



2015 Minerals Yearbook

LAOS [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF LAOS

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In 2015, Laos produced a variety of mineral commodities, including barite, copper, gold, iron ore, lead, and silver. Laos had a variety of undeveloped mineral resources. The Government recognized mining as a critical sector of the economy, and it continued to support it while at the same time promoting other domestic and foreign investments. As of 2014, employment in the mining sector was about 15,381 people, which represented about 0.3% of the total population of Laos.

Minerals in the National Economy

In 2015, Lao's industrial sector, which included the construction, electricity generation, manufacturing, and mining and quarrying sectors, grew by 9.7% and contributed 29.3% to Lao's real gross domestic product (GDP) (at constant 2002 prices). The construction sector contributed 7.4% to the GDP, and the mining and quarrying sector contributed 6.2%. The growth in the industrial sector was in part attributable to the increase in electricity and water supply, the construction of new hydropower plants, and the continued development of investment projects that had been started in recent years (Bank of the Lao PDR, 2015, p. 3, 20).

Production

In 2015, production of most mineral commodities produced in Laos increased, although most notably barite (production increased by 210%), gold (31%), silver (30%), and mined copper (10%). The increase in the amount of barite produced was estimated based on exports to Thailand. A decrease in production was reported for silicon (41%) (table 1).

Structure of the Mineral Industry

The Ministry of Natural Resources and Environment (MONRE) was created in 2011 from the merger of the Water Resource and Environment Administration with departments of the National Land Management Authority and other ministries, such as the Geology Department, and the Forest Conservation and Divisions within the Ministry of Agriculture and Forestry. The MONRE is in charge of the compilation and maintenance of a geologic database to manage its oversight of exploration and mining projects. The MONRE also issues mining licenses and oversees the implementation of the Mining Law, which includes inspecting and monitoring mineral development activities in the country. The MONRE also assists in the negotiation of mining contracts and in mineral exploration and mining licensing activities, promotes investment in the mining sector, maintains other geologic databases, and provides mineral exploration support and data analyses. The Ministry of Energy and Mines (MEM) is the Government agency that manages and promotes the mining, processing, and trade of mineral products. The Department of Mines (DOM) oversees mining company compliance with the country's mining regulations and contracts;

oversees and implements the mineral law, mine safety, and mine closure regulations; creates the necessary regulations and guidelines for the promotion of the mining and metallurgical sector; and issues, rejects, extends, and withdraws mining licenses (Department of Mineral Resources of Thailand, 2013; REDD Desk, The, 2015; Ministry of Natural Resources and Environment, 2016).

In 2015, the main producers of copper and gold in Laos were Lane Xang Minerals Ltd. (MMG LXML), which was a subsidiary of MMG Ltd. of Hong Kong (90% interest) and the Government (10% interest), and Phu Bia Mining Ltd. (PBM), which was a subsidiary of PanAust Ltd. of Australia (90% interest) and the Government (10% interest). The country's major mineral industry facilities and their capacities are listed in table 2.

Commodity Review

Metals

Bauxite and Alumina.—The Laos Bolaven Plateau bauxite project, which is located in the southern part of the country, was being developed by Sino Australian Resources (Laos) Co., Ltd. (SARCO). SARCO was a joint venture between China Nonferrous Metals Industry's Foreign Engineering and Construction Co., Ltd., of China (NFC) (51% interest) and Vango Mining Ltd. (49% interest). SARCO had two tenements on the property—the LSI tenement that covered an area of 66 square kilometers (km²) and the Yuqida tenement that covered an area of 421 km², for a total area of 487 km². The joint venture planned to build a bauxite mine and an alumina refinery as part of the project. In May 2014, Southwest Pacific Bauxite (HK) Ltd. (Southwest) of Australia had offered to purchase Vango's interest in the Bolaven project. The offer was accepted and required an initial payment from Southwest of \$300,000 as a fee for a 12-month exclusivity period to exercise the purchase of interests in the project. As of September 2015, the purchase option had expired and Vango kept its share of the project (ORD River Resources Ltd., 2014, p. 10; Vango Mining Ltd., 2016).

