



# 2019 Minerals Yearbook

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**LAOS [ADVANCE RELEASE]**

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# THE MINERAL INDUSTRY OF LAOS

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In 2019, Laos was the second-ranked producer of refined bismuth after China and accounted for an estimated 14% of world production. Laos was also the 5th-ranked producer of barite, accounting for 5.0% of world production; the 11th-ranked producer of potash, accounting for less than 1% of world production; the 12th-ranked producer of mined antimony, accounting for less than 0.1% of world production; and the 14th-ranked producer of tin, accounting for less than 0.5% of world production. The country also produced other mineral commodities, such as cement, chromium, clay, coal, copper, feldspar, gold, natural gas, petroleum, salt, silver, and stone (table 1; Jasinski, 2021; Klochko, 2021; McRae, 2021; Merrill, 2021a, b).

## Minerals in the National Economy

In 2019, the real gross domestic product (GDP) of Laos increased by 5.5% compared with a 6.3% increase in 2018. The nominal GDP in 2019 was \$18.9 billion<sup>1</sup> (LAK164 trillion). The mining and quarrying sector accounted for 5.6% of the GDP in 2019 compared with 6.0% in 2018. The output of the mining and quarrying sector decreased by 0.1% compared with a decrease of 6.5% in 2018 (Lao Statistics Bureau, 2020, p. 78, 79, 82–84).

The legislative framework for the mineral sector in Laos is provided by the Law on Minerals (No. 04/NA) of 2008, which was amended in 2011 and 2017. The law defines the principles, regulations, and measures regarding the management, preservation, and production of minerals and mineral resources, and the inspection of mineral mining activities. The amendment passed in 2017 aims to centralize the management of mineral resources, develop a sustainable mineral industry, encourage domestic and foreign investment, provide effective enforcement standards, and provide a clear mechanism for dispute resolution (Investment Promotion Department, 2011; Arion Legal, 2017; Sengpaseuth, 2020; Open Development Laos, 2021).

In 2019, Laos's total exports of goods increased by 7.6% to \$5.81 billion from \$5.40 billion in 2018. Copper ore, refined copper, mixed gold, and gold bars were the main exported commodities of Laos. In 2019, exports of mineral products accounted for 36% of Laos's total exports and were valued at \$2.08 billion; base metals and articles of base metal, 7.8%, or \$451 million; and precious stones and precious metals, 3.8%, or \$223 million. The export value of precious stones and precious metals together increased by 21% in 2019 compared with the value in 2018; however, the value of mineral products and base metals and articles thereof decreased by 7.3% and 7.5%, respectively (Kang, 2020; Lao Statistics Bureau, 2020, p. 156–158).

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<sup>1</sup>Where necessary, values have been converted from Laotian kip (LAK) to U.S. dollars (US\$) at the annual average exchange rate of LAK8,687.44=US\$1.00 for 2019 and LAK8,407.27=US\$1.00 for 2018.

In 2019, Laos's total imports of goods decreased by 0.9% to \$5.80 billion from \$5.85 billion in 2018. Mineral fuels and iron and steel products were the main imported goods. In 2019, imports of mineral products accounted for 17% of Laos's total imports and were valued at \$1.01 billion; base metals and articles made of base metals, 13%, or \$728 million; and stone, plaster, and cement, 1.8%, or \$107 million (Kang, 2020; Lao Statistics Bureau, 2020, p. 156–158).

## Production

In 2019, increased demand for exports and domestic sales led to significantly greater mineral production in Laos. The production of high silica clay increased by more than 16 times from that of 2018; salt, by more than 9 times (the low production of salt in 2018 was owing to the effects of the tropical storms and floods in that year, which affected salt production especially); common clay, by approximately 6 times; iron ore (gross weight and Fe content), by 3.7 times; crushed limestone, by 272%; barite, by an estimated 111%; tin (mine, Sn content), by 22%; anthracite coal, by 13%; and lead (mine, Pb content), by an estimated 12%. The production of bismuth (refined) decreased by 65%; antimony (mine, Sb content), by 62%; silicon metal, by 51%; crushed sandstone, by 39%; copper (mine, Cu content), by 17%; and potash (K<sub>2</sub>O content), by 16% (Xinhua.net, 2018, 2019). Data on mineral production are in table 1.

