhalas NE, 1974 Lovaszi, 1940 Martfu Mezocsak, 1994 Monor. Nagybánhegyes, 1990 Nagylengyel 1951 Ortahaza, 1970 Ortahaza East, 1982 Pusztaapati, 1992 Pusztaapati, 1993 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 4 6,363-6,548 2,171-2,428 4,824-9,711 5,380-6,594 3,083-5,692 6,666-6,754 5,785-5,938 2,285-3,589 7,349-8,394 8,855 7,654-8,235 4,460-6,089 4,347-5,413 2,936-2,573 8,300 | 9 2 4 3 108 5 33 1 26 8 4 2 1 1 6 19 24 26 2 1 1 5 6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 368 63 53 44 636 5 230 11 56 299 103 119 27 8 37 266 9 277 1,682 391 127 125 78 5 15 1,461 127 11 19 90 21 | 32.1 32.1 35.9 36.0 45.4 41.1-45.4 39.4 37.0 17.4 31.4-35 41.1-50 41.1 24.0 37.0 27.5-31.2 41.1-45.4 36.0-43.4 27.5-31.2 31.3-3 36.4-48.3 41.1 28.2 31.7 31.4-35.0 31.1-45.4 31.1-45.4 31.1-45.4 31.1-45.4 31.1-45.4 31.1-45.4 |
| OL HUNGARIAN OIL & GAS CO. Algyo, 1965 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,776.00 2,168-4,167 7,713-7960 5,710-6,063 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 6,3011-3,258 2,171-2,428 4,824-9,711 5,380-6,594 3,083-5,692 6,666-6,754 5,785-5,938 2,285-3,589 7,349-8,394 8,855 7 6 5,545-8,235 4,460-6,089 4,347-5,413 2,936-2,573 8,300 2,767-5,538 | 9 2 4 3 108 5 33 1 26 8 4 2 1 1 1 6 19 24 26 2 1 5 6 6 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 368 63 44 636 5 230 11 56 299 103 119 27 8 37 26 9 277 1,682 391 1461 27 125 78 15 1,461 127 11 990 21 321 | 32.1 32.1 35.9 36.0 45.4 41.1-45.4 37.0 37.0 41.1-50 41.1-3 31.3 31.3 31.3 31.3 31.3 31.3 31.3 |
| IOL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967 Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya, 1959 Battonya, 1959 Battonya, 1959 Battonya, 1963 Budafa-Kiscsehi, 1937 Csanádalberti, 1991 Csanadapaca, 1967 Dany, 1994 Demjen, 1954 Ferencszallas, 1969 Ferencszallas, 1969 Ferencszallas, 1969 Ferencszallas, 1969 Kajolnapuszta, 1973 Hahót, 1942 Kaba South, 1978 Kápolnapuszta, 1998 Kelebia NE, 1968 Kelebia NE, 1968 Kelebia South, 1970 Kiskundorozsma, 1964 Kiskunhalas NE, 1974 Lovaszi, 1940 Martfu Mezocsokonya West, 1987 Mezosas, 1978 Mezosas West, 1994 Monor. Nagybánhegyes, 1990 Nagylengyel 1951 Ortahaza, 1970 Ortahaza East, 1986 Ottomos East, 1992 Pusztaapati, 1973 Pusztaapati, 1973 Pusztaapati, 1973 Pusztaapati, 1973 Pusztaapati, 1978 Ruzsa, 1979 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 4 6,363-6,548 2,171-2,428 4,824-9,711 5,380-6,594 3,083-5,692 6,666-6,754 5,785-5,938 2,285-3,589 7,349-8,394 8,855 7,654-8,235 4,460-6,089 4,347-5,413 2,936-2,573 8,300 | 9 2 4 3 108 5 33 1 26 8 4 2 1 1 6 19 24 26 2 1 1 5 6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 368 63 53 44 636 5 230 11 56 299 103 119 27 8 37 266 9 277 1,682 391 127 125 78 5 15 1,461 127 11 19 90 21 | 32.1 32.1 35.9 36.0 45.4 41.1-45.4 39.4 37.0 31.4-33 41.1-50 41.1 31.3 34.1 24.0 37.0 17.4 36.0-43.4 27.5-31.2 41.1-45.4 31.1-45.4 31.1-45.4 31.1-45.4 31.1-45.4 31.1-45.4 31.1-45.4 31.1-35.0 |
| IOL HUNGARIAN OIL & GAS CO. Algyo, 1965 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 2,171-2,428 4,824-9,711 5,380-6,594 3,083-5,692 6,666-6,754 5,785-5,938 2,285-3,589 7,349-8,394 8,855 7 6 5,545-8,235 4,460-6,089 4,347-5,413 2,936-2,573 8,300 2,767-5,538 6,445-9,403 4,856 5 | 9 2 4 3 108 5 33 1 26 8 4 2 1 1 1 6 19 24 26 2 1 1 1 1 6 1 1 1 1 1 1 1 1 1 1 1 1 | 368 63 44 636 5 230 11 56 299 103 119 27 8 37 26 9 277 1,682 391 125 78 5 15 1,461 127 11 990 134 594 205 | 32.1 32.1 35.9 36.0 45.4 41.1-45.4 37.0 37.0 41.1-50 41.1-3 31.3 34.1 37.0 27.5-31.2 41.1-45.4 37.0 27.5-31.2 41.1-45.4 31.4-35.0 31.1-45.4 31.1-35.0 31.1-45.4 31.1-35.0 31.1-35.0 31.1-35.2 |
| IOL HUNGARIAN OIL & GAS CO. Algyo, 1965 Asotthalom, 1967 Asotthalom-N., 1983 Barabásszeg, 1959 Battonya, 1959 Battonya-East, 1970 Belezna, 1963 Budafa-Kiscsehi, 1937 Csanadalberti, 1991 Csanadapaca, 1967 Dany, 1994 Demjen, 1954 Ferencszallas, 1969 Ferencszallas, 1969 Ferencszallas, 1969 Ferencszallas East- Kiszomber, 1973 Hahót, 1942 Kaba South, 1978 Kápolnapuszta, 1998 Kelebia NE, 1968 Kelebia South, 1970 Kiskundorozsma, 1964 Kiskunhalas NE, 1974 Lovaszi, 1940 Martfu. Mezocsak, 1974 Mezosas, 1978 Mezosas West, 1994 Monor. Nagybánhegyes, 1990 Nagylengyel 1951 Ortahaza, 1970 Ortahaza East, 1986 Ottomos East, 1992 Pusztapati, 1973 Pusztafoldvar, 1958 Ruzsa, 1979 Savoly, 1980 | 5,301-8,136 2,493-3,199 6,521-6,767 6,433-6850 1,286-3,041 2,765-2,913 8,176.00 2,168-4,167 7,713-7960 5,710-6,063 5,930 725-3,937 5,101-7,674 7,012-7,283 4 6,363-6,548 2,171-2,428 4,824-9,711 5,380-6,594 3,083-5,692 6,666-6,754 5,785-5,938 2,285-3,589 7,349-8,394 8,855 7,349-8,394 4,347-5,413 2,936-2,573 8,300 2,767-5,538 6,445-9,403 4,856 | 9 2 4 3 108 5 33 1 26 8 4 2 1 1 6 19 24 26 2 1 1 1 3 4 1 1 3 4 4 2 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 368 63 44 636 5 230 11 56 299 103 119 27 8 37 266 9 277 1,682 391 127 125 78 5 15 1,461 127 11 19 90 21 329 | 32.1 32.1 15.9 36.0 45.4 41.1-45.4 39.4 37.0 17.4 31.3 34.1 24.0 37.0 37.0 37.0 34.1 24.0 27.5-31.2 41.1-45.4 37.0 27.5-31.2 |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production avg. b/d | ı, °API gravity |
|---|--|--|---|---|
| Szank NW, 1977 Szeged, 1971 Szeghalom, 1980 Szeghalom West, 1989 Szilvágy, 1968 Tazlar, 1966 Tazlar North, 1986 Tóalmás, 1999 Tura, 1991 Ulles-Deep, 1962 Zalakomár, 1999. | 5,347-5,495 8,038-8,629 5,813-6,608 7,163-7,526 8 4,263-6,890 6,669-7,415 8 2,611-2,628 5,508-10,400 6 | 2 7 24 1 4 3 2 1 1 4 1 | 74 519 395 20 25 38 38 32 31 179 34 | 41.1 41.7 43.9-44.7 39.0 23.0 24.0 29.0-33.4 33.6 21.6 31.2-50.0 25.4 |
| Total Hungary | | 934 | 24,964 | |
| INDIA | | | | |
| BOMBAY OFFSHORE - ONGC • Heera & S. Heera, 1977 • Bombay High, 1974 • Neelam, 1987 • Panna - Mukta, 1976 | 4,267-6,564 3,282-7,877 4,606-4,836 4,923-7,549 | 92 433 53 70 | 51,110 210,250 31,234 23,364 | 37.0 39.0 38.0 38.0 |
| Champang, 1973 | 8,861-10,502 9,646-11,840 9,518-14,769 6,564-14,113 7,877-13,128 | 7 92 162 42 | 1,540 9,940 14,680 4,584 | 30.0 33.0 30.0 33.0 26.0 |
| SOUTHERN - ONGC Adikamangalam, 1989 | 6,236-7,549 2,687-8,599 | 5 9 1 2 2 3 25 14 2 | 515 1,416 85 515 86 472 3,500 51,893 1,180 | 45.0 45.0 45.0 43.0-45.0 45.0 |
| WESTERN - ONGC Ahmedabad, 1967 Ankleshwar, 1960 Balol, 1970 Bechraji, 1987 Gandhar, 1984 Jhalora, 1976 Jotana, 1977 Kadi North, 1967 Kadi South, 1968 Kalol, 1961 Kathana, 1965 Kosamba, 1963 Lanwa, 1972 LLimbodra, 1985 Motwan and Sisodara, | 1,969-6,564 3,280-3,600 2,858 9,846-12,145 3,940-4,270 3,600-4,930 3,610-7,220 6,892-9,846 4,595-10,830 5,250-5,906 1,313-8,533 4,595-10,830 | 50 149 90 119 140 84 59 233 33 310 10 4 73 | 6,310 2,423 2,350 38,666 5,000 3,700 10,670 1,845 7,645 360 600 925 3,185 | 47.6-60.0 16.0 16.0 49.9 25.7 39.0 22.3 41.1 37.0 25.0 45.0 |
| 1974 Nada, 1988 Nandasan, 1975 Nawagam, 1963 Sanand, 1962 Santhal, 1974 Sobhasan & W. Sobhasan, | 4,920-5,580 9,180-11,490 4,595-10,174 4,267-10,174 3,280-3,600 | 6 6 33 129 47 119 | 900 1,290 1,764 2,043 2,455 5,922 | 45.4 47.6 35.0 25.7 17.0 |
| 1968 | 4,595-9,846 4,595-4,923 | 123 37 47 | 7,920 1,119 784 | 33.0 22.3 |
| OIL INDIA LIMITED Bhekulajan, 1995 Digboi, 1890 Dikom, 1990 Hapjan, 1987 Jorajan, 1972 Kathaloni, 1991 Kharsang/Ningru/Kumehai, | 11,000-12,000 300-7,500 10,000-13,000 10,000-11,000 7,000-12,000 10,000-13,000 | 4 96 13 32 125 23 | 2,700 300 14,400 5,300 7,300 21,750 | 31.0 25.0-34.0 32.0 25.0-34.0 25.0-34.0 25.0-34.0 |
| 1976 | 3,500-5,500 | 4 | 750 | 29.0-32.0 |
| 1995 Moran, 1956 Nahorkatiya, 1953 Shalmari, 1986 North Balijan South Kathaloni Khagorijan Kamkhat | 11,000-14,000 10,000-12,000 8,500-10,000 11,000-12,000 11,000-12,600 11,000-12,600 11,000-12,600 11,000-12,600 | 51 128 26 | 2,100 7,200 4,025 | 32.0 25.0-34.0 |
| Others Total India | | 38 | 5,200 585,265 | |
| | | | | |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production avg. b/d | , °API gravity | Name of field, discovery date | Depth, | Producing oil wells | 1999 production, avg. b/d | , °API gravity |
|--|-----------------|---------------------|--------------------------------|------------------------|--|------------------------------|---------------------|---------------------------------|------------------------|
| INDONESIA | | | | | Sangatta, 1936 | 2,600 | 42 | 2,120 | |
| PERTAMINA | | | | | Tapian Timur, 1967 | 2,067 3,250 | 4 11 | 45 301 | |
| CEPU | | | | | Warukin Tengah, 1958 | 1,500 | 7 | 96 | |
| Kawengan, 1926 Ledok, 1893 | 2,000 1,380 | 49 25 | 1,776 126 | 32.5-35.9 33.9-40.9 | PERTAMINA | | | | |
| Nglobo, 1986 | 1,182 | 23 | | 37.3-42.3 | SORONG Klamono, 1936 | 574 | 71 | 1,300 | 19.0 |
| Semanggi, 1986 | 1,200 2,000 | 4 34 | | | Wiriagar, 1984 | 3,500 | 3 | | 39.7 |
| PERTAMINA | | | | | SANTA FE ENERGY RESOURCES LT | D. | | | |
| JAMBI Andan, 1950 | 2,507 | 2 | 11 | 36.0 | KEPALA BURUNG BLOCK Arar Gas (c), 1977 | 8,748 | 1 | 74 | 50.0 |
| Betung, 1966 | 4,003 | 7 | 57 | 42.0 | Cenderawasih, 1976 | 3,226 | 13 | 441 | 26.7 |
| Belimbing Bungin Batu | 1,522 9,679 | 0 1 | 1 137 | 35.0 47.8 | Jaya, 1973 | 2,843 3,031 | 6 30 | 244 1,003 | 39.6 36.5 |
| Ketaling Timur, 1985 Lirik, 1939 | 3,432 1,633 | 29 21 | 1,142 204 | 18.0-28.0 34.0 | Kasim Barat, 1975 | 4,129 4,832 | 1 4 | 33 | 34.5 25.7 |
| Molek, 1956 | 2,600 | 6 | 55 | 34.0 | Klalin 1990 | 8,460 | 1 | 96 104 | 43.5 |
| N. Pulai, 1941 | 1,800 1,837 | 11 13 | 40 150 | 34.0 | Klalin (c), 1986 | 8,025 4,372 | 4 0 | 581 | 55.0 16.2 |
| Sungai Lilin, 1964 | 2,690 | 12 | 124 | 24.0-38.0 | Walio Kais, 1973 | 2,337 | 157 | 4,767 | 34.3 |
| S. Pulai, 1941 Tuba Obi | 1,800 5,046 | 5 0 | 35 0 | 34.0 | Walio Text II, 1973 | 2,268 2,284 | 17 8 | 485 166 | 34.3 34.3 |
| PERTAMINA | | | | | SANTA FE ENERGY RESOURCES LT | | | | |
| KARANGAMPEL | 0.000 | 0 | 0 | 26.6.20.2 | SALAWATI KEPALA BURUNG BLOC | K | | 0.010 | |
| Camaya Selatan, 1980 Camaya Utara, 1930 | 8,202 8,202 | 0 2 | 0 301 | 26.6-38.3 25.5-38.3 | Matoa, 1991 | 9,412 9,577 | 14 3 | 2,942 2,035 | 31.4 51.5 |
| Cemara Barat/Timur, 1979 Cemara Selatau, 1975 | 7,070 3,965 | 13 3 | 1,234 209 | 29.9-39.7 32.6 | SANTA FE ENERGY RESOURCES LT | • | | _, | |
| Gonar | 3,238 | | | 31.4-48.9 | TUBAN BLOCK | | 10 | 17.010 | 07.4 |
| Kandang Haui Timur, 1979 . MB STR, 1985 | 7,546 10,400 | 1 3 | 1,348 1,619 | 34.5-38.5 37.1-40.0 | Mudi, 1994 | 8,516 | 10 | 17,218 | 37.4 |
| Paskcerang | 5,479 | | · | 31.0 | SANTA FE ENERGY RESOURCES LT JABUNG BLOCK | D. | | | |
| Pegaden, 1986 | 6,890 5,578 | 0 1 | 12 1 | 25.2-42.0 31.2-46.6 | Makmur, 1996 | 3,954 | 7 | 6,205 | 50.1 |
| Rengasdengiok Sindang, 1988 | 5563 4,921 | 3 2 | 2303 56 | 36.8 39.1-56.1 | North East Betara, 1995 North Geragai, 1995 | 4,052 4,000 | 16 | 5,079 | 57.0 48.5 |
| Tugu Barat, 1979 | 3,014 | 7 | 784 | 29.3-42.7 | | ., | | -, | |
| Waled Utata, 1978 Other, 1973 | 5119 6850 | 0 | 0 | 25.0-39.6 | • Attaka, 1970 | 1,200-11,000 | 134 | 26,271 | 32.0-42.0 |
| PERTAMINA | | | | | Kerindingan, 1972 | 3,100-7,100 2,900-4,900 | 4 6 | | 20.0-36.0 16.0-29.0 |
| PRABUMULIH | | | | | Pantai, 1982 | 3,000 | 1 | · | |
| Batu Keras, 1903 | 1,950 | 16 | 106 | 45.0-46.0 | Seguni, 1995 | 0,000-11,000 5,700-8,400 | 7 1 | 1,400 105 | 33.0 30.0-38.5 |
| 1973 | 4,167 | 15 | 69 | 33.0-36.0 | Sepinggan, 1973 | 3,400-11,600 6,000-10,000 | 41 27 | | 25.0-38.0 40.0-42.0 |
| Benakat Timur Blok Tangah Benngin | 4,154 7,218 | 12 | 285 2,151 | 33.0-36.0 29.0-30.8 | STA (Santan) | · | 12 | 5,766 | |
| Benuang Gunung Kemala, 1941 | 5,383 5,548 | 0 10 | 0 461 | 33 30.7-49.6 | Yakin C., 1976 | 670-2,235 2,180-6,600 | 20 9 | 3,043 323 | 13.0-22.5 16.2-28.9 |
| Jirak, 1930 | 2,093 | 28 | 234 | 34.0-37.0 | • Yakin W., 1982 | 2,050-2,530 | 3 | | 18.4-21.1 |
| Kampung Minyak, 1896 Kruh N., 1935 | 2,005 4,652 | 41 2 | 241 10 | 45.0-46.0 41.7 | ARBNI | | | | |
| Kuang, 1940 | 5,249 402 | 5 0 | 907 49 | 25.0 | Pagerungan (c), 1994 | 6,550-8,455 | 9 | | |
| Musi, 1985 | 2,717 | 8 | 662 | 27.4 | ASAMERA Alur Cimon, 1972 | 3,098 - | ı – | 1 | 50.8 |
| Ogan Timur, 1936 Pandan, 1993 | 4,619 6,718 | 8 | 1,005 44 | 25.5 25.5-46.7 | APP, 1950 | 701 | | | |
| Prabumulih Barat, 1953 | 5,811 | 4 | 49 | 29.0 | Bago, 1977 | 2,250 4,446 | | | 22.0 |
| Sopa, 1997 | 5,905 1,995 | 10 3 | 5,283 57 | 35.5-36.2 45.0-46.0 | Bertak, 1988 | 4,364 1,705 | | | 27.4 21.3 |
| Sukaraja, 1934 | 7,379 1,980 | 0 5 | 0 47 | 22.5 45.0-46.0 | Geodondong, 1965 | 3,192 | | | 52.0 |
| Talang Akar, 1922 | 8,562 | 24 | 642 | 35.0 | Grisik, 1986 Julo Rayeu, 1968 | 1,160 2,832 | | | 53.6 |
| Talang Jimar, 1937 | 4,123 7,688 | 37 2 | 1,514 36 | 27.3 27.7-32.8 | Keban, 1941 | 1,358 | | | 49.0 |
| Tanjung Tiga Barat, 1948 Tanjung Tiga Timur, 1940 | 7888 3,937 | 21 | 482 65 | 26.0-32.2 26.9 | Kebon Jaro | 3,957 | | | 41.5 |
| Tepus, 1997 | 10171 | 3 | 269 | 45 | Kluang, 1913 | 2,591 | 300 | | 42.6 |
| PERTAMINA | | | | | Mangunjaya, 1934 Merbau, 1979 | 2,700 600 | | | 32.0 |
| RANTAU Arubay, 1927 | 1909 | 3 | 37 | 45.3-50.3 | Meuranti, 1978 | 750 | | | |
| Gebang, 1977 | 2,917 | 6 4 | 78 85 | 42.5-59.7 48.7-51.1 | Panarukan, 1976 | 4,915 3,083 | | | 39.4 48.1 |
| Kuala Dalam, 1983 K. Simpang Barat, 1971 | 3,872 3,740 | 18 | 746 | 40.3-53.7 | Peureulaw | | | | |
| P. Tabuhan Barat, 1937 P. Tabuhan Timur, 1968 | 3,350 2,460 | 12 10 | 92 134 | 47.3-55.8 47.3-55.8 | Ramba, 1982 | 3,150 | | | 37.0 |
| Perapen, 1992 | 4,659 | 1 | 176 | 50.6 | Rawa, 1985 | 4,086 4,086 | | | 37.0 37.0 |
| Polonia, 1988 Pulau Panjang, 1928 | 9,010 3,300 | 1 16 | 13 173 | 45.0 41.3-50.9 | Supat, 1984 | 4,626 | | | 33.6 |
| Rantau, 1929 | 2,764 3,701 | 46 5 | 1,445 52 | 44.4-52.3 46.9-59.7 | Tanjung Laban, 1982 Tempino, 1931 | 3,590 1,647 | | | 38.1 40.9 |
| Sungal Buluh, 1984 | 3,701 | 3 | 52 59 | 51.5-52.0 | Tengah, 1984 | 3,245 | | | 34.7 |
| | | | | | Tualang, 1973 | 2,631 - | _ | | 49.9 |
| PERTAMINA SANGATTA | | | | | BONHAM/ENIM/ENERGY EQUITY | _, | | | |

| Name of field, discovery date | Depth, | Producing oil wells | 1999 production, °API avg. b/d gravity |
|---|-----------------------------|---------------------|--|
| BOW VALLEY/TALISMAN | _ | 1 1 | |
| Air Serdang, 1988 | 5,248 5,861 _ | _ 79 | 30.1-32.0 30.0 |
| Ardjuna, 1969 Arimbi, 1972 Northwest Corner, 1974 | 2,380-7250 2,943 | 399 24 | 37.0 33.0 |
| Northwest Corner, 1974Pagerungan, 1994 | 5,411-5,800 | 15 | 31.5 61.0 |
| CALTEX PACIFIC INDONESIA | 4 700 - | , | 00.0 |
| Aman, 1974 | 4,700 6,000 1,425 | | 39.0 38.0 36.0 |
| Ayu | 4,500 1,600 | | 29.0 33.0 |
| Bangko, 1970 | 1,950 690 | | 34.0 19.0 |
| Bekasap, 1955 Bekasap S, 1968 | 2,950 3,900 | | 34.0 34.0 |
| Bekasap SE, 1968 | | | 34.0 |
| Benar, 1973 | 2,450 2,400 | | 33.0 37.0 |
| Beruk, 1974 | 1,850 1,800 | | 38.0 40.0 |
| Beruk NO, 1985 | 1,900 2,035 | | 38.0 28.0 |
| Bungsu, 1976 | 2,050 | | 38.0 |
| Butun, 1982 | 4,000 4,700 | | 44.0 30.0 |
| Cucut, 1981 | 5,800 4,650 | | 33.0 34.0 |
| Duri, 1941 | 770 2,550 | | 22.0 42.0 |
| Garuk, 1980 | 4,600 2,385 | | 31.0 34.0 |
| GentingGiti | | | |
| Hitam, 1975 | 6,690 5,900 | | 39.0 40.0 |
| Idris, 1983 | 2,450 | | 39.0 33.0 |
| Jambon | 3,350 | | |
| Jingga, 1984 Jorang, 1972 | 6,500 5,500 | | 45.0 38.0 |
| Kasikan, 1972 | 660 3,900 | | 28.0 39.0 |
| Kerang, 1977 | 5,300 | | 37.0 |
| Kotabatak, 1952 Kulin, 1970 | 5,500 2,050 | | 29.0 20.9 |
| Langgak, 1976 Libo, 1968 | 1,380 6,000 | - 4,414 | 32.0 35.0 |
| Libo SE, 1973 | 3,300 2,570 | , | 42.0 35.0 |
| Lincak, 1981 | 1,100 | | 32.0 |
| Mangga, 1988 | 7,800 3,850 | | 33.0 |
| Menggala South, 1968 Mengkapan, 1981 | 3,375 4,000 | | 34.0 44.0 |
| Minas, 1944 | 2,600 | | 35.0 |
| Mindal, 1971 | 3,400 3,500 | | 37.0 34.0 |
| Nella, 1977 | 5,000 7,370 | | 35.0 40.0 |
| Osam, 1978 | 900 4,300 | | 32.0 38.0 |
| Paitan, 1978 | 2,315 | | 32.0 |
| Pak, 1988 | 3667 950 | | 35.0 33.0 |
| Pelita, 1977 | 6,600 3,750 | | 39.0 32.0 |
| Pematang, 1959 | 5,300 | | 33.0 |
| Pemburu, 1981 Perkebunan, 1977 | 2,300 2,300 | | 35.0 29.0 |
| Petani, 1964 Petapahan, 1971 | 4,750 4,500 | | 33.0 28.0 |
| Pinang, 1971 Pinggar South, 1973 | 3,950 3,300 | | 30.0 39.0 |
| Pinggir, 1972 | 3,300 | | 35.0 |
| Pudu, 1972 Pukat | 5,950 | | 35.0 |
| Puncak, 1979 | 2,400 3,400 | | 36.0 38.0 |
| Pusaka, 1977 | 2,250 | | 36.0 |
| Rangau, 1968 | 6,100 1,070 | | 42.0 18.0 |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity |
|---|------------------------|---------------------|---------------------------------|------------------------|
| Rintis, 1984 | 6,450 | I | l | 39.7 |
| Rokiri | 2,350 | | | 36.0 |
| Sakti | 2,330 | | | |
| Sebanga | 3,000 | | | 35.0 |
| Sidingin | | | | |
| Sikladi, 1975 Singa, 1977 | 4,340 3,200 | | | 40.0 31.0 |
| Sintong, 1971 | 3,900 | | | 32.0 |
| Sintong SE, 1973 | 1,750 | | | 36.0 28.0 |
| Tandun, 1969 | 3,000 | | | 33.0 |
| Tanggul | 2,770 | | | 34.0 |
| Tegar | | | | 22.0 |
| Telinga, 1975 | 4,205 900 | | | 33.0 32.0 |
| Titian | 5,200 | | | 33.0 |
| Topi, 1979 | 3,630 | | | 37.0 |
| Tunas, 1983 | 4,819 4,350 | | | 35.0 35.0 |
| Ujung Tanjung, 1975 | 3,600 | | | 34.0 |
| Waduk, 1982 | 6,100 3,600 | | | 38.0 40.0 |
| Zambrud, 1975 | 3,000 | _ | | 40.0 |
| CITRA PATENINDO NP | 600 | | | 26.0 |
| Abab, 1951 | 600 8,337 | | | 36.0 |
| Raja, 1950 | 600 | | | 38.0 |
| CONOCO GROUP | | | | |
| Belida, 1989 | 4,300-5,000 | 30 | | 46.6 |
| Sembilang, 1994 | 4,000-4,700 | 3 | | 37.0 |
| EKSITA PATRANAGARI Mamburungan, 1989 | 5,020-5,131 | 4 | | 30.1 |
| EXSPAN/ETAKSATRIA PETRASANO | βA | | | |
| Tarakan, 1906 Juata, 1926 | 1,278-3,600 | 7 | | 19.0-20.5 |
| Mengatal, 1938 | 1,050-5,250 | | | 19.0-32.0 |
| Pamusian, 1906 | 213-2,772 750-1,050 | | | 18.0-19.0 19.0-20.0 |
| Sanga-Sanga | | | | |
| Anggana, 1903 Kutai Lama N., 1938 | 230-2,772 426-5,637 | | | 25.0-29.0 27.0-33.0 |
| Kutai Lama N., 1938 Kutai Lama S., 1902 | 1,640-2,953 | 275 | : | 25.0-30.0 |
| Louise C., 1898 | 102-1,898 62-2,264 | 275 | | 25.0-30.0 25.0-29.0 |
| Louise S., 1897 | 82-2,379 | | | 25.0-30.0 |
| Maura, 1902 | 869-2,297 295-3,248 | | | 25.0-29.0 27.0-31.0 |
| Nonny, 1975 T. Una, 1936 | 163-2,297 | | | 27.0-29.0 |
| Samboja Jambatan B., 1934 | 951-213 | | | 26.0 |
| Samboja, 1909 | 65-4,387 | | | 18.0-27.0 |
| EXXON MOBIL | | | | |
| Arun (c), 1971 | 9,367 6,600 | 76 2 | | 55.0 50.0 |
| SLS, 1972 | 8,000 | 9 | | 38.0 |
| GENINDO | | | | |
| Sembakung, 1976 | 7,956 | | | 35.0 |
| GFB RESOURCES | | | | |
| • Camar | | 6 | | 34.4 |
| CHIE DECOLIDEES (VAVAD) LED | | | | |
| • Kakap KH, 1980 | 6,350 | 9 | | 43.0 |
| Kakap KH, 1980 | 2,875 | 14 | | 51.0 |
| Kakap KG, 1978 | 4,500 5,200 | 7 9 | | 45.0 43.0 |
| | ., | | | |
| HUSKY Belimbing, 1965 | 5,371 | | | 35.5 |
| Karangan, 1975 | 5,250 | | | 23.0 |
| Limau Barat, 1928 Limau Niru, 1954 | 3,898-4,626 5,118 | | | |
| Limau Timur, 1928 | 3,898-4,626 | | | |
| JOB PN-GOLDEN SPIIKE | | | | |
| Tanjung Kurung | | 3 | -1,183,436 | 35.0 |
| JOB PN-JAPEX | | | | |
| Arbey Selo | | 11 | | 60.4 |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity |
|---|------------------------------|---------------------|---------------------------------|-----------------|
| KALREZ PETROLEUM (SERAM) LTD. • Bula, 1897 | 280-1,900 | 98 | | 24.0 |
| KODECO Madura KE-2, 1978 | 3,370-4,080 | 6 | | 34.8 |
| Madura KE-23, 1987 Madura KE-5 | 6,700-8,350 | 5 | | |
| KONDUR PETROLEUM • Kurau, 1986 | 4,500-9,000 | 3 | | 47.4 |
| Lalang, 1980Melibur JS, 1984 | 3,100-3,600 900-1,300 | 7 4 | | 39.6 38.2 |
| | 3,850-4,450 4,500-9,000 | 1 | | 42.0 |
| Selatan, 1987 | 3,900-4,500 | 2 | | |
| • Cinta, 1970 | 3,500 ⁻ 2,300 |] | | 34.0 16.0 |
| Farida, 1982 | 7,000 5,000 | | | 32.0 33.0 |
| Indri, 1989 | 3,500 3,200 | | | 34.2 32.0 |
| Intan NE, 1987 | 3,300 4,650 | | | 32.6 36.0 |
| • Kitty, 1971 | 2,700 4,500 | 407 | | 18.0 37.0 |
| • Nora, 1973 | 2,800 3,200 | 407 | | 29.0 31.0 |
| Selatan, 1978 | 2,800 | | | 20.0 |
| • Titi, 1981 | 4,400 6,100 | | | 25.0 33.0 |
| Wanda, 1982 | 4,800 3,500 | | | 36.0 24.0 |
| Yvonne, 1980 | 5,000 6,300 ₋ |] | | 36.0 32.0 |
| PETRONUSA BUMI BHAKTI Selat Panjang, 1994 | | 2 | | |
| P. LIRIK PETROLEUM Blimbing, 1952 Sago, 1940 | 4,922 1,800 | | | 34.0 |
| PT EXSPAN SUMATRA CENTRAL SUMATRA | | | | |
| Binio, 1952 | 1,600 2,800 | 10 | | 34.0 34.0 |
| Gemuruh, 1983 Kayuara East, 1983 | 3,500 3,700 | 26 4 | | 35.0 |
| Kayuara, 1982 | 3,000 | 9 | | 35.0 35.0 |
| Merbau North, 1980 Merbau, 1979 | 2,600 2,700 | 15 | | 36.0 36.0 |
| Mutiara, 1985 | 2,700 2,500 | | | 34.0 46.0 |
| Parum, 1987 Pekan, 1976 | 4,200 3,700 | | | 35.0 35.0 |
| PT EXSPAN SUMATRA SOUTH SUMATRA | | | | |
| Gunung Kembang, 1987 Ibul, 1970 | 3,600 5,700 | 2 | | 36.0 36.0 |
| Jene, 1985 | 6,500 2,900 | 6 1 | | 35.0 35.0 |
| Lagan, 1986 | 2,400 | 4 1 | | 56.8 |
| Langkap, 1987 | 2,900 6,000 | 4 | | 34.0 36.0 |
| Rambutan, 1972 Rimbabat, 1984 | 4,500 3,200 | | | 42.0 34.0 |
| South Tabuan, 1981 Tabuan, 1986 | 2,200 4,000 | 1 | | 34.0 34.0 |
| Teras, 1976 | 4,500 2,800 | 1 57 | | 42.0 39.0 |
| Sabaku, 1977 | 5,500 | | | |
| TOTALFINAELF • Bekapai, 1972 | 4,600-15,600 | | | 40.0 |
| Handil, 1974 | 2,900-19,200 8,001-13,000 | 295 | | 33.0 55.0 |
| VIRGINIA INDONESIA Badak, 1972 | 4,350-12,600 | 151 | | 34.4 |
| Lampake, 1981 Mutiara, 1984 | 7,000-9,000 1,500-8,500 | 37 | | 38.5 |
| | 7,300-14,700 500-6,000 | 134 17 | | 33.4 26.8 |
| Semberah, 1974 | 2,000-8,500 | 49 | | 30.0 |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity |
|--|---|---|---------------------------------|--|
| Wailawi (c), 1974 | 2,600-4,800 | 6 _ | J | 32.0 |
| Total Indonesia | | 8,457 | 1,280,000 | |
| IRAN (e) | | | | |
| NIOC • Abouzar, 1969 | 2 800 | 7 | | 26.0 |
| Abouzar, 1969. Ab-Teymur, 1967 Agha Jari, 1938. Ahwaz Asmari, 1958. Ahwaz Asmari, 1958. Bahregansar, 1960 Bibi Hakimeh, 1961 Binak, 1959. Chesmeh Khush, 1967 Chillingar, 1974. Dehluran, 1972 Dorood, 1961. Forozan, 1966. Gachsaran, 1937 Haft Kel, 1927 Hendijan, 1968 Karanj, 1963 Kupal, 1965 Lab-e Safid, 1968 Lali, 1948. Mansuri, 1963 Marjid-e Suleiman, 1908 Natt Safid, 1938 Naft-Shahre, 1923 Nosrat, 1986 + Nowruz, 1966 Pare Siah, 1964 Pazanan, 1961 Rag-e Safid, 1964 Ramshir, 1962 Resalat, 1969 Reshadat, 1966 Salman, 1968 Shadegan, 1989 Sirri-C, 1979 Sirri-D, 1978 Soroosh, 1962 Sulabedar, 1971 | 2,800 10,500 7,440 8,150 12,000 9,000 4,570 10,440 10,700 33,500 11,900 11,000 7,000 3,400 1,980 11,000 5,360 10,500 4,350 5,500 7,100 9,400 1,600 2,000-3,000 8,250 8,200 4,250 4,250 4,670 7,250 7,230 12,200 8,750 7,650 7,000 7,500-8,100 7,500 8,000 7,500-8,100 7,550 8,000 7,500 8,000 7,500 8,000 7,500 8,000 7,500 8,000 7,500 8,000 7,500 8,000 7,000 3,400 | _ 1,120 | 3,504,200 | 26.0 32.6 34.0 25.5 30.0 29.9 29.9 29.9 29.0 36.6 35.5 32.0 31.1. 34.4 32.0 32.6 40.0 31.7 33.9 35.0 27.8 34.0 31.0 31.0 31.0 39.5 |
| Total Iran | | 1,120 | 3,504,200 | |
| IRAQ (e) | | | | |
| INOC Abu Ghurab, 1971 Ain Zalah, 1939 Bai Hassan, 1953 Balad, 1983 Butmah, 1953 Buzurgan, 1970 East Baghad, 1975 Hamrin, 1973 Jabal Fauqui, 1974 Jambur, 1954 Kirkuk, 1927 Luhais, 1961 Naft Khaneh, 1909 Nahr Umar, 1949 Qaiyanah, 1929 Rumaila North, 1958 Rumaila South, 1953 Suffayah, 1978 West Tikrit, 1985 Zubair, 1949 Total Iraq | 9,800 5,200-6,500 4,800-5,400 6,000-7,000 12,000 12,000 10,000 5,500-12,500 2,800-4,200 8,200 650 10,300 10,200 3,900 8,200 10,200 3,900 8,200 10,200 10,200 | 15 29 89 9 9 15 22 80 22 43 50 337 21 53 13 55 445 218 35 7 127 | - 2,525,000 2,525,000 | 24.0 31.0 34.0 25.0 31.0 24.0 23.0 30.0 36.0 36.0 33.0 42.5 42.0 33.0 35.0 25.0 23.0 |
| ICDAEI | | | | |
| ISRAEL | | | | |
| EMOG Gurim, 1984 | 3,280 | | | 17.0 |
| LAPIDOTH Heletz-Brur, 1955 Kochav, 1962 | 5,200 5,500 | 3 4 | 50 31 | 29.4 29.0 |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravit |
|--|---|---------------------|---------------------------------|--------------------------|
| Ashdod, 1976 | 8,400 9,350 | | | 32.8 32.0 |
| Zuk Tamrur, 1995 Total Israel | 6,890 | 7 | 81 | 23.6 |
| TALY | | | | |
| AGIP | | | | |
| • Aquila, 1998 | 14,163 | 2 8 | 14,365 813 | 36.8 24.2 |
| Cavone, 1973 | 9,350 7,430 | 3 | 0 | 31.8 |
| Condensate | 9,250 | 2 | 502 0 | 62.3 31.8 |
| Gaggiano, 1987 | 14,345 | 1 | 0 | 32.0 |
| Gela, 1956 | 10,827 10,170 | 65 5 | 6,512 1,722 | 9.8 9.8 |
| Monte Alpi, 1988 | 9,870 | 4 | 9,355 | 38. |
| Monte Enoc, 1997 | 12,450 7,874 | 7 4 | 0 270 | 31.8 14.0 |
| Pisticci, 1960 | 6,980 | 3 | 650 | 15. |
| Ponte-Drillo, 1958 Prezioso, 1982 | 9,514 15,748 | 7 6 | 663 1,683 | 15. 18. |
| Prove | · | | 1,403 | 31. |
| Ragusa, 1954 Torrente Tona, 1963 | 4,593 4,101 | 28 8 | 3,645 817 | 19. 29. |
| Trecate, 1984 | 18,044 | 13 | 45,799 | 43. |
| DISON GAS Vega, 1980 | 8,500 | 18 | 4,350 | 16. |
| Rospo Mare,1975 | 4,300 | 27 | 6,300 | 11. |
| Sarago Mare, 1979 | 4,350 | 2 | 2,290 | 8. |
| Total Italy | | 213 | 101,139 | |
| Lion, 1994 Panthere (c), 1994 Total Ivory Coast | 11,280 10,575 | | 20,000 | 36. 52. |
| JAPAN | | | | |
| APEX • Aga-Oki, 1972 | 7,590 | | | 24. |
| Higashi-Niigata, 1965 | 4,500-9,200 | 3 | 1,333 | 53. |
| lwafune-Oki, 1984 | 5,050-8,660 3,310-16,300 | 8 0 | 4,351 489 | 50. |
| Sarukawa, 1958 | 2,000-3,200 | 39 | 935 | 32. |
| Yoshii, 1968 Yurihara, 1976 | 8,000 1,310-7,610 | 0 3 | 676 141 | 61. 43. |
| Other, | | 28 | 1,060 | |
| EIKOKU OIL CO. LTD. Higashi-Kashiwazaki, 1970 | 6,000-8,900 | 5 | 367 | 62. |
| Kubiki, 1959 | 1,100-6,400 | 41 | 289 | 29. |
| Minami-Aga, 1964 Minami-Nagaoka, 1984 | 7,300-9,600 13,200-15,100 | 6 11 | 479 1,188 | 38. 55. |
| Yabase, 1933 | 1,100-5,800 | <u>45</u> | 285 | 33. |
| Total Japan | | 189 | 11,593 | |
| IORDAN | | | | |
| IRA | 9,500 | 4 | 40 | 29. |
| | | | | 20. |
| Hamzah, 1984 | | 4 | 40 | |
| Hamzah, 1984 | · | 4 | 40 | |
| Total Jordan | | 4 | 40 | |
| Hamzah, 1984 | 4,800 | 4 | 40 | 31. |
| Hamzah, 1984 | 8,500 | 4 | 40 | |
| Total Jordan | 8,500 4,800 4,800 | 790 | 40 1,653,250 | 30. 33. |
| Total Jordan | 8,500 4,800 4,800 10,000 |] | | 31. 30. 33. 34. |
| Hamzah, 1984 | 8,500 4,800 4,800 10,000 8,600 8,300 |] | | 30. 33. 34. 34. |
| Hamzah, 1984 | 8,500 4,800 4,800 10,000 8,600 |] | | 30. 33. 34. 34. |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production avg. b/d | , °API gravity |
|--|--|--|--|--|
| LIBYA | | | 3 77 | 3 1 1 |
| AGIP • Bouri, 1976. Bu Attifel, 1968. NC 125, 1982 OO-82, 1985 R-82, 1965. UU-82, 1990 XX-82, 1992 Condensate | 8,300 14,000 14,800 11,500 11,000-14,000 15,100 15,700 | 47 37 3 3 2 2 2 1 | 53,716 108,198 2,018 3,240 1,753 2,380 576 10,865 | 26.1 40.7 41.8 36.9 36.6 41.3 42.1 |
| LNOC (e) Ali, 1975 | 3,000 | 1 | | 51.0 |
| Almas, 1974 Amal, 1959 Ar Rachmat, 1976. Aswad, 1965. As-Sarah, 1989 Aswad, 1977 Bahi, 1968. Balat, 1964 Beda, 1959 Belhedan, 1962 Bualawn, 1971 Bu Mras, 1966 Choboc, 1971 Daba, 1975 Dahra, 1958 Defa, 1959 Dor Mansour, 1967 Ed Dib, 1964 El-Meheiriga, 1970 Eteila, 1977 Facha, 1963 Farrud, 1964 Fidaa, 1978 Ghani, 1978 Ghani, 1978 Ghazzun, 1974 Gialo, 1961 Gsur, 1978 Hakim, 1978 Hakim, 1978 Hakim, 1978 Hamada NCS, 1961 Nasarab, 1961 Nasarab, 1961 Nasarab, 1961 Nasarab, 1964 RR-82, 1994 Sabah, 1964 RR-82, 1994 Sabah, 1964 Sabah, 1964 Sasará, 1985 Sahabi-D, 1968 Samah, 1961 Shatirah, 1992 Tibisti, 1962 Timed, 1974 Tuama, 1979 Wadi, 1970 Waha, 1960 Zaggut, 1961 Zella, 1960 Zenad, 1980 | 3,100 3,180-11,130 4,770 9,540 12,150 12,150 2,590-4,900 4,440-4,880 3,000-3,500 6,500 6,500 6,500 6,500 4,550 2,990-2,480 4,980-5,300 1,300 6,420-8,400 2,450-4,200 11,500 2,940-5,070 5,990-7,250 1,940-10,290 4,670 5,700 6,880-7,440 1,250-3,200 9,630 6,930 4,800-9,810 12,150 1,510-7,100 2,660-2,700 4,530-6,550 4,510-7,100 2,660-2,700 4,530-6,550 5,100 2,440-9,960 2,440-9,960 2,440-9,960 2,440-9,960 2,440-9,960 2,440-9,960 2,440-9,960 1,150-10,000 1,150-10, | – 1,375 | 1,028,954 | 52.0 34.0-39.0 37.0 49.0 37.0 44.0 40.6-43.4 32.0-35.1 32.0-36.5 35.1 35.0-37.0 39.8-42.5 35.6-36.5 35.0-37.0 33.0-35.0 42.0 42.0 35.0-37.0 33.0-35.0 42.0 35.0-37.0 33.0-35.0 42.0 35.0-37.0 33.0-35.0 34.0 36.0-37.0 37.4-41.7 37.0-42.0 43.0 35.8-39.4 37.0 35.8-39.4 37.0 35.9-30.0 35.9-30.0 35.9-30.0 35.9-30.0 35.9-30.0 35.9-30.0 35.9-30.0 35.9-30.0 35.9-30.0 35.9-30.0 35.9-30.0 35.9-30.0 35.9-30.0 35.9-30.0 36.9-30.0 36.9-30.0 36.9-30.0 37.4-40.6 32.5 35.0 36.0 36.0 36.0 37.0 38.0 |
| REPSOL | | | | |
| El Sharara, 1988 | | | 135,000 | 44.0 |
| Total Libya | | 1,470 | 1,346,700 | |

| WORLDWIDE PRODUCTION | | | | | | | | | |
|---|------------------|---------------------|---------------------------------|-----------------|---|---|---------------------|---------------------------------|----------------------|
| Name of field, discovery date | Depth, | Producing oil wells | 1999 production, avg. b/d | °API gravity | Name of field, discovery date | Depth, | Producing oil wells | 1999 production, avg. b/d | °API gravity |
| MALAYSIA | | | | | Panuco, 1901 | 1,968 | 85 | 5,145 | 12.1 |
| ESSO MALAYSIA/PETRONAS CARIGALI | | | | | Poza Rica, 1930 | 17,000 8,036 | 84 64 | 9,152 847 | 30.4 22.3 |
| Bekok, 1976 | 5,500 | 9 | 10,700 | 47.0 | Remolino, 1962 | 10,745 10,410 | 1 67 | 353 4,056 | 22.3 20.3 |
| Guntong, 1978 | 5,200 3,300 | 78 5 | 108,700 13,400 | 44.0 35.0 | Santa Agueda, 1953 | 4,780 | 21 | 1,941 | 14.0 |
| Kepong, 1979Palas, 1979 | 6,000 6,300 | 3 14 | 1,300 6,400 | 47.0 49.0 | Tamaulipas, 1956 Tres Hermanos, 1959 | 4,200 8,960 | 162 35 | 8,316 3,366 | 17.0 26.9 |
| Pulai, 1973 | 4,300 | 6 | 1,800 | 42.3 | Other | | 692 | 16,478 | |
| Seligi, 1971Semangkok, 1980 | 4,300 3,700 | 110 19 | 84,700 18,100 | 50.0 42.5 | SOUTHERN | 0.000 | | 444 | 00.0 |
| Tabu, 1978 | 5,600 6,700 | 17 38 | 15,300 29,800 | 44.0 45.0 | Agata, 1966 | 3,830 13,450 | 3 15 | 114 7,781 | 32.3 41.3 |
| Tinggi, 1980 | 4,400 | 12 | 6,200 | 48.0 | Bacal, 1976 Bellota, 1982 | 3,500 17,056 | 14 12 | 1,011 13,303 | 32.7 36.8 |
| Tiong, 1978 | 5,800 4,300 | 14 7 | 14,500 23,800 | 47.0 50.0 | Blasillo, 1967 | 7,216 | 22 | 3,445 | 35.3 |
| PETRONAS CARIGALI (e) | | | | | Cactus, 1972 Caparroso, 1982 | 14,100 18,040 | 18 6 | 11,280 12,508 | 38.5 38.5 |
| Duland, 1981 | 4,200 | 102 |] | 35.0 | Cardenas, 1979 | 17,548 10,050 | 21 9 | 26,924 7,231 | 38.4 46.3 |
| Erb West, 1971Samarang, 1972 | 6,785 5,700 | 28 30 | | 30.0 37.0 | Cinco Presidentes, 1960 | 8,862 | 50 4 | 6,546 | 35.8 |
| • Tembungo, 1971 | 6,000 | 7 | | 40.0 | Comoapa, 1979 | 14,432 1,600 | 5 | 1,957 465 | 37.4 33.5 |
| PETRONAS CARIGALI/SARAWAK SHELL Bakau, 1971 | (e) 9,390 | 2 | | 38.0 | Copano, 1977 | 11,890 2,200 | 9 28 | 3,054 1,832 | 47.3 30.5 |
| Baram, 1963 | 6,760 | 2 50 | | 43.0 | Cunduacan, 1974 | 13,775 17,580 | 14 | 27,795 | 29.1 38.7 |
| Baronia, 1967 | 7,900 7,900 | 32 7 | 388,600 | 42.0 38.0 | Eden, 1983 | 3,500 | 31 | 3,448 2,758 | 32.9 |
| Bokor, 1972 | 2,000 8,655 | 25 2 | | 35.0 39.5 | El Plan, 1931 | 1,700 17,876 | 12 1 | 408 2,736 | 29.9 36.9 |
| Siwa, 1973 | 4,100 | 3 | | 25.0 | Fortuna Nacional, 1927 Giraldas, 1977 | 6,560 15,225 | 2 14 | 757 3,346 | 50.0 40.0 |
| Tukau, 1966 | 5,000 | 26 16 | | 29.2 39.5 | Iride, 1974 | 13,775 | 15 | 41,407 | 28.8 |
| SABAH SHELL (e) | | | | | Jacinto, 1987 | 19,680 18,119 | 8 10 | 9,673 22,095 | 43.1 37.7 |
| Barton, 1984 | 2,400 | 9 | | 37.0 | Jujo, 1980 | 17,548 4,730 | 28 12 | 62,750 295 | 35.4 33.7 |
| Ketam, 1977 | 4,980 3,300 | 2 12 | | 30.0 30.0 | Lacamango, 1973 | 1,700 | 10 | 1,875 | 30.2 |
| • St. Joseph, 1975 | 2,200 | 16 | | 32.0 | Los Soldados, 1953 Luna, 1987 | 4,492 17,384 | 17 8 | 1,155 20,371 | 31.8 44.0 |
| SARAWAK SHELL (e) | 4 000 | 00 | | 07.0 | Moloacan, 1962 | 500 18,204 | 134 7 | 1,657 8,920 | 17.3 38.6 |
| Bayan, 1976 | 4,200 4,000 | 29 11 | | 37.3 39.9 | Mundo Nuevo, 1977 | 11,800 | 2 | 1,420 | 54.2 |
| D-35, 1983 | 6,500 3,100 | 14 33 - | | 38.0 35.0 | Muspac, 1982 Nispero, 1974 | 9,676 14,100 | 21 4 | 10,617 1,769 | 53.7 38.0 |
| Total Malaysia | -, | 788 | 723,300 | | Oaxiacaque, 1977 Ogarrio, 1957 | 11,150 5,790 | 9 44 | 15,480 3,452 | 28.6 38.4 |
| | | | ., | | Otates, 1965 | 7,469 15,690 15,900 | 6 8 2 | 906 6,248 2,708 | 37.1 39.7 30.8 |
| MEXICO | | | | | Platanal, 1978 Rio Nuevo, 1975 | 14,950 | 4 | 4,288 | 33.2 |
| NORTHEASTERN MARINE REGION • Bacab, 1991 | 10,332 | 3 | 7,155 | 20.4 | Rodador, 1971 | 11,398 9,515 | 10 14 | 2,513 1,856 | 35.4 31.5 |
| Cantarell, 1976 | 8,528 | 137 | 1,211,074 | 21.5 | Santa Rosa, 1952 Santuario, 1966 | 1,312 9,617 | 2 8 | 99 3,433 | 22.7 34.2 |
| Chac, 1994 | 11,513 13,612 | 2 2 | 16,545 8,354 | 20.0 28.2 | Sen, 1986 | 18,204 | 13 | 37,718 | 41.3 |
| Ku, 1979 | 10,000 11,808 | 27 2 | 255,006 9,125 | 20.8 32.5 | Sitio Grande, 1972 Sunuapa, 1976 | 13,766 12,887 | 11 1 | 6,108 445 | 34.9 30.3 |
| • Others | | 17 | 47,081 | | S. Magallanes, 1957 Tecominoacan, 1982 | 4,240 19,519 | 55 21 | 3,776 33,688 | 33.0 40.6 |
| SOUTHWESTERN MARINE REGION | | | | | Tonala, 1928 | 1,770 | 30 1 | 684 | 34.7 27.9 |
| Abkatun, 1978 | 11,800 13,120 | 24 | 126,092 | 29.4 30.0 | Topen, 1978 | 11,172 3,608 | 2 | 261 364 | 29.0 |
| Caan, 1985 | 12,136 | 27 | 185,366 | 35.3 | Others | | 173 | 140,448 | |
| Chuc, 1982 | 13,100 12,600 | 19 16 | 146,146 103,724 | 33.0 31.0 | Total Mexico | | 2,991 | 2,906,027 | |
| Taratunich, 1990 | 11,559 | 12 14 | 47,600 74,556 | 24.7 | MOROCCO | | | | |
| NORTHERN | 4 005 | 7 | E07 | 17.0 | ONAREP | | | | |
| Acuatempa, 1955 | 4,085 6,232 | 7 64 | 587 3,838 | 17.0 16.8 | Meskala (c), 1976 | 10,500 | 4 | 7 | 65.0 |
| Angostura, 1954 Arengue, 1970 | 4,100 11,362 | 9 18 | 664 6,307 | 17.2 34.7 | Sidi Fili, 1951 | 4,590 6,722 | 1 1 | _ 222 | 39.0 39.0 |
| Atun, 1966 | 9,040 10,919 | 2 | 317 1,778 | 24.9 23.1 | Toukimt (c), 1976 | 10,500 | 2 | J | 65.0 |
| Bagre, 1973 | 1,804 | 25 | 1,610 | 17.8 | Total Morocco | | 8 | 222 | |
| Constotuciones, 1956 Copite, 1975 | 6,350 8,692 | 141 18 | 7,142 28 | 18.6 29.5 | l | | | | |
| Escolin, 1942 | 7,216 10,170 | 43 23 | 2,303 1,259 | 19.7 23.1 | MYANMAR (e) | | | | |
| Jillapa, 1958 | 7,390 | 38 | 1,328 | 11.4 | MYANMA | 4 500 1 000 | | | |
| Marsopa, 1974 | 10,193 11,129 | 2 27 | 428 237 | 18.9 36.0 | Chauk-Lanywa, 1902 | 1,500-4,000 ⁻ 1,600-1,700 | | | 36.0 37.5 |
| Mecatepec, 1941 | 7,544 6,480 | 19 28 | 1,565 714 | 19.7 29.7 | Myanaung, 1964 | 2,000-4,000 850-5,000 | - 450 | 15,000 | 40.5 36.0 |
| Muro, 1965 | 3,965 | 7 | 359 | 14.4 | Yenangyaung, 1902 | 100-6,700 | | | 36.0 |
| Ocotepec, 1953 | 3,737 5,220 | 9 6 | 323 584 | 17.0 17.0 | Total Myanmar | | 450 | 15,000 | |
| | | | | | - | | | | |

| WORLDWIDE PRODUCTION | ON | | | | | | | | |
|--|--------------------------------|---------------------|---------------------------------|-------------------|---|--------------------------------|---------------------|---------------------------------|----------------------|
| Name of field, discovery date | Depth, | Producing oil wells | 1999 production, avg. b/d | , °API gravity | Name of field, discovery date | Depth, | Producing oil wells | 1999 production, avg. b/d | °API gravity |
| NETHERLANDS | <u> </u> | | 3 | <u> </u> | Obiafu, 1967 | 10,800-14,000 | 18 | 22,882 | 41.5 |
| BP | J | | | | Obrikom, 1967 | 11,400-14,200 9,500-12,500 | 10 0 | 7,734 413 | 41.6 39.0 |
| • Rijn, 1982 | 6,500 | 10 | | 35.0 | Ogbainbiri, 1989 Ogbogene, 1972 | 9,700-16,500 11,300-12,800 | 4 1 | 13,945 359 | 26.5 30.6 |
| CLYDE • Kotter K/18, 1980 | 5,618 | 8 | 2,030 | 33.0 | Ogbogene West, 1981 Okpai, 1968 | 13,130 10,900-12,900 | 1 6 | 309 2,145 | 48.0 43.4 |
| • Logger L/16, 1982 | 6,022 | 3 | 1,901 | 33.5 | Omoku West, 1974 Oshi, 1972 | 12,800-13,900 11,500-14,400 | 0 8 | 113 10,009 | 35.3 33.4 |
| ELF PETROLAND • F6 | | | 686 | | Pirigbene, 1987 | 13,600-15,800 13,130 | 1 | 1,202 898 | 31.6 38.0 |
| | •••• | | 000 | | Tebidaba, 1972 | 8,200-14,500 11,900-14,100 | 7 2 | 8,263 305 | 28.0 30.1 |
| NAM Rijswijk | | 40.4 | 12,314 | | CHEVRON | ,000,.00 | _ | | |
| Schoonebeek, 1944 F3 | 2,500 | 134 | 0 7,325 | | Abigborodo, 1974 | 9,850-10,850 5,750-9,400 | 1 21 | 536 6,567 | 38.7 39.7 |
| VEBA | | | | | Abiteye, 1970 | 6,573-12,130 | | 2,024 | 34.0 |
| • F2 | | | 1,601 | | Benin River, 1990 • Delta, 1965 | 6,470-7,614 7,100-10,179 | 11 29 | 30,958 20,140 | 41.8 37.3 |
| UNOCAL + Haven, 1980 | 5,300 | 2 | 691 | 25.5 | Delta South, 1965 Dibi, 1995 | 5,600-9,500 | 27 | 31,404 11,037 | 38.4 |
| + Helder, 1980 | 4,800 4,400 | 14 6 | 2,774 508 | 21.6 17.9 | Ewan, 1980 | | | 25,438 32,892 | |
| + Hoorn, 1981 | 5,000 6,350 | 8 7 | 899 2,242 | 25.8 33.5 | • Idama, 1974 | 8,100-11,250 7,250-11,030 | 4 4 | 4,793 15,603 | 33.4 44.8 |
| • Halfweg (c), 1975 | 10,100 | 3 | 347 | 33.5 | • Isan, 1970 | 5,900-9,000 | 11 | 1,909 | 40.4 |
| OTHER | | | | | Jisike, 1975 Jokka, 1993 | 6,300-7,600 9,280-9,880 | 7 1 | 3,780 169 | 41.1 22.7 |
| Other fields (c) | | | 21,347 | | Kito, 1988 | 4,842-8,347 7,100-12,005 | 1 28 | 1,320 10,396 | 31.1 27.7 |
| Total Netherlands | | 195 | 54,666 | | Malu, 1969 | 4800-6,300 8,570-12,030 | 20 13 | 10,284 11,663 | 40.4 38.1 |
| NICLITO AL ZON | IE (-) | | | | Meji, 1965 | 5,200-10,900 | 24 4 | 16,023 5,472 | 31.9 |
| NEUTRAL ZON | IE (e) | | | | Meren, 1965 | 5,000-7,500 | 61 | 75,703 | 31.9 |
| AOC • Hout, 1969 | 4,900-8,800 | ٦ | | 33.0 | Mina, 1985 | 6,700-9,300 5,500-9,245 | 4 72 | 141 52,120 | 40.3 38.1 |
| • Khafji, 1961 | 4,400-7,300 | | | 28.2 | Opolo, 1976 | 4,500-8,200 | 31 | 13,735 10,035 | 40.4 |
| TEXACO & KOC S. Fuwaris, 1963 | 6,300 | _ 530 | 590,000 | 25.0 | Robertkiri, 1964 | 11484-13,190 8,150-10,842 | 15 11 | 10,357 4,069 | 40.2 39.5 |
| S. Umm Gudair, 1966 Wafra, 1953 | 8,900 1,100-7,000 | | 550,000 | 24.3 18.9-23.5 | Utonana, 1971 | 7,400-9,165 7,825-10,229 | 6 10 | 4,702 1,743 | 20.4 40.4 |
| Total Neutral Zone | | 530 | 590,000 | | • Adua, 1967 | 6,970 | 9 - |] | 34.8 |
| NEW ZEALANI | D (e) | | | | Asabo, 1966 | 5,600 7,621 14,961 | 17 4 31 | | 34.6 34.6 39.8 |
| FLETCHER CHALLENGE | (0) | | | | Ata, 1964 | 8,823 9,215 | 0 32 | | 37.4 |
| Ahuroa & Tariki (c), 1987 Kaimiro, 1982 | 8,688-9,065 11,900 | 3 - 7 |] | 46.1-52.7 42.0 | Ekpe, 1966 | 8,200 6,810 | 4 8 | | 34.9 31.9 |
| McKee, 1980 | 7,848-8,251 | 22 | | 38.5 | • Eku, 1966 | 5,420 | 5 | | 30.4 |
| Waihapa, 1988 | 10,125-10,643 | 5 | | 36.6 | • Enang, 1968 | 6,600 6,200 | 20 24 | | 37.4 37.1 |
| NEW ZEALAND OIL & GAS Ngatoro, 1992 | | 4 | | 35.0 | • Etim C, | 9,020 | | | 30.5 |
| SHELL/BP/TODD | | | | | Inanga, 1994Inim, 1966 | 13,275 5,850 | 5 8 | | 37.6 37.5 |
| Kapuni (c), 1959 | 11,700 11,000 | 11 18 | _ 45,000 | 54.0 51.0 | • Isobo, 1968 • Iyak, 1981 | 7,345 11,326 | 1 | | 30.4 37.6 |
| SWIFT ENERGY | , | | | | Iyak SE, 1979 | 7,441 | 5 | | 38.6 |
| Rimu-Kauri | | | | | Mfem, 1968 Oso, 1967 | 5,200 10,226 | 5 20 | | 36.1 43.0 |
| WESTERN MINING | 0.544.40.105 | | | | Ubit, 1968Unam, 1967 | 5,400 5,180 | 49 20 | | 36.1 33.3 |
| • Kupe S., 1987 | 9,514-12,467 | | | | Usari, 1965 | 8,431 5,700 | 14 8 | | 36.8 |
| Total New Zealand | | 70 | 45,000 | | DUBRIL Gilli-Gilli, 1967 | 9,357 | 7 | | 47.1 |
| NIGERIA | | | | | PAN OCEAN | 0,001 | | | 77.1 |
| AGIP | 7 570 12 000 | 12 | 0 206 | 20.2 | Ogharefe, 1973 | 9,900 | | | 46.6 |
| • Abgara, 1981 | 7,570-13,000 10,700-11900 | 13 1 | 9,386 1,006 | 38.2 55.9 | SHELL 1000 | 44.050 | | | 00.4 |
| Akri, 1967 | 10,000-12,000 11,600-13,400 | 7 1 | 7,812 322 | 42.2 42.1 | Adibawa, 1966 | 11,950 8,500 | | | 26.4 19.6 |
| Azuzuama, 1978 • Beniboye, 1978 | 14,400-15,100 7,800-11,600 | 2 4 | 1,575 3,087 | 37.5 27.6 | Afremo, 1972 | 9,263 10,000 | | | 36.8 23.9 |
| Clause Consol 1070 | . ,000 11,000 | | | 31.6 | Akaso, 1979 | 13,122 | | | 37.1 |
| Clough Creek, 1976 | 9,400-13,000 | 6 | 4,614 5,670 | | | | | | |
| Ebegoro, 1975 Ebegoro South, 1975 | 11,400-14,200 14,270-14,410 | 8 1 | 5,670 276 | 34.2 51.0 | Awoba, 1981 | 8,941 | | | 21.9 |
| Ebegoro, 1975 | 11,400-14,200 | 8 | 5,670 | 34.2 | Awoba, 1981 | | – 1,524 | 1,827,010 | |

