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Chad and Cameroon

With the recent completion of the 650-mile Chad-Cameroon pipeline, Chad is poised to become a significant energy producer in the region. At the same time, the pipeline has created new opportunities for Cameroon to revive its declining petroleum sector.

Note: Information contained in this report is the best available as of December 2003 and can change.



GENERAL BACKGROUND

Cameroon is located on the coast of West Africa's Gulf of Guinea, with landlocked Chad bordering it to the northeast. While Chad encompasses more than twice the area of Cameroon, it is significantly less populous. Both countries are former French colonies that gained independence in 1960. Since then, Cameroon has experienced relative political stability which has enabled it to develop its economy and infrastructure. In contrast, stability in Chad has only come in the 1990's, following decades of civil war that disrupted the country's development, making it one of the poorest countries in

the world today. Political stability in Chad remains fragile as tensions persist between the government and opposition groups.

Since the mid-1990's, Cameroon's economy has exhibited strong growth, with real GDP growth averaging 4.5% annually over the last six years. Some of this growth can be attributed to diversification of the country's economy away from agriculture. In 2001, agriculture accounted for only 29% of GDP, while industry and the services sector constituted 31% and 40% of GDP, respectively. Improvements in fiscal spending have also contributed to improving the country's economic health, as well as efforts to address Cameroon's high external debt and improve macroeconomic policies. In particular, a \$2 billion debt relief package granted to Cameroon in 2000 by the World Bank under its Heavily Indebted Poor Countries (HIPC) initiative, and a 2002 loan disbursement from the IMF under its Poverty Reduction and Growth Facility program have increased the government's resources for social expenditures.

In contrast to Cameroon, economic growth in Chad was volatile during the end of the 1990's. Chad's economy is dominated by the agricultural sector (40% of GDP in 2001), with the overwhelming

majority (around 80%) of its population relying on agriculture for its livelihood. While the country has experienced consistently high economic growth rates over the last three years, this has been due largely to foreign investments aimed at the development of the Doba Basin oil fields and the construction of the Chad-Cameroon pipeline. With the recent completion of this pipeline, petroleum production is expected to become the major driver of economic growth in Chad. Importantly, the majority of anticipated petroleum revenues already have been earmarked for targeting the country's grossly underdeveloped social and economic infrastructure. The U.N.'s 2003 Human Development Report, Chad ranked 11th on its list of "Least Livable Countries," based on poverty and social indicators. For 2003, real GDP growth in Chad is expected to be 7.8%, while forecasts for 2004 are as high as 40%.

Chad and Cameroon are members of [the Central African Economic and Monetary Union \(CEMAC\)](#), which was created in 1991 with the objective of improving economic and political cooperation in the sub-region. Other members of CEMAC include the Central African Republic (CAR), the [Republic of the Congo](#), [Gabon](#), and [Equatorial Guinea](#). The recent onset of petroleum production in Chad leaves the CAR as the only member of CEMAC that is not a petroleum producer.

OIL

Reserves/Exploration/Production

In 2002, Cameroon's proven petroleum reserves were estimated at 400 million barrels. These reserves are located offshore in the Rio del Rey Basin of the Niger Delta, offshore and onshore in the Douala / Kribi-Camp basins on Cameroon's western coast, and onshore in the Logone-Birni basin in the northern part of the country. Cameroon is currently sub-Saharan Africa's fifth largest oil producer, with crude oil production estimated at 72,000 barrels per day (bbl/d) in 2002, down from 76,600 bbl/d in 2001 and 84,800 bbl/d in 2000. A lack of petroleum exploration in Cameroon during the 1980's and 1990's contributed to the current decline in crude oil production and is reflected by the exhaustion of mature fields and absence of new petroleum discoveries. In an effort to reverse this trend, the government has adopted new regulation to encourage investment in new exploration. In particular, recent petroleum discoveries in Equatorial Guinea's nearby Rio Muni basin as well as the completion of the Chad-Cameroon pipeline have increased the government's confidence in the potential of the Logone Birni and Douala basins, two areas that until now have remained largely unexplored. In 2002, the government sought to revise its petroleum laws to formalize new incentives for investment. Cameroon's National Hydrocarbons Company (SNH), established in 1980, manages the government's interest in the petroleum sector.