Copper, Gold, and Silver.—In 2015, the Sepon copper-gold project produced a total of 89,253 metric tons (t) of copper cathodes compared with 88,541 t in 2014; the project produced no gold in 2015 compared with 11 kilograms (kg) of gold in 2014. The decrease in gold production was attributed to MMG placing the gold operations at the Sepon Mine on care-and-maintenance status in December 2013 owing to a decline in global gold prices (MMG Ltd., 2014, p. 7, 16, 44; 2015, p. 24).

PanAust, through its wholly owned subsidiary Pan Mekong Exploration Pty. Ltd., owned a 90% interest in the Lao-registered company PBM, which managed the Phu Kham copper-gold mine; the Government owned the remaining 10% interest. The Government and PBM had a mineral exploration

and production agreement that regulated exploration and mining within the company's 2,636-km² contracted area. In 2015, the Phu Kham Mine, which was located about 140 kilometers (km) north of Vientiane, produced 78,449 t of copper in concentrate, which was an increase of 10.3% compared with the 71,155 t produced in 2014 (table 1). The mine also produced 3,187 kg of gold, which was an increase of 51% compared with the 2,109 kg produced in 2014, and 15,028 kg of silver, which was an increase of 30% compared with the 11,597 kg produced in 2014. Most of the increases were attributable to increased capacity levels and lower operating costs owing to the implementation of two expansions at the Phu Kham facility that took place in 2013 and 2014. The annual production of copper in concentrate was expected to increase to between 85,000 and 90,000 t in 2018 and 2019, respectively, as copper grades increase, and then eventually to decline along with decreasing ore grades. Starting in 2016, the production of gold is expected to remain steady at a range of between 2,200 and 2,500 kilograms per year (kg/yr) (PanAust Ltd., 2014, p. 2, 3, 9; 2015, p. 12).

PanAust's mineral resource interests in Laos also included the Ban Houayxai gold-silver project, which was located approximately 25 km west of the Phu Kham operation. The Ban Houayxai project was an open pit mine that produced 3,706 kg of gold in 2015, which was an increase of 18% compared with the 3,140 kg of gold produced in 2014; and 36,735 kg of silver, which was an increase of 30% compared with the 28,204 kg of silver produced in 2014 (PanAust Ltd., 2015, p. 14).

The Phonsavan copper-gold project consisted of two copper deposits—KTL and Tharkhek—that were located within 5 km of each other and about 100 km from the Phu Kham project. In 2014, PanAust completed a feasibility study for the development of the KTL copper-gold deposit as a satellite open pit mine of the Phu Kham project. In July 2014, the company submitted an environmental and social impact assessment of the project to the Government for evaluation. In 2015, the project was still awaiting the Government's approval of the assessments (PanAust Ltd., 2014, p. 10; 2015, p. 16).

Industrial Minerals

Barite.—On June 1, 2015, the joint venture between PetroVietnam Drilling Mud Corp. (DMC) of Vietnam and VTS Group of Laos announced the start of operations for a barite-processing plant located in Vilabouly District, Savannakhet Province. The plant, which was built at a cost of \$3.5 million, had a production capacity of 50,000 metric tons per year (t/yr). The supply from this facility was expected to be sufficient to meet the demand for barite by the oil and gas industry of Laos as well as that of neighboring Vietnam (PetroVietnam, 2015).

Cement.—In March, Siam Cement Group (SCG) of Thailand started building its first cement plant in Laos in Phova Village, Mahaxay District, Khammouan Province. The cement plant was expected to be completed in 2017 and would have a production capacity of 1.8 million metric tons per year (Mt/yr). SCG expected that the plant, when commissioned, would be able to meet Laos's demand for cement and decrease Laos's cement imports from neighboring countries (Siam Cement Group, 2015).

In December, the joint venture between Yunnan Provincial Energy Investment Group of China and the Ministry of Planning and Investment of Laos announced the inauguration of the Jixiang cement factory located in Khammouan Province. The cement plant, which was built at a total cost of \$120 million, had a designed production capacity of 1 Mt/yr cement. The factory would specialize in the production of cement for major infrastructure projects in Laos, such as the construction of the China-Laos railway. The commissioning timeframe was not announced (Xinhuanet, 2015).

