Curbing Illicit Financial Flows from Resource-rich Developing Countries: Improving Natural Resource Governance to Finance the SDGs

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1. Introduction

Laos is endowed with natural resources, including minerals, waterways, and agricultural land. Although large-scale mining has only a short history in Laos, the country's mineral potential has been known for more than a century. Extractive operations for cassiterite, a mineral required in the production of tin, first began in the 1920s along the Nam Pathene River and continue to this day. The country's mineral deposits combined with a rise in commodity prices have attracted a plethora of foreign and domestic mining companies who have obtained more than 150 exploration licenses to date. This surge was spearheaded by Cozince Riotinto of Australia (CRA)/RioTinto's discovery of the Sepon mine 1990. Exploration started at Sepon in1993 and by December 2002, Sepon had concluded its first production of gold and silver. An open-pit copper mine operated by Lane Lane Xang Minerals Limited (LXML) in Sepon, Savannakhet Province,[2] first produced copper cathode in 2005, and reached an annual copper production of 90,030 tons in 2014.[3] The rapid growth of the mining industry removed Vilabouly District from the list of the poorest districts in Laos. Likewise, north of Savannakhet Province, PanAust began the study phase for the copper/gold operation at Phu Kham[4] in 2003 and obtained approval for the development of the $241 million Phu Kham Project. The mine's copper operations subsequently began in 2008 under the name of Phu Bia Mining (PBM).[5]

Currently, mining is seen as a driving force in the Lao economy, substantially contributing to socio-economic development in the form of taxes, local development funds and environmental protection funds. Copper production increased from 138.7 tons in 2011 to 152.2 tons in 2017, and the value of copper exports rose from USD 683 million in 2012 to USD 1,100 million in 2016, accounting for almost 90% of mineral exports during the period. The main export markets for copper are Thailand (65% of total copper exports), Vietnam (17%), China (7%), the Republic of Korea (5%), and Malaysia (5%)[6]. Although there are also several medium and small-scale operations, most of them are currently at the prospecting and exploration stage[7]. At the moment, there are two large-scale mining operations, Lane Xang Minerals Limited (LXML) and Phu Bia Mining (PBM), that dominate copper mining in the Lao PDR. According to data from the Ministry of Finance's Tax Department, during the 2012-2017 period, around 4.2% of total domestic revenues stemmed from the extractive sector, of which 92.8% was contributed by the two largest mining firms, LXML and PBM.

During the five years of 2014-2018, LXML's copper production increased dramatically. In 2014 and 2015, the company produced 191,307 tons and 207,528 tons, doubling its production in 2016 with an output of 503,511 tons, and continuing to increase, reaching 598,197 tons in

[2] "Sepon," *MMG We Mine for Progress* (blog), n.d., online, http://www.mmg.com/en/Our-Operations/Mining-operations/Sepon.aspx.
[3] *Horizon* (MMG Limited, 2018), 7.
[4] J.B. Hadaway and D.W. Bennett, "An Overview of the Design, Construction, Commissioning and Early Years of Operation of the Sag/Ball Mill Grinding Circuit at Phu Kham Copper, Gold Operation in Laos," March 16, 2018, 3.
[5] J.B. Hadaway and D.W. Bennett, 3.
[6] Source: Ministry of Industry and Commerce
[7] Source: Department of Investment Promotion, Ministry of Planning and Investment (2018)

2017[8] and 590,000 tons in 2018. Besides, due to fluctuations in global political and economic issues in 2017-18, copper prices reached multi-year highs only to later retreat and oscillate within a band of US $6.00 to US $6.40 per kilo until the end of June 2018.[9]

In June 2018, the Minerals and Metals Group (MMG) Ltd sold its 90% interest in LXML to Chifeng Jilong Gold Mining Co Ltd (Chifeng). In June 2020, Sepon recommenced gold production and initiated the transition from copper to a gold focused operation to expand the lifetime of the mine until about 2030. This is reflected in the 2021 production figures with 5,341 tonnes of copper and 192,988 ounces of gold doré.

According to the 8th Five Year Plan (2016-2020), the government's policy for the mining sector is to foster mineral processing while reducing the export of unprocessed minerals to increase the value-adding of mineral products. The government is also aware of the necessity to ensure that the benefits from mineral processing contribute to the improvement of people's livelihoods and the development of communities close to the Sepon mine.[10] These include LXML's Village Development Fund (VDF), which focuses on small-scale development projects such as fish ponds, meeting places, irrigation, and other activities, in consultation with local villagers close to the Sepon mine. Since 2010, more than US $2.5 million has been allocated to the fund. Besides, LXML provides a further US $750,000 per annum to a community development fund managed in cooperation with the Vilabouly district. Since operations commenced in 2003, LXML has contributed more than US $7.6 million to build schools, hospitals, water and sanitation, roads, and other infrastructure.

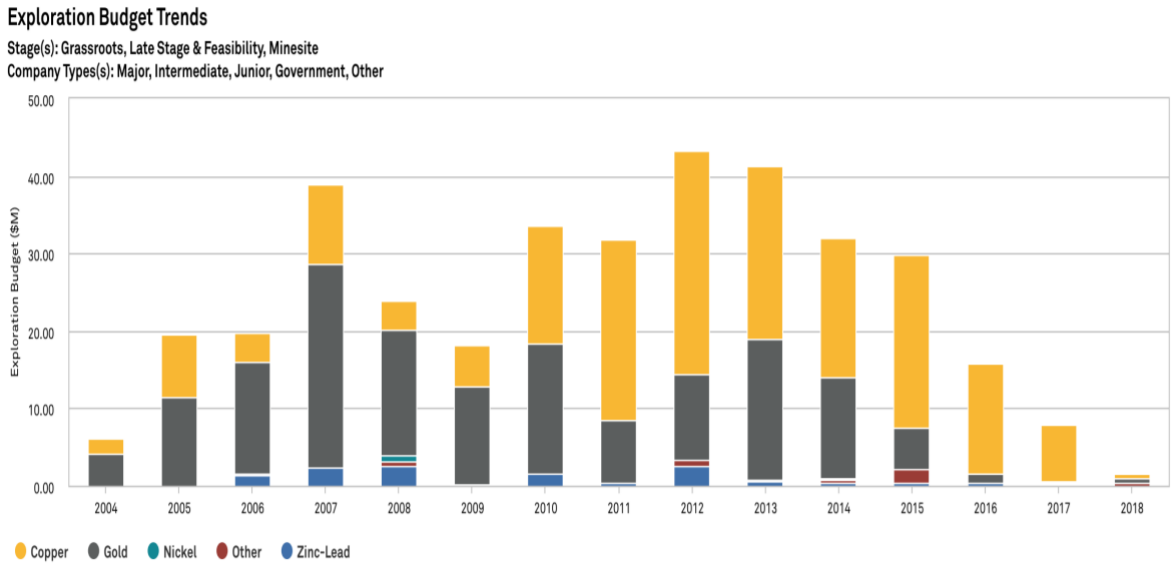
Unease about the activities of some concession holders and mining operators led the government to suspend the approval of new mining prospecting and exploration licenses for selected minerals, including gold and copper, in June 2012. Some companies hold concessions but do not actively extract mineral ores, while others operate illegally by falling short of the required environmental standards or failing to comply with other government regulations.[11] To this day, the moratorium remains in place. On July 2, 2018, the Prime Minister's Decree No. 13 was replaced by the Prime Minister's Decree No. 8, ordering the continued suspension on the approval of new projects of mining prospecting and exploration along the rivers and land all around the country until December 31, 2020. However, according to an interview with a senior government official of the Department of Mining Management, Ministry of Energy and Mines (MEM), it would be possible for this moratorium to be expanded as there remain several mining concessions that have not been inspected, and there needs to be more time to investigate the activities of these existing concession holders and mining operators.[12] This action attempts to manage the prevailing increase in general investments in the country's mining sector.

The announcement of a moratorium on new mining investments has significantly impacted the prospects and exploration expenditures of the copper and gold industries, but it has not halted

[8] *Horizon*, 5.
[9] *Horizon*, 5.
[10] "8th Five-Year National Socio-Economic Development Plan (2016-2020)," 94.
[11] Prime Minister's Decree No. 13/PM, dated 11/06/2012 regarding the suspension of approval of new mining prospecting and exploration, rubber and eucalyptus plantation concession projects in the Lao PDR. http://www.xinhuanet.com/english/2016-10/19/c_135766922.htm
[12] "Prime Minister Decree Number 8" (2018), 2.

new investments into the development of pre-existing mines. Therefore, while new (foreign) investors can purchase licenses from existing license holders,[13] those that desire to commence new mining operations under their registered name are unable to do so. The sector's financiers are comprised mostly of Chinese investors, although investors from Vietnam, Australia, Canada, Hong Kong, Taiwan, South Korea, Germany, and 11 domestic firms also hold investments in the mining sector.

Figure 1: Trends in Mine Exploration Budgets for the Lao PDR



In Figure 1, a budget peak in copper trends can be observed in 2012. The budget seemed to remain high in 2013-2015. However, in 2018, the budget decreased sharply. This contraction may be explained by the expected closure of the two biggest copper companies, LXML and PBM, in 2021 and 2022, respectively. Nevertheless, despite the observed downturn, mine processing remains an important asset for the Lao economy.

This report aims to analyze the role of the mining industry, in particular the copper sector, in the Lao economy. The report opens with a discussion of the actors involved in the sector, to be followed by an analysis of copper's value chain process and its fiscal regime. In the third section, two case studies on LXML and PBM document in detail the transactions between the Lao operations and the mother companies. Finally, the concluding section identifies critical points for illicit financial flows in the Lao copper sector.

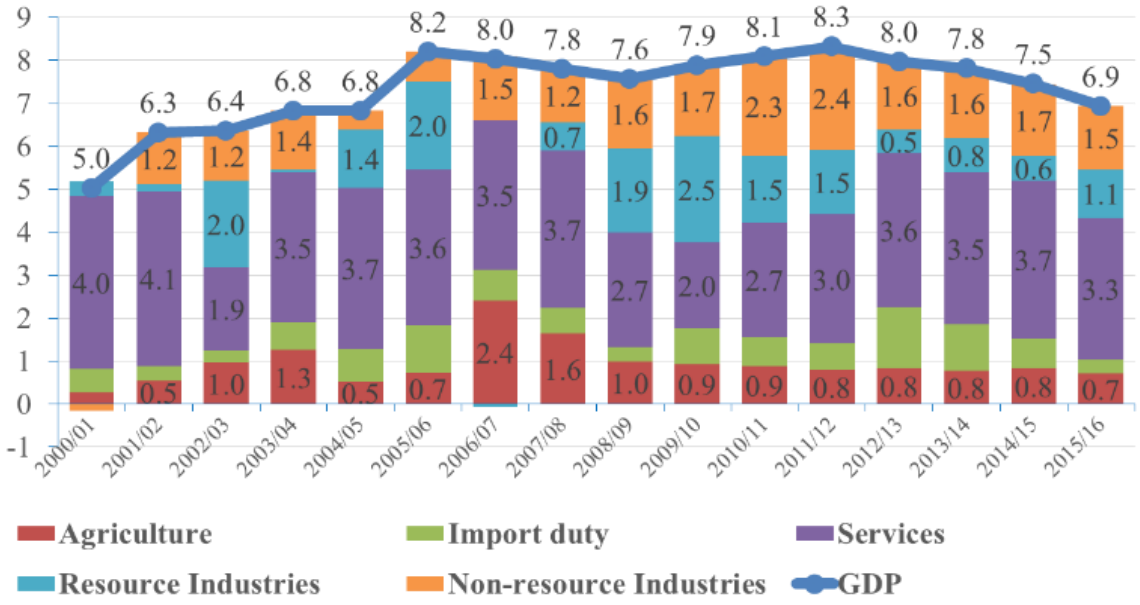
2. Role of the Copper Industry in the Lao Economy

The extractive sector, especially copper, gold, and silver, has become a driving force in Laos's economy. Its production value increased from US $8 million in 2002 to US $183 million in

[13] Interview with an accounting firm representative, 15th of November (Year?). Vientiane, Laos.