| WORLDWIDE | PRODUCTION |
|-----------|------------|
| | |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity |
|--|---|----------------------------|---|--|
| Escravos Beach, 1969 Etelebou, 1971 Forcados Yorki, 1968 Imo River, 1959 Jones Creek, 1967 Kalaekule, 1972 Kolo Creek, 1971 Nembe Creek, 1973 Nun-River, 1960 Oben, 1972 Obigbo North, 1963 Odeama Creek, 1981 Odidi, 1967 Oguta, 1965 Olomoro, 1963 Opukushi, 1962 Otumara, 1969 Sapele, 1969 Soku, 1958 Ughelli East, 1959 | 8,176 12,000 10,859 7,900 80,000 9,236 12,000 12,213 14,200 12,036 8,250 12,897 10,380 8,500 7,823 8,176 12,788 11,500 | | | 31.2 31.3 24.4 30.3 29.7 40.5 39.1 31.0 32.7 37.6 23.2 35.5 36.2 21.5 28.3 24.9 42.9 27.7 |
| STATOIL Adanga, 1980 Akam, 1980 Bogi, 1989 Ebughu, 1983 Izombe, 1974 Mimbo, 1984 Ossu, 1974 Ukpam, 1989 | 8,500 6,700 7,500 7,250 8,000 7,500 8,000 5,500 | | | 31.9 34.0 28.7 23.8 34.3 31.1 31.6 40.6 |
| TEXACO-CHEVRON- NNPC • Funiwa, 1978 | 8,000 9,000 8,500 11,000 12,000 | | | 35.5 33.3 35.5 38.5 |
| TOTALFINAELF • Afia, 1982 Aghigo, 1972 • Edikan, 1989 Erema, 1972 • Ime, 1988 Obagi, 1964 Obodo-Jatumi, 1966 • Odudu, 1977 Okpoko, 1967 Olo, 1988 Upomami, 1965 | 3,780 7,303 4,980 11,211 4,450 8,377 7,656 4,930 6,745 8,130 6,256 | _ | | 25.6 22.5 28.6 33.6 28.4 23.4 34.6 35.8 21.7 37.0 19.0 |
| Total Nigeria | , | 2,374 | 1,964,200 | |
| NORWAY BP | | | | |
| Gyda, 1981Hod, 1974Ula, 1976Valhall, 1978 | 13,123 8,860 11,800 8,200 | 12 4 7 38 | 25,880 2,254 25,108 91,508 | 48.0 34.0 44.6 35.0 |
| CONOCO • Murchison*, 1975 | 9,900 9,900 | | 4,337 0 | 38.0 38.0 |
| ELF NORGE Frigg. Frigg (c), 1974 Froy (c), 1987 Froy, 1987. Heimdal, 1972 Lille-Frigg (c), 1975. Lille-Frigg, 1975. | 6,000 10,330 10,330 6,950 12,060 12,060 | 5 4 | 0 0 0 8,508 2,032 0 224 | |
| NORSK HYDRO Brage (c), 1980 Brage, 1980 Njord Oseberg Ost | 8,200 8,200 | 22 3 1 42 | 0 65,455 60,703 15,698 0 334,915 | 37.0 35.0 37.0 37.0 |
| Oseberg Vest Oseberg, 1979 Snorre Snorre (c) Tordis | 8,200 8,900 9,000 | 21 5 | 161,962 0 76,176 | 68.0 68.0 |

| Name of field, discovery dat | • | Producing oil wells | 1999 production avg. b/d | , °API gravity |
|--|--------------------|---------------------|--------------------------------|-------------------|
| Vigdis Visund | | 5 | 88,037 10,825 | 68.0 34 |
| NORSK SHELL • Draugen | | 7 | 209,183 | |
| PHILLIPS | | | | |
| • Ekofisk, 1971 | | 86 | 269,851 | 41.1 |
| • Eldfisk, 1979 | | 43 | 20,115 | 41.1 |
| • Embla, 1988 | | 6 | 12,078 | 42.0 |
| • Tor, 1978 | 10,000 | 11 | 4,323 | 38.0 |
| STATOIL | | 4.4 | 07.004 | 40.0 |
| Asgard | | 14 | 67,221 | 40.9 |
| • Gullfaks Vest, 1991 | | 1 | 2,530 0 | 32.5-35.0 |
| Gullfaks (c) | | 79 | 295,197 | 32.5-35.0 |
| Gullfaks Sor | | | 12,994 | 32.5-35.0 |
| • Gungne, 1982 | | 1 | 0 | 32.5-35.0 |
| Heidrun, 1985 | | 17 | 214,522 | 27.1 |
| Norne, 1992 | | 6 | 143,116 | 32.5 |
| • Rimfaks | | | 19,078 | |
| Sleipner Ost (c), 1981 | | 12 | 0 | 57.5 |
| Sleipner Vest (c), 1976 | | 8 | 0 | 57.5 |
| Statfjord Nord (c) | | | 0 | |
| Statfjord Nord, 1977 | | 6 | 58,477 | 38.4 |
| Statfjord Ost (c) | | | 0 | |
| Statfjord Ost, 1976 Statfjord + (c) | | 6 | 64,950 | 38.1 |
| Otatifora + (c/ | 9.800 | 78 | 0 | 38.2 |
| Statfjord +, 1974Tommeliten Gamma, 1978 . | 10,400 | /8 6 | 215,736 0 | 53.0 |
| Veslefrikk (c) | | | 0 | 33.0 |
| Veslefrikk, 1981 | | 12 | 32,732 | 37.0 |
| • Yme | | 4 | 25,572 | |
| | | · | 20,072 | |
| OTHER • Balder | | | 15,179 | |
| Gullveig | | | 5,961 | |
| • Jotun | | | 14,873 | |
| Sleipner (c) | | | 0 | |
| • Togi | | | 0 | |
| Total Norway | | 606 | 2,929,788 | |
| *Norway share (22.2%) of total | production, +Norwa | y share (85.5° | | duction. |
| OMAN | | | | |
| NOVUS | | | | |
| • Bukha, 1979 | 11,000 | 2 | 4,300 | 60.0 |
| PETROLEUM DEVELOPMENT O | MAN (e) | | | |
| Al Burj, 1984 | | 22 - | 1 | 28.0 |

| Bukha, 1979 | 11,000 | 2 | 4,300 | 60.0 |
|-------------------------------|-------------------------|-----|-------|--------------|
| • | , | - | 4,000 | 00.0 |
| PETROLEUM DEVELOPMENT OMAN | | ¬ | | 00.0 |
| Al Burj, 1984 | 4,835 4 <i>.</i> 981 | 22 | | 28.0 19.0 |
| Al Dhabi, 1985 | 2,632 | 3 8 | | 29.0 |
| Al Huwaisah, 1969 | 5,890 | 56 | | 39.0 |
| Alam, 1987 | 4,776 | 2 | | 33.0 |
| Amal, 1972 | 3.741 | 58 | | 19.0 |
| Amal South, 1982 | | 12 | | 30.0 |
| Amin, 1975 | 4,416 | 26 | | 20.0 |
| Anuq, 1995 | 5,269 | 1 I | | 19.0 |
| Anzauz 1984 | 6.030 | 8 | | 46.5 |
| Anzauz, 1984 | 4,112 | ĭ | | 40.0 |
| Bahaa, 1993 | | 1 | | |
| Bahja, 1984 | 4,746 | 15 | | 47.2 |
| Barik, 1978 | 12,472 | 5 | | 47.4 |
| Basma, 1991 | 4,542 | 4 | | 20.0 |
| Birba, 1978 | 6,657 | 3 2 | | 32.0 |
| Burhaan, 1984 | | | | 34.0 |
| Dhiab, 1985 | 4,181 | 6 | | 26.5 |
| Dhulaima, 1975 | 5,161 | 4 | | 39.0 |
| Fahud NW, 1964 | 2,499 | 121 | | 32.0 |
| Fahud SE, 1963 | 2,499 | 52 | | 32.0 |
| Fahud West, 1965 | 43/0 | 6 | | 34.0 |
| Fayyadh, 1983 | 5,053 | 2 | | 27.0 |
| Ghaba North, 1972 | 4,434 | 16 | | 33.5 |
| Ghanuq, 1990 | 3,600 | 12 | | 27.0 |
| Ghazarah, 1991 | 4,809 | 1 | | |
| Ghufos, 1982 | 4,231 | 2 2 | | 1E 0 |
| Habur, 1972 | 1,400 5,494 | 1 | | 15.0 23.3 |
| Haima, 1984 | 11,911 | 1 | | 23.3 |
| Hareer, 1995 Hasirah, 1981 | 5,189 | 3 | | 48.8 |
| Hawqa, 1989 | 8,602 | 1 | | 40.0 |
| Hazar, 1991 | | 3 | | 44.0 |
| Ihsan, 1984 | 4.627 | 6 | | 23.5 |
| Irad, 1978 | 3,767 | 2 | | 20.0 |
| Jadeer, 1991 | 6,596 | 2 | | 20.0 |
| Jalmud, 1979 | 3,692 | 1 | | 24.0 |
| | 0,002 | | | |

| WORLDWIDE PRODUCTION | | | 1000 | |
|---|------------------|---------------------|---------------------------------|-----------------|
| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity |
| Jalmud North, 1980 | 3,418 | 3 10 | | 19.0 |
| Jawdah, 1984 Karim W., 1982 Katheer, 1997 | 3,553 3,284 | 55 | | 28.5 23.0 |
| Katheer, 1997 | 4,260 6,262 | 1 1 | | 31.0 |
| Khaleel, 1996 | 6,457 | 2 | | |
| Lekhwair, 1974 Mabrouk, 1979 | 4,430 13,175 | 182 1 | | 37.5 |
| Maha, 1980 | 5,508 7,362 | 3 1 | | 44.0 |
| Marmul, 1977 | 3,253 | 227 | | 21.5 |
| Marmul NW, 1992 Mawhoob, 1985 | 1,900 7,805 | 1 1 | | 20.0 25.0 |
| Musallim, 1971 | 8,077 3,993 | 1 | | 27.0 |
| Nafoorah, 1985 | 3,014 | 62 | | 33.4 |
| Natih West, 1966 | 8,509 3,270 | 2 307 | | 21.0 |
| Qaharir, 1977 | 4,699 | 34 | | 30.4 |
| Qaharir East, 1978 | 4,936 8,807 | 1 | | 25.5 |
| Qarat Al Milh, 1987 | 6,914 4,883 | 2 1 | _ 827,900 | 29.0 |
| Qarn Alam, 1972 | 905 | 4 | | 00.0 |
| Qata, 1979 | 5,338 2,644 | 21 21 | | 28.0 25.5 |
| Rahab SW, 1981 | 2,644 4,030 | 1 9 | | 25.0 |
| Ramlat Rawl, 1987 | 9,498 | 6 | | 50.0 |
| Rasha, 1982 | 3,435 5,046 | 4 5 | | 37.0 21.3 |
| Rima, 1979 | 3,409 3,786 | 119 30 | | 33.0 21.1 |
| Runib, 1979 | 4,646 | 3 | | 20.0 |
| Sabr, 1980 | 4,682 3,848 | 1 12 | | 25.0 |
| Sadad, 1986 | 8,714 | 27 1 | | 39.6 |
| Saih Nihaydah SE, 1972 Saih Rawl, 1971 | 7,375 10,136 | 43 | | 39.0 39.0 |
| Salwa, 1986 | 4,972 3,771 | 1 32 | | 29.0 50.1 |
| Shahin, 1981 | 4,750 | 1 | | 21.0 |
| Suwaihat, 1982 | 4,603 5,632 | 16 12 | | 30.6 37.5 |
| Tannum, 1997 Thamoud, 1987 | 6,135 4,647 | 3 6 | | 23.0 |
| Thayfut, 1981 | 3,153 | 6 | | 19.0 |
| Thuleilat, 1986 | 2,455 3,804 | 25 1 | | 25.5 |
| Wadi Haka, 1990 | 6,077 5,663 | 2 14 | | 32.0 38.8 |
| Waha, 1992 | 5,238 | 1 | | 30.0 |
| Warad, 1985 Yibal, 1963 | 4,394 5,336 | 7 300 | | 38.5 |
| Zahra, 1986 Zareef, 1985 | 6,412 3,425 | 5 10 | | 32.0 47.0 |
| Zauliyah, 1981 | 7,362 | 6 | | 44.3 |
| Zumurrud, 1988 | 2,996 | 9 | | 29.0 |
| OCCIDENTAL (e) Al Barakah, 1992 | 5,000 | 7 | | 37.8 |
| Badr, 1996 | 5,770 | 1 | | 30.0 |
| Madiq, 1995 | 7,200 6,220 | 1 1 | | 38.0 39.0 |
| Safah, 1983 Salmah, 1995 | 6,500 | 105 4 | | 42.0 38.0 |
| Wadi Latham, 1993 | 6,500 5,000 | 1 | | 40.0 |
| JAPEX (OMAN) LTD. (e) | | | | |
| Daleel, 1989 | 4,950 | 28 | | 39.0 |
| OTHER (e) | 12.000 | 1 | | 46.0 |
| Ramlat, 1977 | 12,000 12,400 | 12 _ | | 46.0 |
| Total Oman | | 2,298 | 832,200 | |
| PAKISTAN | | | | |
| Bachal, 1993 | 5,000 | 1 | 1 | 47.0 |
| Bari, 1992 | 2,600 | 2 | 208 | 42.0 |
| Bhatti/Nakurji (c), 1989 Bukhari (c), 1985 | 5,800 5,800 | 3 4 | 370 341 | 44.0 53.0 |
| Dabhi North | 5,975 | 2 | 1,540 2,089 | 42.0 |
| Ghunghro, 1988 | 4,620 | 2 | 1,927 | 42.0 |
| Golarchi (c), 1984 | 6,200 | 2 | 177 | 51.1 |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity |
|-------------------------------|------------------|---------------------|---------------------------------|-----------------|
| Halipota, 1986 | 6,000 | 2 | 209 | 44.4 |
| Jabo (c), 1986 | 7,230 | 1 | 61 | 59.0 |
| Jagir, 1996 | 7,557 1,768 | 1 2 | 888 106 | 43.3 |
| Kato, 1989 | 7,850 | 1 | 78 | 58.9 |
| Keyhole G | | ; | 0 | |
| Khaskeli, 1981 | 3,600 | 4 | 1,088 0 | 39.0 |
| Khorewah (c), 1988 | 6,300 | 4 | 346 | 51.0 |
| Koli (c), 1989 | 4,640 | 2 | 150 | 47.5 |
| Laghari, 1983 | 2,500 | 3 | 574 | 42.0 |
| Liari, 1988 | 6,600 7,000 | 1 1 | 844 14 | 42.5 54.7 |
| Matli (c), 1986 | 5,400 | i | 0 | 43.7 |
| Mazari, 1984 | 3,800 | 6 | 1,105 | 43.0 |
| Mazari-S | 7,760 | 1 | 3,256 67 | 44.5 |
| Muban | 7,700 | | 72 | 44.5 |
| N. Akri, 1988 | 5,540 | 2 | 1,155 | 46.7 |
| Paniro, 1988 | 7,400 | 1 | 570 | 27.4 |
| Pir, 1988 | 8,990 4,000 | 2 1 | 30 43 | 50.0 46.4 |
| Sakhi, 1996 | 8,700 | i | 351 | 48.3 |
| South Buzdar, 1993 | 5,007 | 1 | 1,396 | 41.8 |
| S.M. Z. Deep, 1993 | 7,500 5,460 | 1 2 | 998 771 | 42.0 44.4 |
| Tajedi, 1984 | 2,408 | 2 | 2,655 | 44.4 |
| Turk (c), 1985 | 6,150 | 4 | 298 | 37.8 |
| Turk-deep (c) | 6,750 | 1 | 64 | 40.7 |
| OCCIDENTAL OF PAKISTAN, INC. | | | | |
| Bhangali-1, 1989 | 12,650 | 2 | 732 | 32.9 |
| Dhurnal, 1984 | 13,100 | 7 2 | 913 115 | 41.8 |
| Ratana (c), 1988 | 16,400 | 2 | 115 | 47.0 |
| OGDCL | 0.544 | | 004 | F4.0 |
| Bobi (c), 1988 | 9,514 9,186 | 3 3 | 231 682 | 51.0 46.9 |
| Dakhni (c), 1983 | 15,092 | 4 | 676 | 57.4 |
| Dhodak (c), 1977 | 7,109 | 7 | 2,402 | |
| Cimkassar, 1989 | 9,842 9,299 | 2 2 | 2,245 1,673 | 31.0 29.5 |
| Kal, 1995 | 7,382 | 2 | 242 | 40.4 |
| Messa-Keswal, 1991 | 7,382 | 3 | 586 | 40.6 |
| Misan | | | 243 | |
| Palli | 8,406 | | 57 4,153 | 40.1 |
| Pasahki North, 1989 | 7,323 | 1 | 863 | 42.5 |
| Qadirpur (c) | 40.055 | | 271 | |
| Rajian, 1994 | 12,355 14,764 | 2 4 | 639 1,098 | 23.0 45.3 |
| Sono | 14,704 | | 3,208 | 45.5 |
| Tando Alam | | | 1,510 | |
| Tando Allay Yar | | | 1 102 | |
| Thora East | | | 1,193 473 | |
| Toot, 1968 | 14,764 | 15 | 210 | 39.4 |
| PAKISTAN OILFIELDS LTD. | | | | |
| Balkassar, 1946 | 9,398 | 15 | 371 | 26.0 |
| Dhulian, 1936 | 8,899 | 34 | 103 | 48.0 |
| Joya Mair, 1944 | 6,900 | 3 | 171 | 15.0 |
| Khaur, 1915 | 9,306 12,513 | 32 14 | 5 258 | 33.0 41.0 |
| Minwal | 12,515 | | 333 | 41.0 |
| Pariwali, 1994 | 15,976 | 1 | 909 | |
| Pindori, 1991 | 14,141 | 2 | 2,820 1,070 | |
| | | | 1,070 | |
| PAKISTAN PETROLEUM LTD. | 0 260 0 115 | E | 2.615 | E1 1 |
| Adhi (c), 1978 | 8,360-9,115 | 5 | 2,615 47 | 51.1 |
| Sui (c) | | | 23 | |
| Total Pakistan | | 231 | 56,984 | |
| | | | | |
| DADLIA NEVA | I IIBIT A | | | |
| PAPUA NEW G | UINEA | | | |
| CHEVRON Agogo | 7,600-9,600 | 7 | 2,000 | 44.0 |

| 7,600-9,600 | 7 | 2,000 | 44.0 |
|--------------|---|--|--|
| 6,800-10,000 | 3 | 5,000 | 44.0 |
| 6,800-12,000 | 0 | 1,000 | 44.0 |
| 6,800-12,500 | 16 | 40,000 | 45.0 |
| | 1 | 1,000 | 44.0 |
| 9,140-15,000 | 4 | 14,000 | 42.0 |
| 8,732-9,870 | 6 | 18,000 | 43.8 |
| | 6,800-10,000 6,800-12,000 6,800-12,500 4,300-9,500 9,140-15,000 | 6,800-10,000 3 6,800-12,000 0 6,800-12,500 16 4,300-9,500 1 9,140-15,000 4 | 6,800-10,000 3 5,000 6,800-12,000 0 1,000 6,800-12,500 16 40,000 4,300-9,500 1 1,000 9,140-15,000 4 14,000 |

| Name of field, discovery date | Depth, | Producing oil wells | 1999 production avg. b/d | , °API gravity |
|--|--|-----------------------|--------------------------------|--|
| S.E. Gobe | 7,710-8,915 | 6 | 19,600 | 44.5 |
| Total Papua New Guinea | | 43 | 100,600 | |
| PERU | | | | |
| GUAYTIA ENERGY DEL PERU Block 31C, 1961 (c) | 6,000 - 9,000 | 3 | 6 | 60.0 |
| Block 31C, 1961 (NGL) | 6,000 - 9,000 | | 3,399 | 60.0 |
| Lote I (Block), 1869 Lote V (Block), 1869 | 2,000-9,000 2,000-9,000 | 104 33 | 691 155 | 33.0 35.0 |
| APLE GAS Agua Caliente, 1939 | 1,000-15,000 | 45 | 479 | 40.0 |
| Maquia, 1957 | 2,100-2,400 | | | 37.0 |
| Lote III (Block), 1869 | 2,000-9,000 | 126 | 855 | 35.0 |
| REZ COMPANC Ballena, 1924 Carrizo, 1953 Central, 1925 Coyonitas, 1956 La Tuna, 1953 Laguna, 1967 Merina, 1954 Organos Sur, 1947 Organos Norte, 1950 Patria, 1950 Patria, 1950 Pena Negra, 1914 Reventones, 1910 Somatito, 1958 Taiman, 1922 Tunal, 1960. Verde, 1954 Zapotal, 1953 | 3,500-5,000 1,000-6,500 2,000-7,000 3,000-7,500 3,000-7,500 2,000-7,500 2,000-7,500 2,000-7,500 2,000-7,500 2,500-8,500 3,000-5,000 2,500-8,500 3,000-7,500 3,000-6,200 3,000-9,000 3,000-9,000 | _ 2,602 | 12,820 | 33.0 34.0 34.0 30.0 30.0 30.0 38.0 36.0 35.0 32.0 35.0 32.0 35.0 22.0 34.0 29.0 |
| USPETROL PERU Capirona, 1978 | 9,800-12,000 12,600-14,600 10,000-12,600 9,600-11,300 11,400-13,600 | _ 172 | 67,291 | 25.0 26.5 24.9 36.0 18.8 |
| ETRO-TECH Litoral, 1955 Lobitos, 1960 Organos Pena Negra, 1960 Providencia, 1967 | 1,500-6,000 3,500-7,500 3,000-8,500 3,000-7,000 | _ 690 | 14,102 | 36.0-40.0 38.0 38.0 38.0-40.0 |
| ETROLERA RIO BRAVO Lote IV (Block), 1869 | 2,000-9,000 | 131 | 530 | 33.0 |
| APET DEVELOPMENT Lote VII/VI (Block), 1869 | 500-9,800 | 577 | 4,480 | 33.0-36.0 |
| NIPETRO ABC Lote IX (Block), 1869 | 2,000-9,000 | 72 | 358 | 32.0 |
| ETROLERA MOTERRICO | | | | |
| Lote II (Block), 1869 | 2,000-9,000 | 4,704 | 760 ———— 105,926 | 20.0 |
| PHILIPPINES ALCORN PALAWAN Cadlao, 1977 South Tara, 1977 | 5,734-5,881 4,335-4,436 | 0 - | | 45.6 40.4 |
| LCORN PHILIPPINES | | | | |
| Galoc, 1981 Matinloc, 1978 Nido, 1977 North Matinloc, 1987 West Linapacan, 1990 | 7,260-7,280 6,656-6,750 6,576-6,885 6,830-7,021 7,025-8,140 | 0 3 4 1 0 | _ 869 | 37.2 43.8 27.2 43.2 32.3 |
| • Camago, 1989 | 11,167 11,648-12,343 | 0 0 - | | 48.7 29.0 |
| | | | | |

| Name of field, discovery date | Depth, | Producing oil wells | 1999 production avg. b/d | , °API gravity |
|--|--|---------------------|--------------------------------|---|
| POLAND | | | | |
| PETROBALTIC | | | | |
| • B-3, 1981 | 4,900 6,500 | 9 0 | | 42.0 44.0 |
| • B-34, 1982 | 4,300 | 0 | | 45.6 |
| POLISH OIL AND GAS CO. Brzozowka, 1990 | 7,869 | 1 | 70 | 32.6 |
| Buk, 1974 | 8,540 | 2 | 368 | 40.6 |
| Grabownica, 1896 Grobla, 1962 | 980-3,840 2,460 | 101 23 | 74 155 | 45.4 44.3 |
| Jeniniec, 1986 | 9,580 | 2 | 539 152 | 36.2 |
| Kamien Pomorski, 1972 Kije, 1976 | 7,360 6,540 | 3 1 | 286 | 34.0 39.2 |
| Kosarzyn, 1991 Nosowka, 1988 | 5,650 10,870 | 3 4 | 109 263 | 37.0 29.3 |
| Osobnica, 1953 | 1,310-2,230 | 63 | 86 | 36.2 |
| Plawowice, 1962 Wankowa, 1848 | 1,970 490-2,030 | 22 255 | 76 90 | 35.9 36.9 |
| Weglowka, 1890 | 980-3,770 | 29 | 81 | 34.6 |
| Wysoka Kamienska, 1979 Zielin, 1992 | 9,690 10,421 | 4 1 | 177 400 | 30.7 32.6 |
| Debno, 1994 | | 1 | 87 | |
| Other | •••• | 1,248 | 3,900 | |
| Total Poland | | 1,772 | 6,913 | |
| QATAR | | | | |
| BP • Al-Rayyan, 1976 | 4,700 | 8 | 15,890 | 24.0 |
| MAERSK | | | | |
| Al-Shaheen, 1994 | 3,000-4,000 | 42 | 106,849 | 30.6 |
| • Idd El Shardi North Dome, | | | | |
| 1960 | 4,400-8,000 | 55 | 103,562 | 31.0 |
| 1961 | 4,400-8,000 | 3 | 274 | 29.0 |
| DATAR GENERAL PETROLEUM CO | | | | |
| • Bul Hanine, 1970 | 6,000 6,500 | 28 208 | 70,684 281,945 | 35.0 41.1 |
| Maydan Mahzem, 1963 | 7,000 | 25 | 45,397 | 38.0 |
| TOTALFINAELF • Al-Khalij, 1991 | 4,000 | 10 | 23,096 | 27.5 |
| Total Qatar | 4,000 | 379 | 647,697 | 27.0 |
| | | | | |
| RAS AL KHAIN | | | | |
| RAS AL KHAIMAH GAS COMMISS • Saleh, 1983 | 14,500 | 7 | 500 | 50.0 |
| Total Ras Al Khaimah | | 7 | 500 | |
| ROMANIA | | | | |
| NOMAMA | | | | |
| POMANIA NATIONAL OIL CO | | | | |
| ROMANIA NATIONAL OIL CO. | | 6,000 | 122,900 | |
| ROMANIA NATIONAL OIL CO. | | 6,000 | 122,900 | |
| Total Romania | | | | |
| Total Romania | | | | |
| Total Romania | 6,690 | | | 37.0 |
| Total Romania | 6,690 9,340 | | | 37.0 35.0 |
| Total Romania | 6,690 9,340 6,600 | | | 37.0 35.0 30.0 |
| Total Romania | 6,690 9,340 6,600 8,300 | | | 37.0 35.0 30.0 32.0-34.0 |
| SAUDI ARABIA ARAMCO Abqaiq, 1940 Abu Hadriya, 1940 Abu Jifan • Abu-Safah, 1963 Bakr • Berri, 1964 Dammam, 1938 | 6,690 9,340 6,600 8,300 4,800 | | | 37.0 35.0 30.0 32.0-34.0 |
| Total Romania | 6,690 9,340 6,600 8,300 | | | 37.0 35.0 30.0 32.0-34.0 35.0 |
| Total Romania | 6,690 9,340 6,600 8,300 4,800 | | | 37.0 35.0 30.0 30.0 32.0-34.0 35.0 |
| Total Romania | 6,690 9,340 6,600 8,300 4,800 8,305 | | | 37.0 35.0 30.0 32.0-34.0 35.0 39.0 |
| Total Romania SAUDI ARABIA ARAMCO Abqaiq, 1940 Abu Hadriya, 1940 Abu Jifan - Abu-Safah, 1963 Bakr - Berri, 1964 Dammam, 1938 Dawl, 1980 Dhib Dibdibah El Haba | 6,690 9,340 6,600 8,300 4,800 | | | 37.0 35.0 30.0 32.0-34.0 35.0 |

| Name of field, discovery date | Depth, | Producing oil wells | 1999 production, avg. b/d | °AP gravi |
|--|---|--|-------------------------------------|---|
| Habari | | l I | • | |
| Hamur | | | | |
| Harmaliyah, 1971 | 8,430 | | | 35. |
| Harqus | | | | |
| Hasbah | | | | |
| Jaladi | | | | |
| Jana | | | | |
| Jauf | | | | |
| Jawb | | _ 1,560 | 7,274,100 | |
| Jurayd | | | | |
| Jurayd | | | | |
| Khurais, 1957 | 5,200 | | | 33. |
| Khursaniyah, 1956 | 6,560 | | | 31. |
| Kurayn | | | | |
| Lawhah Lughfah | | | | |
| Maharah | | | | |
| Manifa, 1957 | 7,950 | | | 29. |
| Marjan, 1967 | 6,800 | | | 33. |
| Mazalij | =: | | | |
| Qatif, 1945 | 7,100 | | | 33.0-34. |
| Qirdi | | | | |
| Rimthan | | | | |
| Safaniyah, 1951 | 5,100 | | | 27. |
| Sahba | | | | |
| Samin | | | | |
| Sharar | | | | |
| Suban Tinat | | | | |
| Wari`ah | | | | |
| Watban | | | | |
| Zuluf, 1965 | 5,800 - | J | | 32. |
| Total Saudi Arabia | | 1,560 | 7,521,250 | |
| Boka, 1956 Coka, 1975 Elemir, 1959 Itebej, 1978. Janosik, 1958 Jermenovci, 1952. Karadjordjevo, 1973. Kelebija, 1970. Kikinda, 1960 Kikinda-varos, 1963 Lokve, 1953 Morkrin, 1961 Mokrin-jug, 1982 Majdan, 1972 | 3,969-4,100 4,888-5,046 5,002-5,376 6,973-7,327 2,148-3,293 2,919-3,148 8,308-8,846 2,0691-2,788 3,543-5,735 3,744-6,490 2,909-3,099 6,232-7,216 6,658-6,740 7,708-7,790 | 25 99 29 5 1 56 6 12 166 50 9 105 16 14 | – 18,000 | 32. 44. 32. 26. 24. 26. 21. 34. 27. 25. 35. |
| Palic, 1968 V. Greda-jug, 1981 Velebit, 1965 Zrenjanin, 1974 Total Serbia | 3,345-3,427 3,237-3,427 2,434-2,575 6,829-6,986 | 6 10 122 5 ————————————————————————————————— | 18,000 | 37. 45. 23. 22. 25. |
| Palic, 1968 V. Greda-jug, 1981 Velebit, 1965. Zrenjanin, 1974 Total Serbia HARJAH (e) | 3,237-3,427 2,434-2,575 | 10 122 5 – | 18,000 | 45. 23. 22. |
| Palic, 1968 V. Greda-jug, 1981 Velebit, 1965. Zrenjanin, 1974 Total Serbia HARJAH (e) | 3,237-3,427 2,434-2,575 | 10 122 5 – | 8,000 22,000 | 45. 23. 22. 25. |
| Palic, 1968 V. Greda-jug, 1981 Velebit, 1965. Zrenjanin, 1974 Total Serbia SHARJAH (e) Kahaif (c), 1992 Saja (c), 1980 Moveyid (c), 1980. | 3,237-3,427 2,434-2,575 6,829-6,986 10,200-12,300 10,200-12,300 | 10 122 5 646 | 8,000 | 45. 23. 22. |
| Palic, 1968 V. Greda-jug, 1981 Velebit, 1965. Zrenjanin, 1974 Total Serbia Kahaif (c), 1992 Saja (c), 1980 Moveyid (c), 1980. RESCENT | 3,237-3,427 2,434-2,575 6,829-6,986 10,200-12,300 10,200-12,300 10,200-12,300 | 10 122 5 646 | 8,000 22,000 | 45. 23. 22. 25. 50. 50. |
| Palic, 1968 V. Greda-jug, 1981 Velebit, 1965. Zrenjanin, 1974 Total Serbia Kahaif (c), 1992 Saja (c), 1980 Moveyid (c), 1980 RESCENT Mubarek, 1972 Total Sharjah | 3,237-3,427 2,434-2,575 6,829-6,986 10,200-12,300 10,200-12,300 10,200-12,300 13,000-14,000 | 10 122 5 646 | 8,000 22,000 | 45. 23. 22. 25. 50. 50. |
| Palic, 1968 V. Greda-jug, 1981 Velebit, 1965. Zrenjanin, 1974 Total Serbia Kahaif (c), 1992 Saja (c), 1980 Moveyid (c), 1980. RESCENT Mubarek, 1972 Total Sharjah SOUTH AFRIC OSSGAS (e) Mossel Bay, F-A, 1980 | 3,237-3,427 2,434-2,575 6,829-6,986 10,200-12,300 10,200-12,300 10,200-12,300 13,000-14,000 | 10 122 5 646 | 8,000 22,000 | 45. 23. 22. 25. 50. 50. |
| Palic, 1968 V. Greda-jug, 1981 Velebit, 1965. Zrenjanin, 1974 Total Serbia Kahaif (c), 1992 Saja (c), 1980 Moveyid (c), 1980 Total Sharjah Total Sharjah SOUTH AFRIC OSSGAS (e) | 3,237-3,427 2,434-2,575 6,829-6,986 10,200-12,300 10,200-12,300 10,200-12,300 | 7 38 4 | 8,000 22,000 14,000 44,000 | 45 23 22 25 50 50 50 |

| | | Producing | 1999 production | |
|--|---|------------------------|-------------------------------------|---|
| Name of field, discovery date | ft | oil wells | avg. b/d | gravity |
| SPAIN REPSOL | | | | |
| Albatros, 1991 Angula-Casablanca, 1997 Ayoluengo, 1964 Casablanca, 1975. Rodaballo, 1995 | 6,890 15,009 4,600-5,200 8,900 11,237 | 1 1 15 6 1 | 0 2,122 220 2,758 1,023 | 52.7 38.0 37.0 32.0-34.0 38.0 |
| Total Spain | | 24 | 6,123 | |
| SUDAN (e) | | | | |
| TALISMAN ENERGY Al-Toor, 1996 | | _ | | |
| Greater Heglig | 5,390-6,125 7,532-8,220 | 9 | 38,000 | 29.6-35.0 42.3-43.4 |
| Toma South, 1996 | 6,240-7,225 | | _ 00,000 | 33.0-35.1 |
| Total Sudan | 5,2.0.,22 | 9 | 38,000 | |
| SURINAME | | | | |
| STAATSOLIE Tambaredjo, 1981 | 1,050 | 317 | 11,956 | 15.9 |
| Total Suriname | 1,000 | 317 | 11,956 | 10.0 |
| Total Gallianic TTTT | | 017 | 11,000 | |
| SYRIA (e) | | | | |
| AL FURAT PETROLEUM CO. (SHELL Al Izba, 1988 | | | 55,000 | 37.0 |
| Al Ward, 1986 | | | 25,000 | 38.1 |
| Jarnof/Saban | | | 30,000 35,000 | 34.0 |
| Omar/Omar North, 1987 Sijan, 1989 | | | 45,000 35,000 | 41.5 35.0 |
| Tanak, 1987 | | | 18,000 | 36.5 36.5 |
| Thayyem, 1983 Others | | | 60,000 27,000 | |
| AL-KHABUR PETROLEUM CO. Kishma, 1997 | | | 17,000 | |
| DEIR EZ-ZOR PETROLEUM CO. | | _ | 10.000 | |
| Al-Mazraa | | J | - 10,000 | |
| Jafra, 1994 | | | 30,000 15,000 | |
| SYRIAN PETROLEUM CO. Jebisseh, 1968 | 2,000-3,000 | 132 | | 18.0 |
| Suwaidiyah-Karatchok, 1959 | | | 140,000 | 24.0 |
| Total Syria | | 132 | 542,000 | |
| THAILAND | | | | |
| CHEVRON | = === | | 0.000 | |
| Benchamas | 7,500 6,000 | 27 38 | 3,223 5,056 | 41.0 47.4 |
| PACIFIC TIGER ENERGY (THAILAND Si Thep |) LTD. | 1 | 18 | |
| Wichian Buri, 1988 | 3,526 | 1 | 132 | 26.6 |
| PTTEP INTERNATIONAL Kamphaeng Saen, 1986 U Thong, 1987 | 3,780 3,550 | 1 6 | 38 508 | 25.2 33.2 |
| SINO-U.S. PETROLEUM Bung Ya, 1984 Bung Muang, 1987 | 7,800 8,900 | 2 7 | 379 191 | 34.5 35.8 |
| THAI SHELL Sirikit, 1981 | 5,500 | 92 | 23,378 | 41.0 |
| TOTALFINAELF Bongkot (c), 1973 | 7,000 | 43 | 13,568 | 56.0 |

| Name of field, discovery date | Depth, | Producing oil wells | 1999 production, avg. b/d | °API gravity | Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity |
|--|------------------|---------------------|---------------------------------|-----------------|--|-----------------------|---------------------|---------------------------------|-----------------|
| JNOCAL | 7.000 | | 504 | 20.4 | Venture prod. Trinidad | | 40 | 400 | |
| Baanpot (c), 1974Erawan (c), 1972 | 7,000 7,000 | 9 105 | 521 9,715 | 62.4 55.6 | Ltd., 1999 | | 10 | 193 | |
| Funan (c), 1981Gomin (c), 1988 | 6,100 7,300 | 54 8 | 4,299 731 | 56.7 56.7 | Bonasse, 1997 | 2,000 | 3 | 11 | 22.8 |
| Jakrawan (c), 1976 | 6,500 | 15 | 509 | 56.7 | TNA • Fortin Offshore (FOS), | | | | |
| Kaphong (c), 1973 | 8,000 9,500 | 11 30 | 743 3,399 | 54.9 55.4 | 1954 | | 4 | 118 | 29.6 |
| Pladang (c), 1996 | 7,000 7,000 | 3 1 | 1,329 260 | 59.2 54.3 | • Soldado, 1955 | 11,000 | 288 4 | 36,026 169 | 21.1 29.6 |
| Platong (c), 1976 | 8,500 | 24 | 2,627 | 54.9 | TRINTOMAR | •••• | 7 | 100 | 20.0 |
| Satun (c), 1980 | 8,500 6,800 | 48 2 | 6,271 515 | 59.2 37.5 | Pelican (c), 1990 | 13,000-14,000 | 1 | 349 | 35.4 |
| • Trat (c), 1981 | 7,500 | 15 | 794 | 58.0 | Total Trinidad & Tobago | | 3,867 | 124,934 | |
| OTHERS South Satan (c) | | | 2,033 1,668 | | TUNISIA | | | | |
| Fotal Thailand | | 543 | 81,905 | | AGIP | | | | |
| | 2400 | | 0.,000 | | Chouech Saida, 1971 El Borma, 1964 | 12,600 8,250-8,900 | 1 88 | 89 20,864 | 44.0 41.5 |
| TRINIDAD & TOI | BAGU |) | | | Oued Zaar, 1993 Zinnia, 1989 | 10,900 9,850 | 6 1 | 5,231 204 | 40.0 39.0 |
| BP • Banyan (c), 1995 | 15,000 | 1 | 353 | 42.8 | Maamoura | | | | |
| Cassia (c), 1973 | 12,700 | 7 | 508 | 50.1 | BG + Cercina, 1992 | 4,920 | 4 | | 29.0 |
| Flambouyant (c), 1993Immortelle (c), 1993 | 13,700 13,000 | 3 18 | 1,322 10,782 | 50.1 49.0 | El Ain/Gremda, 1980 | 8,700 | 2 | | 42.0 |
| Mahogany (c), 1998 Poui, 1974 | 12,960 11,650 | 13 33 | 9,922 7 <i>.</i> 367 | 46.8 33.8 | El Hajeb/Guebiba, 1982 + Miskar (c), 1993 | 7,050 11,150 | 2 10 | 1,578 | 29.0 52.8 |
| • Samaan, 1971 | 11,780 | 40 | 9,079 | 36.0 | Rhemoura, 1991 | 8,850 | 2 | | 33.0 |
| • Teak, 1971 | 15,191 | 52 | 16,292 | 34.8 | CENTURION (ECUMED) Al Manzah | | | 2,000 | |
| NRON GAS & OIL TRINIDAD LTD. Ibis, 1995 | 15,000 | 2 | 47 | 36.2 | Ezzaouia | | | 2,720 1,525 | |
| Kiskadee (c), 1993 | 15,000 | 6 | 3,016 | 45.9 | Robbana | | | 80 | |
| MORAVEN • Mora, 1986 | 8,500 | 3 | 559 | 35.0 | BP + Ashtart, 1971 | 10,500 | 23 - |] | 29.6 |
| COL | | _ | | | Douleb/Semmama, 1966 Tamesmida, 1967 | 3,937 3,937 | 13 2 | | 39.0 36.0 |
| Barrackpore, 1970 Fysabad/Roodal, 1918 | 1,900 2,100 | 7 64 | 54 174 | 17.7 20.2 | COPAREX INTERNATIONAL | | | | |
| Icacos, 1955 | 3,500 | 3 | 36 27 | 20.2 | Isis | | | | |
| Palo Seco, 1915 San Francique, 1929 | 2,000 2,200 | 10 29 | 236 | 22.8 25.3 | CFPT/EGEP | | | | |
| Siparia, 1957 | 9,500 | 1 | 5 | 25.8 | Mahares, 1982 | 8,460-8,560 | 1 24 | 47.200 | 33.0 |
| PETROTRIN Antilles Trinity, 1956 | 9,700 | 14 | 154 | 29.4 | Sidi El Itayem, 1971 | 7,500-7,800 | 24 | 47,309 | 44.0 |
| Antilles Vessigny | 5,916 11,000 | 31 14 | 118 68 | 16.0 25.0 | ETAP-AGIP-TOTALFINAELF (SODE Debech, 1980 | .PS) 7,550 | 1 | | 42.8 |
| Balata East, 1952 | 6,183 | 17 | 249 | 33.8 | Larich, 1979 | 7,550 6,230 | 2 4 | | 41.0 45.6 |
| Barrackpore, 1911 | 11,100 7,787 | 79 18 | 1,679 130 | 25.2 31.7 | • . | 6,230 | 4 | | 43.0 |
| Brighton Land, 1908 | 7,500 9,934 | 2 52 | 5 266 | 31.3 33.1 | OTHER + Belli, 1991 | 4,800 | 2 | | 38.0 |
| Brighton Marine, 1903 Catshill, 1950 | 9,693 | 23 | 441 | 32.2 | Ezzaouia, 1986 | 6,800 | 9 | | 40.0 |
| Central Los Bajos, 1926 Coora, 1936 | 11,147 14,000 | 151 18 | 1,197 193 | 13.5 22.5 | Robbana, 1988 | 6,600-7,000 12,600 | 1 1 | | 43.0 44.0 |
| Cruse, 1913 | 4,937 | 58 | 312 | 21.1 | Sidi El Kilani, 1989 | 9,200 | 5 | | 39.6 |
| Erin, 1926 Forest Reserve, 1913 | 12,718 11,000 | 26 323 | 480 3,184 | 17.8 19.2 | + Tazerka, 1979 | 4,200 | 6 - | | 31.1 |
| Fyzabad, 1920 | 11,000 6,304 | 247 20 | 1,669 1,076 | 19.0 26.3 | Total Tunisia | | 210 | 81,600 | |
| Goudron, 1902 | | 2 | . 8 | | | | | | |
| Guapo, 1963 Guayaguayare, 1902 | 7,500 10,750 | 170 17 | 1,526 52 | 14.0 37.2 | TURKEY | | | | |
| Inniss, 1950 | 9,693 | 9 | 40 49 | 31.9 | ALADDIN MIDDLE EAST LTD. | | | | |
| Los Bajos, 1973 | 11,147 12,718 | 11 | | 19.0 21.7 | Bulgurdag, 1960 | 5,050 | 5 | 46 | 37.7 |
| Marcelle Valley, 1911 Morne Diablo, 1936 | 7,215 14,018 | 15 1 | 122 3 | 31.7 27.0 | Kahta, 1958 | 3,412 4,823 | 7 11 | 34 630 | 11.0 23.1 |
| Moruga East, 1953 | 9,693 | 9 | 40 | 31.9 | | 4,020 | | 000 | 20.1 |
| Moruga West, 1957 Navette, 1959 | 8,604 10,750 | 15 52 | 104 462 | 25.2 31.7 | N.V. TURKSE PERENCO Barbes, 1972 | 7,454 | 8 | 1,121 | 29.7 |
| Oropouche, 1944 Palo Seco, 1926 | 9,100 12,700 | 32 542 | 149 4,718 | 31.7 15.9 | Barbes-Derin (c), 1984 Baysu, 1985 | 10,827 6,398 | 1 7 | 209 371 | 44.8 33.3 |
| Parrylands, 1913 | 10,626 | 98 | 812 | 20.3 | Bektas, 1985 | 6,070 | 2 | 97 | 33.7 |
| Penal, 1936 | 11,067 10,626 | 62 216 | 626 1,957 | 19.2 20.3 | Beykan, 1964 | 6,198 8,566 | 30 2 | 1,886 98 | 33.2 29.5 |
| Point Fortin East, 1929 | 8,589 | 76 | 592 | 21.8 | Kayakoy, 1961 | 6,834 | 12 | 1,202 | 38.2 |
| Point Fortin West, 1907 Point Ligoure, 1937 | 10,626 8,670 | 36 1 | 278 204 | 20.3 19.3 | B. Kayakoy, 1964 Kurkan, 1963 | 6,188 5,318 | 15 22 | 2,096 1,137 | 34.7 31.4 |
| Quarry, 1938 | 14,000 | 105 | 729 | 22.5 | G. Kurkan, 1967 | 6,417 | 6 | 449 | 34.7 |
| Quinam, 1936 | 7,521 9,500 | 3 2 | 5 5 | 18.1 26.3 | Malatepe, 1970 Piyanko, 1968 | 5,528 8,304 | 7 1 | 542 52 | 33.9 35.3 |
| | 10,859 | 20 | 123 | 27.8 | Sahaban, 1966 | 5,869 | 9 | 578 | 34.5 |
| Wilson, 1936 Lease Operators | | 561 | 3,574 | | Sebyan, 1973 | 6,644 | ĭ | 1 | 33.7 |

| Name of field, discovery date | Depth, | Producing oil wells | 1999 production, avg. b/d | °API gravity |
|---|------------------|---------------------|---------------------------------|-----------------|
| D.Yatir, 1974 | 5,128 | 6 | 324 | 30.9 |
| D. Yenikoy, 1974 | 6,516 | 1 | 130 | 31.3 |
| Yesildere, 1986 | 6,890 | 5 | 368 | 34.5 |
| PETROM EXP. MED. INC. Selmo, 1964 | 6,562 | 20 | 1,625 | 34.4 |
| | -, | | , | |
| TPAO Adiyaman, 1971 | 5,741 | 14 | 718 | 26.7 |
| Akgun, 1998 | 6,988 | i | 193 | 25.0 |
| Akpmar, 1986 | 10,663 | 2 | 39 | 31.0 |
| Bati Raman, 1961 | 4,265 | 194 | 8,720 | 13.0 |
| Besikli, 1990 | 6,234 | 12 | 759 296 | 25.6 |
| Bozova, 1996 | 7,936 8,432 | 5 9 | 263 | 24.0 35.2 |
| | 4,970 | 24 | 598 | 12.4 |
| Bati Kozluca, 1984 Bati Selmo, 1981 | 5,971 | 3 | 42 | 34.3 |
| Camurlu, 1976 | 4,757 | 17 | 254 | 12.2 |
| Caylarbasi, 1993 | 5,250 | 2 | 65 | 11.8 |
| Celikli, 1963 | 10,500 10,499 | 8 13 | 239 774 | 35.2 31.0 |
| Cendere (J.V.), 1989 | 8,858 | 14 | 2,927 | 29.0 |
| Degirmenkoy (c), 1994 | 3,171 | 2 | 12 | 49.0 |
| Degirmenkoy (c), 1994 Dodan-Usak, 1965 | 3,904 | 1 | 7 | 36.0 |
| D. Besikli, 1991 | 6,100 | 4 | 503 | 19.4 |
| D. Silivanka, 1995 Garzan, 1951 | 8,116 4,757 | 1 38 | 70 1,167 | 22.0 24.0 |
| G. Dincer, 1981 | 5,335 | 12 | 311 | 15.5 |
| G. Karakus, 1989 | 7,776 | 18 | 3,453 | 26.5 |
| G. Kayakoy, 1976 | 8,596 | 2 | 85 | 30.4 |
| G. Sahaban, 1978 | 5,446 | 6 | 187 | 33.2 |
| G. Saricak, 1973 | 5,250 9,843 | 10 13 | 368 | 31.0 |
| Hamitabat (c), 1970 | 9,843 7,500 | 7 | 30 560 | 56.0 26.4 |
| Karacali (c), 1995 | 7,218 | 1 | 300 | 49.0 |
| Karacaoglan (c), 1989 | 11,099 | 1 | 1 | 49.0 |
| Kumrular (c), 1970 | 10,335 | 1 | | 49.0 |
| Umurca (c), 1984 | 6,234 | 1 | 0 | 49.0 |
| Karadut, 1992 Karakus, 1988 | 9,514 8,858 | 2 25 | 9 4,038 | 38.4 30.1 |
| Karteltepe, 1982 | 6,562 | 3 | 186 | 32.0 |
| Kastel (J.V.), 1990 | 7,874 | 5 | 1,982 | 34.7 |
| Karaalı (J.V), 1989 | 9,941 | 2 | 230 | 24.6 |
| K. Karakus, 1990 | 8,497 | 20 | 5,374 | 29.0 |
| K. Marmara (c), 1988 Company 1971 | 3,937 | 5 2 | 103 | 55.6 |
| K. Osmancik, 1971 Kayayolu, 1999 | 3,773 11,617 | 1 | 150 19 | 37.6 24.0 |
| Lilan, 1997 | 9,022 | i | 52 | 28.8 |
| Magrip, 1961 | 5,700 | 13 | 218 | 18.5 |
| O. Šungurlu, 1991 | 9,186 | 4 | 184 | 37.2 |
| Oyuktas, 1972 | 7,628 | 2 | 32 | 31.0 |
| Raman, 1945 | 4,462 5,250 | 88 1 | 4,996 27 | 18.0 31.5 |
| Silivanka 1962 | 8,202 | 8 | 678 | 25.2 |
| Silivanka, 1962 | 4,265 | 4 | 60 | 15.7 |
| Tokaris, 1991 | 7,900 | 11 | 1,008 | 24.1 |
| Yanankoy, 1994 | 5,741 | 2 | 105 | 14.0 |
| Yenikoy, 1973 | 6,890 | 14 | 893 | 33.1 |
| Total Turkey | | 833 | 56,261 | |
| | | | | |

| AGIP Balmoral, 1975. Glamis, 1982 Stirling, 1983 Thelma, 1996 Tiffany, 1977. Toni, 1979. | 7,000 10,000 8,000 | 10 1 1 5 7 4 | 7,339 748 334 19,178 8,808 13,485 | 39.3 42.0 37.0 35.5-38.0 33.6 34.7 |
|--|------------------------------|---|---|---|
| ALTAQUEST Newton on Trent, 1998 | | 0 | 41 | 33.0 |
| AMERADA HESS LTD. Dauntless, 1994 Durward, 1993 Fergus, 1994 Fife, 1991 Fiora, 1997 Hamish, 1988 Hudson, 1987 Ivanhoe, 1975 Rob Roy, 1984 Scott, 1984 Telford, 1992 | 6,500 8,000 | 1 2 1 5 2 1 6 4 5 21 | 767 918 3,274 7,413 10,375 167 25,041 4,737 5,570 83,534 21,885 | 32.0 36.0 37.0 36.0 38.2 39.0 33.0 30.0 39.0-41.0 36.0 38.2 |

UNITED KINGDOM

| | | | 1000 | |
|--|--------------------------------|---------------------|--------------------------------|-------------------|
| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production avg. b/d | , °API gravity |
| BP 4074 | | 40 | 20, 200 | 40.0 |
| Andrew, 1974Arbroath, 1969 | 8,100 | 13 11 | 69,668 23,408 | 40.0 38.0 |
| Arkwright, 1990 | | 2 2 | 3,961 1,002 | 40.0 23.4 |
| Bruce, 1974 | | 24 | 42,512 | 38.0 |
| Cyrus, 1979 | 9.000 | 2 2 | 8,153 830 | 36.0 38.0 |
| Don, 1976 | 11,200 | 1 8 | 1,838 | 40.0 |
| Everest, 1982 | | 11 | 5,559 82,967 | 25.0 |
| Forties, 1970Harding, 1988 | 7,000 | 58 11 | 72,676 79,353 | 37.0 20.0-22.0 |
| Lomond, 1972 | | 5 | 4,167 | |
| Machar, 1975 | | 4 1 | 36,191 9,896 | 40.0 |
| Magnus, 1974Marnock, 1984 | 9,500 | 18 4 | 62,833 15,608 | 39.0 |
| Miller, 1983 | 13,400 | 9 | 56,509 | 39.0 |
| Monan, 1990 | 8,150 | 2 7 | 7,120 1,178 | 38.5 |
| Mungo, 1989 | | 6 17 | 39,181 | 35.0 |
| Schiehallion, 1993 | 11,500 | 13 | 6,046 98,537 | 26.0 |
| Thistle, 1973 Wareham, 1964 | 9,000 | 24 7 | 6,296 419 | 38.4 34.0 |
| • Wytch Farm, 1973 | 3,031-5,198 | 47 | 81,474 | 37.0-38.0 |
| ВНР | | | | |
| Douglas, 1990 | | 8 7 | 20,191 18,446 | 44.0 45.0 |
| BLACKLAND Whisby, 1985 | | 2 | 11 | 32.7 |
| Britannia, 1975 | | 18 | 40,912 | |
| • Drake, 1982 | | 2 5 | 7,718 11,701 | |
| • Alba, 1984 | 6,100-6,600 | 18 | 73,397 | 19.0-20.0 |
| CIRQUE Fiskerton Airfield, 1997 | | 2 | 468 | 35.0 |
| • Banff, 1991 | | 0 | 22,813 | |
| Hutton, 1973 | 10,000 | 16 6 | 11,307 | 34.5 36.2 |
| Mac Culloch, 1990 | | 5 | 2,983 36,485 | 32.0 |
| Murchison, 1975 | 9,900 10,000 | 22 60 | 15,619 41,852 | 36.0 37.0 |
| • Statfjord, 1975 | 9,500 | 86 | 36,679 | 38.0 |
| DNO HEATHER | 10.000 | 00 | 4.000 | 20.0.27.0 |
| • Heather, 1973 | 10,800 | 22 | 4,000 | 32.0-37.0 |
| Crosby Warren, 1986 | 5,500 | 1 | 24 | 40.8 |
| • Nelson, 1988 | | 27 | 95,005 | 40.0 |
| • Sedgwick, 1985 | | 6 | 29,611 | 38.0 |
| EXXONMOBIL | | | | |
| Beryl, 1972 | 9,900-11,500 | 44 4 | 47,411 9,838 | 37.0 40.0 |
| Ness, 1986 | 9,900-10,112 | 2 | 2,534 | 37.0 |
| • Nevis, 1974 | | 7 | 32,959 | |
| • Gryphon, 1987 | | 11 5 | 20,391 36,197 | 21.4 36.0 |
| LASMO • Birch, 1985 | | 2 | 4,805 | 38.0 |
| • Staffa, 1985 | | 1 | 296 | 35.2 |
| • Beinn, 1987 | 13,700 | 4 | 2,589 | 45.0 |
| Central Brae, 1976 | 14,100-15,000 12,800-13,700 | 6 19 | 6,115 24,161 | 33.0 39.0-49.0 |
| North Brae, 1975 | 11,900-12,475 | 15 | 7,487 | 41.0-45.0 |
| South Brae, 1972 | 12,700-13,437 | 19 4 | 5,572 29,104 | 33.0-35.0 22.0 |
| PENTEX Beckingham West, 1985 | | 1 | 19 | 35.6 |
| <u> </u> | | | | |

| Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | , °API gravity |
|--|------------------------|--|---------------------------------|-------------------|
| East Glentworth, 1987 | | 1 | 35 | 37.0 |
| Goodworth, 1987 Kirklington, 1985 | | 1 0 | 49 0 | 36.0 29.6 |
| Long Člawson, 1986 | | 4 | 202 | 35.8 |
| Rempstone, 1985 Stockbridge, 1984 | | 1 9 | 33 1,805 | 34.2 36.8 |
| PHILLIPS | | · · | .,000 | 00.0 |
| • Joanne, 1981 | | 12 | 21,063 | 39.0 |
| Judy, 1985 | 9 000 9 700 | 6 7 | 12,134 3,515 | 39.0 36.0 |
| Moira, 1988 | 8,000-8,700 8,800 | 1 | 68 | 42.0 |
| Renee, 1976 | | 1 1 | 14,676 3,789 | 38.0 41.0 |
| ANGER | | · | 0,,00 | |
| Columba B | | 2 | 3,181 | |
| Columba D | | 2 2 | 1,844 3,556 | |
| OC OIL UK | | - | 0,000 | |
| Keddington, 1998 | | 1 | 104 | 38.2 |
| HELL · Auk, 1971 | | 10 | 12,739 | 38.0 |
| • Brent, 1971 | | 97 | 96,803 | 38.0 |
| Cormorant North, 1974 Cormorant South, 1972 | | 26 18 | 31,397 17,635 | 36.0 35.0 |
| Curlew, 1990 | | 3 | 32,402 | 39.0-44.0 |
| Dunlin Southwest, 1973 Dunlin, 1973 | | 2 25 | 4,679 12,679 | 32.0-34.0 35.0 |
| Egret, 1991 | | 1 8 | 8,005 | 35.0 |
| • Eider, 1976 | | 8 14 | 12,361 7,816 | 34.0 40.0 |
| • Gannet A, 1973 | | 10 | 18,553 | 38.0 |
| Gannet B, 1979 | | 2 7 | 794 14,512 | 38.0 |
| Gannet D, 1987 | | 4 1 | 8,027 | 43.0 |
| Gannet E | | 1 | 7,592 6,718 | 20.0 35.0 |
| Gannet G, 1998 | | 2 | 5,600 | 38.0-40.0 |
| Guillemot A, 1979 | | 3 3 | 8,641 49,485 | 37.0 42.0 |
| Kingfisher, 1972 | | 3 | 14,202 | 40.0 |
| Kittiwake, 1981 Mallard, 1990 | | 4 1 | 4,772 14,638 | 38.0 38.0 |
| Merlin, 1997 | | 2 | 17,246 | 31.0 |
| Osprey, 1974 | | 7 7 | 10,654 20,085 | 31.0 35.0 |
| Teal South, 1992 | | 1 | 2,800 | 38.0 |
| Teal, 1989 | | 1 18 | 25,071 43,789 | 37.0 |
| TAR | | 10 | +5,703 | |
| Cold Hanworth, 1999 Farley's Wood, 1983 | | 1 1 | 41 8 | 28.0 39.7 |
| Herriard | | 1 | 30 | |
| Horndean, 1982 | | 4 8 | 30 2.016 | 38.3 35.9 |
| Nettleham, 1983 | 3,870 | 2 | 2,016 142 | 35.6 |
| Palmers Wood, 1983 Scampton North, 1985 | 4,850 | 6 4 | 254 227 | 37.7 35.2 |
| Singleton, 1989 | | 4 | 550 | 37.0 |
| Stainton, 1984 Storrington, 1986 | 4,364 | 1 3 | 8 326 | 27.6 39.4 |
| Welton, 1981 | 4,450 | 33 | 2,000 | 36.0 |
| ALISMAN • Bladon, 1996 | | 1 | 3,238 | 44.3 |
| Blenheim, 1990 | 6 750 | 3 | 3,011 | 39.0 |
| Beatrice (A & B), 1976 Buchan, 1974 | 6,750 8,700 | 19 7 | 4,019 7,065 | 39.0 33.5 |
| Clyde, 1978 | 12,400 | 16 | 12,054 | 37.5 |
| Leven, 1981 | 12,400 | 1 1 | 750 5 | 39.0 38.5 |
| • Orion, 1971 | | 1 5 | 2,890 14,983 | 44.0 41.0 |
| EXACO NORTH SEA | | , and the second | .,,000 | 3 |
| Captain, 1977 | | 15 5 | 46,454 19,613 | 19.2 48.0 |
| • Galley, 1974 | | 2 | 19,613 29,753 | 48.0 44.0 |
| Highlander, 1976 | 8,759-9,372 8 110 | 5 1 | 2,038 | 35.0 39.0 |
| Petronella, 1975 | 8,110 10,000-10,500 | 11 | 1,071 14,496 | 39.0 39.0-45.0 |
| • Tartan, 1975 | 10,217-12,614 | 10 | 5,529 | 38.0 |
| • Alwyn N., 1975 | 10,170-11,155 | 25 | 22,679 | 39.0 |
| ,, | ., | _0 | ,5,5 | 00.0 |

| Name of field, discovery date | Depth, | Producing oil wells | 1999 production, avg. b/d | , °API gravity |
|--------------------------------------|--------------------|---------------------|---------------------------------|-------------------|
| Chanter, 1985 | 12,000 | 2 | 137 | 37.8 |
| • Claymore, 1974 | 8,100 | 28 | 32,728 | 30.0 |
| • Dunbar, 1973 | 10,990-12,370 | 17 | 40,112 | 40.5-44.8 |
| • Ellon, 1972 | 10,330-10,770 | 2 | 2,515 | |
| • Grant, 1977 | | 1 | 5,682 | |
| • Iona, 1982 | | 1 | 1,581 | 40.0 |
| Piper, 1973 | 8,100 | 12 | 30,416 | 37.0 |
| Saltire, 1988 | 10,900 | 6 | 15,545 | 41.5 |
| Scapa, 1975 | 8,500 | 7 | 12,759 | 32.5 |
| TULLOW | | | | |
| W. Firsby, 1988 | 5,500 | 3 | 200 | 38.0 |
| Total United Kingdom | | 1,453 | 2,642,400 | |
| UNITED STATE | ES * | | | |
| Alabama, 1944 | | 801 | 30,479 | |
| Alaska, 1905 | | 1,821 | 1,049,849 | |
| Arizona, 1958 | | 26 | 181 | |
| Arkansas, 1921 | | 7,321 | 19,600 | |
| California, 1861 | | 40,990 | 856,773 | |
| Colorado, 1887 | | 9,250 | 50,597 | |
| Florida, 1943 | | 81 | 13,411 | |
| Illinois, 1889 | | 29,963 | 33,055 | |
| Indiana, 1889 | | 5,121 | 5,381 | |
| Kansas, 1889 | | 43,500 | 79,578 | |
| Kentucky, 1860 | | 23,344 | 7,608 | |
| Louisiana, 1902 | | 31,785 | 1,513,145 | |
| Michigan, 1900 | | 3,500 | 21,466 | |
| Mississippi, 1889 | | 1,475 | 49,175 | |
| Missouri, 1889 | | 303 | 252 | |
| Montana, 1916 | | 3,478 | 40,929 | |
| Nebraska, 1939 | **** | 1,206 78 | 7,290 | |
| Nevada, 1954 | •••• | 20,225 | 1,934 176,375 | |
| New York, 1865 | | 3,602 | 562 | |
| North Dakota, 1951 | | 3,304 | 90,090 | |
| Ohio, 1860 | | 29,166 | 16,351 | |
| Oklahoma, 1891 | | 85,837 | 193,307 | |
| Pennsylvania, 1859 | | 16,250 | 4,027 | |
| South Dakota, 1954 | | 138 | 3,014 | |
| Tennessee, 1860 | | 700 | 945 | |
| Texas, 1889 | | 166,321 | 1,400,025 | |
| Utah, 1907 | | 1,929 | 44,529 | |
| Virginia, 1943 | | 18 | 22 | |
| West Virginia, 1860 | | 16,025 | 4,027 | |
| Wyoming, 1894 | | 10,034 | 167,471 | |
| Total United States | | 557,592 | 5,881,448 | |
| *Discovery date indicates first year | r of production in | state. There | are 34.969 oil | fields in |

*Discovery date indicates first year of production in state. There are 34,969 oil fields in the U.S.

