Sudan and South Sudan

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Background

South Sudan shut in its oil production just six months after gaining independence, as a result of an ongoing dispute with Sudan over transit fees and other post-independence issues.

After decades of civil war, North and South Sudan signed a Comprehensive Peace Agreement (CPA) in 2005. The CPA set standards for sharing oil revenue (50:50 split) and a timetable toward a referendum on the South's independence. As part of the CPA, a referendum took place in January 2011 in which the people of South Sudan voted to secede from Sudan. In July 2011, Sudan became two countries: Sudan and South Sudan. The capital of Sudan is Khartoum and the capital of South Sudan is Juba.

North Sudan South Sudan

Source: CIA World Factbook

Although both countries are now independent, they remain interdependent in terms of the oil industry. About 75 percent of oil production (depending on specific field allocations) originates from the South, while the entire pipeline, refining, and export infrastructure is in the North. Thissituation has caused contention between the two countries over pipeline and export transit fees.

The CPA did not set provisions on a post-independence oil sharing mechanism or transit fees. In turn, following the secession, Sudan's government in Khartoum asked for transit fees of $32-36/barrel (bbl), while South Sudan countered with less than $1/bbl, which is more in line with international standards. Primarily as a result of the impasse on transit fees, Khartoum began to divert South Sudan's Nile Blend crude to its Khartoum and el-Obeid refineries in December 2011.

In retaliation, on January 20, 2012, the South announced that it would shut in production until a fair deal was reached on transit fees, or an alternative pipeline was built. At the time of writing, all of South Sudan's production remains shut in. Given the divergent stances on transit fees and other post-independence issues, it is unclear when South Sudan will restart oil production.

Negotiations

Negotiations between the two countries on post-independence issues and transit fees have been occurring intermittently at the African Union (AU) in Addis Ababa, Ethiopia. Negotiations have failed to yield any agreement thus far. The table below describes some of the negotiation topics and each country's respective position.

Sudan (Khartoum)	Negotiation Issue	South Sudan (Juba)
$32-$36/bbl	**Transit fee**	Less than $1/bbl
In late-January, Sudan released four tankers carrying about 3.5 million barrels of South Sudanese crude. Sudan claims that the South owes it $1 billion in unpaid fees since July 2011.	**Release or compensation for oil confiscated by Sudan**	South Sudanese officials have accused Khartoum of stealing $815 million worth of oil revenue and have called for the release of seized oil.
Sudan would like South Sudan to share part of its external debt of $38 million.	**Sudan's external debt**	Juba has declined to share Sudan's external debt.
Sudan controls the Abyei region, but this is disputed by the South. A referendum to decide Abyei's control has been postponed indefinitely.	**Abyei region & border demarcation**	Officials in Juba have stated that they would move closer to restarting oil if the deal covered border security and control over the Abyei region.

The AU has put forward proposals in an attempt to settle the dispute, but they have failed to inspire any compromise thus far. The initial proposal required the South (1) to make a cash transfer in the range of $2.6 billion to $5.4 billion to Sudan as compensation for losing three-quarters of oil output and for the South's use of pipelines, processing, and export facilities that run through Sudan; (2) supply Sudan with up to 35,000 barrels a day on loan; and (3) set aside arrears negotiations for later. The most recent draft AU proposal suggested the South should pay transit fees worth up to $1.1 billion to cover the period until the end of 2014.

At the time of writing, both countries are scheduled to meet again in Addis Ababa in March to continue negotiations on transit fees, an oil revenue sharing arrangement, and the status of the Abyei region and other disputed sections of the border.

Alternative Pipeline

Meanwhile, South Sudan has signed non-binding memoranda of understanding with both the Kenyan and Ethiopian governments on a proposal to build two pipelines through both countries. If constructed, the pipeline through Kenya would go to the port of Lamu and the pipeline through Ethiopia would end at the port of Djibouti.

South Sudan wants the planned pipeline from South Sudan to Kenya's Port of Lamu to be just over 1,000-miles long, with a capacity of 500,000 bbl/d, and completed within 18 months. However, most analysts remain skeptical and believe that, if constructed, the pipeline would take at least 2-3 years to complete, given the general logistics, lack of roads, and security concerns surrounding the pipeline route.