2015, and the sector has contributed to as much as 25% of GDP growth during its peak years (Figure 2).

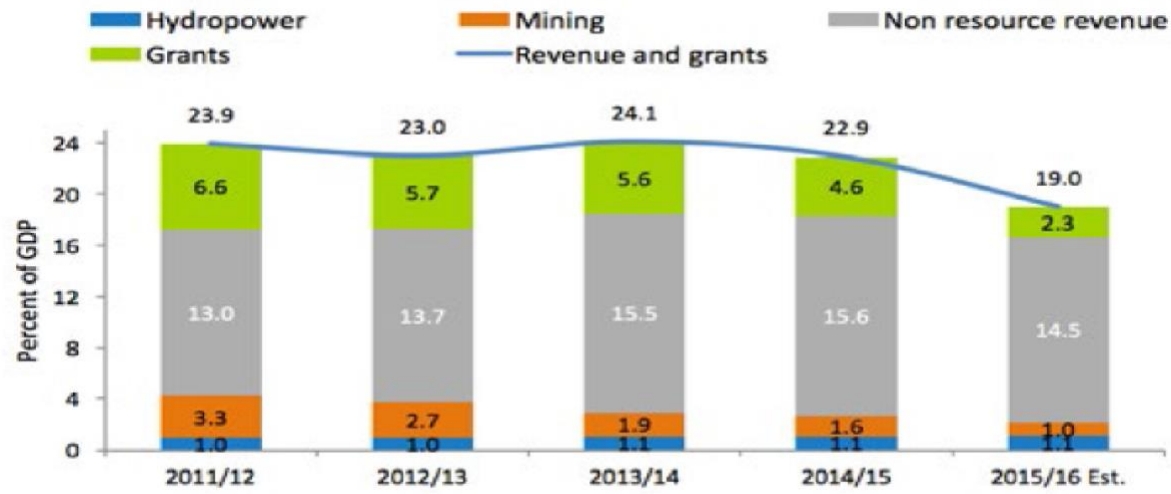
Figure 2: Contributions to growth by major sectors, %



Source: Lao Statistics Bureau, 2016.

The revenue contribution of the mining sector increased from 75.69 million US dollars in 2006 to 293.67 million in 2012, although it decreased to 188 million in 2015. Nonetheless, the government's mining revenue equated to 1% of the country's GDP growth in the fiscal year 2015-2016 (Figure 2).

Figure 3: Main sources of government revenue



Source: Ministry of Planning and Investment, 2016.

Although the copper industry contributes significantly to government revenue, there is currently no available breakdown of the tax contribution by tax category from the copper sector. Nonetheless, when broken down by company, LXML and PBM stand as the largest contributors of tax revenue in the mining sector (Table 1). For example, from 2011 to 2017, LXML constituted 80% of the tax revenue from the mining sector, while PHB constituted another 15%. The contribution from the LXML peaked at 94% in 2013 and 95% in 2014, only to sharply decrease to approximately 14.8% in 2016 and 2017 after copper cathode production dropped from 89,253 tons in 2015 to 78,492 tons in 2016 and continued to decline to 62,941 tons in 2017. The declining production was impacted by the continued transition to lower grade and more complex ores, with ore milled grades of 4.9% in 2015, 3.7% in 2016, and 2.5% in 2017[14]. There are several reasons for the mining sector's declining contribution to growth and government revenue, such as production contraction, a decline in the world market, and the government's moratorium on new mining investments. Despite its deteriorating role, the sector continues to provide substantial indirect contributions in the form of local development funds, environmental protection funds, and various other funds that totaled $3.3 million in 2015 alone. However, it should be noted that the big fluctuation in tax contributions of the large two mining companies since 2016 onward, especially the sharp decrease in the contribution of the Lane Xang Minerals company (as shown in Table 1 below), was due to the transition to a lower grade and more complex copper ore as the projected mine life for the Sepon site was to around 2020. Besides this, during 2015 and 2016, the copper price fall caused the revenue to decline, thus reducing tax contributions. Moreover, while the copper production of LXML has decreased in terms of quantity, other mineral extractions have drastically increased. For instance, a three-fold increase in lignite production from 4,464,068 tons in 2015 to 13,097,121 tons in 2016, a more than four-fold increase in sandstone from 189,435 m^3 to 817,590 m^3, and a more than six-fold increase in clay from 115,040 m^3 to 727,131 m^3. As a result, the share of tax contribution from LXML to the government's total tax revenue from the mining sector sharply declined.

Table 1: The share of tax revenues from two large mining companies in Laos (% of total tax revenue from the mining sector)

	2011	2012	2013	2014	2015	2016	2017
Phu Bia Mining	21.8	17.6	4.3	1.6	2.7	23.2	62.5
Lane Xang Minerals Limited	78.0	81.6	94.0	95.5	83.6	14.8	14.9

Source: Tax Department, Ministry of Finance.

The mining sector has attracted significant foreign direct investment (FDI). From 1988 to 2002, the two existing mining projects totaled a combined 22 million US dollars in value. The

[14] MMG Annual Reports, 2016 and 2017

industry rapidly expanded during the first decade of the 21st century, observing a total amount of approved FDI of 23 billion US dollars between 2003 and 2016. As of 2016, there were 321 mining projects with a total value of 6.2 billion US dollars,[15] and the largest mining projects were foreign investments, whose top investors (percentage of total FDI) originate from (also see Table 2):

1. China (36%)
2. Vietnam (22%)
3. Thailand (11%)

As can be gauged from Table 2, the scale of investment varies between countries, and Lao investors continue to be active in this industry with a share of 20% of total investments. Nevertheless, Lao mining projects remain small-scale (8 million USD per project), while the seven projects from Thailand are of the largest scale (an average of 48 million USD per project).

Table 2: Investment in the mining sector by country (2011-2015)

	Investing country/region	Number of projects	Approved value (US$)	(%)
1	Laos	77	625.557.075	20
2	China	61	1.147.437.408	36
3	Vietnam	25	700.287.162	22
4	Thailand	7	340.796.088	11
5	Hong Kong	6	195.065.600	6
6	Others	16	153.563.910	5
	Total	192	3.162.707.243	100

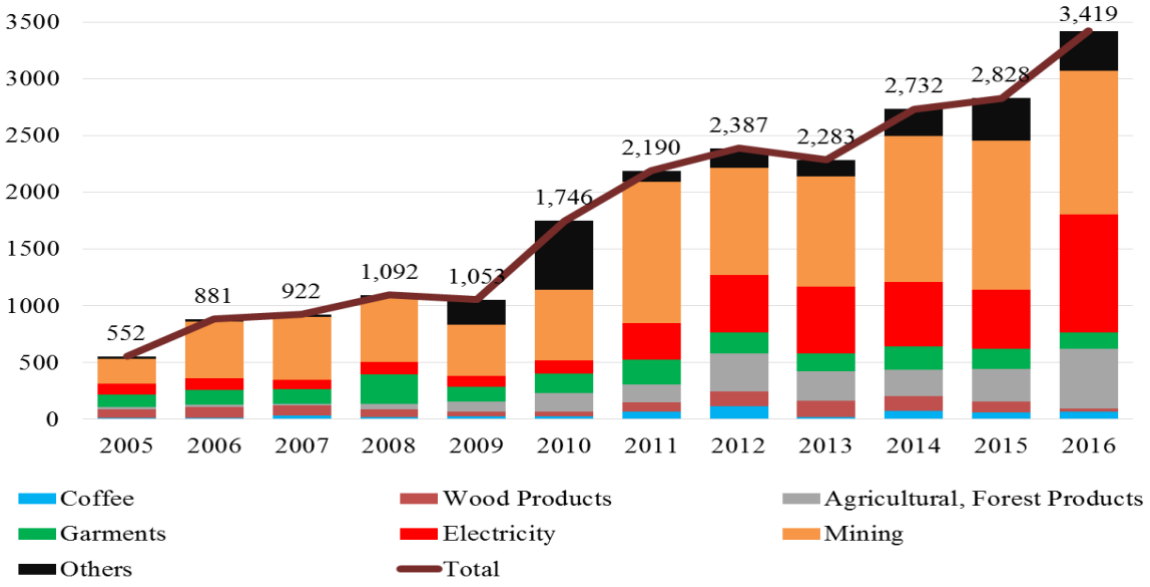
Source: World Bank Group, 2017.

Moreover, the mining sector is also the biggest foreign exchange earner. The export of minerals reached 1.26 billion US dollars in 2016, where copper, the main mineral export, totaled 1.1 billion US dollars in value and constituted almost 90% of the mineral export (see Table 3). The main copper export markets are Thailand (65% of total copper exports), Vietnam (17%), China (7%), the Republic of Korea (5%), and Malaysia (5%)[16].

[15] Other major FDI sectors include electricity generation (49 projects worth 7.5 billion US dollars), agriculture (885 projects with total approved FDI of 2.6 billion US dollars), and services (525 projects with a value of 2.3 billion US dollars). *Source: Department of Investment Promotion, Ministry of Planning and Investment.*

[16] Ministry of Industry and Commerce

Figure 4: Major export commodities from Laos (millions USD)



Source: The Ministry of Industry and Commerce, 2017

Table 3: Export mining products of Laos (millions USD)

Items	2012	2013	2014	2015	2016
Gold	150.74	153.62	140.47	152.28	129.79
Copper	683.12	765.86	1,074.86	1,118.89	1,100
Others	113.01	51.90	70.82	42.33	35.00
Total	946.87	971.38	1,286.14	1,313.50	1,264.78

Source: Bank of Laos, 2016

3. Copper Sector

According to Article 21 of the Law on Minerals (Amended version) No.31/NA, dated November 3, 2017, copper is classified into category 1 as a metallic mineral, alongside gold, silver, indium, iron, tin, lead, zinc, manganese, mercury, molybdenum, nickel, tungsten, mineral-bearing sand, minor minerals, rare-earth minerals, radioactive minerals, and a few others.

Mineral activities are classified into two different strata; mining business (mining activities related to prospecting, exploration, economic and technical feasibility studies, and mining activities that participate in an action of mining rights) and business-related to a special category of minerals (a business operation that is not required to follow the same prospecting and exploration processes as the first type). The latter includes traditional panning for metallic

minerals, extraction of non-metallic minerals for construction purposes (e.g. clay for bricks), and extraction of non-metallic minerals for industry[17].

The business of studying the geology and mineral deposits consists of prospecting, mineral exploration, and the implementation of a pre-feasibility study. The mining business encompasses mining, mineral processing, selling and buying, the transportation of minerals and mineral products, rehabilitation and mine closures, as well as the transfer of mining operations. Depending on the business related to special categories of minerals, mineral operations are classified as artisanal mining, small-scale mining, and the extraction of industrial minerals and rocks, and each category has different duties, responsibilities, and obligations. These three types of mining businesses related to special categories of minerals are not required to follow the usual steps of prospecting and exploration in the operation of the mining business.

