

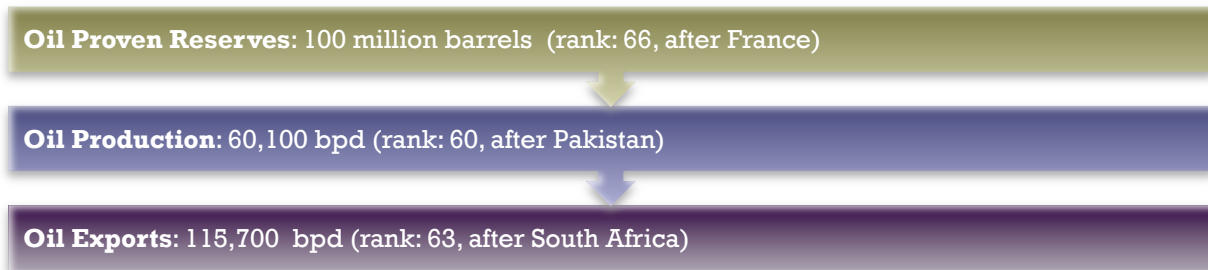
Côte d'Ivoire Oil Industry

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Basic figures

Côte d'Ivoire is a modest oil producer and an important regional refiner with ambitious plans to play a more central role in West Africa's petroleum product market. The Gbagbo administration's goal is to more than double production to 200,000 barrels per day within the next few years, and to bring a second refinery on line. Recent oil discoveries along the Gulf of Guinea may lead to a substantial reevaluation of West African, including Ivorian, reserve estimates. The discovery in 2007 of up to 1.8 billion barrels of recoverable oil in the Jubilee field off the coast of Ghana has prompted Jubilee operator Tullow Oil to intensify its exploration of neighboring Côte d'Ivoire's coast, which has yet to be thoroughly surveyed¹.

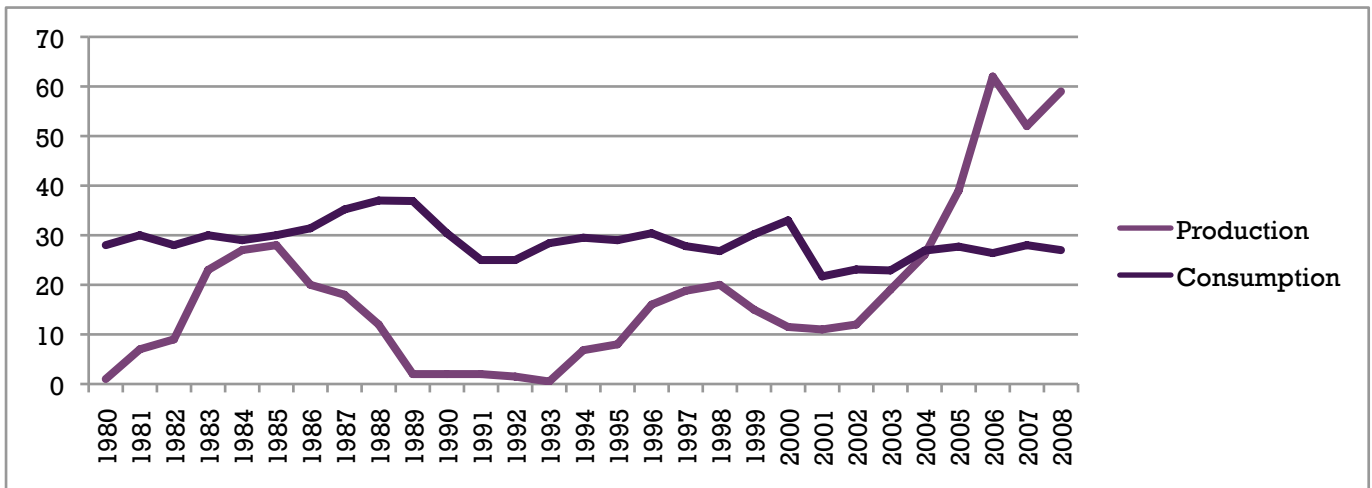


Source: CIA Factbook; figures are estimates from 2007, 2008 and 2009

Historic

When Côte d'Ivoire's oil resources were discovered in the 1970s, US-based International Oil Companies (IOCs) such as Exxon and Phillips secured licenses to develop several Ivorian fields, and brought production up to levels that enabled the country to almost fully supply domestic oil demand. However, by 1989 these companies had terminated their Ivorian operations due to rising production costs and unprofitable profit-sharing agreements. Côte d'Ivoire virtually ceased to be an oil producer until technological innovation in the mid-1990s led IOCs to reassess the extraction potential and economic viability of Côte d'Ivoire's resources. Production peaked in 2006 and the higher level has been maintained.

