

# In Search of Aluminum: China's Role in the Mekong Region

China has a huge thirst for natural resources and sources them from across the world. Despite a reduction in economic growth from a high of 13 percent in 2007 to 9 percent in 2008, the lowest rate since 2002, China continues to invest overseas to meet its growing need for natural resources. Cash rich China is currently taking advantage of the global financial crisis by becoming a major force driving new lending and investment. In 2008 China's overseas mergers and acquisitions were worth US\$52.1 billion, and in the first two months of 2009 Chinese companies invested US\$16.3 billion abroad. These investments include those made by both Chinese corporations and the Chinese government, and in many cases include extractive industries for which costs were once prohibitive, but which are now making economic sense. Through these investments, China is playing an important role in providing readily available cash to pull mining companies out of debt around the world. In recent years, China has become the world's largest user of almost all metals. In 2002 it became the world's chief consumer of copper, and it is now one of the largest consumers of alumina, zinc and nickel. As a result, China is playing an increasingly important role in global metals markets by driving demand and boosting global commodity prices (although recently most of these prices have slumped due to the 2008/09 global financial crisis).

China's economic relationship with the world also continues to undergo a rapid transformation. The 10<sup>th</sup> Five Year Plan for National Economic and Social Development (2001–05) set out a strategy for China to proactively make use of overseas natural resources, driven by its 2004 'Going Global' (or 'Going Out') strategy. This strategy, which intends to meet the country's growing demand for natural resources, both regionally and globally, aims to spur outward investment by subsidizing investment by Chinese companies in the acquisition of natural resources overseas.

### China's insufficient domestic mineral resources necessitate overseas investments

Chinese mining firms are strategically looking for opportunities abroad to invest in joint ventures, acquire mining projects and companies, and secure long-term contracts at set price levels. In order for China to maintain a steady supply of mineral and metals

for its economy, strong growth in its foreign direct investment is necessary, given that its domestic exploration and expansion of existing mines has not been sufficient to balance depletion and maintain growth. The Chinese government has encouraged the formation of bigger economic corporations through the merger of domestic companies and the acquisition or buying of shares in foreign companies. In the early to late 1990s China began investing in various mining projects overseas, and by the 2000s that investment had increased significantly.

China continued on this path until late 2008, when the government issued a directive to mainland mining and mineral processing companies to freeze all overseas investments until they see a rally in global demand. This move was a response to a rapid deceleration in domestic demand, and the government saw a need to shift the focus to investing in resources domestically. This came at a time when many companies were buying or planning to buy overseas mining assets at top of the market prices. In early 2009, with its longer term need for resource imports barely diminishing, China had once again resumed negotiations for investments in international companies such as Rio Tinto and OZ Minerals.

### Bauxite, the source of aluminum

Bauxite, the chief material used in the production of aluminum, is one of the economically most important minerals. According to the U.S. Geological Survey, global bauxite reserves are estimated at about 55–75 billion tons (pure ore), of which South America contains 33 percent, Africa 27 percent, Asia 17 percent, Oceania 13 percent and other areas 10 percent. With the current speed of exploitation, it is expected that bauxite reserves can meet the needs of the aluminum industry for the next 170 years. At present, there are 24 countries exploiting bauxite both locally and in other countries around the world, of which the 12 most productive countries produce 97 percent of total bauxite production. China's alumina output reached 19.46 million tons in 2007, accounting for one fourth of the world's total output; electrolytic aluminum output was 12.56 million tons, 32.8 percent of the world's total; and processed aluminum products were 11.76 million tons. China consumed 26.12 million tons of alumina in 2007, accounting for 35 percent of total world consumption; and 12.1 million tons of electrolytic alumina, 32 percent of the world's total.

Due to the increasing demand for aluminum, the scale of bauxite exploitation globally has grown by 6.5 percent per year in recent years. Presently, the world's aluminum market has been moving to China, where there is high demand for high-tech manufactured goods such as aircrafts and automobiles. Chinese aluminum and alumina consumption has a direct influence on global alumina market trends. In the mid-2000s, the level of China's aluminum use increased, exceeding its domestic production, which resulted in a growing need to import alumina or aluminum. It is also estimated that in the next ten years, with booming construction, transportation and packaging industries in China, demand for aluminum and alumina will increase even more strongly.