3.1 The Actors

3.1.1 Official Authorities

Official mining authorities stem from different ministries, each with specific rights and duties. Among the most prominent ministries are the Ministry of Energy and Mines, the Ministry of Planning and Investment, the Ministry of Finance, and the Ministry of Natural Resources and Environment.

The Ministry of Energy and Mines (MEM) plays a central role in the mining sector, particularly via its Department of Mines (DOM). The DOM is responsible for the management and advancement of the mining sector, thus furthering the processing, exportation, and importation of mineral products. The DOM participates in the negotiation and signing of agreements on mining and development as assigned by the government. Besides, the DOM issues and extends licenses for mining, processing, and smelting plants, as well as certificates for purchasing, selling, and transporting concentrates.

The Ministry of Natural Resources and Environment (MONRE), in particular the Department of Geology and Minerals (DGM), is mandated to oversee prospecting, mineral exploration, and pre-feasibility studies by both the state and private investors. The DGM participates in the negotiation and signing of investment agreements on mineral prospecting and exploration as assigned by the government. The DGM also issues and extends licenses for prospecting and exploration, as well as permits to undertake pre-feasibility studies.

The Ministry of Planning and Investment (MPI) is home to the One-Stop Service Unit (OSSU). The OSSU is of significant importance to investors, as applications for investment licenses are carried out there. In the previous decade, the application process was notoriously complicated and investors were required to wait long periods of time, which led to the OSSU's eventual closure. The current cooperation and coordination of MPI, MEM, and MONRE has facilitated the restart of the OSSU's operations with a better and more effective system for license applications.

[17] Law on Minerals (Amended Version) No.31/NA, dated 3 November, 2017, Articles 38, 39, and 40.

Altogether, these three ministries are mandated to issue licenses according to the latest Law on Investment, which contains two agreements: The Mineral Prospecting and Exploration Agreement and the Mineral Procedure Agreement. Adhering to the first agreement, upon the Prime Minister's Office's (PMO) approval of the application, the main duties would befall the MEM.

According to the Law on Minerals Article 83 B, the rights and duties of the Ministry of Energy and Mines in managing the mining industry are as follows:

1. To undertake a study and to develop the strategic plan, policy plan, laws, and regulations, and then to elaborate the policy directions into work programs and plans, and detail projects to allow mining development sustainably and submit them to the government for approval;

2. To study and issue regulations concerning the management of the mining industry;

3. To disseminate, and provide guidelines, and monitor and inspect the implementation of laws and regulations related to minerals;

4. Carry out scientific, technical, and technological studies;

5. To establish a network of statistics and information centers concerning the mining industry;

6. To establish a committee to conduct the study and consider the acceptance and approval report based on the detailed feasibility study;

7. To work with other concerned sectors to research new methods of distributing the benefits of mining activities and then present them to the government for consideration;

8. To participate in the negotiation and signing of mining development agreements as assigned by the government;

9. To grant and renew mining licenses, establish processing and smelting plants, and issue certificates for buying–selling and transporting concentrates.

10. To coordinate with other concerned sectors and concerned local authorities to study and monitor the performance of the financial obligations of investors.;

11. To consider suspending, withdrawing, or canceling a mining license, the establishment of a processing and smelting plant, or the issuance a certificate for buying–selling and transporting concentrates in response to the violation of laws and regulations;

11. To request that the government consider suspending or canceling a mining concession agreement which the investor has violated;

12. To manage and monitor mining, mineral processing, smelting [refining], as well as the buying and selling of concentrates;

13. To provide technical certificates for the export and import of minerals, vehicles, machines, and equipment for use in the mining industry, including the issuing of permits for the sending of samples to select the appropriate technology when designing plants;

14. To issue [mining] bulletins and administer mining area registration;

15. To coordinate with other concerned sectors and concerned local authorities to protect, promote, and monitor operations, as well as to deal with dispute settlements for mining operations;

16. To contact and cooperate with foreign countries and international organizations regarding the mining industry;

17. To regularly summarize and report on the results of the implementation of mining activities to the government;

18. To exercise the rights and perform other duties as provided in the laws and regulations;

Lastly, the Ministry of Finance primarily deals with tax-and customs-related activities. The Tax and Customs Departments are mandated to collect taxes and check the number of products before exporting. Aside from MONRE and MEM, the Provincial and Municipal Natural Resources and Environment, and Energy and Mines Departments, and the District Natural Resources and Environment, and Energy and Mines Divisions are involved in the management of mineral activities at the local level.[18]

3.1.2 Mining companies

As mentioned above, mining operators are classified into three types, namely artisanal, small- and medium-scale miners, and large-scale operations. Artisanal mining is extensive in Lao rural communities, consisting mainly of the search for gold and precious stones. Artisanal mining activities contribute minimally to the government's tax revenue and do not engage in international trade, thus falling outside the scope of this analysis.

According to investment approval data, there are currently 51 companies investing in copper exploration and mining, with a significant number of small and medium-sized companies (Table 4 provides an overview of all companies active in the sector).

The vast majority of investors involved in medium-scale mining operations in Laos stem from China. There are a total of 13 Chinese wholly-owned companies and seven Chinese-Lao joint ventures. Similarly, Vietnam has a large presence in this industry with one Vietnamese wholly-

[18] Law on Minerals, Article 82.

owned firm and six joint Vietnam-Lao firms. Additional investing countries are Australia, Canada, China (Hong Kong, Taiwan), South Korea, and Germany. Lastly, there are currently a total of 11 domestic firms investing in this sector.

Copper projects are concentrated in the central region of the country. Some of the provinces with copper projects are Vientiane, Xieng Khouang, Sayabury, and Oudomxay. Mineral resources and potentials in Map 1 depict the presence of copper (encircled by the red line) from the north to the south of Laos. Moreover, the Phu Bia and Sepon mines, the corporate examples utilized in this study, are also found marked on the map.

Table 4: List of companies that hold an active and valid copper exploration and mining license.

No.	Company names	Activities	Investing country	Location	Date of Expiration
1	Lane Xang Minerals (Sepon Copper)	Mining and processing	China	Savannakhet	2020
2	Phu Bia Mining (Phu Kham)		Australia	Vientiane	2022
3	CNP Trading		Laos	Oudomxay	2030
4	Lao Puying Hong Kong Mining		China(Hong Kong)	Huaphan	2036
5	Tangnai Mining		Vietnam-Laos	Vientiane	2023
6	MPG Mining Company Limited (Lao)		China(Taiwan)	Sayabury	NA
7	SJK Lao		South Korea	Vientiane	NA
8	Lao Pu Ying Mining	Prospecting and exploration	China-Laos	Huaphan	2036
9	Duk Tian		China	Sayabury	NA
10	EC Suang Long*		China	Phongsaly	NA
11	Lao-China Oriental Minerals Development		China	Luang Namtha	NA
12	Amanta Lao		Canada	Luang Namtha	NA
13	Green Indochina Mining Joint Venture Company		Vietnam-Laos	Attapeu	NA
14	Geomax Lao Mining*		Germany-Laos	Attapeu	NA
15	Duang Chan Mining		Vietnam-Laos	Vientiane Capital	NA
16	Cherng Liang Chiang Chern Trading		China	Phongsaly	2033
17	Asia Pacific Mineral Industry (Lao)		China	Huaphan	NA
18	Lux Imperial Mining Group		China	Oudomxay	NA
19	Lao Hyundae Black Stone		South Korea	Vientiane	NA

20	KSCM		Laos	Vientiane	NA
21	Lao Yun Mao Mining		China-Laos	Sayabury	NA
22	Lao-China Copper Development		China-Laos	Vientiane	NA
23	Hong Gung Minerals		China(Hong Kong)-Laos	Vientiane	NA
24	Ordovician Mining (Lao)		Hong Kong	Sayabury	NA
25	Lao-China Yang Cheng Minilon Industry		China-Laos	Xiengkhuang	NA
26	King Le Mining Group		China-Laos	Xiengkhuang	NA
27	Lao-San Yuan Mining		China	Luangnamtha	NA
28	Dominion (Lao)		Australia	Sayabury	NA
29	Mekong River Mining (Lao)*		Thailand	Luangprabang	NA
30	PSL Mining		Laos	Sayabury	NA
31	Yunnan Copper Industry (Group) Oudomxay Mining		China	Oudomxay	NA
32	SJK LAO		South Korea	Vientiane	NA
33	Yunnan Zhongshen Mining		China	Phongsaly	2038
34	Sichuan Chuandi (Lao) Mining Investment Company		China	Luangprabang	NA
35	Vilasan Minerals		Vietnam-Laos	Sayabury	NA
36	Stone Hill Mining[#]		Laos	Phongsaly	NA
37	Lao Mingtai Mining*		China	Vientiane	NA
38	COECCO Mining		Vietnam	Xiengkhuang	NA
39	Neyland Lao Mining		Russia	Bolikhamsay	NA
40	Pha Them Mining		Vietnam-Laos	Vientiane	NA
41	Phongsapthavy Mining 2		Laos	Xiengkhuang	NA
42	Phongsapthavy Mining 1		Laos	Xiengkhuang	NA
43	Pha Meuang Mining Lao		Laos	Vientiane	NA
44	Lao Imperial Mining Group		China-Laos	Oudomxay	NA
45	Manoluck Mining 2		Laos	Luangprabang	NA
46	Juck Ka Phan Development		Laos	Vientiane	NA

