



2020–2021 Minerals Yearbook

LAOS [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF LAOS

By Ji Won Moon

Note: In this chapter, information for 2020 is followed by information for 2021.

In 2020, Laos was the second-ranked producer of refined bismuth in the world and accounted for 5.3% of world production. Laos was also the eighth-ranked producer of barite and accounted for 2.6% of world production (McRae, 2022; Merrill, 2022).

In 2020, the real gross domestic product (GDP) decreased by 0.4% compared with an increase of 4.7% in 2019 owing to the coronavirus disease 2019 (COVID-19) pandemic. The nominal GDP in 2020 was \$18.5 billion. The output of the mining and quarrying sector decreased by 16.7% in 2020 compared with a decrease of about 0.1% in 2019. In 2020, the mining and quarrying sector accounted for 4.6% of the GDP compared with 5.7% in 2019. The total value of goods exported in 2020 was \$6.20 billion. Such mineral commodities as salts, ores, and mineral fuels accounted for 42% of Laos' total goods exports, by value; precious stones and precious metals, 7.6%; base metals and articles thereof, 3.6%; and industrial minerals and articles thereof, 0.1%. The total value of goods imported in 2020 was \$5.02 billion. Such mineral commodities as salts, ores, and mineral fuels accounted for 15% of Laos' total goods imports, by value; base metals and articles thereof, 10%; industrial minerals and articles thereof, 2.0%; and precious stones and precious metals, 0.3% (Lao Statistics Bureau, 2021, p. 75, 77; 2022, p. 67–69; International Monetary Fund, 2022).

The legislative framework for the mineral sector in Laos is provided by the Law on Minerals in 2008, as amended in 2011 and 2017. The National Assembly of Laos maintained the moratorium on new mining concessions owing to pending inspections of existing operations. Some of the projects were inactive, and some others were producing illegally because they were not operating according to required environmental standards or were not otherwise in compliance with government regulations. From 2016 to 2020, 193 mining permits were issued to companies that were undertaking surveys and exploration (69), conducting feasibility studies (43), and engaged in mining (81). The number of registered mining and quarrying enterprises decreased to 178 in 2020 from 197 in 2019 (Laotian Times, The, 2016; Yap, 2020b; Lao Statistics Bureau, 2021, p. 118; Tappe, 2021, p. 2; Khamphavong and Homesombath, undated, p. 21).

In 2020, Laos' iron ore (mine, Fe content) production increased by 115%; anthracite, by 98%; potash (K₂O content), by 54%; gypsum (mine), by 22%; cement, by 18%; and tin (mine, Sn content), by 14%. Production of common clay and high silica clay decreased by 97% each; barite, by 80%; silicon (metal), by 79%; salt, by 61%; lead (mine, Pb content), by 60%; copper (electrowon), by 45%; limestone, by 34%; copper (mine, concentrate, Cu content), by 30%; sandstone, by 23%; and iron and steel products, by 16%. Antimony (mine) was not produced in 2020. Data on mineral production are in table 1. Table 2 is a list of major mineral industry facilities.

Commodity Review

Metals

Copper.—In 2020, Lane Xang Minerals Ltd. (LXML), which was owned by Chifeng Jilong Gold Mining Co. Ltd. of China (90% share) and the Government of Laos (10% share), produced 39,730 metric tons (t) of copper (electrowon) from the Sepon open pit mine, which was a decrease from the 72,006 t produced in 2019 owing to a lesser ore grade. In August, LXML completed the construction of a low-cost pilot heap-leach facility that would have the capacity to process 900,000 metric tons per year (t/yr) of copper ore. Production of copper in concentrates from Phu Bia Mining Ltd.'s Phu Kham copper-gold mine, which was owned by PanAust Ltd. of Australia (90%) and the Government (10%), decreased to 48,433 t in 2020 from 69,284 t in 2019 because of a decrease in the mined ore to 10 million metric tons (Mt) at a copper head grade of 0.48% in 2020 from 16 Mt at a grade of 0.47% in 2019 (table 1; Lane Xang Minerals Ltd., 2021, 2022a; PanAust Ltd., 2022).