VFNF7UFI A (e)

| VENEZUELA (e | •) | |
|---|---|---|
| PDVSA/AMACURO Pedernales, 1932 | 3,490-7,000 5,754 | 21.2 13.1 |
| PDVSA/ANZOATEGUI Adas, 1957 Adm 101X, 1955 Adobe, 1953 Adobe C Araibel, 1955 Araibel-R, 1954 Arecuna, 1979 Bare, 1980 Boca, 1951 Boca-R, 1951 Bote, 1959 Bucaral, 1958 Cachama-R, 1952 Cachicamo, 1949 Caico Este, 1951 Caico Seco, 1946 Cantaura, 1959 Capacho, 1945 Caracoles, 1952 Caricari, 1977 Carina, 1982 Caci-501X, 1952 Chimire, 1948 Chimire Norte, 1953 | 7,320 7,776 7,000 11,300 11,400 4,070 3,800 9,500 8,400 8,800 10,400 8,700 4,600 8,600 7,700 12,300 6,100 7,400 5,500 4,000 7,400 7,400 7,000 7,000 7,000 7,000 7,000 7,000 7,000 7,000 8,900 | 13.9 19.2 23.3 112.2 33.8 34.2 11.1.2 10.2 32.2 28.2 23.9 46.0 28.6 21.0 30.3 38.1 41.5 23.3 30.2 21.0 10.9 36.3 34.1 |
| Chimire-Chv, 1949 | 7,500 | 30.0 |

| Name of | field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity | Name of field, discovery date | Depth, ft | Producing oil wells | 1999 production, avg. b/d | °API gravity |
|------------|-----------------------|------------------------|---------------------|---------------------------------|-----------------|------------------------------------|------------------------|---------------------|---------------------------------|-----------------|
| Chimire-F | R, 1949 | 7,400 | i | | 33.9 | Zapatos, 1955 | 11,500 | I | | 32.4 |
| Dacion, 1 | 957 | 6,700 | | | 23.0 | Zarza, 1957 | 13,200 | | | 43.2 |
| | 1939 | 3,500-11,000 | | | 49.3 | Zorro, 1953 | 11,100 | | | 29.3 |
| | 1948 | 8,000 5,000-6,470 | | | 44.3 34.1 | Zuata Principal, 1975 Zulus, 1957 | 900-4,900 12,710 | | | 7.0 35.8 |
| | orte, 1973 | | | | 36.1 | Zumo, 1954 | 9,200 | | | 25.3 |
| Esquina S | Sur, 1952 | 6,800 | | | 34.2 | Zumo Norte, 1955 | 11,100 | | | 22.0 |
| | R, 1951 | 6,800 | | | 31.7 | DDV (CA (DADINA) | | | | |
| | 53 | 10,400 | | | 37.3 35.5 | PDVSA/BARINAS Caipe, 1967 | 10,900 | | | 24.7 |
| | 948 | 6,300 | | | 18.7 | Estero, 1958 | 10,700 | | | |
| | 1951 | 8,100 | | | 28.7 | Guafita, 1982 | 8,500 | | | 29.1 |
| | 41 | 6,800 | | | 19.2 | Hato Viejo, 1956 | 9,550 | | | 22.7 |
| | 46 | 7,000 5,000-10,000 | | | 29.7 18.2 | La Victoria, 1987 Maporal, 1957 | 10,900 10,950 | | | 29.8 25.7 |
| | te, 1942 | 7,300 | | | 23.6 | Paez (Mingo), 1963 | 8,900 | | | 19.9 |
| | ste, 1942 | 7,000 | | | 28.9 | Palmita, 1957 | 10,600 | | | 27.8 |
| | 940 950 | 8,000 8,000 | | | 38.5 38.6 | Sinco, 1953 | 8,500-9,100 10,860 | | | 21.5 26.8 |
| | 44 | 4,500-7,000 | | | 25.4 | Silvestre, 1948 | 8,860 | | | 22.1 |
| | ste, 1946 | 7,300 | | | 35.5 | Torunos, 1994 | 11,800-12,400 | | | 28.8 |
| | r, 1946 | 6,900 | | | 28.0 | Borburata, 1996 | 11,800 | | | 30.1 |
| | 1948 | 7250 6,300 | | | 38.2 34.7 | Bejucal, 1996 | 11,500 | | | 29.0 |
| | 53 | 8,000 | | | 17.6 | PDVSA/FALCON | | | | |
| | 5 | 10,200 | | | 41.1 | Cumarebo, 1931 | 5,000 | | | 46.1 |
| | 1946 | 9,450 | | | 41.9 | Tiguaje, 1953 | 5,000 | | | 26.4 |
| | a, 1963 | 9,878 5,200 | | | 42.0 19.3 | PDVSA/GUARICO | | | | |
| | 52 | 5,500 | | | 11.6 | Altas, 1960 | 6,000 | | | 39.8 |
| | 38 | 2,200-12,800 | | | 26.7 | Anibal, 1955 | 5,500 | | | |
| | 956 | 7,400 | | | 15.7 | Barso, 1959 | 5,800 | | | 29.3 |
| | 52 | 6,500 6,700 | | | 17.0 12.7 | Belen, 1953 | 4,500 4,300 | | | 28.1 |
| | 0 | 9,000 | | | 25.4 | Budare, 1958 | 4,523 | | | 31.1 |
| | 947 | 9,500 | | | 25.9 | Cocomon, 1951 | :::: | | | 50.5 |
| | 52 | 7,100 | | | 15.1 39.5 | Copara 1951 | 7,800 | | | 41.1 |
| | 949 | 10,500 10,200 | | | 32.2 | Coporo, 1954 | 6,500 6,500 | | | 30.0 25.6 |
| | , 1952 | 10,500 | | | 35.8 | Dakoa, 1954 | 5,400 | | | 30.5 |
| | 1953 | 8,000 | | | 39.2 | Grico, 1946 | 4,200 | | | 27.0 |
| | 54 | 9,900-12,500 12,300 | | | 25.9 37.3 | Guavinta, 1948 | 3,900 5,400 | | | 26.6 14.9 |
| | 1950 | 6,000 | | | 45.1 | Jobal, 1960 | 7,600 | | | 41.3 |
| | 1952 | 4,900 | | | 11.4 | Las Mercedes, 1942 | 4,500 | | | 25.4 |
| | C., 1974 | 4,622 | | | 11.4 | Macoya, 1972 | 7,700 | | | 48.3 |
| | 937 | 5,400-5,700 4,600 | | | 12.5 12.3 | Palacio, 1946 | 3,800 4,500 | | | 22.6 |
| | 952 | 10100 | | | 25.5 | Punzon, 1947 | 4,900 | | | 32.4 |
| | 1954 | 9,400 | | | 30.6 | Retumbo, 1955 | 5,200 | | | |
| | 53 | 11,600 | | | 26.0 | Ruiz, 1949 | 4,500 | | | 27.2 |
| | 1957 | 6,000-8,500 9,600 | | | 31.9 26.8 | Saban, 1947 | 4,000 6,600 | | | 47.3 54.7 |
| | 946 | 8,100 | | | 32.5 | Taman, 1949 | 4,100 | | | 38.7 |
| 0 10=0 | te, 1954 | 9,200 | | | 33.1 | Tucupido, 1946 | 5,000 | | | 46.3 |
| Oca, 1953 | 3 | 5,600 5,900 | | | 16.7 26.1 | Valle 13, 1947 Valle 3, 1957 | 5,700 5,000 | | | 33.1 |
| | orte, 1946 | 6,900 | | | 29.6 | Yucal-Placer | 3,000 | | | |
| Oleos, 19 | 34 | 5,000 | | | 13.0 | | | | | |
| | , 1952 | 10,300 | | | 24.6 | PDVSA/MONAGAS | | | | |
| | 43 | 9,513 5,700 | | | 24.2 16.9 | Acema 100, 1965 | 12,500 | | | 29.0 |
| | 42 | 4,800 | | | 16.5 | Acema 200, 1966 | 12,100 11,900 | | | 23.8 26.3 |
| | , 1988 | 13,700 | | | 41.9 | Acema 400, 1968 | 12,400 | | | 20.7 |
| | R, 1949 | 7,300 8,500 | | | 33.3 39.6 | Acema 500, 1967 | 11,400 | | | 23.2 |
| | argo, 1941 | 8,900 | _ 15,580 | 2,786,700 | 40.5 | Acema A, 1960 Acema B, 1971 | 13,100 12,600 | | | 26.4 20.1 |
| Rosa R.V. | ., 1958 | 11,600 | , | | 38.8 | Acema Casma, 1972 | 12,000 | | | 22.8 |
| | uin, 1938 | 8,600 | | | 42.9 | Aguasay | | | | |
| | a, 1936 | 9,200 11,900 | | | 40.1 43.1 | Aguasay 3, 1957 | 13,800 | | | 37.1 |
| | sa, 1941 | 9,800 | | | 45.7 | Aguasay C, 1955 | 8,100-13,400 13,950 | | | 35.8 34.3 |
| | 59 | 6,100 | | | 31.7 | Aguasay N, 1972 | 1,590 | | | 42.4 |
| | , 1940 | 5,000 11100 | | | 20.2 33 | Amarillis, 1989 | 16,000 | | | 41.9 |
| | te, 1950 | 11,700 | | | 35.8 | Boqueron, 1990 | 18,250 15,100 | | | 32.7 41.7 |
| Tascaban | a, 1951 | 7,500 | | | 29.0 | Carisito, 1984 | 15,100 16,000 | | | 41.7 31.4 |
| Trico, 194 | 11 | 6,100 | | | 31.1 | Cerro Negro, 1980 | 1,200 | | | 7.5 |
| | Central, 1937 | 4,600 5,400 | | | 22.6 | El Corozo, 1987 | 19,000 | | | 26.8 |
| | Norte, 1943 | 5,400 4,700 | | | 29.0 16.7 | El Furrial, 1986 Florida, 1987 | 15,000 14,100 | | | 26.3 39.2 |
| | 1959 | 15,100 | | | 40.6 | Jobo II, 1956 | 3,600-4,000 | | | 10.8 |
| | 958 | 13,270 | | | 38.1 | Jusepin, 1938 | 4,253 | | | 28.2 |
| | | | | | | | | | | |

| Name of field, discovery date | Depth, | Producing oil wells | 1999 production, avg. b/d | °API gravity |
|--------------------------------------|---------------|---------------------|---------------------------------|-----------------|
| Las Piedritas, 1993 | 16,000 | ı | | |
| Manresa, 1954 | | | | 27.0 |
| Mata Acema, 1946 | 9,500-12,500 | | | |
| Mata Grande, 1946 | 5,700 | | | 26.1 |
| Morichal, 1958 | 3,312 | | | 10.2 |
| Mulata, 1941 | 16,500 | | | 28.8 |
| Muri, 1942 | 5,263 | | | |
| Onado, 1961 | 4,800-15,300 | | | 23.2 |
| Oritupano, 1950 | 7,657 | | | 18.4 |
| Oritupano Norte, 1954 | 8,750 | | | 23.4 |
| Oritupano Sur, 1954 | 9,680 | | | 17.7 |
| Orocual, 1953 | 5,300 | | | 38.0 |
| Pilon, 1937 | 4,200 | | | 10.7 |
| Pirital, 1958 | 450-12,000 | | | 29.9 |
| Quiriquire, 1928 | 7,000-7,200 | | | 33.1 |
| San Vicente | | | | |
| Santa Barbara, 1941 | 5,020-18,000 | | | 29.3 |
| Tacat, 1953 | 1,820-3,670 | | | 15.0 |
| Temblador, 1936 | 3,500-4,500 | | | 14.3 |
| Travieso, 1946 | 5,300 | | | 10.0 |
| Uracoa, 1934 | 4,750 | | | 10.8 |
| PDVSA/ZULIA | | | | |
| Alpuf, 1926 | 2,200-17,100 | | | 28.2 |
| Alturitas, 1948 | 11,400-18,500 | | | 29.7 |
| Ambrosio/La Rosa, | ,, | | | |
| 1917 | 2,337 | | | 33.3 |
| Bachaquero, 1930 | 1,800-14,185 | | | 22.4 |
| Barua, 1928 | 9,200-15,500 | | | 20.8 |
| Boscan, 1946 | 9,708 | | | 10.2 |
| Cabimas, 1917 | 2,200 | | | 22.4 |
| Centro, 1959 | 9,800-11,000 | | | 33.6 |
| Ceuta, 1956 | 16,380 | | | 30.2 |
| Garcia, 1928 | 5,400-17,500 | | | 22.5 |
| La Concepcion, 1953 | 3,148-8,000 | | | 22.5 |
| La Ensenada, 1984 | 15,400 | | | 36.5 |
| La Paz, 1925 | 4,268-8,000 | | | 27.6 |
| • Lago, 1959 | 11,450 | | | 34.3 |
| • Lagunillas, 1925 | 3,490 | | | 22.0 |
| • Lama, 1957 | 8,320 | | | 32.2 |
| Lamar, 1958 | 13,000 | | | 33.5 |
| Manueles, 1916 | 4,300 | | | 39.0 |
| Machigues, 1981 | 13,500 | | | 35.9 |
| Mara, 1928 | 5,240 | | | 26.6 |
| Mene Grande, 1914 | 4,130 | | | 21.7 |
| Motatan, 1952 | 8,400-15,900 | | | 22.0 |
| Punta Icotea La Rosa, 1917 | 2,337 | | | |
| Rosario, 1959 | 4,800 | | | 37.4 |
| San Jose, 1947 | 10,900-17,200 | | | 28.9 |
| San Julian, 1980 | 18,500 | | | 32.7 |
| Sibucara, 1948 | 3,000-15,000 | | | 37.0 |
| • Sur Lago, 1967 | 13,900-19,000 | | | 33.6 |
| • Tia Juana, 1926 | 8,300 | | | 25.0 |
| Totumos, 1980 | 11,900-14,000 | | | 30.0 |
| Urdaneta, 1955 | 11,477 _ | | | 13.5 |
| | | | | |

| Name of field, discovery date | Depth ft | , Producing oil wells | 1999 production avg. b/d | , °API gravity |
|--|----------------------|-----------------------|--------------------------------|-------------------|
| • Urdaneta, 1955 | 4,800 4,250-5,500 | | | 37.4 39.2 |
| Total Venezuela | | 15,580 | 2,786,700 | |
| VIET NAM | | | | |
| PETROVIETNAM P.I.C. | | | | |
| Bunga Kekwa | 7,000 | | 12,500 | 38.0 |
| Dai Hung, 1991Hong Ngoc | 200-330 | 4 | | 34.0 |
| • Rang Dong | | | 289,775 | |
| Rong (Dragon), 1983 | 120-160 | 4 | 2007.70 | 34.0 |
| White Tiger (Bach Ho), 1981 | 120-160 | 20 — | | 34.0 |
| Total Viet Nam | | 28 | 302,275 | |
| YEMEN (e) | | | | |
| CANADIAN OCCIDENTAL | | | | |
| Camaal, 1991 | 2,150 | 19 | | 30.0-33.0 |
| Haru, 1992 | 2,523 2,313 | 1 10 | | 28.0 25.0-30.0 |
| Hemiar, 1991 | 2,116 | 7 | | 18.0-22.0 |
| Nazaih, 1993 | 2,474 | 1 | | 30.0 |
| N. Camaal, 1992 | 2,152 2,497 | 2 | | 31.0-36.0 |
| Sunah, 1991 | 2,564 | 7 | | 30.0-34.0 |
| S. Hemiar, 1993 | 1,077 | 2 | | 19.0 |
| Tawila, 1992 | 2,656 | 9 1 | | 34.0 |
| W. Hemiar, 1994 | 1,766 | ı | | 19.0 |
| YEMEN HUNT OIL CO. | | 400 | | |
| Alif, 1984 | 5,750 8,000 | 109 9 | - 407,500 | 45.0 53.0 |
| Al-Sa'idah, 1989 | 7,000 | 1 | | 52.0 |
| Al-Shura, 1989 | 7,600 | 7 | | 45.0 |
| Al-Wihdah, 1990 | 7,500 | 2 | | 40.3 |
| Asa'ad Al-Kamil, 1987 Azal, 1987 | 6,100 6,850 | 54 30 | | 48.0 43.0 |
| Jabal Barat, 1996 | 7,370 | 1 | | 57.4 |
| Jabal Nuqum, 1988 | 3,780 | 1 | | 44.0 |
| Jabal Ras, 1995 | 6,220 | 1 4 | | 43.0 26.0 |
| Raydan, 1986 | 2,875 | 4 | | 20.0 |
| 1988 | 7,600 | 1 | | 40.0 |
| Shaharah, 1991 | 8,900 | 1 | | 40.5 |
| Suquatrah, 1995 Wadi Bana, 1992 | 8,345 6,670 | 1 16 _ | | 43.2 41.0 |
| | 0,070 | | | 41.0 |
| Total Yemen | | 299 | 407,500 | |

United Nations Convention on the Law of the Sea

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PREAMBLE

The States Parties to this Convention,

Prompted by the desire to settle, in a spirit of mutual understanding and cooperation, all issues relating to the law of the sea and aware of the historic significance of this Convention as an important contribution to the maintenance of peace, justice and progress for all peoples of the world,

Noting that developments since the United Nations Conferences on the Law of the Sea held at Geneva in 1958 and 1960 have accentuated the need for a new and generally acceptable Convention on the law of the sea,

Conscious that the problems of ocean space are closely interrelated and need to be considered as a whole,

Recognizing the desirability of establishing through this Convention, with due regard for the sovereignty of all States, a legal order for the seas and oceans which will facilitate international communication, and will promote the peaceful uses of the seas and oceans, the equitable and efficient utilization of their resources, the conservation of their living resources, and the study, protection and preservation of the marine environment,

Bearing in mind that the achievement of these goals will contribute to the realization of a just and equitable international economic order which takes into account the interests and needs of mankind as a whole and, in particular, the special interests and needs of developing countries, whether coastal or land-locked,

Desiring by this Convention to develop the principles embodied in resolution 2749 (XXV) of 17 December 1970 in which the General Assembly of the United Nations solemnly declared *inter alia* that the area of the seabed and ocean floor and the subsoil thereof, beyond the limits of national jurisdiction, as well as its resources, are the common heritage of mankind, the exploration and exploitation of which shall be carried out for the benefit of mankind as a whole, irrespective of the geographical location of States,

Believing that the codification and progressive development of the law of the sea achieved in this Convention will contribute to the strengthening of peace, security, cooperation and friendly relations among all nations in conformity with the principles of justice and equal rights and will promote the economic and social advancement of all peoples of the world, in accordance with the Purposes and Principles of the United Nations as set forth in the Charter,

Affirming that matters not regulated by this Convention continue to be governed by the rules and principles of general international law,

Have agreed as follows:

PART I INTRODUCTION

Article 1 Use of terms and scope

- 1. For the purposes of this Convention:
- (1) "Area" means the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction;
- (2) "Authority" means the International Seabed Authority;
 (3) "activities in the Area" means all activities of exploration for, and exploitation of, the resources of the Area;
- (4) "pollution of the marine environment" means the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities;
 - (5) (a) "dumping" means:
 - (i) any deliberate disposal of wastes or other matter from vessels, aircraft, platforms or other man-made structures at sea:
 - (ii) any deliberate disposal of vessels, aircraft, platforms or other man-made structures at sea:
 - (b) "dumping" does not include:
 - the disposal of wastes or other matter incidental to, or derived from the normal operations of vessels, aircraft, platforms or other man-made structures at sea and their equipment, other than wastes or other matter transported by or to vessels, aircraft, platforms or other man-made structures at sea, operating for the purpose of disposal of such matter or derived from the treatment of such wastes or other matter on such vessels, aircraft, platforms or structures;
 - (ii) placement of matter for a purpose other than the mere disposal thereof, provided that such placement is not contrary to the aims of this Convention.
- 2. (1) "States Parties" means States which have consented to be bound by this Convention and for which this Convention is in force.
- (2) This Convention applies mutatis mutandis to the entities referred to in article 305, paragraph l(b), (c), (d), (e) and (f), which become Parties to this Convention in accordance with the conditions relevant to each, and to that extent "States Parties" refers to those entities.

PART II

TERRITORIAL SEA AND CONTIGUOUS ZONE

SECTION 1. GENERAL PROVISIONS

Article 2 Legal status of the territorial sea, of the air space over the territorial sea and of its bed and subsoil

- 1. The sovereignty of a coastal State extends, beyond its land territory and internal waters and, in the case of an archipelagic State, its archipelagic waters, to an adjacent belt of sea, described as the territorial sea.
- 2. This sovereignty extends to the air space over the territorial sea as well as to its bed and subsoil.
- 3. The sovereignty over the territorial sea is exercised subject to this Convention and to other rules of international law.

SECTION 2. LIMITS OF THE TERRITORIAL SEA

Article 3 Breadth of the territorial sea

Every State has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles, measured from baselines determined in accordance with this Convention.

Article 4 Outer limit of the territorial sea

The outer limit of the territorial sea is the line every point of which is at a distance from the nearest point of the baseline equal to the breadth of the territorial sea.

Article 5 Normal baseline

Except where otherwise provided in this Convention, the normal baseline for measuring the breadth of the territorial sea is the low-water line along the coast as marked on large-scale charts officially recognized by the coastal State.

Article 6 Reefs

In the case of islands situated on atolls or of islands having fringing reefs, the baseline for measuring the breadth of the territorial sea is the seaward low-water line of the reef, as shown by the appropriate symbol on charts officially recognized by the coastal State.

Article 7 Straight baselines

- 1. In localities where the coastline is deeply indented and cut into, or if there is a fringe of islands along the coast in its immediate vicinity, the method of straight baselines joining appropriate points may be employed in drawing the baseline from which the breadth of the territorial sea is measured.
- 2. Where because of the presence of a delta and other natural conditions the coastline is highly unstable, the appropriate points may be selected along the furthest seaward extent of the low-water line and, notwithstanding subsequent regression of the low-water line, the straight baselines shall remain effective until changed by the coastal State in accordance with this Convention.
- 3. The drawing of straight baselines must not depart to any appreciable extent from the general direction of the coast, and the sea areas lying within the lines must be sufficiently closely linked to the land domain to be subject to the regime of internal waters.
- 4. Straight baselines shall not be drawn to and from low-tide elevations, unless lighthouses or similar installations which are permanently above sea level have been built on them or except in instances where the drawing of baselines to and from such elevations has received general international recognition.
- 5. Where the method of straight baselines is applicable under paragraph 1, account may be taken, in determining particular baselines, of economic interests peculiar to the region concerned, the reality and the importance of which are clearly evidenced by long usage.
- 6. The system of straight baselines may not be applied by a State in such a manner as to cut off the territorial sea of another State from the high seas or an exclusive economic zone.

Article 8 Internal waters

- 1. Except as provided in Part IV, waters on the landward side of the baseline of the territorial sea form part of the internal waters of the State.
- 2. Where the establishment of a straight baseline in accordance with the method set forth in article 7 has the effect of enclosing as internal waters areas which had not previously been considered as such, a right of innocent passage as provided in this Convention shall exist in those waters.

Article 9 Mouths of rivers

If a river flows directly into the sea, the baseline shall be a straight line across the mouth of the river between points on the low-water line of its banks.

Article 10 Bays

1. This article relates only to bays the coasts of which belong to a single State.

- 2. For the purposes of this Convention, a bay is a well-marked indentation whose penetration is in such proportion to the width of its mouth as to contain land-locked waters and constitute more than a mere curvature of the coast. An indentation shall not, however, be regarded as a bay unless its area is as large as, or larger than, that of the semi-circle whose diameter is a line drawn across the mouth of that indentation.
- 3. For the purpose of measurement, the area of an indentation is that lying between the low-water mark around the shore of the indentation and a line joining the low-water mark of its natural entrance points. Where, because of the presence of islands, an indentation has more than one mouth, the semi-circle shall be drawn on a line as long as the sum total of the lengths of the lines across the different mouths. Islands within an indentation shall be included as if they were part of the water area of the indentation.
- 4. If the distance between the low-water marks of the natural entrance points of a bay does not exceed 24 nautical miles, a closing line may be drawn between these two low-water marks, and the waters enclosed thereby shall be considered as internal waters.
- 5. Where the distance between the low-water marks of the natural entrance points of a bay exceeds 24 nautical miles, a straight baseline of 24 nautical miles shall be drawn within the bay in such a manner as to enclose the maximum area of water that is possible with a line of that length.
- 6. The foregoing provisions do not apply to so-called "historic" bays, or in any case where the system of straight baselines provided for in article 7 is applied.

Article 11 Ports

For the purpose of delimiting the territorial sea, the outermost permanent harbour works which form an integral part of the harbour system are regarded as forming part of the coast. Off-shore installations and artificial islands shall not be considered as permanent harbour works.

Article 12 Roadsteads

Roadsteads which are normally used for the loading, unloading and anchoring of ships, and which would otherwise be situated wholly or partly outside the outer limit of the territorial sea, are included in the territorial sea.

Article 13 Low-tide elevations

- 1. A low-tide elevation is a naturally formed area of land which is surrounded by and above water at low tide but submerged at high tide. Where a low-tide elevation is situated wholly or partly at a distance not exceeding the breadth of the territorial sea from the mainland or an island, the low-water line on that elevation may be used as the baseline for measuring the breadth of the territorial sea.
- 2. Where a low-tide elevation is wholly situated at a distance exceeding the breadth of the territorial sea from the mainland or an island, it has no territorial sea of its own.

Article 14 Combination of methods for determining baselines

The coastal State may determine baselines in turn by any of the methods provided for in the foregoing articles to suit different conditions.

Article 15 Delimitation of the territorial sea between States with opposite or adjacent coasts

Where the coasts of two States are opposite or adjacent to each other, neither of the two States is entitled, failing agreement between them to the contrary, to extend its territorial sea beyond the median line every point of which is equidistant from the nearest points on the baselines from which the breadth of the territorial seas of each of the two States is measured. The above provision does not apply, however, where it is necessary by reason of historic title or other special circumstances to delimit the territorial seas of the two States in a way which is at variance therewith.

Article 16 Charts and lists of geographical coordinates

- 1. The baselines for measuring the breadth of the territorial sea determined in accordance with articles 7, 9 and 10, or the limits derived therefrom, and the lines of delimitation drawn in accordance with articles 12 and 15 shall be shown on charts of a scale or scales adequate for ascertaining their position. Alternatively, a list of geographical coordinates of points, specifying the geodetic datum, may be substituted.
- 2. The coastal State shall give due publicity to such charts or lists of geographical coordinates and shall deposit a copy of each such chart or list with the Secretary-General of the United Nations.

SECTION 3. INNOCENT PASSAGE IN THE TERRITORIAL SEA

SUBSECTION A. RULES APPLICABLE TO ALL SHIPS

Article 17 Right of innocent passage

Subject to this Convention, ships of all States, whether coastal or land-locked, enjoy the right of innocent passage through the territorial sea.

Article 18 Meaning of passage

- 1. Passage means navigation through the territorial sea for the purpose of:
 - (a) traversing that sea without entering internal waters or calling at a roadstead or port facility outside internal waters; or
 - (b) proceeding to or from internal waters or a call at such roadstead or port facility.
- 2. Passage shall be continuous and expeditious. However, passage includes stopping and anchoring, but only in so far as the same are incidental

to ordinary navigation or are rendered necessary by *force majeure* or distress or for the purpose of rendering assistance to persons, ships or aircraft in danger or distress.

Article 19 Meaning of innocent passage

- 1. Passage is innocent so long as it is not prejudicial to the peace, good order or security of the coastal State. Such passage shall take place in conformity with this Convention and with other rules of international law.
- 2. Passage of a foreign ship shall be considered to be prejudicial to the peace, good order or security of the coastal State if in the territorial sea it engages in any of the following activities:
 - (a) any threat or use of force against the sovereignty, territorial integrity or political independence of the coastal State, or in any other manner in violation of the principles of international law embodied in the Charter of the United Nations;
 - (b) any exercise or practice with weapons of any kind;
 - (c) any act aimed at collecting information to the prejudice of the defence or security of the coastal State;
 - (d) any act of propaganda aimed at affecting the defence or security of the coastal State;
 - (e) the launching, landing or taking on board of any aircraft;
 - (f) the launching, landing or taking on board of any military device;
 - (g) the loading or unloading of any commodity, currency or person contrary to the customs, fiscal, immigration or sanitary laws and regulations of the coastal State;
 - (h) any act of wilful and serious pollution contrary to this Convention;
 - (i) any fishing activities;
 - (j) the carrying out of research or survey activities;
 - (k) any act aimed at interfering with any systems of communication or any other facilities or installations of the coastal State;
 - (l) any other activity not having a direct bearing on passage.

Article 20 Submarines and other underwater vehicles

In the territorial sea, submarines and other underwater vehicles are required to navigate on the surface and to show their flag.

Article 21

Laws and regulations of the coastal State relating to innocent passage

- 1. The coastal State may adopt laws and regulations, in conformity with the provisions of this Convention and other rules of international law, relating to innocent passage through the territorial sea, in respect of all or any of the following:
 - (a) the safety of navigation and the regulation of maritime traffic;
 - (b) the protection of navigational aids and facilities and other facilities or installations;
 - (c) the protection of cables and pipelines;

- (d) the conservation of the living resources of the sea;
- (e) the prevention of infringement of the fisheries laws and regulations of the coastal State;
- (f) the preservation of the environment of the coastal State and the prevention, reduction and control of pollution thereof;
- (g) marine scientific research and hydrographic surveys;
- (h) the prevention of infringement of the customs, fiscal, immigration or sanitary laws and regulations of the coastal State.
- 2. Such laws and regulations shall not apply to the design, construction, manning or equipment of foreign ships unless they are giving effect to generally accepted international rules or standards.
- 3. The coastal State shall give due publicity to all such laws and regulations.
- 4. Foreign ships exercising the right of innocent passage through the territorial sea shall comply with all such laws and regulations and all generally accepted international regulations relating to the prevention of collisions at sea.

Article 22

Sea lanes and traffic separation schemes in the territorial sea

- 1. The coastal State may, where necessary having regard to the safety of navigation, require foreign ships exercising the right of innocent passage through its territorial sea to use such sea lanes and traffic separation schemes as it may designate or prescribe for the regulation of the passage of ships.
- 2. In particular, tankers, nuclear-powered ships and ships carrying nuclear or other inherently dangerous or noxious substances or materials may be required to confine their passage to such sea lanes.
- 3. In the designation of sea lanes and the prescription of traffic separation schemes under this article, the coastal State shall take into account:
 - (a) the recommendations of the competent international organization;
 - (b) any channels customarily used for international navigation;
 - (c) the special characteristics of particular ships and channels; and
 - (d) the density of traffic.
- 4. The coastal State shall clearly indicate such sea lanes and traffic separation schemes on charts to which due publicity shall be given.

Article 23

Foreign nuclear-powered ships and ships carrying nuclear or other inherently dangerous or noxious substances

Foreign nuclear-powered ships and ships carrying nuclear or other inherently dangerous or noxious substances shall, when exercising the right of innocent passage through the territorial sea, carry documents and observe special precautionary measures established for such ships by international agreements.

Article 24 Duties of the coastal State

- 1. The coastal State shall not hamper the innocent passage of foreign ships through the territorial sea except in accordance with this Convention. In particular, in the application of this Convention or of any laws or regulations adopted in conformity with this Convention, the coastal State shall not:
 - (a) impose requirements on foreign ships which have the practical effect of denying or impairing the right of innocent passage; or
 - (b) discriminate in form or in fact against the ships of any State or against ships carrying cargoes to, from or on behalf of any State
- 2. The coastal State shall give appropriate publicity to any danger to navigation, of which it has knowledge, within its territorial sea.

Article 25 Rights of protection of the coastal State

- 1. The coastal State may take the necessary steps in its territorial sea to prevent passage which is not innocent.
- 2. In the case of ships proceeding to internal waters or a call at a port facility outside internal waters, the coastal State also has the right to take the necessary steps to prevent any breach of the conditions to which admission of those ships to internal waters or such a call is subject.
- 3. The coastal State may, without discrimination in form or in fact among foreign ships, suspend temporarily in specified areas of its territorial sea the innocent passage of foreign ships if such suspension is essential for the protection of its security, including weapons exercises. Such suspension shall take effect only after having been duly published.

Article 26 Charges which may be levied upon foreign ships

- 1. No charge may be levied upon foreign ships by reason only of their passage through the territorial sea.
- 2. Charges may be levied upon a foreign ship passing through the territorial sea as payment only for specific services rendered to the ship. These charges shall be levied without discrimination.

SUBSECTION B. RULES APPLICABLE TO MERCHANT SHIPS AND GOVERNMENT SHIPS OPERATED FOR COMMERCIAL PURPOSES

Article 27 Criminal jurisdiction on board a foreign ship

- 1. The criminal jurisdiction of the coastal State should not be exercised on board a foreign ship passing through the territorial sea to arrest any person or to conduct any investigation in connection with any crime committed on board the ship during its passage, save only in the following cases:
 - (a) if the consequences of the crime extend to the coastal State;

- (b) if the crime is of a kind to disturb the peace of the country or the good order of the territorial sea;
- (c) if the assistance of the local authorities has been requested by the master of the ship or by a diplomatic agent or consular officer of the flag State; or
- (d) if such measures are necessary for the suppression of illicit traffic in narcotic drugs or psychotropic substances.
- 2. The above provisions do not affect the right of the coastal State to take any steps authorized by its laws for the purpose of an arrest or investigation on board a foreign ship passing through the territorial sea after leaving internal waters.
- 3. In the cases provided for in paragraphs 1 and 2, the coastal State shall, if the master so requests, notify a diplomatic agent or consular officer of the flag State before taking any steps, and shall facilitate contact between such agent or officer and the ship's crew. In cases of emergency this notification may be communicated while the measures are being taken.
- 4. In considering whether or in what manner an arrest should be made, the local authorities shall have due regard to the interests of navigation.
- 5. Except as provided in Part XII or with respect to violations of laws and regulations adopted in accordance with Part V, the coastal State may not take any steps on board a foreign ship passing through the territorial sea to arrest any person or to conduct any investigation in connection with any crime committed before the ship entered the territorial sea, if the ship, proceeding from a foreign port, is only passing through the territorial sea without entering internal waters.

Article 28 Civil jurisdiction in relation to foreign ships

- 1. The coastal State should not stop or divert a foreign ship passing through the territorial sea for the purpose of exercising civil jurisdiction in relation to a person on board the ship.
- 2. The coastal State may not levy execution against or arrest the ship for the purpose of any civil proceedings, save only in respect of obligations or liabilities assumed or incurred by the ship itself in the course or for the purpose of its voyage through the waters of the coastal State.
- 3. Paragraph 2 is without prejudice to the right of the coastal State, in accordance with its laws, to levy execution against or to arrest, for the purpose of any civil proceedings, a foreign ship lying in the territorial sea, or passing through the territorial sea after leaving internal waters.

SUBSECTION C. RULES APPLICABLE TO WARSHIPS AND OTHER GOVERNMENT SHIPS OPERATED FOR NON-COMMERCIAL PURPOSES

Article 29 Definition of warships

For the purposes of this Convention, "warship" means a ship belonging to the armed forces of a State bearing the external marks distinguishing such ships of its nationality, under the command of an officer duly commissioned by the government of the State and whose name appears in the appropriate service list or its equivalent, and manned by a crew which is under regular armed forces discipline.

Article 30 Non-compliance by warships with the laws and regulations of the coastal State

If any warship does not comply with the laws and regulations of the coastal State concerning passage through the territorial sea and disregards any request for compliance therewith which is made to it, the coastal State may require it to leave the territorial sea immediately.

Article 31
Responsibility of the flag State for damage caused by a warship or other government ship operated for non-commercial purposes

The flag State shall bear international responsibility for any loss or damage to the coastal State resulting from the non-compliance by a warship or other government ship operated for non-commercial purposes with the laws and regulations of the coastal State concerning passage through the territorial sea or with the provisions of this Convention or other rules of international law.

Article 32
Immunities of warships and other government ships operated for non-commercial purposes

With such exceptions as are contained in subsection A and in articles 30 and 31, nothing in this Convention affects the immunities of warships and other government ships operated for non-commercial purposes.

SECTION 4. CONTIGUOUS ZONE

Article 33 Contiguous zone

- 1. In a zone contiguous to its territorial sea, described as the contiguous zone, the coastal State may exercise the control necessary to:
 - (a) prevent infringement of its customs, fiscal, immigration or sanitary laws and regulations within its territory or territorial sea:
 - (b) punish infringement of the above laws and regulations committed within its territory or territorial sea.
- 2. The contiguous zone may not extend beyond 24 nautical miles from the baselines from which the breadth of the territorial sea is measured.

PART III

STRAITS USED FOR INTERNATIONAL NAVIGATION

SECTION 1. GENERAL PROVISIONS

Article 34

Legal status of waters forming straits used for international navigation

- 1. The regime of passage through straits used for international navigation established in this Part shall not in other respects affect the legal status of the waters forming such straits or the exercise by the States bordering the straits of their sovereignty or jurisdiction over such waters and their air space, bed and subsoil.
- 2. The sovereignty or jurisdiction of the States bordering the straits is exercised subject to this Part and to other rules of international law.

Article 35 Scope of this Part

Nothing in this Part affects:

- (a) any areas of internal waters within a strait, except where the establishment of a straight baseline in accordance with the method set forth in article 7 has the effect of enclosing as internal waters areas which had not previously been considered as such;
- (b) the legal status of the waters beyond the territorial seas of States bordering straits as exclusive economic zones or high seas; or
- (c) the legal regime in straits in which passage is regulated in whole or in part by long-standing international conventions in force specifically relating to such straits.

Article 36

High seas routes or routes through exclusive economic zones through straits used for international navigation

This Part does not apply to a strait used for international navigation if there exists through the strait a route through the high seas or through an exclusive economic zone of similar convenience with respect to navigational and hydrographical characteristics; in such routes, the other relevant Parts of this Convention, including the provisions regarding the freedoms of navigation and overflight, apply.

SECTION 2. TRANSIT PASSAGE

Article 37
Scope of this section

This section applies to straits which are used for international navigation between one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone.

Article 38 Right of transit passage

- 1. In straits referred to in article 37, all ships and aircraft enjoy the right of transit passage, which shall not be impeded; except that, if the strait is formed by an island of a State bordering the strait and its mainland, transit passage shall not apply if there exists seaward of the island a route through the high seas or through an exclusive economic zone of similar convenience with respect to navigational and hydrographical characteristics.
- 2. Transit passage means the exercise in accordance with this Part of the freedom of navigation and overflight solely for the purpose of continuous and expeditious transit of the strait between one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone. However, the requirement of continuous and expeditious transit does not preclude passage through the strait for the purpose of entering, leaving or returning from a State bordering the strait, subject to the conditions of entry to that State.
- 3. Any activity which is not an exercise of the right of transit passage through a strait remains subject to the other applicable provisions of this Convention.

Article 39 Duties of ships and aircraft during transit passage

- 1. Ships and aircraft, while exercising the right of transit passage, shall:
 - (a) proceed without delay through or over the strait;
 - (b) refrain from any threat or use of force against the sovereignty, territorial integrity or political independence of States bordering the strait, or in any other manner in violation of the principles of international law embodied in the Charter of the United Nations:
 - (c) refrain from any activities other than those incident to their normal modes of continuous and expeditious transit unless rendered necessary by *force majeure* or by distress;
 - (d) comply with other relevant provisions of this Part.
- 2. Ships in transit passage shall:
 - (a) comply with generally accepted international regulations, procedures and practices for safety at sea, including the International Regulations for Preventing Collisions at Sea;
 - (b) comply with generally accepted international regulations, procedures and practices for the prevention, reduction and control of pollution from ships.
- 3. Aircraft in transit passage shall:
 - (a) observe the Rules of the Air established by the International Civil Aviation Organization as they apply to civil aircraft; state aircraft will normally comply with such safety measures and will at all times operate with due regard for the safety of navigation;
 - (b) at all times monitor the radio frequency assigned by the competent internationally designated air traffic control authority or the appropriate international distress radio frequency.

Article 40 Research and survey activities

During transit passage, foreign ships, including marine scientific research and hydrographic survey ships, may not carry out any research or survey activities without the prior authorization of the States bordering straits.

Article 41 Sea lanes and traffic separation schemes in straits used for international navigation

- 1. In conformity with this Part, States bordering straits may designate sea lanes and prescribe traffic separation schemes for navigation in straits where necessary to promote the safe passage of ships.
- 2. Such States may, when circumstances require, and after giving due publicity thereto, substitute other sea lanes or traffic separation schemes for any sea lanes or traffic separation schemes previously designated or prescribed by them.
- 3. Such sea lanes and traffic separation schemes shall conform to generally accepted international regulations.
- 4. Before designating or substituting sea lanes or prescribing or substituting traffic separation schemes, States bordering straits shall refer proposals to the competent international organization with a view to their adoption. The organization may adopt only such sea lanes and traffic separation schemes as may be agreed with the States bordering the straits, after which the States may designate, prescribe or substitute them.
- 5. In respect of a strait where sea lanes or traffic separation schemes through the waters of two or more States bordering the strait are being proposed, the States concerned shall cooperate in formulating proposals in consultation with the competent international organization.
- 6. States bordering straits shall clearly indicate all sea lanes and traffic separation schemes designated or prescribed by them on charts to which due publicity shall be given.
- 7. Ships in transit passage shall respect applicable sea lanes and traffic separation schemes established in accordance with this article.

Article 42 Laws and regulations of States bordering straits relating to transit passage

- 1. Subject to the provisions of this section, States bordering straits may adopt laws and regulations relating to transit passage through straits, in respect of all or any of the following:
 - (a) the safety of navigation and the regulation of maritime traffic, as provided in article 41;
 - (b) the prevention, reduction and control of pollution, by giving effect to applicable international regulations regarding the discharge of oil, oily wastes and other noxious substances in the strait;
 - (c) with respect to fishing vessels, the prevention of fishing, including the stowage of fishing gear;

- (d) the loading or unloading of any commodity, currency or person in contravention of the customs, fiscal, immigration or sanitary laws and regulations of States bordering straits.
- 2. Such laws and regulations shall not discriminate in form or in fact among foreign ships or in their application have the practical effect of denying, hampering or impairing the right of transit passage as defined in this section.
- 3. States bordering straits shall give due publicity to all such laws and regulations.
- 4. Foreign ships exercising the right of transit passage shall comply with such laws and regulations.
- 5. The flag State of a ship or the State of registry of an aircraft entitled to sovereign immunity which acts in a manner contrary to such laws and regulations or other provisions of this Part shall bear international responsibility for any loss or damage which results to States bordering straits.

Article 43 Navigational and safety aids and other improvements and the prevention, reduction and control of pollution

User States and States bordering a strait should by agreement cooperate:

- (a) in the establishment and maintenance in a strait of necessary navigational and safety aids or other improvements in aid of international navigation; and
- (b) for the prevention, reduction and control of pollution from ships.

Article 44 Duties of States bordering straits

States bordering straits shall not hamper transit passage and shall give appropriate publicity to any danger to navigation or overflight within or over the strait of which they have knowledge. There shall be no suspension of transit passage.

SECTION 3. INNOCENT PASSAGE

Article 45 Innocent passage

- 1. The regime of innocent passage, in accordance with Part II, section 3, shall apply in straits used for international navigation:
 - (a) excluded from the application of the regime of transit passage under article 38, paragraph 1; or
 - (b) between a part of the high seas or an exclusive economic zone and the territorial sea of a foreign State.
- There shall be no suspension of innocent passage through such straits.

PART IV

ARCHIPELAGIC STATES

Article 46 Use of terms

For the purposes of this Convention:

- (a) "archipelagic State" means a State constituted wholly by one or more archipelagos and may include other islands;
- (b) "archipelago" means a group of islands, including parts of islands, interconnecting waters and other natural features which are so closely interrelated that such islands, waters and other natural features form an intrinsic geographical, economic and political entity, or which historically have been regarded as such.

Article 47 Archipelagic baselines

- 1. An archipelagic State may draw straight archipelagic baselines joining the outermost points of the outermost islands and drying reefs of the archipelago provided that within such baselines are included the main islands and an area in which the ratio of the area of the water to the area of the land, including atolls, is between 1 to 1 and 9 to 1.
- 2. The length of such baselines shall not exceed 100 nautical miles, except that up to 3 per cent of the total number of baselines enclosing any archipelago may exceed that length, up to a maximum length of 125 nautical miles.
- 3. The drawing of such baselines shall not depart to any appreciable extent from the general configuration of the archipelago.
- 4. Such baselines shall not be drawn to and from low-tide elevations, unless lighthouses or similar installations which are permanently above sea level have been built on them or where a low-tide elevation is situated wholly or partly at a distance not exceeding the breadth of the territorial sea from the nearest island.
- 5. The system of such baselines shall not be applied by an archipelagic State in such a manner as to cut off from the high seas or the exclusive economic zone the territorial sea of another State.
- 6. If a part of the archipelagic waters of an archipelagic State lies between two parts of an immediately adjacent neighbouring State, existing rights and all other legitimate interests which the latter State has traditionally exercised in such waters and all rights stipulated by agreement between those States shall continue and be respected.
- 7. For the purpose of computing the ratio of water to land under paragraph l, land areas may include waters lying within the fringing reefs of islands and atolls, including that part of a steep-sided oceanic plateau which is enclosed or nearly enclosed by a chain of limestone islands and drying reefs lying on the perimeter of the plateau.
- 8. The baselines drawn in accordance with this article shall be shown on charts of a scale or scales adequate for ascertaining their position. Alternatively, lists of geographical coordinates of points, specifying the geodetic datum, may be substituted.

9. The archipelagic State shall give due publicity to such charts or lists of geographical coordinates and shall deposit a copy of each such chart or list with the Secretary-General of the United Nations.

Article 48

Measurement of the breadth of the territorial sea, the contiguous zone, the exclusive economic zone and the continental shelf

The breadth of the territorial sea, the contiguous zone, the exclusive economic zone and the continental shelf shall be measured from archipelagic baselines drawn in accordance with article 47.

Article 49 Legal status of archipelagic waters, of the air space over archipelagic waters and of their bed and subsoil

- 1. The sovereignty of an archipelagic State extends to the waters enclosed by the archipelagic baselines drawn in accordance with article 47, described as archipelagic waters, regardless of their depth or distance from the coast.
- 2. This sovereignty extends to the air space over the archipelagic waters, as well as to their bed and subsoil, and the resources contained therein.
 - 3. This sovereignty is exercised subject to this Part.
- 4. The regime of archipelagic sea lanes passage established in this Part shall not in other respects affect the status of the archipelagic waters, including the sea lanes, or the exercise by the archipelagic State of its sovereignty over such waters and their air space, bed and subsoil, and the resources contained therein.

Article 50 Delimitation of internal waters

Within its archipelagic waters, the archipelagic State may draw closing lines for the delimitation of internal waters, in accordance with articles 9, 10 and 11.

Article 51 Existing agreements, traditional fishing rights and existing submarine cables

- 1. Without prejudice to article 49, an archipelagic State shall respect existing agreements with other States and shall recognize traditional fishing rights and other legitimate activities of the immediately adjacent neighbouring States in certain areas falling within archipelagic waters. The terms and conditions for the exercise of such rights and activities, including the nature, the extent and the areas to which they apply, shall, at the request of any of the States concerned, be regulated by bilateral agreements between them. Such rights shall not be transferred to or shared with third States or their nationals.
- 2. An archipelagic State shall respect existing submarine cables laid by other States and passing through its waters without making a landfall. An archipelagic State shall permit the maintenance and replacement of such

cables upon receiving due notice of their location and the intention to repair or replace them.

Article 52 Right of innocent passage

- 1. Subject to article 53 and without prejudice to article 50, ships of all States enjoy the right of innocent passage through archipelagic waters, in accordance with Part II, section 3.
- 2. The archipelagic State may, without discrimination in form or in fact among foreign ships, suspend temporarily in specified areas of its archipelagic waters the innocent passage of foreign ships if such suspension is essential for the protection of its security. Such suspension shall take effect only after having been duly published.

Article 53 Right of archipelagic sea lanes passage

- 1. An archipelagic State may designate sea lanes and air routes thereabove, suitable for the continuous and expeditious passage of foreign ships and aircraft through or over its archipelagic waters and the adjacent territorial sea.
- 2. All ships and aircraft enjoy the right of archipelagic sea lanes passage in such sea lanes and air routes.
- 3. Archipelagic sea lanes passage means the exercise in accordance with this Convention of the rights of navigation and overflight in the normal mode solely for the purpose of continuous, expeditious and unobstructed transit between one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone.
- 4. Such sea lanes and air routes shall traverse the archipelagic waters and the adjacent territorial sea and shall include all normal passage routes used as routes for international navigation or overflight through or over archipelagic waters and, within such routes, so far as ships are concerned, all normal navigational channels, provided that duplication of routes of similar convenience between the same entry and exit points shall not be necessary.
- 5. Such sea lanes and air routes shall be defined by a series of continuous axis lines from the entry points of passage routes to the exit points. Ships and aircraft in archipelagic sea lanes passage shall not deviate more than 25 nautical miles to either side of such axis lines during passage, provided that such ships and aircraft shall not navigate closer to the coasts than 10 per cent of the distance between the nearest points on islands bordering the sea lane.
- 6. An archipelagic State which designates sea lanes under this article may also prescribe traffic separation schemes for the safe passage of ships through narrow channels in such sea lanes.
- 7. An archipelagic State may, when circumstances require, after giving due publicity thereto, substitute other sea lanes or traffic separation schemes for any sea lanes or traffic separation schemes previously designated or prescribed by it.
- 8. Such sea lanes and traffic separation schemes shall conform to generally accepted international regulations.
- 9. In designating or substituting sea lanes or prescribing or substituting traffic separation schemes, an archipelagic State shall refer proposals to the

competent international organization with a view to their adoption. The organization may adopt only such sea lanes and traffic separation schemes as may be agreed with the archipelagic State, after which the archipelagic State may designate, prescribe or substitute them.

- 10. The archipelagic State shall clearly indicate the axis of the sea lanes and the traffic separation schemes designated or prescribed by it on charts to which due publicity shall be given.
- 11. Ships in archipelagic sea lanes passage shall respect applicable sea lanes and traffic separation schemes established in accordance with this article.
- 12. If an archipelagic State does not designate sea lanes or air routes, the right of archipelagic sea lanes passage may be exercised through the routes normally used for international navigation.

Article 54

Duties of ships and aircraft during their passage, research and survey activities, duties of the archipelagic State and laws and regulations of the archipelagic State relating to archipelagic sea lanes passage

Articles 39, 40, 42 and 44 apply *mutatis mutandis* to archipelagic sea lanes passage.

PART V EXCLUSIVE ECONOMIC ZONE

Article 55
Specific legal regime of the exclusive economic zone

The exclusive economic zone is an area beyond and adjacent to the territorial sea, subject to the specific legal regime established in this Part, under which the rights and jurisdiction of the coastal State and the rights and freedoms of other States are governed by the relevant provisions of this Convention.

Article 56 Rights, jurisdiction and duties of the coastal State in the exclusive

economic zone

- 1. In the exclusive economic zone, the coastal State has:
 - (a) sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds;
 - (b) Jurisdiction as provided for in the relevant provisions of this Convention with regard to:
 - the establishment and use of artificial islands, installations and structures;

- (ii) marine scientific research;
- (iii) the protection and preservation of the marine environment;
- (c) other rights and duties provided for in this Convention.
- 2. In exercising its rights and performing its duties under this Convention in the exclusive economic zone, the coastal State shall have due regard to the rights and duties of other States and shall act in a manner compatible with the provisions of this Convention.
- 3. The rights set out in this article with respect to the seabed and subsoil shall be exercised in accordance with Part VI.

Article 57 Breadth of the exclusive economic zone

The exclusive economic zone shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.

Article 58 Rights and duties of other States in the exclusive economic zone

- 1. In the exclusive economic zone, all States, whether coastal or land-locked, enjoy, subject to the relevant provisions of this Convention, the freedoms referred to in article 87 of navigation and overflight and of the laying of submarine cables and pipelines, and other internationally lawful uses of the sea related to these freedoms, such as those associated with the operation of ships, aircraft and submarine cables and pipelines, and compatible with the other provisions of this Convention.
- 2. Articles 88 to 115 and other pertinent rules of international law apply to the exclusive economic zone in so far as they are not incompatible with this Part.
- 3. In exercising their rights and performing their duties under this Convention in the exclusive economic zone, States shall have due regard to the rights and duties of the coastal State and shall comply with the laws and regulations adopted by the coastal State in accordance with the provisions of this Convention and other rules of international law in so far as they are not incompatible with this Part.

Article 59 Basis for the resolution of conflicts regarding the attribution of rights and jurisdiction in the exclusive economic zone

In cases where this Convention does not attribute rights or jurisdiction to the coastal State or to other States within the exclusive economic zone, and a conflict arises between the interests of the coastal State and any other State or States, the conflict should be resolved on the basis of equity and in the light of all the relevant circumstances, taking into account the respective importance of the interests involved to the parties as well as to the international community as a whole.

Article 60 Artificial islands, installations and structures in the exclusive economic zone

- 1. In the exclusive economic zone, the coastal State shall have the exclusive right to construct and to authorize and regulate the construction, operation and use of:
 - (a) artificial islands;
 - (b) installations and structures for the purposes provided for in article 56 and other economic purposes;
 - (c) installations and structures which may interfere with the exercise of the rights of the coastal State in the zone.
- 2. The coastal State shall have exclusive jurisdiction over such artificial islands, installations and structures, including jurisdiction with regard to customs, fiscal, health, safety and immigration laws and regulations.
- 3. Due notice must be given of the construction of such artificial islands, installations or structures, and permanent means for giving warning of their presence must be maintained. Any installations or structures which are abandoned or disused shall be removed to ensure safety of navigation, taking into account any generally accepted international standards established in this regard by the competent international organization. Such removal shall also have due regard to fishing, the protection of the marine environment and the rights and duties of other States. Appropriate publicity shall be given to the depth, position and dimensions of any installations or structures not entirely removed.
- 4. The coastal State may, where necessary, establish reasonable safety zones around such artificial islands, installations and structures in which it may take appropriate measures to ensure the safety both of navigation and of the artificial islands, installations and structures.
- 5. The breadth of the safety zones shall be determined by the coastal State, taking into account applicable international standards. Such zones shall be designed to ensure that they are reasonably related to the nature and function of the artificial islands, installations or structures, and shall not exceed a distance of 500 metres around them, measured from each point of their outer edge, except as authorized by generally accepted international standards or as recommended by the competent international organization. Due notice shall be given of the extent of safety zones.
- 6. All ships must respect these safety zones and shall comply with generally accepted international standards regarding navigation in the vicinity of artificial islands, installations, structures and safety zones.
- 7. Artificial islands, installations and structures and the safety zones around them may not be established where interference may be caused to the use of recognized sea lanes essential to international navigation.
- 8. Artificial islands, installations and structures do not possess the status of islands. They have no territorial sea of their own, and their presence does not affect the delimitation of the territorial sea, the exclusive economic zone or the continental shelf.

Article 61 Conservation of the living resources

1. The coastal State shall determine the allowable catch of the living resources in its exclusive economic zone.

- 2. The coastal State, taking into account the best scientific evidence available to it, shall ensure through proper conservation and management measures that the maintenance of the living resources in the exclusive economic zone is not endangered by over-exploitation. As appropriate, the coastal State and competent international organizations, whether subregional, regional or global, shall cooperate to this end.
- 3. Such measures shall also be designed to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors, including the economic needs of coastal fishing communities and the special requirements of developing States, and taking into account fishing patterns, the interdependence of stocks and any generally recommended international minimum standards, whether subregional, regional or global.
- 4. In taking such measures the coastal State shall take into consideration the effects on species associated with or dependent upon harvested species with a view to maintaining or restoring populations of such associated or dependent species above levels at which their reproduction may become seriously threatened.
- 5. Available scientific information, catch and fishing effort statistics, and other data relevant to the conservation of fish stocks shall be contributed and exchanged on a regular basis through competent international organizations, whether subregional, regional or global, where appropriate and with participation by all States concerned, including States whose nationals are allowed to fish in the exclusive economic zone.

Article 62 Utilization of the living resources

- 1. The coastal State shall promote the objective of optimum utilization of the living resources in the exclusive economic zone without prejudice to article 61.
- 2. The coastal State shall determine its capacity to harvest the living resources of the exclusive economic zone. Where the coastal State does not have the capacity to harvest the entire allowable catch, it shall, through agreements or other arrangements and pursuant to the terms, conditions, laws and regulations referred to in paragraph 4, give other States access to the surplus of the allowable catch, having particular regard to the provisions of articles 69 and 70, especially in relation to the developing States mentioned therein
- 3. In giving access to other States to its exclusive economic zone under this article, the coastal State shall take into account all relevant factors, including, *inter alia*, the significance of the living resources of the area to the economy of the coastal State concerned and its other national interests, the provisions of articles 69 and 70, the requirements of developing States in the subregion or region in harvesting part of the surplus and the need to minimize economic dislocation in States whose nationals have habitually fished in the zone or which have made substantial efforts in research and identification of stocks.
- 4. Nationals of other States fishing in the exclusive economic zone shall comply with the conservation measures and with the other terms and conditions established in the laws and regulations of the coastal State. These laws and regulations shall be consistent with this Convention and may relate, *inter alia*, to the following:

- (a) licensing of fishermen, fishing vessels and equipment, including payment of fees and other forms of remuneration, which, in the case of developing coastal States, may consist of adequate compensation in the field of financing, equipment and technology relating to the fishing industry;
- (b) determining the species which may be caught, and fixing quotas of catch, whether in relation to particular stocks or groups of stocks or catch per vessel over a period of time or to the catch by nationals of any State during a specified period;
- (c) regulating seasons and areas of fishing, the types, sizes and amount of gear, and the types, sizes and number of fishing vessels that may be used;
- (d) fixing the age and size of fish and other species that may be caught;
- (e) specifying information required of fishing vessels, including catch and effort statistics and vessel position reports;
- (f) requiring, under the authorization and control of the coastal State, the conduct of specified fisheries research programmes and regulating the conduct of such research, including the sampling of catches, disposition of samples and reporting of associated scientific data;
- (g) the placing of observers or trainees on board such vessels by the coastal State;
- (h) the landing of all or any part of the catch by such vessels in the ports of the coastal State;
- terms and conditions relating to joint ventures or other cooperative arrangements;
- requirements for the training of personnel and the transfer of fisheries technology, including enhancement of the coastal State's capability of undertaking fisheries research;
- (k) enforcement procedures.
- 5. Coastal States shall give due notice of conservation and management laws and regulations.

Article 63

Stocks occurring within the exclusive economic zones of two or more coastal States or both within the exclusive economic zone and in an area beyond and adjacent to it

- 1. Where the same stock or stocks of associated species occur within the exclusive economic zones of two or more coastal States, these States shall seek, either directly or through appropriate subregional or regional organizations, to agree upon the measures necessary to coordinate and ensure the conservation and development of such stocks without prejudice to the other provisions of this Part.
- 2. Where the same stock or stocks of associated species occur both within the exclusive economic zone and in an area beyond and adjacent to the zone, the coastal State and the States fishing for such stocks in the adjacent area shall seek, either directly or through appropriate subregional or regional organizations, to agree upon the measures necessary for the conservation of these stocks in the adjacent area.

Highly migratory species

- 1. The coastal State and other States whose nationals fish in the region for the highly migratory species listed in Annex I shall cooperate directly or through appropriate international organizations with a view to ensuring conservation and promoting the objective of optimum utilization of such species throughout the region, both within and beyond the exclusive economic zone. In regions for which no appropriate international organization exists, the coastal State and other States whose nationals harvest these species in the region shall cooperate to establish such an organization and participate in its work.
- 2. The provisions of paragraph 1 apply in addition to the other provisions of this Part.

Article 65 Marine mammals

Nothing in this Part restricts the right of a coastal State or the competence of an international organization, as appropriate, to prohibit, limit or regulate the exploitation of marine mammals more strictly than provided for in this Part. States shall cooperate with a view to the conservation of marine mammals and in the case of cetaceans shall in particular work through the appropriate international organizations for their conservation, management and study.