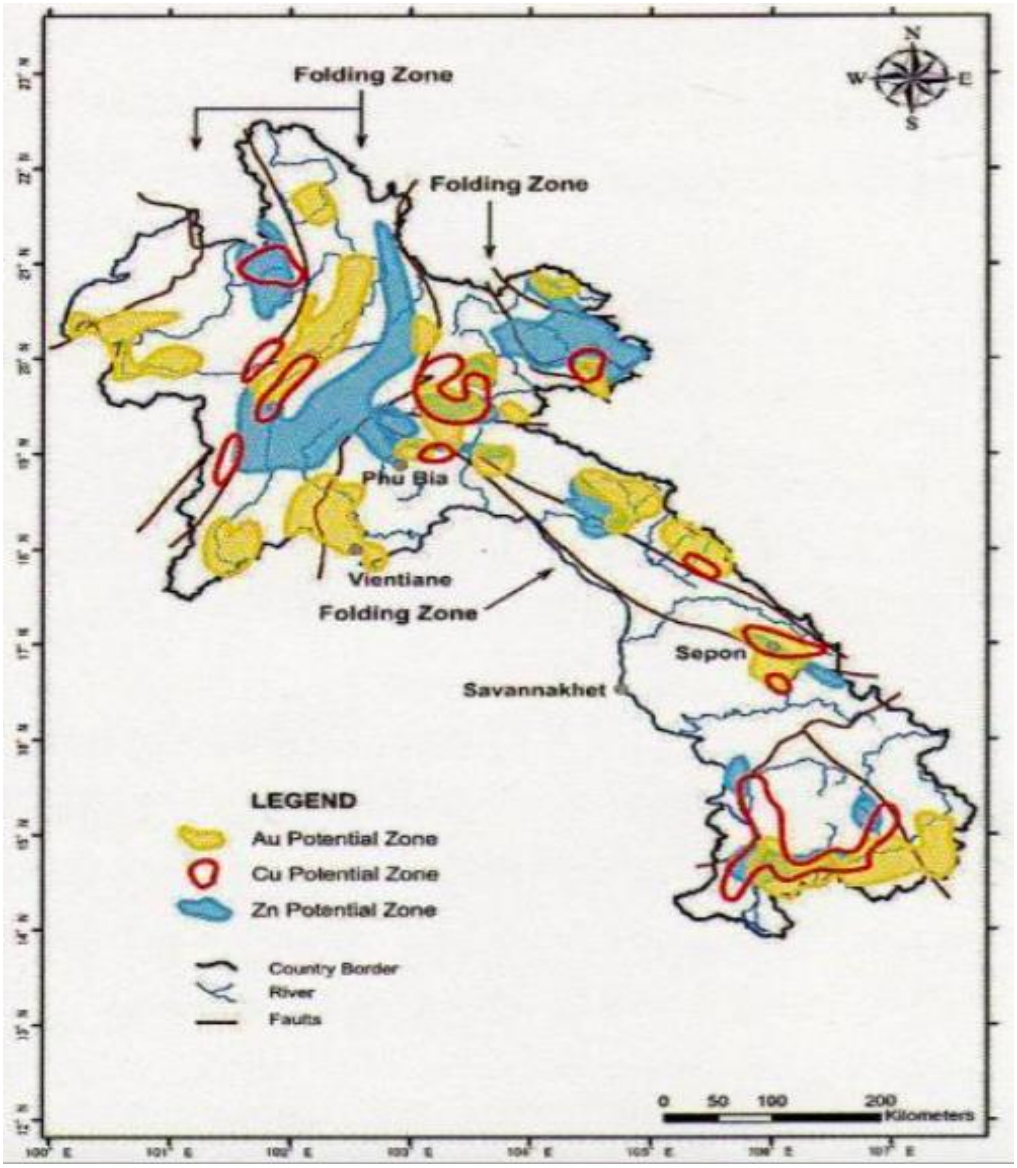
47	PPC Mining		Laos	Xiengkhuang	NA
48	Vinh Phat Oudomxay Mining		Vietnam-Laos	Oudomxay	NA
49	Laongcham Guang Tong Mining		China-Laos	Champasak	NA
50	Pacific Crossings Mining Company Limited (Lao)		China	Xiengkhuang	NA
51	Phu Kame Mining Limited.		Laos	Oudomxay	NA

Source: The authors produced the list from the foreign investment database of the MPI. The status of the implementation is implied from the name of the investment license the firm currently holds. The authors translated the English names, which may differ slightly from their true English names.

Notes: 1). Companies marked with * indicate that the license period has expired, while companies marked with # indicate the firms' decision to finalize operations and return the project to the government.

2) The expiration date is based on data from the Department of Mining Management, MEM, as of June 2019. Those marked as "NA" are due to the Lao government re-inspecting all operating mining projects and suspending new mining concessions since 2016. This is because the government needs more time to investigate the activities of some concession holders and mining operators, as some companies held concessions but did not actively extract mineral ores, while other companies were operating illegally by falling short of the required environmental standards or failing to comply with other government regulations.

Map1: Mineral Resources and Potentials



Source: Department of Mines

Among the 51 firms listed above, only seven are found at the exploitation and processing stage, while the rest of the firms remain at the prospecting and exploration stage.[19] Yet, due to the overall small size and limited trading activity of the medium-sized companies, we have chosen to exclude these companies from our analysis. Altogether, the main trading activity in the Lao copper sector is carried out by two foreign multinational firms, LXML and PBM, and so they became the main focus of our study. LXML and PBM account for more than 90% of the total mining output. In the following sections, these two companies are briefly introduced and discussed in more detail.

[19] Ministry of Planning and Investment.

3.1.2.1 **Phu Bia Mining**[20]

Phu Bia Mining Limited (PBM) possesses a Mineral Exploration and Production Agreement (MEPA) with the Government of Laos. Pan Australian Resources Limited (PanAust) owns 90% of PBM, with the Lao government owning the remaining 10%. In 1996, after years of evaluating potential opportunities in Southeast Asia, the firm acquired an 80% interest in Phu Bia Mining.[21]

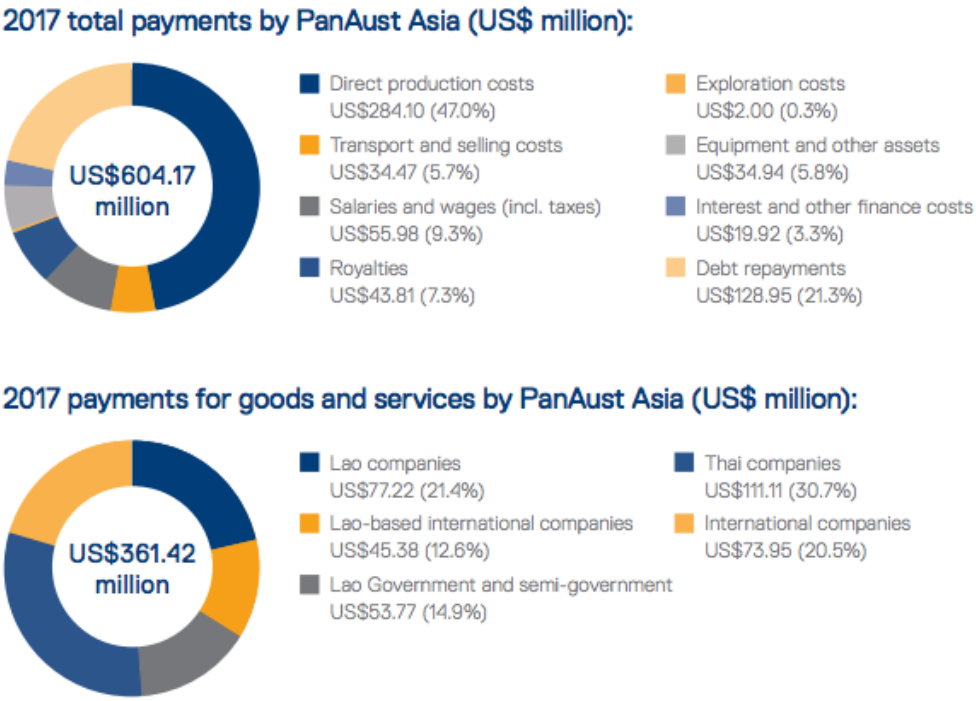
PBM's current concession area covers 2,636 km2. The company's producing assets include the Phu Kham and Ban Houay Xai operations. Phu Kham, 140 kilometers from Vientiane's capital, produces copper and gold, while Houayxai produces gold and silver. The copper production capacity of Phu Kham is 80,000 to 90,000 tons. Phu Kham mining operations began in 2008 and are expected to run until 2023.

PanAust currently invests in its transport fleet to move its concentrations within Laos [22]. While the company produces copper concentrate for export to smelters located primarily in Asia, 80% of PHB's total copper concentrate [23] is transported in containers to the Vung Ang or Hon La ports in Vietnam, and the remaining 20% of the products are exported to the Sriracha Harbour in Thailand.

PBM contributes to the Lao government in the form of profit tax, royalties, and dividends. In 2017, the firm contributed a total of US $90 million in tax revenues, an increase from the US $66.7 million paid in 2016 and the US $55.14 million in 2015[24]. Figure 5 depicts PanAust's payments from 2015 to 2017 broken down into categories, where one can observe the near doubling of its tax payments during that period. PHB also expends US $176 million on Lao suppliers of goods and services, of which 43% is spent on Lao companies and 26% is for Lao-based international companies. Lastly, PHB employs 3,292 people in Laos, of which Lao nationals make up a total of 91%[25] and 29% of this portion is sourced from the local area.

[20] Summarized from http://www.panaust.com.au/phu-kham-copper-gold-operation
[21] J.B. Hadaway and D.W. Bennett, "An Overview of the Design, Construction, Commissioning and Early Years of Operation of the Sag/Ball Mill Grinding Circuit at Phu Kham Copper, Gold Operation in Laos," 3.
[22] PanAust 2017 Business Review and Sustainability Report 2017, p.6
[23] The operation comprises an open-pit mine feeding ore to a conventional milling and flotation operation which produces a copper and precious metals concentrate for export to custom smelters mainly in Asia. The concentrate contains approximately 23 percent copper, 6 grams per ton (g/t) gold, and up to 47g/t silver. (https://panaust.com.au/phu-kham-copper-gold-operation).
[24] http://annx.asianews.network/content/phu-bia-mining-contributes-us90-million-lao-govt-2017-68992 and PanAust 2017 Business Review and Sustainability Report 2017, p.55
[25] PanAust 2017 Business Review and Sustainability Report 2017, p.54

Figure 5: Tax contributions by PBM



Direct economic benefit to the Government of Laos

DESCRIPTION	US$ million 2015	2016	2017
Payroll tax	4.69	4.24	4.16
Customs excise (import service fee)	2.78	1.74	1.70
Road tax	4.26	4.48	4.70
Profit tax (income tax)*	1.18	16.19	25.33
Royalties	37.36	35.55	43.81
Concession fees	0.06	0.06	0.06
Value added tax paid upfront*	14.22	12.06	12.70
Value added tax deducted from profit tax**	(14.22)	(12.06)	(12.70)
Fuel import duty and excise tax	7.59	9.87	13.65
Fuel import duty and excise tax deducted from profit tax**	(7.59)	(9.87)	(13.65)
Cross border tax paid upfront	0.90	1.51	1.41
Cross border tax deducted from profit tax**	(0.90)	(1.51)	(1.41)
Dividend	4.80	4.50	10.50
Total contribution	55.14	66.76	90.26
Copper price (US$/lb)	2.38	2.25	2.84

* In 2016, the Company initiated a strategy to reduce the prepaid profit tax balance.

** In accordance with the MEPA, PBM is exempt from value added tax and all import duties and excises and these are offset against profit tax in the year in which they are incurred; for 2015, these payments exceeded profit tax payable and accordingly are treated as a prepayment against future profit tax.

Source:
https://panaust.com.au/sites/default/files/reports/PanAust_2017%20BRSR_FINAL.pdf

3.1.2.2 **Lane Xang Minerals Limited**[26]

Sepon is an open-pit copper mine in Savannakhet Province. The registered name of the operating company is Lane Xang Minerals Limited (LXML), of which MMG used to own 90% and the Lao government 10%. MMG Laos Holdings Ltd is a company incorporated in the Cayman Islands and wholly-owned by MMG Ltd, a Chinese multinational, while LXML used to be a subsidiary company of MMG Laos Holdings Ltd that operated the MEPA. The new owner of LXML is Chifeng-Jilong Gold Mining Co. Ltd. This is because MMG Laos Holdings Ltd agreed on June 21, 2018, to sell its 90% interest in LXML, which owned the Sepon mine in the Lao PDR, to Chifeng-Jilong Gold Mining Co. Ltd. This enabled LXML to extend the mine life of Sepon until 2028 through the transition from copper production to primary gold operation. Chifeng-Jilong Gold Mining Co. Ltd will retain the existing LXML management team and continue to operate under the same international standard that LXML has maintained since the operation began in 2003.

The Sepon copper mine was the first large commercial private mine to begin operations in Laos in 2002. The project was initiated in 1993 by a contract between CRA Exploration (Laos) Limited and the Lao government to prospect and explore minerals in Vilabouly District, Savannakhet Province, with a concession area of 5,000 km2 and to establish Lane Xang Minerals Limited (LXML) to operate the project, or the Mineral Exploration and Production Agreement (MEPA).[27]

The initial exploration was a joint operation between CRA Exploration (Laos) and Rio Tinto, which is an Anglo-Australian multinational and the world's largest metal and mining corporation. However, in the early 2000s, the project was acquired by Oxiana, an Australian mining company. In 2008, Oxiana merged with Zinifex, another Australian company, to form OZ Minerals, a company that experienced financial difficulties soon after the merger and was eventually taken over by MMG, which was later purchased by the China Minmetals Corporation (CMC) in 2009.