Production and Consumption (in thousands of barrels)



Source: EIA

¹ Petroleum Economist & Financial Times

Distribution

Like most coastal West African oil producers, Côte d'Ivoire's oil resources are located offshore in both shallow and deep waters. Since 1995, an oil pipeline links the Lion field in Block CI-11 to Côte d'Ivoire's Abidjan refinery. Abidjan is home to the most developed port in West Africa; tankers are a direct route away from the U.S. and European markets.

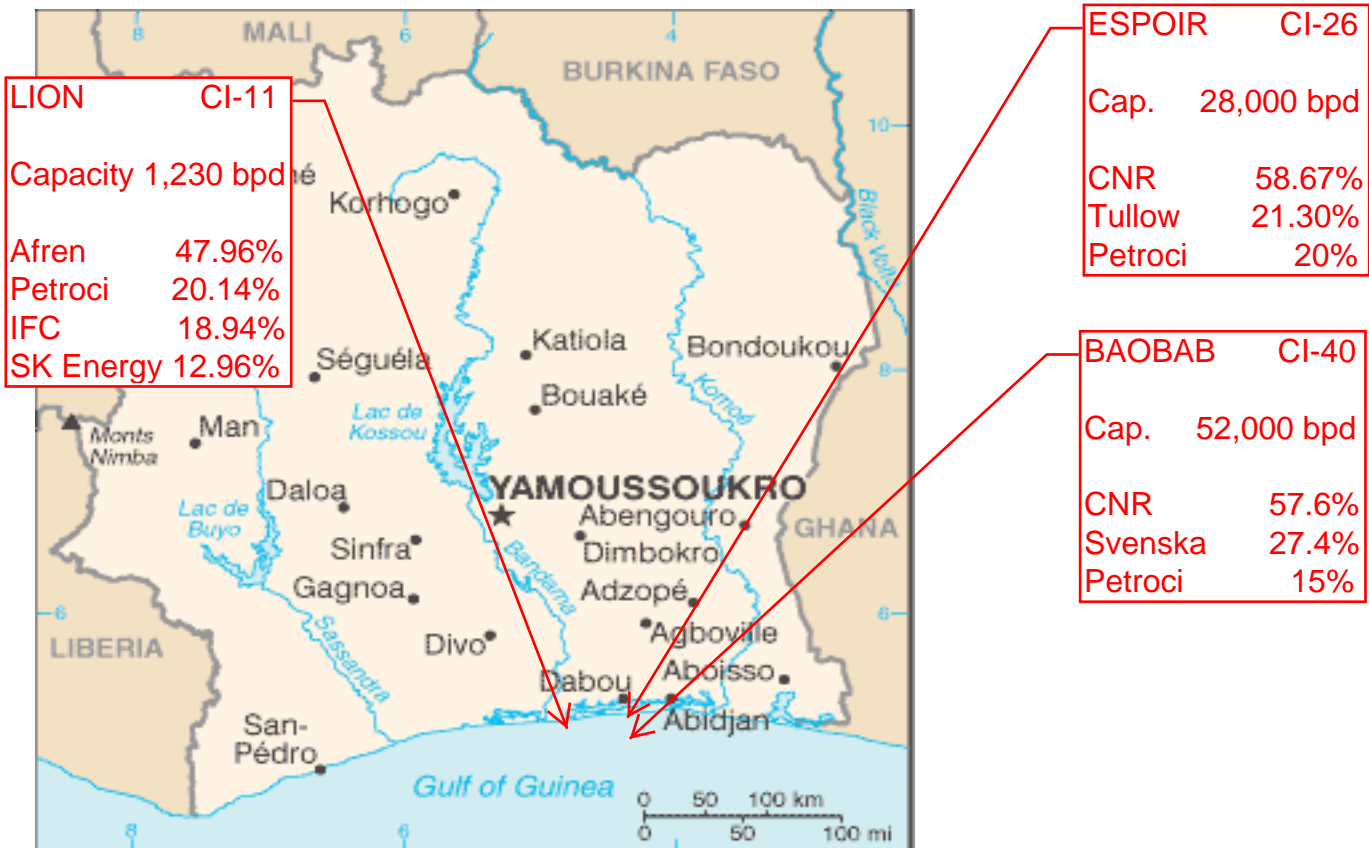
Quality

Côte d'Ivoire's crude comes in different types at each of its three currently producing fields. While all are sweet, gravity ranges from very light to moderately heavy.