Article 66 Anadromous stocks

- 1. States in whose rivers anadromous stocks originate shall have the primary interest in and responsibility for such stocks.
- 2. The State of origin of anadromous stocks shall ensure their conservation by the establishment of appropriate regulatory measures for fishing in all waters landward of the outer limits of its exclusive economic zone and for fishing provided for in paragraph 3(b). The State of origin may, after consultations with the other States referred to in paragraphs 3 and 4 fishing these stocks, establish total allowable catches for stocks originating in its rivers.
 - 3. (a) Fisheries for anadromous stocks shall be conducted only in waters landward of the outer limits of exclusive economic zones, except in cases where this provision would result in economic dislocation for a State other than the State of origin. With respect to such fishing beyond the outer limits of the exclusive economic zone, States concerned shall maintain consultations with a view to achieving agreement on terms and conditions of such fishing giving due regard to the conservation requirements and the needs of the State of origin in respect of these stocks.
 - (b) The State of origin shall cooperate in minimizing economic dislocation in such other States fishing these stocks, taking into account the normal catch and the mode of operations of such States, and all the areas in which such fishing has occurred.
 - (c) States referred to in subparagraph (b), participating by agreement with the State of origin in measures to renew

- anadromous stocks, particularly by expenditures for that purpose, shall be given special consideration by the State of origin in the harvesting of stocks originating in its rivers.
- (d) Enforcement of regulations regarding anadromous stocks beyond the exclusive economic zone shall be by agreement between the State of origin and the other States concerned.
- 4. In cases where anadromous stocks migrate into or through the waters landward of the outer limits of the exclusive economic zone of a State other than the State of origin, such State shall cooperate with the State of origin with regard to the conservation and management of such stocks.
- 5. The State of origin of anadromous stocks and other States fishing these stocks shall make arrangements for the implementation of the provisions of this article, where appropriate, through regional organizations.

Article 67 Catadromous species

- 1. A coastal State in whose waters catadromous species spend the greater part of their life cycle shall have responsibility for the management of these species and shall ensure the ingress and egress of migrating fish.
- 2. Harvesting of catadromous species shall be conducted only in waters landward of the outer limits of exclusive economic zones. When conducted in exclusive economic zones, harvesting shall be subject to this article and the other provisions of this Convention concerning fishing in these zones.
- 3. In cases where catadromous fish migrate through the exclusive economic zone of another State, whether as juvenile or maturing fish, the management, including harvesting, of such fish shall be regulated by agreement between the State mentioned in paragraph 1 and the other State concerned. Such agreement shall ensure the rational management of the species and take into account the responsibilities of the State mentioned in paragraph 1 for the maintenance of these species.

Article 68 Sedentary species

This Part does not apply to sedentary species as defined in article 77, paragraph 4.

Article 69 Right of land-locked States

- 1. Land-locked States shall have the right to participate, on an equitable basis, in the exploitation of an appropriate part of the surplus of the living resources of the exclusive economic zones of coastal States of the same subregion or region, taking into account the relevant economic and geographical circumstances of all the States concerned and in conformity with the provisions of this article and of articles 61 and 62.
- 2. The terms and modalities of such participation shall be established by the States concerned through bilateral, subregional or regional agreements taking into account, *inter alia*:
 - (a) the need to avoid effects detrimental to fishing communities or fishing industries of the coastal State;

- (b) the extent to which the land-locked State, in accordance with the provisions of this article, is participating or is entitled to participate under existing bilateral, subregional or regional agreements in the exploitation of living resources of the exclusive economic zones of other coastal States;
- (c) the extent to which other land-locked States and geographically disadvantaged States are participating in the exploitation of the living resources of the exclusive economic zone of the coastal State and the consequent need to avoid a particular burden for any single coastal State or a part of it;
- (d) the nutritional needs of the populations of the respective States.
- 3. When the harvesting capacity of a coastal State approaches a point which would enable it to harvest the entire allowable catch of the living resources in its exclusive economic zone, the coastal State and other States concerned shall cooperate in the establishment of equitable arrangements on a bilateral, subregional or regional basis to allow for participation of developing land-locked States of the same subregion or region in the exploitation of the living resources of the exclusive economic zones of coastal States of the subregion or region, as may be appropriate in the circumstances and on terms satisfactory to all parties. In the implementation of this provision the factors mentioned in paragraph 2 shall also be taken into account.
- 4. Developed land-locked States shall, under the provisions of this article, be entitled to participate in the exploitation of living resources only in the exclusive economic zones of developed coastal States of the same subregion or region having regard to the extent to which the coastal State, in giving access to other States to the living resources of its exclusive economic zone, has taken into account the need to minimize detrimental effects on fishing communities and economic dislocation in States whose nationals have habitually fished in the zone.
- 5. The above provisions are without prejudice to arrangements agreed upon in subregions or regions where the coastal States may grant to land-locked States of the same subregion or region equal or preferential rights for the exploitation of the living resources in the exclusive economic zones.

Article 70 Right of geographically disadvantaged States

- 1. Geographically disadvantaged States shall have the right to participate, on an equitable basis, in the exploitation of an appropriate part of the surplus of the living resources of the exclusive economic zones of coastal States of the same subregion or region, taking into account the relevant economic and geographical circumstances of all the States concerned and in conformity with the provisions of this article and of articles 61 and 62.
- 2. For the purposes of this Part, "geographically disadvantaged States" means coastal States, including States bordering enclosed or semi-enclosed seas, whose geographical situation makes them dependent upon the exploitation of the living resources of the exclusive economic zones of other States in the subregion or region for adequate supplies of fish for the nutritional purposes of their populations or parts thereof, and coastal States which can claim no exclusive economic zones of their own.

- 3. The terms and modalities of such participation shall be established by the States concerned through bilateral, subregional or regional agreements taking into account, *inter alia*:
 - (a) the need to avoid effects detrimental to fishing communities or fishing industries of the coastal State;
 - (b) the extent to which the geographically disadvantaged State, in accordance with the provisions of this article, is participating or is entitled to participate under existing bilateral, subregional or regional agreements in the exploitation of living resources of the exclusive economic zones of other coastal States;
 - (c) the extent to which other geographically disadvantaged States and land-locked States are participating in the exploitation of the living resources of the exclusive economic zone of the coastal State and the consequent need to avoid a particular burden for any single coastal State or a part of it;
 - (d) the nutritional needs of the populations of the respective States.
- 4. When the harvesting capacity of a coastal State approaches a point which would enable it to harvest the entire allowable catch of the living resources in its exclusive economic zone, the coastal State and other States concerned shall cooperate in the establishment of equitable arrangements on a bilateral, subregional or regional basis to allow for participation of developing geographically disadvantaged States of the same subregion or region in the exploitation of the living resources of the exclusive economic zones of coastal States of the subregion or region, as may be appropriate in the circumstances and on terms satisfactory to all parties. In the implementation of this provision the factors mentioned in paragraph 3 shall also be taken into account.
- 5. Developed geographically disadvantaged States shall, under the provisions of this article, be entitled to participate in the exploitation of living resources only in the exclusive economic zones of developed coastal States of the same subregion or region having regard to the extent to which the coastal State, in giving access to other States to the living resources of its exclusive economic zone, has taken into account the need to minimize detrimental effects on fishing communities and economic dislocation in States whose nationals have habitually fished in the zone.
- 6. The above provisions are without prejudice to arrangements agreed upon in subregions or regions where the coastal States may grant to geographically disadvantaged States of the same subregion or region equal or preferential rights for the exploitation of the living resources in the exclusive economic zones.

Article 71 Non-applicability of articles 69 and 70

The provisions of articles 69 and 70 do not apply in the case of a coastal State whose economy is overwhelmingly dependent on the exploitation of the living resources of its exclusive economic zone.

Article 72 Restrictions on transfer of rights

1. Rights provided under articles 69 and 70 to exploit living resources shall not be directly or indirectly transferred to third States or their nationals

by lease or licence, by establishing joint ventures or in any other manner which has the effect of such transfer unless otherwise agreed by the States concerned.

2. The foregoing provision does not preclude the States concerned from obtaining technical or financial assistance from third States or international organizations in order to facilitate the exercise of the rights pursuant to articles 69 and 70, provided that it does not have the effect referred to in paragraph 1.

Article 73 Enforcement of laws and regulations of the coastal State

- 1. The coastal State may, in the exercise of its sovereign rights to explore, exploit, conserve and manage the living resources in the exclusive economic zone, take such measures, including boarding, inspection, arrest and judicial proceedings, as may be necessary to ensure compliance with the laws and regulations adopted by it in conformity with this Convention.
- 2. Arrested vessels and their crews shall be promptly released upon the posting of reasonable bond or other security.
- 3. Coastal State penalties for violations of fisheries laws and regulations in the exclusive economic zone may not include imprisonment, in the absence of agreements to the contrary by the States concerned, or any other form of corporal punishment.
- 4. In cases of arrest or detention of foreign vessels the coastal State shall promptly notify the flag State, through appropriate channels, of the action taken and of any penalties subsequently imposed.

Article 74 Delimitation of the exclusive economic zone between States with opposite or adjacent coasts

- 1. The delimitation of the exclusive economic zone between States with opposite or adjacent coasts shall be effected by agreement on the basis of international law, as referred to in Article 38 of the Statute of the International Court of Justice, in order to achieve an equitable solution.
- 2. If no agreement can be reached within a reasonable period of time, the States concerned shall resort to the procedures provided for in Part XV.
- 3. Pending agreement as provided for in paragraph 1, the States concerned, in a spirit of understanding and cooperation, shall make every effort to enter into provisional arrangements of a practical nature and, during this transitional period, not to jeopardize or hamper the reaching of the final agreement. Such arrangements shall be without prejudice to the final delimitation.
- 4. Where there is an agreement in force between the States concerned, questions relating to the delimitation of the exclusive economic zone shall be determined in accordance with the provisions of that agreement.

Article 75 Charts and lists of geographical coordinates

1. Subject to this Part, the outer limit lines of the exclusive economic zone and the lines of delimitation drawn in accordance with article 74 shall be shown on charts of a scale or scales adequate for ascertaining their

position. Where appropriate, lists of geographical coordinates of points, specifying the geodetic datum, may be substituted for such outer limit lines or lines of delimitation.

2. The coastal State shall give due publicity to such charts or lists of geographical coordinates and shall deposit a copy of each such chart or list with the Secretary-General of the United Nations.

PART VI CONTINENTAL SHELF

Article 76
Definition of the continental shelf

- 1. The continental shelf of a coastal State comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.
- 2. The continental shelf of a coastal State shall not extend beyond the limits provided for in paragraphs 4 to 6.
- 3. The continental margin comprises the submerged prolongation of the land mass of the coastal State, and consists of the seabed and subsoil of the shelf, the slope and the rise. It does not include the deep ocean floor with its oceanic ridges or the subsoil thereof.
 - 4. (a) For the purposes of this Convention, the coastal State shall establish the outer edge of the continental margin wherever the margin extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by either:
 - a line delineated in accordance with paragraph 7 by reference to the outermost fixed points at each of which the thickness of sedimentary rocks is at least 1 per cent of the shortest distance from such point to the foot of the continental slope; or
 - (ii) a line delineated in accordance with paragraph 7 by reference to fixed points not more than 60 nautical miles from the foot of the continental slope.
 - (b) In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in the gradient at its base.
- 5. The fixed points comprising the line of the outer limits of the continental shelf on the seabed, drawn in accordance with paragraph 4 (a)(i) and (ii), either shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured or shall not exceed 100 nautical miles from the 2,500 metre isobath, which is a line connecting the depth of 2,500 metres.
- 6. Notwithstanding the provisions of paragraph 5, on submarine ridges, the outer limit of the continental shelf shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured. This paragraph does not apply to submarine elevations that are natural

components of the continental margin, such as its plateaux, rises, caps, banks and spurs.

- 7. The coastal State shall delineate the outer limits of its continental shelf, where that shelf extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by straight lines not exceeding 60 nautical miles in length, connecting fixed points, defined by coordinates of latitude and longitude.
- 8. Information on the limits of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured shall be submitted by the coastal State to the Commission on the Limits of the Continental Shelf set up under Annex II on the basis of equitable geographical representation. The Commission shall make recommendations to coastal States on matters related to the establishment of the outer limits of their continental shelf. The limits of the shelf established by a coastal State on the basis of these recommendations shall be final and binding.
- 9. The coastal State shall deposit with the Secretary-General of the United Nations charts and relevant information, including geodetic data, permanently describing the outer limits of its continental shelf. The Secretary-General shall give due publicity thereto.
- 10. The provisions of this article are without prejudice to the question of delimitation of the continental shelf between States with opposite or adjacent coasts.

Article 77 Rights of the coastal State over the continental shelf

- 1. The coastal State exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources.
- 2. The rights referred to in paragraph 1 are exclusive in the sense that if the coastal State does not explore the continental shelf or exploit its natural resources, no one may undertake these activities without the express consent of the coastal State.
- 3. The rights of the coastal State over the continental shelf do not depend on occupation, effective or notional, or on any express proclamation.
- 4. The natural resources referred to in this Part consist of the mineral and other non-living resources of the seabed and subsoil together with living organisms belonging to sedentary species, that is to say, organisms which, at the harvestable stage, either are immobile on or under the seabed or are unable to move except in constant physical contact with the seabed or the subsoil.

Article 78 Legal status of the superjacent waters and air space and the rights and freedoms of other States

- 1. The rights of the coastal State over the continental shelf do not affect the legal status of the superjacent waters or of the air space above those waters.
- 2. The exercise of the rights of the coastal State over the continental shelf must not infringe or result in any unjustifiable interference with navigation and other rights and freedoms of other States as provided for in this Convention.

Article 79 Submarine cables and pipelines on the continental shelf

- 1. All States are entitled to lay submarine cables and pipelines on the continental shelf, in accordance with the provisions of this article.
- 2. Subject to its right to take reasonable measures for the exploration of the continental shelf, the exploitation of its natural resources and the prevention, reduction and control of pollution from pipelines, the coastal State may not impede the laying or maintenance of such cables or pipelines.
- 3. The delineation of the course for the laying of such pipelines on the continental shelf is subject to the consent of the coastal State.
- 4. Nothing in this Part affects the right of the coastal State to establish conditions for cables or pipelines entering its territory or territorial sea, or its jurisdiction over cables and pipelines constructed or used in connection with the exploration of its continental shelf or exploitation of its resources or the operations of artificial islands, installations and structures under its jurisdiction.
- 5. When laying submarine cables or pipelines, States shall have due regard to cables or pipelines already in position. In particular, possibilities of repairing existing cables or pipelines shall not be prejudiced.

Article 80

Artificial islands, installations and structures on the continental shelf

Article 60 applies *mutatis mutandis* to artificial islands, installations and structures on the continental shelf.

Article 81 Drilling on the continental shelf

The coastal State shall have the exclusive right to authorize and regulate drilling on the continental shelf for all purposes.

Article 82

Payments and contributions with respect to the exploitation of the continental shelf beyond 200 nautical miles

- 1. The coastal State shall make payments or contributions in kind in respect of the exploitation of the non-living resources of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.
- 2. The payments and contributions shall be made annually with respect to all production at a site after the first five years of production at that site. For the sixth year, the rate of payment or contribution shall be 1 per cent of the value or volume of production at the site. The rate shall increase by 1 per cent for each subsequent year until the twelfth year and shall remain at 7 per cent thereafter. Production does not include resources used in connection with exploitation.
- 3. A developing State which is a net importer of a mineral resource produced from its continental shelf is exempt from making such payments or contributions in respect of that mineral resource.
- 4. The payments or contributions shall be made through the Authority, which shall distribute them to States Parties to this Convention, on the basis

of equitable sharing criteria, taking into account the interests and needs of developing States, particularly the least developed and the land-locked among them.

Article 83 Delimitation of the continental shelf between States with opposite or adjacent coasts

- 1. The delimitation of the continental shelf between States with opposite or adjacent coasts shall be effected by agreement on the basis of international law, as referred to in Article 38 of the Statute of the International Court of Justice, in order to achieve an equitable solution.
- 2. If no agreement can be reached within a reasonable period of time, the States concerned shall resort to the procedures provided for in Part XV.
- 3. Pending agreement as provided for in paragraph 1, the States concerned, in a spirit of understanding and cooperation, shall make every effort to enter into provisional arrangements of a practical nature and, during this transitional period, not to jeopardize or hamper the reaching of the final agreement. Such arrangements shall be without prejudice to the final delimitation.
- 4. Where there is an agreement in force between the States concerned, questions relating to the delimitation of the continental shelf shall be determined in accordance with the provisions of that agreement.

Article 84 Charts and lists of geographical coordinates

- 1. Subject to this Part, the outer limit lines of the continental shelf and the lines of delimitation drawn in accordance with article 83 shall be shown on charts of a scale or scales adequate for ascertaining their position. Where appropriate, lists of geographical coordinates of points, specifying the geodetic datum, may be substituted for such outer limit lines or lines of delimitation.
- 2. The coastal State shall give due publicity to such charts or lists of geographical coordinates and shall deposit a copy of each such chart or list with the Secretary-General of the United Nations and, in the case of those showing the outer limit lines of the continental shelf, with the Secretary-General of the Authority.

Article 85 Tunnelling

This Part does not prejudice the right of the coastal State to exploit the subsoil by means of tunnelling, irrespective of the depth of water above the subsoil.

PART VII HIGH SEAS

SECTION 1. GENERAL PROVISIONS

Article 86
Application of the provisions of this Part

The provisions of this Part apply to all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a State, or in the archipelagic waters of an archipelagic State. This article does not entail any abridgement of the freedoms enjoyed by all States in the exclusive economic zone in accordance with article 58.

Article 87 Freedom of the high seas

- 1. The high seas are open to all States, whether coastal or land-locked. Freedom of the high seas is exercised under the conditions laid down by this Convention and by other rules of international law. It comprises, *inter alia*, both for coastal and land-locked States:
 - (a) freedom of navigation;
 - (b) freedom of overflight;
 - (c) freedom to lay submarine cables and pipelines, subject to Part VI;
 - (d) freedom to construct artificial islands and other installations permitted under international law, subject to Part VI;
 - (e) freedom of fishing, subject to the conditions laid down in section 2;
 - (f) freedom of scientific research, subject to Parts VI and XIII.
- 2. These freedoms shall be exercised by all States with due regard for the interests of other States in their exercise of the freedom of the high seas, and also with due regard for the rights under this Convention with respect to activities in the Area.

Article 88 Reservation of the high seas for peaceful purposes

The high seas shall be reserved for peaceful purposes.

Article 89
Invalidity of claims of sovereignty over the high seas

No State may validly purport to subject any part of the high seas to its sovereignty.

Article 90 Right of navigation

Every State, whether coastal or land-locked, has the right to sail ships flying its flag on the high seas.

Article 91 Nationality of ships

- 1. Every State shall fix the conditions for the grant of its nationality to ships, for the registration of ships in its territory, and for the right to fly its flag. Ships have the nationality of the State whose flag they are entitled to fly. There must exist a genuine link between the State and the ship.
- 2. Every State shall issue to ships to which it has granted the right to fly its flag documents to that effect.

Article 92 Status of ships

- 1. Ships shall sail under the flag of one State only and, save in exceptional cases expressly provided for in international treaties or in this Convention, shall be subject to its exclusive jurisdiction on the high seas. A ship may not change its flag during a voyage or while in a port of call, save in the case of a real transfer of ownership or change of registry.
- 2. A ship which sails under the flags of two or more States, using them according to convenience, may not claim any of the nationalities in question with respect to any other State, and may be assimilated to a ship without nationality.

Article 93

Ships flying the flag of the United Nations, its specialized agencies and the International Atomic Energy Agency

The preceding articles do not prejudice the question of ships employed on the official service of the United Nations, its specialized agencies or the International Atomic Energy Agency, flying the flag of the organization.

Article 94 Duties of the flag State

- 1. Every State shall effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag.
 - 2. In particular every State shall:
 - (a) maintain a register of ships containing the names and particulars of ships flying its flag, except those which are excluded from generally accepted international regulations on account of their small size; and
 - (b) assume jurisdiction under its internal law over each ship flying its flag and its master, officers and crew in respect of administrative, technical and social matters concerning the ship.
- 3. Every State shall take such measures for ships flying its flag as are necessary to ensure safety at sea with regard, *inter alia*, to:
 - (a) the construction, equipment and seaworthiness of ships;
 - (b) the manning of ships, labour conditions and the training of crews, taking into account the applicable international instruments;
 - (c) the use of signals, the maintenance of communications and the prevention of collisions.
 - 4. Such measures shall include those necessary to ensure:

- (a) that each ship, before registration and thereafter at appropriate intervals, is surveyed by a qualified surveyor of ships, and has on board such charts, nautical publications and navigational equipment and instruments as are appropriate for the safe navigation of the ship;
- (b) that each ship is in the charge of a master and officers who possess appropriate qualifications, in particular in seamanship, navigation, communications and marine engineering, and that the crew is appropriate in qualification and numbers for the type, size, machinery and equipment of the ship;
- (c) that the master, officers and, to the extent appropriate, the crew are fully conversant with and required to observe the applicable international regulations concerning the safety of life at sea, the prevention of collisions, the prevention, reduction and control of marine pollution, and the maintenance of communications by radio.
- 5. In taking the measures called for in paragraphs 3 and 4 each State is required to conform to generally accepted international regulations, procedures and practices and to take any steps which may be necessary to secure their observance.
- 6. A State which has clear grounds to believe that proper jurisdiction and control with respect to a ship have not been exercised may report the facts to the flag State. Upon receiving such a report, the flag State shall investigate the matter and, if appropriate, take any action necessary to remedy the situation.
- 7. Each State shall cause an inquiry to be held by or before a suitably qualified person or persons into every marine casualty or incident of navigation on the high seas involving a ship flying its flag and causing loss of life or serious injury to nationals of another State or serious damage to ships or installations of another State or to the marine environment. The flag State and the other State shall cooperate in the conduct of any inquiry held by that other State into any such marine casualty or incident of navigation.

Article 95 Immunity of warships on the high seas

Warships on the high seas have complete immunity from the jurisdiction of any State other than the flag State.

Article 96

Immunity of ships used only on government non-commercial service

Ships owned or operated by a State and used only on government non-commercial service shall, on the high seas, have complete immunity from the jurisdiction of any State other than the flag State.

Article 97 Penal jurisdiction in matters of collision or any other incident of navigation

1. In the event of a collision or any other incident of navigation concerning a ship on the high seas, involving the penal or disciplinary responsibility of the master or of any other person in the service of the ship,

no penal or disciplinary proceedings may be instituted against such person except before the judicial or administrative authorities either of the flag State or of the State of which such person is a national.

- 2. In disciplinary matters, the State which has issued a master's certificate or a certificate of competence or licence shall alone be competent, after due legal process, to pronounce the withdrawal of such certificates, even if the holder is not a national of the State which issued them.
- 3. No arrest or detention of the ship, even as a measure of investigation, shall be ordered by any authorities other than those of the flag State.

Article 98 Duty to render assistance

- 1. Every State shall require the master of a ship flying its flag, in so far as he can do so without serious danger to the ship, the crew or the passengers:
 - (a) to render assistance to any person found at sea in danger of being lost;
 - (b) to proceed with all possible speed to the rescue of persons in distress, if informed of their need of assistance, in so far as such action may reasonably be expected of him;
 - (c) after a collision, to render assistance to the other ship, its crew and its passengers and, where possible, to inform the other ship of the name of his own ship, its port of registry and the nearest port at which it will call.
- 2. Every coastal State shall promote the establishment, operation and maintenance of an adequate and effective search and rescue service regarding safety on and over the sea and, where circumstances so require, by way of mutual regional arrangements cooperate with neighbouring States for this purpose.

Article 99 Prohibition of the transport of slaves

Every State shall take effective measures to prevent and punish the transport of slaves in ships authorized to fly its flag and to prevent the unlawful use of its flag for that purpose. Any slave taking refuge on board any ship, whatever its flag, shall *ipso facto* be free.

Article 100 Duty to cooperate in the repression of piracy

All States shall cooperate to the fullest possible extent in the repression of piracy on the high seas or in any other place outside the jurisdiction of any State.

Article 101
Definition of piracy

Piracy consists of any of the following acts:

- (a) any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft, and directed:
 - (i) on the high seas, against another ship or aircraft, or against persons or property on board such ship or aircraft;
 - (ii) against a ship, aircraft, persons or property in a place outside the jurisdiction of any State;
- (b) any act of voluntary participation in the operation of a ship or of an aircraft with knowledge of facts making it a pirate ship or aircraft:
- (c) any act of inciting or of intentionally facilitating an act described in subparagraph (a) or (b).

Article 102

Piracy by a warship, government ship or government aircraft whose crew has mutinied

The acts of piracy, as defined in article 101, committed by a warship, government ship or government aircraft whose crew has mutinied and taken control of the ship or aircraft are assimilated to acts committed by a private ship or aircraft.

Article 103 Definition of a pirate ship or aircraft

A ship or aircraft is considered a pirate ship or aircraft if it is intended by the persons in dominant control to be used for the purpose of committing one of the acts referred to in article 101. The same applies if the ship or aircraft has been used to commit any such act, so long as it remains under the control of the persons guilty of that act.

Article 104 Retention or loss of the nationality of a pirate ship or aircraft

A ship or aircraft may retain its nationality although it has become a pirate ship or aircraft. The retention or loss of nationality is determined by the law of the State from which such nationality was derived.

Article 105 Seizure of a pirate ship or aircraft

On the high seas, or in any other place outside the jurisdiction of any State, every State may seize a pirate ship or aircraft, or a ship or aircraft taken by piracy and under the control of pirates, and arrest the persons and seize the property on board. The courts of the State which carried out the seizure may decide upon the penalties to be imposed, and may also determine the action to be taken with regard to the ships, aircraft or property, subject to the rights of third parties acting in good faith.

Article 106 Liability for seizure without adequate grounds

Where the seizure of a ship or aircraft on suspicion of piracy has been effected without adequate grounds, the State making the seizure shall be liable to the State the nationality of which is possessed by the ship or aircraft for any loss or damage caused by the seizure.

Article 107

Ships and aircraft which are entitled to seize on account of piracy

A seizure on account of piracy may be carried out only by warships or military aircraft, or other ships or aircraft clearly marked and identifiable as being on government service and authorized to that effect.

Article 108

Illicit traffic in narcotic drugs or psychotropic substances

- 1. All States shall cooperate in the suppression of illicit traffic in narcotic drugs and psychotropic substances engaged in by ships on the high seas contrary to international conventions.
- 2. Any State which has reasonable grounds for believing that a ship flying its flag is engaged in illicit traffic in narcotic drugs or psychotropic substances may request the cooperation of other States to suppress such traffic.

Article 109 Unauthorized broadcasting from the high seas

- 1. All States shall cooperate in the suppression of unauthorized broadcasting from the high seas.
- 2. For the purposes of this Convention, "unauthorized broadcasting" means the transmission of sound radio or television broadcasts from a ship or installation on the high seas intended for reception by the general public contrary to international regulations, but excluding the transmission of distress calls.
- 3. Any person engaged in unauthorized broadcasting may be prosecuted before the court of:
 - (a) the flag State of the ship;
 - (b) the State of registry of the installation:
 - (c) the State of which the person is a national;
 - (d) any State where the transmissions can be received; or
 - (e) any State where authorized radio communication is suffering interference.
- 4. On the high seas, a State having jurisdiction in accordance with paragraph 3 may, in conformity with article 110, arrest any person or ship engaged in unauthorized broadcasting and seize the broadcasting apparatus.

Article 110 Right of visit

- 1. Except where acts of interference derive from powers conferred by treaty, a warship which encounters on the high seas a foreign ship, other than a ship entitled to complete immunity in accordance with articles 95 and 96, is not justified in boarding it unless there is reasonable ground for suspecting that:
 - (a) the ship is engaged in piracy;
 - (b) the ship is engaged in the slave trade;
 - (c) the ship is engaged in unauthorized broadcasting and the flag State of the warship has jurisdiction under article 109;
 - (d) the ship is without nationality; or
 - (e) though flying a foreign flag or refusing to show its flag, the ship is, in reality, of the same nationality as the warship.
- 2. In the cases provided for in paragraph 1, the warship may proceed to verify the ship's right to fly its flag. To this end, it may send a boat under the command of an officer to the suspected ship. If suspicion remains after the documents have been checked, it may proceed to a further examination on board the ship, which must be carried out with all possible consideration.
- 3. If the suspicions prove to be unfounded, and provided that the ship boarded has not committed any act justifying them, it shall be compensated for any loss or damage that may have been sustained.
 - 4. These provisions apply *mutatis mutandis* to military aircraft.
- 5. These provisions also apply to any other duly authorized ships or aircraft clearly marked and identifiable as being on government service.

Article 111 Right of hot pursuit

- 1. The hot pursuit of a foreign ship may be undertaken when the competent authorities of the coastal State have good reason to believe that the ship has violated the laws and regulations of that State. Such pursuit must be commenced when the foreign ship or one of its boats is within the internal waters, the archipelagic waters, the territorial sea or the contiguous zone of the pursuing State, and may only be continued outside the territorial sea or the contiguous zone if the pursuit has not been interrupted. It is not necessary that, at the time when the foreign ship within the territorial sea or the contiguous zone receives the order to stop, the ship giving the order should likewise be within the territorial sea or the contiguous zone. If the foreign ship is within a contiguous zone, as defined in article 33, the pursuit may only be undertaken if there has been a violation of the rights for the protection of which the zone was established.
- 2. The right of hot pursuit shall apply *mutatis mutandis* to violations in the exclusive economic zone or on the continental shelf, including safety zones around continental shelf installations, of the laws and regulations of the coastal State applicable in accordance with this Convention to the exclusive economic zone or the continental shelf, including such safety zones.
- 3. The right of hot pursuit ceases as soon as the ship pursued enters the territorial sea of its own State or of a third State.
- 4. Hot pursuit is not deemed to have begun unless the pursuing ship has satisfied itself by such practicable means as may be available that the ship pursued or one of its boats or other craft working as a team and using the ship

pursued as a mother ship is within the limits of the territorial sea, or, as the case may be, within the contiguous zone or the exclusive economic zone or above the continental shelf. The pursuit may only be commenced after a visual or auditory signal to stop has been given at a distance which enables it to be seen or heard by the foreign ship.

- 5. The right of hot pursuit may be exercised only by warships or military aircraft, or other ships or aircraft clearly marked and identifiable as being on government service and authorized to that effect.
 - 6. Where hot pursuit is effected by an aircraft:
 - (a) the provisions of paragraphs 1 to 4 shall apply *mutatis mutandis*;
 - (b) the aircraft giving the order to stop must itself actively pursue the ship until a ship or another aircraft of the coastal State, summoned by the aircraft, arrives to take over the pursuit, unless the aircraft is itself able to arrest the ship. It does not suffice to justify an arrest outside the territorial sea that the ship was merely sighted by the aircraft as an offender or suspected offender, if it was not both ordered to stop and pursued by the aircraft itself or other aircraft or ships which continue the pursuit without interruption.
- 7. The release of a ship arrested within the jurisdiction of a State and escorted to a port of that State for the purposes of an inquiry before the competent authorities may not be claimed solely on the ground that the ship, in the course of its voyage, was escorted across a portion of the exclusive economic zone or the high seas, if the circumstances rendered this necessary.
- 8. Where a ship has been stopped or arrested outside the territorial sea in circumstances which do not justify the exercise of the right of hot pursuit, it shall be compensated for any loss or damage that may have been thereby sustained.

Article 112 Right to lay submarine cables and pipelines

- 1. All States are entitled to lay submarine cables and pipelines on the bed of the high seas beyond the continental shelf.
 - 2. Article 79, paragraph 5, applies to such cables and pipelines.

Article 113 Breaking or injury of a submarine cable or pipeline

Every State shall adopt the laws and regulations necessary to provide that the breaking or injury by a ship flying its flag or by a person subject to its jurisdiction of a submarine cable beneath the high seas done wilfully or through culpable negligence, in such a manner as to be liable to interrupt or obstruct telegraphic or telephonic communications, and similarly the breaking or injury of a submarine pipeline or high-voltage power cable, shall be a punishable offence. This provision shall apply also to conduct calculated or likely to result in such breaking or injury. However, it shall not apply to any break or injury caused by persons who acted merely with the legitimate object of saving their lives or their ships, after having taken all necessary precautions to avoid such break or injury.

Article 114

Breaking or injury by owners of a submarine cable or pipeline of another submarine cable or pipeline

Every State shall adopt the laws and regulations necessary to provide that, if persons subject to its jurisdiction who are the owners of a submarine cable or pipeline beneath the high seas, in laying or repairing that cable or pipeline, cause a break in or injury to another cable or pipeline, they shall bear the cost of the repairs.

Article 115 Indemnity for loss incurred in avoiding injury to a submarine cable or pipeline

Every State shall adopt the laws and regulations necessary to ensure that the owners of ships who can prove that they have sacrificed an anchor, a net or any other fishing gear, in order to avoid injuring a submarine cable or pipeline, shall be indemnified by the owner of the cable or pipeline, provided that the owner of the ship has taken all reasonable precautionary measures beforehand.

SECTION 2. CONSERVATION AND MANAGEMENT OF THE LIVING RESOURCES OF THE HIGH SEAS

Article 116
Right to fish on the high seas

All States have the right for their nationals to engage in fishing on the high seas subject to:

- (a) their treaty obligations;
- (b) the rights and duties as well as the interests of coastal States provided for, *inter alia*, in article 63, paragraph 2, and articles 64 to 67; and
- (c) the provisions of this section.

Article 117

Duty of States to adopt with respect to their nationals measures for the conservation of the living resources of the high seas

All States have the duty to take, or to cooperate with other States in taking, such measures for their respective nationals as may be necessary for the conservation of the living resources of the high seas.

Article 118 Cooperation of States in the conservation and management of living resources

States shall cooperate with each other in the conservation and management of living resources in the areas of the high seas. States whose nationals exploit identical living resources, or different living resources in the same area, shall enter into negotiations with a view to taking the measures necessary for the conservation of the living resources concerned. They shall,

as appropriate, cooperate to establish subregional or regional fisheries organizations to this end.

Article 119 Conservation of the living resources of the high seas

- 1. In determining the allowable catch and establishing other conservation measures for the living resources in the high seas, States shall:
 - (a) take measures which are designed, on the best scientific evidence available to the States concerned, to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors, including the special requirements of developing States, and taking into account fishing patterns, the interdependence of stocks and any generally recommended international minimum standards, whether subregional, regional or global;
 - (b) take into consideration the effects on species associated with or dependent upon harvested species with a view to maintaining or restoring populations of such associated or dependent species above levels at which their reproduction may become seriously threatened.
- 2. Available scientific information, catch and fishing effort statistics, and other data relevant to the conservation of fish stocks shall be contributed and exchanged on a regular basis through competent international organizations, whether subregional, regional or global, where appropriate and with participation by all States concerned.
- 3. States concerned shall ensure that conservation measures and their implementation do not discriminate in form or in fact against the fishermen of any State.

Article 120 Marine mammals

Article 65 also applies to the conservation and management of marine mammals in the high seas.

PART VIII REGIME OF ISLANDS

Article 121 Regime of islands

- 1. An island is a naturally formed area of land, surrounded by water, which is above water at high tide.
- 2. Except as provided for in paragraph 3, the territorial sea, the contiguous zone, the exclusive economic zone and the continental shelf of an island are determined in accordance with the provisions of this Convention applicable to other land territory.
- 3. Rocks which cannot sustain human habitation or economic life of their own shall have no exclusive economic zone or continental shelf.

PART IX

ENCLOSED OR SEMI-ENCLOSED SEAS

Article 122 Definition

For the purposes of this Convention, "enclosed or semi-enclosed sea" means a gulf, basin or sea surrounded by two or more States and connected to another sea or the ocean by a narrow outlet or consisting entirely or primarily of the territorial seas and exclusive economic zones of two or more coastal States.

Article 123

Cooperation of States bordering enclosed or semi-enclosed seas

States bordering an enclosed or semi-enclosed sea should cooperate with each other in the exercise of their rights and in the performance of their duties under this Convention. To this end they shall endeavour, directly or through an appropriate regional organization:

- (a) to coordinate the management, conservation, exploration and exploitation of the living resources of the sea;
- (b) to coordinate the implementation of their rights and duties with respect to the protection and preservation of the marine environment;
- (c) to coordinate their scientific research policies and undertake where appropriate joint programmes of scientific research in the area;
- (d) to invite, as appropriate, other interested States or international organizations to cooperate with them in furtherance of the provisions of this article.

PART X

RIGHT OF ACCESS OF LAND-LOCKED STATES TO AND FROM THE SEA AND FREEDOM OF TRANSIT

Article 124 Use of terms

- 1. For the purposes of this Convention:
 - (a) "land-locked State" means a State which has no sea-coast;
 - (b) "transit State" means a State, with or without a sea-coast, situated between a land-locked State and the sea, through whose territory traffic in transit passes;
 - (c) "traffic in transit" means transit of persons, baggage, goods and means of transport across the territory of one or more transit States, when the passage across such territory, with or without trans-shipment, warehousing, breaking bulk or change in the mode of transport, is only a portion of a complete journey

which begins or terminates within the territory of the land-locked State;

- (d) "means of transport" means:
 - (i) railway rolling stock, sea, lake and river craft and road vehicles;
 - (ii) where local conditions so require, porters and pack animals.
- 2. Land-locked States and transit States may, by agreement between them, include as means of transport pipelines and gas lines and means of transport other than those included in paragraph 1.

Article 125

Right of access to and from the sea and freedom of transit

- 1. Land-locked States shall have the right of access to and from the sea for the purpose of exercising the rights provided for in this Convention including those relating to the freedom of the high seas and the common heritage of mankind. To this end, land-locked States shall enjoy freedom of transit through the territory of transit States by all means of transport.
- 2. The terms and modalities for exercising freedom of transit shall be agreed between the land-locked States and transit States concerned through bilateral, subregional or regional agreements.
- 3. Transit States, in the exercise of their full sovereignty over their territory, shall have the right to take all measures necessary to ensure that the rights and facilities provided for in this Part for land-locked States shall in no way infringe their legitimate interests.

Article 126

Exclusion of application of the most-favoured-nation clause

The provisions of this Convention, as well as special agreements relating to the exercise of the right of access to and from the sea, establishing rights and facilities on account of the special geographical position of land-locked States, are excluded from the application of the most-favoured-nation clause.

Article 127 Customs duties, taxes and other charges

- 1. Traffic in transit shall not be subject to any customs duties, taxes or other charges except charges levied for specific services rendered in connection with such traffic.
- 2. Means of transport in transit and other facilities provided for and used by land-locked States shall not be subject to taxes or charges higher than those levied for the use of means of transport of the transit State.

Article 128 Free zones and other customs facilities

For the convenience of traffic in transit, free zones or other customs facilities may be provided at the ports of entry and exit in the transit States, by agreement between those States and the land-locked States.

Article 129

Cooperation in the construction and improvement of means of transport

Where there are no means of transport in transit States to give effect to the freedom of transit or where the existing means, including the port installations and equipment, are inadequate in any respect, the transit States and land-locked States concerned may cooperate in constructing or improving them.

Article 130 Measures to avoid or eliminate delays or other difficulties of a technical nature in traffic in transit

- 1. Transit States shall take all appropriate measures to avoid delays or other difficulties of a technical nature in traffic in transit.
- 2. Should such delays or difficulties occur, the competent authorities of the transit States and land-locked States concerned shall cooperate towards their expeditious elimination.

Article 131 Equal treatment in maritime ports

Ships flying the flag of land-locked States shall enjoy treatment equal to that accorded to other foreign ships in maritime ports.

Article 132 Grant of greater transit facilities

This Convention does not entail in any way the withdrawal of transit facilities which are greater than those provided for in this Convention and which are agreed between States Parties to this Convention or granted by a State Party. This Convention also does not preclude such grant of greater facilities in the future.

PART XI

THE AREA

SECTION 1. GENERAL PROVISIONS

Article 133 Use of terms

For the purposes of this Part:

- (a) "resources" means all solid, liquid or gaseous mineral resources *in situ* in the Area at or beneath the seabed, including polymetallic nodules;
- (b) resources, when recovered from the Area, are referred to as "minerals".

Article 134 Scope of this Part

- 1. This Part applies to the Area.
- 2. Activities in the Area shall be governed by the provisions of this Part
- 3. The requirements concerning deposit of, and publicity to be given to, the charts or lists of geographical coordinates showing the limits referred to in article l, paragraph l(1), are set forth in Part VI.
- Nothing in this article affects the establishment of the outer limits of the continental shelf in accordance with Part VI or the validity of agreements relating to delimitation between States with opposite or adjacent coasts.

Article 135 Legal status of the superjacent waters and air space

Neither this Part nor any rights granted or exercised pursuant thereto shall affect the legal status of the waters superjacent to the Area or that of the air space above those waters.

SECTION 2. PRINCIPLES GOVERNING THE AREA

Article 136 Common heritage of mankind

The Area and its resources are the common heritage of mankind.

Article 137 Legal status of the Area and its resources

- 1. No State shall claim or exercise sovereignty or sovereign rights over any part of the Area or its resources, nor shall any State or natural or juridical person appropriate any part thereof. No such claim or exercise of sovereignty or sovereign rights nor such appropriation shall be recognized.
- 2. All rights in the resources of the Area are vested in mankind as a whole, on whose behalf the Authority shall act. These resources are not subject to alienation. The minerals recovered from the Area, however, may only be alienated in accordance with this Part and the rules, regulations and procedures of the Authority.
- 3. No State or natural or juridical person shall claim, acquire or exercise rights with respect to the minerals recovered from the Area except in accordance with this Part. Otherwise, no such claim, acquisition or exercise of such rights shall be recognized.

Article 138 General conduct of States in relation to the Area

The general conduct of States in relation to the Area shall be in accordance with the provisions of this Part, the principles embodied in the Charter of the United Nations and other rules of international law in the interests of maintaining peace and security and promoting international cooperation and mutual understanding.

Article 139 Responsibility to ensure compliance and liability for damage

- 1. States Parties shall have the responsibility to ensure that activities in the Area, whether carried out by States Parties, or state enterprises or natural or juridical persons which possess the nationality of States Parties or are effectively controlled by them or their nationals, shall be carried out in conformity with this Part. The same responsibility applies to international organizations for activities in the Area carried out by such organizations.
- 2. Without prejudice to the rules of international law and Annex III, article 22, damage caused by the failure of a State Party or international organization to carry out its responsibilities under this Part shall entail liability; States Parties or international organizations acting together shall bear joint and several liability. A State Party shall not however be liable for damage caused by any failure to comply with this Part by a person whom it has sponsored under article 153, paragraph 2(b), if the State Party has taken all necessary and appropriate measures to secure effective compliance under article 153, paragraph 4, and Annex III, article 4, paragraph 4.
- 3. States Parties that are members of international organizations shall take appropriate measures to ensure the implementation of this article with respect to such organizations.

Article 140 Benefit of mankind

- 1. Activities in the Area shall, as specifically provided for in this Part, be carried out for the benefit of mankind as a whole, irrespective of the geographical location of States, whether coastal or land-locked, and taking into particular consideration the interests and needs of developing States and of peoples who have not attained full independence or other self-governing status recognized by the United Nations in accordance with General Assembly resolutions.
- 2. The Authority shall provide for the equitable sharing of financial and other economic benefits derived from activities in the Area through any appropriate mechanism, on a non-discriminatory basis, in accordance with article 160, paragraph 2(f)(i).

Article 141 Use of the Area exclusively for peaceful purposes

The Area shall be open to use exclusively for peaceful purposes by all States, whether coastal or land-locked, without discrimination and without prejudice to the other provisions of this Part.

Article 142 Rights and legitimate interests of coastal States

1. Activities in the Area, with respect to resource deposits in the Area which lie across limits of national jurisdiction, shall be conducted with due regard to the rights and legitimate interests of any coastal State across whose jurisdiction such deposits lie.

- 2. Consultations, including a system of prior notification, shall be maintained with the State concerned, with a view to avoiding infringement of such rights and interests. In cases where activities in the Area may result in the exploitation of resources lying within national jurisdiction, the prior consent of the coastal State concerned shall be required.
- 3. Neither this Part nor any rights granted or exercised pursuant thereto shall affect the rights of coastal States to take such measures consistent with the relevant provisions of Part XII as may be necessary to prevent, mitigate or eliminate grave and imminent danger to their coastline, or related interests from pollution or threat thereof or from other hazardous occurrences resulting from or caused by any activities in the Area.

Article 143 Marine scientific research

- 1. Marine scientific research in the Area shall be carried out exclusively for peaceful purposes and for the benefit of mankind as a whole, in accordance with Part XIII.
- 2. The Authority may carry out marine scientific research concerning the Area and its resources, and may enter into contracts for that purpose. The Authority shall promote and encourage the conduct of marine scientific research in the Area, and shall coordinate and disseminate the results of such research and analysis when available.
- 3. States Parties may carry out marine scientific research in the Area. States Parties shall promote international cooperation in marine scientific research in the Area by:
 - (a) participating in international programmes and encouraging cooperation in marine scientific research by personnel of different countries and of the Authority;
 - (b) ensuring that programmes are developed through the Authority or other international organizations as appropriate for the benefit of developing States and technologically less developed States with a view to:
 - (i) strengthening their research capabilities;
 - (ii) training their personnel and the personnel of the Authority in the techniques and applications of research;
 - (iii) fostering the employment of their qualified personnel in research in the Area;
 - (c) effectively disseminating the results of research and analysis when available, through the Authority or other international channels when appropriate.

Article 144 Transfer of technology

- 1. The Authority shall take measures in accordance with this Convention:
 - (a) to acquire technology and scientific knowledge relating to activities in the Area; and
 - (b) to promote and encourage the transfer to developing States of such technology and scientific knowledge so that all States Parties benefit therefrom.

- 2. To this end the Authority and States Parties shall cooperate in promoting the transfer of technology and scientific knowledge relating to activities in the Area so that the Enterprise and all States Parties may benefit therefrom. In particular they shall initiate and promote:
 - (a) programmes for the transfer of technology to the Enterprise and to developing States with regard to activities in the Area, including, *inter alia*, facilitating the access of the Enterprise and of developing States to the relevant technology, under fair and reasonable terms and conditions;
 - (b) measures directed towards the advancement of the technology of the Enterprise and the domestic technology of developing States, particularly by providing opportunities to personnel from the Enterprise and from developing States for training in marine science and technology and for their full participation in activities in the Area.

Article 145 Protection of the marine environment

Necessary measures shall be taken in accordance with this Convention with respect to activities in the Area to ensure effective protection for the marine environment from harmful effects which may arise from such activities. To this end the Authority shall adopt appropriate rules, regulations and procedures for *inter alia*:

- (a) the prevention, reduction and control of pollution and other hazards to the marine environment, including the coastline, and of interference with the ecological balance of the marine environment, particular attention being paid to the need for protection from harmful effects of such activities as drilling, dredging, excavation, disposal of waste, construction and operation or maintenance of installations, pipelines and other devices related to such activities;
- (b) the protection and conservation of the natural resources of the Area and the prevention of damage to the flora and fauna of the marine environment.

Article 146 Protection of human life

With respect to activities in the Area, necessary measures shall be taken to ensure effective protection of human life. To this end the Authority shall adopt appropriate rules, regulations and procedures to supplement existing international law as embodied in relevant treaties.

Article 147

Accommodation of activities in the Area and in the marine environment

- Activities in the Area shall be carried out with reasonable regard for other activities in the marine environment.
- 2. Installations used for carrying out activities in the Area shall be subject to the following conditions:
 - (a) such installations shall be erected, emplaced and removed solely in accordance with this Part and subject to the rules, regulations and procedures of the Authority. Due notice must

- be given of the erection, emplacement and removal of such installations, and permanent means for giving warning of their presence must be maintained;
- (b) such installations may not be established where interference may be caused to the use of recognized sea lanes essential to international navigation or in areas of intense fishing activity;
- (c) safety zones shall be established around such installations with appropriate markings to ensure the safety of both navigation and the installations. The configuration and location of such safety zones shall not be such as to form a belt impeding the lawful access of shipping to particular maritime zones or navigation along international sea lanes;
- (d) such installations shall be used exclusively for peaceful purposes;
- (e) such installations do not possess the status of islands. They have no territorial sea of their own, and their presence does not affect the delimitation of the territorial sea, the exclusive economic zone or the continental shelf.
- 3. Other activities in the marine environment shall be conducted with reasonable regard for activities in the Area.

Article 148 Participation of developing States in activities in the Area

The effective participation of developing States in activities in the Area shall be promoted as specifically provided for in this Part, having due regard to their special interests and needs, and in particular to the special need of the land-locked and geographically disadvantaged among them to overcome obstacles arising from their disadvantaged location, including remoteness from the Area and difficulty of access to and from it.

Article 149 Archaeological and historical objects

All objects of an archaeological and historical nature found in the Area shall be preserved or disposed of for the benefit of mankind as a whole, particular regard being paid to the preferential rights of the State or country of origin, or the State of cultural origin, or the State of historical and archaeological origin.

SECTION 3. DEVELOPMENT OF RESOURCES OF THE AREA

Article 150 Policies relating to activities in the Area

Activities in the Area shall, as specifically provided for in this Part, be carried out in such a manner as to foster healthy development of the world economy and balanced growth of international trade, and to promote international cooperation for the over-all development of all countries, especially developing States, and with a view to ensuring:

- (a) the development of the resources of the Area;
- (b) orderly, safe and rational management of the resources of the Area, including the efficient conduct of activities in the Area and, in

- accordance with sound principles of conservation, the avoidance of unnecessary waste;
- (c) the expansion of opportunities for participation in such activities consistent in particular with articles 144 and 148;
- (d) participation in revenues by the Authority and the transfer of technology to the Enterprise and developing States as provided for in this Convention;
- (e) increased availability of the minerals derived from the Area as needed in conjunction with minerals derived from other sources, to ensure supplies to consumers of such minerals;
- (f) the promotion of just and stable prices remunerative to producers and fair to consumers for minerals derived both from the Area and from other sources, and the promotion of long-term equilibrium between supply and demand;
- (g) the enhancement of opportunities for all States Parties, irrespective of their social and economic systems or geographical location, to participate in the development of the resources of the Area and the prevention of monopolization of activities in the Area;
- (h) the protection of developing countries from adverse effects on their economies or on their export earnings resulting from a reduction in the price of an affected mineral, or in the volume of exports of that mineral, to the extent that such reduction is caused by activities in the Area, as provided in article 151;
- (i) the development of the common heritage for the benefit of mankind as a whole; and
- (j) conditions of access to markets for the imports of minerals produced from the resources of the Area and for imports of commodities produced from such minerals shall not be more favourable than the most favourable applied to imports from other sources.

Article 151 Production policies

- (a) Without prejudice to the objectives set forth in article 150 and
 for the purpose of implementing subparagraph (h) of that
 article, the Authority, acting through existing forums or such
 new arrangements or agreements as may be appropriate, in
 which all interested parties, including both producers and
 consumers, participate, shall take measures necessary to
 promote the growth, efficiency and stability of markets for
 those commodities produced from the minerals derived from the
 Area, at prices remunerative to producers and fair to consumers.
 All States Parties shall cooperate to this end.
 - (b) The Authority shall have the right to participate in any commodity conference dealing with those commodities and in which all interested parties including both producers and consumers participate. The Authority shall have the right to become a party to any arrangement or agreement resulting from such conferences. Participation of the Authority in any organs established under those arrangements or agreements shall be in respect of production in the Area and in accordance with the relevant rules of those organs.

(c) The Authority shall carry out its obligations under the arrangements or agreements referred to in this paragraph in a manner which assures a uniform and non-discriminatory implementation in respect of all production in the Area of the minerals concerned. In doing so, the Authority shall act in a manner consistent with the terms of existing contracts and

approved plans of work of the Enterprise.

(a) During the interim period specified in paragraph 3, commercial production shall not be undertaken pursuant to an approved plan of work until the operator has applied for and has been issued a production authorization by the Authority. Such production authorizations may not be applied for or issued more than five years prior to the planned commencement of commercial production under the plan of work unless, having regard to the nature and timing of project development, the rules, regulations and procedures of the Authority prescribe another period.

- (b) In the application for the production authorization, the operator shall specify the annual quantity of nickel expected to be recovered under the approved plan of work. The application shall include a schedule of expenditures to be made by the operator after he has received the authorization which are reasonably calculated to allow him to begin commercial production on the date planned.
- (c) For the purposes of subparagraphs (a) and (b), the Authority shall establish appropriate performance requirements in accordance with Annex III. article 17.
- (d) The Authority shall issue a production authorization for the level of production applied for unless the sum of that level and the levels already authorized exceeds the nickel production ceiling, as calculated pursuant to paragraph 4 in the year of issuance of the authorization, during any year of planned production falling within the interim period.
- (e) When issued, the production authorization and approved application shall become a part of the approved plan of work.
- (f) If the operator's application for a production authorization is denied pursuant to subparagraph (d), the operator may apply again to the Authority at any time.
- 3. The interim period shall begin five years prior to 1 January of the year in which the earliest commercial production is planned to commence under an approved plan of work. If the earliest commercial production is delayed beyond the year originally planned, the beginning of the interim period and the production ceiling originally calculated shall be adjusted accordingly. The interim period shall last 25 years or until the end of the Review Conference referred to in article 155 or until the day when such new arrangements or agreements as are referred to in paragraph 1 enter into force, whichever is earliest. The Authority shall resume the power provided in this article for the remainder of the interim period if the said arrangements or agreements should lapse or become ineffective for any reason whatsoever.
 - 4. (a) The production ceiling for any year of the interim period shall be the sum of:
 - (i) the difference between the trend line values for nickel consumption, as calculated pursuant to subparagraph (b),

- for the year immediately prior to the year of the earliest commercial production and the year immediately prior to the commencement of the interim period; and
- (ii) sixty per cent of the difference between the trend line values for nickel consumption, as calculated pursuant to subparagraph (b), for the year for which the production authorization is being applied for and the year immediately prior to the year of the earliest commercial production.
- (b) For the purposes of subparagraph (a):
 - (i) trend line values used for computing the nickel production ceiling shall be those annual nickel consumption values on a trend line computed during the year in which a production authorization is issued. The trend line shall be derived from a linear regression of the logarithms of actual nickel consumption for the most recent 15-year period for which such data are available, time being the independent variable. This trend line shall be referred to as the original trend line;
 - (ii) if the annual rate of increase of the original trend line is less than 3 per cent, then the trend line used to determine the quantities referred to in subparagraph (a) shall instead be one passing through the original trend line at the value for the first year of the relevant 15-year period, and increasing at 3 per cent annually; provided however that the production ceiling established for any year of the interim period may not in any case exceed the difference between the original trend line value for that year and the original trend line value for the year immediately prior to the commencement of the interim period.
- 5. The Authority shall reserve to the Enterprise for its initial production a quantity of 38,000 metric tonnes of nickel from the available production ceiling calculated pursuant to paragraph 4.
 - 6. (a) An operator may in any year produce less than or up to 8 per cent more than the level of annual production of minerals from polymetallic nodules specified in his production authorization, provided that the over-all amount of production shall not exceed that specified in the authorization. Any excess over 8 per cent and up to 20 per cent in any year, or any excess in the first and subsequent years following two consecutive years in which excesses occur, shall be negotiated with the Authority, which may require the operator to obtain a supplementary production authorization to cover additional production.
 - (b) Applications for such supplementary production authorizations shall be considered by the Authority only after all pending applications by operators who have not yet received production authorizations have been acted upon and due account has been taken of other likely applicants. The Authority shall be guided by the principle of not exceeding the total production allowed under the production ceiling in any year of the interim period. It shall not authorize the production under any plan of work of a quantity in excess of 46,500 metric tonnes of nickel per year.

7. The levels of production of other metals such as copper, cobalt and manganese extracted from the polymetallic nodules that are recovered pursuant to a production authorization should not be higher than those which would have been produced had the operator produced the maximum level of nickel from those nodules pursuant to this article. The Authority shall establish rules, regulations and procedures pursuant to Annex III, article 17, to implement this paragraph.

8. Rights and obligations relating to unfair economic practices under relevant multilateral trade agreements shall apply to the exploration for and exploitation of minerals from the Area. In the settlement of disputes arising under this provision, States Parties which are Parties to such multilateral trade agreements shall have recourse to the dispute settlement procedures of such

agreements.

9. The Authority shall have the power to limit the level of production of minerals from the Area, other than minerals from polymetallic nodules, under such conditions and applying such methods as may be appropriate by

adopting regulations in accordance with article 161, paragraph 8.

10. Upon the recommendation of the Council on the basis of advice from the Economic Planning Commission, the Assembly shall establish a system of compensation or take other measures of economic adjustment assistance including cooperation with specialized agencies and other international organizations to assist developing countries which suffer serious adverse effects on their export earnings or economies resulting from a reduction in the price of an affected mineral or in the volume of exports of that mineral, to the extent that such reduction is caused by activities in the Area. The Authority on request shall initiate studies on the problems of those States which are likely to be most seriously affected with a view to minimizing their difficulties and assisting them in their economic adjustment.

Article 152 Exercise of powers and functions by the Authority

- 1. The Authority shall avoid discrimination in the exercise of its powers and functions, including the granting of opportunities for activities in the Area.
- 2. Nevertheless, special consideration for developing States, including particular consideration for the land-locked and geographically disadvantaged among them, specifically provided for in this Part shall be permitted.

Article 153 System of exploration and exploitation

- 1. Activities in the Area shall be organized, carried out and controlled by the Authority on behalf of mankind as a whole in accordance with this article as well as other relevant provisions of this Part and the relevant Annexes, and the rules, regulations and procedures of the Authority.
- 2. Activities in the Area shall be carried out as prescribed in paragraph 3:

(a) by the Enterprise, and

(b) in association with the Authority by States Parties, or state enterprises or natural or juridical persons which possess the nationality of States Parties or are effectively controlled by them or their nationals, when sponsored by such States, or any group of the foregoing which meets the requirements provided in this Part and in Annex III.

- 3. Activities in the Area shall be carried out in accordance with a formal written plan of work drawn up in accordance with Annex III and approved by the Council after review by the Legal and Technical Commission. In the case of activities in the Area carried out as authorized by the Authority by the entities specified in paragraph 2(b), the plan of work shall, in accordance with Annex III, article 3, be in the form of a contract. Such contracts may provide for joint arrangements in accordance with Annex III, article 11.
- 4. The Authority shall exercise such control over activities in the Area as is necessary for the purpose of securing compliance with the relevant provisions of this Part and the Annexes relating thereto, and the rules, regulations and procedures of the Authority, and the plans of work approved in accordance with paragraph 3. States Parties shall assist the Authority by taking all measures necessary to ensure such compliance in accordance with article 139.
- 5. The Authority shall have the right to take at any time any measures provided for under this Part to ensure compliance with its provisions and the exercise of the functions of control and regulation assigned to it thereunder or under any contract. The Authority shall have the right to inspect all installations in the Area used in connection with activities in the Area.
- 6. A contract under paragraph 3 shall provide for security of tenure. Accordingly, the contract shall not be revised, suspended or terminated except in accordance with Annex III, articles 18 and 19.

Article 154 Periodic review

Every five years from the entry into force of this Convention, the Assembly shall undertake a general and systematic review of the manner in which the international regime of the Area established in this Convention has operated in practice. In the light of this review the Assembly may take, or recommend that other organs take, measures in accordance with the provisions and procedures of this Part and the Annexes relating thereto which will lead to the improvement of the operation of the regime.

Article 155 The Review Conference

- 1. Fifteen years from 1 January of the year in which the earliest commercial production commences under an approved plan of work, the Assembly shall convene a conference for the review of those provisions of this Part and the relevant Annexes which govern the system of exploration and exploitation of the resources of the Area. The Review Conference shall consider in detail, in the light of the experience acquired during that period:
 - (a) whether the provisions of this Part which govern the system of exploration and exploitation of the resources of the Area have achieved their aims in all respects, including whether they have benefited mankind as a whole;
 - (b) whether, during the 15-year period, reserved areas have been exploited in an effective and balanced manner in comparison with non-reserved areas;

- (c) whether the development and use of the Area and its resources have been undertaken in such a manner as to foster healthy development of the world economy and balanced growth of international trade;
- (d) whether monopolization of activities in the Area has been prevented;
- (e) whether the policies set forth in articles 150 and 151 have been fulfilled; and
- (f) whether the system has resulted in the equitable sharing of benefits derived from activities in the Area, taking into particular consideration the interests and needs of the developing States.
- The Review Conference shall ensure the maintenance of the principle of the common heritage of mankind, the international regime designed to ensure equitable exploitation of the resources of the Area for the benefit of all countries, especially the developing States, and an Authority to organize, conduct and control activities in the Area. It shall also ensure the maintenance of the principles laid down in this Part with regard to the exclusion of claims or exercise of sovereignty over any part of the Area, the rights of States and their general conduct in relation to the Area, and their participation in activities in the Area in conformity with this Convention, the prevention of monopolization of activities in the Area, the use of the Area exclusively for peaceful purposes, economic aspects of activities in the Area, marine scientific research, transfer of technology, protection of the marine environment, protection of human life, rights of coastal States, the legal status of the waters superjacent to the Area and that of the air space above those waters and accommodation between activities in the Area and other activities in the marine environment.
- 3. The decision-making procedure applicable at the Review Conference shall be the same as that applicable at the Third United Nations Conference on the Law of the Sea. The Conference shall make every effort to reach agreement on any amendments by way of consensus and there should be no voting on such matters until all efforts at achieving consensus have been exhausted.
- 4. If, five years after its commencement, the Review Conference has not reached agreement on the system of exploration and exploitation of the resources of the Area, it may decide during the ensuing 12 months, by a three-fourths majority of the States Parties, to adopt and submit to the States Parties for ratification or accession such amendments changing or modifying the system as it determines necessary and appropriate. Such amendments shall enter into force for all States Parties 12 months after the deposit of instruments of ratification or accession by three fourths of the States Parties.
- 5. Amendments adopted by the Review Conference pursuant to this article shall not affect rights acquired under existing contracts.

SECTION 4. THE AUTHORITY

SUBSECTION A. GENERAL PROVISIONS

Article 156 Establishment of the Authority

- 1. There is hereby established the International Seabed Authority, which shall function in accordance with this Part.
 - 2. All States Parties are *ipso facto* members of the Authority.
- 3. Observers at the Third United Nations Conference on the Law of the Sea who have signed the Final Act and who are not referred to in article 305, paragraph 1(c), (d), (e) or (f), shall have the right to participate in the Authority as observers, in accordance with its rules, regulations and procedures.
 - 4. The seat of the Authority shall be in Jamaica.
- 5. The Authority may establish such regional centres or offices as it deems necessary for the exercise of its functions.

Article 157 Nature and fundamental principles of the Authority

- 1. The Authority is the organization through which States Parties shall, in accordance with this Part, organize and control activities in the Area, particularly with a view to administering the resources of the Area.
- 2. The powers and functions of the Authority shall be those expressly conferred upon it by this Convention. The Authority shall have such incidental powers, consistent with this Convention, as are implicit in and necessary for the exercise of those powers and functions with respect to activities in the Area.
- 3. The Authority is based on the principle of the sovereign equality of all its members.
- 4. All members of the Authority shall fulfil in good faith the obligations assumed by them in accordance with this Part in order to ensure to all of them the rights and benefits resulting from membership.