The Sepon copper mine produces primarily gold and copper, and in 2016 it employed more than 2,700 people. According to the company's official website, Sepon produced gold between 2002 and December 2013 through the open-pit mining of an oxide gold ore. During this time, Sepon produced over one million ounces of gold, which was transported from the mine site to Perth, Australia, to be refined into gold bullion. Subsequently, diminishing gold deposits and decreasing global gold prices lowered the profitability of the mine's gold operations, and, in 2013, the company ultimately announced the closure of its gold operation and a focus on copper mining.

Although copper production commenced in 2005, the company did not manage to extend its copper operation to increase its annual capacity until 2011, when it increased its capacity from 70,000 tons the previous year to over 80,000 tons of copper cathode per year. The copper produced at Sepon is of high quality, which has been certified as grade A by the London Metals Exchange (LME), and it is exported to markets in China and Thailand. The expected life of

[26] Summarized from http://www.mmg.com/en/Our-Operations/Mining-operations/Sepon.aspx

[27] "Horizon," 7.

this copper mine was originally estimated to last until 2020, with gold extraction expected to produce gold within 18 months to extend the life of the Sepon mine.[28] According to MMG's 2017 Annual Report, the Sepon mine produced 62,941 tons of copper cathodes and generated US $399.9 million in revenue during that year.

Generally, copper is crushed and milled by applying a sulphuric acid solution, and any remaining copper is then detached through acid leaching. Sepon's mining operations gradually began to face challenges by operating with lower grade minerals. While in 2017, the mill grade was 2.5%, in 2016, the grade was 3.7% in 2016, 4.9% in 2015, and 5.3% in 2014[29].

In June 2020, Sepon recommenced gold production and initiated the transition from copper to a gold focused operation to expand the lifetime of the mine until about 2030. This is reflected in the 2021 production figures with 5,341 tonnes of copper and 192,988 ounces of gold doré.

3.2 The Process: The Steps of the Copper Value Chain

Different stakeholders play various roles at different stages of mining operations. This section briefly describes the process, required documentation, and the role of stakeholders at the three main stages of the copper mining operation, namely pre-mining, mining, and mine closure.

3.2.1 Pre-Mining Stage[30]

Several government authorities are involved in the pre-mining stage. The identification of stakeholders and the role of each stakeholder can be understood through the process the investor must undergo to obtain an investment license for prospecting and exploration[31]. The copper sector is governed by the law on investment promotion[32] and the law on minerals[33]. Under the investment promotion law[34], copper mining is defined as a concession business, and thus, the investor is required to submit all required documents to the investment One-Stop Service (OSS) (formerly OSSU) within the MPI. The required documents include an application letter for investment, a brief proposal on project development, the company's background and experience, the company's license or business registration, the shareholder's agreement (if applicable), a power of attorney from the company (if applicable), a description of the project location (global position of the concerned area), project technical data, results of primary data collection (if any), and a certificate of financial status (if any), along with supplementary documents[35].

[28] "ADDIN ZOTERO_ITEM CSL_CIT
[29] Source: SNL database
[30] The main sources of information for the stakeholder at the pre-mining stage are the law on investment promotion, the investment guidelines provided by the MPI, and key informant interviews with officials from the Department of Investment Promotion during 23-27 April, 2018.
[31] The name was changed from a concession license to an investment license recently (Personal interview, an official at the Department of Investment Promotion, 14 May, 2018.
[32] The law on investment promotion (Amendment), N.14/NA, dated 17 November, 2016.
[33] The law on minerals (Amendment), N.02/NA, dated 20 December, 2011.
[34] Article 41, the law on investment promotion (Amendment).
[35] Document checklist, investment application form for the mining sector, OSS, MPI

The OSS, officially re-opened on April 25, 2018, and is responsible for coordinating and directing the investment application documents to the relevant authorities, such as the Department of Geology and Minerals, and the Department of Mining within the MEM, the Department of Natural Resources and Environment Policy within the MONRE, as well as the Provincial Authorities where the project is located. After receiving all the comments from relevant public sectors, the OSS makes a summary of all comments and recommendations, and reports this to the Central Investment Promotion and Supervision Committee (CIPSC) for consideration during the CIPSC's official meetings.

The CIPSC is chaired by the Deputy Prime Minister with 11 members[36]: the Minister of Planning and Investment, the Minister of Industry and Commerce, the Deputy Minister of Planning and Investment, the Deputy Minister of Finance, the Deputy Minister of Natural Resources and Environment, the Deputy Minister of Energy and Mines, the Deputy Minister of Agriculture and Forestry, the Deputy Minister of Labor and Social Welfares, the Deputy Minister of Public Works and Transport, the Deputy Minister of Information, Culture and Tourism, and lastly, the Deputy Minister of Public Security. The CIPSC is mandated to manage controlled and concession businesses, and it may approve, amend, suspend, and terminate investment for these businesses. It also develops special economic zones (SEZs), directs the OSS, and the provincial investment promotion and supervision committees[37], and monitors the implementation of investment laws, regulations, and agreements[38]. Although the CIPSC holds two regular meetings per month[39] when members from the technical authorities relevant to the sector require the CIPSC's decision[40], an increase in investment applications or investment-related issues submitted to the CIPSC for consideration may prompt the CIPSC's chair to adjust the number of meetings. The CIPSC requires the attendance of at least half of its members in each meeting.

Upon the CIPSC's investment application approval, the OSS then holds negotiations with the investor and representatives from all relevant authorities regarding the terms and conditions of the contract and reports back to the CIPSC. If the contract details are approved by the CISPC, the MPI submits the document to request a letter of attorney from the government via the Prime Minister's Office.

If, during this process, the investment is found to result in the resettlement of five hundred or more families, or if the concession area is 10,000 hectares or larger, the project requires the

[36] Article 6, Prime Minister's Decree No.05/PM on the Investment Promotion and Supervision Committee dated 5 January, 2018.

[37] Article 79, Law on Investment Promotion (Amended, 2016): some rights and duties of provincial committees for investment promotion and management are to 1) to consider and approve as deemed appropriate investments under the controlled business and concession investment list following the level of management as specified by the relevant sector authorities; 2) to supervise and monitor the implementation of relevant laws and regulations and investment-related agreements within their jurisdiction.

[38] Article 4, Prime Minister's Decree No.05/PM on the Investment Promotion and Supervision Committee dated 5 January 2018.

[39] Article 8, Prime Minister's Decree No.05/PM on the Investment Promotion and Supervision Committee dated 5 January, 2018.

[40] Article 9, Prime Minister's Decree No.05/PM on the Investment Promotion and Supervision Committee dated 5 January, 2018.

approval of the National Assembly. Lastly, the investment license for prospecting and exploration is signed by the Minister or Vice Minister of Planning and Investment on behalf of the government.

After receiving the prospecting and exploration license, the investor is then required to draft an operation plan with approval from MONRE. The operation plan is divided into three stages: prospecting, exploration, and the primary feasibility study. At the prospecting stage, the project's proponent is required to conduct a field study on geological and mineral information, provide a report on mineral characteristics, and determine the area for possible exploration. During the exploration period, the proponent conducts a study of the geological structure and minerals in the selected area to understand the quantity and quality of the minerals and to provide the primary economic and technical condition of the proposed excavation site. Lastly, the investor conducts the pre-feasibility study to precisely calculate the mineral quantity and provide an initial assessment of the planning for excavation, processing, production, and the distribution of the minerals. The investor conducts an initial environmental and social impact assessment as well as an assessment of the economic effectiveness of the project as part of the pre-feasibility study.

Given that the pre-feasibility study is approved by MONRE and the detailed feasibility study is approved by the MEM, the investor is then allowed to proceed to the next step of the process which is the application for an exploitation and processing investment license. The MPI leads the negotiations with the investor on the mining and processing contract's terms and conditions, including taxation, fees, and contributions to different social and environmental funds (Table 4). During this phase, the OSS submits all this documentation to the relevant authorities for comments and reports the collected comments and recommendations during the CISPC's meeting. The MPI, once more, submits the result of the negotiations and the outcome of CISPC's meeting for the government's consideration and requests a power of attorney through the Prime Minister’s Office. The MPI, on behalf of the government, ultimately signs the concession license[41] for exploitation and processing with the investor.

3.2.2 Mining Stage

At the mining stage, the MEM is the most important stakeholder for the copper industry. The ministry has the right to issue and manage the policies and regulations governing the mining industry, including the copper sector. During the mining stage, the ministry has additional rights of significance, including[42]:

- supervising the investors’ financial obligations;
- issuing, amending, and/or canceling mining licenses;
- proposing to the government the suspension or cancellation of a mining concession agreement;
- managing the processing and selling of mineral concentrates (in practice, the MEM assigns its field officials to be based at the production site to monitor processing and collect samples of mineral to be tested before being exported);

[41] Recently, the name has changed to investment license
[42] Article 83.B of the Law on Minerals (2011)

- issuing technical certificates for exporting minerals and importing the necessary capital for the operation;
- coordinating with relevant agencies to monitor mining operations; and
- coordinating the dispute settlement process during the operations[43].

For the renewal, suspension, or cancellation of the mining concession agreement, as well as the reporting of any disputes, the MEM coordinates with the MPI to report to the CISPC for consideration before requesting the final decision from the government through the Prime Minister's Office. The Ministry of Finance (MOF) is in charge of collecting all tax and non-tax revenues from copper companies. Collectively, MEM, MOF, and the Ministry of Industry and Commerce (MOIC) are major stakeholders in granting export licenses and processing the export of copper. However, according to the key informant interviews, especially the MOF's tax official, the public's capacity to assess company accounts is limited or weak.

Similarly, provincial, district, and village authorities where the mine is located also play important roles at this stage. The Provincial Department of Energy and Mines (PDEM) provides technical comments on the project's operation in terms of contract compliance to the MEM. This department coordinates with the Provincial Government Office and the Provincial Department of Planning and Investment (PDPI), along with district and village authorities, to plan and implement development activities by using the community development fund[44] (a fund to which the investor is required to contribute, according to the Law on Minerals[45]). However, the details of the community development fund are currently ambiguous under the law, and large operations tend to develop their own community development fund schemes and display different approaches to community development. For instance, the Sepon Development Trust Fund of LXML administrative committee consists of company and government representatives from village, district, and provincial authorities, and the fund aims to endure for 10 years [46]. The district authorities have an important role in deciding and managing the fund so that the use of funds contributes directly to the development of the community. The trust fund's board is co-chaired by the governor of Vilabouly District and the company's senior social license and sustainability manager, with a board that includes village leaders from communities affected by the company's mining operations as well as government staff from relevant offices[47]. In contrast to the management style of the Sepon Community Development Fund, PBM's Fund is under company administration, where the management committee is comprised of government representatives that work closely with the company or the officials who are assigned to be based at the production site. In addition, the village development

[43] This means that during the MEPA implementation period, in case of there is any problem arising from the project, such as not following technical standards as stipulated in the MEPA, the MEM coordinating with the MPI will propose to the relevant authorities to warn the company or order the suspension, amendment, or termination of a project or the operation of an investment. This will happen should it fail to comply with investment objectives, agreements, or the payment of tax and other obligations according to Lao laws and regulations.

