



This issues brief series is developed by the Poverty-Environment Initiative of Lao PDR to address poverty and environment issues in the current development and national planning processes. The purpose of the briefs is to provide evidence-based information and practical policy options to support transformation of the Lao economy towards a sustainable pro-poor development path.

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BRIEF As one of the top contributors to the growth of the Lao economy over the past few years, investment in the mining sector holds the promise of significantly boosting the socio-economic development of Lao PDR. Mining projects create jobs and the capital that they add to the Lao economy can potentially be used to support education, poverty alleviation and other areas that contribute to the socio-economic development of the country.

However, the mining sector in Lao PDR is also one of the country's more controversial sectors for investments, entailing significant economic, environmental and social risks for investors, developers and host communities. Although investment in this sector can be an important driver of economic growth and poverty reduction, without regulation and adherence to standards, mining can cause loss of access to land and livelihoods as well as environmental degradation. Given that some degree of environmental degradation is inevitable with any mining project, it is important that, from the start, mining companies make a long term commitment to restoring the area once the project is over.

This issues brief includes options that decision-makers in the government and private sector may consider in order to ensure that the negative impacts of investment in mining do not outweigh the positive, both in the short term and the long term.



Photo: IUCN

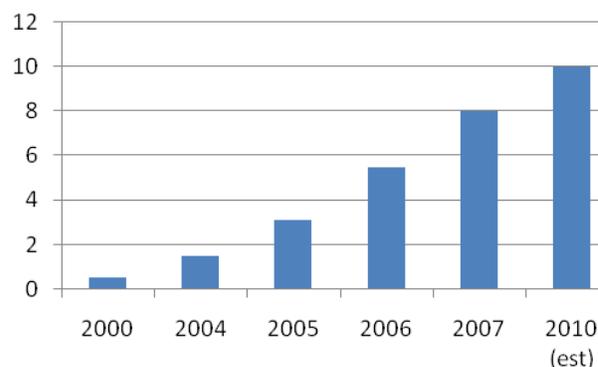
1. Investment in mining in Lao PDR

The mining sector is one of the biggest contributors to national revenue in Lao PDR and plays a key role in the Government of Lao PDR's (GoL) economic development strategies. It is also one of four priority sectors for investment and industrialization (the others being energy, agriculture and tourism)¹. According to the World Bank, the mining and quarrying sectors together contributed about 2.5 percentage points to the overall growth rate of 7.5%, and Foreign Direct Investment (FDI) in the mining sector accounted for about 18% of total FDI in 2009.² The Lao PDR *Minerals Law*, which came into effect in 2008, states that it aims to ensure the efficiency of the exploration, mining and processing of minerals in conjunction with environmental protection and socio-economic development³.

The GoL's National Growth and Poverty Eradication Strategy (NGPES) identifies mining (including metals, industrial minerals, construction materials, gemstones and fossil fuels) as a priority sector for investment, due to its potential for stimulating economic growth and increasing government revenues⁴. Until the 1990's, only small and artisanal mining operations existed in Lao PDR and the industry contributed only 0.56% of national GDP. However, the sector has grown rapidly since 2000, and by 2007, it accounted for 8% of GDP⁵: the GoL projects that it will provide almost 10% of GDP by 2010⁶ (see Figure 1⁷ for more detail). Targeted resources include gold, copper, silver, bauxite, coal, tin, gypsum, potash, limestone and sapphires.

Lao PDR's first formal mine went into operation at Sepon, Savannakhet Province, in 2002. According to the Department of Mines, Ministry of Energy and Mines (MEM), as of November 2010, there were 263 mining projects in Lao PDR.⁸ Mining projects are

Fig 1: Percentage contribution of mining to Lao PDR's GDP



currently governed by Mining, Exploration and Production Agreements (MEPAs), which are different for each investor. Lao PDR's current *Minerals Law* was passed in 2008 and sets out rights and obligations in the mining sector.