Potash.—In September, the Vietnam National Chemical Group (Vinachem) of Vietnam announced that it had started the construction of a potash salt mine project located in Nongbok District, Khammouan Province. The project was estimated to cost \$522 million, of which Vinachem would contribute \$105 million and the remainder would be from Vietnam's commercial banks. The project would have a production capacity of 320,000 t/yr of potash salt when completed. According to Vinachem, the production of potash from this project would reduce Laos's and Vietnam's reliance on imported potash fertilizers. The commissioning timeframe was not announced (Vietnam News, 2015).

Outlook

The production of copper, gold, and silver is expected to continue to increase at a steady pace in the near future as production levels increase and operating costs decrease at the Phu Kham project. The Phu Kham Mine was projected to increase production of copper concentrate to 90,000 t in the 2018–19 time period. The production of gold at the Phu Kham project is expected to remain steady at about 2,500 kg/yr. The production of many construction minerals and materials was expected to increase in the near future to support the Government's plans to build large infrastructure projects, including railways and roads.

References Cited

- Bank of the Lao PDR, 2015, Annual economic report 2015: Vientiane, Laos, Bank of the Lao PDR, 46 p. (Accessed April 4, 2017, at https://www.bol.gov.la/together_use/Annual Report 2015_ENG.pdf.)
- Department of Mineral Resources of Thailand, 2013, Sustainable development of the mining sector by increasing the institutional and technical capacity of the Lao mining authorities—Lao-German technical cooperation project (presentation by the Department of Mines of Laos PDR): Department of Mineral Resources of Thailand, 18 p. (Accessed December 5, 2014, at http://www.dmr.go.th/download/lao_thai56/pdf_dat/Lao_German Technical Cooperation Project.pdf.)
- Ministry of Natural Resources and Environment, 2016, About GST: Vientiane, Laos. (Accessed April 4, 2017, at <http://www.monre.gov.la/about-wrea.html>.)
- MMG Ltd., 2014, Annual report 2014: Melbourne, Victoria, Australia, MMG Ltd., 156 p. (Accessed August 19, 2015, at <http://www.mmg.com/en/Investors-and-Media/Reports-and-Presentations/~media/Files/About us/MMG 2014 Annual Report.ashx>.)
- MMG Ltd., 2015, Annual report 2015: Melbourne, Victoria, Australia, MMG Ltd., 136 p. (Accessed August 22, 2016, at http://www.mmg.com/en/Investors-and-Media/Reports-and-Presentations/~media/MMG AR15_Web.pdf.)
- ORD River Resources Ltd., 2014, Annual financial report year ended 30 June 2014: Sydney, New South Wales, Australia, ORD River Resources Ltd., September 30, 85 p. (Accessed June 12, 2015, at <http://vangomining.com.au/wp-content/uploads/reports/Annual Report 2014.pdf>.)

PanAust Ltd., 2014, Annual report 2014: PanAust Ltd., December 31, 132 p. (Accessed August 19, 2015, at http://www.panaust.com.au/sites/default/files/reports/PanAust_2014AnnualReport_Shareholders_WEB.pdf.)

PanAust Ltd., 2015, 2015 business review & sustainability report: PanAust Ltd., 73 p. (Accessed August 22, 2016, at http://www.panaust.com.au/sites/default/files/reports/PanAust2015BusinessReview%26SustainabilityReport_FINAL_3.pdf.)

PetroVietnam, 2015, DMC inauguration of barite production plant in Laos: Hanoi, Vietnam, PetroVietnam, June 19. (Accessed February 10, 2017, at http://english.pvn.vn/?portal=news&page=detail&category_id=104&id=3922.)

REDD Desk, The, 2015, Ministry of Natural Resources and Environment—Lao PDR: The REDD Desk. (Accessed June 12, 2015, at <http://theredddesk.org/countries/actors/ministry-natural-resources-and-environment-lao-pdr>.)

Siam Cement Group, 2015, SCG builds its first cement factory in Laos: Bangkok, Thailand, Siam Cement Group, March 3. (Accessed February 10, 2017, at <http://en.vietstock.com.vn/2015/03/scg-builds-its-first-cement-factory-in-laos-71-197298.htm>.)