Gold.—In May 2020, LXML restarted processing gold oxide at the Sepon Mine owing to the high gold price during the year, which was likely attributable to global supply disruption caused by the COVID-19 pandemic and risk-adverse investment in an uncertain market. The previous mine owner, MMG Ltd., ceased gold operations in December 2013 owing to low ore grades and low margins. In the third quarter of 2020, LXML transitioned from a copper-focused operation to a gold-focused operation. LXML produced 2,016 kilograms (kg) of gold dore in 2020 at the Sepon Mine, which had an estimated mine life of 13 years (Daly, 2020; Yap, 2020a; Gallagher, 2021; Lane Xang Minerals Ltd., 2021, 2022a).

Rare Earths.—Lao Xiangjiang Rare Earth Corp., which was owned by Canada Rare Earth Corp. of Canada (60%) and LaosCo (40%), had completed the construction of a refinery in Vientiane Province in 2012; the refinery had the capacity to produce 3,000 t/yr of rare earth oxides. As of 2020, Government approval of the final operating permit was still pending (Canada Rare Earth Corp., 2020a; 2020b, p. 27–29).

Industrial Minerals

Cement.—In 2020, Laos produced about 6.2 Mt of cement compared with about 5.2 Mt in 2019. In June, Luang Prabang Conch Cement Co. Ltd., which was a joint venture of Conch Group of China and Krittaphong Group of Laos, commenced first production under phase 1 at its Luang Prabang plant in Luang Prabang Province; for phase 1, the plant had a production capacity of 2,500 metric tons per day of clinker (table 1; Vientiane Times, 2020).

Potash.—In 2020, Lao Kaiyuan Mining Co. Ltd., which was owned by Qingdao East Steel Tower Stock Co. Ltd. of China through its subsidiary Kaiyuan Potash Group Ltd. of China, planned to double the combined production capacity of its three potash mines to 1 million metric tons per year (Mt/yr). The company had a potash mining license covering an area of 141 square kilometers (km²) in Khammouane Province. Within the license, reserves in a 41.7-km² area were estimated to be 218 Mt of potassium chloride (Tang, 2020; Lao Law & Consultancy Group, 2021).

Mineral Fuels

Petroleum.—In December 2020, the first refinery in the country started operation with a refining capacity of 8 million barrels per year (Mbbbl/yr) of benzene, diesel, gasoline, and liquefied petroleum gas as the first phase. The refinery, located in the Vientiane Saysettha Development Zone, Vientiane Province, was owned by Lao Petroleum & Chemical Co. Ltd. (Laopec), also known as Lao-China Dongyan Petrochemical Co. Ltd. Laopec was owned by Yunnan Construction & Investment Holding Group Co. Ltd. (75%), Lao State Fuel Co. (20%), and Lao-China Joint Venture Investment Co. Ltd. (5%). Once completed in 2022–23, the Laopec refinery would have a refining capacity of 24 Mbbbl/yr and a 500,000-barrel storage terminal (Brelsford, 2020; Lao News Agency, 2020).

MINERAL INDUSTRY HIGHLIGHTS IN 2021

In 2021, Laos's real GDP increased by 2.1% and the nominal GDP was \$18.6 billion. The mining and quarrying sector's output, in terms of value, increased by 1.6% and accounted for 4.4% of the nominal GDP. The total value of goods exports in 2021 was \$7.70 billion. Such mineral commodities as salts, ores, and mineral fuels accounted for 38% of Laos's total goods exports by value; precious stones and precious metals, 13%; base metals and articles thereof and industrial minerals and articles thereof, 1.2% each. The total value of goods imports in 2021 was \$5.89 billion. Such mineral commodities as salts, ores, and mineral fuels accounted for 15% of Laos's total goods imports by value; base metals and articles thereof, 6.6%; precious stones and precious metals, 4.8%; and industrial minerals and articles thereof, 2.2% (International Monetary Fund, 2022; Lao Statistics Bureau, 2022, p. 6, 8, 67–69).

In 2021, the number of registered mining and quarrying enterprises increased to 188 from 178 in 2020. An estimated 124 companies were operating 209 projects that were engaged in the exploration and processing of minerals or were at the mining feasibility study stage, and 14 of these companies were constructing facilities (Xinhuanet.com, 2021; Lao Statistics Bureau, 2022, p. 36).

In 2021, Laos's production of common clay increased by approximately 24 times; high-silica clay, by approximately 13 times; iron ore (mine, Fe content), by 247%; cement, by 134%; anthracite, by 118%; bismuth (refined), by 108%; gold, by 81%; salt, by 73%; limestone (crushed), by 71%; lead (mine, Pb content), by 70% (estimated); gypsum (mine), by 66%; tin (mine, Sn content), by 48%; sandstone (crushed), by 40%; potash (K₂O content), by 15%; and silicon metal, by 15% (estimated).