Article 158 Organs of the Authority

- 1. There are hereby established, as the principal organs of the Authority, an Assembly, a Council and a Secretariat.
- 2. There is hereby established the Enterprise, the organ through which the Authority shall carry out the functions referred to in article 170, paragraph 1.
- 3. Such subsidiary organs as may be found necessary may be established in accordance with this Part.
- 4. Each principal organ of the Authority and the Enterprise shall be responsible for exercising those powers and functions which are conferred upon it. In exercising such powers and functions each organ shall avoid taking any action which may derogate from or impede the exercise of specific powers and functions conferred upon another organ.

SUBSECTION B. THE ASSEMBLY

Article 159 Composition, procedure and voting

- 1. The Assembly shall consist of all the members of the Authority. Each member shall have one representative in the Assembly, who may be accompanied by alternates and advisers.
- 2. The Assembly shall meet in regular annual sessions and in such special sessions as may be decided by the Assembly, or convened by the Secretary-General at the request of the Council or of a majority of the members of the Authority.
- 3. Sessions shall take place at the seat of the Authority unless otherwise decided by the Assembly.
- 4. The Assembly shall adopt its rules of procedure. At the beginning of each regular session, it shall elect its President and such other officers as may be required. They shall hold office until a new President and other officers are elected at the next regular session.
- 5. A majority of the members of the Assembly shall constitute a quorum.
 - 6. Each member of the Assembly shall have one vote.
- 7. Decisions on questions of procedure, including decisions to convene special sessions of the Assembly, shall be taken by a majority of the members present and voting.
- 8. Decisions on questions of substance shall be taken by a two-thirds majority of the members present and voting, provided that such majority includes a majority of the members participating in the session. When the issue arises as to whether a question is one of substance or not, that question shall be treated as one of substance unless otherwise decided by the Assembly by the majority required for decisions on questions of substance.
- 9. When a question of substance comes up for voting for the first time, the President may, and shall, if requested by at least one fifth of the members of the Assembly, defer the issue of taking a vote on that question for a period not exceeding five calendar days. This rule may be applied only once to any question, and shall not be applied so as to defer the question beyond the end of the session.
- 10. Upon a written request addressed to the President and sponsored by at least one fourth of the members of the Authority for an advisory opinion on the conformity with this Convention of a proposal before the Assembly on any matter, the Assembly shall request the Seabed Disputes Chamber of the International Tribunal for the Law of the Sea to give an advisory opinion thereon and shall defer voting on that proposal pending receipt of the advisory opinion by the Chamber. If the advisory opinion is not received before the final week of the session in which it is requested, the Assembly shall decide when it will meet to vote upon the deferred proposal.

Article 160 Powers and functions

1. The Assembly, as the sole organ of the Authority consisting of all the members, shall be considered the supreme organ of the Authority to which the other principal organs shall be accountable as specifically provided for in this Convention. The Assembly shall have the power to establish general policies in conformity with the relevant provisions of this Convention on any question or matter within the competence of the Authority.

- 2. In addition, the powers and functions of the Assembly shall be:
 - (a) to elect the members of the Council in accordance with article 161;
 - (b) to elect the Secretary-General from among the candidates proposed by the Council;
 - (c) to elect, upon the recommendation of the Council, the members of the Governing Board of the Enterprise and the Director-General of the Enterprise;
 - (d) to establish such subsidiary organs as it finds necessary for the exercise of its functions in accordance with this Part. In the composition of these subsidiary organs due account shall be taken of the principle of equitable geographical distribution and of special interests and the need for members qualified and competent in the relevant technical questions dealt with by such organs;
 - (e) to assess the contributions of members to the administrative budget of the Authority in accordance with an agreed scale of assessment based upon the scale used for the regular budget of the United Nations until the Authority shall have sufficient income from other sources to meet its administrative expenses;
 - (f) (i) to consider and approve, upon the recommendation of the Council, the rules, regulations and procedures on the equitable sharing of financial and other economic benefits derived from activities in the Area and the payments and contributions made pursuant to article 82, taking into particular consideration the interests and needs of developing States and peoples who have not attained full independence or other self-governing status. If the Assembly does not approve the recommendations of the Council, the Assembly shall return them to the Council for reconsideration in the light of the views expressed by the Assembly;
 - (ii) to consider and approve the rules, regulations and procedures of the Authority, and any amendments thereto, provisionally adopted by the Council pursuant to article 162, paragraph 2 (o)(ii). These rules, regulations and procedures shall relate to prospecting, exploration and exploitation in the Area, the financial management and internal administration of the Authority, and, upon the recommendation of the Governing Board of the Enterprise, to the transfer of funds from the Enterprise to the Authority;
 - (g) to decide upon the equitable sharing of financial and other economic benefits derived from activities in the Area, consistent with this Convention and the rules, regulations and procedures of the Authority;
 - (h) to consider and approve the proposed annual budget of the Authority submitted by the Council;
 - to examine periodic reports from the Council and from the Enterprise and special reports requested from the Council or any other organ of the Authority;

- (j) to initiate studies and make recommendations for the purpose of promoting international cooperation concerning activities in the Area and encouraging the progressive development of international law relating thereto and its codification;
- (k) to consider problems of a general nature in connection with activities in the Area arising in particular for developing States, as well as those problems for States in connection with activities in the Area that are due to their geographical location, particularly for land-locked and geographically disadvantaged States:
- (1) to establish, upon the recommendation of the Council, on the basis of advice from the Economic Planning Commission, a system of compensation or other measures of economic adjustment assistance as provided in article 151, paragraph 10;
- (m) to suspend the exercise of rights and privileges of membership pursuant to article 185;
- (n) to discuss any question or matter within the competence of the Authority and to decide as to which organ of the Authority shall deal with any such question or matter not specifically entrusted to a particular organ, consistent with the distribution of powers and functions among the organs of the Authority.

SUBSECTION C. THE COUNCIL

Article 161
Composition, procedure and voting

- 1. The Council shall consist of 36 members of the Authority elected by the Assembly in the following order:
 - (a) four members from among those States Parties which, during the last five years for which statistics are available, have either consumed more than 2 per cent of total world consumption or have had net imports of more than 2 per cent of total world imports of the commodities produced from the categories of minerals to be derived from the Area, and in any case one State from the Eastern European (Socialist) region, as well as the largest consumer;
 - (b) four members from among the eight States Parties which have the largest investments in preparation for and in the conduct of activities in the Area, either directly or through their nationals, including at least one State from the Eastern European (Socialist) region;
 - (c) four members from among States Parties which on the basis of production in areas under their jurisdiction are major net exporters of the categories of minerals to be derived from the Area, including at least two developing States whose exports of such minerals have a substantial bearing upon their economies;
 - (d) six members from among developing States Parties, representing special interests. The special interests to be represented shall include those of States with large populations, States which are land-locked or geographically disadvantaged, States which are major importers of the categories of minerals

- to be derived from the Area, States which are potential producers of such minerals, and least developed States;
- (e) eighteen members elected according to the principle of ensuring an equitable geographical distribution of seats in the Council as a whole, provided that each geographical region shall have at least one member elected under this subparagraph. For this purpose, the geographical regions shall be Africa, Asia, Eastern European (Socialist), Latin America and Western European and Others.
- 2. In electing the members of the Council in accordance with paragraph 1, the Assembly shall ensure that:
 - (a) land-locked and geographically disadvantaged States are represented to a degree which is reasonably proportionate to their representation in the Assembly;
 - (b) coastal States, especially developing States, which do not qualify under paragraph 1(a), (b), (c) or (d) are represented to a degree which is reasonably proportionate to their representation in the Assembly;
 - (c) each group of States Parties to be represented on the Council is represented by those members, if any, which are nominated by that group.
- 3. Elections shall take place at regular sessions of the Assembly. Each member of the Council shall be elected for four years. At the first election, however, the term of one half of the members of each group referred to in paragraph I shall be two years.
- 4. Members of the Council shall be eligible for re-election, but due regard should be paid to the desirability of rotation of membership.
- 5. The Council shall function at the seat of the Authority, and shall meet as often as the business of the Authority may require, but not less than three times a year.
 - 6. A majority of the members of the Council shall constitute a quorum.
 - 7. Each member of the Council shall have one vote.
 - (a) Decisions on questions of procedure shall be taken by a majority of the members present and voting.
 - (b) Decisions on questions of substance arising under the following provisions shall be taken by a two-thirds majority of the members present and voting, provided that such majority includes a majority of the members of the Council: article 162, paragraph 2, subparagraphs (f); (g); (h); (i); (n); (v); article 191.
 - (c) Decisions on questions of substance arising under the following provisions shall be taken by a three-fourths majority of the members present and voting, provided that such majority includes a majority of the members of the Council: article 162, paragraph 1; article 162, paragraph 2, subparagraphs (a); (b); (c); (d); (e); (l); (q); (r); (s); (t); (u) in cases of non-compliance by a contractor or a sponsor; (w) provided that orders issued thereunder may be binding for not more than 30 days unless confirmed by a decision taken in accordance with subparagraph (d); article 162, paragraph 2, subparagraphs (x); (y); (z); article 163, paragraph 2; article 174, paragraph 3; Annex IV, article 11.

- (d) Decisions on questions of substance arising under the following provisions shall be taken by consensus: article 162, paragraph 2(m) and (o); adoption of amendments to Part XI.
- (e) For the purposes of subparagraphs (d), (f) and (g), "consensus" means the absence of any formal objection. Within 14 days of the submission of a proposal to the Council, the President of the Council shall determine whether there would be a formal objection to the adoption of the proposal. If the President determines that there would be such an objection, the President shall establish and convene, within three days following such determination, a conciliation committee consisting of not more than nine members of the Council, with the President as chairman, for the purpose of reconciling the differences and producing a proposal which can be adopted by consensus. The committee shall work expeditiously and report to the Council within 14 days following its establishment. If the committee is unable to recommend a proposal which can be adopted by consensus, it shall set out in its report the grounds on which the proposal is being opposed.
- (f) Decisions on questions not listed above which the Council is authorized to take by the rules, regulations and procedures of the Authority or otherwise shall be taken pursuant to the subparagraphs of this paragraph specified in the rules, regulations and procedures or, if not specified therein, then pursuant to the subparagraph determined by the Council if possible in advance, by consensus.
- (g) When the issue arises as to whether a question is within subparagraph (a), (b), (c) or (d), the question shall be treated as being within the subparagraph requiring the higher or highest majority or consensus as the case may be, unless otherwise decided by the Council by the said majority or by consensus.
- 9. The Council shall establish a procedure whereby a member of the Authority not represented on the Council may send a representative to attend a meeting of the Council when a request is made by such member, or a matter particularly affecting it is under consideration. Such a representative shall be entitled to participate in the deliberations but not to vote.

Article 162 Powers and functions

- 1. The Council is the executive organ of the Authority. The Council shall have the power to establish, in conformity with this Convention and the general policies established by the Assembly, the specific policies to be pursued by the Authority on any question or matter within the competence of the Authority.
 - 2. In addition, the Council shall:
 - (a) supervise and coordinate the implementation of the provisions of this Part on all questions and matters within the competence of the Authority and invite the attention of the Assembly to cases of non-compliance;
 - (b) propose to the Assembly a list of candidates for the election of the Secretary-General;

- (c) recommend to the Assembly candidates for the election of the members of the Governing Board of the Enterprise and the Director-General of the Enterprise;
- (d) establish, as appropriate, and with due regard to economy and efficiency, such subsidiary organs as it finds necessary for the exercise of its functions in accordance with this Part. In the composition of subsidiary organs, emphasis shall be placed on the need for members qualified and competent in relevant technical matters dealt with by those organs provided that due account shall be taken of the principle of equitable geographical distribution and of special interests;
- (e) adopt its rules of procedure including the method of selecting its president;
- (f) enter into agreements with the United Nations or other international organizations on behalf of the Authority and within its competence, subject to approval by the Assembly;
- (g) consider the reports of the Enterprise and transmit them to the Assembly with its recommendations;
- (h) present to the Assembly annual reports and such special reports as the Assembly may request;
- (i) issue directives to the Enterprise in accordance with article 170;
- (j) approve plans of work in accordance with Annex III, article 6. The Council shall act upon each plan of work within 60 days of its submission by the Legal and Technical Commission at a session of the Council in accordance with the following procedures:
 - (i) if the Commission recommends the approval of a plan of work, it shall be deemed to have been approved by the Council if no member of the Council submits in writing to the President within 14 days a specific objection alleging non-compliance with the requirements of Annex III, article 6. If there is an objection, the conciliation procedure set forth in article 161, paragraph 8(e), shall apply. If, at the end of the conciliation procedure, the objection is still maintained, the plan of work shall be deemed to have been approved by the Council unless the Council disapproves it by consensus among its members excluding any State or States making the application or sponsoring the applicant;
 - (ii) if the Commission recommends the disapproval of a plan of work or does not make a recommendation, the Council may approve the plan of work by a three-fourths majority of the members present and voting, provided that such majority includes a majority of the members participating in the session:
- (k) approve plans of work submitted by the Enterprise in accordance with Annex IV, article 12, applying, *mutatis mutandis*, the procedures set forth in subparagraph (j);
- (1) exercise control over activities in the Area in accordance with article 153, paragraph 4, and the rules, regulations and procedures of the Authority;
- (m) take, upon the recommendation of the Economic Planning Commission, necessary and appropriate measures in accordance

- with article 150, subparagraph (h), to provide protection from the adverse economic effects specified therein;
- (n) make recommendations to the Assembly, on the basis of advice from the Economic Planning Commission, for a system of compensation or other measures of economic adjustment assistance as provided in article 151, paragraph 10;
- (o) (i) recommend to the Assembly rules, regulations and procedures on the equitable sharing of financial and other economic benefits derived from activities in the Area and the payments and contributions made pursuant to article 82, taking into particular consideration the interests and needs of the developing States and peoples who have not attained full independence or other self-governing status;
 - (ii) adopt and apply provisionally, pending approval by the Assembly, the rules, regulations and procedures of the Authority, and any amendments thereto, taking into account the recommendations of the Legal and Technical Commission or other subordinate organ concerned. These rules, regulations and procedures shall relate to prospecting, exploration and exploitation in the Area and the financial management and internal administration of the Authority. Priority shall be given to the adoption of rules, regulations and procedures for the exploration for and exploitation of polymetallic nodules. regulations and procedures for the exploration for and exploitation of any resource other than polymetallic nodules shall be adopted within three years from the date of a request to the Authority by any of its members to adopt such rules, regulations and procedures in respect of such resource. All rules, regulations and procedures shall remain in effect on a provisional basis until approved by the Assembly or until amended by the Council in the light of any views expressed by the Assembly:
- (p) review the collection of all payments to be made by or to the Authority in connection with operations pursuant to this Part;
- (q) make the selection from among applicants for production authorizations pursuant to Annex III, article 7, where such selection is required by that provision;
- (r) submit the proposed annual budget of the Authority to the Assembly for its approval;
- (s) make recommendations to the Assembly concerning policies on any question or matter within the competence of the Authority;
- (t) make recommendations to the Assembly concerning suspension of the exercise of the rights and privileges of membership pursuant to article 185;
- (u) institute proceedings on behalf of the Authority before the Seabed Disputes Chamber in cases of non-compliance;
- (v) notify the Assembly upon a decision by the Seabed Disputes Chamber in proceedings instituted under subparagraph (u), and make any recommendations which it may find appropriate with respect to measures to be taken;

- (w) issue emergency orders, which may include orders for the suspension or adjustment of operations, to prevent serious harm to the marine environment arising out of activities in the Area;
- (x) disapprove areas for exploitation by contractors or the Enterprise in cases where substantial evidence indicates the risk of serious harm to the marine environment;
- (y) establish a subsidiary organ for the elaboration of draft financial rules, regulations and procedures relating to:
 - (i) financial management in accordance with articles 171 to 175; and
 - (ii) financial arrangements in accordance with Annex III, article 13 and article 17, paragraph 1(c);
- (z) establish appropriate mechanisms for directing and supervising a staff of inspectors who shall inspect activities in the Area to determine whether this Part, the rules, regulations and procedures of the Authority, and the terms and conditions of any contract with the Authority are being complied with.

Article 163 Organs of the Council

- 1. There are hereby established the following organs of the Council:
 - (a) an Economic Planning Commission;
 - (b) a Legal and Technical Commission.
- 2. Each Commission shall be composed of 15 members, elected by the Council from among the candidates nominated by the States Parties. However, if necessary, the Council may decide to increase the size of either Commission having due regard to economy and efficiency.
- 3. Members of a Commission shall have appropriate qualifications in the area of competence of that Commission. States Parties shall nominate candidates of the highest standards of competence and integrity with qualifications in relevant fields so as to ensure the effective exercise of the functions of the Commissions.
- 4. In the election of members of the Commissions, due account shall be taken of the need for equitable geographical distribution and the representation of special interests.
- 5. No State Party may nominate more than one candidate for the same Commission. No person shall be elected to serve on more than one Commission.
- 6. Members of the Commissions shall hold office for a term of five years. They shall be eligible for re-election for a further term.
- 7. In the event of the death, incapacity or resignation of a member of a Commission prior to the expiration of the term of office, the Council shall elect for the remainder of the term, a member from the same geographical region or area of interest.
- 8. Members of Commissions shall have no financial interest in any activity relating to exploration and exploitation in the Area. Subject to their responsibilities to the Commissions upon which they serve, they shall not disclose, even after the termination of their functions, any industrial secret, proprietary data which are transferred to the Authority in accordance with Annex III, article 14, or any other confidential information coming to their knowledge by reason of their duties for the Authority.

- 9. Each Commission shall exercise its functions in accordance with such guidelines and directives as the Council may adopt.
- 10. Each Commission shall formulate and submit to the Council for approval such rules and regulations as may be necessary for the efficient conduct of the Commission's functions.
- 11. The decision-making procedures of the Commissions shall be established by the rules, regulations and procedures of the Authority. Recommendations to the Council shall, where necessary, be accompanied by a summary on the divergencies of opinion in the Commission.
- 12. Each Commission shall normally function at the seat of the Authority and shall meet as often as is required for the efficient exercise of its functions.
- 13. In the exercise of its functions, each Commission may, where appropriate, consult another commission, any competent organ of the United Nations or of its specialized agencies or any international organizations with competence in the subject-matter of such consultation.

Article 164 The Economic Planning Commission

- 1. Members of the Economic Planning Commission shall have appropriate qualifications such as those relevant to mining, management of mineral resource activities, international trade or international economics. The Council shall endeavour to ensure that the membership of the Commission reflects all appropriate qualifications. The Commission shall include at least two members from developing States whose exports of the categories of minerals to be derived from the Area have a substantial bearing upon their economies.
 - 2. The Commission shall:
 - (a) propose, upon the request of the Council, measures to implement decisions relating to activities in the Area taken in accordance with this Convention;
 - (b) review the trends of and the factors affecting supply, demand and prices of minerals which may be derived from the Area, bearing in mind the interests of both importing and exporting countries, and in particular of the developing States among them;
 - (c) examine any situation likely to lead to the adverse effects referred to in article 150, subparagraph (h), brought to its attention by the State Party or States Parties concerned, and make appropriate recommendations to the Council;
 - (d) propose to the Council for submission to the Assembly, as provided in article 151, paragraph 10, a system of compensation or other measures of economic adjustment assistance for developing States which suffer adverse effects caused by activities in the Area. The Commission shall make the recommendations to the Council that are necessary for the application of the system or other measures adopted by the Assembly in specific cases.

Article 165 The Legal and Technical Commission

- 1. Members of the Legal and Technical Commission shall have appropriate qualifications such as those relevant to exploration for and exploitation and processing of mineral resources, oceanology, protection of the marine environment, or economic or legal matters relating to ocean mining and related fields of expertise. The Council shall endeavour to ensure that the membership of the Commission reflects all appropriate qualifications.
 - 2. The Commission shall:
 - (a) make recommendations with regard to the exercise of the Authority's functions upon the request of the Council;
 - (b) review formal written plans of work for activities in the Area in accordance with article 153, paragraph 3, and submit appropriate recommendations to the Council. The Commission shall base its recommendations solely on the grounds stated in Annex III and shall report fully thereon to the Council;
 - (c) supervise, upon the request of the Council, activities in the Area, where appropriate, in consultation and collaboration with any entity carrying out such activities or State or States concerned and report to the Council;
 - (d) prepare assessments of the environmental implications of activities in the Area;
 - (e) make recommendations to the Council on the protection of the marine environment, taking into account the views of recognized experts in that field;
 - (f) formulate and submit to the Council the rules, regulations and procedures referred to in article 162, paragraph 2(o), taking into account all relevant factors including assessments of the environmental implications of activities in the Area;
 - (g) keep such rules, regulations and procedures under review and recommend to the Council from time to time such amendments thereto as it may deem necessary or desirable;
 - (h) make recommendations to the Council regarding the establishment of a monitoring programme to observe, measure, evaluate and analyse, by recognized scientific methods, on a regular basis, the risks or effects of pollution of the marine environment resulting from activities in the Area, ensure that existing regulations are adequate and are complied with and coordinate the implementation of the monitoring programme approved by the Council;
 - recommend to the Council that proceedings be instituted on behalf of the Authority before the Seabed Disputes Chamber, in accordance with this Part and the relevant Annexes taking into account particularly article 187;
 - (j) make recommendations to the Council with respect to measures to be taken, upon a decision by the Seabed Disputes Chamber in proceedings instituted in accordance with subparagraph (i);
 - (k) make recommendations to the Council to issue emergency orders, which may include orders for the suspension or adjustment of operations, to prevent serious harm to the marine environment arising out of activities in the Area. Such

- recommendations shall be taken up by the Council on a priority basis:
- make recommendations to the Council to disapprove areas for exploitation by contractors or the Enterprise in cases where substantial evidence indicates the risk of serious harm to the marine environment;
- (m) make recommendations to the Council regarding the direction and supervision of a staff of inspectors who shall inspect activities in the Area to determine whether the provisions of this Part, the rules, regulations and procedures of the Authority, and the terms and conditions of any contract with the Authority are being complied with;
- (n) calculate the production ceiling and issue production authorizations on behalf of the Authority pursuant to article 151, paragraphs 2 to 7, following any necessary selection among applicants for production authorizations by the Council in accordance with Annex III, article 7.
- 3. The members of the Commission shall, upon request by any State Party or other party concerned, be accompanied by a representative of such State or other party concerned when carrying out their function of supervision and inspection.

SUBSECTION D. THE SECRETARIAT

Article 166 The Secretariat

- 1. The Secretariat of the Authority shall comprise a Secretary-General and such staff as the Authority may require.
- 2. The Secretary-General shall be elected for four years by the Assembly from among the candidates proposed by the Council and may be re-elected.
- 3. The Secretary-General shall be the chief administrative officer of the Authority, and shall act in that capacity in all meetings of the Assembly, of the Council and of any subsidiary organ, and shall perform such other administrative functions as are entrusted to the Secretary-General by these organs
- 4. The Secretary-General shall make an annual report to the Assembly on the work of the Authority.

Article 167 The staff of the Authority

- 1. The staff of the Authority shall consist of such qualified scientific and technical and other personnel as may be required to fulfil the administrative functions of the Authority.
- 2. The paramount consideration in the recruitment and employment of the staff and in the determination of their conditions of service shall be the necessity of securing the highest standards of efficiency, competence and integrity. Subject to this consideration, due regard shall be paid to the importance of recruiting the staff on as wide a geographical basis as possible.
- 3. The staff shall be appointed by the Secretary-General. The terms and conditions on which they shall be appointed, remunerated and dismissed

shall be in accordance with the rules, regulations and procedures of the Authority.

Article 168 International character of the Secretariat

- 1. In the performance of their duties the Secretary-General and the staff shall not seek or receive instructions from any government or from any other source external to the Authority. They shall refrain from any action which might reflect on their position as international officials responsible only to the Authority. Each State Party undertakes to respect the exclusively international character of the responsibilities of the Secretary-General and the staff and not to seek to influence them in the discharge of their responsibilities. Any violation of responsibilities by a staff member shall be submitted to the appropriate administrative tribunal as provided in the rules, regulations and procedures of the Authority.
- 2. The Secretary-General and the staff shall have no financial interest in any activity relating to exploration and exploitation in the Area. Subject to their responsibilities to the Authority, they shall not disclose, even after the termination of their functions, any industrial secret, proprietary data which are transferred to the Authority in accordance with Annex III, article 14, or any other confidential information coming to their knowledge by reason of their employment with the Authority.
- 3. Violations of the obligations of a staff member of the Authority set forth in paragraph 2 shall, on the request of a State Party affected by such violation, or a natural or juridical person, sponsored by a State Party as provided in article 153, paragraph 2(b), and affected by such violation, be submitted by the Authority against the staff member concerned to a tribunal designated by the rules, regulations and procedures of the Authority. The Party affected shall have the right to take part in the proceedings. If the tribunal so recommends, the Secretary-General shall dismiss the staff member concerned.
- 4. The rules, regulations and procedures of the Authority shall contain such provisions as are necessary to implement this article.

Article 169 Consultation and cooperation with international and non-governmental organizations

- 1. The Secretary-General shall, on matters within the competence of the Authority, make suitable arrangements, with the approval of the Council, for consultation and cooperation with international and non-governmental organizations recognized by the Economic and Social Council of the United Nations.
- 2. Any organization with which the Secretary-General has entered into an arrangement under paragraph 1 may designate representatives to attend meetings of the organs of the Authority as observers in accordance with the rules of procedure of these organs. Procedures shall be established for obtaining the views of such organizations in appropriate cases.
- 3. The Secretary-General may distribute to States Parties written reports submitted by the non-governmental organizations referred to in paragraph l on subjects in which they have special competence and which are related to the work of the Authority.

SUBSECTION E. THE ENTERPRISE

Article 170 The Enterprise

- 1. The Enterprise shall be the organ of the Authority which shall carry out activities in the Area directly, pursuant to article 153, paragraph 2(a), as well as the transporting, processing and marketing of minerals recovered from the Area.
- 2. The Enterprise shall, within the framework of the international legal personality of the Authority, have such legal capacity as is provided for in the Statute set forth in Annex IV. The Enterprise shall act in accordance with this Convention and the rules, regulations and procedures of the Authority, as well as the general policies established by the Assembly, and shall be subject to the directives and control of the Council.
- 3. The Enterprise shall have its principal place of business at the seat of the Authority.
- 4. The Enterprise shall, in accordance with article 173, paragraph 2, and Annex IV, article 11, be provided with such funds as it may require to carry out its functions, and shall receive technology as provided in article 144 and other relevant provisions of this Convention.

SUBSECTION F. FINANCIAL ARRANGEMENTS OF THE AUTHORITY

Article 171 Funds of the Authority

The funds of the Authority shall include:

- (a) assessed contributions made by members of the Authority in accordance with article 160, paragraph 2(e);
- (b) funds received by the Authority pursuant to Annex III, article 13, in connection with activities in the Area:
- (c) funds transferred from the Enterprise in accordance with Annex IV, article 10;
- (d) funds borrowed pursuant to article 174;
- (e) voluntary contributions made by members or other entities; and
- (f) payments to a compensation fund, in accordance with article 151, paragraph 10, whose sources are to be recommended by the Economic Planning Commission.

Article 172 Annual budget of the Authority

The Secretary-General shall draft the proposed annual budget of the Authority and submit it to the Council. The Council shall consider the proposed annual budget and submit it to the Assembly, together with any recommendations thereon. The Assembly shall consider and approve the proposed annual budget in accordance with article 160, paragraph 2(h).

Article 173 Expenses of the Authority

- 1. The contributions referred to in article 171, subparagraph (a), shall be paid into a special account to meet the administrative expenses of the Authority until the Authority has sufficient funds from other sources to meet those expenses.
- 2. The administrative expenses of the Authority shall be a first call upon the funds of the Authority. Except for the assessed contributions referred to in article 171, subparagraph (a), the funds which remain after payment of administrative expenses may, inter alia:
 - (a) be shared in accordance with article 140 and article 160, paragraph 2(g);
 - (b) be used to provide the Enterprise with funds in accordance with article 170, paragraph 4;
 - (c) be used to compensate developing States in accordance with article 151, paragraph 10, and article 160, paragraph 2(1).

Article 174 Borrowing power of the Authority

- 1. The Authority shall have the power to borrow funds.
- 2. The Assembly shall prescribe the limits on the borrowing power of the Authority in the financial regulations adopted pursuant to article 160, paragraph 2(f).
 3. The Council shall exercise the borrowing power of the Authority.

 - 4. States Parties shall not be liable for the debts of the Authority.

Article 175 Annual audit

The records, books and accounts of the Authority, including its annual financial statements, shall be audited annually by an independent auditor appointed by the Assembly.

SUBSECTION G. LEGAL STATUS, PRIVILEGES AND **IMMUNITIES**

Article 176 Legal status

The Authority shall have international legal personality and such legal capacity as may be necessary for the exercise of its functions and the fulfilment of its purposes.

Article 177 Privileges and immunities

To enable the Authority to exercise its functions, it shall enjoy in the territory of each State Party the privileges and immunities set forth in this subsection. The privileges and immunities relating to the Enterprise shall be those set forth in Annex IV, article 13.

Article 178 Immunity from legal process

The Authority, its property and assets, shall enjoy immunity from legal process except to the extent that the Authority expressly waives this immunity in a particular case.

Article 179 Immunity from search and any form of seizure

The property and assets of the Authority, wherever located and by whomsoever held, shall be immune from search, requisition, confiscation, expropriation or any other form of seizure by executive or legislative action.

Article 180

Exemption from restrictions, regulations, controls and moratoria

The property and assets of the Authority shall be exempt from restrictions, regulations, controls and moratoria of any nature.

Article 181 Archives and official communications of the Authority

- 1. The archives of the Authority, wherever located, shall be inviolable.
- 2. Proprietary data, industrial secrets or similar information and personnel records shall not be placed in archives which are open to public inspection.
- 3. With regard to its official communications, the Authority shall be accorded by each State Party treatment no less favourable than that accorded by that State to other international organizations.

Article 182

Privileges and immunities of certain persons connected with the Authority

Representatives of States Parties attending meetings of the Assembly, the Council or organs of the Assembly or the Council, and the Secretary-General and staff of the Authority, shall enjoy in the territory of each State Party:

- (a) immunity from legal process with respect to acts performed by them in the exercise of their functions, except to the extent that the State which they represent or the Authority, as appropriate, expressly waives this immunity in a particular case;
- (b) if they are not nationals of that State Party, the same exemptions from immigration restrictions, alien registration requirements and national service obligations, the same facilities as regards exchange restrictions and the same treatment in respect of travelling facilities as are accorded by that State to the representatives, officials and employees of comparable rank of other States Parties.

Article 183 Exemption from taxes and customs duties

1. Within the scope of its official activities, the Authority, its assets and property, its income, and its operations and transactions, authorized by this

Convention, shall be exempt from all direct taxation and goods imported or exported for its official use shall be exempt from all customs duties. The Authority shall not claim exemption from taxes which are no more than charges for services rendered.

- 2. When purchases of goods or services of substantial value necessary for the official activities of the Authority are made by or on behalf of the Authority, and when the price of such goods or services includes taxes or duties, appropriate measures shall, to the extent practicable, be taken by States Parties to grant exemption from such taxes or duties or provide for their reimbursement. Goods imported or purchased under an exemption provided for in this article shall not be sold or otherwise disposed of in the territory of the State Party which granted the exemption, except under conditions agreed with that State Party.
- 3. No tax shall be levied by States Parties on or in respect of salaries and emoluments paid or any other form of payment made by the Authority to the Secretary-General and staff of the Authority, as well as experts performing missions for the Authority, who are not their nationals.

SUBSECTION H. SUSPENSION OF THE EXERCISE OF RIGHTS AND PRIVILEGES OF MEMBERS

Article 184
Suspension of the exercise of voting rights

A State Party which is in arrears in the payment of its financial contributions to the Authority shall have no vote if the amount of its arrears equals or exceeds the amount of the contributions due from it for the preceding two full years. The Assembly may, nevertheless, permit such a member to vote if it is satisfied that the failure to pay is due to conditions beyond the control of the member.

Article 185
Suspension of exercise of rights and privileges of membership

- 1. A State Party which has grossly and persistently violated the provisions of this Part may be suspended from the exercise of the rights and privileges of membership by the Assembly upon the recommendation of the Council.
- 2. No action may be taken under paragraph 1 until the Seabed Disputes Chamber has found that a State Party has grossly and persistently violated the provisions of this Part.

SECTION 5. SETTLEMENT OF DISPUTES AND ADVISORY OPINIONS

Article 186 Seabed Disputes Chamber of the International Tribunal for the Law of the Sea

The establishment of the Seabed Disputes Chamber and the manner in which it shall exercise its jurisdiction shall be governed by the provisions of this section, of Part XV and of Annex VI.

Article 187 Jurisdiction of the Seabed Disputes Chamber

The Seabed Disputes Chamber shall have jurisdiction under this Part and the Annexes relating thereto in disputes with respect to activities in the Area falling within the following categories:

- (a) disputes between States Parties concerning the interpretation or application of this Part and the Annexes relating thereto;
- (b) disputes between a State Party and the Authority concerning:
 - acts or omissions of the Authority or of a State Party alleged to be in violation of this Part or the Annexes relating thereto or of rules, regulations and procedures of the Authority adopted in accordance therewith; or
 - (ii) acts of the Authority alleged to be in excess of jurisdiction or a misuse of power;
- (c) disputes between parties to a contract, being States Parties, the Authority or the Enterprise, state enterprises and natural or juridical persons referred to in article 153, paragraph 2(b), concerning:
 - (i) the interpretation or application of a relevant contract or a plan of work; or
 - (ii) acts or omissions of a party to the contract relating to activities in the Area and directed to the other party or directly affecting its legitimate interests;
- (d) disputes between the Authority and a prospective contractor who has been sponsored by a State as provided in article 153, paragraph 2(b), and has duly fulfilled the conditions referred to in Annex III, article 4, paragraph 6, and article 13, paragraph 2, concerning the refusal of a contract or a legal issue arising in the negotiation of the contract;
- (e) disputes between the Authority and a State Party, a state enterprise or a natural or juridical person sponsored by a State Party as provided for in article 153, paragraph 2(b), where it is alleged that the Authority has incurred liability as provided in Annex III, article 22;
- (f) any other disputes for which the jurisdiction of the Chamber is specifically provided in this Convention.

Article 188

Submission of disputes to a special chamber of the International Tribunal for the Law of the Sea or an ad hoc chamber of the Seabed Disputes Chamber or to binding commercial arbitration

- 1. Disputes between States Parties referred to in article 187, subparagraph (a), may be submitted:
 - (a) at the request of the parties to the dispute, to a special chamber of the International Tribunal for the Law of the Sea to be formed in accordance with Annex VI, articles 15 and 17; or
 - (b) at the request of any party to the dispute, to an ad hoc chamber of the Seabed Disputes Chamber to be formed in accordance with Annex VI, article 36.
 - (a) Disputes concerning the interpretation or application of a contract referred to in article 187, subparagraph (c)(i), shall be

submitted, at the request of any party to the dispute, to binding commercial arbitration, unless the parties otherwise agree. A commercial arbitral tribunal to which the dispute is submitted shall have no jurisdiction to decide any question of interpretation of this Convention. When the dispute also involves a question of the interpretation of Part XI and the Annexes relating thereto, with respect to activities in the Area, that question shall be referred to the Seabed Disputes Chamber for a ruling.

- (b) If, at the commencement of or in the course of such arbitration, the arbitral tribunal determines, either at the request of any party to the dispute or *proprio motu*, that its decision depends upon a ruling of the Seabed Disputes Chamber, the arbitral tribunal shall refer such question to the Seabed Disputes Chamber for such ruling. The arbitral tribunal shall then proceed to render its award in conformity with the ruling of the Seabed Disputes Chamber.
- (c) In the absence of a provision in the contract on the arbitration procedure to be applied in the dispute, the arbitration shall be conducted in accordance with the UNCITRAL Arbitration Rules or such other arbitration rules as may be prescribed in the rules, regulations and procedures of the Authority, unless the parties to the dispute otherwise agree.

Article 189
Limitation on jurisdiction
with regard to decisions of the Authority

The Seabed Disputes Chamber shall have no jurisdiction with regard to the exercise by the Authority of its discretionary powers in accordance with this Part; in no case shall it substitute its discretion for that of the Authority. Without prejudice to article 191, in exercising its jurisdiction pursuant to article 187, the Seabed Disputes Chamber shall not pronounce itself on the question of whether any rules, regulations and procedures of the Authority are in conformity with this Convention, nor declare invalid any such rules, regulations and procedures. Its jurisdiction in this regard shall be confined to deciding claims that the application of any rules, regulations and procedures of the Authority in individual cases would be in conflict with the contractual obligations of the parties to the dispute or their obligations under this Convention, claims concerning excess of jurisdiction or misuse of power, and to claims for damages to be paid or other remedy to be given to the party concerned for the failure of the other party to comply with its contractual obligations or its obligations under this Convention.

Article 190 Participation and appearance of sponsoring States Parties in proceedings

1. If a natural or juridical person is a party to a dispute referred to in article 187, the sponsoring State shall be given notice thereof and shall have the right to participate in the proceedings by submitting written or oral statements.

2. If an action is brought against a State Party by a natural or juridical person sponsored by another State Party in a dispute referred to in article 187, subparagraph (c), the respondent State may request the State sponsoring that person to appear in the proceedings on behalf of that person. Failing such appearance, the respondent State may arrange to be represented by a juridical person of its nationality.

Article 191 Advisory opinions

The Seabed Disputes Chamber shall give advisory opinions at the request of the Assembly or the Council on legal questions arising within the scope of their activities. Such opinions shall be given as a matter of urgency.

PART XII

PROTECTION AND PRESERVATION OF THE MARINE ENVIRONMENT

SECTION 1. GENERAL PROVISIONS

Article 192 General obligation

States have the obligation to protect and preserve the marine environment.

Article 193 Sovereign right of States to exploit their natural resources

States have the sovereign right to exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment.

Article 194 Measures to prevent, reduce and control pollution of the marine environment

- 1. States shall take, individually or jointly as appropriate, all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities, and they shall endeavour to harmonize their policies in this connection.
- 2. States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights in accordance with this Convention.

- 3. The measures taken pursuant to this Part shall deal with all sources of pollution of the marine environment. These measures shall include, *inter alia*, those designed to minimize to the fullest possible extent:
 - (a) the release of toxic, harmful or noxious substances, especially those which are persistent, from land-based sources, from or through the atmosphere or by dumping;
 - (b) pollution from vessels, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, preventing intentional and unintentional discharges, and regulating the design, construction, equipment, operation and manning of vessels;
 - (c) pollution from installations and devices used in exploration or exploitation of the natural resources of the seabed and subsoil, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, and regulating the design, construction, equipment, operation and manning of such installations or devices;
 - (d) pollution from other installations and devices operating in the marine environment, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, and regulating the design, construction, equipment, operation and manning of such installations or devices.
- 4. In taking measures to prevent, reduce or control pollution of the marine environment, States shall refrain from unjustifiable interference with activities carried out by other States in the exercise of their rights and in pursuance of their duties in conformity with this Convention.
- The measures taken in accordance with this Part shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.

Article 195 Duty not to transfer damage or hazards or transform one type of pollution into another

In taking measures to prevent, reduce and control pollution of the marine environment, States shall act so as not to transfer, directly or indirectly, damage or hazards from one area to another or transform one type of pollution into another.

Article 196 Use of technologies or introduction of alien or new species

- 1. States shall take all measures necessary to prevent, reduce and control pollution of the marine environment resulting from the use of technologies under their jurisdiction or control, or the intentional or accidental introduction of species, alien or new, to a particular part of the marine environment, which may cause significant and harmful changes thereto.
- 2. This article does not affect the application of this Convention regarding the prevention, reduction and control of pollution of the marine environment.

SECTION 2. GLOBAL AND REGIONAL COOPERATION

Article 197 Cooperation on a global or regional basis

States shall cooperate on a global basis and, as appropriate, on a regional basis, directly or through competent international organizations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention, for the protection and preservation of the marine environment, taking into account characteristic regional features.

Article 198 Notification of imminent or actual damage

When a State becomes aware of cases in which the marine environment is in imminent danger of being damaged or has been damaged by pollution, it shall immediately notify other States it deems likely to be affected by such damage, as well as the competent international organizations.

Article 199 Contingency plans against pollution

In the cases referred to in article 198, States in the area affected, in accordance with their capabilities, and the competent international organizations shall cooperate, to the extent possible, in eliminating the effects of pollution and preventing or minimizing the damage. To this end, States shall jointly develop and promote contingency plans for responding to pollution incidents in the marine environment.

Article 200 Studies, research programmes and exchange of information and data

States shall cooperate, directly or through competent international organizations, for the purpose of promoting studies, undertaking programmes of scientific research and encouraging the exchange of information and data acquired about pollution of the marine environment. They shall endeavour to participate actively in regional and global programmes to acquire knowledge for the assessment of the nature and extent of pollution, exposure to it, and its pathways, risks and remedies.

Article 201 Scientific criteria for regulations

In the light of the information and data acquired pursuant to article 200, States shall cooperate, directly or through competent international organizations, in establishing appropriate scientific criteria for the formulation and elaboration of rules, standards and recommended practices and procedures for the prevention, reduction and control of pollution of the marine environment.

SECTION 3. TECHNICAL ASSISTANCE

Article 202 Scientific and technical assistance to developing States

States shall, directly or through competent international organizations:

- (a) promote programmes of scientific, educational, technical and other assistance to developing States for the protection and preservation of the marine environment and the prevention, reduction and control of marine pollution. Such assistance shall include, *inter alia*:
 - (i) training of their scientific and technical personnel;
 - (ii) facilitating their participation in relevant international programmes;
 - (iii) supplying them with necessary equipment and facilities;
 - (iv) enhancing their capacity to manufacture such equipment;
 - (v) advice on and developing facilities for research, monitoring, educational and other programmes;
- (b) provide appropriate assistance, especially to developing States, for the minimization of the effects of major incidents which may cause serious pollution of the marine environment;
- (c) provide appropriate assistance, especially to developing States, concerning the preparation of environmental assessments.

Article 203 Preferential treatment for developing States

Developing States shall, for the purposes of prevention, reduction and control of pollution of the marine environment or minimization of its effects, be granted preference by international organizations in:

- (a) the allocation of appropriate funds and technical assistance; and
- (b) the utilization of their specialized services.

SECTION 4. MONITORING AND ENVIRONMENTAL ASSESSMENT

Article 204 Monitoring of the risks or effects of pollution

- 1. States shall, consistent with the rights of other States, endeavour, as far as practicable, directly or through the competent international organizations, to observe, measure, evaluate and analyse, by recognized scientific methods, the risks or effects of pollution of the marine environment.
- 2. In particular, States shall keep under surveillance the effects of any activities which they permit or in which they engage in order to determine whether these activities are likely to pollute the marine environment.

Article 205 Publication of reports

States shall publish reports of the results obtained pursuant to article 204 or provide such reports at appropriate intervals to the competent international organizations, which should make them available to all States.

Article 206 Assessment of potential effects of activities

When States have reasonable grounds for believing that planned activities under their jurisdiction or control may cause substantial pollution of or significant and harmful changes to the marine environment, they shall, as far as practicable, assess the potential effects of such activities on the marine environment and shall communicate reports of the results of such assessments in the manner provided in article 205.

SECTION 5. INTERNATIONAL RULES AND NATIONAL LEGISLATION TO PREVENT, REDUCE AND CONTROL POLLUTION OF THE MARINE ENVIRONMENT

Article 207 Pollution from land-based sources

- States shall adopt laws and regulations to prevent, reduce and control
 pollution of the marine environment from land-based sources, including
 rivers, estuaries, pipelines and outfall structures, taking into account
 internationally agreed rules, standards and recommended practices and
 procedures.
- 2. States shall take other measures as may be necessary to prevent, reduce and control such pollution.
- 3. States shall endeavour to harmonize their policies in this connection at the appropriate regional level.
- 4. States, acting especially through competent international organizations or diplomatic conference, shall endeavour to establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control pollution of the marine environment from land-based sources, taking into account characteristic regional features, the economic capacity of developing States and their need for economic development. Such rules, standards and recommended practices and procedures shall be re-examined from time to time as necessary.
- 5. Laws, regulations, measures, rules, standards and recommended practices and procedures referred to in paragraphs 1, 2 and 4 shall include those designed to minimize, to the fullest extent possible, the release of toxic, harmful or noxious substances, especially those which are persistent, into the marine environment.

Article 208 Pollution from seabed activities subject to national jurisdiction

- 1 Coastal States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment arising from or in connection with seabed activities subject to their jurisdiction and from artificial islands, installations and structures under their jurisdiction, pursuant to articles 60 and 80.
- 2. States shall take other measures as may be necessary to prevent, reduce and control such pollution.
- 3. Such laws, regulations and measures shall be no less effective than international rules, standards and recommended practices and procedures.

- 4. States shall endeavour to harmonize their policies in this connection at the appropriate regional level.
- 5. States, acting especially through competent international organizations or diplomatic conference, shall establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control pollution of the marine environment referred to in paragraph 1. Such rules, standards and recommended practices and procedures shall be re-examined from time to time as necessary.

Article 209 Pollution from activities in the Area

- 1. International rules, regulations and procedures shall be established in accordance with Part XI to prevent, reduce and control pollution of the marine environment from activities in the Area. Such rules, regulations and procedures shall be re-examined from time to time as necessary.
- 2. Subject to the relevant provisions of this section, States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from activities in the Area undertaken by vessels, installations, structures and other devices flying their flag or of their registry or operating under their authority, as the case may be. The requirements of such laws and regulations shall be no less effective than the international rules, regulations and procedures referred to in paragraph 1.

Article 210 Pollution by dumping

- 1. States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment by dumping.
- 2. States shall take other measures as may be necessary to prevent, reduce and control such pollution.
- 3. Such laws, regulations and measures shall ensure that dumping is not carried out without the permission of the competent authorities of States.
- 4. States, acting especially through competent international organizations or diplomatic conference, shall endeavour to establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control such pollution. Such rules, standards and recommended practices and procedures shall be re-examined from time to time as necessary.
- 5. Dumping within the territorial sea and the exclusive economic zone or onto the continental shelf shall not be carried out without the express prior approval of the coastal State, which has the right to permit, regulate and control such dumping after due consideration of the matter with other States which by reason of their geographical situation may be adversely affected thereby
- 6. National laws, regulations and measures shall be no less effective in preventing, reducing and controlling such pollution than the global rules and standards.

Article 211 Pollution from vessels

- 1. States, acting through the competent international organization or general diplomatic conference, shall establish international rules and standards to prevent, reduce and control pollution of the marine environment from vessels and promote the adoption, in the same manner, wherever appropriate, of routeing systems designed to minimize the threat of accidents which might cause pollution of the marine environment, including the coastline, and pollution damage to the related interests of coastal States. Such rules and standards shall, in the same manner, be re-examined from time to time as necessary.
- 2. States shall adopt laws and regulations for the prevention, reduction and control of pollution of the marine environment from vessels flying their flag or of their registry. Such laws and regulations shall at least have the same effect as that of generally accepted international rules and standards established through the competent international organization or general diplomatic conference.
- 3. States which establish particular requirements for the prevention, reduction and control of pollution of the marine environment as a condition for the entry of foreign vessels into their ports or internal waters or for a call at their off-shore terminals shall give due publicity to such requirements and shall communicate them to the competent international organization. Whenever such requirements are established in identical form by two or more coastal States in an endeavour to harmonize policy, the communication shall indicate which States are participating in such cooperative arrangements. Every State shall require the master of a vessel flying its flag or of its registry, when navigating within the territorial sea of a State participating in such cooperative arrangements, to furnish, upon the request of that State, information as to whether it is proceeding to a State of the same region participating in such cooperative arrangements and, if so, to indicate whether it complies with the port entry requirements of that State. This article is without prejudice to the continued exercise by a vessel of its right of innocent passage or to the application of article 25, paragraph 2.
- 4. Coastal States may, in the exercise of their sovereignty within their territorial sea, adopt laws and regulations for the prevention, reduction and control of marine pollution from foreign vessels, including vessels exercising the right of innocent passage. Such laws and regulations shall, in accordance with Part II, section 3, not hamper innocent passage of foreign vessels.
- 5. Coastal States, for the purpose of enforcement as provided for in section 6, may in respect of their exclusive economic zones adopt laws and regulations for the prevention, reduction and control of pollution from vessels conforming to and giving effect to generally accepted international rules and standards established through the competent international organization or general diplomatic conference.
 - 6. (a) Where the international rules and standards referred to in paragraph 1 are inadequate to meet special circumstances and coastal States have reasonable grounds for believing that a particular, clearly defined area of their respective exclusive economic zones is an area where the adoption of special mandatory measures for the prevention of pollution from vessels is required for recognized technical reasons in relation to its oceanographical and ecological conditions, as well as its

utilization or the protection of its resources and the particular character of its traffic, the coastal States, after appropriate consultations through the competent international organization with any other States concerned, may, for that area, direct a communication to that organization, submitting scientific and technical evidence in support and information on necessary reception facilities. Within 12 months after receiving such a communication, the organization shall determine whether the conditions in that area correspond to the requirements set out above. If the organization so determines, the coastal States may, for that area, adopt laws and regulations for the prevention, reduction and control of pollution from vessels implementing such international rules and standards or navigational practices as are made applicable, through the organization, for special areas. These laws and regulations shall not become applicable to foreign vessels until 15 months after the submission of the communication to the organization.

- (b) The coastal States shall publish the limits of any such particular, clearly defined area.
- (c) If the coastal States intend to adopt additional laws and regulations for the same area for the prevention, reduction and control of pollution from vessels, they shall, when submitting the aforesaid communication, at the same time notify the organization thereof. Such additional laws and regulations may relate to discharges or navigational practices but shall not require foreign vessels to observe design, construction, manning or equipment standards other than generally accepted international rules and standards; they shall become applicable to foreign vessels 15 months after the submission of the communication to the organization, provided that the organization agrees within 12 months after the submission of the communication.
- 7. The international rules and standards referred to in this article should include *inter alia* those relating to prompt notification to coastal States, whose coastline or related interests may be affected by incidents, including maritime casualties, which involve discharges or probability of discharges.

Article 212 Pollution from or through the atmosphere

- 1. States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from or through the atmosphere, applicable to the air space under their sovereignty and to vessels flying their flag or vessels or aircraft of their registry, taking into account internationally agreed rules, standards and recommended practices and procedures and the safety of air navigation.
- 2. States shall take other measures as may be necessary to prevent, reduce and control such pollution.
- 3. States, acting especially through competent international organizations or diplomatic conference, shall endeavour to establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control such pollution.

SECTION 6. ENFORCEMENT

Article 213

Enforcement with respect to pollution from land-based sources

States shall enforce their laws and regulations adopted in accordance with article 207 and shall adopt laws and regulations and take other measures necessary to implement applicable international rules and standards established through competent international organizations or diplomatic conference to prevent, reduce and control pollution of the marine environment from land-based sources.

Article 214

Enforcement with respect to pollution from seabed activities

States shall enforce their laws and regulations adopted in accordance with article 208 and shall adopt laws and regulations and take other measures necessary to implement applicable international rules and standards established through competent international organizations or diplomatic conference to prevent, reduce and control pollution of the marine environment arising from or in connection with seabed activities subject to their jurisdiction and from artificial islands, installations and structures under their jurisdiction, pursuant to articles 60 and 80.

Article 215

Enforcement with respect to pollution from activities in the Area

Enforcement of international rules, regulations and procedures established in accordance with Part XI to prevent, reduce and control pollution of the marine environment from activities in the Area shall be governed by that Part.

Article 216 Enforcement with respect to pollution by dumping

- 1. Laws and regulations adopted in accordance with this Convention and applicable international rules and standards established through competent international organizations or diplomatic conference for the prevention, reduction and control of pollution of the marine environment by dumping shall be enforced:
 - (a) by the coastal State with regard to dumping within its territorial sea or its exclusive economic zone or onto its continental shelf;
 - (b) by the flag State with regard to vessels flying its flag or vessels or aircraft of its registry;
 - (c) by any State with regard to acts of loading of wastes or other matter occurring within its territory or at its off-shore terminals.
- 2. No State shall be obliged by virtue of this article to institute proceedings when another State has already instituted proceedings in accordance with this article.

Article 217 Enforcement by flag States

- 1. States shall ensure compliance by vessels flying their flag or of their registry with applicable international rules and standards, established through the competent international organization or general diplomatic conference, and with their laws and regulations adopted in accordance with this Convention for the prevention, reduction and control of pollution of the marine environment from vessels and shall accordingly adopt laws and regulations and take other measures necessary for their implementation. Flag States shall provide for the effective enforcement of such rules, standards, laws and regulations, irrespective of where a violation occurs.
- 2. States shall, in particular, take appropriate measures in order to ensure that vessels flying their flag or of their registry are prohibited from sailing, until they can proceed to sea in compliance with the requirements of the international rules and standards referred to in paragraph 1, including requirements in respect of design, construction, equipment and manning of vessels.
- 3. States shall ensure that vessels flying their flag or of their registry carry on board certificates required by and issued pursuant to international rules and standards referred to in paragraph 1. States shall ensure that vessels flying their flag are periodically inspected in order to verify that such certificates are in conformity with the actual condition of the vessels. These certificates shall be accepted by other States as evidence of the condition of the vessels and shall be regarded as having the same force as certificates issued by them, unless there are clear grounds for believing that the condition of the vessel does not correspond substantially with the particulars of the certificates.
- 4. If a vessel commits a violation of rules and standards established through the competent international organization or general diplomatic conference, the flag State, without prejudice to articles 218, 220 and 228, shall provide for immediate investigation and where appropriate institute proceedings in respect of the alleged violation irrespective of where the violation occurred or where the pollution caused by such violation has occurred or has been spotted.
- 5. Flag States conducting an investigation of the violation may request the assistance of any other State whose cooperation could be useful in clarifying the circumstances of the case. States shall endeavour to meet appropriate requests of flag States.
- 6. States shall, at the written request of any State, investigate any violation alleged to have been committed by vessels flying their flag. If satisfied that sufficient evidence is available to enable proceedings to be brought in respect of the alleged violation, flag States shall without delay institute such proceedings in accordance with their laws.
- 7. Flag States shall promptly inform the requesting State and the competent international organization of the action taken and its outcome. Such information shall be available to all States.
- 8. Penalties provided for by the laws and regulations of States for vessels flying their flag shall be adequate in severity to discourage violations wherever they occur.

Article 218 Enforcement by port States

- 1. When a vessel is voluntarily within a port or at an off-shore terminal of a State, that State may undertake investigations and, where the evidence so warrants, institute proceedings in respect of any discharge from that vessel outside the internal waters, territorial sea or exclusive economic zone of that State in violation of applicable international rules and standards established through the competent international organization or general diplomatic conference.
- 2. No proceedings pursuant to paragraph 1 shall be instituted in respect of a discharge violation in the internal waters, territorial sea or exclusive economic zone of another State unless requested by that State, the flag State, or a State damaged or threatened by the discharge violation, or unless the violation has caused or is likely to cause pollution in the internal waters, territorial sea or exclusive economic zone of the State instituting the proceedings.
- 3. When a vessel is voluntarily within a port or at an off-shore terminal of a State, that State shall, as far as practicable, comply with requests from any State for investigation of a discharge violation referred to in paragraph 1, believed to have occurred in, caused, or threatened damage to the internal waters, territorial sea or exclusive economic zone of the requesting State. It shall likewise, as far as practicable, comply with requests from the flag State for investigation of such a violation, irrespective of where the violation occurred.
- 4. The records of the investigation carried out by a port State pursuant to this article shall be transmitted upon request to the flag State or to the coastal State. Any proceedings instituted by the port State on the basis of such an investigation may, subject to section 7, be suspended at the request of the coastal State when the violation has occurred within its internal waters, territorial sea or exclusive economic zone. The evidence and records of the case, together with any bond or other financial security posted with the authorities of the port State, shall in that event be transmitted to the coastal State. Such transmittal shall preclude the continuation of proceedings in the port State.

Article 219 Measures relating to seaworthiness of vessels to avoid pollution

Subject to section 7, States which, upon request or on their own initiative, have ascertained that a vessel within one of their ports or at one of their off-shore terminals is in violation of applicable international rules and standards relating to seaworthiness of vessels and thereby threatens damage to the marine environment shall, as far as practicable, take administrative measures to prevent the vessel from sailing. Such States may permit the vessel to proceed only to the nearest appropriate repair yard and, upon removal of the causes of the violation, shall permit the vessel to continue immediately.

Article 220 Enforcement by coastal States

- 1. When a vessel is voluntarily within a port or at an off-shore terminal of a State, that State may, subject to section 7, institute proceedings in respect of any violation of its laws and regulations adopted in accordance with this Convention or applicable international rules and standards for the prevention, reduction and control of pollution from vessels when the violation has occurred within the territorial sea or the exclusive economic zone of that State.
- 2. Where there are clear grounds for believing that a vessel navigating in the territorial sea of a State has, during its passage therein, violated laws and regulations of that State adopted in accordance with this Convention or applicable international rules and standards for the prevention, reduction and control of pollution from vessels, that State, without prejudice to the application of the relevant provisions of Part II, section 3, may undertake physical inspection of the vessel relating to the violation and may, where the evidence so warrants, institute proceedings, including detention of the vessel, in accordance with its laws, subject to the provisions of section 7.
- 3. Where there are clear grounds for believing that a vessel navigating in the exclusive economic zone or the territorial sea of a State has, in the exclusive economic zone, committed a violation of applicable international rules and standards for the prevention, reduction and control of pollution from vessels or laws and regulations of that State conforming and giving effect to such rules and standards, that State may require the vessel to give information regarding its identity and port of registry, its last and its next port of call and other relevant information required to establish whether a violation has occurred.
- 4. States shall adopt laws and regulations and take other measures so that vessels flying their flag comply with requests for information pursuant to paragraph 3.
- 5. Where there are clear grounds for believing that a vessel navigating in the exclusive economic zone or the territorial sea of a State has, in the exclusive economic zone, committed a violation referred to in paragraph 3 resulting in a substantial discharge causing or threatening significant pollution of the marine environment, that State may undertake physical inspection of the vessel for matters relating to the violation if the vessel has refused to give information or if the information supplied by the vessel is manifestly at variance with the evident factual situation and if the circumstances of the case justify such inspection.
- 6. Where there is clear objective evidence that a vessel navigating in the exclusive economic zone or the territorial sea of a State has, in the exclusive economic zone, committed a violation referred to in paragraph 3 resulting in a discharge causing major damage or threat of major damage to the coastline or related interests of the coastal State, or to any resources of its territorial sea or exclusive economic zone, that State may, subject to section 7, provided that the evidence so warrants, institute proceedings, including detention of the vessel, in accordance with its laws.
- 7. Notwithstanding the provisions of paragraph 6, whenever appropriate procedures have been established, either through the competent international organization or as otherwise agreed, whereby compliance with requirements for bonding or other appropriate financial security has been

assured, the coastal State if bound by such procedures shall allow the vessel to proceed.

8. The provisions of paragraphs 3, 4, 5, 6 and 7 also apply in respect of national laws and regulations adopted pursuant to article 211, paragraph 6.

Article 221

Measures to avoid pollution arising from maritime casualties

- 1. Nothing in this Part shall prejudice the right of States, pursuant to international law, both customary and conventional, to take and enforce measures beyond the territorial sea proportionate to the actual or threatened damage to protect their coastline or related interests, including fishing, from pollution or threat of pollution following upon a maritime casualty or acts relating to such a casualty, which may reasonably be expected to result in major harmful consequences.
- 2. For the purposes of this article, "maritime casualty" means a collision of vessels, stranding or other incident of navigation, or other occurrence on board a vessel or external to it resulting in material damage or imminent threat of material damage to a vessel or cargo.

Article 222

Enforcement with respect to pollution from or through the atmosphere

States shall enforce, within the air space under their sovereignty or with regard to vessels flying their flag or vessels or aircraft of their registry, their laws and regulations adopted in accordance with article 212, paragraph 1, and with other provisions of this Convention and shall adopt laws and regulations and take other measures necessary to implement applicable international rules and standards established through competent international organizations or diplomatic conference to prevent, reduce and control pollution of the marine environment from or through the atmosphere, in conformity with all relevant international rules and standards concerning the safety of air navigation.

SECTION 7. SAFEGUARDS

Article 223
Measures to facilitate proceedings

In proceedings instituted pursuant to this Part, States shall take measures to facilitate the hearing of witnesses and the admission of evidence submitted by authorities of another State, or by the competent international organization, and shall facilitate the attendance at such proceedings of official representatives of the competent international organization, the flag State and any State affected by pollution arising out of any violation. The official representatives attending such proceedings shall have such rights and duties as may be provided under national laws and regulations or international law.

Article 224 Exercise of powers of enforcement

The powers of enforcement against foreign vessels under this Part may only be exercised by officials or by warships, military aircraft, or other ships or aircraft clearly marked and identifiable as being on government service and authorized to that effect.

Article 225 Duty to avoid adverse consequences in the exercise of the powers of enforcement

In the exercise under this Convention of their powers of enforcement against foreign vessels, States shall not endanger the safety of navigation or otherwise create any hazard to a vessel, or bring it to an unsafe port or anchorage, or expose the marine environment to an unreasonable risk.

Article 226 Investigation of foreign vessels

- (a) States shall not delay a foreign vessel longer than is essential
 for purposes of the investigations provided for in articles 216,
 218 and 220. Any physical inspection of a foreign vessel shall
 be limited to an examination of such certificates, records or
 other documents as the vessel is required to carry by generally
 accepted international rules and standards or of any similar
 documents which it is carrying; further physical inspection of
 the vessel may be undertaken only after such an examination
 and only when:
 - there are clear grounds for believing that the condition of the vessel or its equipment does not correspond substantially with the particulars of those documents;
 - (ii) the contents of such documents are not sufficient to confirm or verify a suspected violation; or
 - (iii) the vessel is not carrying valid certificates and records.
 - (b) If the investigation indicates a violation of applicable laws and regulations or international rules and standards for the protection and preservation of the marine environment, release shall be made promptly subject to reasonable procedures such as bonding or other appropriate financial security.
 - (c) Without prejudice to applicable international rules and standards relating to the seaworthiness of vessels, the release of a vessel may, whenever it would present an unreasonable threat of damage to the marine environment, be refused or made conditional upon proceeding to the nearest appropriate repair yard. Where release has been refused or made conditional, the flag State of the vessel must be promptly notified, and may seek release of the vessel in accordance with Part XV.
- 2. States shall cooperate to develop procedures for the avoidance of unnecessary physical inspection of vessels at sea.

Article 227 Non-discrimination with respect to foreign vessels

In exercising their rights and performing their duties under this Part, States shall not discriminate in form or in fact against vessels of any other State.