Sub-Saharan Africa's increasingly important role in global oil markets has renewed interest in Cameroon's oil fields, and led to new exploration in all three of its major petroleum basins. New exploration at Bao South in the the Rio del Rey Basin led to the discovery of an estimated 10 million barrels of additional oil, which began production at the end of 2000. In December 2002, Tullow Oil and Addax Petroleum Cameroon, Ltd. signed a contract with SNH for exploration in the Ngosso area of the Rio del Rey Basin. At the same time, ConocoPhillips announced a new petroleum discovery arising from its offshore exploration in the Douala Basin. Since 2001, other exploration activity in the Douala Basin has been carried out by Australian-based Fusion Oil.

Optimism about the International Court of Justice's (ICJ) October 2002 ruling in favor of Cameroon on its dispute with Nigeria over territorial rights in the oil-rich Bakassi Peninsula has subsided since Nigeria decided to reject the ruling. Several oil discoveries had been made in the 600-square mile peninsula, but all operations were suspended while the dispute was under consideration at the ICJ. The two countries have subsequently met under UN-mediated conditions to discuss alternative resolutions to the dispute, including the possibility of sharing revenues from Bakassi oil production.

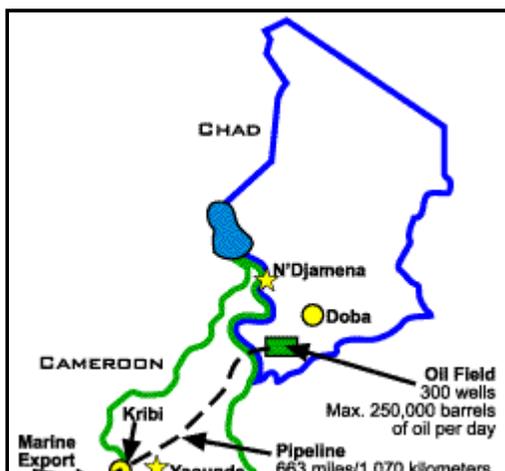
The dispute remains unresolved, and concerns have risen about the potential for tensions to escalate, especially as the area has become heavily militarized in the aftermath of the ICJ ruling.

Chad's proven oil reserves are situated mainly in the Doba basin in the southern part of the country, near its border with the Central African Republic. At the beginning of 2003, current reserves in the Doba basin's three oil fields (Bolobo, Kome, and Miandoun) were estimated at 900 million barrels of oil. The current development of the Doba basin, including the development of the Chad-Cameroon pipeline is led by a foreign consortium that includes ExxonMobil (40% interest), Malaysia's Petronas (35%), and ChevronTexaco (25%). Petronas and ChevronTexaco joined the consortium in April 2000, after two of its original members, Shell and Total, divested their collective 60% interest in the project. As part of this venture, ExxonMobil is in the process of drilling 265 wells in the Doba oil basin, which will be necessary to enable full crude oil production. Petroleum production in Chad commenced in July 2003, following completion of the Chad-Cameroon pipeline. Production is currently in the range of 50,000 bbl/d, and is expected to increase to 225,000 bbl/d by 2004.

Besides the Doba basin, Chad also contains oil reserves, estimated at 150 million barrels, in the Sedigi field in the Lake Chad Basin. Interest in the development of these reserves has focused on their potential to reduce Chad's domestic petroleum costs. As such, development of the Sedigi field has been proposed in conjunction with proposals for a petroleum refinery and power plant in the capital, N'Djamena. Progress on these proposals has been uncertain since the project was uncoupled from the Doba Basin project and taken over by a Sudanese corporation.

Chad-Cameroon Pipeline Project

The Chad-Cameroon pipeline project is an integral component of the development of Chad's Doba Oil basin. Since Chad is geographically landlocked and has low internal demand for petroleum, its success in petroleum production depends on its ability to access international markets. The Chad-Cameroon pipeline was designed to fulfill this objective by transporting petroleum from Chad to Cameroon's western coast. From the Doba basin, the Chadian portion of the pipeline runs through southern Chad for approximately 105 miles to the Chad-Cameroon border. At the border, the Cameroonian portion begins, continuing southwest through Cameroon for 545 miles to export facilities at the port at Kribi, Cameroon. These export facilities include an onshore-pressure reducing station and a 7-mile subsea pipeline that connects to a floating production storage and offloading vessel (FPSO). The Tchad Oil Transport Company (TOTCO) and the Cameroon Oil Transport Company (COTCO) have respective ownership of each country's portion of the pipeline. COTCO was established in July 1998, as part of the Chad-Cameroon project, and is a joint venture of the foreign consortium and the governments of Chad and Cameroon.