2. Challenges for the Lao mining sector

The Lao mining sector faces a number of important challenges that affect its economic, social and environmental sustainability and which may have implications as the sector expands:

- Most mining projects in Lao PDR remain exploratory and/or small-scale, with only a limited number of medium-sized mines actually in operation. These smaller, less established companies are more likely to lack the resources to bring a project to full operation and may be less likely to implement environmental and social safeguards. Artisanal and informal mining is also contributing to pollution and erosion problems. For example, reports have appeared in the Lao media in recent years regarding claims of pollution stemming from informal mining⁹.
- Price volatility for major products from Lao PDR, like copper and gold, has also caused problems for mining investments and operators, particularly during the recent global financial crisis. A significant drop in world copper prices contributed to difficulties for Lao PDR's major mining operator, OZ Minerals, who suspended trade as the company attempted to refinance its debts.¹⁰

¹ Voladet, Saykham. 2009. *The Plantation Industry in Laos: An Examination of the Role of the Ministry of Planning and Investment*. National Economic Research Institute (NERI), International Institute for Sustainable Development (IISD), and International Union for Conservation of Nature (IUCN).

² World Bank. 2010. *Lao PDR Economic Monitor September 2010*. World Bank Lao PDR Country Office, Vientiane.

³ Lao PDR National Assembly. 2010. *Minerals Law*. [Working draft and unofficial translation, March 2010].

⁴ Callander, Tom. 2007. *Background Research Paper: Environmental Impacts of Trade Liberalization in the Hydropower, Mining and Construction Materials Sectors of the Lao PDR*. Rapid Trade and Environment Assessment (RTEA), IUCN Lao PDR.

⁵ According to communication with MEM, December 2010.

⁶ Data provided by communication with MEM, December 2010.

⁷ Based on data from: the US Geological Survey Service (USGS), 2008, *2007 Minerals Yearbook Laos*; and Business Information Center, Business Information Center of the Lao National Chamber of Commerce & Industry. March 2008. "Improving the Investment Climate for the Mining Sector in Lao PDR". *Business Issues Bulletin*, No. 6.

⁸ According to data provided by MEM, December 2010.

⁹ Vientiane Times. 7 June 2010. "Mining Boom Brings Fears Over Dangerous Chemicals"; Vientiane Times. 18 May 2010. "Attapeu Authorities Concerned by Water Pollution".

¹⁰ The company sold most of its assets (including Sepon) to the Chinese firm MMG in a deal worth approximately US\$1.35 billion in 2009. See: MMG. 18 June 2009. "Launch of a World-Class Resources Group".

- Mining operations also require access to energy and infrastructure, such as roads, which may need to be subsidized by the GoL to be profitable. For example, bauxite is a growth area in the Lao mining sector and although bauxite mining is not energy intensive, an aluminum smelter requires large amounts of cheap energy – the most modern technology still needs about 13,000-15,000 kilowatt hours to smelt one ton of aluminum, at a cost of US\$0.025-0.035 per kilowatt to be profitable. Lao PDR currently sells electricity at US\$0.05-0.06 per kilowatt¹¹.
- Although mining projects add to government revenue, provide jobs and contribute to rural development, mining continues to have negative social and environmental consequences for local communities. These include spills of pollutants damaging waterways and fish stocks, loss of land, forest resources and biodiversity, and increased migration into mining areas. Cyanide, used in gold mining operations, has been involved in spills originating from small, informal mines as well as larger, formal operations, killing fish and contaminating water and agricultural land.
- Law enforcement related to mining projects also remains uneven, with poor enforcement of Environmental and Social Impact Assessment (ESIA) requirements and little monitoring of the impacts of mining projects outside of the major international operators. However, it is noted that the recent provision of comments from the GoL to the Sino-Lao Corporation Ltd (SLACO) regarding 50 items of concern raised in its EIA, is a positive development¹². Another positive development is, that as part of efforts to curb mining projects that do not comply with regulations, 16 concessions have been officially revoked by the GoL as of December 2010¹³.