In the aluminum sector, the Aluminum Corporation of China (Chinalco) is the largest aluminum company in China and is a financially powerful corporation globally in the mining sector. Chinalco proved its financial potential after merging with and acquiring many domestic companies and expanding into the international market. For example, in 2008 it announced plans to invest US\$19.5 billion in the Rio Tinto Corporation, one of the world's largest mining companies. In 2007 the Aluminum Corporation of China Ltd (Chalco) – a joint stock limited company formed in 2001 – bought 7 percent of the shares in U.S. company Alcoa Corporation. Chinalco also boosted its global expansion by buying some mineral mines in Australia, Canada and Peru, and the Chinese state-owned company Minmetals is purchasing OZ Minerals, which operates the Sepon gold and copper mine in Laos, for US\$1.2 billion.

## The Mekong region: A new source of bauxite

Cambodia, Laos and Vietnam are rich in mineral resources; however, the exploitation of these resources has typically been on a small scale and long delayed due to conflict, lack of foreign investment, and limited capital and capacity to establish extensive mining operations. The regulatory framework in the three countries has also hindered investment because of bureaucratic inefficiency and lack of implementation, which has complicated the process of obtaining concessions and permission for mining operations. Mining laws in the region are generally lacking in terms of clear tax regulations and royalty structures (often these are calculated on a project basis), and regulatory systems are complicated. In part, this is because the region's governments have little experience with foreign investment in this sector: Laos's first mine went into operation at Sepon in 2002; Vietnam's first large scale mine was only recently established; and Cambodia's mineral resources are not well explored and no large scale mining is occurring in the country. Furthermore,

in the region's centralized economies, where mineral resources are owned by the state, there is often reluctance to transfer natural resource rights to foreign investors. This has led to a variety of mechanisms for retaining some state control, such as required partnership with state-owned enterprises or government ownership of shares. Vietnam, where state-owned enterprises are expected to be involved in any large-scale resource extraction, is less attractive in this regard for foreign investors than Cambodia and Laos, where there is no competition from government industries.

In all three countries, public disclosure of information is severely lacking, making it difficult to fully assess how companies plan to mitigate the environmental and social impacts of their activities. And where there is a plan, government capacity and will to regulate the industry and ensure compliance by the companies are minimal. The fact that the Government of Laos provided Sino-Lao Corporation Ltd (Slaco) with comments on its environmental impact assessment (EIA), which had raised significant concerns about 50 items, is an improvement in this regard. Sino-Lao Corporation Ltd is registered as a private Lao company currently comprising Chalco (51 percent), Ruouy Chai International Group (RCI)/Italian Thai Public Co. (ITD) (39 percent), and Lao Services Co. Ltd (LSI) (10 percent). How the company is planning to address these concerns is not clear, however. In Vietnam, experience has shown that EIAs carried out are only prepared to meet the minimal government requirements and environmental issues are only mentioned in a general sense, implementation is not monitored closely, and environmental restoration plans and improvement projects do not always accompany the EIA. A clear example of a conflict of interest is the case of the first alumina project in Lam Dong province, where a company controlled by the investor, the Vietnam National Coal, Mineral Industries Group (Vinacomin) (a state-owned Vietnamese company), conducted the EIA.

Current investment trends for the mining industry are improving. Because countries such as Laos and Cambodia rely predominantly on the extraction of natural resources (water, forests, minerals, etc.) for income generation, they have been attempting to make investment in mining more attractive. Recently, Laos has made efforts to improve its regulatory environment with a revised Mineral Law presented to the National Assembly in December 2008, which is expected to be approved in June 2009. Cambodia is also in the process of revising its Mining Law. Investors such as the World Bank and the Asian Development Bank remain cautious about investing in mining, but are making efforts to improve practices in the region. For example, in Laos, the World Bank is developing technical assistance to the Ministry of Energy and Mines to provide capacity and support in a number of areas related to mining.

The Mekong region is becoming a strategic partner for China in terms of mineral investments; however, the full extent of the potential output for and demand by China is difficult to estimate. Vietnam has the largest bauxite potential, estimated at about 5.4 billion tons, with 98 percent concentrated in the Central Highlands region. Based on the value of aluminum in 2007, bauxite resources in the Bolaven plateau in southern Laos were estimated at US\$3,200 million. In Cambodia, there are no official figures on the value of bauxite, which is present in Monduliri province in the northeast of the country.