Oil Revenue Loss

Oil plays a major role in the economies of both countries. According to the International Monetary Fund (IMF), oil represented over half of government revenue and 90 percent of export earnings for Sudan. For South Sudan, oil represented 98 percent of total revenues, with most of it spent on defense forces and government salaries. South Sudan's oil shutdown will affect both economies. The IMF estimates that, apart from the oil shutdown, the secession of South Sudan could cost Sudan more than $7.7 billion in lost revenues over the next four years.

Almost a month after shutting in production, the South's government approved austerity measures that aim to cut non-salary spending by 50 percent and reduce monthly grants to states. The Deputy Finance Minister of South Sudan recently reported that the country has enough foreign exchange reserves to sustain the economy from seven months to a year. Nonetheless, it is unclear how long the budget cuts and the country's reserves can sustain South Sudan's economy.

South Sudanese officials have also reported that they are seeking to borrow funds from international markets and use oil reserves as collateral. The country will soon become a member of the World Bank and IMF, but it is uncertain when the South can secure a loan from either entities. South Sudan is also submitting an application to join the five-nation East African Community (EAC) regional bloc.

Currently, South Sudan is a member of the United Nations (UN) and does receive development aid. The UN and aid agencies are providing food aid and many of the country's basic services. According to the UN, about 90 percent of the population survives on less than $1 a day and nearly half of the population are expected to struggle to meet their food needs in 2012. It is too early to conclude how the oil shutdown will affect the livelihoods of the already poor population, in which many are relying on basic services from aid agencies. Nevertheless, the shutdown has gained much public support in South Sudan.

Global Oil Supply

Although South Sudan produced a mere fraction of global oil production (0.3 percent in 2011), many analysts believe that its production shutdown has affected global oil prices. South Sudan produces a distinct crude variety sought out by Asian importers because of its low sulfur and high waxy content. Additionally, power shortages in Japan have heightened the demand for South Sudan's two crude oil export grades: the Dar Blend and Nile Blend. As a result, South Sudan's largest crude customers, China and Japan, have had to shop elsewhere for fair substitutes. China has recently increased crude purchases in West Africa, particularly heavy, low sulfur Angolan oil.

Oil

South Sudan's oil shutdown largely effects Asia, as most companies operating oil fields are from China, Malaysia, and India. Additionally, oil exports from Sudan and South Sudan are almost exclusively sent to Asian markets.

Most of Sudan's oil is produced in the South, but the pipeline, refining and export infrastructure is in the North of the country. According to the *Oil & Gas Journal* (*OGJ*), Sudan and South Sudan had five billion barrels of proved oil reserves as of January 2012, up from an estimated 563 million barrels in 2006. Other analysts put reserve estimates as low as 4.2 billion barrels (Wood Mackenzie) or as high as 6.7 billion barrels (BP 2011 Statistical Review). The majority of reserves are located in the oil-rich Muglad and Melut Basins. Oil produced in these basins and nearby fields is transported through two main pipelines that stretch from the landlocked South to Port Sudan. Due to civil conflict, oil exploration prior to independence was mostly limited to the central and south-central regions of the unified Sudan. Natural gas associated with oil production is mostly flared or re-injected. Despite known reserves of 3 trillion cubic feet (Tcf), gas development has taken the backseat to oil development and gas exploration has been limited.

Sector Organization

Foreign companies, primarily from Asia, dominate Sudan's oil sector. They are led by the China National Petroleum Corporation (CNPC), India's Oil and Natural Gas Corporation (ONGC) and Malaysia's Petronas. These companies hold the largest stakes in the leading consortia operating in both countries: the Greater Nile Petroleum Operating Company (GNPOC), Petrodar, and the White Nile Petroleum Operating Company (WNPOC).

- GNPOC is a consortium of CNPC (40 percent), Petronas (30 percent), ONGC (25 percent) and Sudapet (5 percent).
- Petrodar is a consortium of CNPC (41 percent), Petronas (40 percent), Sudapet (8 percent), Sinopec (6 percent), and Tri-Ocean Energy of Kuwait (5 percent).
- WNPOC is a consortium of Petronas (67.88 percent), ONGC (24.13 percent) and Sudapet (8 percent)

The Sudan National Petroleum Corporation (Sudapet), Sudan's national oil company, is active in the country's oil exploration and production. Sudapet remains a minority shareholder in joint ventures with foreign oil companies because of its limited technical expertise and financial resources. The Nile Petroleum Corporation (Nilepet) is South Sudan's national oil company, but its role has yet to be fully determined.

