# 2014 Minerals Yearbook

## SOUTH SUDAN

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# The Mineral Industry of South Sudan

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South Sudan became Africa's newest independent country with the official name of the Republic of South Sudan in 2011 after a referendum to secede from Sudan. The landlocked country includes 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. South Sudan's proven crude oil reserves were estimated to be 3.5 billion barrels at the end of 2014, which were the sixth largest in Africa. Otherwise, the country was not a significant producer or consumer of minerals and mineral fuels (BP p.l.c., 2015, p. 6; U.S. Central Intelligence Agency, 2015).

Only a fraction of the country had been geologically surveyed in 2014; most exploration was for gold. The Ministry of Petroleum and Mining had identified mineral resources that included copper, gold, iron ore, lead, manganese, and zinc. Large dolomite, marble, and uranium deposits were also identified in the country (Dau, 2013, p. 14).

## Government Policy and Programs

The Mining Act of 2012 and the Petroleum Act of 2012 were signed into law on March 7, 2013. The Mining Act established six types of licenses—artisanal, exploration, large-scale mining, reconnaissance, retention, and small-scale mining. Exploration licenses are awarded for an initial 5-year term and are renewable for additional 2- to 5-year terms. Reconnaissance licenses are granted for a nonrenewable 2-year term. Large-scale mining licenses are awarded for a 25-year term and can be extended for 20 years, and small-scale licenses are granted for a 10-year term and can be renewed for another 10 years. Licenses are issued for up to 5 years for exploration and up to 6 years for mining. Artisanal mining licenses however, must be renewed annually and can be extended an unlimited number of times. 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 (Ministry of Petroleum and Mining, 2013).

In 2013, the Government repealed all 53 licenses granted by the Ministry of Mines and all licenses issued by State governors before the passage of the Mining Act of 2012. The Government granted grandfather rights to two companies and allowed other companies to apply for grandfather rights (Metal Bulletin, 2013).

No mining permits were issued during 2014 because the Government was focused on developing fuel minerals and because of the armed conflict, which continued throughout 2014. The armed conflict forced the Government to postpone the start of large-scale gold mining to 2017, which had been planned to start in 2016 (Africa Report, The, 2014).

## Minerals in the National Economy

In 2014, South Sudan's nominal gross domestic product (GDP) at purchasing power parity was estimated to be about $26.0 billion. The country's real GDP increased by 5.5% in 2014 compared with an increase of 24.2% in 2013 and a decrease of 46.8% in 2012. The increases in 2013 and 2014 were attributed to increased crude oil production compared with that of 2012. The real nonoil GDP decreased by 10.3% in 2014 compared with an increase of 4.1% in 2013 and a decrease of 0.8% in 2012. Total investment in the country, which was directed mainly to the petroleum sector, averaged 10.6% of the GDP annually from 2012 to 2014. Net foreign direct investment, however, averaged -2.0% of the GDP annually during the same period. South Sudan's exports, which were mainly crude oil, increased to 41.7% of the GDP compared with 27.7% in 2013 and 9.8% in 2012 (International Monetary Fund, 2015, p. 73–74, 78, 89, 93).

Crude petroleum production provided more than 90% of the Government's revenue. In 2013 (the latest year for which the data were available), the petroleum sector accounted for 14.7% of the GDP compared with 7.4% in 2012 and 61.3% in 2011. Variations in the oil sector's share of the GDP were attributed to changes in production volumes during the past 3 years (South Sudan National Bureau of Statistics, 2014).

## Production

In 2014, South Sudan's petroleum production increased by about 61% to 58.0 million barrels (Mbbl) from 36.1 Mbbl (revised) in 2013 and 11.3 Mbbl (revised) in 2012. The output, which averaged 159,000 barrels per day (bbl/d) in 2014, was well below the Government's estimates of the country's capacity of between 350,000 bbl/d and 400,000 bbl/d, and below the 326,000 bbl/d produced from South Sudan's oilfields in 2011. Gold was produced by artisanal miners, and building materials, such as brick clay, were also produced, but available information was inadequate to make reliable estimates of output (table 1; Dau, 2013, p. 4; Bloomberg L.P., 2014).

## Structure of the Mineral Industry

Crude petroleum was produced by joint-venture companies, including China National Petroleum Corp. (CNPC), Petronas Carigali Overseas Shd. Bhd. of Malaysia, ONGC Videsh Ltd. of India (25%), and Nile Petroleum Corp. (Nilepet). Gold was produced in South Sudan by an estimated 60,000 artisanal miners in the Nanakanak mines in eastern South Sudan (table 2; McNeish, 2013).