	API Gravity	Sulphur	Most similar major crude
Lion Crude	39.6 (very light)	0.18%	API: WTI (US) Sulphur: Bonny Lt. (Nigeria)
Espoir Crude	32.3 (light)	0.34%	Daqing (China)
Baobab Crude	23 (moderately heavy)	0.39%-0.46%	API: Maga (Mexico) Sulphur: Brent (UK)

Sources: EnergyIntelligence and McQuilling Services, International Crude Oil Market Report

Map of Côte d'Ivoire's Producing Oil Fields



Sources: African Energy, National Geographic and CIA World Factbook

Oil Contracts

State Companies

Côte d'Ivoire has maintained an extensive state presence, albeit not a controlling one, in the domestic oil and gas industry, which has within the past few years surpassed cocoa as the main source of government revenue. National oil company Société Nationale d'Opérations Pétrolières (Petroci) holds a minority stake in all of Côte d'Ivoire's producing fields and almost all of the country's licensed blocks. Petroci was founded in 1975 and restructured in 1998 into four divisions: Petroci Holdings, Petroci Exploration-Production, Petroci Gaz and Petroci Industries-Services.

International Oil Companies

Côte d'Ivoire has welcomed IOC participation in all phases of the development of its oil resources. Although offshore resources are typically more costly to develop than onshore ones, in Côte d'Ivoire's case the former are considered to be an advantage. Indeed, offshore oil fields limit IOC exposure to political volatility both in the country and along transportation routes. Côte d'Ivoire's civil war in the early 2000s did not register a single dent on the country's rising oil production trend. Furthermore, the Ivorian coast provides direct access to open sea routes to major export markets, thus reducing transportation costs and reliance on the development and maintenance of domestic pipelines and general infrastructure. Finally, for the Indian and Chinese state oil companies that have acquired stakes in the block CI-112 concession, Côte d'Ivoire represents their first foray into deep-water drilling on the African coast.

The following table lists all of Côte d'Ivoire's producing fields and oil licensing blocks, and the energy companies that have been involved in their development.

Block/Field	Current peak production & shareholders (* denotes operator)			Dvt. history		
PRODUCING FIELDS						
CI-26	Espoir	28,000 bpd		1982	20,000 bpd	
				1983	15,000 bpd	
		Canadian Natural Resources*	(CA) 58.67%	1988	10,000 bpd	
		Tullow Oil	(IR) 21.30%		Field closed	
		Petroci	(CI) 20%			
				Phillips*	(US)	90%
				Petroci	(CI)	10%
				2002	Field reopened	
				2006	31,000 bpd	
		Note: Canadian Natural Resources (CNR)		Ranger Oil	(US)	36.33%
		acquired Ranger Oil and Addax's shares		Addax	(US)	22.34%
				Tullow	(IR)	21.33%
				Petroci	(CI)	20%

CI-40	Baobab	52,000 bpd			2001 Field discovered	
					2005 Production starts 48,000 bpd	
		Canadian Natural Resources*	(CA)	57.6%		
		Svenska	(SW)	27.4%		
		Petroci	(CI)	15%		
CI-11	Lion	1,230 bpd			1980s Field discovered by Phillips	
					1995	
		Afren*	(UK)	47.96%		Field acquired by:
		Petroci*	(CI)	20.14%		
		International Finance Corporation (IFC)		18.94%		
		SK Energy	(SK)	12.96%		
						United Meridian Corp.* (US) 25%
						Global Natural Resources (US) 10%
				(acquired by Seagull Energy in 1996)		
				Petroci (CI) 40%		
				Pluspetrol (AG) 10%		
				International Finance Corporation (IFC) 15%		
				1997 20,000 bpd		
				UMC & Seagull acquired by Ocean Energy (US), which becomes the new operator		
				2003 3,600 bpd		
				Devon* (US) 35%		
				(acquires Ocean Energy)		
				Petroci (CI) 40%		
				Pluspetrol (AG) 10%		
				IFC 15%		
		Note: Devon divested itself of all of its African assets in 2008. Afren acquired its Côte d'Ivoire assets				

NON-PRODUCING FIELD

CI-24	Bélier	N/A			1981 10,000 bpd
					1986 6,000 bpd
					1988 closed
					Exxon* (US)