## Structure of the Mineral Industry

As of 2019, the Government had granted licenses to 110 companies for mineral exploration and 171 companies for production of minerals; these companies were mostly privately owned. The Department of Geology and Minerals (DGM), which is under the Ministry of Natural Resources and Environment (MONRE), is responsible for conducting geologic and mineral surveys, managing investments, furthering geoscience research, and drafting relevant legislation. The Department of Mines (DOM) under the Ministry of Energy and Mines (MEM) supervises the management and promotion of mining, mineral processing, and trade of mineral products. Prospection and exploration licenses are issued by the MONRE and mining and processing licenses are issued by the MEM. Table 2 is a list of major mineral industry facilities (Keohavong, 2019, p. 2, 3; Xinhua.net, 2019; Department of Mines, undated, p. 6, 21, 22).

## Commodity Review

### Metals

**Bauxite and Alumina and Aluminum.**—As of 2019, there was no production of bauxite, alumina, or aluminum in Laos. Sino Lao Aluminum Corp. Ltd. (SLACO) planned to build a

complex composed of an open pit bauxite mine close to the Dong Hua Sao National Protected Area that would have a production capacity of 1.5 million metric tons per year (Mt/yr) and an alumina plant with a production capacity of 0.55 Mt/yr in Paksong District, Champasak Province. The company signed the engineering, procurement, and construction (EPC) cooperation framework agreement for the alumina plant with Chinalco International Engineering Co. Ltd. of China in September. However, the bauxite project was expected to be delayed owing to the collapse of the Xe Pian-Xe Namnoy dam in July, which was to supply power to the plant. In addition, cabinet ministers announced the release of an advisory statement suggesting restrictions on mining activity in the Bolaven Plateau area (Sino Lao Aluminum Corp. Ltd., 2018, 2019; Mekong Watch, 2020; Whong, 2020).

In September 2018, the Government of Laos and the Viet Phuong Group of Vietnam signed a contract to develop a bauxite mine and build an alumina processing plant in Dakcheung District, Sekong Province. This project would be Vietnam's biggest investment project (about \$650 million) in the mineral industry of Laos (Vietnam News, 2018).

**Copper.**—In 2019, Phu Bia Mining Ltd., which was 90% owned by PanAust Ltd. of Australia (which was, in turn, wholly owned by Guangdong Rising Assets Management Co. Ltd., a Chinese-state-owned company) produced 69,284 metric tons (t) of copper in salable concentrates at the Phu Kham copper-gold mine compared with 83,680 t in 2018. About 80% of the concentrates were transported to Hon La Port in Vietnam, and the remaining 20% was sent to Sriracha Harbor in Thailand; the concentrates were then shipped from these ports to China (PanAust Ltd., 2020a, c; 2021; United Nations Statistics Division, 2021).

In 2019, Chifeng Jilong Gold Mining Co. Ltd. of China produced 72,000 t of copper at the Sepon Mine. The company planned to produce 45,000 t in 2020 owing to depletion, as the mine was approaching the end of its life (projected for mid-2020). In November 2018, MMG Ltd., which was owned by China Minmetals Corp. (CMC) of China, divested 90% of its equity in Lane Xang Minerals Ltd. (LXML), which was the operator of the Sepon copper mine, to Chifeng Jilong (Laotian Times, The, 2018a, b; Daly, 2020; Lane Xang Minerals Ltd., 2021, p. 1).

The Government's revenue from mining dropped in 2019 owing mainly to the decrease in the global market price of copper. In addition, the two copper mines in the country—the Sepon Mine and the Phu Kham Mine—were approaching the end of their mine life, and production had been decreasing owing to depletion (Laotian Times, The, 2018b).

**Gold and Silver.**—In 2019, Laos produced 5,207 kilograms (kg) of gold and 34,443 kg of silver, which were decreases of 6.7% and 8.1%, respectively, compared with those in 2018. The production of gold and silver in Laos had decreased since 2015. In 2019, gold production decreased by 4.9% to 3,213 kg and silver production increased by 9.6% to 22,716 kg at the Ban Houayxai Mine, which was approaching the end of its mine life (projected for 2020). Production of gold from the Phu Kham Mine decreased to 1,995 kg, or by 9.4% compared with that in 2018, and production of silver decreased to 11,727 kg, or by 30% (table 1; PanAust Ltd., 2019, p. 18; 2020b, p. 8).

In September, Jo Bounmy Mining Development Co. Ltd. of the Jo Bounmy Group and the Ministry of National Defense together began the construction of infrastructure for a planned gold mine operation in Longchaeng District, Xaysomboun Province. The company had been in the process of conducting a feasibility study and exploration since 2017 (Kang, 2019).