The total cost of field development and construction of the pipeline and export facilities has been estimated to be \$3.5 billion. The foreign consortium's share in bankrolling the Chad-Cameroon project amounts to \$2.2 billion (59.2% of total costs), while commercial banks and export credit agencies have contributed \$600 million (16.1%) and capital markets have financed \$400 million (10.7%). In addition, the International Finance Corporation has lent \$100 million to the foreign consortium and made another \$300 million available through commercial banks. Most important to the project, though, has been a World Bank loan of \$93 million -- \$53.4 million for Cameroon and \$39.5 million for Chad --

agreed to in June 2000. This loan has been necessary for funding the stake of each country's government in the project, but more importantly, the World Bank's approval of the project, a prerequisite for funding, has been essential for securing the commitment of all parties to the project and the support of outside countries. A week after the World Bank's board approved the project, the U.S. Export-Import Bank approved a \$300 million loan guarantee to finance exports to build the pipeline.

With construction of the Chad-Cameroon pipeline already completed in July 2003, one year ahead of schedule, Chad's first petroleum exports departed for the international market in October 2003. The World Bank's assessment of the project's profitability has been favorable. Based on a benchmark price of \$15 per barrel of oil, total receipts for the Doba project are expected to reach over \$12 billion over a 25 year period. Chad's share of the revenues is 12.5%, approximately \$2 billion over the life of the project, or about \$80 million annually. In addition, it is estimated that Cameroon will earn about \$0.46 on every barrel of oil transported through the pipeline. Another potential benefit of the project to Cameroon arises from the proximity of the pipeline to the Logoni basin, which could facilitate future petroleum production at that basin.

Chad's Petroleum Revenues Management Law (PRML), adopted in 1999 as a prerequisite for World Bank financing, outlines the government's planned allocation of new oil revenues. The PRML requires that 10% of these revenues be held in a trust for future generations, while 80% be devoted to education, health and social services and rural development, with the remaining 5% earmarked for regional development of the Doba basin area. While Chad is the first oil-producing country to accept a conditional loan from the World Bank based on oil-revenue spending restrictions, the Bank has expressed hope that its success will allow for the replication of this model to other countries. In November 2000, pessimism about the Chadian government's commitment to the PRML increased following reports that the government had spent \$4 million of a \$25 million "signing fee" it received from the foreign consortium on arms. In February 2001, the Bank appointed several independent experts to an international advisory group, charged with oversight of the Chad-Cameroon project. The Group's responsibilities included identifying potential problems in the use of public revenues and monitoring the adequacy of civil society participation, environmental management and social impacts. In September 2002, the World Bank decided to continue its backing of the Chad-Cameroon project despite negative reports from this advisory group.

During construction, the Chad-Cameroon pipeline was subject to intense opposition from human rights and environmental groups. Many environmental concerns focused on Cameroon, where the pipeline was set to traverse areas of dense jungle inhabited by the Bagyeli ethnic group. In response, the consortium made numerous adjustments to the pipeline's route. Still, the Bagyeli are the only ethnic group that has not been compensated for land lost to the pipeline project. Meanwhile, most human rights groups continue to remain fearful that revenue from oil exports will not go towards needed social programs but instead, towards funding military expenditures.

Downstream

Cameroon's downstream oil sector is a significant part of the country's economy. In 2001, the country's petroleum consumption was estimated at 22,000 bbl/d. Cameroon's Société Nationale de Raffinage (SONARA) refinery, located in the port city of Limbe, is the country's only refinery, producing up to 42,000 b/d for both domestic consumption and export. Within the country, all petroleum products are distributed by the Cameroon Petroleum Depot Company (SCDP). Cameroon's government holds a 66% interest in SONARA and a 51% interest in SCDP with smaller shares held by other retail marketers including ChevronTexaco, TotalFina Elf, ExxonMobil, and Shell. Since all of Cameroon's crude oil production is exported, crude oil used in the refinery must be imported from Equatorial Guinea and Nigeria. SONARA recently invested \$15 million to

upgrade its port facilities, which now allow tankers with capacity as large as 90,000 tons to access the refinery.