Production of antimony (mine) restarted in 2021. Production of copper (electrowon) decreased by 87%; barite and steel products, by 61% each; and coke and silver, by 26% each. The increase in gold production was attributed mainly to output from the Sepon Mine, which increased by 198% to 6,003 kg in 2021. The increase in iron ore production was likely attributable to the increase in the number of small-scale operations, which were notable for the resulting environmental issues, including river colorization, chemical odor, and blasting. The increase in cement production was supported by a significant increase in investment in new integrated plants and line expansions to meet major infrastructure projects. The production capacity for cement increased to approximately 14 Mt/yr in 2021 from 6.76 Mt/yr in 2018. Data on mineral production are in table 1 (tables 1, 2; CemNet.com, 2019, 2021; Moore, 2020; Radio Free Asia, 2021, 2022; Lane Xang Minerals Ltd., 2022a, b).

Vientiane Mining Co. Ltd., a subsidiary of Chifeng Jilong Gold Mining, conducted exploration for rare earth resources at the Senoy area north of Sepon, and disclosed the analysis results of 975 soil samples in 2021. Heavy rare earths were identified to be more enriched than light rare earths (SMM News, 2021).

In 2021, feasibility studies for an iron deposit in Anouvong District were in process based on a memorandum of understanding between Tai Xan Meng Sino-Lao Mineral Corp. and the government of Xaysomboun Province. Since 2019, this provincial government had granted rights for companies to perform feasibility studies on more than 10 projects and had issued gold exploration permits to Lao Kalongdepo Co. in Anouvong District, a joint venture of Joe Bounmy Mining Development Co. Ltd. and Lao Defense Ministry in Longhaeng District, and ZY Mineral Processing Corp. in an unspecified area. In addition, Look Yao Co. of Vietnam explored gold in Namxan, Longchaen District, Xaisomboun Province (Radio Free Asia, 2021).

Laopec refinery produced at only approximately 10% of its refining capacity in 2021 owing to strict measures put in place for COVID-19 prevention and control. Another refinery, Yodngeum Power Mix Fuel Factory located in Pek District, Xieng Khouang Province, was under construction in 2021 and was expected to begin production in 2022 with a capacity of approximate 630,000 barrels per year of refinery products and a 15,000-barrel storage capacity. The main products produced by Yodngeum would be diesel (60%) and fuel oil (39%) (Asia News Network, 2022; Thanabouasy, 2022; Hydrocarbon Technology, undated).

Outlook

Laos' GDP is expected to increase by 3.2% in 2022. Gold and electrowon copper outputs are expected to increase as the oxide gold-processing plant and the new copper heap-leaching facility ramp up production. Refinery production is expected to increase rapidly in the short term as Laopec ramps up production and the Yodngeum Power Mix Fuel Factory starts operating in 2022. Some iron and gold projects may enter the development stage in the future if the results of feasibility studies turn out to be positive (International Monetary Fund, 2022).