[44] It is unclear whether when the company has its community development funds, the company is required to contribute directly to other development funds of the province and/or the district where the project is located.

[45] Article 65 and 67 of the Law on Minerals (2011)

[46] World Bank. 2011. *Community Development in the Lao Mining Sector*. Washington, DC.

[47] McGuire and Reimann, 2011, "Sustainably managing social investment in poor communities surrounding Sepone operations"

committee contains members from villages surrounding the mine site to encourage participation from the local community. However, the administrative board of PBM's Fund consists of village authorities who have limited knowledge and a lower management ability to manage the fund compared to LXML because it does not consist of higher-level authorities such as district and provincial authorities.

Lastly, local businesses are also important stakeholders in copper operations. Under the Law on Minerals, one of the obligations of the mining business operator is to maximize the use of local or domestic goods and services[48]. Thus by encouraging mining operations, the government may indirectly foster the development of local businesses. In practice, however, the link between small- and medium-size mining operations and local businesses is rather low, and the use of domestic goods and services is limited[49]. Local small- and medium-sized enterprises (SMEs) near mine operations are usually located in rural areas and have limited capacities and low competitiveness compared to other larger domestic and foreign suppliers. Moreover, many small- and medium-size mining companies do not invest in strengthening the capacity of local SMEs. In practice, large mine operations do promote local businesses. For example, LXML has a good initiative in sourcing from and strengthening the capacities of local suppliers in providing food, uniforms, house-keeping and laundry services[50].

3.2.3 Mine Closure Stage

Mine closure is a crucial stage in the operation of a mine as it mitigates, manages, and minimizes the social and environmental impacts of mining. Throughout this process, the collaboration of relevant stakeholders is of utmost importance, where government stakeholders, in particular the MONRE, play a vital role. According to the Law on Minerals, the investor is obliged to improve and rehabilitate the mining area after the exploitation phase is completed[51], which is a required measure to avoid or minimize the social and environmental impacts, and to ensure sustainable development in the mining sector.[52].

Given a lack of detailed regulation, large mining companies tend to follow their standards or use international best practices as benchmarks when structuring the mine's closure plan. For instance, although Phu Bia Mining's MEPA with the government requires the company to develop a mine closure and rehabilitation plan, details such as the structure, contents, specific requirements, and timeframe are not identified[53]. Phu Bia Mining, therefore, produced its conceptual mine closure and rehabilitation plan in 2009 using international standards and practices such as the International Finance Cooperation and Equator principles and later modified it in 2011 with the engagement of Golder Associates, a consulting firm[54]. Additionally, a rehabilitation and closure committee, comprised of the investors as well as

[48] Article 65, the Law on Minerals (2011)
[49] NERI, 2016, "The impacts of mining operations on SME development and local livelihoods"
[50] The Climate and Finance Policy Centre, Greenovation Hub, 2014, "China's Mining Industry at Home and Overseas: Development, Impacts and Regulation", p.33.
[51] Article 27, the Law on Minerals (2011)
[52] Article 60 and 61, the Law on Minerals (2011)
[53] Mauric et al, 2012, "Closure planning in a developing country- a case study from the Phu Kham Mine, Laos, South-East Asia"
[54] Mauric et al, 2012, "Closure planning in a developing country- a case study from the Phu Kham Mine, Laos, South-East Asia"

government representatives, was also established to oversee the mine closure policy and process [55]. It was also reported that members from the National University of Laos, and provincial and district authorities have also taken part in the review of the company's on-going rehabilitation[56]. Similarly, LXML has established a mine closure committee co-chaired by the vice governor of Savannakhet province and the general manager of the mining operations at Sepon[57]. The committee oversees the mine closure plan, discusses different options for land use, and decides on the implementation of a sustainable community development program.

3.3 Fiscal Contribution of the Copper Sector

The Lao Tax Law No. 70/NA dated December 15, 2015 sets out the general guidelines that delineate the financial obligations of companies in the copper sector to the government. In practice, however, the exact obligations payable by the companies to the government are negotiated on a case-by-case basis and confirmed in the MEPA[58].

Under the Tax Law, there are two types of taxes: direct and indirect. While the former is levied on all citizens, individuals, legal entities, and organizations that generate income or operate a business in Laos and foreign countries, the latter is levied on consumers of general goods and services through business operations within the territory of Laos. Direct taxes include profit tax, income tax, lump-sum tax, and environmental tax, as well as fees and administrative charges[59], and indirect taxes include value-added tax and excise tax.[60]

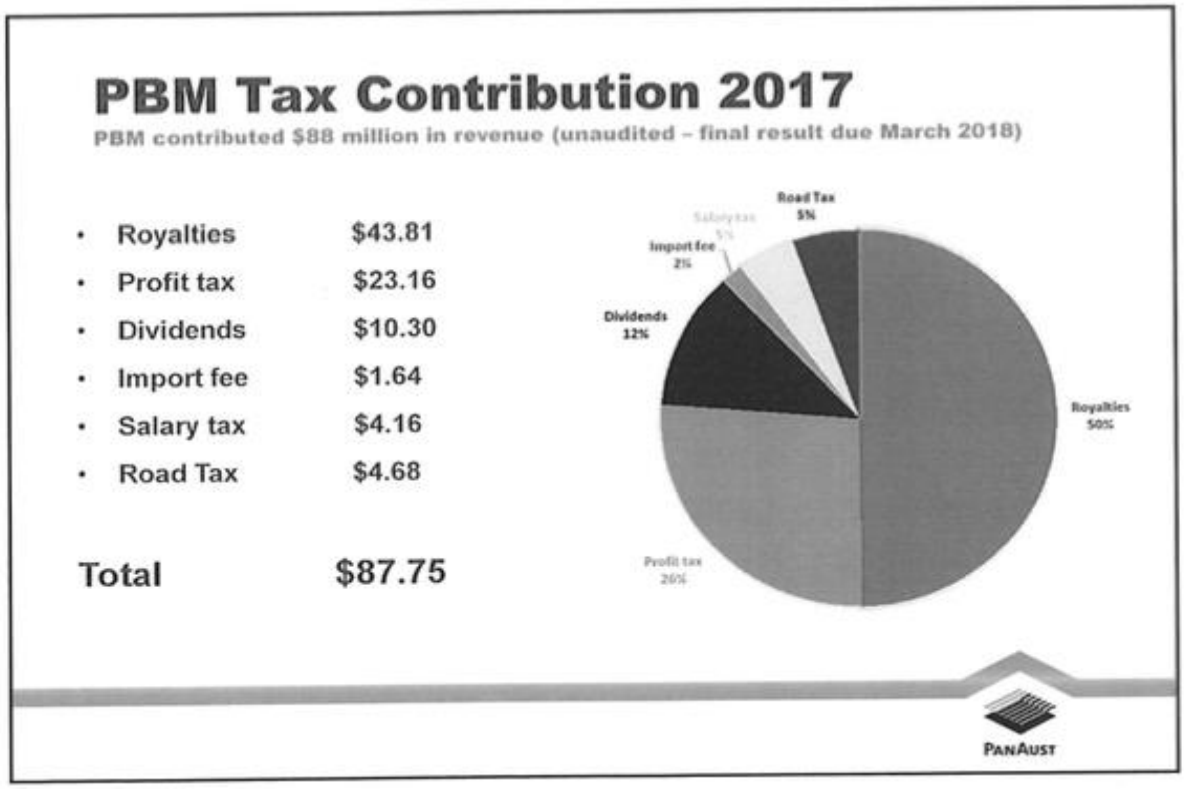
For instance, as noted in the MMG annual report, "The MEPA sets out the terms and conditions for LXML's mining and processing operations and exploration activity, concerning gold and copper, and confirms the taxes payable by LXML and concessions granted by the Government of Laos to LXML in respect of such taxes." (MMG AR 2017, p57). For 2017, the actual amount payable under the MEPA of LXML was approximately 18.5 million USD, this being an aggregated amount of all taxes and royalties payable to the Government of Laos under the MEPA (MMG AR 2017, p57). Moreover, in the same year, dividends of 3.5 million USD were also paid to Sepon's minority shareholder, the Government of Laos. (MMG AR 2017, p28).

Similarly, PBM paid various indirect taxes in 2016, including 2 million USD in import fees, 5 million USD in profit tax, 5 million USD in salaries, 5 million USD in dividends, and 35 million USD in royalties, according to its MEPA. Furthermore, PBM also paid new taxes imposed by the Government of Lao, namely 15 million USD in fuel funds, 15 million USD of VAT, and another 10 million USD.[61]

PMB has contributed significantly to the Lao government. In 2015 alone, PBM contributed 55.14 million USD, increasing this amount to 66.76 million in 2016 and around 87.75 million USD in 2017 (Figure 6).

[55] PanAust Sustainability Report 2012, p.45
[56] PaAaust Sustainability Report 2012, p.45
[57] McGuire and Reimann, 2011, p.7
[58] Interview with a Tax Department representative.
[59] Tax Law, 13.
[60] "Tax Law," Pub. L. No. No.70/NA (2015), Article 12.
[61] "Phu Bia Mining Meeting" (PanAust, 2018).

Figure 6. PBM 2017 tax contributions



Source: Phu Bia Mining Meeting, 2018.

Table 5 below details the financial obligations of companies engaged in copper mining operations. In addition to describing the general guidelines on the financial obligations of the industry, the table displays additional information referenced by the two largest mines regarding the outcome of their negotiations with Lao authorities on the companies' financial obligations.

Table 5: Financial obligations of the copper investors to the State

No.	Types of financial obligations	Rate	Authority responsible / collector	Remarks
1	Profit tax / corporate income tax	35%	Central	According to the Tax Law(amended), the profit rate was lowered from 35% in 1995 to 24% in 2015. However, according to the government's directive, as minerals are non-renewable resources, the total government's revenue (tax and non-tax revenues) from any mining business shall be not less than 45% of the total profit of the mining project, and based on the Order, the estimated profit tax is approximately 35%. Therefore, although it is not stipulated in the tax law, the authorities responsible for investment approval will be based on this order to negotiate with the investors when drafting the concession agreement. MMG as well as its new owner (Chifeng-Jilong) pay profit tax at a lower rate (33%). This is due to the fact that MMG was granted the concession in 1993,

				the initial years of implementing the market-oriented economy, and at that time the government eagerly promoted and attracted FDI, but there was no specific rate. Thus, based on negotiation and FDI promotion.[62]
3	Royalty / natural resource tax	4,5-6% of the sales value	Central	Royalty rates are also up for negotiation between the government and company as part of MEPA.
4	Land concession fee (exploitation stage)	80 US$/ hectare/ year	Central Level (In case the mining project is located in the 3-build District[63], then after the fee is collected, the central level will allocate some portion of the fee amount to the District and Province where the project is located)	This amount constitutes US $2 /hectare/year for the exploration stage
5	Excise tax			Law on Excise tax under review
6	Import duties			
7	Value-added tax		Central	But Exemption by negotiation
8	Income tax on employees	Progressive rate	Provincial Level	
9	Environmental protection fund		Provincial Level	By negotiations between government authorities and the investor, depending on the size of the concession area and the scale of investment.
10	Community development fund - Social development fund for the province Local community development fund for the district		Provincial Level	By negotiations between government authorities and the investor, depending on the size of the concession area and the scale of investment.
11	- Project monitoring and management fund		Central Level	
12	Human resource development fund		Central Level	
13	Rehabilitation and resettlement		Provincial Level	

Note:

- Compiled from Work Package 2 Report dated 31 March, 2018
- Updated by a key informant interview with government officials from the MPI and the MOF.