3. Mitigating risk: tools to influence mining investments

Mining investments are associated with high economic, environmental and social risks, for investors, governments and communities alike. Assessing and mitigating these risks are therefore

<http://www.mmg.com/shared/1068.aspx>; Sydney Morning Herald. 23 March 2010. "Minmetals Toasts Bargain Buy".

¹¹ Heinrich Boll Foundation, WWF and IISD. 2009. *In Search of Aluminum: China's Role in the Mekong Region*.

¹² Heinrich Boll Foundation, WWF and IISD, 2009; and communication with ESIA Division, WREA, December 2010.

¹³ According to communication with the Investment Promotion Department, MPI.

Box 1: Strategic Environmental Assessment (SEA) and the mining sector: recommendations of the SISEA Project

Implemented in 2009 by IUCN Lao PDR in cooperation with the Department of Environment, WREA, the project "Supporting the Introduction of Strategic Environmental Assessment in Lao PDR (SISEA)" recommended the development of a comprehensive roadmap for SEA introduction, including the appointment of a GoL taskforce, further awareness-raising about SEA among decision-makers and stakeholders, development of a manual and materials in Lao language and mapping of the ESIA system and its effectiveness. Importantly, the project also noted the need to address the lack of long-term, integrated and environmentally sensitive planning in the mining sector, recommending that:

- A detailed analysis of the implementation of ESIA and other safeguard measures in the mining industry needs to be undertaken.
- Dialogue should be initiated with the Department of Mines, MEM, on the selection of a policy, plan, programme or legislation for piloting SEA in the sector.
- An action plan should be developed for the implementation of SEA in the mining sector.
- A roundtable on SEA should be established including all relevant stakeholders to review the progress of SEA implementation in the mining sector.

(Source: WREA & IUCN. 2009. Supporting the Introduction of Strategic Environmental Assessment in Lao PDR: Project Final Report)

vital steps in determining whether projects should go ahead and improving the impacts of the industry. Investors in the mining sector should aim to satisfy a triple bottom line of economic prosperity, environmental sustainability and social equity¹⁴. There are a number of policy options and tools available to decision-makers in Lao PDR to encourage this:

Strategic Environmental Assessments (SEA) and regional planning. SEA refers to a systematic process for evaluating the environmental consequences of policies, plans and programs.

¹⁴ Bergeron, Philippe. 2002. "Investment in Mining in Asia: The Triple Bottom Line Challenge and Opportunity". Presentation at *OECD Global Forum on International Investment*, 7-8 February 2002, Paris.

Unlike ESIA or even cumulative impacts assessments, SEAs provide information beyond single project-level impacts and are thus designed to support regional and national-level decision-making about development. SEAs aim to ensure environmental concerns are addressed at the earliest stage of planning possible.

Lao PDR does not currently have a policy or legal commitment to conducting SEAs, although a number of pilot SEA projects have taken place, such as the recent SEA of hydropower on the mainstream of the Mekong River, commissioned by the Mekong River Commission (MRC). However, the application of SEA in the Lao mining sector offers a number of benefits in planning the future of the industry and addressing its long-term environmental impacts. A recent project to build SEA knowledge in Lao PDR with a focus on the mining sector made a number of recommendations to this end (see Box 1). In addition to SEA, regional or landscape level planning around mining projects is also essential. Planning how a mining project will fit into a local economy and environment, as well as access to energy, infrastructure and markets, can help ensure more positive long-term economic, environmental and social legacies.

Environmental and Social Impact Assessments and Management Plans. Environmental and Social Impact assessments (ESIAs) and plans to manage these impacts are now considered standard best practice for investment projects in all sectors. Lao PDR has a relatively comprehensive regulatory framework in this regard. An *Environmental Impact Assessment (EIA) Regulation* (No. 1770/STEA) was passed in 2000, and an updated *ESIA Regulation* (2010) was enacted in February 2010. At the national level, the Water Resource and Environment Administration (WREA), is responsible for ESIA, including coordination with other departments, review and approval of ESIA and a role in monitoring compliance.