References Cited

- Asia News Network, 2022, Laopec—The first modern petroleum refinery in Laos: The Phnom Penh Post [Cambodia], March 13. (Accessed June 15, 2022, at <https://www.phnompenhpost.com/business/laopec-first-modern-petroleum-refinery-laos>.)
- Brelsford, Robert, 2020, Laos commissions first oil refinery: Oil & Gas Journal, December 14. (Accessed March 17, 2021, at <https://www.ogj.com/refining-processing/refining/operations/article/14188970/laos-commissions-first-oil-refinery>.)
- Canada Rare Earth Corp., 2020a, Canada Rare Earth—In the business of rare earths—March 2020 corporate update: Vancouver, British Columbia, Canada, Canada Rare Earth Corp., March 2. (Accessed March 18, 2021, at <http://www.canadarareearth.com/2-march-2020>.)
- Canada Rare Earth Corp., 2020b, Rare earths—Critical to a clean green future: Vancouver, British Columbia, Canada, Canada Rare Earth Corp., November, 32 p. (Accessed March 18, 2021, at <http://www.canadarareearth.com/upload/documents/crec-investor-presentation-nov-2020-for-pdf>.)
- CemNet.com, 2019, Laotian cement export value rises to US\$47.8m in first 10 months of 2018: CemNet.com, January 21. (Accessed August 9, 2022, at <https://www.globalcement.com/news/item/8647-laotian-cement-export-value-rises-to-us-47-8m-in-first-10-months-of-2018>.)
- CemNet.com, 2021, Laos, in *The global cement report* (14th ed.): CemNet.com, p. 190–191.
- Daly, Tom, 2020, Refile—China’s Chifeng Jilong restarts gold production at Laos mine after 6 years: Beijing, China, Thomson Reuters, May 17. (Accessed March 17, 2021, at <https://www.reuters.com/article/china-gold-laos-idAFL4N2CZ015>.)
- Gallagher, Tyler, 2021, How precious metals have performed during coronavirus—A year in Review: Jersey City, New Jersey, Forbes, January 13. (Accessed July 12, 2022, at <https://www.forbes.com/sites/theyec/2021/01/13/how-precious-metals-have-performed-during-coronavirus-a-year-in-review/?sh=1328d741b171>.)
- Hydrocarbon Technology, [undated], Laopec oil refinery, Vientiane: London, United Kingdom, Hydrocarbon Technology. (Accessed June 7, 2022, at <https://www.hydrocarbons-technology.com/projects/laopec-oil-refinery-vientiane/>.)
- International Monetary Fund, 2022, Report for selected countries and subjects—World economic outlook database: Washington DC, International Monetary Fund, April. (Accessed April 19, 2022, at https://www.imf.org/en/Publications/WEO/weo-database/2022/April/weo-report?c=544,&s=NGDP_RPCH,NGDPD,&sy=2019&ey=2022&ssm=0&scsm=1&ssc=0&ssd=1&ssc=0&sic=0&sort=c&country&ds=.&br=1.)
- Khampthavong, Keo, and Homesombath, Inpong, [undated], Minerals potential & minerals law of Lao PDR: Vientiane, Laos, Ministry of Energy and Mines, 44 p. (Accessed September 27, 2021, at http://www.dmr.go.th/download/asean/Minerals%20Potential_Minerals%20Law%20of%20Lao%20Pdr.pdf.)
- Lane Xang Minerals Ltd., 2021, Operations: Vientiane, Laos, Lane Xang Minerals Ltd. (Accessed April 15, 2021, at <https://web.archive.org/web/20210414152750/https://lxmla.com/operations/>.)
- Lane Xang Minerals Ltd., 2022a, LXML Sepon Laos factsheet: Vientiane, Laos, Lane Xang Minerals Ltd. (Accessed April 11, 2022, at <https://web.archive.org/web/20220411224952/https://lxmla.com/publication-and-multimedia/#brochures>.)
- Lane Xang Minerals Ltd., 2022b, Who we are: Vientiane, Laos, Lane Xang Minerals Ltd. (Accessed April 11, 2022, at <https://web.archive.org/web/20220411224342/https://lxmla.com/>.)
- Lao Law & Consultancy Group, 2021, Lao Kaiyuan Mineral Co. Ltd.: Vientiane, Laos, Lao Law & Consultancy Group. (Accessed March 19, 2021, at <http://www.laolaws.com/LaoKaiyuan.html>.)
- Lao News Agency, 2020, Laos’ first oil refinery to launch commercial production next week: Vientiane, Laos, Lao News Agency, November 25. (Accessed June 1, 2022, at <http://kpl.gov.la/En/Detail.aspx?id=55496>.)
- Lao Statistics Bureau, 2021, Statistical yearbook 2020: Vientiane, Laos, Lao Statistics Bureau, 230 p. (Accessed July 12, 2022, via https://laosis.lsb.gov.la/board/BoardList.do?jsessionid=r1c1DFD2Wim5Y0G01iYKovU7UcKlj0B4NZAS3g4V.laosis-web?bbs_bbsid=B404.)