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4 Case Studies of Copper Industry Value Chain in Laos

Because investors in the Lao copper industry come from different countries, the wealth chain tends to differ from one copper operation to another. Therefore, the wealth chain of the Lao copper industry can be best understood through the study of the two largest mine operations, LXML and PBM. We pay special attention to the actors involved, alongside the main operating companies, in the different stages of the wealth chain.

4.1 The Value Chain of Lane Xang Minerals Limited [64]

There are several players in the value chain of LXML (Sepon copper mine) at different stages of its operations; namely exploration, mining, processing, exporting, and the international market.

4.1.1 Exploration

Like most mineral companies, the Sepon mine project began with the exploration stage. Sepon recruited geologists and other specialist teams to prospect the controlled areas in search of mineral deposits, and the company has engaged in many activities like geological surface mapping, allocation and sampling, geological measurements, and geological analysis to study the mineral deposits' potential. The Sepon mine also hired contractor companies to dig, open pits, and provide goods and services during its exploratory operations.

Table 6: Main domestic contractors with the Sepon copper mine

Contractors	Roles and responsibility	Notes
Lao Skyway	Providing air transportation between Vientiane Capital to Sepon's campsite and hotel accommodation in Vientiane Capital.	Average expenses of 15 million USD per year
Électricité du Laos (EDL)	Serving power to the mine site	Average expenses of 20 million USD per year. Distributing from the Nam Theun II Hydropower station
Lao State Fuel	Providing petroleum fuels for the operation	Average expenses of 15-20 million USD per year
Sodexo Lao	Food services	
Savan Security Company	Providing all security services	
Khounxay Group (KXN)	Stone crushing, road building, and accommodation services	

[64] Summarized from an interview with a company representative on 11 May, 2018

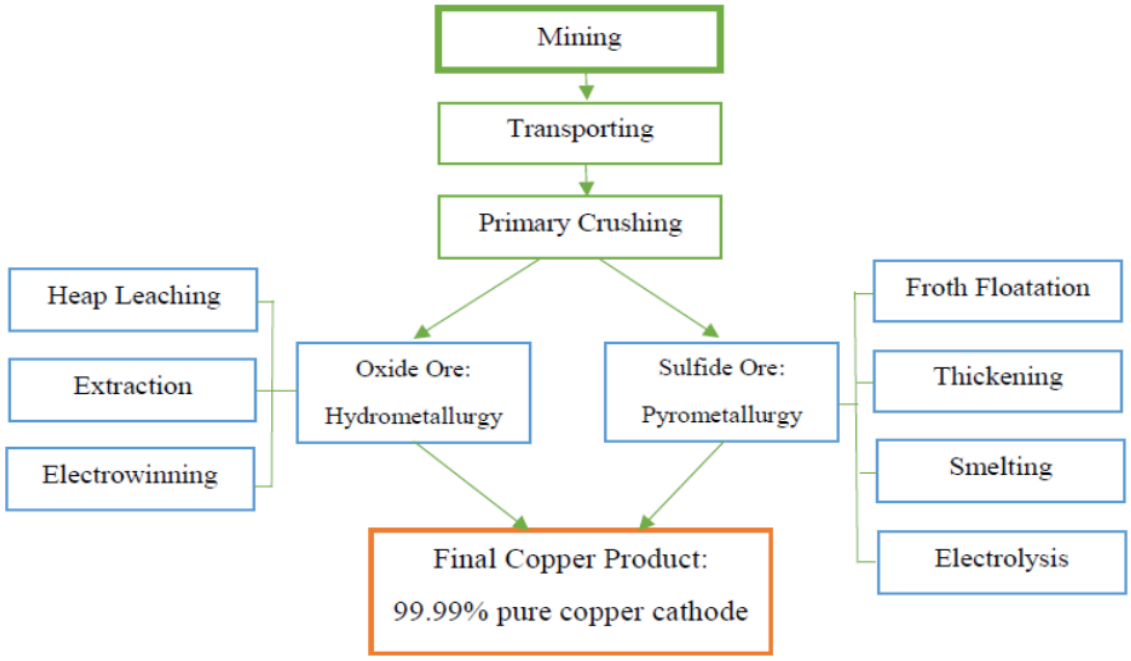
Savan Logistics	Transporting copper products to Thailand and carrying import materials to the site	Long-term contract
KXN Laos	Construction, site clearance, and accommodation service	

Source: Compiled by the authors based on various informant interviews.

4.1.2 Mining and Processing

After collecting sufficient information and obtaining positive results, the project commences the mining stage. This involves studies to help the company determine how a project can be safe, environmentally sound, economically feasible, and socially accountable. The mined ore is crushed and milled using a sulphuric acid solution, and any remaining copper is then removed through acid leaching. The Sepon mine uses two methods of mining: surface and underground mining. The method is determined mostly by the features of the mine deposit and the limits forced by safety, technology, and environmental and economic issues. After the processing stage, the ore is then transported to production facilities. The next step involves melting the concentrate in a heater to extract the copper from its ore. The ore is transferred into smelting molds, producing bars of bullion, which are then ready for export. The processing operation described above is depicted in Figure 4.

Figure 4: Flowchart for processing Sepon copper ores.



Source: The authors based this graphic from an illustration on the MMG website. www.mmg.com.

4.1.3 Exporting

Copper production in the Sepon mine is primarily for export. Adhering to company policy, 90% of the production is exported while 10% is retained in storage. The major market destinations are Thailand, which covers approximately 70% of total copper exports, and China, which accounts for 30% of total copper exports. Sepon exports to Thailand following the Carriage and Insurance Paid (CIP) arrangement where Sepon is made responsible for freight and customer delivery insurance in Thailand. Altogether, Sepon counts five regular customers in Thailand:

- The Bangkok Cable Company, producer of electric wires and cables in Bangkok, Thailand;
- Toyota, a giant Japanese company producing automobiles in Thailand;
- Mitsubishi Electric[65], a large manufacturer of a variety of electrical and electric products and systems based in Thailand;
- Marubeni[66] is a Japanese trading company based in Thailand. The company imports various metal products including copper cathode to sell to their clients in Thailand.
- Fukawa Electric, a well-known company producing advanced products that support the foundation of the electronics and automobile industries, and electric power transmission.

In China, MMG's major shareholder, China Minmetals Corporation (CMC), is also a significant importer of Sepon's copper. It is unclear whether CMC uses the imported copper to manufacture other products or to resell them to other buyers. Nonetheless, Sepon exports to China with a Cost and Freight (CFR) arrangement, meaning that Sepon has a responsibility to transport the copper from its site to the destination port, which is Laem Chabang Sea Port in Thailand, and to clear the corresponding customs payments.

The Sepone mine receives the export order and other relevant documents from MMG's headquarters in Australia, and then orders, price negotiations, and contract agreements are made directly between the customer and MMG's headquarters afterwards. However, copper is sold directly from Laos to clients. Copper is classified into four grades: supergene copper - carbonate premium-grade A, supergene copper - carbonate premium grade B, primary copper or off-grade copper, and copper scrap. According to our interviews, all copper prices are based on the London Metals Exchange (LME).

The transfer of payment for the export is also made directly between MMG headquarters and the customer through commercial banks, meaning that the headquarters manage and decide the sales whereas LXML, the operating company has to implement headquarters' decisions. The documents to be completed before exporting are invoices[67], production lists (with costing), certificates of country origin, contract agreements, manufacturer certificates, insurance certificates, and bills of lading. Only when the documents are verified and confirmed, does the buyer's appointed bank transfer money to the seller's bank in Australia. MMG Australia uses

[65] http://th.mitsubishielectric.com/en/index.page
[66] http://www.marubeni.co.th/metal.html
[67] Seller's invoice indicating, inter alia description and specification of the copper, quantity, unit price, total value, and date of delivery.

the ANZ Bank Australia as its main financial partner, while the Sepon mine uses the ANZ Bank Laos. MMG Australia transfers money to LXML, which is treated as a cost center, for all necessary expenses in Sepon operations including wages, the procurement of goods and services, taxes, fees, and other financial obligations.

On April 12, 2012, the company announced it had applied to the Hong Kong Stock Exchange, which agreed to waive the announcement, the annual review, and the need to fulfill the Independent Shareholders' approval requirements under Chapter 14A of the Listing Rules. In theory, these requirements apply to any connected transactions or continuing connected transactions entered into or to be entered into between the Company and the Government of Laos and its associates concerning the Sepon mine and other mines in Laos, which are of a revenue nature in the ordinary and usual course of the Company's business and on normal commercial terms (Laos Waiver). The Laos Waiver was subject to certain conditions, including that the Company is required to disclose details of connected transactions and continuing connected transactions with the Government of Laos and its associates in the Company's annual reports under Rule 14A.71 of the Listing Rules.

On March 24, 2015, the company announced it had entered into an agreement with China Minmetals Non-Ferrous Metals Co. Ltd (CMN) regarding the sale of LXML copper cathodes to the CMN Group (Copper Cathode Sales Framework Agreement), and was subject to approval from the Independent Shareholders, from January 1, 2015 to December 31, 2017. The Independent Shareholders approved the Copper Cathode Sales Framework Agreement, and the proposed annual caps on sales, at the Company's AGM held on May 20, 2015. CMN is a controlling Shareholder and is therefore an agency linked to the company under the Listing Rules. Therefore, the Copper Cathode Sales Framework Agreement constituted a continuing connected transaction for the Company under Chapter 14A of the Listing Rules. The annual cap for sales under the Copper Cathode Sales Framework Agreement for 2017 was 188.0 million USD, and the company's total value of copper cathode sales to CMN during that year was approximately 76.7 million USD. The agreement ultimately expired on December 31, 2017.

On November 10, 2017, the company once more announced that LXML had agreed with CMN, concerning the sale of copper cathodes by LXML to CMN for the 2018 year (2018 Copper Cathode Sales Agreement). The annual cap for sales under the 2018 Copper Cathode Sales Agreement for the financial year ending on December 31, 2018 was 118.0 million USD. As before, since CMN was the controlling shareholder of the company, it was therefore considered a connected agency of the company under the Listing Rules. As a result, the Copper Cathode Sales Agreement constituted a continuing connected transaction for the Company.

4.2 The Value Chain of Phu Bia Mining

PanAust is an Australian incorporated company owned by Guangdong Rising H.K. (Holding) Limited, a wholly-owned subsidiary of Guangdong Rising Assets Management Co. Ltd (GRAM).[68] GRAM is a Chinese state-owned company regulated under the State-owned Assets

[68] http://www.gdrising.com.cn/

Supervision and Administration Commission, the People's Government of Guangdong Province, China. GRAM operates as an investment company in mineral resource development, electronics, industrial waste management, real estate, and finance. PBM was established in 1996 and is 90% owned by the PanAust and 10% by the Lao Government.[69]

The copper-gold concentrate revenue arises from sales to customers in various countries. On average, over half of the product was sent to China for processing (67%), a large portion was sent to the Philippines (20%) and the remainder was sent to Japan and India.

PanAust delivers concentrate to customers on an industry-standard basis using the prevailing London Metal Exchange (LME) copper price or a pre-determined fixed price. For those sales based on the prevailing LME copper price, the customer makes a provisional payment to PanAust against a provisional invoice for the contained copper and precious metal credits (for gold and silver) in the shipment. The final settlement of the payment is based on the average LME copper price over a subsequent pricing period as specified by the terms of the sales contract.