However, enforcement of ESIA requirements is very uneven in Lao PDR and there is a lack of capacity and resources to monitor investments. Further, in-principle agreement with investment proposals is sometimes given at a high level before ESIA are conducted, making it difficult to subsequently reject a proposal. The screening of investments through ESIA and the full implementation of Environmental and Social Management Plans (ESMPs) is a vital and basic step in ensuring that investment projects can deliver

“While any one mine is not sustainable, mining can sustain development. Mining companies must ensure that when they finish mining, they leave behind an environment that is protected and a community that is empowered.”

- Duma Nkosi, UN World Summit on Sustainable Development, Johannesburg, 2002.

sustainable development benefits. Investors can respond to efforts to improve the enforcement of ESIA and related regulations by conducting quality ESIA, calling for the same requirements for all mining projects, and ensuring that ESMPs are fully implemented.

Performance bonds. Environmental performance bonds are used in the resource extraction sector in countries around the world. They have been defined as “a deposit that likely

polluters and violators of environmental standards must pay to a certain environmental fund. These bonds are aimed at providing financial incentive to industry to adhere to environmental requirements”¹⁵.

In the mining sector, performance bonds are generally required to insure the state against the costs of repairing any environmental damage that may be caused by operations and rehabilitating the site after the end of a project. It is essential that projects that could cause impacts on the environment are registered and that the government has the power to require performance bonds and to confiscate the bond in the event of breaches¹⁶. Mineral Exploration and Production Agreements (MEPAs) in Lao PDR require mining operators to submit ESMPs and a bond guaranteeing environmental quality: prior to closure, the GoL will inspect the mine and if the ESMP has been violated, the bond can be seized¹⁷.

However, performance bonds and insurance requirements may be more effective if invoked, if companies fail to deliver on their ESMP at any point in their operations, as well as covering the costs of environmental incidents and rehabilitation. It is also essential that the performance bonds paid by companies are sufficient to cover the cost of potential damage. For example, an environmental economic assessment of the proper “price” of potential damages could support the government in negotiations with mining companies and the risk of losing a significant bond may motivate companies to ensure strong environmental performance.

¹⁵ UNEP/UNDP/DUTCH Joint Project on Environmental Law and Institutions in Africa, cited in ADB, “Environmental Performance Bonds” (<http://www.adb.org/water/topics/dams/dams0915-15.asp>).

¹⁶ ADB, “Environmental Performance Bonds”.

¹⁷ Sengkeo Kingsada Consulting Co. Ltd. 2006. “Mineral Exports: A Contribution to Lao Development”. *Technical Background Paper for Third National Human Development Report Lao PDR*. See also article 42 of the *Minerals Law* (1997).

Box 2. Curse or blessing? ICMM's Resource Endowment Initiative

Research by ICMM's Resource Endowment Initiative has demonstrated that large-scale mining can provide low-income countries with an important and sometimes critical economic boost, helping them to reduce poverty and re-engage in the global economy. In those countries where such positive outcomes have not been achieved, reforms to strengthen public-sector governance, whether at the national or regional levels, may hold the key to progress. Companies can contribute to addressing such governance gaps through involvement in multi-stakeholder partnerships.

An analysis for the Resource Endowment Initiative of 33 mineral dependent countries carried out in 2004 showed that while around half had been broadly successful when judged against a range of socio-economic indicators, the other half had performed poorly, with many of these countries experiencing difficulties associated with the 'resource curse'. This calls for greater efforts to apply proven success factors, as mining investment takes place.

Research indicates that the most important determinant of whether mining will contribute to economic growth and poverty reduction is the overall governance framework, both corporate and sovereign. The Resource Endowment Initiative findings point to the importance of sound public sector management by national and regional governments and sound corporate governance. Partnerships between companies, governments, development agencies and civil society can help fill capacity and governance gaps where necessary and can also help to expand, broaden and deepen the overall socio-economic contribution from mining and metals investments.

(Source: International Council on Mining and Metals, ICMM. 2010. Mining: Partnerships for Development. Position Statement)

Improving the legacy of mining operations. As noted by Robertson, mining is just one of a succession of uses for a piece of land and a mining company is one custodian in a series of landholders¹⁸.