Article 228 Suspension and restrictions on institution of proceedings

- 1. Proceedings to impose penalties in respect of any violation of applicable laws and regulations or international rules and standards relating to the prevention, reduction and control of pollution from vessels committed by a foreign vessel beyond the territorial sea of the State instituting proceedings shall be suspended upon the taking of proceedings to impose penalties in respect of corresponding charges by the flag State within six months of the date on which proceedings were first instituted, unless those proceedings relate to a case of major damage to the coastal State or the flag State in question has repeatedly disregarded its obligation to enforce effectively the applicable international rules and standards in respect of violations committed by its vessels. The flag State shall in due course make available to the State previously instituting proceedings a full dossier of the case and the records of the proceedings, whenever the flag State has requested the suspension of proceedings in accordance with this article. When proceedings instituted by the flag State have been brought to a conclusion, the suspended proceedings shall be terminated. Upon payment of costs incurred in respect of such proceedings, any bond posted or other financial security provided in connection with the suspended proceedings shall be released by the coastal State.
- 2. Proceedings to impose penalties on foreign vessels shall not be instituted after the expiry of three years from the date on which the violation was committed, and shall not be taken by any State in the event of proceedings having been instituted by another State subject to the provisions set out in paragraph 1.
- 3. The provisions of this article are without prejudice to the right of the flag State to take any measures, including proceedings to impose penalties, according to its laws irrespective of prior proceedings by another State.

Article 229 Institution of civil proceedings

Nothing in this Convention affects the institution of civil proceedings in respect of any claim for loss or damage resulting from pollution of the marine environment.

Article 230

Monetary penalties and the observance of recognized rights of the accused

1. Monetary penalties only may be imposed with respect to violations of national laws and regulations or applicable international rules and standards for the prevention, reduction and control of pollution of the marine environment, committed by foreign vessels beyond the territorial sea.

- 2. Monetary penalties only may be imposed with respect to violations of national laws and regulations or applicable international rules and standards for the prevention, reduction and control of pollution of the marine environment, committed by foreign vessels in the territorial sea, except in the case of a wilful and serious act of pollution in the territorial sea.
- 3. In the conduct of proceedings in respect of such violations committed by a foreign vessel which may result in the imposition of penalties, recognized rights of the accused shall be observed.

Article 231 Notification to the flag State and other States concerned

States shall promptly notify the flag State and any other State concerned of any measures taken pursuant to section 6 against foreign vessels, and shall submit to the flag State all official reports concerning such measures. However, with respect to violations committed in the territorial sea, the foregoing obligations of the coastal State apply only to such measures as are taken in proceedings. The diplomatic agents or consular officers and where possible the maritime authority of the flag State, shall be immediately informed of any such measures taken pursuant to section 6 against foreign vessels.

Article 232 Liability of States arising from enforcement measures

States shall be liable for damage or loss attributable to them arising from measures taken pursuant to section 6 when such measures are unlawful or exceed those reasonably required in the light of available information. States shall provide for recourse in their courts for actions in respect of such damage or loss.

Article 233 Safeguards with respect to straits used for international navigation

Nothing in sections 5, 6 and 7 affects the legal regime of straits used for international navigation. However, if a foreign ship other than those referred to in section 10 has committed a violation of the laws and regulations referred to in article 42, paragraph 1(a) and (b), causing or threatening major damage to the marine environment of the straits, the States bordering the straits may take appropriate enforcement measures and if so shall respect mutatis mutandis the provisions of this section.

SECTION 8. ICE-COVERED AREAS

Article 234 Ice-covered areas

Coastal States have the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone, where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment

could cause major harm to or irreversible disturbance of the ecological balance. Such laws and regulations shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence.

SECTION 9. RESPONSIBILITY AND LIABILITY

Article 235 Responsibility and liability

- 1. States are responsible for the fulfilment of their international obligations concerning the protection and preservation of the marine environment. They shall be liable in accordance with international law.
- 2. States shall ensure that recourse is available in accordance with their legal systems for prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment by natural or juridical persons under their jurisdiction.
- 3. With the objective of assuring prompt and adequate compensation in respect of all damage caused by pollution of the marine environment, States shall cooperate in the implementation of existing international law and the further development of international law relating to responsibility and liability for the assessment of and compensation for damage and the settlement of related disputes, as well as, where appropriate, development of criteria and procedures for payment of adequate compensation, such as compulsory insurance or compensation funds.

SECTION 10. SOVEREIGN IMMUNITY

Article 236 Sovereign immunity

The provisions of this Convention regarding the protection and preservation of the marine environment do not apply to any warship, naval auxiliary, other vessels or aircraft owned or operated by a State and used, for the time being, only on government non-commercial service. However, each State shall ensure, by the adoption of appropriate measures not impairing operations or operational capabilities of such vessels or aircraft owned or operated by it, that such vessels or aircraft act in a manner consistent, so far as is reasonable and practicable, with this Convention.

SECTION 11. OBLIGATIONS UNDER OTHER CONVENTIONS ON THE PROTECTION AND PRESERVATION OF THE MARINE ENVIRONMENT

Article 237
Obligations under other conventions on the protection and preservation of the marine environment

1. The provisions of this Part are without prejudice to the specific obligations assumed by States under special conventions and agreements concluded previously which relate to the protection and preservation of the marine environment and to agreements which may be concluded in furtherance of the general principles set forth in this Convention.

2. Specific obligations assumed by States under special conventions, with respect to the protection and preservation of the marine environment, should be carried out in a manner consistent with the general principles and objectives of this Convention.

PART XIII

MARINE SCIENTIFIC RESEARCH

SECTION 1. GENERAL PROVISIONS

Article 238
Right to conduct marine scientific research

All States, irrespective of their geographical location, and competent international organizations have the right to conduct marine scientific research subject to the rights and duties of other States as provided for in this Convention.

Article 239 Promotion of marine scientific research

States and competent international organizations shall promote and facilitate the development and conduct of marine scientific research in accordance with this Convention.

Article 240

General principles for the conduct of marine scientific research

In the conduct of marine scientific research the following principles shall apply:

- (a) marine scientific research shall be conducted exclusively for peaceful purposes;
- (b) marine scientific research shall be conducted with appropriate scientific methods and means compatible with this Convention;
- (c) marine scientific research shall not unjustifiably interfere with other legitimate uses of the sea compatible with this Convention and shall be duly respected in the course of such uses;
- (d) marine scientific research shall be conducted in compliance with all relevant regulations adopted in conformity with this Convention including those for the protection and preservation of the marine environment.

Article 241 Non-recognition of marine scientific research activities as the legal basis for claims

Marine scientific research activities shall not constitute the legal basis for any claim to any part of the marine environment or its resources.

SECTION 2. INTERNATIONAL COOPERATION

Article 242 Promotion of international cooperation

- 1. States and competent international organizations shall, in accordance with the principle of respect for sovereignty and jurisdiction and on the basis of mutual benefit, promote international cooperation in marine scientific research for peaceful purposes.
- 2. In this context, without prejudice to the rights and duties of States under this Convention, a State, in the application of this Part, shall provide, as appropriate, other States with a reasonable opportunity to obtain from it, or with its cooperation, information necessary to prevent and control damage to the health and safety of persons and to the marine environment.

Article 243 Creation of favourable conditions

States and competent international organizations shall cooperate, through the conclusion of bilateral and multilateral agreements, to create favourable conditions for the conduct of marine scientific research in the marine environment and to integrate the efforts of scientists in studying the essence of phenomena and processes occurring in the marine environment and the interrelations between them.

Article 244 Publication and dissemination of information and knowledge

- 1. States and competent international organizations shall, in accordance with this Convention, make available by publication and dissemination through appropriate channels information on proposed major programmes and their objectives as well as knowledge resulting from marine scientific research
- 2. For this purpose, States, both individually and in cooperation with other States and with competent international organizations, shall actively promote the flow of scientific data and information and the transfer of knowledge resulting from marine scientific research, especially to developing States, as well as the strengthening of the autonomous marine scientific research capabilities of developing States through, *inter alia*, programmes to provide adequate education and training of their technical and scientific personnel.

SECTION 3. CONDUCT AND PROMOTION OF MARINE SCIENTIFIC RESEARCH

Article 245 Marine scientific research in the territorial sea

Coastal States, in the exercise of their sovereignty, have the exclusive right to regulate, authorize and conduct marine scientific research in their territorial sea. Marine scientific research therein shall be conducted only with the express consent of and under the conditions set forth by the coastal State.

Article 246 Marine scientific research in the exclusive economic zone and on the continental shelf

- 1. Coastal States, in the exercise of their jurisdiction, have the right to regulate, authorize and conduct marine scientific research in their exclusive economic zone and on their continental shelf in accordance with the relevant provisions of this Convention.
- 2. Marine scientific research in the exclusive economic zone and on the continental shelf shall be conducted with the consent of the coastal State.
- 3. Coastal States shall, in normal circumstances, grant their consent for marine scientific research projects by other States or competent international organizations in their exclusive economic zone or on their continental shelf to be carried out in accordance with this Convention exclusively for peaceful purposes and in order to increase scientific knowledge of the marine environment for the benefit of all mankind. To this end, coastal States shall establish rules and procedures ensuring that such consent will not be delayed or denied unreasonably.
- 4. For the purposes of applying paragraph 3, normal circumstances may exist in spite of the absence of diplomatic relations between the coastal State and the researching State.
- 5. Coastal States may however in their discretion withhold their consent to the conduct of a marine scientific research project of another State or competent international organization in the exclusive economic zone or on the continental shelf of the coastal State if that project:
 - (a) is of direct significance for the exploration and exploitation of natural resources, whether living or non-living;
 - (b) involves drilling into the continental shelf, the use of explosives or the introduction of harmful substances into the marine environment;
 - (c) involves the construction, operation or use of artificial islands, installations and structures referred to in articles 60 and 80;
 - (d) contains information communicated pursuant to article 248 regarding the nature and objectives of the project which is inaccurate or if the researching State or competent international organization has outstanding obligations to the coastal State from a prior research project.
- 6. Notwithstanding the provisions of paragraph 5, coastal States may not exercise their discretion to withhold consent under subparagraph (a) of that paragraph in respect of marine scientific research projects to be undertaken in accordance with the provisions of this Part on the continental shelf, beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, outside those specific areas which coastal States may at any time publicly designate as areas in which exploitation or detailed exploratory operations focused on those areas are occurring or will occur within a reasonable period of time. Coastal States shall give reasonable notice of the designation of such areas, as well as any modifications thereto, but shall not be obliged to give details of the operations therein.
- 7. The provisions of paragraph 6 are without prejudice to the rights of coastal States over the continental shelf as established in article 77.
- 8. Marine scientific research activities referred to in this article shall not unjustifiably interfere with activities undertaken by coastal States in the

exercise of their sovereign rights and jurisdiction provided for in this Convention.

Article 247 Marine scientific research projects undertaken by or under the auspices of international organizations

A coastal State which is a member of or has a bilateral agreement with an international organization, and in whose exclusive economic zone or on whose continental shelf that organization wants to carry out a marine

whose continental shelf that organization wants to carry out a marine scientific research project, directly or under its auspices, shall be deemed to have authorized the project to be carried out in conformity with the agreed specifications if that State approved the detailed project when the decision was made by the organization for the undertaking of the project, or is willing to participate in it, and has not expressed any objection within four months of notification of the project by the organization to the coastal State.

Article 248 Duty to provide information to the coastal State

States and competent international organizations which intend to undertake marine scientific research in the exclusive economic zone or on the continental shelf of a coastal State shall, not less than six months in advance of the expected starting date of the marine scientific research project, provide that State with a full description of:

- (a) the nature and objectives of the project:
- (b) the method and means to be used, including name, tonnage, type and class of vessels and a description of scientific equipment;
- (c) the precise geographical areas in which the project is to be conducted;
- (d) the expected date of first appearance and final departure of the research vessels, or deployment of the equipment and its removal, as appropriate;
- (e) the name of the sponsoring institution, its director, and the person in charge of the project; and
- (f) the extent to which it is considered that the coastal State should be able to participate or to be represented in the project.

Article 249 Duty to comply with certain conditions

- 1. States and competent international organizations when undertaking marine scientific research in the exclusive economic zone or on the continental shelf of a coastal State shall comply with the following conditions:
 - (a) ensure the right of the coastal State, if it so desires, to participate or be represented in the marine scientific research project, especially on board research vessels and other craft or scientific research installations, when practicable, without payment of any remuneration to the scientists of the coastal State and without obligation to contribute towards the costs of the project;

- (b) provide the coastal State, at its request, with preliminary reports, as soon as practicable, and with the final results and conclusions after the completion of the research;
- (c) undertake to provide access for the coastal State, at its request, to all data and samples derived from the marine scientific research project and likewise to furnish it with data which may be copied and samples which may be divided without detriment to their scientific value;
- (d) if requested, provide the coastal State with an assessment of such data, samples and research results or provide assistance in their assessment or interpretation;
- (e) ensure, subject to paragraph 2, that the research results are made internationally available through appropriate national or international channels, as soon as practicable;
- (f) inform the coastal State immediately of any major change in the research programme;
- (g) unless otherwise agreed, remove the scientific research installations or equipment once the research is completed.
- 2. This article is without prejudice to the conditions established by the laws and regulations of the coastal State for the exercise of its discretion to grant or withhold consent pursuant to article 246, paragraph 5, including requiring prior agreement for making internationally available the research results of a project of direct significance for the exploration and exploitation of natural resources.

Article 250

Communications concerning marine scientific research projects

Communications concerning the marine scientific research projects shall be made through appropriate official channels, unless otherwise agreed.

Article 251 General criteria and guidelines

States shall seek to promote through competent international organizations the establishment of general criteria and guidelines to assist States in ascertaining the nature and implications of marine scientific research.

Article 252 Implied consent

States or competent international organizations may proceed with a marine scientific research project six months after the date upon which the information required pursuant to article 248 was provided to the coastal State unless within four months of the receipt of the communication containing such information the coastal State has informed the State or organization conducting the research that:

- (a) it has withheld its consent under the provisions of article 246; or
- (b) the information given by that State or competent international organization regarding the nature or objectives of the project does not conform to the manifestly evident facts; or

- (c) it requires supplementary information relevant to conditions and the information provided for under articles 248 and 249; or
- (d) outstanding obligations exist with respect to a previous marine scientific research project carried out by that State or organization, with regard to conditions established in article 249.

Article 253

Suspension or cessation of marine scientific research activities

- 1. A coastal State shall have the right to require the suspension of any marine scientific research activities in progress within its exclusive economic zone or on its continental shelf if:
 - (a) the research activities are not being conducted in accordance with the information communicated as provided under article 248 upon which the consent of the coastal State was based; or
 - (b) the State or competent international organization conducting the research activities fails to comply with the provisions of article 249 concerning the rights of the coastal State with respect to the marine scientific research project.
- 2. A coastal State shall have the right to require the cessation of any marine scientific research activities in case of any non-compliance with the provisions of article 248 which amounts to a major change in the research project or the research activities.
- 3. A coastal State may also require cessation of marine scientific research activities if any of the situations contemplated in paragraph 1 are not rectified within a reasonable period of time.
- 4. Following notification by the coastal State of its decision to order suspension or cessation, States or competent international organizations authorized to conduct marine scientific research activities shall terminate the research activities that are the subject of such a notification.
- 5. An order of suspension under paragraph 1 shall be lifted by the coastal State and the marine scientific research activities allowed to continue once the researching State or competent international organization has complied with the conditions required under articles 248 and 249.

Article 254 Rights of neighbouring land-locked and geographically disadvantaged States

- 1. States and competent international organizations which have submitted to a coastal State a project to undertake marine scientific research referred to in article 246, paragraph 3, shall give notice to the neighbouring land-locked and geographically disadvantaged States of the proposed research project, and shall notify the coastal State thereof.
- 2. After the consent has been given for the proposed marine scientific research project by the coastal State concerned, in accordance with article 246 and other relevant provisions of this Convention, States and competent international organizations undertaking such a project shall provide to the neighbouring land-locked and geographically disadvantaged States, at their request and when appropriate, relevant information as specified in article 248 and article 249, paragraph 1(f).

- 3. The neighbouring land-locked and geographically disadvantaged States referred to above shall, at their request, be given the opportunity to participate, whenever feasible, in the proposed marine scientific research project through qualified experts appointed by them and not objected to by the coastal State, in accordance with the conditions agreed for the project, in conformity with the provisions of this Convention, between the coastal State concerned and the State or competent international organizations conducting the marine scientific research.
- 4. States and competent international organizations referred to in paragraph 1 shall provide to the above-mentioned land-locked and geographically disadvantaged States, at their request, the information and assistance specified in article 249, paragraph 1(d), subject to the provisions of article 249, paragraph 2.

Article 255 Measures to facilitate marine scientific research and assist research vessels

States shall endeavour to adopt reasonable rules, regulations and procedures to promote and facilitate marine scientific research conducted in accordance with this Convention beyond their territorial sea and, as appropriate, to facilitate, subject to the provisions of their laws and regulations, access to their harbours and promote assistance for marine scientific research vessels which comply with the relevant provisions of this Part.

Article 256 Marine scientific research in the Area

All States, irrespective of their geographical location, and competent international organizations have the right, in conformity with the provisions of Part XI, to conduct marine scientific research in the Area.

Article 257 Marine scientific research in the water column beyond the exclusive economic zone

All States, irrespective of their geographical location, and competent international organizations have the right, in conformity with this Convention, to conduct marine scientific research in the water column beyond the limits of the exclusive economic zone.

SECTION 4. SCIENTIFIC RESEARCH INSTALLATIONS OR EQUIPMENT IN THE MARINE ENVIRONMENT

Article 258
Deployment and use

The deployment and use of any type of scientific research installations or equipment in any area of the marine environment shall be subject to the same conditions as are prescribed in this Convention for the conduct of marine scientific research in any such area.

Article 259 Legal status

The installations or equipment referred to in this section do not possess the status of islands. They have no territorial sea of their own, and their presence does not affect the delimitation of the territorial sea, the exclusive economic zone or the continental shelf.

Article 260 Safety zones

Safety zones of a reasonable breadth not exceeding a distance of 500 metres may be created around scientific research installations in accordance with the relevant provisions of this Convention. All States shall ensure that such safety zones are respected by their vessels.

Article 261 Non-interference with shipping routes

The deployment and use of any type of scientific research installations or equipment shall not constitute an obstacle to established international shipping routes.

Article 262 Identification markings and warning signals

Installations or equipment referred to in this section shall bear identification markings indicating the State of registry or the international organization to which they belong and shall have adequate internationally agreed warning signals to ensure safety at sea and the safety of air navigation, taking into account rules and standards established by competent international organizations.

SECTION 5. RESPONSIBILITY AND LIABILITY

Article 263 Responsibility and liability

- 1. States and competent international organizations shall be responsible for ensuring that marine scientific research, whether undertaken by them or on their behalf, is conducted in accordance with this Convention.
- 2. States and competent international organizations shall be responsible and liable for the measures they take in contravention of this Convention in respect of marine scientific research conducted by other States, their natural or juridical persons or by competent international organizations, and shall provide compensation for damage resulting from such measures.
- 3. States and competent international organizations shall be responsible and liable pursuant to article 235 for damage caused by pollution of the marine environment arising out of marine scientific research undertaken by them or on their behalf.

SECTION 6. SETTLEMENT OF DISPUTES AND INTERIM MEASURES

Article 264
Settlement of disputes

Disputes concerning the interpretation or application of the provisions of this Convention with regard to marine scientific research shall be settled in accordance with Part XV, sections 2 and 3.

Article 265 Interim measures

Pending settlement of a dispute in accordance with Part XV, sections 2 and 3, the State or competent international organization authorized to conduct a marine scientific research project shall not allow research activities to commence or continue without the express consent of the coastal State concerned.

PART XIV

DEVELOPMENT AND TRANSFER OF MARINE TECHNOLOGY

SECTION 1. GENERAL PROVISIONS

Article 266
Promotion of the development and transfer of marine technology

- 1. States, directly or through competent international organizations, shall cooperate in accordance with their capabilities to promote actively the development and transfer of marine science and marine technology on fair and reasonable terms and conditions.
- 2. States shall promote the development of the marine scientific and technological capacity of States which may need and request technical assistance in this field, particularly developing States, including land-locked and geographically disadvantaged States, with regard to the exploration, exploitation, conservation and management of marine resources, the protection and preservation of the marine environment, marine scientific research and other activities in the marine environment compatible with this Convention, with a view to accelerating the social and economic development of the developing States.
- 3. States shall endeavour to foster favourable economic and legal conditions for the transfer of marine technology for the benefit of all parties concerned on an equitable basis.

Article 267 Protection of legitimate interests

States, in promoting cooperation pursuant to article 266, shall have due regard for all legitimate interests including, *inter alia*, the rights and duties of holders, suppliers and recipients of marine technology.

Article 268 Basic objectives

States, directly or through competent international organizations, shall promote:

- (a) the acquisition, evaluation and dissemination of marine technological knowledge and facilitate access to such information and data;
- (b) the development of appropriate marine technology;
- (c) the development of the necessary technological infrastructure to facilitate the transfer of marine technology;
- (d) the development of human resources through training and education of nationals of developing States and countries and especially the nationals of the least developed among them;
- (e) international cooperation at all levels, particularly at the regional, subregional and bilateral levels.

Article 269 Measures to achieve the basic objectives

In order to achieve the objectives referred to in article 268, States, directly or through competent international organizations, shall endeavour, *inter alia*, to:

- (a) establish programmes of technical cooperation for the effective transfer of all kinds of marine technology to States which may need and request technical assistance in this field, particularly the developing land-locked and geographically disadvantaged States, as well as other developing States which have not been able either to establish or develop their own technological capacity in marine science and in the exploration and exploitation of marine resources or to develop the infrastructure of such technology;
- (b) promote favourable conditions for the conclusion of agreements, contracts and other similar arrangements, under equitable and reasonable conditions;
- (c) hold conferences, seminars and symposia on scientific and technological subjects, in particular on policies and methods for the transfer of marine technology;
- (d) promote the exchange of scientists and of technological and other experts;
- (e) undertake projects and promote joint ventures and other forms of bilateral and multilateral cooperation.

SECTION 2. INTERNATIONAL COOPERATION

Article 270
Ways and means of international cooperation

International cooperation for the development and transfer of marine technology shall be carried out, where feasible and appropriate, through existing bilateral, regional or multilateral programmes, and also through expanded and new programmes in order to facilitate marine scientific research, the transfer of marine technology, particularly in new fields, and appropriate international funding for ocean research and development.

Article 271 Guidelines, criteria and standards

States, directly or through competent international organizations, shall promote the establishment of generally accepted guidelines, criteria and standards for the transfer of marine technology on a bilateral basis or within the framework of international organizations and other fora, taking into account, in particular, the interests and needs of developing States.

Article 272 Coordination of international programmes

In the field of transfer of marine technology, States shall endeavour to ensure that competent international organizations coordinate their activities, including any regional or global programmes, taking into account the interests and needs of developing States, particularly land-locked and geographically disadvantaged States.

Article 273 Cooperation with international organizations and the Authority

States shall cooperate actively with competent international organizations and the Authority to encourage and facilitate the transfer to developing States, their nationals and the Enterprise of skills and marine technology with regard to activities in the Area.

Article 274 Objectives of the Authority

Subject to all legitimate interests including, *inter alia*, the rights and duties of holders, suppliers and recipients of technology, the Authority, with regard to activities in the Area, shall ensure that:

- (a) on the basis of the principle of equitable geographical distribution, nationals of developing States, whether coastal, land-locked or geographically disadvantaged, shall be taken on for the purposes of training as members of the managerial, research and technical staff constituted for its undertakings;
- (b) the technical documentation on the relevant equipment, machinery, devices and processes is made available to all States, in particular developing States which may need and request technical assistance in this field;
- (c) adequate provision is made by the Authority to facilitate the acquisition of technical assistance in the field of marine technology by States which may need and request it, in particular developing States, and the acquisition by their nationals of the necessary skills and know-how, including professional training;
- (d) States which may need and request technical assistance in this field, in particular developing States, are assisted in the acquisition of necessary equipment, processes, plant and other technical know-how through any financial arrangements provided for in this Convention.

SECTION 3. NATIONAL AND REGIONAL MARINE SCIENTIFIC AND TECHNOLOGICAL CENTRES

Article 275 Establishment of national centres

- 1. States, directly or through competent international organizations and the Authority, shall promote the establishment, particularly in developing coastal States, of national marine scientific and technological research centres and the strengthening of existing national centres, in order to stimulate and advance the conduct of marine scientific research by developing coastal States and to enhance their national capabilities to utilize and preserve their marine resources for their economic benefit.
- 2. States, through competent international organizations and the Authority, shall give adequate support to facilitate the establishment and strengthening of such national centres so as to provide for advanced training facilities and necessary equipment, skills and know-how as well as technical experts to such States which may need and request such assistance.

Article 276 Establishment of regional centres

- 1. States, in coordination with the competent international organizations, the Authority and national marine scientific and technological research institutions, shall promote the establishment of regional marine scientific and technological research centres, particularly in developing States, in order to stimulate and advance the conduct of marine scientific research by developing States and foster the transfer of marine technology.
- 2. All States of a region shall cooperate with the regional centres therein to ensure the more effective achievement of their objectives.

Article 277 Functions of regional centres

The functions of such regional centres shall include, *inter alia*:

- (a) training and educational programmes at all levels on various aspects of marine scientific and technological research, particularly marine biology, including conservation and management of living resources, oceanography, hydrography, engineering, geological exploration of the seabed, mining and desalination technologies;
- (b) management studies;
- study programmes related to the protection and preservation of the marine environment and the prevention, reduction and control of pollution;
- (d) organization of regional conferences, seminars and symposia:
- (e) acquisition and processing of marine scientific and technological data and information;
- (f) prompt dissemination of results of marine scientific and technological research in readily available publications;
- (g) publicizing national policies with regard to the transfer of marine technology and systematic comparative study of those policies;

- (h) compilation and systematization of information on the marketing of technology and on contracts and other arrangements concerning patents;
- (i) technical cooperation with other States of the region.

SECTION 4. COOPERATION AMONG INTERNATIONAL ORGANIZATIONS

Article 278
Cooperation among international organizations

The competent international organizations referred to in this Part and in Part XIII shall take all appropriate measures to ensure, either directly or in close cooperation among themselves, the effective discharge of their functions and responsibilities under this Part.

PART XV

SETTLEMENT OF DISPUTES

SECTION 1. GENERAL PROVISIONS

Article 279
Obligation to settle disputes by peaceful means

States Parties shall settle any dispute between them concerning the interpretation or application of this Convention by peaceful means in accordance with Article 2, paragraph 3, of the Charter of the United Nations and, to this end, shall seek a solution by the means indicated in Article 33, paragraph 1, of the Charter.

Article 280

Settlement of disputes by any peaceful means chosen by the parties

Nothing in this Part impairs the right of any States Parties to agree at any time to settle a dispute between them concerning the interpretation or application of this Convention by any peaceful means of their own choice.

Article 281

Procedure where no settlement has been reached by the parties

- 1. If the States Parties which are parties to a dispute concerning the interpretation or application of this Convention have agreed to seek settlement of the dispute by a peaceful means of their own choice, the procedures provided for in this Part apply only where no settlement has been reached by recourse to such means and the agreement between the parties does not exclude any further procedure.
- 2. If the parties have also agreed on a time-limit, paragraph 1 applies only upon the expiration of that time-limit.

Article 282 Obligations under general, regional or bilateral agreements

If the States Parties which are parties to a dispute concerning the interpretation or application of this Convention have agreed, through a general, regional or bilateral agreement or otherwise, that such dispute shall, at the request of any party to the dispute, be submitted to a procedure that entails a binding decision, that procedure shall apply in lieu of the procedures provided for in this Part, unless the parties to the dispute otherwise agree.

Article 283 Obligation to exchange views

- 1. When a dispute arises between States Parties concerning the interpretation or application of this Convention, the parties to the dispute shall proceed expeditiously to an exchange of views regarding its settlement by negotiation or other peaceful means.
- 2. The parties shall also proceed expeditiously to an exchange of views where a procedure for the settlement of such a dispute has been terminated without a settlement or where a settlement has been reached and the circumstances require consultation regarding the manner of implementing the settlement.

Article 284 Conciliation

- 1. A State Party which is a party to a dispute concerning the interpretation or application of this Convention may invite the other party or parties to submit the dispute to conciliation in accordance with the procedure under Annex V, section 1, or another conciliation procedure.
- 2. If the invitation is accepted and if the parties agree upon the conciliation procedure to be applied, any party may submit the dispute to that procedure.
- 3. If the invitation is not accepted or the parties do not agree upon the procedure, the conciliation proceedings shall be deemed to be terminated.
- 4. Unless the parties otherwise agree, when a dispute has been submitted to conciliation, the proceedings may be terminated only in accordance with the agreed conciliation procedure.

Article 285

Application of this section to disputes submitted pursuant to Part XI

This section applies to any dispute which pursuant to Part XI, section 5, is to be settled in accordance with procedures provided for in this Part. If an entity other than a State Party is a party to such a dispute, this section applies *mutatis mutandis*.

SECTION 2. COMPULSORY PROCEDURES ENTAILING BINDING DECISIONS

Article 286
Application of procedures under this section

Subject to section 3, any dispute concerning the interpretation or application of this Convention shall, where no settlement has been reached by recourse to section 1, be submitted at the request of any party to the dispute to the court or tribunal having jurisdiction under this section.

Article 287 Choice of procedure

- 1. When signing, ratifying or acceding to this Convention or at any time thereafter, a State shall be free to choose, by means of a written declaration, one or more of the following means for the settlement of disputes concerning the interpretation or application of this Convention:
 - (a) the International Tribunal for the Law of the Sea established in accordance with Annex VI;
 - (b) the International Court of Justice;
 - (c) an arbitral tribunal constituted in accordance with Annex VII;
 - (d) a special arbitral tribunal constituted in accordance with Annex VIII for one or more of the categories of disputes specified therein.
- 2. A declaration made under paragraph 1 shall not affect or be affected by the obligation of a State Party to accept the jurisdiction of the Seabed Disputes Chamber of the International Tribunal for the Law of the Sea to the extent and in the manner provided for in Part XI, section 5.
- 3. A State Party, which is a party to a dispute not covered by a declaration in force, shall be deemed to have accepted arbitration in accordance with Annex VII.
- 4. If the parties to a dispute have accepted the same procedure for the settlement of the dispute, it may be submitted only to that procedure, unless the parties otherwise agree.
- 5. If the parties to a dispute have not accepted the same procedure for the settlement of the dispute, it may be submitted only to arbitration in accordance with Annex VII, unless the parties otherwise agree.
- 6. A declaration made under paragraph 1 shall remain in force until three months after notice of revocation has been deposited with the Secretary-General of the United Nations.
- 7. A new declaration, a notice of revocation or the expiry of a declaration does not in any way affect proceedings pending before a court or tribunal having jurisdiction under this article, unless the parties otherwise agree
- 8. Declarations and notices referred to in this article shall be deposited with the Secretary-General of the United Nations, who shall transmit copies thereof to the States Parties.

Article 288 Jurisdiction

- 1. A court or tribunal referred to in article 287 shall have jurisdiction over any dispute concerning the interpretation or application of this Convention which is submitted to it in accordance with this Part.
- 2. A court or tribunal referred to in article 287 shall also have jurisdiction over any dispute concerning the interpretation or application of an international agreement related to the purposes of this Convention, which is submitted to it in accordance with the agreement.
- 3. The Seabed Disputes Chamber of the International Tribunal for the Law of the Sea established in accordance with Annex VI, and any other chamber or arbitral tribunal referred to in Part XI, section 5, shall have jurisdiction in any matter which is submitted to it in accordance therewith.
- 4. In the event of a dispute as to whether a court or tribunal has jurisdiction, the matter shall be settled by decision of that court or tribunal.

Article 289 Experts

In any dispute involving scientific or technical matters, a court or tribunal exercising jurisdiction under this section may, at the request of a party or *proprio motu*, select in consultation with the parties no fewer than two scientific or technical experts chosen preferably from the relevant list prepared in accordance with Annex VIII, article 2, to sit with the court or tribunal but without the right to vote.

Article 290 Provisional measures

- 1. If a dispute has been duly submitted to a court or tribunal which considers that *prima facie* it has jurisdiction under this Part or Part XI, section 5, the court or tribunal may prescribe any provisional measures which it considers appropriate under the circumstances to preserve the respective rights of the parties to the dispute or to prevent serious harm to the marine environment, pending the final decision.
- 2. Provisional measures may be modified or revoked as soon as the circumstances justifying them have changed or ceased to exist.
- 3. Provisional measures may be prescribed, modified or revoked under this article only at the request of a party to the dispute and after the parties have been given an opportunity to be heard.
- 4. The court or tribunal shall forthwith give notice to the parties to the dispute, and to such other States Parties as it considers appropriate, of the prescription, modification or revocation of provisional measures.
- 5. Pending the constitution of an arbitral tribunal to which a dispute is being submitted under this section, any court or tribunal agreed upon by the parties or, failing such agreement within two weeks from the date of the request for provisional measures, the International Tribunal for the Law of the Sea or, with respect to activities in the Area, the Seabed Disputes Chamber, may prescribe, modify or revoke provisional measures in accordance with this article if it considers that *prima facie* the tribunal which is to be constituted would have jurisdiction and that the urgency of the situation so requires. Once constituted, the tribunal to which the dispute has been submitted may

modify, revoke or affirm those provisional measures, acting in conformity with paragraphs 1 to 4.

6. The parties to the dispute shall comply promptly with any provisional measures prescribed under this article.

Article 291 Access

- 1. All the dispute settlement procedures specified in this Part shall be open to States Parties.
- 2. The dispute settlement procedures specified in this Part shall be open to entities other than States Parties only as specifically provided for in this Convention.

Article 292 Prompt release of vessels and crews

- 1. Where the authorities of a State Party have detained a vessel flying the flag of another State Party and it is alleged that the detaining State has not complied with the provisions of this Convention for the prompt release of the vessel or its crew upon the posting of a reasonable bond or other financial security, the question of release from detention may be submitted to any court or tribunal agreed upon by the parties or, failing such agreement within 10 days from the time of detention, to a court or tribunal accepted by the detaining State under article 287 or to the International Tribunal for the Law of the Sea, unless the parties otherwise agree.
- 2. The application for release may be made only by or on behalf of the flag State of the vessel.
- 3. The court or tribunal shall deal without delay with the application for release and shall deal only with the question of release, without prejudice to the merits of any case before the appropriate domestic forum against the vessel, its owner or its crew. The authorities of the detaining State remain competent to release the vessel or its crew at any time.
- 4. Upon the posting of the bond or other financial security determined by the court or tribunal, the authorities of the detaining State shall comply promptly with the decision of the court or tribunal concerning the release of the vessel or its crew.

Article 293 Applicable law

- 1. A court or tribunal having jurisdiction under this section shall apply this Convention and other rules of international law not incompatible with this Convention.
- 2. Paragraph I does not prejudice the power of the court or tribunal having jurisdiction under this section to decide a case *ex aequo et bono*, if the parties so agree.

Article 294 Preliminary proceedings

1. A court or tribunal provided for in article 287 to which an application is made in respect of a dispute referred to in article 297 shall

determine at the request of a party, or may determine *proprio motu*, whether the claim constitutes an abuse of legal process or whether *prima facie* it is well founded. If the court or tribunal determines that the claim constitutes an abuse of legal process or is *prima facie* unfounded, it shall take no further action in the case.

- 2. Upon receipt of the application, the court or tribunal shall immediately notify the other party or parties of the application, and shall fix a reasonable time-limit within which they may request it to make a determination in accordance with paragraph 1.
- 3. Nothing in this article affects the right of any party to a dispute to make preliminary objections in accordance with the applicable rules of procedure.

Article 295 Exhaustion of local remedies

Any dispute between States Parties concerning the interpretation or application of this Convention may be submitted to the procedures provided for in this section only after local remedies have been exhausted where this is required by international law.

Article 296 Finality and binding force of decisions

- 1. Any decision rendered by a court or tribunal having jurisdiction under this section shall be final and shall be complied with by all the parties to the dispute.
- 2. Any such decision shall have no binding force except between the parties and in respect of that particular dispute.

SECTION 3. LIMITATIONS AND EXCEPTIONS TO APPLICABILITY OF SECTION 2

Article 297 Limitations on applicability of section 2

- 1. Disputes concerning the interpretation or application of this Convention with regard to the exercise by a coastal State of its sovereign rights or jurisdiction provided for in this Convention shall be subject to the procedures provided for in section 2 in the following cases:
 - (a) when it is alleged that a coastal State has acted in contravention of the provisions of this Convention in regard to the freedoms and rights of navigation, overflight or the laying of submarine cables and pipelines, or in regard to other internationally lawful uses of the sea specified in article 58;
 - (b) when it is alleged that a State in exercising the aforementioned freedoms, rights or uses has acted in contravention of this Convention or of laws or regulations adopted by the coastal State in conformity with this Convention and other rules of international law not incompatible with this Convention; or
 - (c) when it is alleged that a coastal State has acted in contravention of specified international rules and standards for the protection and preservation of the marine environment which are

- applicable to the coastal State and which have been established by this Convention or through a competent international organization or diplomatic conference in accordance with this Convention.
- 2. (a) Disputes concerning the interpretation or application of the provisions of this Convention with regard to marine scientific research shall be settled in accordance with section 2, except that the coastal State shall not be obliged to accept the submission to such settlement of any dispute arising out of:
 - (i) the exercise by the coastal State of a right or discretion in accordance with article 246; or
 - (ii) a decision by the coastal State to order suspension or cessation of a research project in accordance with article 253.
 - (b) A dispute arising from an allegation by the researching State that with respect to a specific project the coastal State is not exercising its rights under articles 246 and 253 in a manner compatible with this Convention shall be submitted, at the request of either party, to conciliation under Annex V, section 2, provided that the conciliation commission shall not call in question the exercise by the coastal State of its discretion to designate specific areas as referred to in article 246, paragraph 6, or of its discretion to withhold consent in accordance with article 246, paragraph 5.
- 3. (a) Disputes concerning the interpretation or application of the provisions of this Convention with regard to fisheries shall be settled in accordance with section 2, except that the coastal State shall not be obliged to accept the submission to such settlement of any dispute relating to its sovereign rights with respect to the living resources in the exclusive economic zone or their exercise, including its discretionary powers for determining the allowable catch, its harvesting capacity, the allocation of surpluses to other States and the terms and conditions established in its conservation and management laws and regulations.
 - (b) Where no settlement has been reached by recourse to section 1 of this Part, a dispute shall be submitted to conciliation under Annex V, section 2, at the request of any party to the dispute, when it is alleged that:
 - a coastal State has manifestly failed to comply with its obligations to ensure through proper conservation and management measures that the maintenance of the living resources in the exclusive economic zone is not seriously endangered;
 - (ii) a coastal State has arbitrarily refused to determine, at the request of another State, the allowable catch and its capacity to harvest living resources with respect to stocks which that other State is interested in fishing; or
 - (iii) a coastal State has arbitrarily refused to allocate to any State, under articles 62, 69 and 70 and under the terms and conditions established by the coastal State consistent with this Convention, the whole or part of the surplus it has declared to exist.

- (c) In no case shall the conciliation commission substitute its discretion for that of the coastal State.
- (d) The report of the conciliation commission shall be communicated to the appropriate international organizations.
- (e) In negotiating agreements pursuant to articles 69 and 70, States Parties, unless they otherwise agree, shall include a clause on measures which they shall take in order to minimize the possibility of a disagreement concerning the interpretation or application of the agreement, and on how they should proceed if a disagreement nevertheless arises.

Article 298 Optional exceptions to applicability of section 2

- 1. When signing, ratifying or acceding to this Convention or at any time thereafter, a State may, without prejudice to the obligations arising under section 1, declare in writing that it does not accept any one or more of the procedures provided for in section 2 with respect to one or more of the following categories of disputes:
 - (a) (i) disputes concerning the interpretation or application of articles 15, 74 and 83 relating to sea boundary delimitations, or those involving historic bays or titles, provided that a State having made such a declaration shall, when such a dispute arises subsequent to the entry into force of this Convention and where no agreement within a reasonable period of time is reached in negotiations between the parties, at the request of any party to the dispute, accept submission of the matter to conciliation under Annex V, section 2; and provided further that any dispute that necessarily involves the concurrent consideration of any unsettled dispute concerning sovereignty or other rights over continental or insular land territory shall be excluded from such submission;
 - (ii) after the conciliation commission has presented its report, which shall state the reasons on which it is based, the parties shall negotiate an agreement on the basis of that report; if these negotiations do not result in an agreement, the parties shall, by mutual consent, submit the question to one of the procedures provided for in section 2, unless the parties otherwise agree;
 - (iii) this subparagraph does not apply to any sea boundary dispute finally settled by an arrangement between the parties, or to any such dispute which is to be settled in accordance with a bilateral or multilateral agreement binding upon those parties;
 - (b) disputes concerning military activities, including military activities by government vessels and aircraft engaged in non-commercial service, and disputes concerning law enforcement activities in regard to the exercise of sovereign rights or jurisdiction excluded from the jurisdiction of a court or tribunal under article 297, paragraph 2 or 3;

- (c) disputes in respect of which the Security Council of the United Nations is exercising the functions assigned to it by the Charter of the United Nations, unless the Security Council decides to remove the matter from its agenda or calls upon the parties to settle it by the means provided for in this Convention.
- 2. A State Party which has made a declaration under paragraph 1 may at any time withdraw it, or agree to submit a dispute excluded by such declaration to any procedure specified in this Convention.
- 3. A State Party which has made a declaration under paragraph 1 shall not be entitled to submit any dispute falling within the excepted category of disputes to any procedure in this Convention as against another State Party, without the consent of that party.
- 4. If one of the States Parties has made a declaration under paragraph 1(a), any other State Party may submit any dispute falling within an excepted category against the declarant party to the procedure specified in such declaration.
- 5. A new declaration, or the withdrawal of a declaration, does not in any way affect proceedings pending before a court or tribunal in accordance with this article, unless the parties otherwise agree.
- 6. Declarations and notices of withdrawal of declarations under this article shall be deposited with the Secretary-General of the United Nations, who shall transmit copies thereof to the States Parties.

Article 299 Right of the parties to agree upon a procedure

- 1. A dispute excluded under article 297 or excepted by a declaration made under article 298 from the dispute settlement procedures provided for in section 2 may be submitted to such procedures only by agreement of the parties to the dispute.
- 2. Nothing in this section impairs the right of the parties to the dispute to agree to some other procedure for the settlement of such dispute or to reach an amicable settlement.

PART XVI

GENERAL PROVISIONS

Article 300
Good faith and abuse of rights

States Parties shall fulfil in good faith the obligations assumed under this Convention and shall exercise the rights, jurisdiction and freedoms recognized in this Convention in a manner which would not constitute an abuse of right.

Article 301 Peaceful uses of the seas

In exercising their rights and performing their duties under this Convention, States Parties shall refrain from any threat or use of force against the territorial integrity or political independence of any State, or in any other manner inconsistent with the principles of international law embodied in the Charter of the United Nations.

Article 302 Disclosure of information

Without prejudice to the right of a State Party to resort to the procedures for the settlement of disputes provided for in this Convention, nothing in this Convention shall be deemed to require a State Party, in the fulfilment of its obligations under this Convention, to supply information the disclosure of which is contrary to the essential interests of its security.

Article 303 Archaeological and historical objects found at sea

- 1. States have the duty to protect objects of an archaeological and historical nature found at sea and shall cooperate for this purpose.
- 2. In order to control traffic in such objects, the coastal State may, in applying article 33, presume that their removal from the seabed in the zone referred to in that article without its approval would result in an infringement within its territory or territorial sea of the laws and regulations referred to in that article.
- 3. Nothing in this article affects the rights of identifiable owners, the law of salvage or other rules of admiralty, or laws and practices with respect to cultural exchanges.
- 4. This article is without prejudice to other international agreements and rules of international law regarding the protection of objects of an archaeological and historical nature.

Article 304 Responsibility and liability for damage

The provisions of this Convention regarding responsibility and liability for damage are without prejudice to the application of existing rules and the development of further rules regarding responsibility and liability under international law.

PART XVII

FINAL PROVISIONS

Article 305 Signature

- 1. This Convention shall be open for signature by:
 - (a) all States;
 - (b) Namibia, represented by the United Nations Council for Namibia:
 - (c) all self-governing associated States which have chosen that status in an act of self-determination supervised and approved by the United Nations in accordance with General Assembly resolution 1514 (XV) and which have competence over the matters governed by this Convention, including the competence to enter into treaties in respect of those matters;
 - (d) all self-governing associated States which, in accordance with their respective instruments of association, have competence over the matters governed by this Convention, including the competence to enter into treaties in respect of those matters;
 - (e) all territories which enjoy full internal self-government, recognized as such by the United Nations, but have not attained full independence in accordance with General Assembly resolution 1514 (XV) and which have competence over the matters governed by this Convention, including the competence to enter into treaties in respect of those matters;
 - (f) international organizations, in accordance with Annex IX.
- 2. This Convention shall remain open for signature until 9 December 1984 at the Ministry of Foreign Affairs of Jamaica and also, from 1 July 1983 until 9 December 1984, at United Nations Headquarters in New York.

Article 306 Ratification and formal confirmation

This Convention is subject to ratification by States and the other entities referred to in article 305, paragraph l(b), (c), (d) and (e), and to formal confirmation, in accordance with Annex IX, by the entities referred to in article 305, paragraph l(f). The instruments of ratification and of formal confirmation shall be deposited with the Secretary-General of the United Nations.

Article 307 Accession

This Convention shall remain open for accession by States and the other entities referred to in article 305. Accession by the entities referred to in article 305, paragraph l(f), shall be in accordance with Annex IX. The instruments of accession shall be deposited with the Secretary-General of the United Nations.

Article 308 Entry into force

- 1. This Convention shall enter into force 12 months after the date of deposit of the sixtieth instrument of ratification or accession.
- 2. For each State ratifying or acceding to this Convention after the deposit of the sixtieth instrument of ratification or accession, the Convention shall enter into force on the thirtieth day following the deposit of its instrument of ratification or accession, subject to paragraph 1.
- 3. The Assembly of the Authority shall meet on the date of entry into force of this Convention and shall elect the Council of the Authority. The first Council shall be constituted in a manner consistent with the purpose of article 161 if the provisions of that article cannot be strictly applied.
- 4. The rules, regulations and procedures drafted by the Preparatory Commission shall apply provisionally pending their formal adoption by the Authority in accordance with Part XI.
- 5. The Authority and its organs shall act in accordance with resolution II of the Third United Nations Conference on the Law of the Sea relating to preparatory investment and with decisions of the Preparatory Commission taken pursuant to that resolution.

Article 309 Reservations and exceptions

No reservations or exceptions may be made to this Convention unless expressly permitted by other articles of this Convention.

Article 310 Declarations and statements

Article 309 does not preclude a State, when signing, ratifying or acceding to this Convention, from making declarations or statements, however phrased or named, with a view, *inter alia*, to the harmonization of its laws and regulations with the provisions of this Convention, provided that such declarations or statements do not purport to exclude or to modify the legal effect of the provisions of this Convention in their application to that State.

Article 311 Relation to other conventions and international agreements

- 1. This Convention shall prevail, as between States Parties, over the Geneva Conventions on the Law of the Sea of 29 April 1958.
- 2. This Convention shall not alter the rights and obligations of States Parties which arise from other agreements compatible with this Convention and which do not affect the enjoyment by other States Parties of their rights or the performance of their obligations under this Convention.
- 3. Two or more States Parties may conclude agreements modifying or suspending the operation of provisions of this Convention, applicable solely to the relations between them, provided that such agreements do not relate to a provision derogation from which is incompatible with the effective execution of the object and purpose of this Convention, and provided further that such agreements shall not affect the application of the basic principles embodied herein, and that the provisions of such agreements do not affect the

enjoyment by other States Parties of their rights or the performance of their obligations under this Convention.

- 4. States Parties intending to conclude an agreement referred to in paragraph 3 shall notify the other States Parties through the depositary of this Convention of their intention to conclude the agreement and of the modification or suspension for which it provides.
- 5. This article does not affect international agreements expressly permitted or preserved by other articles of this Convention.
- 6. States Parties agree that there shall be no amendments to the basic principle relating to the common heritage of mankind set forth in article 136 and that they shall not be party to any agreement in derogation thereof.

Article 312 Amendment

- 1. After the expiry of a period of 10 years from the date of entry into force of this Convention, a State Party may, by written communication addressed to the Secretary-General of the United Nations, propose specific amendments to this Convention, other than those relating to activities in the Area, and request the convening of a conference to consider such proposed amendments. The Secretary-General shall circulate such communication to all States Parties. If, within 12 months from the date of the circulation of the communication, not less than one half of the States Parties reply favourably to the request, the Secretary-General shall convene the conference.
- 2. The decision-making procedure applicable at the amendment conference shall be the same as that applicable at the Third United Nations Conference on the Law of the Sea unless otherwise decided by the conference. The conference should make every effort to reach agreement on any amendments by way of consensus and there should be no voting on them until all efforts at consensus have been exhausted.

Article 313 Amendment by simplified procedure

- 1. A State Party may, by written communication addressed to the Secretary-General of the United Nations, propose an amendment to this Convention, other than an amendment relating to activities in the Area, to be adopted by the simplified procedure set forth in this article without convening a conference. The Secretary-General shall circulate the communication to all States Parties.
- 2. If, within a period of 12 months from the date of the circulation of the communication, a State Party objects to the proposed amendment or to the proposal for its adoption by the simplified procedure, the amendment shall be considered rejected. The Secretary-General shall immediately notify all States Parties accordingly.
- 3. If, 12 months from the date of the circulation of the communication, no State Party has objected to the proposed amendment or to the proposal for its adoption by the simplified procedure, the proposed amendment shall be considered adopted. The Secretary-General shall notify all States Parties that the proposed amendment has been adopted.

Article 314 Amendments to the provisions of this Convention relating exclusively to activities in the Area

1. A State Party may, by written communication addressed to the Secretary-General of the Authority, propose an amendment to the provisions of this Convention relating exclusively to activities in the Area, including Annex VI, section 4. The Secretary-General shall circulate such communication to all States Parties. The proposed amendment shall be subject to approval by the Assembly following its approval by the Council. Representatives of States Parties in those organs shall have full powers to consider and approve the proposed amendment. The proposed amendment as approved by the Council and the Assembly shall be considered adopted.

2. Before approving any amendment under paragraph 1, the Council and the Assembly shall ensure that it does not prejudice the system of exploration for and exploitation of the resources of the Area, pending the

Review Conference in accordance with article 155.

Article 315 Signature, ratification of, accession to and authentic texts of amendments

- 1. Once adopted, amendments to this Convention shall be open for signature by States Parties for 12 months from the date of adoption, at United Nations Headquarters in New York, unless otherwise provided in the amendment itself.
- 2. Articles 306, 307 and 320 apply to all amendments to this Convention.

Article 316 Entry into force of amendments

- 1. Amendments to this Convention, other than those referred to in paragraph 5, shall enter into force for the States Parties ratifying or acceding to them on the thirtieth day following the deposit of instruments of ratification or accession by two thirds of the States Parties or by 60 States Parties, whichever is greater. Such amendments shall not affect the enjoyment by other States Parties of their rights or the performance of their obligations under this Convention.
- 2. An amendment may provide that a larger number of ratifications or accessions shall be required for its entry into force than are required by this article.
- 3. For each State Party ratifying or acceding to an amendment referred to in paragraph 1 after the deposit of the required number of instruments of ratification or accession, the amendment shall enter into force on the thirtieth day following the deposit of its instrument of ratification or accession.
- 4. A State which becomes a Party to this Convention after the entry into force of an amendment in accordance with paragraph 1 shall, failing an expression of a different intention by that State:
 - (a) be considered as a Party to this Convention as so amended; and
 - (b) be considered as a Party to the unamended Convention in relation to any State Party not bound by the amendment.

- 5. Any amendment relating exclusively to activities in the Area and any amendment to Annex VI shall enter into force for all States Parties one year following the deposit of instruments of ratification or accession by three fourths of the States Parties.
- 6. A State which becomes a Party to this Convention after the entry into force of amendments in accordance with paragraph 5 shall be considered as a Party to this Convention as so amended.

Article 317 Denunciation

- 1. A State Party may, by written notification addressed to the Secretary-General of the United Nations, denounce this Convention and may indicate its reasons. Failure to indicate reasons shall not affect the validity of the denunciation. The denunciation shall take effect one year after the date of receipt of the notification, unless the notification specifies a later date.
- 2. A State shall not be discharged by reason of the denunciation from the financial and contractual obligations which accrued while it was a Party to this Convention, nor shall the denunciation affect any right, obligation or legal situation of that State created through the execution of this Convention prior to its termination for that State.
- 3. The denunciation shall not in any way affect the duty of any State Party to fulfil any obligation embodied in this Convention to which it would be subject under international law independently of this Convention.

Article 318 Status of Annexes

The Annexes form an integral part of this Convention and, unless expressly provided otherwise, a reference to this Convention or to one of its Parts includes a reference to the Annexes relating thereto.

Article 319 Depositary

- 1. The Secretary-General of the United Nations shall be the depositary of this Convention and amendments thereto.
- In addition to his functions as depositary, the Secretary-General shall:
 - (a) report to all States Parties, the Authority and competent international organizations on issues of a general nature that have arisen with respect to this Convention;
 - (b) notify the Authority of ratifications and formal confirmations of and accessions to this Convention and amendments thereto, as well as of denunciations of this Convention;
 - (c) notify States Parties of agreements in accordance with article 311, paragraph 4;
 - (d) circulate amendments adopted in accordance with this Convention to States Parties for ratification or accession;
 - (e) convene necessary meetings of States Parties in accordance with this Convention.
 - 3. (a) The Secretary-General shall also transmit to the observers referred to in article 156:

- reports referred to in paragraph 2(a);
- (ii) notifications referred to in paragraph 2(b) and (c); and (iii) texts of amendments referred to in paragraph 2(d), for their information.
- (b) The Secretary-General shall also invite those observers to participate as observers at meetings of States Parties referred to in paragraph 2(e).

Article 320 Authentic texts

The original of this Convention, of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, shall, subject to article 305, paragraph 2, be deposited with the Secretary-General of the United Nations.

IN WITNESS WHEREOF, the undersigned Plenipotentiaries, being duly authorized thereto, have signed this Convention.

DONE AT MONTEGO BAY, this tenth day of December, one thousand nine hundred and eighty-two.

ANNEX I. HIGHLY MIGRATORY SPECIES

- 1. Albacore tuna: *Thunnus alalunga*.
- 2. Bluefin tuna: Thunnus thynnus.
- 3. Bigeye tuna: Thunnus obesus.
- 4. Skipjack tuna: Katsuwonus pelamis.
- 5. Yellowfin tuna: *Thunnus albacares*.
- 6. Blackfin tuna: Thunnus atlanticus.
- 7. Little tuna: Euthynnus alletteratus; Euthynnus affinis.
- 8. Southern bluefin tuna: Thunnus maccoyii.
- 9. Frigate mackerel: Auxis thazard; Auxis rochei.
- 10. Pomfrets: Family Bramidae.
- 11. Marlins: Tetrapturus angustirostris; Tetrapturus belone; Tetrapturus pfluegeri; Tetrapturus albidus; Tetrapturus audax; Tetrapturus georgei; Makaira mazara; Makaira indica; Makaira nigricans.
- 12. Sail-fishes: Istiophorus platypterus; Istiophorus albicans.
- 13. Swordfish: Xiphias gladius.
- 14. Sauries: Scomberesox saurus; Cololabis saira; Cololabis adocetus; Scomberesox saurus scombroides.
- 15. Dolphin: Coryphaena hippurus; Coryphaena equiselis.
- 16. Oceanic sharks: Hexanchus griseus; Cetorhinus maximus; Family Alopiidae; Rhincodon typus; Family Carcharhinidae; Family Sphyrnidae; Family Isurida.
- 17. Cetaceans: Family *Physeteridae*; Family *Balaenopteridae*; Family *Balaenidae*; Family *Eschrichtiidae*; Family *Monodontidae*; Family *Ziphiidae*: Family *Delphinidae*.

ANNEX II. COMMISSION ON THE LIMITS OF THE CONTINENTAL SHELF

Article 1

In accordance with the provisions of article 76, a Commission on the Limits of the Continental Shelf beyond 200 nautical miles shall be established in conformity with the following articles.

Article 2

- 1. The Commission shall consist of 21 members who shall be experts in the field of geology, geophysics or hydrography, elected by States Parties to this Convention from among their nationals, having due regard to the need to ensure equitable geographical representation, who shall serve in their personal capacities.
- 2. The initial election shall be held as soon as possible but in any case within 18 months after the date of entry into force of this Convention. At least three months before the date of each election, the Secretary-General of the United Nations shall address a letter to the States Parties, inviting the submission of nominations, after appropriate regional consultations, within three months. The Secretary-General shall prepare a list in alphabetical order of all persons thus nominated and shall submit it to all the States Parties.
- 3. Elections of the members of the Commission shall be held at a meeting of States Parties convened by the Secretary-General at United

Nations Headquarters. At that meeting, for which two thirds of the States Parties shall constitute a quorum, the persons elected to the Commission shall be those nominees who obtain a two-thirds majority of the votes of the representatives of States Parties present and voting. Not less than three members shall be elected from each geographical region.

4. The members of the Commission shall be elected for a term of five years. They shall be eligible for re-election.

5. The State Party which submitted the nomination of a member of the Commission shall defray the expenses of that member while in performance of Commission duties. The coastal State concerned shall defray the expenses incurred in respect of the advice referred to in article 3, paragraph 1(b), of this Annex. The secretariat of the Commission shall be provided by the Secretary-General of the United Nations.

Article 3

- 1. The functions of the Commission shall be:
 - (a) to consider the data and other material submitted by coastal States concerning the outer limits of the continental shelf in areas where those limits extend beyond 200 nautical miles, and to make recommendations in accordance with article 76 and the Statement of Understanding adopted on 29 August 1980 by the Third United Nations Conference on the Law of the Sea;
 - (b) to provide scientific and technical advice, if requested by the coastal State concerned during the preparation of the data referred to in subparagraph (a).
- 2. The Commission may cooperate, to the extent considered necessary and useful, with the Intergovernmental Oceanographic Commission of UNESCO, the International Hydrographic Organization and other competent international organizations with a view to exchanging scientific and technical information which might be of assistance in discharging the Commission's responsibilities.

Article 4

Where a coastal State intends to establish, in accordance with article 76, the outer limits of its continental shelf beyond 200 nautical miles, it shall submit particulars of such limits to the Commission along with supporting scientific and technical data as soon as possible but in any case within 10 years of the entry into force of this Convention for that State. The coastal State shall at the same time give the names of any Commission members who have provided it with scientific and technical advice.

Article 5

Unless the Commission decides otherwise, the Commission shall function by way of sub-commissions composed of seven members, appointed in a balanced manner taking into account the specific elements of each submission by a coastal State. Nationals of the coastal State making the submission who are members of the Commission and any Commission member who has assisted a coastal State by providing scientific and technical advice with respect to the delineation shall not be a member of the sub-commission dealing with that submission but has the right to participate

as a member in the proceedings of the Commission concerning the said submission. The coastal State which has made a submission to the Commission may send its representatives to participate in the relevant proceedings without the right to vote.

Article 6

- 1. The sub-commission shall submit its recommendations to the Commission.
- 2. Approval by the Commission of the recommendations of the sub-commission shall be by a majority of two thirds of Commission members present and voting.
- 3. The recommendations of the Commission shall be submitted in writing to the coastal State which made the submission and to the Secretary-General of the United Nations.

Article 7

Coastal States shall establish the outer limits of the continental shelf in conformity with the provisions of article 76, paragraph 8, and in accordance with the appropriate national procedures.

Article 8

In the case of disagreement by the coastal State with the recommendations of the Commission, the coastal State shall, within a reasonable time, make a revised or new submission to the Commission.

Article 9

The actions of the Commission shall not prejudice matters relating to delimitation of boundaries between States with opposite or adjacent coasts.

ANNEX III. BASIC CONDITIONS OF PROSPECTING, EXPLORATION AND EXPLOITATION

Article 1 Title to minerals

Title to minerals shall pass upon recovery in accordance with this Convention.

Article 2 Prospecting

- 1. (a) The Authority shall encourage prospecting in the Area.
 - (b) Prospecting shall be conducted only after the Authority has received a satisfactory written undertaking that the proposed prospector will comply with this Convention and the relevant rules, regulations and procedures of the Authority concerning cooperation in the training programmes referred to in articles 143 and 144 and the protection of the marine environment, and will accept verification by the Authority of

- compliance therewith. The proposed prospector shall, at the same time, notify the Authority of the approximate area or areas in which prospecting is to be conducted.
- (c) Prospecting may be conducted simultaneously by more than one prospector in the same area or areas.
- 2. Prospecting shall not confer on the prospector any rights with respect to resources. A prospector may, however, recover a reasonable quantity of minerals to be used for testing.

Article 3 Exploration and exploitation

- 1. The Enterprise, States Parties, and the other entities referred to in article 153, paragraph 2(b), may apply to the Authority for approval of plans of work for activities in the Area.
- 2. The Enterprise may apply with respect to any part of the Area, but applications by others with respect to reserved areas are subject to the additional requirements of article 9 of this Annex.
- 3. Exploration and exploitation shall be carried out only in areas specified in plans of work referred to in article 153, paragraph 3, and approved by the Authority in accordance with this Convention and the relevant rules, regulations and procedures of the Authority.
 - 4. Every approved plan of work shall:
 - (a) be in conformity with this Convention and the rules, regulations and procedures of the Authority;
 - (b) provide for control by the Authority of activities in the Area in accordance with article 153, paragraph 4;
 - (c) confer on the operator, in accordance with the rules, regulations and procedures of the Authority, the exclusive right to explore for and exploit the specified categories of resources in the area covered by the plan of work. If, however, the applicant presents for approval a plan of work covering only the stage of exploration or the stage of exploitation, the approved plan of work shall confer such exclusive right with respect to that stage only.
- 5. Upon its approval by the Authority, every plan of work, except those presented by the Enterprise, shall be in the form of a contract concluded between the Authority and the applicant or applicants.

Article 4 Qualifications of applicants

- 1. Applicants, other than the Enterprise, shall be qualified if they have the nationality or control and sponsorship required by article 153, paragraph 2(b), and if they follow the procedures and meet the qualification standards set forth in the rules, regulations and procedures of the Authority.
- 2. Except as provided in paragraph 6, such qualification standards shall relate to the financial and technical capabilities of the applicant and his performance under any previous contracts with the Authority.
- 3. Each applicant shall be sponsored by the State Party of which it is a national unless the applicant has more than one nationality, as in the case of a partnership or consortium of entities from several States, in which event all States Parties involved shall sponsor the application, or unless the

applicant is effectively controlled by another State Party or its nationals, in which event both States Parties shall sponsor the application. The criteria and procedures for implementation of the sponsorship requirements shall be set forth in the rules, regulations and procedures of the Authority.