Sanctions

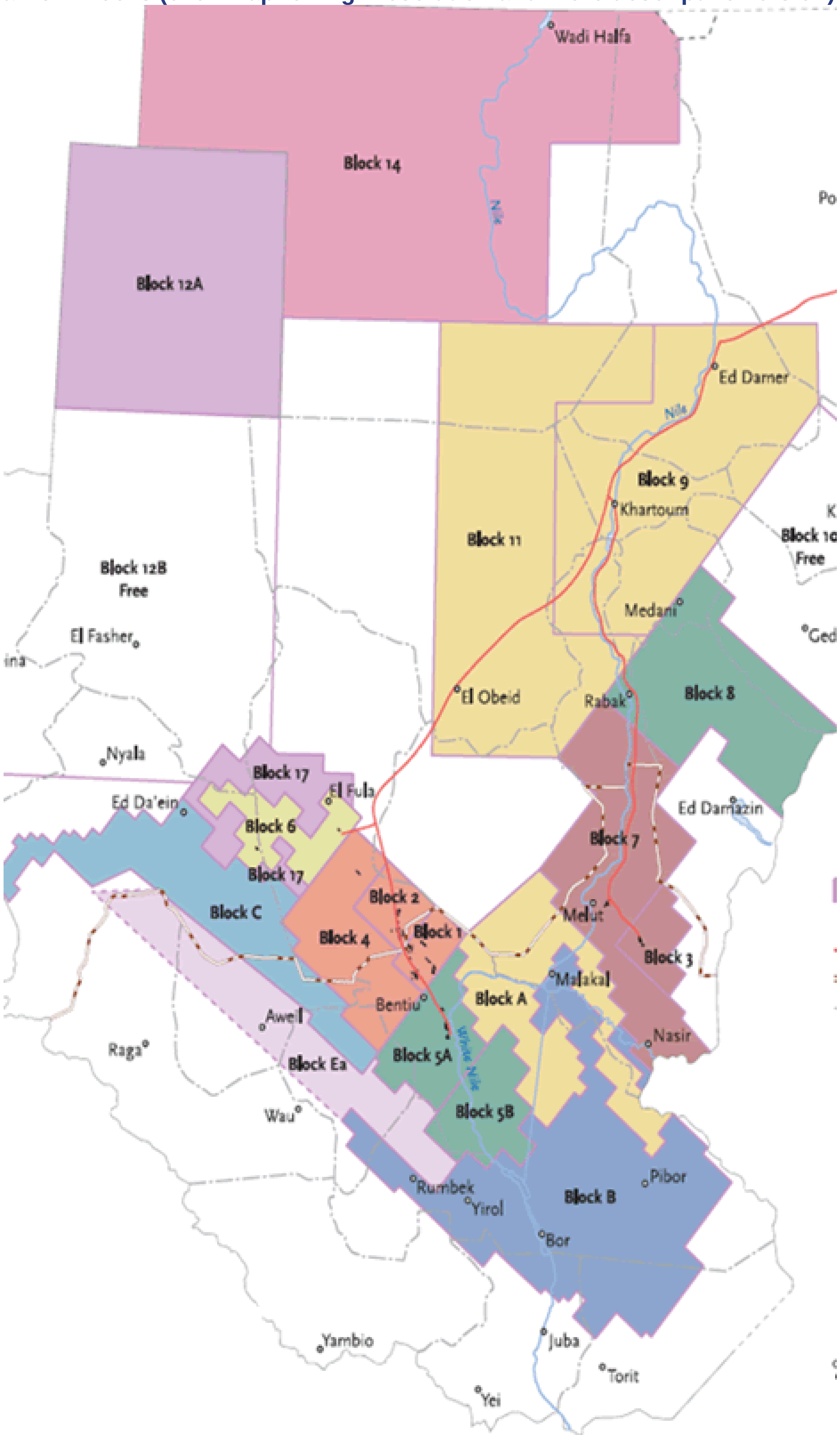
In December 2011, the United States lifted sanctions on South Sudan, but renewed its sanctions on Sudan one month prior, partly due to conflicts in border territories: South Kordofan, Blue Nile, and Abyei. The sanctions prohibit U.S. nationals from engaging in any transactions or activities related to the petroleum or petrochemical industries in Sudan as a result of the conflict in Darfur. For information on full U.S. sanctions, please see the U.S. Treasury Department's Office of Foreign Assets Control.

