



# 2015 Minerals Yearbook

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**SOUTH SUDAN [ADVANCE RELEASE]**

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# THE MINERAL INDUSTRY OF SOUTH SUDAN

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South Sudan's mineral sector was dominated by the production of crude petroleum. Its proven crude petroleum reserves were estimated to be 3.5 billion barrels at the end of 2015 and were the sixth largest in Africa. The country hosted deposits of copper, diamond, gold, iron ore, lead, limestone, manganese, marble, and zinc. In 2015, South Sudan was not a globally significant producer or consumer of mineral commodities. Although a peace agreement was signed on August 26, armed conflict between Government and opposition forces continued in the northern and southwestern areas of the country (African Development Bank Group, 2013, p. 71; Dau, 2013, p. 13; Al Jazeera, 2015; BP p.l.c., 2016, p. 6).

The Mining Act of 2012 and The Petroleum Act of 2012 provided regulatory frameworks for the development and management of mining and petroleum activities. The Mining Act established the following 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 an additional two terms of 5 years each. Reconnaissance licenses are granted for a nonrenewable 2-year term. A large-scale mining license is awarded for a 25-year term that can be extended for 20 years, and a small-scale license is granted for a 10-year term and is renewable for another 10 years. Artisanal mining permits must be renewed annually, but they may be renewed an unlimited number of times. The Mining Act allows the Government to purchase as much as a 15% share in large-scale mining operations (Dau, 2013, p. 14; Ministry of Petroleum and Mining, 2013).

The Mining (Mining Title) Regulations of 2015 and the Petroleum Health, Safety and Environmental Management System and Plans Regulations of 2015 were signed into law on March 5, 2015, and March 31, 2015, respectively. As provided under the Mining Act of 2012, the Mining (Mining Title) Regulations of 2015 establish regulations for exploration titles, mining titles, and operations that address the application process, corporate social responsibility, legal definitions and requirements, land use, license terms, rehabilitation and mine closure requirements, and reporting requirements. The regulations also established a Mining Committee to implement the tender process for the granting of exploration and large-scale mining licenses. The Petroleum Health, Safety and Environmental Management System and Plans Regulations of 2015 establish the Environmental Management Plan and the Health and Safety Management Plan. These regulations require companies to develop and implement both plans and to report each year on the results of an annual independent audit of program outcomes and performance. Entities must also comply with a set of international standards, in addition to the environmental and health standards set forth in the regulation. The regulation also establishes requirements, processes, durations, and Ministry responsibilities regarding enforcement of the regulations (Ministry of Petroleum and Mining, 2015a, b).

In 2015, the Government granted 16 exploration licenses to 11 companies. Exploration licenses were granted for 18 unique mineral commodities. Gold and copper, which were the commodities most commonly listed, were included on 15 and 6, respectively, of the 16 exploration licenses granted in 2015 (Ministry of Petroleum and Mining, 2016).

In 2015, development of the 42-megawatt (MW)-capacity Fula Rapids hydroelectric powerplant was halted because of the armed conflict in the country. The project, which was located on the White Nile River near the town of Nimule, included a 151-kilometer (km) transmission line to Juba. The plant was being constructed by Aldwych International Ltd. of the United Kingdom and was funded by the Norwegian Investment Fund for Developing Countries (Norfund). In June, Central Equatoria Mining and Cement Co. announced plans to construct a 50-MW-capacity powerplant and a 1-million-metric-ton-per-year (Mt/yr)-capacity cement plant in Kajo-Keji (Aldwych International Ltd., 2014; Moi, 2015; Norfund, 2016, p. 3, 5, 35).

## Minerals in the National Economy

In 2015, South Sudan's real gross domestic product (GDP) decreased by 0.2% compared with an increase of 2.9% in 2014 and an increase of 29.3% in 2013. The real GDP (excluding oil) decreased by 1.2% in 2015 compared with a decrease of 17.5% in 2014 and an increase of 4.1% in 2013. Total investment in the country, which was directed mainly to the petroleum sector, decreased to 9.9% of the GDP from 11.5% of the GDP in 2014. The average total investment as a percentage of the GDP from 2011 to 2015 was 10%, which was less than the 21% average for sub-Saharan African countries overall. Net foreign direct investment decreased by 4.9% in 2015 and decreased at an average of 1.9% of the GDP annually for the period 2011 to 2015. The value of exports, which were composed mainly of crude petroleum, increased by 108.5% of the GDP from 37.7% of the GDP in 2014 (International Monetary Fund, 2016, p. 27, 84–85, 89, 100, 104; U.S. Central Intelligence Agency, 2016).

In 2015, crude petroleum production contributed about 62% to the Government's budget revenue. In 2013, the petroleum sector accounted for 14.7% of the GDP compared with 7.4% in 2012 and 61.3% in 2011. Crude petroleum production volumes, which were negatively affected by the armed dispute and negotiations with Sudan concerning the pipeline transit fees, accounted for the variations in the petroleum sector's share of the GDP during the past 3 years (National Bureau of Statistics, 2014; Ministry of Finance and Economic Planning, 2015, p. 3; 2016, p. 3).

## Production

In 2015, South Sudan's petroleum production was estimated to have decreased by about 4.5% to 54 million barrels (Mbbl) from a revised 56.6 Mbbl in 2014. The output, which averaged about 148,000 barrels per day (bbl/d) in 2015, was well

below the Government's estimates of the country's capacity of between 350,000 and 400,000 bbl/d. In 2011, production had reached 326,000 bbl/d. Gold was produced by artisanal miners, and building materials, such as brick clay, were also produced, but the information available was insufficient to make reliable estimates of the output (table 1; Dau, 2013, p. 4; Bloomberg L.P., 2014).