- 4. The sponsoring State or States shall, pursuant to article 139, have the responsibility to ensure, within their legal systems, that a contractor so sponsored shall carry out activities in the Area in conformity with the terms of its contract and its obligations under this Convention. A sponsoring State shall not, however, be liable for damage caused by any failure of a contractor sponsored by it to comply with its obligations if that State Party has adopted laws and regulations and taken administrative measures which are, within the framework of its legal system, reasonably appropriate for securing compliance by persons under its jurisdiction.
- 5. The procedures for assessing the qualifications of States Parties which are applicants shall take into account their character as States.
- 6. The qualification standards shall require that every applicant, without exception, shall as part of his application undertake:
 - (a) to accept as enforceable and comply with the applicable obligations created by the provisions of Part XI, the rules, regulations and procedures of the Authority, the decisions of the organs of the Authority and terms of his contracts with the Authority;
 - (b) to accept control by the Authority of activities in the Area, as authorized by this Convention;
 - (c) to provide the Authority with a written assurance that his obligations under the contract will be fulfilled in good faith;
 - (d) to comply with the provisions on the transfer of technology set forth in article 5 of this Annex.

Article 5 Transfer of technology

- 1. When submitting a plan of work, every applicant shall make available to the Authority a general description of the equipment and methods to be used in carrying out activities in the Area, and other relevant non-proprietary information about the characteristics of such technology and information as to where such technology is available.
- 2. Every operator shall inform the Authority of revisions in the description and information made available pursuant to paragraph 1 whenever a substantial technological change or innovation is introduced.
- 3. Every contract for carrying out activities in the Area shall contain the following undertakings by the contractor:
 - (a) to make available to the Enterprise on fair and reasonable commercial terms and conditions, whenever the Authority so requests, the technology which he uses in carrying out activities in the Area under the contract, which the contractor is legally entitled to transfer. This shall be done by means of licences or other appropriate arrangements which the contractor shall negotiate with the Enterprise and which shall be set forth in a specific agreement supplementary to the contract. This undertaking may be invoked only if the Enterprise finds that it is unable to obtain the same or equally efficient and useful

- technology on the open market on fair and reasonable commercial terms and conditions;
- (b) to obtain a written assurance from the owner of any technology used in carrying out activities in the Area under the contract, which is not generally available on the open market and which is not covered by subparagraph (a), that the owner will, whenever the Authority so requests, make that technology available to the Enterprise under licence or other appropriate arrangements and on fair and reasonable commercial terms and conditions, to the same extent as made available to the contractor. If this assurance is not obtained, the technology in question shall not be used by the contractor in carrying out activities in the Area;
- (c) to acquire from the owner by means of an enforceable contract. upon the request of the Enterprise and if it is possible to do so without substantial cost to the contractor, the legal right to transfer to the Enterprise any technology used by the contractor, in carrying out activities in the Area under the contract, which the contractor is otherwise not legally entitled to transfer and which is not generally available on the open market. In cases where there is a substantial corporate relationship between the contractor and the owner of the technology, the closeness of this relationship and the degree of control or influence shall be relevant to the determination whether all feasible measures have been taken to acquire such a right. In cases where the contractor exercises effective control over the owner, failure to acquire from the owner the legal right shall be considered relevant to the contractor's qualification for any subsequent application for approval of a plan of work;
- (d) to facilitate, upon the request of the Enterprise, the acquisition by the Enterprise of any technology covered by subparagraph (b), under licence or other appropriate arrangements and on fair and reasonable commercial terms and conditions, if the Enterprise decides to negotiate directly with the owner of the technology;
- (e) to take the same measures as are prescribed in subparagraphs (a), (b), (c) and (d) for the benefit of a developing State or group of developing States which has applied for a contract under article 9 of this Annex, provided that these measures shall be limited to the exploitation of the part of the area proposed by the contractor which has been reserved pursuant to article 8 of this Annex and provided that activities under the contract sought by the developing State or group of developing States would not involve transfer of technology to a third State or the nationals of a third State. The obligation under this provision shall only apply with respect to any given contractor where technology has not been requested by the Enterprise or transferred by that contractor to the Enterprise.
- 4. Disputes concerning undertakings required by paragraph 3, like other provisions of the contracts, shall be subject to compulsory settlement in accordance with Part XI and, in cases of violation of these undertakings, suspension or termination of the contract or monetary penalties may be

ordered in accordance with article 18 of this Annex. Disputes as to whether offers made by the contractor are within the range of fair and reasonable commercial terms and conditions may be submitted by either party to binding commercial arbitration in accordance with the UNCITRAL Arbitration Rules or such other arbitration rules as may be prescribed in the rules, regulations and procedures of the Authority. If the finding is that the offer made by the contractor is not within the range of fair and reasonable commercial terms and conditions, the contractor shall be given 45 days to revise his offer to bring it within that range before the Authority takes any action in accordance with article 18 of this Annex.

- 5. If the Enterprise is unable to obtain on fair and reasonable commercial terms and conditions appropriate technology to enable it to commence in a timely manner the recovery and processing of minerals from the Area, either the Council or the Assembly may convene a group of States Parties composed of those which are engaged in activities in the Area, those which have sponsored entities which are engaged in activities in the Area and other States Parties having access to such technology. This group shall consult together and shall take effective measures to ensure that such technology is made available to the Enterprise on fair and reasonable commercial terms and conditions. Each such State Party shall take all feasible measures to this end within its own legal system.
- 6. In the case of joint ventures with the Enterprise, transfer of technology will be in accordance with the terms of the joint venture agreement.
- 7. The undertakings required by paragraph 3 shall be included in each contract for the carrying out of activities in the Area until 10 years after the commencement of commercial production by the Enterprise, and may be invoked during that period.
- 8. For the purposes of this article, "technology" means the specialized equipment and technical know-how, including manuals, designs, operating instructions, training and technical advice and assistance, necessary to assemble, maintain and operate a viable system and the legal right to use these items for that purpose on a non-exclusive basis.

Article 6 Approval of plans of work

- 1. Six months after the entry into force of this Convention, and thereafter each fourth month, the Authority shall take up for consideration proposed plans of work.
- 2. When considering an application for approval of a plan of work in the form of a contract, the Authority shall first ascertain whether:
 - (a) the applicant has complied with the procedures established for applications in accordance with article 4 of this Annex and has given the Authority the undertakings and assurances required by that article. In cases of non-compliance with these procedures or in the absence of any of these undertakings and assurances, the applicant shall be given 45 days to remedy these defects;
 - (b) the applicant possesses the requisite qualifications provided for in article 4 of this Annex.
- 3. All proposed plans of work shall be taken up in the order in which they are received. The proposed plans of work shall comply with and be

governed by the relevant provisions of this Convention and the rules, regulations and procedures of the Authority, including those on operational requirements, financial contributions and the undertakings concerning the transfer of technology. If the proposed plans of work conform to these requirements, the Authority shall approve them provided that they are in accordance with the uniform and non-discriminatory requirements set forth in the rules, regulations and procedures of the Authority, unless:

- (a) part or all of the area covered by the proposed plan of work is included in an approved plan of work or a previously submitted proposed plan of work which has not yet been finally acted on by the Authority;
- (b) part or all of the area covered by the proposed plan of work is disapproved by the Authority pursuant to article 162, paragraph 2(x); or
- (c) the proposed plan of work has been submitted or sponsored by a State Party which already holds:
 - (i) plans of work for exploration and exploitation of polymetallic nodules in non-reserved areas that, together with either part of the area covered by the application for a plan of work, exceed in size 30 per cent of a circular area of 400,000 square kilometres surrounding the centre of either part of the area covered by the proposed plan of work;
 - (ii) plans of work for the exploration and exploitation of polymetallic nodules in non-reserved areas which, taken together, constitute 2 per cent of the total seabed area which is not reserved or disapproved for exploitation pursuant to article 162, paragraph (2)(x).
- 4. For the purpose of the standard set forth in paragraph 3(c), a plan of work submitted by a partnership or consortium shall be counted on a *pro rata* basis among the sponsoring States Parties involved in accordance with article 4, paragraph 3, of this Annex. The Authority may approve plans of work covered by paragraph 3(c) if it determines that such approval would not permit a State Party or entities sponsored by it to monopolize the conduct of activities in the Area or to preclude other States Parties from activities in the Area.
- 5. Notwithstanding paragraph 3(a), after the end of the interim period specified in article 151, paragraph 3, the Authority may adopt by means of rules, regulations and procedures other procedures and criteria consistent with this Convention for deciding which applicants shall have plans of work approved in cases of selection among applicants for a proposed area. These procedures and criteria shall ensure approval of plans of work on an equitable and non-discriminatory basis.

Article 7 Selection among applicants for production authorizations

1. Six months after the entry into force of this Convention, and thereafter each fourth month, the Authority shall take up for consideration applications for production authorizations submitted during the immediately preceding period. The Authority shall issue the authorizations applied for if all such applications can be approved without exceeding the production limitation or contravening the obligations of the Authority under a commodity

agreement or arrangement to which it has become a party, as provided in article 151.

- 2. When a selection must be made among applicants for production authorizations because of the production limitation set forth in article 151, paragraphs 2 to 7, or because of the obligations of the Authority under a commodity agreement or arrangement to which it has become a party, as provided for in article 151, paragraph 1, the Authority shall make the selection on the basis of objective and non-discriminatory standards set forth in its rules, regulations and procedures.
- 3. In the application of paragraph 2, the Authority shall give priority to those applicants which:
 - (a) give better assurance of performance, taking into account their financial and technical qualifications and their performance, if any, under previously approved plans of work;
 - (b) provide earlier prospective financial benefits to the Authority, taking into account when commercial production is scheduled to begin;
 - (c) have already invested the most resources and effort in prospecting or exploration.
- 4. Applicants which are not selected in any period shall have priority in subsequent periods until they receive a production authorization.
- 5. Selection shall be made taking into account the need to enhance opportunities for all States Parties, irrespective of their social and economic systems or geographical locations so as to avoid discrimination against any State or system, to participate in activities in the Area and to prevent monopolization of those activities.
- 6. Whenever fewer reserved areas than non-reserved areas are under exploitation, applications for production authorizations with respect to reserved areas shall have priority.
- 7. The decisions referred to in this article shall be taken as soon as possible after the close of each period.

Article 8 Reservation of areas

Each application, other than those submitted by the Enterprise or by any other entities for reserved areas, shall cover a total area, which need not be a single continuous area, sufficiently large and of sufficient estimated commercial value to allow two mining operations. The applicant shall indicate the coordinates dividing the area into two parts of equal estimated commercial value and submit all the data obtained by him with respect to both parts. Without prejudice to the powers of the Authority pursuant to article 17 of this Annex, the data to be submitted concerning polymetallic nodules shall relate to mapping, sampling, the abundance of nodules, and their metal content. Within 45 days of receiving such data, the Authority shall designate which part is to be reserved solely for the conduct of activities by the Authority through the Enterprise or in association with developing States. This designation may be deferred for a further period of 45 days if the Authority requests an independent expert to assess whether all data required by this article has been submitted. The area designated shall become a reserved area as soon as the plan of work for the non-reserved area is approved and the contract is signed.

Article 9 Activities in reserved areas

- 1. The Enterprise shall be given an opportunity to decide whether it intends to carry out activities in each reserved area. This decision may be taken at any time, unless a notification pursuant to paragraph 4 is received by the Authority, in which event the Enterprise shall take its decision within a reasonable time. The Enterprise may decide to exploit such areas in joint ventures with the interested State or entity.
- 2. The Enterprise may conclude contracts for the execution of part of its activities in accordance with Annex IV, article 12. It may also enter into joint ventures for the conduct of such activities with any entities which are eligible to carry out activities in the Area pursuant to article 153, paragraph 2(b). When considering such joint ventures, the Enterprise shall offer to States Parties which are developing States and their nationals the opportunity of effective participation.
- 3. The Authority may prescribe, in its rules, regulations and procedures, substantive and procedural requirements and conditions with respect to such contracts and joint ventures.
- 4. Any State Party which is a developing State or any natural or juridical person sponsored by it and effectively controlled by it or by other developing State which is a qualified applicant, or any group of the foregoing, may notify the Authority that it wishes to submit a plan of work pursuant to article 6 of this Annex with respect to a reserved area. The plan of work shall be considered if the Enterprise decides, pursuant to paragraph 1, that it does not intend to carry out activities in that area.

Article 10 Preference and priority among applicants

An operator who has an approved plan of work for exploration only, as provided in article 3, paragraph 4(c), of this Annex shall have a preference and a priority among applicants for a plan of work covering exploitation of the same area and resources. However, such preference or priority may be withdrawn if the operator's performance has not been satisfactory.

Article 11 Joint arrangements

- 1. Contracts may provide for joint arrangements between the contractor and the Authority through the Enterprise, in the form of joint ventures or production sharing, as well as any other form of joint arrangement, which shall have the same protection against revision, suspension or termination as contracts with the Authority.
- 2. Contractors entering into such joint arrangements with the Enterprise may receive financial incentives as provided for in article 13 of this Annex.
- 3. Partners in joint ventures with the Enterprise shall be liable for the payments required by article 13 of this Annex to the extent of their share in the joint ventures, subject to financial incentives as provided for in that article.

Article 12 Activities carried out by the Enterprise

- 1. Activities in the Area carried out by the Enterprise pursuant to article 153, paragraph 2(a), shall be governed by Part XI, the rules, regulations and procedures of the Authority and its relevant decisions.
- 2. Any plan of work submitted by the Enterprise shall be accompanied by evidence supporting its financial and technical capabilities.

Article 13 Financial terms of contracts

- 1. In adopting rules, regulations and procedures concerning the financial terms of a contract between the Authority and the entities referred to in article 153, paragraph 2(b), and in negotiating those financial terms in accordance with Part XI and those rules, regulations and procedures, the Authority shall be guided by the following objectives:
 - (a) to ensure optimum revenues for the Authority from the proceeds of commercial production;
 - (b) to attract investments and technology to the exploration and exploitation of the Area;
 - (c) to ensure equality of financial treatment and comparable financial obligations for contractors;
 - (d) to provide incentives on a uniform and non-discriminatory basis for contractors to undertake joint arrangements with the Enterprise and developing States or their nationals, to stimulate the transfer of technology thereto, and to train the personnel of the Authority and of developing States;
 - (e) to enable the Enterprise to engage in seabed mining effectively at the same time as the entities referred to in article 153, paragraph 2(b); and
 - (f) to ensure that, as a result of the financial incentives provided to contractors under paragraph 14, under the terms of contracts reviewed in accordance with article 19 of this Annex or under the provisions of article 11 of this Annex with respect to joint ventures, contractors are not subsidized so as to be given an artificial competitive advantage with respect to land-based miners
- 2. A fee shall be levied for the administrative cost of processing an application for approval of a plan of work in the form of a contract and shall be fixed at an amount of \$US 500,000 per application. The amount of the fee shall be reviewed from time to time by the Council in order to ensure that it covers the administrative cost incurred. If such administrative cost incurred by the Authority in processing an application is less than the fixed amount, the Authority shall refund the difference to the applicant.
- 3. A contractor shall pay an annual fixed fee of \$US 1 million from the date of entry into force of the contract. If the approved date of commencement of commercial production is postponed because of a delay in issuing the production authorization, in accordance with article 151, the annual fixed fee shall be waived for the period of postponement. From the date of commencement of commercial production, the contractor shall pay either the production charge or the annual fixed fee, whichever is greater.

- 4. Within a year of the date of commencement of commercial production, in conformity with paragraph 3, a contractor shall choose to make his financial contribution to the Authority by either:
 - (a) paying a production charge only; or
 - (b) paying a combination of a production charge and a share of net proceeds.
 - 5. (a) If a contractor chooses to make his financial contribution to the Authority by paying a production charge only, it shall be fixed at a percentage of the market value of the processed metals produced from the polymetallic nodules recovered from the area covered by the contract. This percentage shall be fixed as follows:
 - (i) years 1-10 of commercial production 5 per cent
 - (ii) years 11 to the end of commercial production 12 per cent
 - (b) The said market value shall be the product of the quantity of the processed metals produced from the polymetallic nodules extracted from the area covered by the contract and the average price for those metals during the relevant accounting year, as defined in paragraphs 7 and 8.
- 6. If a contractor chooses to make his financial contribution to the Authority by paying a combination of a production charge and a share of net proceeds, such payments shall be determined as follows:
 - (a) The production charge shall be fixed at a percentage of the market value, determined in accordance with subpara-graph (b), of the processed metals produced from the polymetallic nodules recovered from the area covered by the contract. This percentage shall be fixed as follows:
 - (i) first period of commercial production 2 per cent
 - (ii) second period of commercial production 4 per cent If, in the second period of commercial production, as defined in subparagraph (d), the return on investment in any accounting year as defined in subparagraph (m) falls below 15 per cent as a result of the payment of the production charge at 4 per cent, the production charge shall be 2 per cent instead of 4 per cent in that accounting year.
 - (b) The said market value shall be the product of the quantity of the processed metals produced from the polymetallic nodules recovered from the area covered by the contract and the average price for those metals during the relevant accounting year as defined in paragraphs 7 and 8.
 - (c) (i) The Authority's share of net proceeds shall be taken out of that portion of the contractor's net proceeds which is attributable to the mining of the resources of the area covered by the contract, referred to hereinafter as attributable net proceeds.
 - (ii) The Authority's share of attributable net proceeds shall be determined in accordance with the following incremental schedule:

Portion of attributable net proceeds

Share of the Authority

| | First period of commercial production | Second period of commercial production |
|--|---------------------------------------|--|
| That portion representing a return on investment which is greater than 0 per cent, but less than 10 per cent | 35 per cent | 40 per cent |
| That portion representing a return on investment which is 10 per cent or greater, but less than 20 per cent | 42.5 per cent | 50 per cent |
| That portion representing a return on investment which is 20 per cent or greater | 50 per cent | 70 per cent |

- (d) (i) The first period of commercial production referred to in subparagraphs (a) and (c) shall commence in the first accounting year of commercial production and terminate in the accounting year in which the contractor's development costs with interest on the unrecovered portion thereof are fully recovered by his cash surplus, as follows:
 - In the first accounting year during which development costs are incurred, unrecovered development costs shall equal the development costs less cash surplus in that year. In each subsequent accounting year, unrecovered development costs shall equal the unrecovered development costs at the end of the preceding accounting year, plus interest thereon at the rate of 10 per cent per annum, plus development costs incurred in the current accounting year and less contractor's cash surplus in the current accounting year. The accounting year in which unrecovered development costs become zero for the first time shall be the accounting year in which the contractor's development costs with interest on the unrecovered portion thereof are fully recovered by his cash surplus. The contractor's cash surplus in any accounting year shall be his gross proceeds less his operating costs and less his payments to the Authority under subparagraph (c).
 - payments to the Authority under subparagraph (c).

 (ii) The second period of commercial production shall commence in the accounting year following the termination of the first period of commercial production and shall continue until the end of the contract.
- (e) "Attributable net proceeds" means the product of the contractor's net proceeds and the ratio of the development costs in the mining sector to the contractor's development costs. If the contractor engages in mining, transporting polymetallic nodules and production primarily of three processed metals,

namely, cobalt, copper and nickel, the amount of attributable net proceeds shall not be less than 25 per cent of the contractor's net proceeds. Subject to subparagraph (n), in all other cases, including those where the contractor engages in mining, transporting polymetallic nodules, and production primarily of four processed metals, namely, cobalt, copper, manganese and nickel, the Authority may, in its rules, regulations and procedures, prescribe appropriate floors which shall bear the same relationship to each case as the 25 per cent floor does to the three-metal case.

(f) "Contractor's net proceeds" means the contractor's gross proceeds less his operating costs and less the recovery of his

development costs as set out in subparagraph (j).

(g) (i) If the contractor engages in mining, transporting polymetallic nodules and production of processed metals, "contractor's gross proceeds" means the gross revenues from the sale of the processed metals and any other monies deemed reasonably attributable to operations under the contract in accordance with the financial rules, regulations and procedures of the Authority.

(ii) In all cases other than those specified in subparagraphs (g)(i) and (n)(iii), "contractor's gross proceeds" means the gross revenues from the sale of the semi-processed metals from the polymetallic nodules recovered from the area covered by the contract, and any other monies deemed reasonably attributable to operations under the contract in accordance with the financial rules, regulations and procedures of the Authority.

(h) "Contractor's development costs" means:

- (i) all expenditures incurred prior to the commencement of commercial production which are directly related to the development of the productive capacity of the area covered by the contract and the activities related thereto for operations under the contract in all cases other than that specified in subparagraph (n), in conformity with generally recognized accounting principles, including, inter alia, costs of machinery, equipment, ships, processing plant, construction, buildings, land, roads, prospecting and exploration of the area covered by the contract, research and development, interest, required leases, licences and fees; and
- (ii) expenditures similar to those set forth in (i) above incurred subsequent to the commencement of commercial production and necessary to carry out the plan of work, except those chargeable to operating costs.
- (i) The proceeds from the disposal of capital assets and the market value of those capital assets which are no longer required for operations under the contract and which are not sold shall be deducted from the contractor's development costs during the relevant accounting year. When these deductions exceed the contractor's development costs the excess shall be added to the contractor's gross proceeds.

- (j) The contractor's development costs incurred prior to the commencement of commercial production referred to in subparagraphs (h)(i) and (n)(iv) shall be recovered in 10 equal annual instalments from the date of commencement of commercial production. The contractor's development costs incurred subsequent to the commencement of commercial production referred to in subparagraphs (h)(ii) and (n)(iv) shall be recovered in 10 or fewer equal annual instalments so as to ensure their complete recovery by the end of the contract.
- (k) "Contractor's operating costs" means all expenditures incurred after the commencement of commercial production in the operation of the productive capacity of the area covered by the contract and the activities related thereto for operations under the contract, in conformity with generally recognized accounting principles, including, *inter alia*, the annual fixed fee or the production charge, whichever is greater, expenditures for wages, salaries, employee benefits, materials, services, transporting, processing and marketing costs, interest, utilities, preservation of the marine environment, overhead and administrative costs specifically related to operations under the contract, and any net operating losses carried forward or backward as specified herein. Net operating losses may be carried forward for two consecutive years except in the last two years of the contract in which case they may be carried backward to the two preceding years.
- (1) If the contractor engages in mining, transporting of polymetallic nodules, and production of processed and semi-processed metals, "development costs of the mining sector" means the portion of the contractor's development costs which is directly related to the mining of the resources of the area covered by the contract, in conformity with generally recognized accounting principles, and the financial rules, regulations and procedures of the Authority, including, *inter alia*, application fee, annual fixed fee and, where applicable, costs of prospecting and exploration of the area covered by the contract, and a portion of research and development costs.
- (m) "Return on investment" in any accounting year means the ratio of attributable net proceeds in that year to the development costs of the mining sector. For the purpose of computing this ratio the development costs of the mining sector shall include expenditures on new or replacement equipment in the mining sector less the original cost of the equipment replaced.
- (n) If the contractor engages in mining only:
 - (i) "attributable net proceeds" means the whole of the contractor's net proceeds;
 - (ii) "contractor's net proceeds" shall be as defined in subparagraph (f);
 - (iii) "contractor's gross proceeds" means the gross revenues from the sale of the polymetallic nodules, and any other monies deemed reasonably attributable to operations under the contract in accordance with the financial rules, regulations and procedures of the Authority;

- (iv) "contractor's development costs" means all expenditures incurred prior to the commencement of commercial production as set forth in subparagraph (h)(i), and all expenditures incurred subsequent to the commencement of commercial production as set forth in subparagraph (h)(ii), which are directly related to the mining of the resources of the area covered by the contract, in conformity with generally recognized accounting principles;
- (v) "contractor's operating costs" means the contractor's operating costs as in subparagraph (k) which are directly related to the mining of the resources of the area covered by the contract in conformity with generally recognized accounting principles;
- (vi) "return on investment" in any accounting year means the ratio of the contractor's net proceeds in that year to the contractor's development costs. For the purpose of computing this ratio, the contractor's development costs shall include expenditures on new or replacement equipment less the original cost of the equipment replaced.
- (o) The costs referred to in subparagraphs (h), (k), (l) and (n) in respect of interest paid by the contractor shall be allowed to the extent that, in all the circumstances, the Authority approves, pursuant to article 4, paragraph 1, of this Annex, the debt-equity ratio and the rates of interest as reasonable, having regard to existing commercial practice.
- (p) The costs referred to in this paragraph shall not be interpreted as including payments of corporate income taxes or similar charges levied by States in respect of the operations of the contractor.
- 7. (a) "Processed metals", referred to in paragraphs 5 and 6, means the metals in the most basic form in which they are customarily traded on international terminal markets. For this purpose, the Authority shall specify, in its financial rules, regulations and procedures, the relevant international terminal market. For the metals which are not traded on such markets, "processed metals" means the metals in the most basic form in which they are customarily traded in representative arm's length transactions.
 - (b) If the Authority cannot otherwise determine the quantity of the processed metals produced from the polymetallic nodules recovered from the area covered by the contract referred to in paragraphs 5(b) and 6(b), the quantity shall be determined on the basis of the metal content of the nodules, processing recovery efficiency and other relevant factors, in accordance with the rules, regulations and procedures of the Authority and in conformity with generally recognized accounting principles.
- 8. If an international terminal market provides a representative pricing mechanism for processed metals, polymetallic nodules and semi-processed metals from the nodules, the average price on that market shall be used. In all other cases, the Authority shall, after consulting the contractor, determine a fair price for the said products in accordance with paragraph 9.

- 9. (a) All costs, expenditures, proceeds and revenues and all determinations of price and value referred to in this article shall be the result of free market or arm's length transactions. In the absence thereof, they shall be determined by the Authority, after consulting the contractor, as though they were the result of free market or arm's length transactions, taking into account relevant transactions in other markets.
 - (b) In order to ensure compliance with and enforcement of the provisions of this paragraph, the Authority shall be guided by the principles adopted for, and the interpretation given to, arm's length transactions by the Commission on Transnational Corporations of the United Nations, the Group of Experts on Tax Treaties between Developing and Developed Countries and other international organizations, and shall, in its rules, regulations and procedures, specify uniform and internationally acceptable accounting rules and procedures, and the means of selection by the contractor of certified independent accountants acceptable to the Authority for the purpose of carrying out auditing in compliance with those rules, regulations and procedures.
- 10. The contractor shall make available to the accountants, in accordance with the financial rules, regulations and procedures of the Authority, such financial data as are required to determine compliance with this article.
- 11. All costs, expenditures, proceeds and revenues, and all prices and values referred to in this article, shall be determined in accordance with generally recognized accounting principles and the financial rules, regulations and procedures of the Authority.
- 12. Payments to the Authority under paragraphs 5 and 6 shall be made in freely usable currencies or currencies which are freely available and effectively usable on the major foreign exchange markets or, at the contractor's option, in the equivalents of processed metals at market value. The market value shall be determined in accordance with paragraph 5(b). The freely usable currencies and currencies which are freely available and effectively usable on the major foreign exchange markets shall be defined in the rules, regulations and procedures of the Authority in accordance with prevailing international monetary practice.
- 13. All financial obligations of the contractor to the Authority, as well as all his fees, costs, expenditures, proceeds and revenues referred to in this article, shall be adjusted by expressing them in constant terms relative to a base year.
- 14. The Authority may, taking into account any recommendations of the Economic Planning Commission and the Legal and Technical Commission, adopt rules, regulations and procedures that provide for incentives, on a uniform and non-discriminatory basis, to contractors to further the objectives set out in paragraph 1.
- 15. In the event of a dispute between the Authority and a contractor over the interpretation or application of the financial terms of a contract, either party may submit the dispute to binding commercial arbitration, unless both parties agree to settle the dispute by other means, in accordance with article 188, paragraph 2.

Article 14 Transfer of data

- 1. The operator shall transfer to the Authority, in accordance with its rules, regulations and procedures and the terms and conditions of the plan of work, at time intervals determined by the Authority all data which are both necessary for and relevant to the effective exercise of the powers and functions of the principal organs of the Authority in respect of the area covered by the plan of work.
- 2. Transferred data in respect of the area covered by the plan of work, deemed proprietary, may only be used for the purposes set forth in this article. Data necessary for the formulation by the Authority of rules, regulations and procedures concerning protection of the marine environment and safety, other than equipment design data, shall not be deemed proprietary.
- 3. Data transferred to the Authority by prospectors, applicants for contracts or contractors, deemed proprietary, shall not be disclosed by the Authority to the Enterprise or to anyone external to the Authority, but data on the reserved areas may be disclosed to the Enterprise. Such data transferred by such persons to the Enterprise shall not be disclosed by the Enterprise to the Authority or to anyone external to the Authority.

Article 15 Training programmes

The contractor shall draw up practical programmes for the training of personnel of the Authority and developing States, including the participation of such personnel in all activities in the Area which are covered by the contract, in accordance with article 144, paragraph 2.

Article 16 Exclusive right to explore and exploit

The Authority shall, pursuant to Part XI and its rules, regulations and procedures, accord the operator the exclusive right to explore and exploit the area covered by the plan of work in respect of a specified category of resources and shall ensure that no other entity operates in the same area for a different category of resources in a manner which might interfere with the operations of the operator. The operator shall have security of tenure in accordance with article 153, paragraph 6.

Article 17 Rules, regulations and procedures of the Authority

- 1. The Authority shall adopt and uniformly apply rules, regulations and procedures in accordance with article 160, paragraph 2(f)(ii), and article 162, paragraph 2(o)(ii), for the exercise of its functions as set forth in Part XI on, *inter alia*, the following matters:
 - (a) administrative procedures relating to prospecting, exploration and exploitation in the Area;
 - (b) operations:
 - (i) size of area;
 - (ii) duration of operations;

- (iii) performance requirements including assurances pursuant to article 4, paragraph 6(c), of this Annex;
- (iv) categories of resources;
- (v) renunciation of areas;
- (vi) progress reports;
- (vii) submission of data;
- (viii) inspection and supervision of operations;
- (ix) prevention of interference with other activities in the marine environment;
- (x) transfer of rights and obligations by a contractor;
- (xi) procedures for transfer of technology to developing States in accordance with article 144 and for their direct participation;
- (xii) mining standards and practices, including those relating to operational safety, conservation of the resources and the protection of the marine environment;
- (xiii) definition of commercial production;
- (xiv) qualification standards for applicants;
- (c) financial matters:
 - establishment of uniform and non-discriminatory costing and accounting rules and the method of selection of auditors;
 - (ii) apportionment of proceeds of operations;
 - (iii) the incentives referred to in article 13 of this Annex;
- (d) implementation of decisions taken pursuant to article 151, paragraph 10, and article 164, paragraph 2(d).
- 2. Rules, regulations and procedures on the following items shall fully reflect the objective criteria set out below:
 - (a) Size of areas:

The Authority shall determine the appropriate size of areas for exploration which may be up to twice as large as those for exploitation in order to permit intensive exploration operations. The size of area shall be calculated to satisfy the requirements of article 8 of this Annex on reservation of areas as well as stated production requirements consistent with article 151 in accordance with the terms of the contract taking into account the state of the art of technology then available for seabed mining and the relevant physical characteristics of the areas. Areas shall be neither smaller nor larger than are necessary to satisfy this objective.

- (b) Duration of operations:
 - (i) Prospecting shall be without time-limit;
 - (ii) Exploration should be of sufficient duration to permit a thorough survey of the specific area, the design and construction of mining equipment for the area and the design and construction of small and medium-size processing plants for the purpose of testing mining and processing systems;
 - (iii) The duration of exploitation should be related to the economic life of the mining project, taking into consideration such factors as the depletion of the ore, the useful life of mining equipment and processing facilities and commercial viability. Exploitation should be of

sufficient duration to permit commercial extraction of minerals of the area and should include a reasonable time period for construction of commercial-scale mining and processing systems, during which period commercial production should not be required. The total duration of exploitation, however, should also be short enough to give the Authority an opportunity to amend the terms and conditions of the plan of work at the time it considers renewal in accordance with rules, regulations and procedures which it has adopted subsequent to approving the plan of work.

(c) Performance requirements:

The Authority shall require that during the exploration stage periodic expenditures be made by the operator which are reasonably related to the size of the area covered by the plan of work and the expenditures which would be expected of a bona fide operator who intended to bring the area into commercial production within the time-limits established by the Authority. The required expenditures should not be established at a level which would discourage prospective operators with less costly technology than is prevalently in use. The Authority shall establish a maximum time interval, after the exploration stage is completed and the exploitation stage begins, to achieve commercial production. To determine this interval, the Authority should take into consideration that construction of large-scale mining and processing systems cannot be initiated until after the termination of the exploration stage and the commencement of the exploitation stage. Accordingly, the interval to bring an area into commercial production should take into account the time necessary for this construction after the completion of the exploration stage and reasonable allowance should be made for unavoidable delays in the construction Once commercial production is achieved, the schedule. Authority shall within reasonable limits and taking into consideration all relevant factors require the operator to maintain commercial production throughout the period of the plan of work.

(d) Categories of resources:

In determining the category of resources in respect of which a plan of work may be approved, the Authority shall give emphasis *inter alia* to the following characteristics:

- (i) that certain resources require the use of similar mining methods; and
- (ii) that some resources can be developed simultaneously without undue interference between operators developing different resources in the same area.

Nothing in this subparagraph shall preclude the Authority from approving a plan of work with respect to more than one category of resources in the same area to the same applicant.

(e) Renunciation of areas:

The operator shall have the right at any time to renounce without penalty the whole or part of his rights in the area covered by a plan of work.

(f) Protection of the marine environment:

Rules, regulations and procedures shall be drawn up in order to secure effective protection of the marine environment from harmful effects directly resulting from activities in the Area or from shipboard processing immediately above a mine site of minerals derived from that mine site, taking into account the extent to which such harmful effects may directly result from drilling, dredging, coring and excavation and from disposal, dumping and discharge into the marine environment of sediment, wastes or other effluents.

(g) Commercial production:

Commercial production shall be deemed to have begun if an operator engages in sustained large-scale recovery operations which yield a quantity of materials sufficient to indicate clearly that the principal purpose is large-scale production rather than production intended for information gathering, analysis or the testing of equipment or plant.

Article 18 Penalties

- 1. A contractor's rights under the contract may be suspended or terminated only in the following cases:
 - (a) if, in spite of warnings by the Authority, the contractor has conducted his activities in such a way as to result in serious, persistent and wilful violations of the fundamental terms of the contract, Part XI and the rules, regulations and procedures of the Authority; or
 - (b) if the contractor has failed to comply with a final binding decision of the dispute settlement body applicable to him.
- 2. In the case of any violation of the contract not covered by paragraph 1(a), or in lieu of suspension or termination under paragraph 1(a), the Authority may impose upon the contractor monetary penalties proportionate to the seriousness of the violation.
- 3. Except for emergency orders under article 162, paragraph 2(w), the Authority may not execute a decision involving monetary penalties, suspension or termination until the contractor has been accorded a reasonable opportunity to exhaust the judicial remedies available to him pursuant to Part XI, section 5.

Article 19 Revision of contract

- 1. When circumstances have arisen or are likely to arise which, in the opinion of either party, would render the contract inequitable or make it impracticable or impossible to achieve the objectives set out in the contract or in Part XI, the parties shall enter into negotiations to revise it accordingly.
- 2. Any contract entered into in accordance with article 153, paragraph 3, may be revised only with the consent of the parties.

Article 20 Transfer of rights and obligations

The rights and obligations arising under a contract may be transferred only with the consent of the Authority, and in accordance with its rules, regulations and procedures. The Authority shall not unreasonably withhold consent to the transfer if the proposed transferee is in all respects a qualified applicant and assumes all of the obligations of the transferor and if the transfer does not confer to the transferee a plan of work, the approval of which would be forbidden by article 6, paragraph 3(c), of this Annex.

Article 21 Applicable law

- 1. The contract shall be governed by the terms of the contract, the rules, regulations and procedures of the Authority, Part XI and other rules of international law not incompatible with this Convention.
- 2. Any final decision rendered by a court or tribunal having jurisdiction under this Convention relating to the rights and obligations of the Authority and of the contractor shall be enforceable in the territory of each State Party.
- 3. No State Party may impose conditions on a contractor that are inconsistent with Part XI. However, the application by a State Party to contractors sponsored by it, or to ships flying its flag, of environmental or other laws and regulations more stringent than those in the rules, regulations and procedures of the Authority adopted pursuant to article 17, paragraph 2(f), of this Annex shall not be deemed inconsistent with Part XI.

Article 22 Responsibility

The contractor shall have responsibility or liability for any damage arising out of wrongful acts in the conduct of its operations, account being taken of contributory acts or omissions by the Authority. Similarly, the Authority shall have responsibility or liability for any damage arising out of wrongful acts in the exercise of its powers and functions, including violations under article 168, paragraph 2, account being taken of contributory acts or omissions by the contractor. Liability in every case shall be for the actual amount of damage.

ANNEX IV. STATUTE OF THE ENTERPRISE

Article 1 Purposes

- 1. The Enterprise is the organ of the Authority which shall carry out activities in the Area directly, pursuant to article 153, paragraph 2 (a), as well as the transporting, processing and marketing of minerals recovered from the Area.
- 2. In carrying out its purposes and in the exercise of its functions, the Enterprise shall act in accordance with this Convention and the rules, regulations and procedures of the Authority.

3. In developing the resources of the Area pursuant to paragraph 1, the Enterprise shall, subject to this Convention, operate in accordance with sound commercial principles.

Article 2 Relationship to the Authority

- 1. Pursuant to article 170, the Enterprise shall act in accordance with the general policies of the Assembly and the directives of the Council.
- 2. Subject to paragraph l, the Enterprise shall enjoy autonomy in the conduct of its operations.
- 3. Nothing in this Convention shall make the Enterprise liable for the acts or obligations of the Authority, or make the Authority liable for the acts or obligations of the Enterprise.

Article 3 Limitation of liability

Without prejudice to article 11, paragraph 3, of this Annex, no member of the Authority shall be liable by reason only of its membership for the acts or obligations of the Enterprise.

Article 4 Structure

The Enterprise shall have a Governing Board, a Director-General and the staff necessary for the exercise of its functions.

Article 5 Governing Board

- 1. The Governing Board shall be composed of 15 members elected by the Assembly in accordance with article 160, paragraph 2(c). In the election of the members of the Board, due regard shall be paid to the principle of equitable geographical distribution. In submitting nominations of candidates for election to the Board, members of the Authority shall bear in mind the need to nominate candidates of the highest standard of competence, with qualifications in relevant fields, so as to ensure the viability and success of the Enterprise.
- 2. Members of the Board shall be elected for four years and may be re-elected; and due regard shall be paid to the principle of rotation of membership.
- 3. Members of the Board shall continue in office until their successors are elected. If the office of a member of the Board becomes vacant, the Assembly shall, in accordance with article 160, paragraph 2(c), elect a new member for the remainder of his predecessor's term.
- 4. Members of the Board shall act in their personal capacity. In the performance of their duties they shall not seek or receive instructions from any government or from any other source. Each member of the Authority shall respect the independent character of the members of the Board and shall refrain from all attempts to influence any of them in the discharge of their duties.

- 5. Each member of the Board shall receive remuneration to be paid out of the funds of the Enterprise. The amount of remuneration shall be fixed by the Assembly, upon the recommendation of the Council.
- 6. The Board shall normally function at the principal office of the Enterprise and shall meet as often as the business of the Enterprise may require.
 - 7. Two thirds of the members of the Board shall constitute a quorum.
- 8. Each member of the Board shall have one vote. All matters before the Board shall be decided by a majority of its members. If a member has a conflict of interest on a matter before the Board he shall refrain from voting on that matter.
- 9. Any member of the Authority may ask the Board for information in respect of its operations which particularly affect that member. The Board shall endeavour to provide such information.

Article 6 Powers and functions of the Governing Board

The Governing Board shall direct the operations of the Enterprise. Subject to this Convention, the Governing Board shall exercise the powers necessary to fulfil the purposes of the Enterprise, including powers:

- (a) to elect a Chairman from among its members;
- (b) to adopt its rules of procedure;
- (c) to draw up and submit formal written plans of work to the Council in accordance with article 153, paragraph 3, and article 162, paragraph 2(j);
- (d) to develop plans of work and programmes for carrying out the activities specified in article 170;
- (e) to prepare and submit to the Council applications for production authorizations in accordance with article 151, paragraphs 2 to 7;
- (f) to authorize negotiations concerning the acquisition of technology, including those provided for in Annex III, article 5, paragraph 3(a), (c) and (d), and to approve the results of those negotiations;
- (g) to establish terms and conditions, and to authorize negotiations, concerning joint ventures and other forms of joint arrangements referred to in Annex III, articles 9 and 11, and to approve the results of such negotiations;
- (h) to recommend to the Assembly what portion of the net income of the Enterprise should be retained as its reserves in accordance with article 160, paragraph 2(f), and article 10 of this Annex;
- (i) to approve the annual budget of the Enterprise;
- (j) to authorize the procurement of goods and services in accordance with article 12, paragraph 3, of this Annex;
- (k) to submit an annual report to the Council in accordance with article 9 of this Annex;
- to submit to the Council for the approval of the Assembly draft rules in respect of the organization, management, appointment and dismissal of the staff of the Enterprise and to adopt regulations to give effect to such rules;
- (m) to borrow funds and to furnish such collateral or other security as it may determine in accordance with article 11, paragraph 2, of this Annex;

- (n) to enter into any legal proceedings, agreements and transactions and to take any other actions in accordance with article 13 of this Annex;
- (o) to delegate, subject to the approval of the Council, any non-discretionary powers to the Director-General and to its committees.

Article 7 Director-General and staff of the Enterprise

- 1. The Assembly shall, upon the recommendation of the Council and the nomination of the Governing Board, elect the Director-General of the Enterprise who shall not be a member of the Board. The Director-General shall hold office for a fixed term, not exceeding five years, and may be re-elected for further terms.
- 2. The Director-General shall be the legal representative and chief executive of the Enterprise and shall be directly responsible to the Board for the conduct of the operations of the Enterprise. He shall be responsible for the organization, management, appointment and dismissal of the staff of the Enterprise in accordance with the rules and regulations referred to in article 6, subparagraph (1), of this Annex. He shall participate, without the right to vote, in the meetings of the Board and may participate, without the right to vote, in the meetings of the Assembly and the Council when these organs are dealing with matters concerning the Enterprise.
- 3. The paramount consideration in the recruitment and employment of the staff and in the determination of their conditions of service shall be the necessity of securing the highest standards of efficiency and of technical competence. Subject to this consideration, due regard shall be paid to the importance of recruiting the staff on an equitable geographical basis.
- 4. In the performance of their duties the Director-General and the staff shall not seek or receive instructions from any government or from any other source external to the Enterprise. They shall refrain from any action which might reflect on their position as international officials of the Enterprise responsible only to the Enterprise. Each State Party undertakes to respect the exclusively international character of the responsibilities of the Director-General and the staff and not to seek to influence them in the discharge of their responsibilities.
- 5. The responsibilities set forth in article 168, paragraph 2, are equally applicable to the staff of the Enterprise.

Article 8 Location

The Enterprise shall have its principal office at the seat of the Authority. The Enterprise may establish other offices and facilities in the territory of any State Party with the consent of that State Party.

Article 9 Reports and financial statements

 The Enterprise shall, not later than three months after the end of each financial year, submit to the Council for its consideration an annual report containing an audited statement of its accounts and shall transmit to the Council at appropriate intervals a summary statement of its financial position and a profit and loss statement showing the results of its operations.

2. The Enterprise shall publish its annual report and such other reports as it finds appropriate.

3. All reports and financial statements referred to in this article shall be distributed to the members of the Authority.

Article 10 Allocation of net income

- 1. Subject to paragraph 3, the Enterprise shall make payments to the Authority under Annex III, article 13, or their equivalent.
- 2. The Assembly shall, upon the recommendation of the Governing Board, determine what portion of the net income of the Enterprise shall be retained as reserves of the Enterprise. The remainder shall be transferred to the Authority.
- 3. During an initial period required for the Enterprise to become self-supporting, which shall not exceed 10 years from the commencement of commercial production by it, the Assembly shall exempt the Enterprise from the payments referred to in paragraph 1, and shall leave all of the net income of the Enterprise in its reserves.

Article 11 Finances

- 1. The funds of the Enterprise shall include:
 - (a) amounts received from the Authority in accordance with article 173, paragraph 2(b);
 - (b) voluntary contributions made by States Parties for the purpose of financing activities of the Enterprise;
 - (c) amounts borrowed by the Enterprise in accordance with paragraphs 2 and 3;
 - (d) income of the Enterprise from its operations;
 - (e) other funds made available to the Enterprise to enable it to commence operations as soon as possible and to carry out its functions.
- 2. (a) The Enterprise shall have the power to borrow funds and to furnish such collateral or other security as it may determine. Before making a public sale of its obligations in the financial markets or currency of a State Party, the Enterprise shall obtain the approval of that State Party. The total amount of borrowings shall be approved by the Council upon the recommendation of the Governing Board.
 - (b) States Parties shall make every reasonable effort to support applications by the Enterprise for loans on capital markets and from international financial institutions.
- 3. (a) The Enterprise shall be provided with the funds necessary to explore and exploit one mine site, and to transport, process and market the minerals recovered therefrom and the nickel, copper, cobalt and manganese obtained, and to meet its initial administrative expenses. The amount of the said funds, and the criteria and factors for its adjustment, shall be included by the

- Preparatory Commission in the draft rules, regulations and procedures of the Authority.
- (b) All States Parties shall make available to the Enterprise an amount equivalent to one half of the funds referred to in subparagraph (a) by way of long-term interest-free loans in accordance with the scale of assessments for the United Nations regular budget in force at the time when the assessments are made, adjusted to take into account the States which are not members of the United Nations. Debts incurred by the Enterprise in raising the other half of the funds shall be guaranteed by all States Parties in accordance with the same scale.
- (c) If the sum of the financial contributions of States Parties is less than the funds to be provided to the Enterprise under subparagraph (a), the Assembly shall, at its first session, consider the extent of the shortfall and adopt by consensus measures for dealing with this shortfall, taking into account the obligation of States Parties under subparagraphs (a) and (b) and any recommendations of the Preparatory Commission.
- (d) (i) Each State Party shall, within 60 days after the entry into force of this Convention, or within 30 days after the deposit of its instrument of ratification or accession, whichever is later, deposit with the Enterprise irrevocable, non-negotiable, non-interest-bearing promissory notes in the amount of the share of such State Party of interest-free loans pursuant to subparagraph (b).
 - (ii) The Board shall prepare, at the earliest practicable date after this Convention enters into force, and thereafter at annual or other appropriate intervals, a schedule of the magnitude and timing of its requirements for the funding of its administrative expenses and for activities carried out by the Enterprise in accordance with article 170 and article 12 of this Annex.
 - (iii) The States Parties shall, thereupon, be notified by the Enterprise, through the Authority, of their respective shares of the funds in accordance with subparagraph (b), required for such expenses. The Enterprise shall encash such amounts of the promissory notes as may be required to meet the expenditure referred to in the schedule with respect to interest-free loans.
 - (iv) States Parties shall, upon receipt of the notification, make available their respective shares of debt guarantees for the Enterprise in accordance with subparagraph (b).
- (e) (i) If the Enterprise so requests, State Parties may provide debt guarantees in addition to those provided in accordance with the scale referred to in subparagraph (b).
 - (ii) In lieu of debt guarantees, a State Party may make a voluntary contribution to the Enterprise in an amount equivalent to that portion of the debts which it would otherwise be liable to guarantee.
- (f) Repayment of the interest-bearing loans shall have priority over the repayment of the interest-free loans. Repayment of interest-free loans shall be in accordance with a schedule

- adopted by the Assembly, upon the recommendation of the Council and the advice of the Board. In the exercise of this function the Board shall be guided by the relevant provisions of the rules, regulations and procedures of the Authority, which shall take into account the paramount importance of ensuring the effective functioning of the Enterprise and, in particular, ensuring its financial independence.
- (g) Funds made available to the Enterprise shall be in freely usable currencies or currencies which are freely available and effectively usable in the major foreign exchange markets. These currencies shall be defined in the rules, regulations and procedures of the Authority in accordance with prevailing international monetary practice. Except as provided in paragraph 2, no State Party shall maintain or impose restrictions on the holding, use or exchange by the Enterprise of these funds.
- (h) "Debt guarantee" means a promise of a State Party to creditors of the Enterprise to pay, pro rata in accordance with the appropriate scale, the financial obligations of the Enterprise covered by the guarantee following notice by the creditors to the State Party of a default by the Enterprise. Procedures for the payment of those obligations shall be in conformity with the rules, regulations and procedures of the Authority.
- 4. The funds, assets and expenses of the Enterprise shall be kept separate from those of the Authority. This article shall not prevent the Enterprise from making arrangements with the Authority regarding facilities, personnel and services and arrangements for reimbursement of administrative expenses paid by either on behalf of the other.
- 5. The records, books and accounts of the Enterprise, including its annual financial statements, shall be audited annually by an independent auditor appointed by the Council.

Article 12 Operations

- 1. The Enterprise shall propose to the Council projects for carrying out activities in accordance with article 170. Such proposals shall include a formal written plan of work for activities in the Area in accordance with article 153, paragraph 3, and all such other information and data as may be required from time to time for its appraisal by the Legal and Technical Commission and approval by the Council.
- 2. Upon approval by the Council, the Enterprise shall execute the project on the basis of the formal written plan of work referred to in paragraph 1.
 - 3. (a) If the Enterprise does not possess the goods and services required for its operations it may procure them. For that purpose, it shall issue invitations to tender and award contracts to bidders offering the best combination of quality, price and delivery time.
 - (b) If there is more than one bid offering such a combination, the contract shall be awarded in accordance with:
 - (i) the principle of non-discrimination on the basis of political or other considerations not relevant to the

- carrying out of operations with due diligence and efficiency; and
- (ii) guidelines approved by the Council with regard to the preferences to be accorded to goods and services originating in developing States, including the land-locked and geographically disadvantaged among them.
- (c) The Governing Board may adopt rules determining the special circumstances in which the requirement of invitations to bid may, in the best interests of the Enterprise, be dispensed with.
- 4. The Enterprise shall have title to all minerals and processed substances produced by it.
- 5. The Enterprise shall sell its products on a non-discriminatory basis. It shall not give non-commercial discounts.
- 6. Without prejudice to any general or special power conferred on the Enterprise under any other provision of this Convention, the Enterprise shall exercise such powers incidental to its business as shall be necessary.
- 7. The Enterprise shall not interfere in the political affairs of any State Party; nor shall it be influenced in its decisions by the political character of the State Party concerned. Only commercial considerations shall be relevant to its decisions, and these considerations shall be weighed impartially in order to carry out the purposes specified in article 1 of this Annex.

Article 13 Legal status, privileges and immunities

- 1. To enable the Enterprise to exercise its functions, the status, privileges and immunities set forth in this article shall be accorded to the Enterprise in the territories of States Parties. To give effect to this principle the Enterprise and States Parties may, where necessary, enter into special agreements.
- 2. The Enterprise shall have such legal capacity as is necessary for the exercise of its functions and the fulfilment of its purposes and, in particular, the capacity:
 - (a) to enter into contracts, joint arrangements or other arrangements, including agreements with States and international organizations;
 - (b) to acquire, lease, hold and dispose of immovable and movable property;
 - (c) to be a party to legal proceedings.
 - 3. (a) Actions may be brought against the Enterprise only in a court of competent jurisdiction in the territory of a State Party in which the Enterprise:
 - (i) has an office or facility;
 - (ii) has appointed an agent for the purpose of accepting service or notice of process;
 - (iii) has entered into a contract for goods or services;
 - (iv) has issued securities; or
 - (v) is otherwise engaged in commercial activity.
 - (b) The property and assets of the Enterprise, wherever located and by whomsoever held, shall be immune from all forms of seizure, attachment or execution before the delivery of final judgment against the Enterprise.

- 4. (a) The property and assets of the Enterprise, wherever located and by whomsoever held, shall be immune from requisition, confiscation, expropriation or any other form of seizure by executive or legislative action.
 - (b) The property and assets of the Enterprise, wherever located and by whomsoever held, shall be free from discriminatory restrictions, regulations, controls and moratoria of any nature.
 - (c) The Enterprise and its employees shall respect local laws and regulations in any State or territory in which the Enterprise or its employees may do business or otherwise act.
 - (d) States Parties shall ensure that the Enterprise enjoys all rights, privileges and immunities accorded by them to entities conducting commercial activities in their territories. These rights, privileges and immunities shall be accorded to the Enterprise on no less favourable a basis than that on which they are accorded to entities engaged in similar commercial activities. If special privileges are provided by States Parties for developing States or their commercial entities, the Enterprise shall enjoy those privileges on a similarly preferential basis.
 - (e) States Parties may provide special incentives, rights, privileges and immunities to the Enterprise without the obligation to provide such incentives, rights, privileges and immunities to other commercial entities.
- 5. The Enterprise shall negotiate with the host countries in which its offices and facilities are located for exemption from direct and indirect taxation.
- 6. Each State Party shall take such action as is necessary for giving effect in terms of its own law to the principles set forth in this Annex and shall inform the Enterprise of the specific action which it has taken.
- 7. The Enterprise may waive any of the privileges and immunities conferred under this article or in the special agreements referred to in paragraph 1 to such extent and upon such conditions as it may determine.

ANNEX V. CONCILIATION

SECTION 1. CONCILIATION PROCEDURE PURSUANT TO SECTION 1 OF PART XV

Article 1 Institution of proceedings

If the parties to a dispute have agreed, in accordance with article 284, to submit it to conciliation under this section, any such party may institute the proceedings by written notification addressed to the other party or parties to the dispute.

Article 2 List of conciliators

A list of conciliators shall be drawn up and maintained by the Secretary-General of the United Nations. Every State Party shall be entitled to nominate four conciliators, each of whom shall be a person enjoying the highest reputation for fairness, competence and integrity. The names of the persons so nominated shall constitute the list. If at any time the conciliators nominated by a State Party in the list so constituted shall be fewer than four, that State Party shall be entitled to make further nominations as necessary. The name of a conciliator shall remain on the list until withdrawn by the State Party which made the nomination, provided that such conciliator shall continue to serve on any conciliation commission to which that conciliator has been appointed until the completion of the proceedings before that commission.

Article 3 Constitution of conciliation commission

The conciliation commission shall, unless the parties otherwise agree, be constituted as follows:

- (a) Subject to subparagraph (g), the conciliation commission shall consist of five members.
- (b) The party instituting the proceedings shall appoint two conciliators to be chosen preferably from the list referred to in article 2 of this Annex, one of whom may be its national, unless the parties otherwise agree. Such appointments shall be included in the notification referred to in article 1 of this Annex.
- (c) The other party to the dispute shall appoint two conciliators in the manner set forth in subparagraph (b) within 21 days of receipt of the notification referred to in article 1 of this Annex. If the appointments are not made within that period, the party instituting the proceedings may, within one week of the expiration of that period, either terminate the proceedings by notification addressed to the other party or request the Secretary-General of the United Nations to make the appointments in accordance with subparagraph (e).
- (d) Within 30 days after all four conciliators have been appointed, they shall appoint a fifth conciliator chosen from the list referred to in article 2 of this Annex, who shall be chairman. If the appointment is not made within that period, either party may, within one week of the expiration of that period, request the Secretary-General of the United Nations to make the appointment in accordance with subparagraph (e).
- (e) Within 30 days of the receipt of a request under subparagraph (c) or (d), the Secretary-General of the United Nations shall make the necessary appointments from the list referred to in article 2 of this Annex in consultation with the parties to the dispute.
- (f) Any vacancy shall be filled in the manner prescribed for the initial appointment.
- (g) Two or more parties which determine by agreement that they are in the same interest shall appoint two conciliators jointly. Where two or more parties have separate interests or there is a disagreement as to whether they are of the same interest, they shall appoint conciliators separately.
- (h) In disputes involving more than two parties having separate interests, or where there is disagreement as to whether they are of the same interest, the parties shall apply subparagraphs (a) to (f) in so far as possible.

Article 4 Procedure

The conciliation commission shall, unless the parties otherwise agree, determine its own procedure. The commission may, with the consent of the parties to the dispute, invite any State Party to submit to it its views orally or in writing. Decisions of the commission regarding procedural matters, the report and recommendations shall be made by a majority vote of its members.

Article 5 Amicable settlement

The commission may draw the attention of the parties to any measures which might facilitate an amicable settlement of the dispute.

Article 6 Functions of the commission

The commission shall hear the parties, examine their claims and objections, and make proposals to the parties with a view to reaching an amicable settlement.

Article 7 Report

- 1. The commission shall report within 12 months of its constitution. Its report shall record any agreements reached and, failing agreement, its conclusions on all questions of fact or law relevant to the matter in dispute and such recommendations as the commission may deem appropriate for an amicable settlement. The report shall be deposited with the Secretary-General of the United Nations and shall immediately be transmitted by him to the parties to the dispute.
- 2. The report of the commission, including its conclusions or recommendations, shall not be binding upon the parties.

Article 8 Termination

The conciliation proceedings are terminated when a settlement has been reached, when the parties have accepted or one party has rejected the recommendations of the report by written notification addressed to the Secretary-General of the United Nations, or when a period of three months has expired from the date of transmission of the report to the parties.

Article 9 Fees and expenses

The fees and expenses of the commission shall be borne by the parties to the dispute.

Article 10 Right of parties to modify procedure

The parties to the dispute may by agreement applicable solely to that dispute modify any provision of this Annex.

SECTION 2. COMPULSORY SUBMISSION TO CONCILIATION PROCEDURE PURSUANT TO SECTION 3 OF PART XV

Article 11 Institution of proceedings

- 1. Any party to a dispute which, in accordance with Part XV, section 3, may be submitted to conciliation under this section, may institute the proceedings by written notification addressed to the other party or parties to the dispute.
- 2. Any party to the dispute, notified under paragraph 1, shall be obliged to submit to such proceedings.

Article 12 Failure to reply or to submit to conciliation

The failure of a party or parties to the dispute to reply to notification of institution of proceedings or to submit to such proceedings shall not constitute a bar to the proceedings.

Article 13 Competence

A disagreement as to whether a conciliation commission acting under this section has competence shall be decided by the commission.

Article 14 Application of section 1

Articles 2 to 10 of section 1 of this Annex apply subject to this section.

ANNEX VI. STATUTE OF THE INTERNATIONAL TRIBUNAL FOR THE LAW OF THE SEA

Article 1 General provisions

- 1. The International Tribunal for the Law of the Sea is constituted and shall function in accordance with the provisions of this Convention and this Statute.
- 2. The seat of the Tribunal shall be in the Free and Hanseatic City of Hamburg in the Federal Republic of Germany.
- 3. The Tribunal may sit and exercise its functions elsewhere whenever it considers this desirable.

4. A reference of a dispute to the Tribunal shall be governed by the provisions of Parts XI and XV.

SECTION 1. ORGANIZATION OF THE TRIBUNAL

Article 2 Composition

- 1. The Tribunal shall be composed of a body of 21 independent members, elected from among persons enjoying the highest reputation for fairness and integrity and of recognized competence in the field of the law of the sea.
- 2. In the Tribunal as a whole the representation of the principal legal systems of the world and equitable geographical distribution shall be assured.

Article 3 Membership

- 1. No two members of the Tribunal may be nationals of the same State. A person who for the purposes of membership in the Tribunal could be regarded as a national of more than one State shall be deemed to be a national of the one in which he ordinarily exercises civil and political rights.
- 2. There shall be no fewer than three members from each geographical group as established by the General Assembly of the United Nations.

Article 4 Nominations and elections

- 1. Each State Party may nominate not more than two persons having the qualifications prescribed in article 2 of this Annex. The members of the Tribunal shall be elected from the list of persons thus nominated.
- 2. At least three months before the date of the election, the Secretary-General of the United Nations in the case of the first election and the Registrar of the Tribunal in the case of subsequent elections shall address a written invitation to the States Parties to submit their nominations for members of the Tribunal within two months. He shall prepare a list in alphabetical order of all the persons thus nominated, with an indication of the States Parties which have nominated them, and shall submit it to the States Parties before the seventh day of the last month before the date of each election.
- 3. The first election shall be held within six months of the date of entry into force of this Convention.
- 4. The members of the Tribunal shall be elected by secret ballot. Elections shall be held at a meeting of the States Parties convened by the Secretary-General of the United Nations in the case of the first election and by a procedure agreed to by the States Parties in the case of subsequent elections. Two thirds of the States Parties shall constitute a quorum at that meeting. The persons elected to the Tribunal shall be those nominees who obtain the largest number of votes and a two-thirds majority of the States Parties present and voting, provided that such majority includes a majority of the States Parties.

Article 5 Term of office

- 1. The members of the Tribunal shall be elected for nine years and may be re-elected; provided, however, that of the members elected at the first election, the terms of seven members shall expire at the end of three years and the terms of seven more members shall expire at the end of six years.
- 2. The members of the Tribunal whose terms are to expire at the end of the above-mentioned initial periods of three and six years shall be chosen by lot to be drawn by the Secretary-General of the United Nations immediately after the first election.
- 3. The members of the Tribunal shall continue to discharge their duties until their places have been filled. Though replaced, they shall finish any proceedings which they may have begun before the date of their replacement.
- 4. In the case of the resignation of a member of the Tribunal, the letter of resignation shall be addressed to the President of the Tribunal. The place becomes vacant on the receipt of that letter.

Article 6 Vacancies

- 1. Vacancies shall be filled by the same method as that laid down for the first election, subject to the following provision: the Registrar shall, within one month of the occurrence of the vacancy, proceed to issue the invitations provided for in article 4 of this Annex, and the date of the election shall be fixed by the President of the Tribunal after consultation with the States Parties.
- 2. A member of the Tribunal elected to replace a member whose term of office has not expired shall hold office for the remainder of his predecessor's term.

Article 7 Incompatible activities

- 1. No member of the Tribunal may exercise any political or administrative function, or associate actively with or be financially interested in any of the operations of any enterprise concerned with the exploration for or exploitation of the resources of the sea or the seabed or other commercial use of the sea or the seabed.
- No member of the Tribunal may act as agent, counsel or advocate in any case.
- 3. Any doubt on these points shall be resolved by decision of the majority of the other members of the Tribunal present.

Article 8

Conditions relating to participation of members in a particular case

1. No member of the Tribunal may participate in the decision of any case in which he has previously taken part as agent, counsel or advocate for one of the parties, or as a member of a national or international court or tribunal, or in any other capacity.

