



# 2013 Minerals Yearbook

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## SOUTH SUDAN

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# THE MINERAL INDUSTRY OF SOUTH SUDAN

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South Sudan is composed of the former Sudanese States of Central Equatoria, Eastern Equatoria, Jonglei, Lakes, Northern Bahr el Ghazal, Unity, Upper Nile, Warrap, Western Bahr el Ghazal, and Western Equatoria. The country became independent from Sudan on July 9, 2011. South Sudan was not a regionally or globally significant producer or consumer of minerals and mineral fuels in 2013. Crude petroleum production, however, played a central role in the South Sudanese economy.

After independence, Sudan's oilfields were divided between South Sudan and Sudan, but control of the Abyei Area was disputed by the Governments of South Sudan and Sudan. On December 15, 2013, civil war that was unrelated to the Abyei dispute broke out in Juba. Within 2 weeks, combat had spread to the oil-producing States of Unity and Upper Nile (Vogt, 2013).

Investment in Sudan's petroleum and petrochemical industries by U.S. individuals and organizations was banned by Executive Order 13412, which was issued by the President of the United States on October 13, 2006. The alleged use of revenues from petroleum sales to finance military operations in the Darfur conflict constituted the primary reason for the Executive order. U.S. individuals and organizations were banned from participating in the refining of South Sudanese crude petroleum in refineries located in Sudan (Bush, 2006; U.S. Office of Foreign Assets Control, 2011).

In 2012, the National Legislature of South Sudan passed the Mining Act of 2012 and the Petroleum Act of 2012. The Mining Act was signed into law on March 7, 2013. The Mining Act established renewable exploration licenses and nonrenewable reconnaissance licenses for mineral exploration with terms of 5 and 2 years, respectively. Large-scale, small-scale, and artisanal mining licenses were also established. The Mining Act set the corporate tax rate at 20% and allowed the Government to purchase as much as a 15% share in large-scale mining operations (Dau, 2013, p. 6, 15–16; Metal Bulletin, 2013).

In mid-March, the Government announced that it had repealed all 53 licenses granted by the Ministry of Mines and all other licenses by State governors before the passage of the Mining Act. The Government granted grandfather rights to two companies and allowed other companies to apply for grandfather rights (Metal Bulletin, 2013).

## Minerals in the National Economy

In 2013, the petroleum sector accounted for 14.7% of the gross domestic product (GDP) compared with 7.4% in 2012 and 61.3% in 2011. Fluctuations in the share of the petroleum sector in the GDP were attributable to decreased petroleum production in 2012 and increased petroleum production in 2013 (South Sudan National Bureau of Statistics, 2014).

## Production

In 2013, South Sudan's crude petroleum production increased by an estimated 389% after decreasing by an estimated 84% in 2012. Gold and construction materials, such as brick clay, were also produced but no output was reported (table 1).

## Structure of the Mineral Industry

Crude petroleum was produced by joint ventures of state-owned companies from China, India, Malaysia, and South Sudan. Nile Petroleum Corp. (Nilepet), which was owned by the Government of South Sudan, held shares of at most 8% in the petroleum joint-venture projects. Gold was produced by artisanal miners.

## Commodity Review

### Metals

**Gold.**—Artisanal miners produced gold at Nanakanak in Eastern Equatoria State. In January 2013, the Government renewed the exploration licenses for Equator Gold Ltd. of the United Kingdom at the Luri project and for New Kush Exploration & Mining Ltd. (NKEM) at the Eastern Equatoria Kapoeta project. NKEM planned to spend between \$10 million and \$20 million on exploration at Eastern Equatoria Kapoeta by the end of 2015 (Dau, 2013, p. 19).

### Industrial Minerals

**Cement.**—South Sudan imported all its cement requirements in 2013. Cement consumption was estimated to be about 350,000 metric tons in 2012. Dangote Cement plc of Nigeria planned to build a new plant in South Sudan with a capacity of 1.5 million metric tons per year by 2016 (Dangote Cement plc, 2013; International Cement Review, 2013).

### Mineral Fuels

**Petroleum.**—All South Sudan's crude petroleum production was exported through pipelines that ran through Sudan. In 2011, South Sudan paid a pipeline transit fee of \$4 per barrel for existing oilfields and had agreed to pay a transit fee of \$7 per barrel for oil from oilfields that might be discovered in the future. Late in 2011, however, the Government of Sudan demanded that South Sudan pay between \$32 and \$36 per barrel as compensation for revenues lost after secession. In December 2011, the Government of Sudan started to divert South Sudanese petroleum exports to its refineries. In response, the Government of South Sudan suspended all South Sudanese crude petroleum production by the end of January 2012 (Petroleum Economist, 2011; Patey, 2014).

In March 2013, an agreement between the Governments of South Sudan and Sudan on transit fees through 2015 came into force. South Sudan agreed to pay \$11 for petroleum transported from Blocks 1, 2, and 4, and \$9.10 per barrel for petroleum transported from Blocks 3 and 7. In addition, South Sudan agreed to pay \$3 billion to Sudan as compensation for lost revenues. South Sudan's petroleum production restarted in April 2013 (Petroleum Economist, 2013; Patey, 2014).

The Greater Nile Petroleum Operating Co. [China National Petroleum Corp. (CNPC) (40%), Petronas Carigali Overseas Shd. Bhd. of Malaysia, (30%), ONGC Videsh Ltd. of India (25%), and Nile Petroleum Corp. (Nilepet) (5%)] produced crude petroleum at the El-Haar, the El-Nar, the El-Toor, the Khairat, the Khairat Northeast, the Toma South, and the Unity oilfields in Blocks 1, 2, and 4, which were located in Unity State. In late 2013, production from the oilfields located south of the South Sudan-Sudan national border in Blocks 1, 2, and 4 was about 40,000 barrels per day (bbl/d) (Dau, 2013, p. 7).