Vango Mining Ltd., 2016, Bolaven Plateau bauxite project: Sydney, Australia, Vango Mining Ltd. (Accessed February 10, 2017, at <http://www.vangomining.com/laos-bolaven-plateau-bauxite>.)

Vietnam News, 2015, Prime Minister attends launch of giant potash mine in Laos: [Hanoi] Vietnam News, September 14. (Accessed February 10, 2017, at <http://vietnamnews.vn/politics-laws/275733/prime-minister-attends-launch-of-giant-potash-mine-in-laos.html#QlofRqC6gsZBaHsl.97>.)

Xinhuanet, 2015, China-invested cement plant inaugurated in Laos to serve China-Laos railway construction: Xinhuanet [Beijing, China], December 3. (Accessed February 10, 2017, at http://news.xinhuanet.com/english/2015-12/03/c_134882109.htm.)

TABLE 1
LAOS: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2011	2012	2013	2014	2015
Antimony, Sb content (50%)	728 ^r	521 ^r	804 ^r	620 ^r	650 ^c
Barite ^c	2,500	21,900	10,500 ³	30,610 ³	95,000
Cement ^c	1,300,000	1,500,000	1,500,000	1,500,000	1,500,000
Clay, common	609,840	512,587	445,714	1,656,475	1,700,000 ^c
Coal:					
Anthracite	166,609	133,583	104,260	110,317	110,000 ^c
Lignite	511,700	578,068	403,925	99,144	100,000 ^c
Copper:					
Mine output, Cu content	59,897	63,285	64,885	71,155	78,449
Metal, refined	78,859	86,295	90,030	88,541	89,253
Gold, mine output, Au content kilograms	3,984	6,415	6,838	5,265	6,893
Gypsum, mine output	686,150	578,543	772,138	707,908	708,000 ^c
Iron ore:					
Gross weight	42,700	316,400	904,757	1,148,571	1,200,000 ^c
Fe content (62%)	26,471	196,172	560,949	712,114	745,000 ^c
Lead, mine output,	2,921	4,510	1,000	--	--
Pb content (30% to 40%)					
Limestone	997,591	1,014,000	3,781,176	773,148	800,000 ^c
Potash, K ₂ O content (65%)	NA	42,798	86,499	210,983	200,000 ^c
Salt, rock	23,395	11,980	6,099	8,706	9,000 ^c
Sandstone	339,331	1,214,668	1,211,899	391,186	400,000 ^c
Silicon, metal, exports	3,001	15,301	11,972	9,478 ^r	5,606
Silver, mine output, Ag content kilograms	18,038	20,081	32,262	39,806	51,763
Tin, mine output, Sn content (50%)	674	762	579	866	900 ^c
Zinc, mine output, Zn content (30%)	1,600	1,600	1,500	--	--

^cEstimated; estimated data are rounded to no more than three significant digits. ^rRevised. NA Not available. -- Zero.

¹Table includes data available through February 10, 2017.

²In addition to the commodities listed, sapphire and crude construction materials, such as sand and gravel and varieties of stone, were produced irregularly.

³Reported figure.