## Commodity Review

### *Metals*

**Gold.**—In 2014, two companies held permits to explore for gold in South Sudan, Consolidated Mineral & Energy Resources Investment Co. Ltd. (CMERIC) and New Kush Exploration & Mining Ltd. (NKEM). A joint venture of CMERIC and Equator Gold Ltd. of the United Kingdom held an exploration license for gold at the Luri gold project. Equator Gold was expected to provide up to $11 million for management and exploration of the project, and in return, it would earn up to 85% interest in the joint venture. NKEM, which had been working in South Sudan since 2006, held a gold reconnaissance license at the Eastern Equatoria Kapoeta area. NKEM carried out field mapping activities and planned to conduct a feasibility study, satellite imagery, and trial mining. No information was available about recent company activities owing to disruptions caused by the armed conflict in the country throughout 2014 (Equator Gold Ltd., 2015; New Kush Exploration & Mining Company Ltd., 2015).

### *Industrial Minerals*

**Cement.—**As of yearend 2014, cement had never been produced in South Sudan. Thus, the country had to import all its cement requirements. Dangote Cement plc of Nigeria, which planned to build a plant with a capacity of 1.5 million metric tons per year in South Sudan by 2016, put its plans on hold in 2014 owing to the armed conflict (International Cement Review, 2014).

### *Mineral Fuels*

**Petroleum.—**In April 2013, the Government of South Sudan resumed crude oil production and transport through the pipelines, which were owned by the Government of Sudan, after about 15 months of stoppage because of a dispute between the two Governments on transit fees. Crude oil production was partially halted again in December 2013 and throughout 2014 because of the armed conflict between parties loyal to the President and those loyal to his former deputy. Crude oil output decreased by about one-third after fighting erupted and the only functioning oilfields were in Block 3 and 7 in the Paloch region, which is located in the State of Upper Nile. Other oilfields, which are located in the State of Unity, were captured by insurgents and were not operating (Vogt, 2013; Patey, 2014; U.S. Energy Information Administration, 2014).

In 2014, the Government appeared to have canceled a plan to build a 50,000-bbl/d-capacity oil refinery in Akon County in the State of Warrap that was approved by the Cabinet in 2009. Akon Refinery Company Ltd. was a joint venture of Nilepet and Eyat Oilfield Services Co. Ltd. to operate the Akon refinery. The cancellation was attributed to the distance [240 kilometers (km)] between the location of the proposed refinery and the nearest producing oilfields. In 2014, Ventech Engineers International LLC of the United States stopped the construction of a 10,000-bbl/d-capacity refinery at Melut County in the State of Upper Nile owing to the armed conflict (Akon Refinery Company Ltd., 2010; Bloomberg L.P., 2014; Radio Tamazuj, 2015).

Nilepet and Safinat Group of Russia had planned to start construction on a new 5,000-bbl/d-capacity refinery at Bentiu in the State of Unity in July 2013 and to start production by yearend. In late November, the Government announced plans to start construction by yearend. In April 2014, five of Safinat's refinery workers were killed at the refinery construction site as a result of fighting between Government forces and the armed opposition (Bariyo, 2013; Ngor, 2013; Ministry of Foreign Affairs of the Russian Federation, 2014).

South Sudan has been exporting crude oil by two pipelines that ran through Sudan from to the Marsa Bashayer oil terminal in Port Sudan on the Red Sea. The Government however, was actively involved in signing agreements with neighboring countries to set up additional pipelines to export its current and future petroleum output. The proposed pipelines included a 2,000-km pipeline to transport crude oil from the State of Unity oilfields through the Lokichar basin in northern Kenya to Port Lamu on the Indian Ocean, and a 1,000-km pipeline that would carry crude oil from oilfields in the State of Upper Nile in South Sudan to River Port in Djibouti through Ethiopia (Addis Fortune, 2013; U.S. Energy Information Administration, 2014).

## Outlook

The armed conflict in the country, which started in 2013 and continued throughout 2014, hindered the development of the mineral sector of South Sudan. Petroleum production was reduced by one-third from the level of December 2013 and the openings of a cement plant and new oil refineries were delayed. The lack of infrastructure in the country, especially powerplants and roads, could limit the start of large-scale mining in the country in the near future.

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TABLE 1
SOUTH SUDAN: PRODUCTION OF MINERAL COMMODITIES[1, 2]

(Thousand 42-gallon barrels)

| Commodity[3] | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|
| Petroleum, crude | 57,000 e | 11,315 r | 36,135 r | 58,035 |

[e]Estimated; estimated data are rounded to no more than three significant digits. [r]Revised.
[1]Table includes data available through September 4, 2015.
[2]Data for 2011 are for July 9 to December 31; South Sudan's production was included with Sudan until independence on July 9, 2011.
[3]In addition to crude petroleum, gold and such construction materials as brick clay were produced, but available information is inadequate to make reliable estimates of output.

TABLE 2
SOUTH SUDAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(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[1] | | Dar Petroleum Operating Co. [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 Pioneer 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[2, 3] | 32,200 |
| Do. | | Sud 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[3] | 4,400 |

Do. Ditto. NA Not available.
[1]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.
[2]The 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.
[3]Not operating at the end of 2014.