Block 5A is located in the Muglad Basin in Unity State. Block 5A was held by White Nile Petroleum Operating Co. [Petronas (67.9%), ONGC Videsh (24.1%), and Nilepet (8%)]. Output was about 5,000 bbl/d in late 2013. In late December, ONGC Videsh announced the suspension of production in Blocks 1, 2, 4, and 5A because of civil war (Dau, 2013, p. 7; Vogt, 2013).

Blocks 3 and 7 in Upper Nile State were held by the Petrodar Consortium [CNPC (41%), Petronas (40%), Nilepet (8%), China Petroleum and Chemical Corp. (6%), and Tri-Ocean Energy of Egypt (5%)]. In late 2013, production from Blocks 3 and 7 was about 200,000 bbl/d (Dau, 2013, p. 7).

Total S.A. of France and its joint-venture partners held Block B in Jonglei State. In September 2013, the Government announced plans to divide Block B into Blocks B1, B2, and B3. The Government planned to invite bids for the exploration rights to Block B3 (Thomson Reuters, 2013).

All South Sudan's petroleum products requirements were imported. Nilepet and Safinat Group of Russia had planned to start construction on a new 5,000-bbl/d-capacity refinery at Bentiu in Unity State in July 2013 and to start production by yearend. In late November, the Government announced plans to start construction by yearend; the project was postponed because of poor road conditions that delayed deliveries of equipment. The Government also announced plans to complete construction of a 12,000-bbl/d-capacity refinery in Unity State by the end of 2014 (Bariyo, 2013; Ngor, 2013).

In September 2012, the Governments of Kenya and South Sudan signed an agreement to build a new 2,000-kilometer crude petroleum pipeline between the two countries. The completion of the pipeline was scheduled for 2017. The estimated cost of the pipeline was about \$3 billion (Muchira, 2012; Addis Fortune, 2013).

## Outlook

Before the suspension of production in Blocks 1, 2, 4, and 5A, South Sudan's crude petroleum production had been expected to reach a peak of nearly 300,000 bbl/d in 2014 and to decline subsequently to less than 200,000 bbl/d by 2019 and less than

100,000 bbl/d by 2026 without substantial new investments. Higher levels of output may be sustained with new discoveries or increased recovery rates. The estimated cost of increasing recovery rates for a single field was about \$300 million. During the suspension of production between the end of January 2012 and April 2013, the pipeline from Blocks 3 and 7 was filled with chemically treated water that accelerated internal corrosion. Further damage to the pipeline could result if civil war in Upper Nile State forces production to be suspended again (Dau, 2013, p. 8; Patey, 2014).

At the end of 2013, it was unclear when production would restart in Blocks 1, 2, 4, and 5A. The extent of delays in the opening of the cement plant and the petroleum pipeline and refineries because of the civil war were also unclear. The development of large-scale mines could take many years because of the lack of power and roads. South Sudan had only 300 kilometers of paved roads at the end of 2012 (Holland, 2013).

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TABLE 1  
SOUTH SUDAN: PRODUCTION OF MINERAL COMMODITIES<sup>1,2</sup>

(Thousand 42-gallon barrels)

Commodity <sup>3</sup>	2011	2012	2013
Petroleum, crude <sup>c</sup>	57,000 <sup>r</sup>	9,000 <sup>r</sup>	44,000

<sup>c</sup>Estimated; estimated data are rounded to no more than three significant digits. <sup>r</sup>Revised.

<sup>1</sup>Table includes data available through May 20, 2014.

<sup>2</sup>Data for 2011 are from July 9 to December 31; South Sudanese production was included in Sudan until independence on July 9, 2011.

<sup>3</sup>In addition to crude petroleum, gold and such construction materials as brick clay were produced, but available information is inadequate to estimate output.

TABLE 2  
SOUTH SUDAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2013

(Thousand 42-gallon barrels unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Gold kilograms	Artisanal miners	Mines at Nanakanak	NA
Petroleum, crude <sup>1</sup>	Petrodar Consortium [China National Petroleum Corp. (CNPC), 41%; Petronas Carigali Overseas Shd. Bhd., 40%; Nile Petroleum Corp. (Nilepet), 8%; China Petroleum and Chemical Corp., 6%; Tri-Ocean Energy, 5%]	Blocks 3 and 7 in Upper Nile State	91,500
Do.	Greater Nile Petroleum Operating Co. [China National Petroleum Corp. (CNPC), 40%; Petronas Carigali Overseas Shd. Bhd., 30%; ONGC Videsh Ltd., 25%; Nile Petroleum Corp. (Nilepet), 5%]	Blocks 1, 2, and 4 in Unity State <sup>2,3</sup>	32,200
Do.	White Nile Petroleum Operating Co. [Petronas Carigali Overseas Shd. Bhd., 67.9%; ONGC Videsh Ltd., 24.1%; Nile Petroleum Corp. (Nilepet), 8%]	Block 5A in Unity State <sup>3</sup>	4,400

Do. Ditto. NA Not available.

<sup>1</sup>In addition to the facilities listed, about 1.8 million barrels per year of crude petroleum was produced in the Abyei Area, which was claimed by both South Sudan and Sudan.

<sup>2</sup>El-Haar, El-Nar, El-Toor, Khairat, Khairat Northeast, Toma South, and Unity oilfields only. The Bamboo, Bamboo West, Garaad, Heglig, Taiyib, and Toma oilfields remained in Sudan.

<sup>3</sup>Not operating at the end of 2013.