CONCESSION BLOCKS

CI-1	Afren* Petroci SK	(UK) 65% (CI) 20% (SK) 15%	1970-80s exploration by Esso (US) and Agip (IT)
	Startup scheduled for 2011-2012		1994 acquired by UMC, which is in 1997 acquired by Ocean Energy, which is in turn acquired by Devon Energy in 2003
CI-2	Currently unlicensed		Previously licensed to Ocean Energy (US)
CI-11	Currently unlicensed		Previously licensed to UMC (US)
CI-12	Currently unlicensed		Previously licensed to UMC (US)
CI-100	Dana* (since 2000)	(UK) 100%	
	Note: the block lies across Dana's oil reserves in Ghana.		
CI-101	Vanco* (since 2005)	(US) 100%	
CI-102	Edison* Tullow Kufpec Petroci	(IT) 31.5% (IR) 31.5% (KU) 27% (CI) 10%	
	(Since 2007)		
CI-103	Tullow* Anadarko Petroci	(IR) 45% (US) 40% (CI) 15%	Through 2009, Tullow held an 85% share
	(Since 2007)		
CI-104	Currently unlicensed		Previously licensed to Ocean Energy (US) , then Edison (IT), which withdrew in 2007.

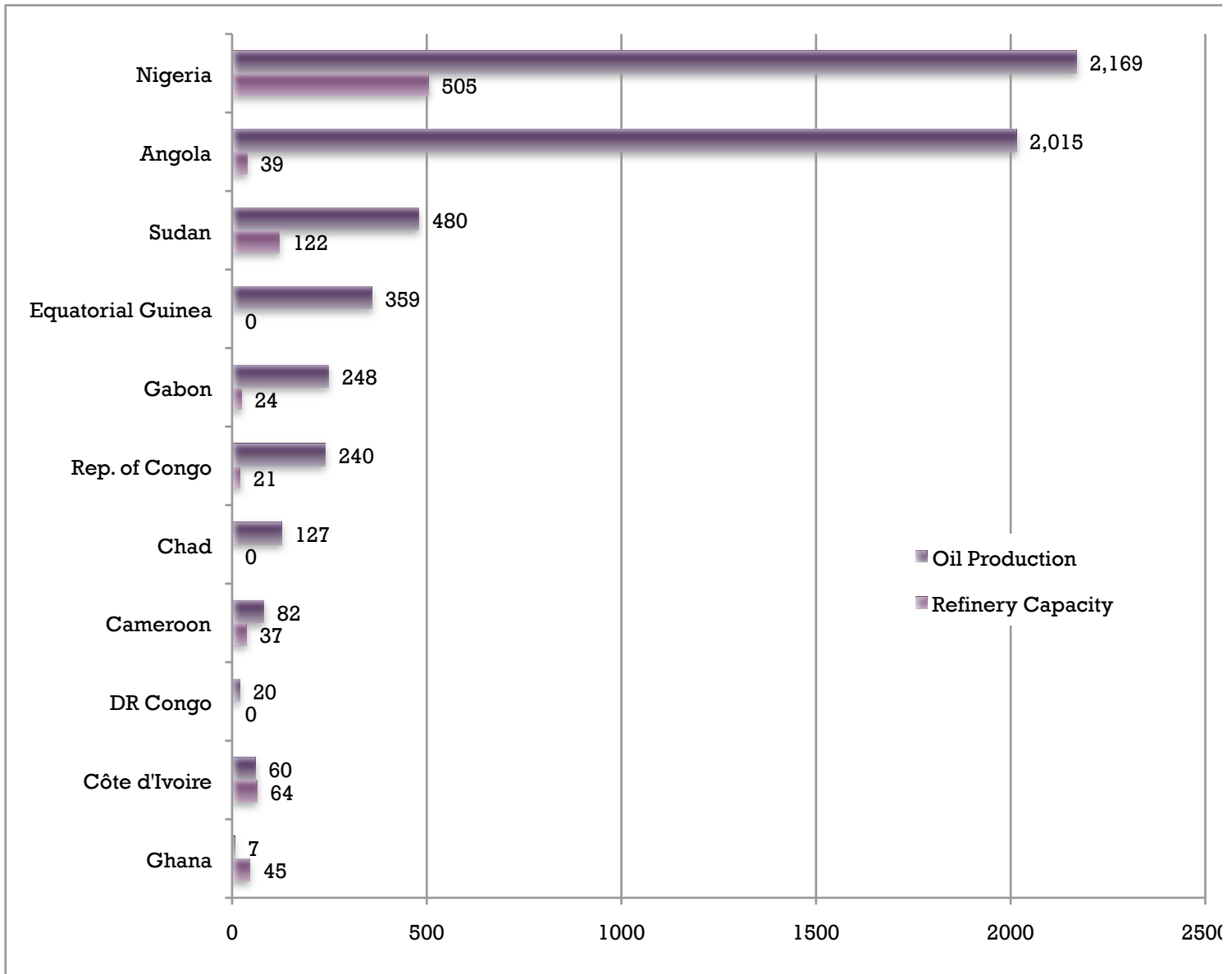
CI-105	Anadarko*	(US)	50%	Through 2003, licensed to:	
	Tullow	(IR)	22.30%		Shell (US) 55%
	Petroci	(CI)	15%		Ocean* (US) 35%
	Al Thani	(UAE)	12.6%		Petroci (CI) 10%
	(since 2007)				
CI-107	Currently unlicensed			Relinquished by Tullow in 2008	
CI-108	Currently unlicensed			Relinquished by Tullow in 2008	
CI-109	Currently unlicensed	Through 2001, licensed to:			
				Vanco* (US) 90%	
				Petroci (CI) 10%	
CI-112	Vanco*	(US)	41.5%	Vanco acquired the shares of Xpronet (US) in 2001	
	Sinopec	(CN)	27%		
	ONGC Vadesh	(IN)	21.15%		
	Oil India	(IN)	10.35%		
	(since 2004)				
CI-205	Lukoil*	(RU)	63%		
	Oranto	(NG)	37%		
	(since 2006)				
	Scheduled for drilling this year				
	Note: Oranto is a subsidiary of Atlas Petroleum				
CI-206	Oranto*	(NG)	90%		
	Petroci	(CI)	10%		
	(since 2003)				
CI-400	CNR*	(CA)	100%		
	(since 2002)				
CI-401	Vanco*	(US)	100%		
	(since 2005)				