### Structure of the Mineral Industry

Crude petroleum was produced by joint ventures of state-owned companies, including China National Petroleum Corp. (CNPC) of China, Nile Petroleum Corp. (Nilepet) of South Sudan, ONGC Videsh Ltd. of India, and Petronas Carigali Overseas Shd. Bhd. of Malaysia. The Government had estimated that more than 60,000 artisanal miners produced gold in the country (table 2; Cordaid, 2016, p. 23).

### Commodity Review

#### Metals

**Gold.**—In 2015, the Ministry of Mining and Petroleum issued 15 exploration licenses for gold; however, only two companies were active in the country. A joint venture of Consolidated Mineral & Energy Resources Investment Co. Ltd. (CMERIC) and Equator Gold Ltd. of the United Kingdom explored for gold at the Luri gold project. In October, Equator Gold reported that three gold targets at the Luri gold project had been identified—the Confluence target, the GT target, and the Togolo target. The company reported that two of the three targets were set to be drilled. Equator Gold participated in an earn-in agreement with CMERIC by which Equator Gold could earn a 65% to 85% interest for providing from \$1 million to \$11 million of exploration capital for the project (Equator Gold Ltd., 2015, p. 10; 2016; Nation Mirror, The, 2015).

New Kush Exploration & Mining Company Ltd. (NKEM) held a gold exploration license at the Eastern Equatoria Kapoeta area. In 2015, NKEM completed trenching and identified areas of interest in Anaknak, which is located east of the town of Kapoeta, and Napatpot, which is located near Narus. The company continued field mapping activities and planned to conduct drilling, a feasibility study, satellite imagery, and trial mining (New Kush Exploration & Mining Company Ltd., 2015; Cordaid, 2016, p. 41).

#### Industrial Minerals

**Cement.**—In June, the Central Equatoria Mining and Cement Co. announced plans to construct a 1-Mt/yr cement plant in the town of Kajo-Keji in Central Equatoria State. The project was expected to employ 6,000 workers and included the construction of a 50-MW powerplant, a health center, a school, and a sports stadium. The Government and Central Equatoria State had a combined 30% interest in the company; the remaining interest was owned by private foreign investors. South Sudan did not produce cement and relied on imports to meet domestic demand (International Cement Review, 2014; Moi, 2015).

### Mineral Fuels

**Petroleum.**—In 2015, production of crude petroleum was reported to have decreased by 4.5% compared with that of 2014 because of technical issues and continued fighting. By yearend 2015, production of crude petroleum was reported to have decreased by up to 10% during the second half of the year. In May 2015, workers were evacuated from Blocks 3 and 7 in the Paloch region in Upper Nile State because of the armed conflict. Blocks 3 and 7 were the only producing oilfields in the country. Throughout the first half of 2015, efforts to restart crude petroleum production in Blocks 1, 2, 4, and 5A, all of which are located in Unity State, were delayed because of continued fighting. In 2014, crude petroleum output had decreased by about one-third, as oilfields in Unity State were captured by insurgents and were therefore out of commission. In 2013, before fighting began in December, the country had produced 240,000 bbl/d of crude petroleum (African Energy, 2015a, b; Butty, 2015; Sudan Tribune, 2015a–c).

South Sudan exported crude petroleum to the Bashayer Maine Terminal in Sudan by two pipelines—the PeroDar pipeline and the GNPOC pipeline. The PeroDar pipeline transported oil from Blocks 3 and 7 and the GNPOC pipeline transported oil from Blocks 1, 2, 4, and 5A. The Government was involved in negotiations with neighboring countries, through the Northern Corridor Integration Projects (NCIP) initiative, to build an additional pipeline. Proposed pipelines included a 2,000-km pipeline to transport crude petroleum from Unity State oilfields by way of the Lokichar basin in northern Kenya to Port Lamu on the Indian Ocean, and a 1,000-km pipeline that would carry crude petroleum from oilfields in Upper Nile State in South Sudan to River Port in Djibouti by way of Ethiopia. By yearend 2015, a decision between the NCIP member nations regarding the pipeline route had yet to be reached (Addis Fortune, 2013; U.S. Energy Information Administration, 2014; Northern Corridor Projects, 2015).

### Outlook

Success in developing the mineral sector will require substantial investment in infrastructure, especially powerplants and roads needed to support large-scale mines. Transparent enforcement of mining regulations by regulatory institutions has been shown to be important to attracting foreign direct investment in the minerals sector. Security concerns resulting from social and political unrest will likely continue to restrain the development of the minerals sector. In the short to medium term, increasing petroleum output to balance the Government budget remains a challenge because of low oil prices, continued fighting, and the resulting damaged petroleum infrastructure. Long-term issues and challenges include cyclical commodity prices, developing diverse sources of Government revenue, and attracting and making investments in infrastructure and the social sector.

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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	2014	2015
Petroleum, crude	57,000 <sup>c</sup>	11,315 <sup>4</sup>	36,500 <sup>r,4</sup>	56,575 <sup>r,4</sup>	54,020 <sup>4</sup>

<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 June 8, 2016.

<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 was inadequate to make reliable estimates of output.

<sup>4</sup>Source: BP Statistical Review.

TABLE 2  
SOUTH SUDAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(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>	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. Ltd. [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.	Sudd 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 2015.