TABLE 2
LAOS: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity ^c
Barite	Barite Mining Co., Inthavong Mining Co., Lao Development Construction Co., Phethongkham Co., Oravan Barite Co., and Singphououfar Co.	Muongfuong and Sanakham, Vientiane Province	30,000 ¹
Do.	PetroVietnam Drilling Mud Corp. of Vietnam and VTS Group of Laos	Vilabouly District, Savannakhet Province	50,000
Cement	Lao Cement Co. Ltd., a joint venture between China Yunnan Corp. for International Techno-Economic Cooperation and Lao State Agricultural Industry Development Enterprise Imp-Exp & General Service	Vang Vieng Cement Plant No. I, Vientiane Province	100,000
Do.	do.	Vang Vieng Cement Plant No. II, Vientiane Province	240,000
Do.	Lao Cement Industry Co. Ltd	Thakhek Cement Plant, Khammouan Province	850,000
Do.	Luang Prabang Cement Co. Ltd.	Luang Prabang Cement Plant, Luang Prabang Province, 340 kilometers from Vientiane	100,000
Do.	Wanrong Cement I	Vangvieng, Vientiane Province	78,000
Do.	Wanrong Cement II (Yunnan Industrial Economic Co., 60%, and Agricultural and Forestry Development and Service Co. of Laos, 40%)	do.	200,000
Do.	Wanrong Cement III	Savannakhet Province	200,000
Do.	Zhongyayici Co.	Salavan Cement Plant, Salavan Province	450,000
Coal:			
Anthracite	Agriculture Industry Development Enterprises	Viengphoukha, Luangnamtha Province	60,000
Lignite	Viengphoukha Coal Mine Co. Ltd.	do.	300,000
Copper:			
Mine output, Cu content	Phu Bia Mining Ltd. (PBM) (PanAust Ltd., 90%, and Government, 10%)	Phu Kham copper-gold operation located in Xaisomboun special zone, 140 kilometers north of Vientiane, Vientiane Province	78,500
Metal, refined	Lane Xang Minerals Ltd. (MMG LXML) (MMG Ltd., 90%, and Government, 10%)	Sepon, Vilabouly District, Savannakhet Province	93,000
Gemstones, sapphire	carats Bokeo Mining Co. Ltd.	Bokeo Province	300,000
Do.	do. Buhae Industrial Corp.	Houaxay District, Bokeo Province	500,000
Do.	do. Lao International Trade and Service	do.	400,000
Gold, mine output, Au content	kilograms Lane Xang Minerals Ltd. (MMG LXML) (MMG Ltd., 90%, and Government, 10%)	Sepon, Vilabouly District, Savannakhet Province	7,500
Do.	do. Phu Bia Mining Ltd. (PBM) (PanAust Ltd., 90%, and Government, 10%)	Phu Kham copper-gold operation located in Xaisomboun special zone, 140 kilometers north of Vientiane, Vientiane Province	3,200
Do.	do. PanAust Ltd.	Ban Houayxai gold-silver project located approximately 25 kilometers west of the Phu Kham copper-gold operation	4,000
Gypsum	Lao State Gypsum Mining Co. Ltd.	Champhon District, Savannakhet Province	200,000
Do.	Mining Development Economy Cooperation (OEDCD)	Tha Kect District, Khammouan Province	150,000
Do.	Savan Gypsum Mining Co. Ltd.	Champhon District, Savannakhet Province	70,000
Do.	LAVICO Co. Ltd. (a Laos-Vietnam joint venture)	Xebangfay District, Khammouan Province	100,000
Iron ore	Lao SPG CMC Mining Co. Ltd. (a subsidiary of Gimpex Ltd.)	Houaphan Iron Ore Mine, Xam Neua District, Houaphanh Province	NA
Limestone	Laos Cement Co. Ltd. (a Laos-China joint venture)	Vangvieng, Vientiane Province	250,000
Do.	Agriculture Industry Development Enterprises	do.	150,000
Do.	V.S.K. Co. Ltd.	Tha Kect District, Khammouan Province	150,000
Do.	Phanangnon Co. Ltd.	do.	100,000

See footnotes at end of table.

TABLE 2—Continued
 LAOS: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity ^c
Potash		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 Nakon Basin in the Khammouan Province	100,000
Do.		Laotian Potash Mining Industry Ltd. Co.	Potassium chloride plant, Vientiane Province	50,000
Silver	kilograms	Phu Bia Mining Ltd. (PBM) (PanAust Ltd., 90%, and Government, 10%)	Phu Kham copper-gold operation located in Xaisomboun special zone, 140 kilometers north of Vientiane, Vientiane Province	15,100
Do.	do.	PanAust Ltd.	Ban Houayxai gold-silver project located approximately 25 kilometers west of the Phu Kham copper-gold operation	37,000
Tin, mine output, Sn content		Lao-North Korea Tin Mines	Hinboun District, Khammouan Province	120
Do.		S V Mining Co. Ltd.	do.	300

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

¹Estimated combined capacity of the six local barite mining companies.