- 2. If, for some special reason, a member of the Tribunal considers that he should not take part in the decision of a particular case, he shall so inform the President of the Tribunal.
- 3. If the President considers that for some special reason one of the members of the Tribunal should not sit in a particular case, he shall give him notice accordingly.
- 4. Any doubt on these points shall be resolved by decision of the majority of the other members of the Tribunal present.

Article 9 Consequence of ceasing to fulfil required conditions

If, in the unanimous opinion of the other members of the Tribunal, a member has ceased to fulfil the required conditions, the President of the Tribunal shall declare the seat vacant.

Article 10 Privileges and immunities

The members of the Tribunal, when engaged on the business of the Tribunal, shall enjoy diplomatic privileges and immunities.

Article 11 Solemn declaration by members

Every member of the Tribunal shall, before taking up his duties, make a solemn declaration in open session that he will exercise his powers impartially and conscientiously.

Article 12 President, Vice-President and Registrar

- 1. The Tribunal shall elect its President and Vice-President for three years; they may be re-elected.
- 2. The Tribunal shall appoint its Registrar and may provide for the appointment of such other officers as may be necessary.
- 3. The President and the Registrar shall reside at the seat of the Tribunal.

Article 13 Quorum

- 1. All available members of the Tribunal shall sit; a quorum of 11 elected members shall be required to constitute the Tribunal.
- 2. Subject to article 17 of this Annex, the Tribunal shall determine which members are available to constitute the Tribunal for the consideration of a particular dispute, having regard to the effective functioning of the chambers as provided for in articles 14 and 15 of this Annex.
- 3. All disputes and applications submitted to the Tribunal shall be heard and determined by the Tribunal, unless article 14 of this Annex applies, or the parties request that it shall be dealt with in accordance with article 15 of this Annex.

Article 14 Seabed Disputes Chamber

A Seabed Disputes Chamber shall be established in accordance with the provisions of section 4 of this Annex. Its jurisdiction, powers and functions shall be as provided for in Part XI, section 5.

Article 15 Special chambers

1. The Tribunal may form such chambers, composed of three or more of its elected members, as it considers necessary for dealing with particular categories of disputes.

2. The Tribunal shall form a chamber for dealing with a particular dispute submitted to it if the parties so request. The composition of such a chamber shall be determined by the Tribunal with the approval of the parties.

- 3. With a view to the speedy dispatch of business, the Tribunal shall form annually a chamber composed of five of its elected members which may hear and determine disputes by summary procedure. Two alternative members shall be selected for the purpose of replacing members who are unable to participate in a particular proceeding.
- 4. Disputes shall be heard and determined by the chambers provided for in this article if the parties so request.
- 5. A judgment given by any of the chambers provided for in this article and in article 14 of this Annex shall be considered as rendered by the Tribunal.

Article 16 Rules of the Tribunal

The Tribunal shall frame rules for carrying out its functions. In particular it shall lay down rules of procedure.

Article 17 Nationality of members

- 1. Members of the Tribunal of the nationality of any of the parties to a dispute shall retain their right to participate as members of the Tribunal.
- 2. If the Tribunal, when hearing a dispute, includes upon the bench a member of the nationality of one of the parties, any other party may choose a person to participate as a member of the Tribunal.
- 3. If the Tribunal, when hearing a dispute, does not include upon the bench a member of the nationality of the parties, each of those parties may choose a person to participate as a member of the Tribunal.
- 4. This article applies to the chambers referred to in articles 14 and 15 of this Annex. In such cases, the President, in consultation with the parties, shall request specified members of the Tribunal forming the chamber, as many as necessary, to give place to the members of the Tribunal of the nationality of the parties concerned, and, failing such, or if they are unable to be present, to the members specially chosen by the parties.
- 5. Should there be several parties in the same interest, they shall, for the purpose of the preceding provisions, be considered as one party only. Any doubt on this point shall be settled by the decision of the Tribunal.

6. Members chosen in accordance with paragraphs 2, 3 and 4 shall fulfil the conditions required by articles 2, 8 and 11 of this Annex. They shall participate in the decision on terms of complete equality with their colleagues.

Article 18 Remuneration of members

- 1. Each elected member of the Tribunal shall receive an annual allowance and, for each day on which he exercises his functions, a special allowance, provided that in any year the total sum payable to any member as special allowance shall not exceed the amount of the annual allowance.
 - 2. The President shall receive a special annual allowance.
- 3. The Vice-President shall receive a special allowance for each day on which he acts as President.
- 4. The members chosen under article 17 of this Annex, other than elected members of the Tribunal, shall receive compensation for each day on which they exercise their functions.
- 5. The salaries, allowances and compensation shall be determined from time to time at meetings of the States Parties, taking into account the workload of the Tribunal. They may not be decreased during the term of office.
- 6. The salary of the Registrar shall be determined at meetings of the States Parties, on the proposal of the Tribunal.
- 7. Regulations adopted at meetings of the States Parties shall determine the conditions under which retirement pensions may be given to members of the Tribunal and to the Registrar, and the conditions under which members of the Tribunal and Registrar shall have their travelling expenses refunded.
- 8. The salaries, allowances, and compensation shall be free of all taxation.

Article 19 Expenses of the Tribunal

- 1. The expenses of the Tribunal shall be borne by the States Parties and by the Authority on such terms and in such a manner as shall be decided at meetings of the States Parties.
- 2. When an entity other than a State Party or the Authority is a party to a case submitted to it, the Tribunal shall fix the amount which that party is to contribute towards the expenses of the Tribunal.

SECTION 2. COMPETENCE

Article 20 Access to the Tribunal

- 1. The Tribunal shall be open to States Parties.
- 2. The Tribunal shall be open to entities other than States Parties in any case expressly provided for in Part XI or in any case submitted pursuant to any other agreement conferring jurisdiction on the Tribunal which is accepted by all the parties to that case.

Article 21 Jurisdiction

The jurisdiction of the Tribunal comprises all disputes and all applications submitted to it in accordance with this Convention and all matters specifically provided for in any other agreement which confers jurisdiction on the Tribunal.

Article 22 Reference of disputes subject to other agreements

If all the parties to a treaty or convention already in force and concerning the subject-matter covered by this Convention so agree, any disputes concerning the interpretation or application of such treaty or convention may, in accordance with such agreement, be submitted to the Tribunal.

Article 23 Applicable law

The Tribunal shall decide all disputes and applications in accordance with article 293.

SECTION 3. PROCEDURE

Article 24 Institution of proceedings

- 1. Disputes are submitted to the Tribunal, as the case may be, either by notification of a special agreement or by written application, addressed to the Registrar. In either case, the subject of the dispute and the parties shall be indicated.
- 2. The Registrar shall forthwith notify the special agreement or the application to all concerned.
 - 3. The Registrar shall also notify all States Parties.

Article 25 Provisional measures

- 1. In accordance with article 290, the Tribunal and its Seabed Disputes Chamber shall have the power to prescribe provisional measures.
- 2. If the Tribunal is not in session or a sufficient number of members is not available to constitute a quorum, the provisional measures shall be prescribed by the chamber of summary procedure formed under article 15, paragraph 3, of this Annex. Notwithstanding article 15, paragraph 4, of this Annex, such provisional measures may be adopted at the request of any party to the dispute. They shall be subject to review and revision by the Tribunal.

Article 26 Hearing

1. The hearing shall be under the control of the President or, if he is unable to preside, of the Vice-President. If neither is able to preside, the senior judge present of the Tribunal shall preside.

2. The hearing shall be public, unless the Tribunal decides otherwise or unless the parties demand that the public be not admitted.

Article 27 Conduct of case

The Tribunal shall make orders for the conduct of the case, decide the form and time in which each party must conclude its arguments, and make all arrangements connected with the taking of evidence.

Article 28 Default

When one of the parties does not appear before the Tribunal or fails to defend its case, the other party may request the Tribunal to continue the proceedings and make its decision. Absence of a party or failure of a party to defend its case shall not constitute a bar to the proceedings. Before making its decision, the Tribunal must satisfy itself not only that it has jurisdiction over the dispute, but also that the claim is well founded in fact and law.

Article 29 Majority for decision

- 1. All questions shall be decided by a majority of the members of the Tribunal who are present.
- 2. In the event of an equality of votes, the President or the member of the Tribunal who acts in his place shall have a casting vote.

Article 30 Judgment

- The judgment shall state the reasons on which it is based.
 It shall contain the names of the members of the Tribunal who have taken part in the decision.
- 3. If the judgment does not represent in whole or in part the unanimous opinion of the members of the Tribunal, any member shall be entitled to deliver a separate opinion.
- 4. The judgment shall be signed by the President and by the Registrar. It shall be read in open court, due notice having been given to the parties to the dispute.

Article 31 Request to intervene

- 1. Should a State Party consider that it has an interest of a legal nature which may be affected by the decision in any dispute, it may submit a request to the Tribunal to be permitted to intervene.
 - 2. It shall be for the Tribunal to decide upon this request.
- 3. If a request to intervene is granted, the decision of the Tribunal in respect of the dispute shall be binding upon the intervening State Party in so far as it relates to matters in respect of which that State Party intervened.

Article 32 Right to intervene in cases of interpretation or application

- 1. Whenever the interpretation or application of this Convention is in question, the Registrar shall notify all States Parties forthwith.
- 2. Whenever pursuant to article 21 or 22 of this Annex the interpretation or application of an international agreement is in question, the Registrar shall notify all the parties to the agreement.
- 3. Every party referred to in paragraphs 1 and 2 has the right to intervene in the proceedings; if it uses this right, the interpretation given by the judgment will be equally binding upon it.

Article 33 Finality and binding force of decisions

- 1. The decision of the Tribunal is final and shall be complied with by all the parties to the dispute.
- 2. The decision shall have no binding force except between the parties in respect of that particular dispute.
- 3. In the event of dispute as to the meaning or scope of the decision, the Tribunal shall construe it upon the request of any party.

Article 34 Costs

Unless otherwise decided by the Tribunal, each party shall bear its own costs.

SECTION 4. SEABED DISPUTES CHAMBER

Article 35 Composition

- 1. The Seabed Disputes Chamber referred to in article 14 of this Annex shall be composed of 11 members, selected by a majority of the elected members of the Tribunal from among them.
- 2. In the selection of the members of the Chamber, the representation of the principal legal systems of the world and equitable geographical distribution shall be assured. The Assembly of the Authority may adopt recommendations of a general nature relating to such representation and distribution.
- The members of the Chamber shall be selected every three years and may be selected for a second term.
- 4. The Chamber shall elect its President from among its members, who shall serve for the term for which the Chamber has been selected.
- 5. If any proceedings are still pending at the end of any three-year period for which the Chamber has been selected, the Chamber shall complete the proceedings in its original composition.
- 6. If a vacancy occurs in the Chamber, the Tribunal shall select a successor from among its elected members, who shall hold office for the remainder of his predecessor's term.
- 7. A quorum of seven of the members selected by the Tribunal shall be required to constitute the Chamber.

Article 36 Ad hoc chambers

- 1. The Seabed Disputes Chamber shall form an ad hoc chamber, composed of three of its members, for dealing with a particular dispute submitted to it in accordance with article 188, paragraph 1(b). The composition of such a chamber shall be determined by the Seabed Disputes Chamber with the approval of the parties.
- 2. If the parties do not agree on the composition of an ad hoc chamber, each party to the dispute shall appoint one member, and the third member shall be appointed by them in agreement. If they disagree, or if any party fails to make an appointment, the President of the Seabed Disputes Chamber shall promptly make the appointment or appointments from among its members, after consultation with the parties.
- 3. Members of the ad hoc chamber must not be in the service of, or nationals of, any of the parties to the dispute.

Article 37 Access

The Chamber shall be open to the States Parties, the Authority and the other entities referred to in Part XI, section 5.

Article 38 Applicable law

In addition to the provisions of article 293, the Chamber shall apply:

- (a) the rules, regulations and procedures of the Authority adopted in accordance with this Convention; and
- (b) the terms of contracts concerning activities in the Area in matters relating to those contracts.

Article 39 Enforcement of decisions of the Chamber

The decisions of the Chamber shall be enforceable in the territories of the States Parties in the same manner as judgments or orders of the highest court of the State Party in whose territory the enforcement is sought.

Article 40 Applicability of other sections of this Annex

- 1. The other sections of this Annex which are not incompatible with this section apply to the Chamber.
- 2. In the exercise of its functions relating to advisory opinions, the Chamber shall be guided by the provisions of this Annex relating to procedure before the Tribunal to the extent to which it recognizes them to be applicable.

SECTION 5. AMENDMENTS

Article 4l Amendments

- 1. Amendments to this Annex, other than amendments to section 4, may be adopted only in accordance with article 313 or by consensus at a conference convened in accordance with this Convention.
- 2. Amendments to section 4 may be adopted only in accordance with article 314.
- 3. The Tribunal may propose such amendments to this Statute as it may consider necessary, by written communications to the States Parties for their consideration in conformity with paragraphs 1 and 2.

ANNEX VII. ARBITRATION

Article 1 Institution of proceedings

Subject to the provisions of Part XV, any party to a dispute may submit the dispute to the arbitral procedure provided for in this Annex by written notification addressed to the other party or parties to the dispute. The notification shall be accompanied by a statement of the claim and the grounds on which it is based.

Article 2 List of arbitrators

- 1. A list of arbitrators shall be drawn up and maintained by the Secretary-General of the United Nations. Every State Party shall be entitled to nominate four arbitrators, each of whom shall be a person experienced in maritime affairs and enjoying the highest reputation for fairness, competence and integrity. The names of the persons so nominated shall constitute the list.
- 2. If at any time the arbitrators nominated by a State Party in the list so constituted shall be fewer than four, that State Party shall be entitled to make further nominations as necessary.
- 3. The name of an arbitrator shall remain on the list until withdrawn by the State Party which made the nomination, provided that such arbitrator shall continue to serve on any arbitral tribunal to which that arbitrator has been appointed until the completion of the proceedings before that arbitral tribunal.

Article 3 Constitution of arbitral tribunal

For the purpose of proceedings under this Annex, the arbitral tribunal shall, unless the parties otherwise agree, be constituted as follows:

- (a) Subject to subparagraph (g), the arbitral tribunal shall consist of five members.
- (b) The party instituting the proceedings shall appoint one member to be chosen preferably from the list referred to in article 2 of this Annex, who may be its national. The appointment shall be included in the notification referred to in article 1 of this Annex.

- (c) The other party to the dispute shall, within 30 days of receipt of the notification referred to in article 1 of this Annex, appoint one member to be chosen preferably from the list, who may be its national. If the appointment is not made within that period, the party instituting the proceedings may, within two weeks of the expiration of that period, request that the appointment be made in accordance with subparagraph (e).
- (d) The other three members shall be appointed by agreement between the parties. They shall be chosen preferably from the list and shall be nationals of third States unless the parties otherwise agree. The parties to the dispute shall appoint the President of the arbitral tribunal from among those three members. If, within 60 days of receipt of the notification referred to in article 1 of this Annex, the parties are unable to reach agreement on the appointment of one or more of the members of the tribunal to be appointed by agreement, or on the appointment of the President, the remaining appointment or appointments shall be made in accordance with subparagraph (e), at the request of a party to the dispute. Such request shall be made within two weeks of the expiration of the aforementioned 60-day period.
- (e) Unless the parties agree that any appointment under subparagraphs (c) and (d) be made by a person or a third State chosen by the parties, the President of the International Tribunal for the Law of the Sea shall make the necessary appointments. If the President is unable to act under this subparagraph or is a national of one of the parties to the dispute, the appointment shall be made by the next senior member of the International Tribunal for the Law of the Sea who is available and is not a national of one of the parties. The appointments referred to in this subparagraph shall be made from the list referred to in article 2 of this Annex within a period of 30 days of the receipt of the request and in consultation with the parties. The members so appointed shall be of different nationalities and may not be in the service of, ordinarily resident in the territory of, or nationals of, any of the parties to the dispute.
- (f) Any vacancy shall be filled in the manner prescribed for the initial appointment.
- (g) Parties in the same interest shall appoint one member of the tribunal jointly by agreement. Where there are several parties having separate interests or where there is disagreement as to whether they are of the same interest, each of them shall appoint one member of the tribunal. The number of members of the tribunal appointed separately by the parties shall always be smaller by one than the number of members of the tribunal to be appointed jointly by the parties.
- (h) In disputes involving more than two parties, the provisions of subparagraphs (a) to (f) shall apply to the maximum extent possible.

Article 4 Functions of arbitral tribunal

An arbitral tribunal constituted under article 3 of this Annex shall function in accordance with this Annex and the other provisions of this Convention.

Article 5 Procedure

Unless the parties to the dispute otherwise agree, the arbitral tribunal shall determine its own procedure, assuring to each party a full opportunity to be heard and to present its case.

Article 6 Duties of parties to a dispute

The parties to the dispute shall facilitate the work of the arbitral tribunal and, in particular, in accordance with their law and using all means at their disposal, shall:

- (a) provide it with all relevant documents, facilities and information; and
- (b) enable it when necessary to call witnesses or experts and receive their evidence and to visit the localities to which the case relates.

Article 7 Expenses

Unless the arbitral tribunal decides otherwise because of the particular circumstances of the case, the expenses of the tribunal, including the remuneration of its members, shall be borne by the parties to the dispute in equal shares.

Article 8 Required majority for decisions

Decisions of the arbitral tribunal shall be taken by a majority vote of its members. The absence or abstention of less than half of the members shall not constitute a bar to the tribunal reaching a decision. In the event of an equality of votes, the President shall have a casting vote.

Article 9 Default of appearance

If one of the parties to the dispute does not appear before the arbitral tribunal or fails to defend its case, the other party may request the tribunal to continue the proceedings and to make its award. Absence of a party or failure of a party to defend its case shall not constitute a bar to the proceedings. Before making its award, the arbitral tribunal must satisfy itself not only that it has jurisdiction over the dispute but also that the claim is well founded in fact and law.

Article 10 Award

The award of the arbitral tribunal shall be confined to the subject-matter of the dispute and state the reasons on which it is based. It shall contain the names of the members who have participated and the date of the award. Any member of the tribunal may attach a separate or dissenting opinion to the award.

Article 11 Finality of award

The award shall be final and without appeal, unless the parties to the dispute have agreed in advance to an appellate procedure. It shall be complied with by the parties to the dispute.

Article 12 Interpretation or implementation of award

- 1. Any controversy which may arise between the parties to the dispute as regards the interpretation or manner of implementation of the award may be submitted by either party for decision to the arbitral tribunal which made the award. For this purpose, any vacancy in the tribunal shall be filled in the manner provided for in the original appointments of the members of the tribunal.
- 2. Any such controversy may be submitted to another court or tribunal under article 287 by agreement of all the parties to the dispute.

Article 13 Application to entities other than States Parties

The provisions of this Annex shall apply *mutatis mutandis* to any dispute involving entities other than States Parties.

ANNEX VIII. SPECIAL ARBITRATION

Article 1 Institution of proceedings

Subject to Part XV, any party to a dispute concerning the interpretation or application of the articles of this Convention relating to (1) fisheries, (2) protection and preservation of the marine environment, (3) marine scientific research, or (4) navigation, including pollution from vessels and by dumping, may submit the dispute to the special arbitral procedure provided for in this Annex by written notification addressed to the other party or parties to the dispute. The notification shall be accompanied by a statement of the claim and the grounds on which it is based.

Article 2 Lists of experts

- 1. A list of experts shall be established and maintained in respect of each of the fields of (1) fisheries, (2) protection and preservation of the marine environment, (3) marine scientific research, and (4) navigation, including pollution from vessels and by dumping.
- 2. The lists of experts shall be drawn up and maintained, in the field of fisheries by the Food and Agriculture Organization of the United Nations, in the field of protection and preservation of the marine environment by the United Nations Environment Programme, in the field of marine scientific research by the Intergovernmental Oceanographic Commission, in the field of navigation, including pollution from vessels and by dumping, by the International Maritime Organization, or in each case by the appropriate

subsidiary body concerned to which such organization, programme or commission has delegated this function.

- 3. Every State Party shall be entitled to nominate two experts in each field whose competence in the legal, scientific or technical aspects of such field is established and generally recognized and who enjoy the highest reputation for fairness and integrity. The names of the persons so nominated in each field shall constitute the appropriate list.
- 4. If at any time the experts nominated by a State Party in the list so constituted shall be fewer than two, that State Party shall be entitled to make further nominations as necessary.
- 5. The name of an expert shall remain on the list until withdrawn by the State Party which made the nomination, provided that such expert shall continue to serve on any special arbitral tribunal to which that expert has been appointed until the completion of the proceedings before that special arbitral tribunal.

Article 3 Constitution of special arbitral tribunal

For the purpose of proceedings under this Annex, the special arbitral tribunal shall, unless the parties otherwise agree, be constituted as follows:

- (a) Subject to subparagraph (g), the special arbitral tribunal shall consist of five members.
- (b) The party instituting the proceedings shall appoint two members to be chosen preferably from the appropriate list or lists referred to in article 2 of this Annex relating to the matters in dispute, one of whom may be its national. The appointments shall be included in the notification referred to in article 1 of this Annex.
- (c) The other party to the dispute shall, within 30 days of receipt of the notification referred to in article 1 of this Annex, appoint two members to be chosen preferably from the appropriate list or lists relating to the matters in dispute, one of whom may be its national. If the appointments are not made within that period, the party instituting the proceedings may, within two weeks of the expiration of that period, request that the appointments be made in accordance with subparagraph (e).
- (d) The parties to the dispute shall by agreement appoint the President of the special arbitral tribunal, chosen preferably from the appropriate list, who shall be a national of a third State, unless the parties otherwise agree. If, within 30 days of receipt of the notification referred to in article 1 of this Annex, the parties are unable to reach agreement on the appointment of the President, the appointment shall be made in accordance with subparagraph (e), at the request of a party to the dispute. Such request shall be made within two weeks of the expiration of the aforementioned 30-day period.
- (e) Unless the parties agree that the appointment be made by a person or a third State chosen by the parties, the Secretary-General of the United Nations shall make the necessary appointments within 30 days of receipt of a request under subparagraphs (c) and (d). The appointments referred to in this subparagraph shall be made from the appropriate list or lists of experts referred to in article 2 of this Annex and in consultation with the parties to the dispute and the

- appropriate international organization. The members so appointed shall be of different nationalities and may not be in the service of, ordinarily resident in the territory of, or nationals of, any of the parties to the dispute.
- (f) Any vacancy shall be filled in the manner prescribed for the initial appointment.
- (g) Parties in the same interest shall appoint two members of the tribunal jointly by agreement. Where there are several parties having separate interests or where there is disagreement as to whether they are of the same interest, each of them shall appoint one member of the tribunal.
- (h) In disputes involving more than two parties, the provisions of subparagraphs (a) to (f) shall apply to the maximum extent possible.

Article 4 General provisions

Annex VII, articles 4 to 13, apply *mutatis mutandis* to the special arbitration proceedings in accordance with this Annex.

Article 5 Fact finding

- 1. The parties to a dispute concerning the interpretation or application of the provisions of this Convention relating to (1) fisheries, (2) protection and preservation of the marine environment, (3) marine scientific research, or (4) navigation, including pollution from vessels and by dumping, may at any time agree to request a special arbitral tribunal constituted in accordance with article 3 of this Annex to carry out an inquiry and establish the facts giving rise to the dispute.
- 2. Unless the parties otherwise agree, the findings of fact of the special arbitral tribunal acting in accordance with paragraph 1, shall be considered as conclusive as between the parties.
- 3. If all the parties to the dispute so request, the special arbitral tribunal may formulate recommendations which, without having the force of a decision, shall only constitute the basis for a review by the parties of the questions giving rise to the dispute.
- 4. Subject to paragraph 2, the special arbitral tribunal shall act in accordance with the provisions of this Annex, unless the parties otherwise agree.

ANNEX IX. PARTICIPATION BY INTERNATIONAL ORGANIZATIONS

Article 1 Use of terms

For the purposes of article 305 and of this Annex, "international organization" means an intergovernmental organization constituted by States to which its member States have transferred competence over matters governed by this Convention, including the competence to enter into treaties in respect of those matters.

Article 2 Signature

An international organization may sign this Convention if a majority of its member States are signatories of this Convention. At the time of signature an international organization shall make a declaration specifying the matters governed by this Convention in respect of which competence has been transferred to that organization by its member States which are signatories, and the nature and extent of that competence.

Article 3 Formal confirmation and accession

- 1. An international organization may deposit its instrument of formal confirmation or of accession if a majority of its member States deposit or have deposited their instruments of ratification or accession.
- 2. The instruments deposited by the international organization shall contain the undertakings and declarations required by articles 4 and 5 of this Annex.

Article 4 Extent of participation and rights and obligations

- 1. The instrument of formal confirmation or of accession of an international organization shall contain an undertaking to accept the rights and obligations of States under this Convention in respect of matters relating to which competence has been transferred to it by its member States which are Parties to this Convention.
- 2. An international organization shall be a Party to this Convention to the extent that it has competence in accordance with the declarations, communications of information or notifications referred to in article 5 of this Annex.
- 3. Such an international organization shall exercise the rights and perform the obligations which its member States which are Parties would otherwise have under this Convention, on matters relating to which competence has been transferred to it by those member States. The member States of that international organization shall not exercise competence which they have transferred to it.
- 4. Participation of such an international organization shall in no case entail an increase of the representation to which its member States which are States Parties would otherwise be entitled, including rights in decision-making.
- 5. Participation of such an international organization shall in no case confer any rights under this Convention on member States of the organization which are not States Parties to this Convention.
- 6. In the event of a conflict between the obligations of an international organization under this Convention and its obligations under the agreement establishing the organization or any acts relating to it, the obligations under this Convention shall prevail.

Article 5 Declarations, notifications and communications

- 1. The instrument of formal confirmation or of accession of an international organization shall contain a declaration specifying the matters governed by this Convention in respect of which competence has been transferred to the organization by its member States which are Parties to this Convention.
- 2. A member State of an international organization shall, at the time it ratifies or accedes to this Convention or at the time when the organization deposits its instrument of formal confirmation or of accession, whichever is later, make a declaration specifying the matters governed by this Convention in respect of which it has transferred competence to the organization.
- 3. States Parties which are member States of an international organization which is a Party to this Convention shall be presumed to have competence over all matters governed by this Convention in respect of which transfers of competence to the organization have not been specifically declared, notified or communicated by those States under this article.
- 4. The international organization and its member States which are States Parties shall promptly notify the depositary of this Convention of any changes to the distribution of competence, including new transfers of competence, specified in the declarations under paragraphs 1 and 2.
- 5. Any State Party may request an international organization and its member States which are States Parties to provide information as to which, as between the organization and its member States, has competence in respect of any specific question which has arisen. The organization and the member States concerned shall provide this information within a reasonable time. The international organization and the member States may also, on their own initiative, provide this information.
- 6. Declarations, notifications and communications of information under this article shall specify the nature and extent of the competence transferred.

Article 6 Responsibility and liability

- 1. Parties which have competence under article 5 of this Annex shall have responsibility for failure to comply with obligations or for any other violation of this Convention.
- 2. Any State Party may request an international organization or its member States which are States Parties for information as to who has responsibility in respect of any specific matter. The organization and the member States concerned shall provide this information. Failure to provide this information within a reasonable time or the provision of contradictory information shall result in joint and several liability.

Article 7 Settlement of disputes

1. At the time of deposit of its instrument of formal confirmation or of accession, or at any time thereafter, an international organization shall be free to choose, by means of a written declaration, one or more of the means for the settlement of disputes concerning the interpretation or application of this Convention, referred to in article 287, paragraph 1(a), (c) or (d).

- 2. Part XV applies *mutatis mutandis* to any dispute between Parties to this Convention, one or more of which are international organizations.
- 3. When an international organization and one or more of its member States are joint parties to a dispute, or parties in the same interest, the organization shall be deemed to have accepted the same procedures for the settlement of disputes as the member States; when, however, a member State has chosen only the International Court of Justice under article 287, the organization and the member State concerned shall be deemed to have accepted arbitration in accordance with Annex VII, unless the parties to the dispute otherwise agree.

Article 8 Applicability of Part XVII

Part XVII applies *mutatis mutandis* to an international organization, except in respect of the following:

- (a) the instrument of formal confirmation or of accession of an international organization shall not be taken into account in the application of article 308, paragraph 1;
- (b) (i) an international organization shall have exclusive capacity with respect to the application of articles 312 to 315, to the extent that it has competence under article 5 of this Annex over the entire subject-matter of the amendment;
 - (ii) the instrument of formal confirmation or of accession of an international organization to an amendment, the entire subject-matter over which the international organization has competence under article 5 of this Annex, shall be considered to be the instrument of ratification or accession of each of the member States which are States Parties, for the purposes of applying article 316, paragraphs 1, 2 and 3;
 - (iii) the instrument of formal confirmation or of accession of the international organization shall not be taken into account in the application of article 316, paragraphs 1 and 2, with regard to all other amendments;
- (c) (i) an international organization may not denounce this Convention in accordance with article 317 if any of its member States is a State Party and if it continues to fulfil the qualifications specified in article 1 of this Annex;
 - (ii) an international organization shall denounce this Convention when none of its member States is a State Party or if the international organization no longer fulfils the qualifications specified in article 1 of this Annex. Such denunciation shall take effect immediately.

Final Act of the Third United Nations Conference on the Law of the Sea (excerpts)

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ANNEX I

RESOLUTION I

ESTABLISHMENT OF THE PREPARATORY COMMISSION FOR THE INTERNATIONAL SEA-BED AUTHORITY AND FOR THE INTERNATIONAL TRIBUNAL FOR THE LAW OF THE SEA

The Third United Nations Conference on the Law of the Sea,

Having adopted the Convention on the Law of the Sea which provides for the establishment of the International Seabed Authority and the International Tribunal for the Law of the Sea,

Having decided to take all possible measures to ensure the entry into effective operation without undue delay of the Authority and the Tribunal and to make the necessary arrangements for the commencement of their functions,

Having decided that a Preparatory Commission should be established for the fulfilment of these purposes,

Decides as follows:

- There is hereby established the Preparatory Commission for the International Seabed Authority and for the International Tribunal for the Law of the Sea. Upon signature of or accession to the Convention by 50 States, the Secretary-General of the United Nations shall convene the Commission, and it shall meet no sooner than 60 days and no later than 90 days thereafter.
- 2. The Commission shall consist of the representatives of States and of Namibia, represented by the United Nations Council for Namibia, which have signed the Convention or acceded to it. The representatives of signatories of the Final Act may participate fully in the deliberations of the Commission as observers but shall not be entitled to participate in the taking of decisions.
 - 3. The Commission shall elect its Chairman and other officers.
- 4. The Rules of Procedure of the Third United Nations Conference on the Law of the Sea shall apply *mutatis mutandis* to the adoption of the rules of procedure of the Commission.
 - 5. The Commission shall:

- (a) prepare the provisional agenda for the first session of the Assembly and of the Council and, as appropriate, make recommendations relating to items thereon;
- (b) prepare draft rules of procedure of the Assembly and of the Council;
- (c) make recommendations concerning the budget for the first financial period of the Authority;
- (d) make recommendations concerning the relationship between the Authority and the United Nations and other international organizations;
- (e) make recommendations concerning the Secretariat of the Authority in accordance with the relevant provisions of the Convention;
- (f) undertake studies, as necessary, concerning the establishment of the headquarters of the Authority, and make recommendations relating thereto;
- (g) prepare draft rules, regulations and procedures, as necessary, to enable the Authority to commence its functions, including draft regulations concerning the financial management and the internal administration of the Authority;
- (h) exercise the powers and functions assigned to it by resolution II
 of the Third United Nations Conference on the Law of the Sea
 relating to preparatory investment;
- (i) undertake studies on the problems which would be encountered by developing land-based producer States likely to be most seriously affected by the production of minerals derived from the Area with a view to minimizing their difficulties and helping them to make the necessary economic adjustment, including studies on the establishment of a compensation fund, and submit recommendations to the Authority thereon.
- 6. The Commission shall have such legal capacity as may be necessary for the exercise of its functions and the fulfilment of its purposes as set forth in this resolution.
- 7. The Commission may establish such subsidiary bodies as are necessary for the exercise of its functions and shall determine their functions and rules of procedure. It may also make use, as appropriate, of outside sources of expertise in accordance with United Nations practice to facilitate the work of bodies so established.
- 8. The Commission shall establish a special commission for the Enterprise and entrust to it the functions referred to in paragraph 12 of resolution II of the Third United Nations Conference on the Law of the Sea relating to preparatory investment. The special commission shall take all measures necessary for the early entry into effective operation of the Enterprise.
- 9. The Commission shall establish a special commission on the problems which would be encountered by developing land-based producer States likely to be most seriously affected by the production of minerals derived from the Area and entrust to it the functions referred to in paragraph 5(i).
- 10. The Commission shall prepare a report containing recommendations for submission to the meeting of the States Parties to be convened in accordance with Annex VI, article 4, of the Convention regarding practical

arrangements for the establishment of the International Tribunal for the Law of the Sea.

- 11. The Commission shall prepare a final report on all matters within its mandate, except as provided in paragraph 10, for the presentation to the Assembly at its first session. Any action which may be taken on the basis of the report must be in conformity with the provisions of the Convention concerning the powers and functions entrusted to the respective organs of the Authority.
- 12. The Commission shall meet at the seat of the Authority if facilities are available; it shall meet as often as necessary for the expeditious exercise of its functions.
- 13. The Commission shall remain in existence until the conclusion of the first session of the Assembly, at which time its property and records shall be transferred to the Authority.
- 14. The expenses of the Commission shall be met from the regular budget of the United Nations, subject to the approval of the General Assembly of the United Nations.
- 15. The Secretary-General of the United Nations shall make available to the Commission such secretariat services as may be required.
- 16. The Secretary-General of the United Nations shall bring this resolution, in particular paragraphs 14 and 15, to the attention of the General Assembly for necessary action.

RESOLUTION II

GOVERNING PREPARATORY INVESTMENT IN PIONEER ACTIVITIES RELATING TO POLYMETALLIC NODULES

The Third United Nations Conference on the Law of the Sea, Having adopted the Convention on the Law of the Sea (the "Convention"),

Having established by resolution I the Preparatory Commission for the International Seabed Authority and for the International Tribunal for the Law of the Sea (the "Commission") and directed it to prepare draft rules, regulations and procedures, as necessary to enable the Authority to commence its functions, as well as to make recommendations for the early entry into effective operation of the Enterprise,

Desirous of making provision for investments by States and other entities made in a manner compatible with the international regime set forth in Part XI of the Convention and the Annexes relating thereto, before the entry into force of the Convention,

Recognizing the need to ensure that the Enterprise will be provided with the funds, technology and expertise necessary to enable it to keep pace with the States and other entities referred to in the preceding paragraph with respect to activities in the Area,

Decides as follows:

- 1. For the purposes of this resolution:
 - (a) "pioneer investor" refers to:
 - (i) France, India, Japan and the Union of Soviet Socialist Republics, or a state enterprise of each of those States or one natural or juridical person which possesses the nationality of or is effectively controlled by each of those

States, or their nationals, provided that the State concerned signs the Convention and the State or state enterprise or natural or juridical person has expended, before 1 January 1983, an amount equivalent to at least \$US 30 million (United States dollars calculated in constant dollars relative to 1982) in pioneer activities and has expended no less than 10 per cent of that amount in the location, survey and evaluation of the area referred to in paragraph 3(a);

- (ii) four entities, whose components being natural or juridical persons ¹ possess the nationality of one or more of the following States, or are effectively controlled by one or more of them or their nationals: Belgium, Canada, the Federal Republic of Germany, Italy, Japan, the Netherlands, the United Kingdom of Great Britain and Northern Ireland, and the United States of America, provided that the certifying State or States sign the Convention and the entity concerned has expended, before 1 January 1983, the levels of expenditure for the purpose stated in subparagraph (i);
- (iii) any developing State which signs the Convention or any state enterprise or natural or juridical person which possesses the nationality of such State or is effectively controlled by it or its nationals, or any group of the foregoing, which, before 1 January 1985, has expended the levels of expenditure for the purpose stated in subparagraph (i):

The rights of the pioneer investor may devolve upon its successor in interest.

- (b) "pioneer activities" means undertakings, commitments of financial and other assets, investigations, findings, research, engineering development and other activities relevant to the identification, discovery, and systematic analysis and evaluation of polymetallic nodules and to the determination of the technical and economic feasibility of exploitation. Pioneer activities include:
 - (i) any at-sea observation and evaluation activity which has as its objective the establishment and documentation of the nature, shape, concentration, location and grade of polymetallic nodules and of the environmental, technical and other appropriate factors which must be taken into account before exploitation;
 - (ii) the recovery from the Area of polymetallic nodules with a view to the designing, fabricating and testing of equipment which is intended to be used in the exploitation of polymetallic nodules;
- (c) "certifying State" means a State which signs the Convention, standing in the same relation to a pioneer investor as would a

For their identity and composition see "Seabed mineral resource development: recent activities of the international Consortia" and addendum, published by the Department of International Economic and Social Affairs of the United Nations (ST/ESA/107 and Add.1).

- sponsoring State pursuant to Annex III, article 4, of the Convention and which certifies the levels of expenditure specified in subparagraph (a);
- (d) "polymetallic nodules" means one of the resources of the Area consisting of any deposit or accretion of nodules, on or just below the surface of the deep seabed, which contain manganese, nickel, cobalt and copper;
- (e) "pioneer area" means an area allocated by the Commission to a pioneer investor for pioneer activities pursuant to this resolution. A pioneer area shall not exceed 150,000 square kilometres. The pioneer investor shall relinquish portions of the pioneer area to revert to the Area, in accordance with the following schedule:
 - (i) 20 per cent of the area allocated by the end of the third year from the date of the allocation;
 - (ii) an additional 10 per cent of the area allocated by the end of the fifth year from the date of the allocation;
 - (iii) an additional 20 per cent of the area allocated or such larger amount as would exceed the exploitation area decided upon by the Authority in its rules, regulations and procedures, after eight years from the date of the allocation of the area or the date of the award of a production authorization, whichever is earlier;
- (f) "Area", "Authority", "activities in the Area" and "resources" have the meanings assigned to those terms in the Convention.
- 2. As soon as the Commission begins to function, any State which has signed the Convention may apply to the Commission on its behalf or on behalf of any state enterprise or entity or natural or juridical person specified in paragraph 1(a) for registration as a pioneer investor. The Commission shall register the applicant as a pioneer investor if the application:
 - (a) is accompanied, in the case of a State which has signed the Convention, by a statement certifying the level of expenditure made in accordance with paragraph 1(a), and, in all other cases, a certificate concerning such level of expenditure issued by a certifying State or States; and
 - (b) is in conformity with the other provisions of this resolution, including paragraph 5.
 - 3. (a) Every application shall cover a total area which need not be a single continuous area, sufficiently large and of sufficient estimated commercial value to allow two mining operations. The application shall indicate the coordinates of the area defining the total area and dividing it into two parts of equal estimated commercial value and shall contain all the data available to the applicant with respect to both parts of the area. Such data shall include, *inter alia*, information relating to mapping, testing, the density of polymetallic nodules and their metal content. In dealing with such data, the Commission and its staff shall act in accordance with the relevant provisions of the Convention and its Annexes concerning the confidentiality of data.
 - (b) Within 45 days of receiving the data required by subparagraph (a), the Commission shall designate the part of the area which is to be reserved in accordance with the

Convention for the conduct of activities in the Area by the Authority through the Enterprise or in association with developing States. The other part of the area shall be allocated to the pioneer investor as a pioneer area.

4. No pioneer investor may be registered in respect of more than one pioneer area. In the case of a pioneer investor which is made up of two or more components, none of such components may apply to be registered as a

pioneer investor in its own right or under paragraph 1(a)(iii).

5. (a) Any State which has signed the Convention and which is a prospective certifying State shall ensure, before making applications to the Commission under paragraph 2, that areas in respect of which applications are made do not overlap one another or areas previously allocated as pioneer areas. The States concerned shall keep the Commission currently and fully informed of any efforts to resolve conflicts with respect to overlapping claims and of the results thereof.

(b) Certifying States shall ensure, before the entry into force of the Convention, that pioneer activities are conducted in a manner

compatible with it.

- (c) The prospective certifying States, including all potential claimants, shall resolve their conflicts as required under subparagraph (a) by negotiations within a reasonable period. If such conflicts have not been resolved by 1 March 1983, the prospective certifying States shall arrange for the submission of all such claims to binding arbitration in accordance with UNCITRAL Arbitration Rules to commence not later than 1 May 1983 and to be completed by 1 December 1984. If one of the States concerned does not wish to participate in the arbitration, it shall arrange for a juridical person of its nationality to represent it in the arbitration. The arbitral tribunal may, for good cause, extend the deadline for the making of the award for one or more 30-day periods.
- (d) In determining the issue as to which applicant involved in a conflict shall be awarded all or part of each area in conflict, the arbitral tribunal shall find a solution which is fair and equitable, having regard, with respect to each applicant involved in the conflict, to the following factors:
 - the deposit of the list of relevant coordinates with the prospective certifying State or States not later than the date of adoption of the Final Act or 1 January 1983, whichever is earlier;
 - (ii) the continuity and extent of past activities relevant to each area in conflict and to the application area of which it is a part;
 - the date on which each pioneer investor concerned or predecessor in interest or component organization thereof commenced activities at sea in the application area;
 - (iv) the financial cost of activities measured in constant United States dollars relevant to each area in conflict and to the application area of which it is a part; and
 - (v) the time when those activities were carried out and the quality of activities.

- 6. A pioneer investor registered pursuant to this resolution shall, from the date of registration, have the exclusive right to carry out pioneer activities in the pioneer area allocated to it.
 - 7. (a) Every applicant for registration as a pioneer investor shall pay to the Commission a fee of \$US 250,000. When the pioneer investor applies to the Authority for a plan of work for exploration and exploitation the fee referred to in Annex III, article 13, paragraph 2, of the Convention shall be \$US 250,000.
 - (b) Every registered pioneer investor shall pay an annual fixed fee of \$US 1 million commencing from the date of the allocation of the pioneer area. The payments shall be made by the pioneer investor to the Authority upon the approval of its plan of work for exploration and exploitation. The financial arrangements undertaken pursuant to such plan of work shall be adjusted to take account of the payments made pursuant to this paragraph.
 - (c) Every registered pioneer investor shall agree to incur periodic expenditures, with respect to the pioneer area allocated to it, until approval of its plan of work pursuant to paragraph 8, of an amount to be determined by the Commission. The amount should be reasonably related to the size of the pioneer area and the expenditures which would be expected of a *bona fide* operator who intends to bring that area into commercial production within a reasonable time.
 - 8. (a) Within six months of the entry into force of the Convention and certification by the Commission in accordance with paragraph 11, of compliance with this resolution, the pioneer investor so registered shall apply to the Authority for approval of a plan of work for exploration and exploitation, in accordance with the Convention. The plan of work in respect of such application shall comply with and be governed by the relevant provisions of the Convention and the rules, regulations and procedures of the Authority, including those on the operational requirements, the financial requirements and the undertakings concerning the transfer of technology. Accordingly, the Authority shall approve such application.
 - (b) When an application for approval of a plan of work is submitted by an entity other than a State, pursuant to subparagraph (a), the certifying State or States shall be deemed to be the sponsoring State for the purposes of Annex III, article 4, of the Convention, and shall thereupon assume such obligations.
 - (c) No plan of work for exploration and exploitation shall be approved unless the certifying State is a Party to the Convention. In the case of the entities referred to in paragraph 1(a)(ii), the plan of work for exploration and exploitation shall not be approved unless all the States whose natural or juridical persons comprise those entities are Parties to the Convention. If any such State fails to ratify the Convention within six months after it has received a notification from the Authority that an application by it, or sponsored by it, is pending, its status as a pioneer investor or certifying State, as the case may be, shall terminate, unless the Council, by a majority of three fourths of its members present

- and voting, decides to postpone the terminal date for a period not exceeding six months.
- 9. (a) In the allocation of production authorizations, in accordance with article 151 and Annex III, article 7, of the Convention, the pioneer investors who have obtained approval of plans of work for exploration and exploitation shall have priority over all applicants other than the Enterprise which shall be entitled to production authorizations for two mine sites including that referred to in article 151, paragraph 5, of the Convention. After each of the pioneer investors has obtained production authorization for its first mine site, the priority for the Enterprise contained in Annex III, article 7, paragraph 6, of the Convention shall apply.
 - (b) Production authorizations shall be issued to each pioneer investor within 30 days of the date on which that pioneer investor notifies the Authority that it will commence commercial production within five years. If a pioneer investor is unable to begin production within the period of five years for reasons beyond its control, it shall apply to the Legal and Technical Commission for an extension of time. Commission shall grant the extension of time, for a period not exceeding five years and not subject to further extension, if it is satisfied that the pioneer investor cannot begin on an economically viable basis at the time originally planned. Nothing in this subparagraph shall prevent the Enterprise or any other pioneer applicant, who has notified the Authority that it will commence commercial production within five years, from being given a priority over any applicant who has obtained an extension of time under this subparagraph.
 - (c) If the Authority, upon being given notice, pursuant to subparagraph (b), determines that the commencement of commercial production within five years would exceed the production ceiling in article 151, paragraphs 2 to 7, of the Convention, the applicant shall hold a priority over any other applicant for the award of the next production authorization allowed by the production ceiling.
 - (d) If two or more pioneer investors apply for production authorizations to begin commercial production at the same time and article 151, paragraphs 2 to 7, of the Convention, would not permit all such production to commence simultaneously, the Authority shall notify the pioneer investors concerned. Within three months of such notification, they shall decide whether and, if so, to what extent they wish to apportion the allowable tonnage among themselves.
 - (e) If, pursuant to subparagraph (d), the pioneer investors concerned decide not to apportion the available production among themselves they shall agree on an order of priority for production authorizations and all subsequent applications for production authorizations will be granted after those referred to in this subparagraph have been approved.
 - (f) If, pursuant to subparagraph (d), the pioneer investors concerned decide to apportion the available production among themselves, the Authority shall award each of them a

production authorization for such lesser quantity as they have agreed. In each case the stated production requirements of the applicant will be approved and their full production will be allowed as soon as the production ceiling admits of additional capacity sufficient for the applicants involved in the competition. All subsequent applications for production authorizations will only be granted after the requirements of this subparagraph have been met and the applicant is no longer subject to the reduction of production provided for in this subparagraph.

- (g) If the parties fail to reach agreement within the stated time period, the matter shall be decided immediately by the means provided for in paragraph 5(c) in accordance with the criteria set forth in Annex III, article 7, paragraphs 3 and 5, of the Convention.
- 10. (a) Any rights acquired by entities or natural or juridical persons which possess the nationality of or are effectively controlled by a State or States whose status as certifying State has been terminated, shall lapse unless the pioneer investor changes its nationality and sponsorship within six months of the date of such termination, as provided for in subparagraph (b).
 - (b) A pioneer investor may change its nationality and sponsorship from that existing at the time of its registration as a pioneer investor to that of any State Party to the Convention which has effective control over the pioneer investor in terms of paragraph l(a).
 - (c) Changes of nationality and sponsorship pursuant to this paragraph shall not affect any right or priority conferred on a pioneer investor pursuant to paragraphs 6 and 8.
- 11. The Commission shall:
 - (a) provide each pioneer investor with the certificate of compliance with the provisions of this resolution referred to in paragraph 8; and
 - (b) include in its final report required by paragraph 11 of resolution I of the Conference details of all registrations of pioneer investors and allocations of pioneer areas pursuant to this resolution.
- 12. In order to ensure that the Enterprise is able to carry out activities in the Area in such a manner as to keep pace with States and other entities:
 - (a) every registered pioneer investor shall:
 - (i) carry out exploration, at the request of the Commission, in the area reserved, pursuant to paragraph 3 in connection with its application, for activities in the Area by the Authority through the Enterprise or in association with developing States, on the basis that the costs so incurred plus interest thereon at the rate of 10 per cent per annum shall be reimbursed;
 - (ii) provide training at all levels for personnel designated by the Commission;
 - (iii) undertake before the entry into force of the Convention, to perform the obligations prescribed in the Convention relating to transfer of technology;
 - (b) every certifying State shall:

- (i) ensure that the necessary funds are made available to the Enterprise in a timely manner in accordance with the Convention, upon its entry into force; and
- (ii) report periodically to the Commission on the activities carried out by it, by its entities or natural or juridical persons.
- 13. The Authority and its organs shall recognize and honour the rights and obligations arising from this resolution and the decisions of the Commission taken pursuant to it.
- 14. Without prejudice to paragraph 13, this resolution shall have effect until the entry into force of the Convention.
- 15. Nothing in this resolution shall derogate from Annex III, article 6, paragraph 3(c), of the Convention.

RESOLUTION III

The Third United Nations Conference on the Law of the Sea, Having regard to the Convention on the Law of the Sea,

Bearing in mind the Charter of the United Nations, in particular Article 73,

- 1. Declares that:
 - (a) In the case of a territory whose people have not attained full independence or other self-governing status recognized by the United Nations, or a territory under colonial domination, provisions concerning rights and interests under the Convention shall be implemented for the benefit of the people of the territory with a view to promoting their well-being and development.
 - (b) Where a dispute exists between States over the sovereignty of a territory to which this resolution applies, in respect of which the United Nations has recommended specific means of settlement, there shall be consultations between the parties to that dispute regarding the exercise of the rights referred to in subparagraph (a). In such consultations the interests of the people of the territory concerned shall be a fundamental consideration. Any exercise of those rights shall take into account the relevant resolutions of the United Nations and shall be without prejudice to the position of any party to the dispute. The States concerned shall make every effort to enter into provisional arrangements of a practical nature and shall not jeopardize or hamper the reaching of a final settlement of the dispute.
- 2. Requests the Secretary-General of the United Nations to bring this resolution to the attention of all Members of the United Nations and the other participants in the Conference, as well as the principal organs of the United Nations, and to request their compliance with it.

RESOLUTION IV

The Third United Nations Conference on the Law of the Sea,

Bearing in mind that national liberation movements have been invited to participate in the Conference as observers in accordance with rule 62 of its rules of procedure,

Decides that the national liberation movements, which have been participating in the Third United Nations Conference on the Law of the Sea, shall be entitled to sign the Final Act of the Conference, in their capacity as observers.

ANNEX II

STATEMENT OF UNDERSTANDING CONCERNING A SPECIFIC METHOD TO BE USED IN ESTABLISHING THE OUTER EDGE OF THE CONTINENTAL MARGIN

The Third United Nations Conference on the Law of the Sea.

Considering the special characteristics of a State's continental margin where: (1) the average distance at which the 200 metre isobath occurs is not more than 20 nautical miles; (2) the greater proportion of the sedimentary rock of the continental margin lies beneath the rise; and

Taking into account the inequity that would result to that State from the application to its continental margin of article 76 of the Convention, in that, the mathematical average of the thickness of sedimentary rock along a line established at the maximum distance permissible in accordance with the provisions of paragraph 4(a)(i) and (ii) of that article as representing the entire outer edge of the continental margin would not be less than 3.5 kilometres; and that more than half of the margin would be excluded thereby;

Recognizes that such State may, notwithstanding the provisions of article 76, establish the outer edge of its continental margin by straight lines not exceeding 60 nautical miles in length connecting fixed points, defined by latitude and longitude, at each of which the thickness of sedimentary rock is not less than 1 kilometre,

Where a State establishes the outer edge of its continental margin by applying the method set forth in the preceding paragraph of this statement, this method may also be utilized by a neighbouring State for delineating the outer edge of its continental margin on a common geological feature, where its outer edge would lie on such feature on a line established at the maximum distance permissible in accordance with article 76, paragraph 4(a)(i) and (ii), along which the mathematical average of the thickness of sedimentary rock is not less than 3.5 kilometres.

The Conference requests the Commission on the Limits of the Continental Shelf set up pursuant to Annex II of the Convention, to be governed by the terms of this Statement when making its recommendations on matters related to the establishment of the outer edge of the continental margins of these States in the southern part of the Bay of Bengal.

ANNEX VI

RESOLUTION ON DEVELOPMENT OF NATIONAL MARINE SCIENCE, TECHNOLOGY AND OCEAN SERVICE INFRASTRUCTURES

The Third United Nations Conference on the Law of the Sea.

Recognizing that the Convention on the Law of the Sea is intended to establish a new regime for the seas and oceans which will contribute to the realization of a just and equitable international economic order through making provision for the peaceful use of ocean space, the equitable and efficient management and utilization of its resources, and the study, protection and preservation of the marine environment,

Bearing in mind that the new regime must take into account, in particular, the special needs and interests of the developing countries, whether coastal, land-locked, or geographically disadvantaged,

Aware of the rapid advances being made in the field of marine science and technology, and the need for the developing countries, whether coastal, land-locked, or geographically disadvantaged, to share in these achievements if the aforementioned goals are to be met,

Convinced that, unless urgent measures are taken, the marine scientific and technological gap between the developed and the developing countries will widen further and thus endanger the very foundations of the new regime,

Believing that optimum utilization of the new opportunities for social and economic development offered by the new regime will be facilitated through action at the national and international level aimed at strengthening national capabilities in marine science, technology and ocean services, particularly in the developing countries, with a view to ensuring the rapid absorption and efficient application of technology and scientific knowledge available to them,

Considering that national and regional marine scientific and technological centres would be the principal institutions through which States and, in particular, the developing countries, foster and conduct marine scientific research, and receive and disseminate marine technology,

Recognizing the special role of the competent international organizations envisaged by the Convention on the Law of the Sea, especially in relation to the establishment and development of national and regional marine scientific and technological centres,

Noting that present efforts undertaken within the United Nations system in training, education and assistance in the field of marine science and technology and ocean services are far below current requirements and would be particularly inadequate to meet the demands generated through operation of the Convention on the Law of the Sea,

Welcoming recent initiatives within international organizations to promote and coordinate their major international assistance programmes aimed at strengthening marine science infrastructures in developing countries,

- 1. Calls upon all Member States to determine appropriate priorities in their development plans for the strengthening of their marine science, technology and ocean services;
- 2. *Calls upon* the developing countries to establish programmes for the promotion of technical cooperation among themselves in the field of marine science, technology and ocean service development;

- 3. *Urges* the industrialized countries to assist the developing countries in the preparation and implementation of their marine science, technology and ocean service development programmes;
- 4. Recommends that the World Bank, the regional banks, the United Nations Development Programme, the United Nations Financing System for Science and Technology and other multilateral funding agencies augment and coordinate their operations for the provision of funds to developing countries for the preparation and implementation of major programmes of assistance in strengthening their marine science, technology and ocean services;
- 5. Recommends that all competent international organizations within the United Nations system expand programmes within their respective fields of competence for assistance to developing countries in the field of marine science, technology and ocean services and coordinate their efforts on a system-wide basis in the implementation of such programmes, paying particular attention to the special needs of the developing countries, whether coastal, land-locked or geographically disadvantaged;
- 6. Requests the Secretary-General of the United Nations to transmit this resolution to the General Assembly at its thirty-seventh session.

| Appendix A: BP Statistic | al Review of World Er | nergy 2003 | |
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| Appendix B: Oil and Gas Journal Worldwide Look at Reserves and |
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| Production |
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Appendix C: Energy Information Administration Oil Export Routes and Options in the Caspian Sea Region

Oil Export Routes and Options in the Caspian Sea Region

| Name/Location | Route | Crude Capacity | Length | Estimated Cost/Investment | Status |
|---|---|--|---|---|--|
| Atyrau-Samara Pipeline | Atyrau (Kazakhstan) to Samara (Russia), linking to Russian pipeline system | Recently increased to 310,000 bbl/d | 432 miles | Increase in capacity cost approximately \$37.5 million | Existing pipeline recently upgraded by adding pumping and heating stations to increase capacity. |
| Baku-Ceyhan ("Main Export Pipeline") | Baku (Azerbaijan) via Tbilisi (Georgia) to Ceyhan (Turkey), terminating at the Ceyhan Mediterranean Sea port | Planned: 1 million bbl/d | Approximately 1,038 miles | \$2.9 billion | One-year detailed engineering study completed in June 2002. Construction on Turkish section of pipeline began in June 2002. Completion of entire pipeline targeted for 2004, exports by Feb. 2005. |
| Baku-Supsa Pipeline (AIOC "Early Oil" Western Route) | Baku to Supsa (Georgia), terminating at Supsa Black Sea port | Recently upgraded from 115,000 to 145,000 bbl/d; proposed upgrades to between 300,000 bbl/d to 600,000 bbl/d | 515 miles | \$600 million | Exports began in April 1999; approximately 115,000 bbl/d exported via this route in 2001. |
| Baku-Novorossiisk Pipeline (Northern Route) | Baku via Chechnya (Russia) to Novorossiisk (Russia), terminating at Novorossiisk Black Sea oil terminal | 100,000 bbl/d capacity; possible upgrade to 300,000 bbl/d | 868 miles; 90 miles are in Chechnya | \$600 million to upgrade to 300,000 bbl/d | Exports began late 1997; exports in 2001 averaged 50,000 bbl/d. |
| Baku-Novorossiisk Pipeline (Chechnya bypass, with link to Makhachkala) | Baku via Dagestan to Tikhoretsk (Russia) and terminating Novorossiisk Black Sea oil terminal | Currently: 120,000 bbl/d (rail and pipeline: 160,000 bbl/d); Planned: 360,000 bbl/d (by 2005) | 204 miles | \$140 million | Completed April 2000. Eleven-mile spur connects bypass with Russia's Caspian Sea port of Makhachkala. |
| Caspian Pipeline Consortium (CPC) Pipeline | Tengiz oil field (Kazakhstan) to Novorossiisk Black Sea oil terminal | Currently: 565,000-bbl/d; Planned: 1.34-million bbl/d (by 2015) | 990 miles | \$2.5 billion for Phase 1 capacity; \$4.2 billion total when completed | First tanker loaded in Novorossiisk (10/01); exports rising to 400,000 bbl/d by end-2002 |
| Central Asia Oil Pipeline | Kazakhstan via Turkmenistan and Afghanistan to Gwadar (Pakistan) | Proposed 1 million bbl/d | 1,040 miles | \$2.5 billion | Memorandum of Understanding signed by the countries; project stalled by regional instability and lack of financing. |
| Iran-Azerbaijan Pipeline | Baku to Tabriz (Iran) | Proposed 200,000 bbl/d to 400,000 bbl/d | N/A | \$500 million | Proposed by TotalFinaElf. |
| Iran Oil Swap Pipeline | Neka (Iran) to Tehran (Iran) | 175,000 bbl/d, rising to 370,000 bbl/d | 208 miles | \$400 million to \$500 million | Under construction; oil will be delivered to Neka and swapped for an |

| | | | | | equivalent amount at the Iranian Persian Gulf coast. |
|---|---|---|--|--|--|
| Name/Location | Route | Crude Capacity | Length | Estimated Cost/Investment | Status |
| Kazakhstan-China Pipeline | Aktyubinsk (Kazakhstan) to Xinjiang (China) | Proposed 400,000 bbl/d to 800,000 bbl/d | 1,800 miles | \$3 billion to \$3.5 billion | Agreement 1997; feasibility study halted in September 1999 because Kazakhstan could not commit sufficient oil flows for the next 10 years. |
| Kazakhstan- Turkmenistan-Iran Pipeline | Kazakhstan via Turkmenistan to Kharg Island (Iran) on Persian Gulf | Proposed 1million bbl/d | 930 miles | \$1.2 billion | Feasibility study by TotalFinaElf; proposed completion date by 2005. |
| Khashuri-Batumi Pipeline | Dubendi (Azerbaijan) via Khashuri (Georgia) to Batumi | Initial 70,000 bbl/d, rising to 140,000 bbl/d-160,000 bbl/d | Rail system from Dubendi to Khashuri, then 105-mile pipeline from Khashuri to Batumi | \$70 million for pipeline renovation | ChevronTexaco has canceled plans to rebuild and expand the existing pipeline. |
| Trans-Caspian (Kazakhstan Twin Pipelines) | Aqtau (western Kazakhstan, on Caspian coast) to Baku; could extend to Ceyhan | N/A | 370 miles to Baku | \$2 billion to \$4 billion (if to Ceyhan) | Feasibility study agreement signed in December 1998 by Royal/Dutch Shell, ChevronTexaco, ExxonMobil, and Kazakhstan; project stalled by lack of Caspian Sea legal agreement. |

Bosporus Bypass Oil Export Routes (for Oil Transiting the Black Sea)

| Name/Location | Route | Crude Capacity | Length | Estimated Cost/Investment | Status |
|---|---|--|--|---|---|
| Adria-Druzhba Integration | Russian Druzhba export pipeline connected to Adria pipeline (flows reversed) to terminus at Omisalj (Croatia) | 100,000 bbl/d in first full year of operation; increasing to 300,000 bbl/d | 1,987 miles in total | \$20 million to modernize Adria, integrate the pipelines, and reverse existing flows | Yukos expects exports from Omisalj via the integrated pipeline system to start by end- 2002. |
| Albanian Macedonian Bulgarian Oil (AMBO) Pipeline | Burgas (Bulgaria) via Macedonia to Vlore (Albania) on Adriatic coast | 750,000 bbl/d (could be expanded to 1- million bbl/d) | 560 miles | \$850 million to \$1.1 billion | Construction delayed, (proposed 2001-2002) as financing is arranged. Completion originally targeted for 2004-2005. |
| Burgas Alexandropoulis (Trans-Balkan Oil Pipeline) | Burgas to Alexandropoulis (Greece) on the Aegean Sea coast | Proposed 600,000 bbl/d to 800,000 bbl/d | 178 miles | \$600 million | Initial agreement signed in 1997 between Bulgaria, Greece, and Russia. Project delayed. |
| Constanta-Trieste Pipeline | Constanta (Romania) via Hungary, Slovenia, and/or Croatia to Trieste (Italy) on the Adriatic Sea coast. Omisalj (Croatia) has also been proposed as a terminus. | 660,000 bbl/d | 855 miles | \$900 million | Feasibility studies completed; financing still to be arranged. |
| South-East European Line (SEEL) | Constanta via Pancevo (Yugoslavia) and Omisalj to Trieste. Omisalj has also been proposed as a terminus. | 660,000 bbl/d | 750 miles | \$800 million | Feasibility studies completed; financing still to be arranged. |
| <u>Odesa-Brody</u> <u>Pipeline</u> | Odesa (Ukraine) to Brody (Ukraine), linking to the southern Druzhba pipeline; optional spurs to the northern Druzhba line at Plotsk (Poland) and/or to Gdansk on the Baltic Sea coast. | 500,000 bbl/d | 400 miles from Odesa to Brody | \$750 million for pipeline and Pivdenny terminal | Construction on pipeline completed in August 2001; Pivdenny terminal became operational in December 2001. Ukraine is seeking to sign contracts with Caspian oil exporters to fill the line. |

| Appendix D: 1982 United Natio | ons Convention on the | Law of the Sea |
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