Exploration and Production

Oil production began in the late 1990s and grew rapidly starting in July 1999 with the completion of an export pipeline that runs from central Sudan to the Port of Sudan. Today, nearly all the oil produced in Sudan and South Sudan originates from Blocks 3 and 7, Block 5A, Block 6, and Blocks 1, 2, and 4. Blocks 3 and 7 and Block 5A are located in South Sudan, while Block 6 falls in Sudan's territory. Oil fields in Blocks 1, 2, and 4, collectively known as the Greater Nile Oil Project, are split accordingly between the two countries, since it covers an area that straddles the North, South, and the disputed Abyei region.

Khartoum recently launched bidding for Blocks 8, 10, 12B, 14, 15 and 18. The blocks are clearly located in Sudan and do not straddle the border, unlike most of the existing blocks. Khartoum hopes that increased exploration into these blocks will spur new finds in the future that will replace the loss of oil from the South and maturing fields in the North.

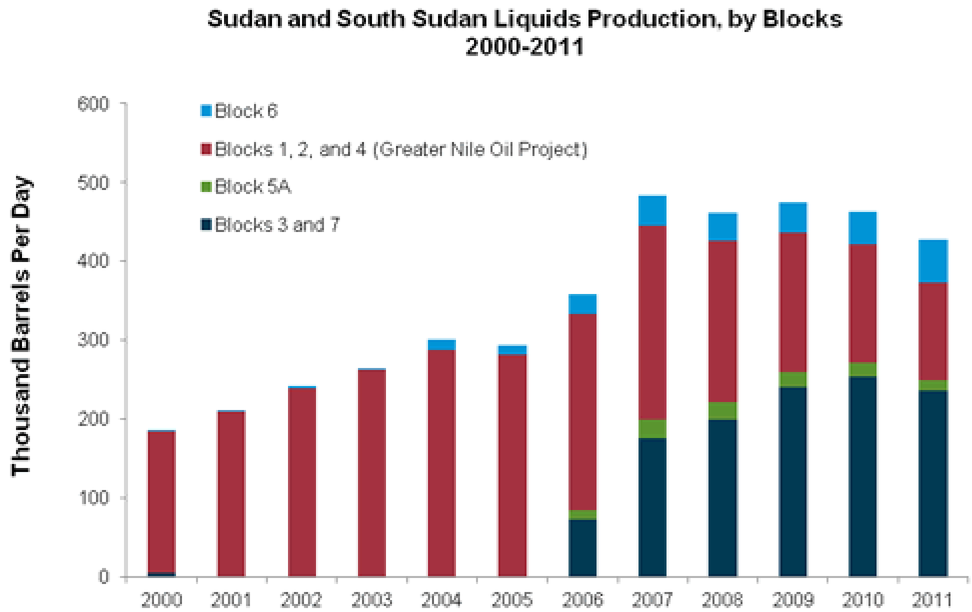
Sudan Oil Blocks (click map for high resolution and more descriptive version)



Source: European Coalition on Oil in Sudan

EIA estimates that crude oil production in Sudan and South Sudan averaged about 425,000 barrels per day (bbl/d) in 2011. In the first quarter of 2011, oil production averaged nearly 470,000 bbl/d, but production increasingly declined throughout the year, partially due to maturing fields, but primarily because of labor shortages at some oil facilities. In April 2011, there was a brief disruption in production when a number of North Sudanese workers in Southern fields were temporally expelled. For the remainder of 2011, some oil facilities experienced labor shortages that adversely affected production, as skilled workers migrated back to the north after the secession.

For the past 10 years, production has been declining in the Greater Nile Oil Project. The decline is driven by maturing oil fields and lack of investment, although one of the project's operators, CNPC, claims that progress in exploration was made in 2010. In 2009, production in Blocks 3 and 7 outpaced declining output in the Greater Nile Oil Project, and those blocks remain the largest current source of oil. After the secession, South Sudan obtained full jurisdiction over Blocks 3 and 7.



Source: *Wood Mackenzie, Annual Liquids Production, by Fields*

Oil Shutdown
In the final weeks of January 2012, South Sudan incrementally shut in all of its oil production. The first production halt occurred in Block 5A, while production in Blocks 3 and 7 and South Sudan's oil fields in the Greater Nile Oil Project were gradually reduced and eventually stopped by the end of January. International oil companies operating in the area have confirmed that water has been injected into the 1,000-mile pipeline that links Southern oil fields in the Muglad Basin to the export terminal in Port Sudan to prevent clogging. Companies have also reportedly sent some of their foreign workforce home.