- Lao Statistics Bureau, 2022, Statistical yearbook 2021: Vientiane, Laos, Lao Statistics Bureau, 226 p. (Accessed July 12, 2022, via https://laosis.lsb.gov.la/board/BoardList.do?jsessionid=r1c1DFD2Wim5Y0G01iYKovU7UcKlj0B4NZAS3g4V.laosis-web?bbs_bbsid=B404.)
- Laotian Times, The, 2016, PM announces continued suspension of mining concessions: The Laotian Times [Vientiane, Laos], October 20. (Accessed August 8, 2022, at <https://laotiantimes.com/2016/10/20/pm-announces-continued-suspension-of-mining-concessions/>.)
- McRae, M.E., 2022, Barite: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 30–31.
- Merrill, A.M., 2022, Bismuth: U.S. Geological Survey Mineral Commodity Summaries 2022, p. 36–37.
- Moore, Paul, 2020, Gold takes centre stage back from copper at Chifeng LXML’s Sepon Mine in Laos: International Mining [Hertfordshire, United Kingdom], June 25. (Accessed April 8, 2022, at <https://im-mining.com/2020/06/25/gold-takes-centre-stage-back-copper-chifeng-lxmls-sepon-mine-laos/>.)
- PanAust Ltd., 2022, Phu Kham copper-gold operations, Laos: Vientiane, Laos, PanAust Ltd., 1 p. (Accessed May 31, 2022, at <https://web.archive.org/web/20220311154217/https://panaust.com.au/wp-content/uploads/2021/10/Phu-Kham-Copper-Gold-Operation.pdf>.)
- Radio Free Asia, 2021, Chinese company to begin exploring iron mining in Laos’ Xaysomboun Province: Washington, DC, Radio Free Asia, February 17. (Accessed April 12, 2022, at <https://www.rfa.org/english/news/laos/mining-02172021165311.html>.)
- Radio Free Asia, 2022, After Lao rivers run red, authorities order iron mine to stop production: Washington, DC, Radio Free Asia, July 7. (Accessed August 9, 2022, at <https://www.rfa.org/english/news/laos/red-river-07072022151340.html>.)
- SMM News, 2021, The net profit of Chifeng gold increases by 80%—Rare earths are found in overseas mines: SMM News [Shanghai, China], August 1. (Accessed April 12, 2022, at <https://news.metal.com/newscontent/101549752/The-net-profit-of-Chifeng-gold-increases-by-80-Rare-earths-are-found-in-overseas-mines/>.)
- Tang, Shihua, 2020, China’s East Steel rises on plans to raise USD 144.4 million to expand Lao’s potash plant No. 1: Shanghai, China, YiCai, August 20. (Accessed March 18, 2021, at <https://www.yicai.com/news/china-east-steel-rises-on-plans-to-raise-usd1444-million-to-expand-laos-potash-plant-no-1->.)
- Tappe, Oliver, 2021, Artisanal, small-scale, and large-scale mining in Lao PDR: Perspective, issue 2021, no. 44, April 15, 10 p. (Accessed September 27, 2021, at https://think-asia.org/bitstream/handle/11540/13493/ISEAS_Perspective_2021_44.pdf?sequence=1.)
- Thanabouasy, Phayboun, 2022, Laos oil refinery in Xieng Khouang to begin production soon: The Laotian Times [Vientiane, Laos], March 21. (Accessed April 12, 2022, at <https://laotiantimes.com/2022/03/21/laos-oil-refinery-in-xieng-khouang-to-begin-production-soon/>.)
- Vientiane Times, 2020, PM advises Luang Prabang on election of party committee: Vientiane [Laos] Times, September 7. (Accessed March 18, 2021, at https://www.vientianetimes.org.la/freeContent/FreeContent_PM_174.php.)
- Xinhuanet.com, 2021, Laos to earn 463 mln USD in mineral trade in last 3 months of 2021: Beijing, China, Xinhuanet.com, November 19. (Accessed June 3, 2022, at http://www.news.cn/english/2021-11/19/c_1310320329.htm#:~:text=May%2028%2C%202022,-Laos%20to%20earn%20463%20mln%20USD%20in%20mineral,last%20%20months%20of%202021&text=VIENTIANE%2C%20Nov.,first%20nine%20months%20of%202021.)
- Yap, Jasmina, 2020a, Lane Xang Mineral Limited Sepon Mine marks new gold era: The Laotian Times [Vientiane, Laos], June 25. (Accessed March 17, 2021, at <https://laotiantimes.com/2020/06/25/lane-xang-minerals-limited-sepon-mine-marks-new-gold-era/>.)
- Yap, Jasmina, 2020b, Laos mining sector sees decline despite rich resources: The Laotian Times [Vientiane, Laos], February 6. (Accessed March 18, 2021, at <https://laotiantimes.com/2020/02/06/laos-mining-sector-sees-decline-despite-rich-resources/>.)