### *Industrial Minerals*

**Cement.**—In 2019, Laos produced 5.2 Mt of cement compared with 4.8 Mt in 2018. As of January 2019, Laos had 16 cement plants in operation or under construction, for a total production capacity of 6.76 Mt/yr. Luang Prabang Conch Cement Co. Ltd. was a joint venture of Conch Group of China and Krittaphong Group of Laos. The company had a cement project in Nam Bak District, Luang Prabang Province, that had a designed production capacity of 300,000 metric tons per year. In March, the project moved to the equipment installation phase and was expected to begin production in 2020 (table 1; Global Cement, 2019a, b; Lao News, 2020).

### *Mineral Fuels*

**Petroleum.**—The completion of construction of the petroleum refinery in the Saysettha Development Zone (the first petroleum refinery in Laos) was expected in 2020. The project was being undertaken by Laos-China Dongyan Petrochemical Co. Ltd., which was a joint venture of Yunnan Dongyan Industrial Holding (75% share), Lao State Fuel Co. (20%), and Lao-China Joint Investment Co. Ltd. (5%). The plant would have a production capacity of approximately 8 million barrels per year, which would be sufficient to supply 50% of the domestic consumption of refinery products, including benzene, diesel, gasoline, and liquefied petroleum gas (Asia News Network, 2019; O&G Links, 2020).

### **Outlook**

The contribution of the mining sector to Laos's economy is expected to continue to decrease with the approach of the anticipated closure of the Sepon Mine and the Phu Kham Mine in 2020 owing to resource exhaustion. If the feasibility study and exploration of the gold deposit in Xaysomboun Province are successful, it will help extend metal mining in the country. The planned commissioning of the first modern petroleum refinery in 2020 is expected to aid economic growth by supplying a significant fraction of the refined petroleum products consumption in the country.

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TABLE 1  
LAOS: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

Commodity <sup>2</sup>	2015	2016	2017	2018	2019
<b>METALS</b>					
Antimony, mine, Sb content	1,166	242	320	370 <sup>r</sup>	140
Bismuth, refinery	1,300 <sup>e</sup>	2,013	2,743	3,009	1,062
<b>Copper:</b>					
Mine:					
Concentrates, Cu content	78,449	89,187	90,363	83,680	69,284
Solvent extraction <sup>3</sup>	89,253	78,492	62,941	68,200	72,000
Refinery, electrowon	89,253	78,492	62,941	68,200	72,000
Gold, mine, Au content kilograms	6,893	6,764	5,988	5,579	5,207
<b>Iron ore, mine:</b>					
Gross weight	234,745	115,065	250,000	99,196	470,300
Fe content	145,542	71,340	155,000	61,500 <sup>r</sup>	292,000
Iron and steel, products	93,461	110,050	117,989	137,626	160,533
Lead, mine, Pb content <sup>e,4</sup>	200 <sup>r</sup>	230 <sup>r</sup>	660	340 <sup>r</sup>	380
Silicon, metal	5,673	6,836	1,886 <sup>r</sup>	8,873 <sup>r</sup>	4,382
Silver, mine, Ag content kilograms	51,763	50,904	42,841	37,465	34,443
Tin, mine, Sn content	512	1,117	1,083	480 <sup>r</sup>	584
<b>INDUSTRIAL MINERALS</b>					
Barite	90,000 <sup>e</sup>	80,000 <sup>e</sup>	75,000 <sup>e</sup>	230,000 <sup>e</sup>	486,009
Cement, hydraulic thousand metric tons	3,099	3,407	3,938	4,800	5,208
<b>Clay:</b>					
Common clay	123,093	778,030	309,000	60,800	424,000
High silica clay	NA	25,240	14,052	23,593	408,591
Gypsum, mine	989,516	469,436	463,039	618,783	606,387
Potash, K <sub>2</sub> O content	250,000	195,000	300,000	335,000	280,000
Salt	23,747 <sup>r</sup>	24,233 <sup>r</sup>	23,800 <sup>r,e</sup>	1,000 <sup>e</sup>	10,079
<b>Stone, crushed:</b>					
Limestone	1,184,093	1,348,096	2,622,992	1,066,611	3,969,688
Sandstone	314,462	1,357,199	1,660,000	1,660,000 <sup>e</sup>	1,020,000
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
<b>Coal:</b>					
Anthracite	106,028	138,809	133,284	142,994	161,494
Lignite	4,464,068	13,097,121	13,439,492	15,903,277	15,263,562

<sup>e</sup>Estimated. <sup>r</sup>Revised. NA Not available.