The period commencing on the date of shipment to the end of the pricing period is known as the Quotation Period (QP). The QP historically reflects the average time to elapse (usually 3 to 4 months) between the date of shipment and the date of processing by the smelter at the final destination. This type of pricing methodology is normal for the industry.

The company hedges between 50% to 90% (but no less than 50%) of the copper price exposure based on the provisional invoice pricing to minimize any potential for a liability (refund of proceeds to the customer), resulting from a lower realized price during the QP (compared to the prevailing price applied to determine the provisional payment). Accordingly, a lower copper price at the end of the QP compared to the provisional invoice will result in a hedging gain, which will be offset by any decrease in the revenue recognized in the final invoice. A higher copper price at the end of the QP compared to the provisional invoice will result in a hedging loss, which will be offset by an increase in the revenue recognized in the final invoice.

5 **Analysis and Conclusion: identifying risk points for Illicit Financial Flows (IFFs)**

Although the research on abnormal pricing in international commodity trade conducted by Work Package 1 under this research project is currently unable to establish the amount of revenue lost from the export of copper, the analysis of transaction-level customs data indicates significant differences between the LME prices and recorded prices. The difference cannot automatically be defined as a mispricing since the final settlement of the price is done after the quotation period (i.e. the period covered by a sales contract with a fixed price), which indicates a clear risk of IFFs. Another issue behind the potential risks of IFFs is the low capacity of the public authorities to inspect, closely monitor, and manage investment and export activities. Although public authorities are aware of the existence of deceiving corporations and their transfer pricing practices, they do not possess the capacity to cope with unlawful practices. Moreover, some authorities lack accountability, as they rely mainly on declared data from

[69] "ADDIN ZOTERO_ITEM CSL_CI

companies or exporters, which facilitates collusion among officers, exporters, and/or investors. The testing result is used as reference data for calculating royalty and tax amounts to be paid to the government through the State Assets Management Department and the Tax Department, respectively. In principle, before the shipment of ore copper lodge, the officers from the Department of Mining Management randomly collect three samples of ore from the ore containers and seal the samples. Then, one of the samples is given to the exporter to test in either their lab or any other laboratory. Another sample is sent to the Department of Geology and Minerals, within the MEM, to test the concentration of copper, whereas the third sample is used in the case that two test results are refused or not accepted by the exporter or the authorities. As the Lao PDR further opens its door to trade, the increased amount of exported and imported goods and services in GDP widens the opportunities for traders to commit malpractice and hinders customs authorities' capacity to perform effectively. Some potential risks of IFFs are as follows:

- ***Licensing stage:*** Since the arrangement of the concession agreement and concession terms is negotiable, it may lead to an inadequate government assessment that could facilitate IFFs. According to the Tax Law, the profit rate was lowered from 35% in 1995 to 24% in 2015 with the new law. However, according to the government's directive, as minerals are non-renewable resources, the government's total revenue (tax and non-tax revenues) from any mining business shall not be less than 45% of the total profit of the mining project, and based on the decree, the estimated profit tax is approximately 35%. Therefore, although it is not stipulated in the Tax Law, the authorities are responsible for investment approval based on this decree and for negotiating with the investors when arranging concession agreements. While other mining companies pay profit tax at the rate of 35%, MMG and its new owner (Chifeng-Jilong) pay a profit tax of 33% as a result of the 1993 concession negotiations, which were held in the initial years of the implementation of a market-oriented economy when the government eagerly promoted and attracted FDI with no specific profit tax rate for the mining business. Moreover, although the government grants tax and non-tax incentives and an exemption for investors, these appear to be negotiable. For instance, the royalty rate for copper ranges from 4.5% to 6%. In the case of MMG or LXML, benefits are receivable from the government, such as the 8.3 million USD VAT refund the company received. LXML is granted a VAT exemption, but one of its suppliers came with a VAT receipt to the company for which they had been charged by the authorities.

  Additionally, since the government faces a high corruption risk during the licensing process due to its cumbersome procedures and the many state agencies involved, and the arrangement of concession agreements and concession terms is negotiable, it may lead to an inadequate government assessment that could facilitate IFFs. As concessions increase their coverage areas, they require further approval by the National Assembly and more government agencies at the national/central level are involved, including the Prime Minister's Office, MPI (Investment Promotion Department), MEM (Department of Mining Management, and the Provincial Energy and Mines Department), and

MONRE (Department of Natural Resources and Environment Policy, Department of Geology and Minerals, and the Provincial Department of Natural Resources and Environment). Before the establishment of MONRE, additional authorities under the Prime Minister's Office included the Land Authority, the Water Resources and Environment Authority, and the Science and Environment Authority. However, after the inauguration of the one-stop service (OSS), the licensing procedure has been streamlined.

- ***Construction stage:*** During this stage, there is a potential risk of IFFs due to the possibility of cost over-reporting and the possibility of profit shifting through intra-group financing because of the generally high up-front capital investment involved with mining. This could be a result of the suppliers' tax-free location and/or possible collusion among companies and suppliers to reduce tax payments. According to information from tax officials, the capacity and administration of the tax authorities are considerably weak when assessing investment accounts. Therefore, they must rely on mining companies' declaration forms. It is difficult for officials without mining expertise to determine whether expenditure positions are suspiciously high and whether further investigation is required. Moreover, some of the plant equipment is often leased from third parties, making it difficult to determine whether the leasing fees and other terms of leasing agreements comply with the arm's length principle.

- ***Production stage - Concentration and Processing:*** The potential risk of IFFs is also found at the mining production stage where there is a high probability of over-reporting costs. The production factors, as well as working capital, equipment purchasing, and supply, are set by the parent companies or headquarters that are based outside the Lao PDR's territory. Thus, there is a high possibility of over-cost reporting or an overvaluation of tangibles. The testing result is used as reference data for calculating royalty and tax amounts to be paid to the government through the State Assets Management Department and the Tax Department. In principle, before the shipment of ore copper lodge, the officers from the Department of Mining Management randomly collect three samples of ores from the ore containers and seal the samples. Then, one of the samples is given to the exporter to test in either their lab or any other laboratory. Another sample is sent to the Department of Geology and Minerals, within the MEM, to test the concentration of copper. Finally, the third sample is used in the case that the two test results are refused or not accepted by the exporter or the authorities.

- ***Assaying:*** Medium IFF risks are found at this stage. Misreporting the quantity and quality of minerals could occur in the assaying stage if: 1) there is collusion between mining companies and the officers of the concerned departments; or 2) a poor sample of ore is collected for testing.

- ***Export stage:*** A medium risk of IFFs is also detected in the exporting stage. Potential risks of IFFs arise from sales agreements, as well as the under-invoicing of copper for export. The data mismatch between the export data of copper concentrate from the Customs Department and the data from the UN COMTRADE statistics can explain

some of the abnormalities in prices for copper concentrate exports, as sales agreements are made by parent companies incorporated outside of the Lao PDR and the companies' customers. Moreover, the recorded or declared prices of copper concentrate between the years 2012 and 2017 were much lower than the LME prices. Price hedging to minimize a company's price risk, especially the case of PBM for copper concentrate, poses some risk to IFFs. The legitimate act of hedging provides scope for less stringent conditions on the transacting parties in terms of volumes and prices over time. Based on this practice, the realized price is compared with the provisional price, and the hedging gain or loss is offset in the final invoice and final payment between the company and the customer[70]. This pricing strategy could lead to a gap between invoice prices reported to the customs authority and realized prices for the companies. Invoicing copper at a price below or above market value to move money from the importer to exporter or vice-versa requires financing and insurance transport services. As a consequence, illicit flows of money may arise at this stage with the help of these service sectors. Exporters use financial services to place and transfer illicit money. Additionally, transport is identified as an IFF risk by paying distribution and shipping services fees to related entities at non-market prices. The same dynamic also applies for insurance fees paid to captive insurance services.

In sum, the Lao copper industry possesses some characteristics that are particularly risky for IFFs, especially the transactions between subsidiary firms and the practice of off-shore payments. The direct payment for copper exports between the customers and headquarters limits the ability of relevant local authorities to monitor their financial flows and effectively evaluate the transactions. Moreover, transactions between firms within the same multinational company make it difficult to evaluate intra-firm transactions. The capacity of local authorities to understand and evaluate complicated off-shore and intra-firm transactions remains limited. However, currently, the Tax Department is in the process of improving its technical capacity in calculating taxes from mineral exports by using more advanced and consistent formulas, and using international reference prices as a benchmark.

Since sales agreements are made outside of the Lao PDR's domain by parent companies, the export earnings are not transferred back into the Lao PDR. Most of the money transferred through the banking system to the bank accounts of the subsidiary companies located in the Lao PDR are payments for taxes, fees, and employee salaries. Although the Law on Foreign Currency Management stipulates clearly that all individuals and legal entities who have income in foreign currencies must transfer the export earnings into the Lao PDR through banks operating in the country (which can be repatriated after-tax clearance according to the Investment Promotion Law), it does not specify the amount to be brought into Laos. There is no specific regulation forcing foreign investors to bring all of the export earnings into Laos to clear all tax obligations before repatriating the profits. Therefore, the actual amount of export earnings paid by the customers abroad may not be detected as the money is paid or transferred directly from buyers to the parent companies incorporated outside of the Lao PDR, leaving a

[70] PBM trading activity in their 2014 annual report (p 77 and 80)

loophole for investors or exporters to practice the misreporting of actual net profits. These realities not only increase the potential risks of IFFs, but also perpetuate Laos' low foreign exchange reserves.

Annex 1: Investment data

Table 1.1: FDI by sector during 1988-2002

No	Sectors	Projects	Values (USD)
1	Electricity Generation	3	1,252,000,000
2	Telecommunications	8	499,140,000
3	Hotels & Restaurants	67	303,862,707
4	Service	147	193,400,708
5	Industry & Handicrafts	176	188,876,116
6	Wood Industry	43	170,181,029
7	Agriculture	106	112,122,127
8	Banking	11	81,800,000
9	Construction	49	80,237,516
10	Trading	134	76,410,772
11	Garment	70	61,190,898
12	Mining	3	22,184,400
13	Consultancies	48	8,530,872
14	Education	20	5,615,065
15	Public Health	2	840,000
Total		887	3,056,392,210

Table 1.2: FDI by sector during 2003-2016

No	Sectors	Projects	Values (USD)
1	Electricity Generation	49	7,470,906,659
2	Mining	321	6,259,513,529
3	Agriculture	885	2,672,024,289
4	Service	525	2,355,874,203
5	Industry & Handicrafts	756	1,922,225,116
6	Construction	101	746,237,180
7	Hotels & Restaurants	363	719,250,418
8	Banking	20	290,263,622
9	Trading	219	274,560,533
10	Wood Industry	169	240,160,350
11	Telecommunications	10	163,548,895
12	Public Health	12	63,382,736
13	Consultancies	125	59,318,327
14	Garment	40	33,592,049
15	Education	65	25,360,715
Total		3,660	23,296,218,621

Table 1.3: Investment in the mining sector by country (2011-2015)

	Investing country/region	Number of projects	Approved value (USD)	(%)
1	Laos	77	625,557,075	20
2	China	61	1,147,437,408	36
3	Vietnam	25	700,287,162	22
4	Thailand	7	340,796,088	11
5	Hong Kong	6	195,065,600	6
6	Others	16	153,563,910	5
	Total	192	3,162,707,243	100

Annex FBR

1: Graphs illustrating exploration trends by mineral, company, and mine stage