TABLE 1
LAOS: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2017	2018	2019	2020	2021	
METALS						
Antimony, mine, Sb content	320	370	140	--	240	
Bismuth, refinery	2,743	3,009	1,062	993	2,067	
Copper:						
Mine:						
Concentrates, Cu content	90,363	83,680	69,284	48,433	45,815	
Solvent extraction ³	62,941	68,200	72,006 ^r	39,730	5,341	
Total	153,000	152,000	141,000	88,200	51,200	
Refinery, electrowon	62,941	68,200	72,006 ^r	39,730	5,341	
Gold, mine, Au content	kilograms	5,988	5,579	5,207	5,499	9,943
Iron ore, mine:						
Gross weight	250,000	99,196	470,300	1,013,042	3,522,598	
Fe content	155,000	61,500	292,000	628,000	2,180,000	
Iron and steel, products	117,989	137,626	160,533	134,527	51,994	
Lead, mine, Pb content ^{6,4}	660	340	250 ^r	100	170	
Silicon, metal	1,886	8,873	4,600 ^r	960	1,100 ^e	
Silver, mine, Ag content	kilograms	42,841	37,465	34,443	34,893	25,797
Tin, mine, Sn content	1,083	480	1,168 ^r	1,335	1,980	
INDUSTRIAL MINERALS						
Barite	75,000 ^e	230,000 ^e	486,009	96,278	37,403	
Cement, hydraulic	thousand metric tons	3,938	4,800	5,208	6,162	14,412
Clay:						
Common clay	309,000	60,800	424,000	10,922	258,707	
High silica clay	14,052	23,593	291,233 ^r	9,112	122,140	
Gypsum, mine	463,039	618,783	606,387	737,749	1,221,959	
Potash, K ₂ O content	300,000	335,000	280,000	432,000	495,000	
Salt	23,800 ^e	1,000 ^e	10,079	3,951	6,846	
Stone, crushed:						
Limestone	2,622,992	1,066,611	3,969,688	2,614,061	4,465,382	
Sandstone	1,660,000	1,660,000 ^e	1,020,000	788,000	1,100,000 ^e	
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Anthracite	133,284	142,994	161,494	320,231	698,521	
Lignite	13,439,492	15,903,277	15,263,562	14,366,628	13,618,072	
Coke	NA	6,353	6,228	6,643	4,923	