<sup>1</sup>Table includes data available through December 23, 2020. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

<sup>2</sup>In addition to the commodities listed, sapphire and crude construction materials, such as sand and gravel and other stones, may have been produced, but available information was inadequate to make reliable estimates of output.

<sup>3</sup>The copper content of solvent extraction output at the mine level is the same as electrowon refinery output because copper produced in the solvent extraction and electrowinning process is typically reported only at the refinery level.

<sup>4</sup>Imports received by all countries from Laos. Source: United Nations Comtrade database.

TABLE 2  
LAOS: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>c</sup>
Antimony	NA	Scheelite deposit, Luang Namtha Province	NA
Barite	Barite Mining Co., Inthavong Mining Co., Lao Development Construction Co., Oravan Barite Co., and Singphoufar Co.	Mines in Muongfuong and Sanakham, Vientiane Province <sup>1</sup>	50
Do.	DMC-VTS Joint Venture Co. [VTS Group, 40%; PetroVietnam Drilling Mud Corp. (DMC), 30%; Quang Binh Export Co., 30%]	Vilabouly District, Savannakhet Province	50
Do.	Kia Energy Co. Ltd.	NA	300
Do.	Lao Mining	Thakhek, Khammouane Province	100
Bismuth, refinery, Bi content	5N Plus Inc.	Refinery in Dai Tu District, Thai Nguyen Province	3
Cement	Khammouane Cement Co. Ltd. (Siam Cement Public Co. Ltd., 100%)	Cement plant in Boualapha District, Khammouane Province	1,800
Do.	Lanexang Cement Lao Co. Ltd. (Yunnan Provincial Energy Investment Group Co. Ltd., and Saythirath Group of Laos)	Cement plant in Ban Khounguen, Khounkham District, Khammouane Province	1,000
Do.	Lao Cement Co. Ltd. [China Yunnan Corp. for International Techno-Economic Cooperation, 51%, and Lao State Enterprise for Agriculture-Industry Development Import Export & General Service (DAI), 49%]	Vang Vieng I cement plant, Vientiane Province	100
Do.	do.	Vang Vieng II cement plant, Vientiane Province	245
Do.	do.	Vang Vieng III cement plant, Vientiane Province	1,050
Do.	Lao Cement Industry Co. Ltd. (Powerchina Resources Ltd.)	Khammouane cement plant, Ban Nadou, Khammouane Province	820
Do.	Luang Prabang Conch Cement Co. Ltd. (Conch Group and Krittaphong Group)	Luang Prabang cement plant, Phonmany, Nam Bak District, Luang Prabang Province	300
Do.	Oudomxay Cement Co. Ltd. (Guizhou Jiangge Cement Co. Ltd.)	Cement plant in Nathong, Namor District, Oudomxay Province	700
Do.	Savannakhet Cement Co.	Cement plant in Atsaphangthong District, Savannakhet Province	170
Do.	Vientiane Hongshi Saythirath Cement Co. Ltd. (Hongshi Holding Group, 70%, and Saythirath Group, 30%)	Cement plant in Phabong, Hinheup District, Vientiane Province	1,650
Do.	Zhongyayici Co.	Salavan cement plant, Saravan Province	230
Coal:			
Anthracite	Agriculture Industry Development Enterprises	Coalfield in Vieng Phoukha, Luangnamtha Province	170
Lignite	Hongsa Power Co. Ltd.	Coalfields in Hongsa and Muang Ngeune District, Xayaboury Province	15,000
Do.	Vieng Phoukha Coal Mine Co. Ltd.	Coalfield in Vieng Phoukha, Luangnamtha Province	300
Copper:			
Mine, Cu content	Phu Bia Mining Ltd. (PanAust Ltd., 90%, and Government, 10%)	Phu Kham copper-gold operation, Sana Somboun District, Vientiane Province	90
Do.	Lane Xang Minerals Ltd. (Chifeng Jilong Gold Mining Co. Ltd., 90%, and Government, 10%)	Sepon Mine, Vilabouly District, Savannakhet Province	72
Metal, refined, electrowon	do.	do.	93
Gold, mine, Au content	kilograms do.	do.	7,500
Do.	do. Phu Bia Mining Ltd. (PanAust Ltd., 90%, and Government, 10%)	Ban Houayxai gold-silver operation, Vangvieng, Vientiane Province	3,700
Do.	do. do.	Phu Kham copper-gold operation, Sana Somboun District, Vientiane Province	2,400

See footnotes at end of table.