It is difficult to project how quickly companies will be able to restart production. According to various estimates, it could be a month or longer, depending on the oil facility and the duration of the shutdown. The European Coalition on Oil in Sudan claims the consortium Petrodar, operating Blocks 3 and 7, reported that it estimated "that a minimum of 40 days to six months or possiblylonger is required to resume the production depending on theduration of the shutdown."

At the time of writing this report, production remains completely halted at Blocks 3 and 7, Block 5A, and South Sudan's fields in the Greater Nile Oil Project. According to Sudapet, Sudan's Block 6 was producing almost 52,000 bbl/d and output at the North's field in the Greater Nile Oil Project was nearly 50,000 bbl/d as of mid-February, placing Sudan's current production slightly over 100,000 bbl/d, while South Sudan remains at zero output.

Greater Nile Oil Project
Blocks 1, 2, and 4 (Sudan and South Sudan)
Blocks 1, 2, and 4 are collectively operated by the consortium GNPOC and are located in the oil-rich Muglad Basin, covering an area of 48,388 square kilometers. Production began in 1996 with the development of the Heglig and Unity Fields, which are now the largest fields in the area. A 450,000 bbl/d pipeline stretches 1,000 miles from the Muglad Basin to an export terminal near Port Sudan, transporting oil from the Heglig, Unity, and surrounding smaller fields.

In 2011, combined production from Blocks 1, 2, and 4, was estimated to be around 120,000 bbl/d of Nile Blend, reflecting a decline from a 2004 peak of almost 290,000 bbl/d. Apart from the recent oil shutdown, production is expected to continue to decline in the short-term, mainly from natural declines in the Heglig and Unity fields.

The area's borders are often disputed because oil fields within the blocks straddle both countries. While the Unity field is fully located in the south, there is an ongoing row on whether the Heglig field in Block 2 is in the north or south. In 2009, the Permanent Court of Arbitration in The Hague ruled that two of Sudan's oil fields from this block (Heglig and Bamboo) belong to the North. The negotiations over the future of these fields and the Abyei region have delayed the investments needed to offset declines.

Block 6 (Sudan)

The Fula oil fields were found in Block 6 in 2001 and began production in March 2004 at a rate of 10,000 bbl/d. In 2011, the block produced about 55,000 bbl/d of highly acidic crude. The block's operator, CNPC, has constructed a pipeline that links the Fula fields to the Khartoum refinery where it is processed largely for Sudan's domestic use. The block is located in the northwest of Muglad Basin. CNPC holds 95 percent equity of the block and Sudapet holds the remaining 5 percent.

Block 5A (South Sudan)

Block 5A is operated by WNPOC, and consists of the Thar Jath and Mala oil fields located in the Muglad Basin. In 2011, the block produced around 15,000 bbl/d of Nile Blend. Oil from the field flows through a 110-mile pipeline to Unity field, where it is shipped to Port Sudan on the GNPOC pipeline.

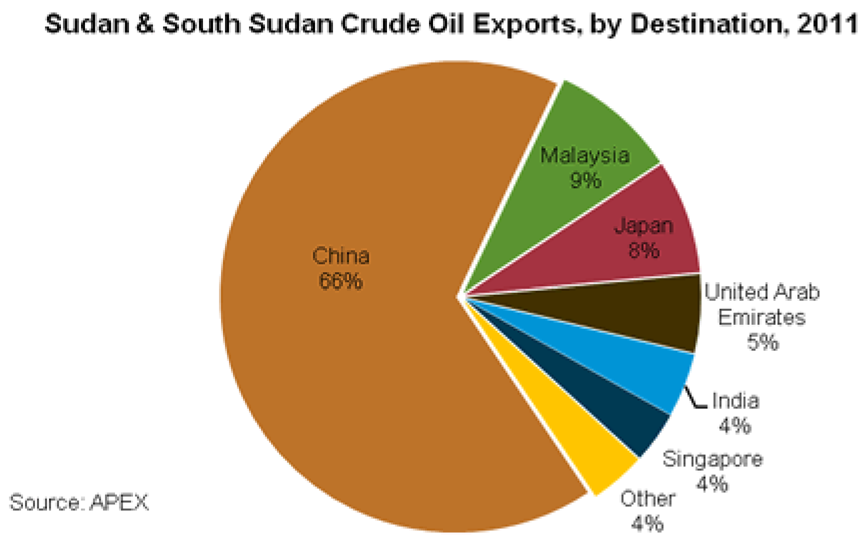
Blocks 3 and 7 (South Sudan)