Careful planning is required to minimize negative impacts over the entire life of the project and to ensure that it leaves positive legacies for host communities. Mining rents have a poor record of contributing to economic growth and poverty reduction, even when relatively high, as evidenced by the debate over "resource curse" in the extractive industries in developing countries¹⁹. Where companies also contribute to community development activities, these are more effective if they generate long-term growth, enterprise and livelihood opportunities beyond the life of the mine. For instance, building schools or hospitals (which are technically the purview of governments) are not a substitute for community engagement and genuine efforts to mitigate the negative impacts of mining operations²⁰.

Mine closure plans and the rehabilitation of sites are also essential. Rehabilitation to a "particular condition" is required by the 2008 *Minerals Law* (Art. 27, Art. 60) and mine rehabilitation planning is increasingly a standard feature in mining industries. However, the process of how a mine closure and rehabilitation plan is reached, as well as the quality of these plans, is as important as the legal requirement to prepare one. This requires full stakeholder participation from the earliest stages of a project: for instance, should the plan call for reforestation, subsequent operations will have to be designed with that goal in mind. Another policy action that would help to mitigate the "resource curse" effect is to re-invest part of revenues from resource extracting industries (such as mining) into developing non-resource sectors to diversify the national economic structure and build social capital.

Improving the investment climate. It is important to design policy options for attracting investment that help to create an investment climate attractive to responsible mining companies with a commitment to sustainability. As discussed, mining operations are risky investments for investors, governments and communities. It is in the interest of host governments to attract investors that can best manage and mitigate the economic, social and environmental risks associated with mining. For established mining companies, an uneven playing field where rules and

¹⁸ Cited in URS Australia. 2004. "Key Environmental, Social and Economic Considerations in Sustainable Mining Operations and Closure". Goldfields Environmental Management Group Workshop, May 2004, Kalgoorlie.

¹⁹ 'Resource curse' refers to the tendency of countries with abundant natural resources to perform more poorly in terms of development indicators than those countries with fewer natural resources. The term was coined by economist Richard Auty in his book *Sustaining Development in Resource Economics: The Resource Curse Thesis* in 1993.

²⁰ Oxfam Australia, 2010

regulations are not enforced for all players, constitutes an additional risk.

Clarity regarding the regulations and standards that will be imposed on investors is also vital: a study of foreign-invested enterprises in the mining industry in Vietnam found that “the equal and transparent investment environment and the enforcement of the legal system were also crucial factors for investors in their investment decision”²¹. Investors and operators can also work towards a better understanding of regulations and standards apply to their project and improve their ability to comply with them.

Box 3: ICMM’s 10 Principles

- Implement and maintain ethical business practices and sound systems of corporate governance.
- Integrate sustainable development considerations within the corporate decision-making process.
- Uphold fundamental human rights and respect cultures, customs and values in dealings with employees and others who are affected by our activities.
- Implement risk management strategies based on valid data and sound science.
- Seek continual improvement of our health and safety performance
- Seek continual improvement of our environmental performance
- Contribute to conservation of biodiversity and integrated approaches to land use planning
- Facilitate and encourage responsible product design, use, re-use, recycling and disposal of our products
- Contribute to the social, economic and institutional development of the communities in which we operate
- Implement effective and transparent engagement, communication and independently verified reporting arrangements with our stakeholders

(Source: <http://www.icmm.com/our-work/sustainable-development-framework/10-principles>)

²¹ Vu Xuan Nguyet Hong, Ngo Minh Tuan and Ho Cong Hoa. 2009. *Sustainable Development Impact of Investment Incentives: A Case Study of the Mining Industry in Vietnam*. International Institute for Sustainable Development.