^eEstimated. ^rRevised. NA Not available. -- Zero.

¹Table includes data available through June 13, 2022. All data are reported unless otherwise noted. Estimated data and totals are rounded to no more than three significant digits.

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

³The 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.

⁴Estimate based on export statistics to trading partners. Source: United Nations Comtrade database.

TABLE 2
LAOS: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity ^c
Antimony	NA	Scheelite deposit, Luang Namtha Province	NA
Barite	Barite Quang Trung Lao Sole Co. Ltd. (Quang Trung Investment Co.)	Mine and grinding plant in Boualapha, Khammouane Province	80
Do.	DMC-VTS Joint Venture Co. [VTS Group, 40%; PetroVietnam Drilling Mud Corp. (DMC), 30%; Quang Binh Export Co., 30%]	Processing plant in Vilabouly, Savannakhet Province	50
Do.	Lao Mining	Mine in Thakhek, Khammouane Province	100
Do.	Lao China Base Barite Co. Ltd.	Mine in Kasi, Vientiane Province	300
Bismuth, refinery	5N Plus Lao Industrial Resources Co. Ltd. (5N Plus Inc., 100%)	Refinery in Dongphoneehae, Hatsayfong, Vientiane Province	3
Cement	Khammouane Cement Co. Ltd. (Siam Cement Public Co. Ltd., 100%)	Khammouane Plant, Boualapha, Khammouane Province	1,800
Do.	Lanexang Cement Lao Co. Ltd. (Yunnan Provincial Energy Investment Group Co. Ltd., and Saythirath Group)	Jixiang cement factory, Ban Khounguen, Khounkham, Khammouane Province	1,000
Do.	Lao Cement Industry Co. Ltd. (Powerchina Resources Ltd., 77%, and others, 23%)	Khammouane Plant, Ban Nadou, Khammouane Province	1,000
Do.	Lao Cement Public Co. [China Yunnan Corp. for International Techno-Economic Cooperation, 51%, and Lao State Enterprise for Agriculture-Industry Development Import Export & General Service (DAI), 49%]	Cement plant in Khammouan Province	1,900
Do.	do.	Vang Vieng I Plant, Vientiane Province	100
Do.	do.	Vang Vieng II Plant, Vientiane Province	300
Do.	do.	Vang Vieng III Plant, Vientiane Province	1,100
Do.	Luang Prabang Cement Co. Ltd. (Xiamen Yongfugui Group Co. Ltd., 100%)	Plants in Nambak, Luang Prabang Province	1,950
Do.	Luang Prabang Conch Cement Co. Ltd. (joint venture of Conch Group and Krittaphong Group)	Luang Prabang Plants, Phonmany, Nambak, Luang Prabang Province	1,300
Do.	Oudomxay Cement Co. Ltd. (Xiamen Yongfugui Group Co. Ltd., 100%)	Cement plant in Namor, Oudomxay Province	1,650
Do.	Savannakhet Cement Co.	Savannakhet Plant, Atsaphangthong, Savannakhet Province	500
Do.	Vientiane Hongshi Saythirath Cement Co. Ltd. (Hongshi Holding Group, 70%, and Saythirath Group, 30%)	Plant in Phabong, Hinheup, Vientiane Province	1,650
Do.	Zhongyayici Co.	Salavan Plant, Ban Yonm, Salavan Province	500
Coal:			
Anthracite	Agriculture Industry Development Enterprises	Coalfield in Vieng Phoukha, Luang Namtha Province	700
Lignite	Hongsa Power Co. Ltd.	Coalfields in Hongsa and Ngeune, Sainyabuli Province	15,000
Do.	Vieng Phoukha Coal Mine Co. Ltd.	Coalfield in Vieng Phoukha, Luang Namtha Province	300
Copper:			
Mine, Cu content	Phu Bia Mining Ltd. (PanAust Ltd., 90%, and Government, 10%)	Phu Kham copper-gold mine, Sana Somboun, Vientiane Province	90
Do.	Lane Xang Minerals Ltd. (Chifeng Jilong Gold Mining Co. Ltd., 90%, and Government, 10%)	Sepon Mine, Vilabouly, Savannakhet Province	10
Metal, refined, electrowon	do.	Sepon solvent extraction and electrowinning plant, Vilabouly, Savannakhet Province	10

See footnotes at end of table.