Blocks 3 and 7 are operated by the consortium Petrodar and are located in the Melut Basin, in the northeast of South Sudan, and cover an area of 72,400 square kilometers. The basin contains the Fal, Adar Yale, and Palogue oil fields. In November 2005, CNPC brought online the Petrodar pipeline linking the two blocks to Port Sudan. The pipeline runs about 850 miles north and has a current throughput of 300,000 bbl/d and maximum capacity of 500,000 bbl/d. In 2011, production from these two blocks was around 230,000 bbl/d of Dar Blend, which is a heavy and highly acidic crude stream.

Exports

South Sudan exports two major oil streams: the Nile and Dar Blends. Nile is a medium, sweet crude while the Dar Blend is a heavy, sour crude. Both are exported mostly to Asian markets and trade at a discount to Indonesian Minas, the Asian benchmark crude.

According to international trade data, Sudan and South Sudan exports averaged 330,000 bbl/d in 2011 and went almost exclusively to Asian markets. China imported around 220,000 bbl/d (two-thirds of total exports and 5 percent of Chinese imports) followed by Malaysia (30,000 bbl/d) and Japan (25,000 bbl/d). Sudan and South Sudan also exported some processed fuels to neighboring countries. Ethiopia imports most of its fuel from them, but official data on trade volumes are not available.



In December 2011, Khartoum blocked exports of South Sudanese oil from leaving Port Sudan. Since then, the Sudanese government has released some shipments to buyers, but South Sudan believes that more cargoes are still awaiting shipment. International trade data shows that in January 2012 about 12.8 million bbl of crude oil were loaded and shipped from Port Sudan to various Asian countries; however, the data does not discern whether the crude's origin is from the North or South.

Some of the oil shipped is being disputed by South Sudan. In mid-February, a tanker arrived off the coast of Japan and was unable to unload 600,000 bbl of Nile Blend because the South claimed it was oil seized by the North. According to the South Sudanese government, the oil was provided by GNPOC in mid-January, and according to industry sources, the crude was sold at a deep discount to an Asian trader. The case was taken to a British court, and almost two weeks after the shipment arrived, the tanker's owner was granted permission by the court to unload in Japan.

At the time of writing, the South also claims that the North has put 1.9 million bbl of Dar Blend onto three tankers, most of which is still on the coast of Sudan and some off the coast of Singapore. The disputed cargoes could present problems to buyers because of the potential litigation and financial costs.

Refining

Sudan has three refineries located in Khartoum, Port Sudan, and El-Obeid; with total refinery capacity just under 122,000 barrels per cal day, according to the OGJ. The largest refinery, located 70 kilometers north of Khartoum, came online in 2000 with a capacity of 50,000 bbl/d. It is a joint venture between CNPC and the Sudanese government.

The Khartoum refinery expanded to 100,000 bbl/d in 2006. This expansion allowed it to process two streams of crude, the Nile Blend and the more acidic, heavier Fula Blend. According to CNPC, the Khartoum Refinery was the first modern refinery with the world's first delayed coking unit for high-acid and high-calcium crude oil. Sudan's refined products primarily feed domestic consumption and smaller quantities of product exports. In 2010, total Sudan and South Sudan consumption was 98,000 bbl/d; most of which was consumed in the north.

There is no refinery in South Sudan. The pipeline project that South Sudan expects to undertake with Kenya includes plans for building a refinery in Lamu. The South Sudanese government has also mentioned potential plans to build domestic refineries to export petroleum products to regional markets, such as Kenya, Uganda, and Ethiopia.

Links

U.S. Government

CIA World Factbook - Sudan
USAID - Sudan
U.S. State Department Consular Information Sheet - Sudan
U.S. Treasury Department Office of Foreign Asset Control

General Information

BBC Country Profile: Sudan
European Coalition on Oil
International Monetary Fund - Sudan
U.S. Institute of Peace
United Nations Security Council Sudan Sanctions Committee
China National Petroleum Company (CNPC)
Greater Nile Petroleum Operating Company (GNPOC)
Oil and Natural Gas Corporation (ONGC
Petrodar
Petronas
Sudapet
White Nile Petroleum Operating Company (WNPOC)

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