In addition, as the study in Vietnam shows, given that incentives to attract investment in the mining sector, such as the provision of cheap electricity and tax breaks, are not always a primary consideration for companies, these incentives can be reformed or removed. Rather than simply linking incentives to geographical area or sector, they can be linked with sustainability or good performance

International standards and guidelines. There are a range of standards, guidelines and protocols available for improving governance and performance in the mining industry and the resource extraction sector more widely. These include general standards, such as the United Nations Global Compact, a policy initiative for businesses who commit to aligning their operations with ten universal principles in the areas of human rights, labor, environment and anti-corruption. Industry standards exist, such as those developed by the International Council on Mining and Metals (ICMM), whose members must commit to measuring their performance against a set of ten principles for sustainability in mining (see Box 2). Financing standards, such as the Equator Principles, and specific lending policies developed by certain banks, can also be used to determine whether mining projects are eligible for financing. It is also possible to require the adoption of codes of conducts in specific areas of concern, such as the International Cyanide Management Code.

At a higher level, decision-makers may also consider the benefits of joining the Extractive Industries Transparency Initiative (EITI). Open to both countries and companies, EITI requires that all payments and revenues in the oil, gas and mining sectors are made public and are audited. According to EITI²², there are several benefits of joining:

- *Benefits for implementing countries* include an improved investment climate, by providing a clear signal to investors and international financial institutions that the government is committed to greater transparency. EITI also assists in strengthening accountability and governance, as well as promoting greater economic and political stability.
- *Benefits to companies and investors* center on mitigating political and reputational risks. Political instability caused by opaque governance is a threat to investments. In extractive industries, where investments are capital intensive and dependent on long-term stability, reducing such instability is beneficial for business. Transparency of payments made to a government can also help

²² See: <http://eiti.org/eiti/benefits> (accessed December 2010).

to demonstrate the contribution that their investment makes to a country.

- *Benefits to civil society* come from increasing the amount of information in the public domain about those revenues that governments manage on behalf of citizens, thereby making governments more accountable.

Incorporating artisanal and small-scale mining. Millions of people around the world, including in Lao PDR, make a living through small-scale and often informal mining operations. Artisanal mining may provide an important source of income, but it is characterized by poor working conditions, severe environmental impacts, health problems and conflicts between miners, companies and governments²³. In Lao PDR, artisanal mining has long been a traditional source of livelihoods for rural communities and control measures have so far proved unsuccessful.

What is PEI?

The United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) support the Poverty-Environment Initiative (PEI), a program that aims to mainstream poverty and environmental issues into national level planning and development processes. The objective of PEI in Lao PDR is to ensure that the country's rapid economic growth generates inclusive and sustainable development. PEI supports the strengthening of institutional capacity in national development planning and private investment management, the development of guidelines for social and environmental impact assessments and the generation of evidence-based research on the social and environmental costs of land use decisions. The project is coordinated by the Ministry of Planning and Investment with project components managed by the Department of Planning, Investment Promotion Department, National Economic Research Institute and the Department of Environmental and Social Impact Assessment of the Water Resources and Environment Administration.

www.unpei.org/programmes/country_profiles/lao-pdr.asp

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Incorporation of artisanal mining into the formal regulatory and monitoring system may provide a way to better manage its impacts. Indeed, the new *Minerals Law* (2008) takes a step in this direction, providing for the licensing of artisanal and small-scale miners. The establishment of an Artisanal Mining Committee to boost small-scale mining development and ensure health, safety and environmental standards are maintained has also been recommended²⁴.

This issues brief has been prepared by IUCN Lao PDR under the auspices of the Poverty-Environment Initiative.

IUCN, the International Union for Conservation of Nature, helps the world find pragmatic solutions to our most pressing environment and development challenges by supporting scientific research; managing field projects all over the world; and bringing governments, NGOs, the UN, international conventions and companies together to develop policy, laws and best practice. The world's oldest and largest global environmental network, IUCN is a democratic membership union with more than 1,000 government and NGO member organizations, and almost 11,000 volunteer scientists and experts in some 160 countries. IUCN's work is supported by over 1,000 professional staff in 60 offices and hundreds of partners in public, NGO and private sectors around the world. IUCN's headquarters are located in Gland, near Geneva, in Switzerland.

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²³ Oxfam Australia, 2010.

²⁴ Business Information Center, 2008.