Chad's downstream oil sector is currently completely dependent on petroleum products imported from Nigeria and Cameroon. Local companies control 35% of petroleum distribution and marketing in Chad, followed by Shell (25%), Exxon Mobil (20%) and TotalFina Elf (20%). Nearly all commercial energy requirements, including power generation, are fueled by petroleum, but overall demand for petroleum is still very low. In 2001, petroleum consumption was around 2,000 b/d.

Whether new petroleum production at the Doba Basin will foster the development of Chad's downstream oil sector remains to be seen. So far, Taiwan's Chinese Petroleum Corporation has expressed an interest in constructing an oil refinery in Chad, in part to strengthen relations between the two countries.

NATURAL GAS

Cameroon has estimated natural gas reserves of 3.9 trillion cubic feet (Tcf). Associated and non-associated natural gas reserves have been discovered in the Rio Del Rey, Douala and Kribi-Campo basins, but they have yet to be utilized. The growth of Cameroon's industrial sector in recent years has created many opportunities for the use of natural gas. In January 2003, Syntroleum Corporation and Euroil, Ltd. signed an agreement to negotiate a production-sharing contract with the government of Cameroon for natural gas production in the 600 billion cubic feet (Bcf) Sanaga Sud natural gas field, located in the Douala/Kribi-Campo basin. As part of this venture, Syntroleum is currently studying the feasibility of developing a gas-to-liquids (GTL) plant in Cameroon. Chad is not known to possess any natural gas reserves.

ELECTRICITY & RENEWABLE ENERGY

Cameroon has installed electric generation capacity of 817 megawatts (MW), of which 88% is hydroelectric and 12% is thermal. The country's two main hydro stations, Edea and Song-Loulou, are located on the Sanaga River, while the smaller Lagdo station is located in the north, near Garoua. Along with the Democratic Republic of Congo (DRC), Cameroon has the greatest hydroelectric power potential in Africa. In the future, development of Cameroon's estimated 500,000 MW of hydroelectric potential could make the country a net electricity exporter. On the downside, Cameroon's heavy reliance on hydropower has made its electricity sector extremely vulnerable to droughts. Cameroon relies on several diesel power stations as back-up facilities, the largest of which are located in Garoua (20 MW), Douala (15.4 MW), and Yaounde (10.8 MW).

Generation and distribution of electricity in Cameroon is handled by AES-SONEL, which purchased a 56% stake in the state-run [Société Nationale d'Electricité de Cameroun \(SONEL\)](#) for \$70 million in 2001. Since AES-SONEL took over operation of the electricity system, consumers have protested a 10% rise in electricity rates, especially since dry weather in the first part of 2003 resulted in frequent blackouts. As a start to addressing the country's generating capacity problems, AES-SONEL is constructing a new 85-MW, oil-fired plant at Limbe. The company is also in the process of raising funds to pursue its plans for additional hydroelectric plants and the country's first natural gas-fired plants that would use natural gas from domestic reserves. In October 2003, AES-SONEL and the government adopted a new electricity tariff structure, which is expected to reduce electricity costs for most residential customers by at least 5%.

Less than 2% of Chad's population has access to electricity. Of those Chadians who do have electricity, the majority of them reside in N'Djamena, where the country's only major power station (22 MW) is located. Generation and distribution of electricity in Chad is handled by the state-run Societe Tchadienne D'eau et D'electricite (STEE). Electricity prices in Chad are among the highest

in the world because of the high cost of importing the petroleum that fuels power generation. Little progress has been made on 3-year-old plans to privatize STEE, although Vivendi has recently become actively involved in management of the country's electricity sector. The underdeveloped state and high cost of Chad's electricity sector have aroused concerns about their potential to hinder the country's new oil-revenue-funded economic development plans. To address this problem, in October 2002, the World Bank approved a \$55 million loan aimed at the rehabilitation and improvement of the country's electricity and water infrastructure.