TABLE 2—Continued
LAOS: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity ^c
Gemstones ¹	thousand carats	Lao Sapphire Corp. Ltd. (Sino Resource Mining Corp. Ltd., 100%)	Bokeo Mine, Houayxay District, Bokeo Province	6,000
Do.	do.	Sapphminco (Sino Resource Mining Corp. Ltd., 100%)	Royal Mekong sapphire mine, Bokeo Province	12,000
Gold, mine, Au content	kilograms	Khamkeut Saen Oudom Ltd. (Phonesack Group)	Mine in Khamkeut, Bolikhamsai Province	NA
Do.	do.	Lane Xang Minerals Ltd. (Chifeng Jilong Gold Mining Co. Ltd., 90%, and Government, 10%)	Sepon Mine, Vilabouly, Savannakhet Province	2,100
Do.	do.	Phu Bia Mining Ltd. (PanAust Ltd., 90%, and Government, 10%)	Ban Houayxai gold-silver mine, Ban Xon, Vientiane Province	3,700
Do.	do.	do.	Phu Kham copper-gold mine, Sana Somboun, Vientiane Province	2,400
Do.	do.	Tianjin Huakan-Lao Mining Co.	Phapon Mine, Pak Ou, Luang Prabang Province	NA
Do.	do.	Vangtat Mining Co. Ltd.	Vangtat Mine, Sanxay, Attapeu Province	NA
Gypsum, mine		Khounxay Gypsum Mining (joint venture of Khounxay Phatthana Group and Government)	Mine in Vientiane Province	500
Do.		Lao State Gypsum Mining Co. Ltd.	Mine in Champhon, Savannakhet Province	200
Do.		LAVICO Co. Ltd. (a Laos-Vietnam joint venture)	Mine in Xebangfay, Khammouane Province	100
Do.		Mining Development Economy Corp.	Mine in Thakhek, Khammouane Province	150
Do.		Savan Gypsum Products Sole Co. Ltd. (Santiphab Sangkasi Lao Co. Ltd., 100%)	Mine in Champhon, Savannakhet Province	80
Iron ore		Company of Economic Cooperation in Vietnam (Coecco)	Iron mine in Boualapha, Khammouane Province	36
Do.		Lao SPG CMC Mining Co. Ltd. (Gimpex Ltd.)	Houaphanh iron ore mine, Xamneua, Houaphanh Province	3,000
Iron and steel, product		Khoukham Steel Industry Sole Co. Ltd.	Plant in Savannakhet Province	NA
Do.		Santiphab Sangkasi Lao Co. Ltd.	Plant in Vientiane City	NA
Do.		Vientiane Steel Industry Co. Ltd.	do.	350
Petroleum, refined	thousand barrels	Lao Petroleum & Chemical Co. Ltd. (Yunnan Construction & Investment Holding Group Co. Ltd., 75%; Lao State Fuel Co., 20%; Lao-China Joint Investment Co. Ltd., 5%)	Leopec refinery, Vientiane Saysettha Development Zone, Vientiane Province	8,000
Potash		Lao Kaiyuan Mining Co. Ltd. [Kaiyuan Potash Group Ltd., 100% (Qingdao East Steel Tower Stock Co. Ltd.)]	Longhu and Wentai Mines, Khammouane Province; Guangcai Mine, Savannakhet Province	500
Do.		do.	Plant in Thakhek, Khammouane Province	550
Do.		Laotian Potash Mining Industry Ltd. Co.	Potassium chloride plant, Vientiane Province	50
Do.		Sino-Agri International Potash Co. Ltd. [Asia-Potash International Investment (Guangzhou) Co. Ltd., 100%]	Plant in Sakon Nakhon basin in Khammouane Province	200
Do.		Sino-Lao Potash Mining Ltd.	Thong Mang potash mine and processing plant, Xaythany, Vientiane City	50
Salt		Artisanal salt factories, including:		
		Banbor Salt Factory	Salterns in Ban Keun, Vientiane Province	3
Do.		Bosarn Salt Factory	Salterns in Sayabouly Province	1
Do.		Boten Salt Factory	Salterns in Luang Namtha Province	1
Do.		Kengkok Salt Factory	Salterns in Savannakhet Province	3
Do.		Khoksaat Salt Factory	Salterns in Vientiane municipality	5
Do.		Nateui Salt Factory	Salterns in Savannakhet Province	4
Do.		Oudomxay Salt Factory	Salterns in Oudomxay Province	NA
Do.		Songkhone Salt Factory	Salterns in Bolikhamxay Province	1
Do.		Xaythip Salt Factory	Salterns in Xaythip, Savannakhet Province	1
Do.		Veunkham Salt Co.	Salterns in Xaythany, Vientiane Province	5

See footnotes at end of table.

TABLE 2—Continued
LAOS: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity ^c
Silicon, metal		Lao Silicon Co. Ltd. [A & C (Far East) Industrial Co. Ltd., and a Laos local company]	Plant in Vientiane	9
Silver, mine, Ag content	kilograms	Phu Bia Mining Ltd. (PanAust Ltd., 90%, and Government, 10%)	Ban Houayxai gold-silver mine, Ban Xon, Vangvieng, Vientiane Province	25,000
Do.	do.	do.	Phu Kham copper-gold mine, Sana Somboun, 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, Khammouane Province	2,000
Do.		Laos Cement Co. Ltd.	do.	300
Do.		Phanangnon Co. Ltd.	Quarry in Thakhek, Khammouane Province	100
Do.		Vientiane Hongshi Saythirath Cement Co. Ltd.	Quarry in Hinheup, Vientiane Province	2,000
Do.		V.S.K. Co. Ltd.	Quarry in Thakhek, Khammouane Province	150
Tellurium, refined		5N Plus Lao Industrial Resources Co. Ltd. (5N Plus Inc., 100%)	Refinery in Dongphonechae, Hatsayfong, Vientiane Province	NA
Tin, mine, Sn content	metric tons	Lao-North Korea Tin Mining Co.	Mine in Hinboune, Khammouane Province	1,000
Do.	do.	S V Mining Co. Ltd.	do.	1,000

^cEstimated. Do., do. Ditto. NA Not available.

¹Gemstones include sapphire, spinel, and zircon.