TABLE 2—Continued  
LAOS: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>c</sup>
Gypsum, mine		Khounxay Gypsum Mining (Khounxay Phatthana Group)	Vientiane Province	500
Do.		Lao State Gypsum Mining Co. Ltd.	Champhon District, Savannakhet Province	200
Do.		LAVICO Co. Ltd. (a Laos-Vietnam joint venture)	Xebangfay District, Khammouane Province	100
Do.		Mining Development Economy Corp. (OECD)	Thakhek District, Khammouane Province	150
Do.		Savan Gypsum Mining Co. Ltd.	Champhon District, Savannakhet Province	80
Iron ore		Lao SPG CMC Mining Co. Ltd. (Gimpex Ltd.)	Houaphanh iron ore mine, Xamneua District, Houaphanh Province	500
Iron and steel, product		Khokham Steel Industry Sole Co. Ltd.	Plant in Savannakhet Province	NA
Do.		Vientiane Capital Steel Industry Co. Ltd.	Plant in Vientiane City	150
Potash		Lao Kaiyuan Mining Co. Ltd. (Qingdao East Steel Tower Stock Co. Ltd.)	Longhu, Guangcai, and Wentai Mines, Khammouane and Savannakhet Provinces	500
Do.		do.	Plant in Thakhek, Khammouane Province	550
Do.		Laotian Potash Mining Industry Ltd. Co.	Potassium chloride plant, Vientiane Province	50
Do.		SinoAgri Mineral Resources Exploration Ltd. (a joint venture between Beijing Jiang Zhi Yuan Investment Ltd. and China National Agricultural Means of Production Group Corp.)	Plant in Sakhon Nakhon basin in Khammouane Province	200
Do.		Vientiane Plain Potash Mining Project (Powerchina Resources Ltd., 70%, and others, 30%)	NA	NA
Salt		Artisanal salt factories, including:		
		Banbor Salt Factory	Valentiane Province	3
Do.		Bosarn Salt Factory	Sayabouly Province	1
Do.		Boten Salt Factory	Luangnamtha Province	1
Do.		Kengkok Salt Factory	Savannakhet Province	3
Do.		Nateui Salt Factory	do.	4
Do.		Khoksaat Salt Factory	Vientiane municipality	5
Do.		Oudomxay Salt Factory	Oudomxay Province	NA
Do.		Saythip Salt Factory	Savannakhet Province	1
Do.		Songkhone Salt Factory	Bolikhamxay Province	1
Do.		Veunkham Salt Co.	Xaythany District, Vientiane Province	5
Sapphire	thousand carats	Lao Sapphire Corp. Ltd. (Sino Resource Mining Corp. Ltd., 100%)	Bokeo Mine, Houaxay District, Bokeo Province	6,000
Do.	do.	Sapphminco (Sino Resource Mining Corp. Ltd., 100%)	Royal Mekong sapphire mine, Bokeo Province	12,000
Silicon, metal		Lao Silicon Co. Ltd. [A & C (Far East) Industrial Co. Ltd., and a Laos local company]	Plant in Vientiane City	9
Silver, mine, Ag content	kilograms	Phu Bia Mining Ltd. (PanAust Ltd., 90%, and Government, 10%)	Ban Houayxai gold-silver operation, Vangvieng, Vientiane Province	25,000
Do.	do.	do.	Phu Kham copper-gold operation, Sana Somboun District, Vientiane Province	19,000
Stone, limestone		Agriculture Industry Development Enterprises	Quarry in Vangvieng, Vientiane Province	150
Do.		Khammouane Cement Co. Ltd. (Siam Cement Public Co. Ltd., 100%)	Quarry in Boualapha District, Khammouane Province	2,000
Do.		Laos Cement Co. Ltd.	do.	250
Do.		Phanangnon Co. Ltd.	Quarry in Thakhek District, Khammouane Province	100
Do.		Vientiane Hongshi Saythirath Cement Co. Ltd.	Quarry in Phabong, Hinheup District, Vientiane Province	2,000
Do.		V.S.K. Co. Ltd.	do.	150
Tin, mine, Sn content	metric tons	Lao-North Korea Tin Mining Co.	Hinboune District, Khammouane Province	120
Do.	do.	S V Mining Co. Ltd.	do.	300

<sup>c</sup>Estimated. Do., do. Ditto. NA Not available.

<sup>1</sup>Estimated combined capacity of the six local barite-mining companies.