In June 1998, the World Bank approved a \$5.3 million loan for the establishment of a Household Energy Project . The project is designed to provide affordable and sustainable supply of energy to Chadian households. Wood is the primary source of total energy in Chad, and the project hopes to establish a sustainable wood fuel and charcoal supply in nearly 100 villages located near N'Djamena.

Sources for this report include: CIA World Factbook 2003; Economist Intelligence Unit ViewsWire; Global Insight; International Monetary Fund; Oil and Gas Journal; Petroleum Intelligence Weekly; Reuters News Service; U.S. Energy Information Administration; World Bank

Country	Head of State	Independence	Size (Square Kilometers / Square Miles)	Population 2003E (Millions)	Major Cities
Cameroon	President: Paul Biya (since 1984)	January 1, 1960 (from France)	475,440 / 183,520	15.8	Yaounde (capital), Douala, Nkongsamba, Maroua, Garoua
Chad	President: Idriss Deby	August 11, 1960 (from France)	1,284,000 / 495,000	9.25	N'Djamena (capital), Sarh, Moundou, Abeche

Source: Central Intelligence Agency World Factbook 2003

Country	Gross Domestic Product (GDP), 2002E (Billions of US \$)	Real GDP Growth Rate, 2002 Estimate	Real GDP Growth Rate, 2003 Projection	Per Capita GDP, 2002E (PPP)	Inflation Rate, 2002 Estimate	Merchandise Exports, 2002E (Billions of US \$)	Merchandise Imports, 2002E (Billions of US \$)	Total External Debt, 2002E (Billions of US \$)
Cameroon	\$27	5.2%	4.9%	\$1700	4.5%	\$1.9	\$1.7	\$8.6
Chad	\$9.98	11.3%	4.9%	\$1100	6.0%	\$0.20	\$0.57	\$1.1

Sources: Economist Intelligence Unit; Central Intelligence Agency World Factbook 2003; International Monetary Fund. PPP=Purchasing Power Parity. NA=Not Available.

Country	Energy Consumption (Million Tons of Oil Equivalent)	Carbon Dioxide Emissions (Million Tons)
Cameroon		
Chad		

Country	Total Energy Consumption (Quadrillion Btu)	Coal	Petroleum	Natural Gas	Nuclear	Hydro-electric	Other Renewable Electric	Net Electricity Imports	(Million metric tons of carbon)
Cameroon	0.008	0.03%	55.17%	0.0%	0.0%	44.8%	0.0%	0.0%	1.74
Chad	0.003	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.06

Source: Energy Information Administration

Note: percentages may not add up to 100% due to rounding.

Country	Crude Oil Reserves, 1/1/03 (Million Barrels)	Natural Gas Reserves, 1/1/03 (Billion Cubic Feet)	Coal Reserves (Million Short Tons)	Petroleum Production, 2002 (Thousand Barrels Per Day)	Natural Gas Production, 2001 (Billion Cubic Feet)	Coal Production, 2001 (Million Short Tons)	Electric Generating Capacity, 2001 (Gigawatts)	Crude Oil Refining Capacity, 1/1/03 (Thousand Barrels Per Day)
Cameroon	400	3.9	0	77	0	0	0.001	42
Chad	900	0	0	0	0	0	0.001?	0

LINKS

For more information on Chad or Cameroon, see these other sources on the EIA web site:

[EIA - Country Information on Chad](#)

[EIA - Country Information on Cameroon](#)

Links to other sites:

[CIA World Factbook - Chad](#)

[U.S. State Department: Human Rights Report: Chad](#)

[U.S. State Department Consular Information Sheet - Chad](#)

[U.S. Department of Commerce - Country Commercial Guide - Chad](#)

[Library of Congress Country Studies: Chad](#)

[CIA World Factbook - Cameroon](#)

[U.S. State Department: Human Rights Report: Cameroon](#)

[U.S. State Department's Consular Information Sheet - Cameroon](#)

[U.S. Department of State Background Notes on Cameroon](#)

[U.S. Department of Commerce - Country Commercial Guide - Cameroon](#)

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[Esso Exploration and Production Chad, Inc.](#)

[World Bank Chad-Cameroon Project](#)

[World Bank Country Brief: Chad](#)

[World Bank Country Brief: Cameroon](#)

[International Monetary Fund \(IMF\): Chad](#)
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