Refining

West African Shortage

West Africa imports the vast majority of its petroleum products for lack of refining capacity. For every \$1 of inter-regional oil and petroleum product trade, almost \$5 of petroleum products is imported. The chart below shows that West African oil production outpaces refining capacity almost sevenfold. Nigeria, Angola and Côte d'Ivoire are the top three refiners. However, Côte d'Ivoire and Ghana – the smallest regional producers – are the only West African oil producers that refine more than they produce.

Oil Production and Refinery Capacity in West Africa



Abidjan: Rotterdam of Africa?

Côte d'Ivoire is a regional energy hub centered on Abidjan, which Ivoirians have long envisioned as a "Rotterdam of Africa". Over half of West African oil and petroleum products flow through Abidjan, and Côte d'Ivoire is a major exporter of both petroleum products and electricity to Benin, Burkina Faso, Ghana, Mali and Togo. The Ivoirian government has launched an ambitious project to build a second and larger state-of-the-art Peace refinery and storage tank terminal in Abidjan. If realized as planned, this project would transform Abidjan port into the most capacious, polyvalent and technologically advanced petroleum processor in Africa. The development of a \$7 billion refining complex in the Western Ivorian port city of San Pedro was also proposed last year and discussed with Venezuelan company Arevenca.

Conversely, Côte d'Ivoire is at risk of losing its hub status if it does not upgrade its refining capacity. Indeed, the country's sole refinery – the Société Ivoirienne de Raffinage (SIR) – is nearing obsolescence. Built in 1965, the refinery's productivity peaked in 1986, when it expanded its range of crude processing from the Ivoirian Baobab, Lion and Espoir blends to Nigerian varieties, including the heavy Forcados, Bonga and Antan crudes and the light Bonny light, Excravos, Obe, Erha and Abo crudes. The expansion drew on the know-how of shareholders Total (25.4%), Shell (10.3%), ExxonMobil (8%), and Chevron (3.7%), and transformed SIR from a 700,000 ton-per year operation into the largest refinery in West Africa, with a 3.2 million-ton capacity, hydro-cracking technology, and the ability to produce butane, lead-free super, kerosene, jet fuel, gas oil, diesel distillate oil, heavy vacuum oil, and fuel oil 180 and 380. However, the plant is currently in a state of disrepair and no longer operates at full capacity. According to a BusinessWeek report, profits have fallen from \$7.50 per barrel in 2008, to \$1.20 today. SIR is expected to close after the projected new Peace refinery is built. In 2007, Petroci partnered with US companies Energy Allied and WCW International (30% stake each) to develop the refinery (up to 100,000 tpy capacity). Financing has not yet been secured.

At a time when (1) the Ivoirian government is committed to transforming a pivotal African port into a world class petroleum storage, refining and exporting complex, (2) IOCs are taking a renewed interest in the offshore resources of Côte d'Ivoire and its neighbors, and (3) the geopolitics of oil are making direct oil shipping routes increasingly attractive, investors should consider gaining a foothold in the making of the Rotterdam of Africa.