The Mekong region provides opportunities for the exploitation of cheap natural resources and is strategically located close to China, thus providing great opportunities for China to extract the bauxite resources and turn the mineral into alumina and aluminum fairly easily and cheaply. While high quality bauxite deposits are found in Cambodia, Laos and Vietnam, access to these sites, energy availability and likely costs are significant constraints to harnessing the bauxite potential.

### Chinese investors dominate the region

China's relationship with the three Mekong region countries, Cambodia, Laos and Vietnam, is dynamic and complex, and Chinese financiers have moved into the region to take advantage of the favourable investment climate and abundance of natural resources of China's most immediate neighbours. China brings a different kind of investment package to the table that is built on relationships and friendship. China is also seen as a 'soft power' of culture and ideas, one making friends all across the region, with friendship spearheading business activities. This also holds true for the bauxite industry, where Chinese investors have improved road infrastructure in southern Laos and promised to lobby the Chinese government to provide credit to Vietnam at a preferential rate to build a railway from the Central Highlands to the sea to facilitate the transport of bauxite.

Chinese bauxite investors are present in two of the three study countries. They dominate in Laos by partnering with Lao and Australian companies to form various consortia. In Vietnam, Chinese companies are largely involved in engineering procurement construction bids to build alumina factories, while in Cambodia there are no Chinese bauxite investors. The main Chinese bauxite companies operating in the region are Chalco, China Aluminum International Engineering Corporation Ltd (Chalieco), Chinalco and China Nonferrous Metals International Mining Co. Ltd (CNMIM).

Furthermore, China's proximity to Cambodia, Laos and Vietnam and its potentially numerous investments in transport infrastructure will make it easier to transport alumina or aluminum to factories in China by land,

rail and waterways. China borders Laos and Vietnam. The mines in Laos and Cambodia will be strategically located close to Vietnam's railways and ports, once there is a road to Vietnam. Other countries are facilitating the development of important hydropower facilities in Laos, for example.

Politically, only China and Vietnam have publicly presented a common platform for exploiting bauxite in Vietnam. The two countries have emphasized economic cooperation for development and the stability of political relationships. In 2006 high-ranking Chinese and Vietnamese leaders signed a memorandum of understanding (MOU) with Vinacomin to collaborate on bauxite mining in the Central Highlands. The MOU focuses on bauxite mining and aluminum refining plants worth US\$1.3 billion. While Laos has also prioritized bauxite mining, its strategy for exploitation is still emerging as it determines the best options for the country. Cambodia does not currently receive investment from China in bauxite mining.

### Aluminum's thirst for energy

One of the main prohibiting factors of maintaining a full value chain of bauxite mining – alumina refining and finally smelting into aluminum – is the availability of reliable and cheap power. While actual bauxite mining and alumina production do not require significant energy sources – about 200–250 megawatts for one ton of alumina – the aluminum smelter requires a huge amount of cheap energy, which will come mostly from hydropower. With the most modern technology available today, the aluminum smelter requires about 14,000 megawatts to smelt one ton of aluminum. Since Laos and Cambodia will exploit their vast rivers for the development of hydropower to be exported to neighbouring countries, it would seem cost effective for China to use an alumina refinery and aluminum smelter in one (or all) of the three countries. However, in order to make the production of aluminum cost effective, electricity from hydropower needs to be sold at 2.5–3.5 U.S. cents/kilowatt. Currently, Lao is selling electricity at 5–6 U.S. cents/kilowatt. This results in an unviable industry. One path that companies may take is to stop at the alumina stage and sell it directly to the buyer (although alumina is difficult to transport).

### Environmental and social impacts of bauxite mining

Bauxite does not come without side effects, and transboundary impacts are expected to be significant, including loss of fisheries and changes to the hydrology of the rivers and water quality, which will affect the livelihoods of indigenous people living in the mining area. Mining bauxite involves the discharge of toxins that must be stored safely and permanently.

There are significant potential impacts beyond the mining site, including contamination of the surrounding and downstream areas. Given the close proximity of the bauxite mining operations in Laos, concerns have already been raised in neighbouring Cambodia, where industrial waste discharge and increased water use of the transboundary Sekong River (part of the 3-S river basins) may cause significant impacts downstream. For example, the generation of large quantities of highly alkaline red mud (and associated contaminants) represents the most significant risk to downstream surface water and groundwater quality. Thousands of people rely on the Sekong River for their local livelihoods and would be adversely affected downstream by contaminated water.

### Towards improved decision-making and environmentally and socially sustainable investment in bauxite mining

Vietnam and Laos, and to a lesser extent Cambodia, are experiencing an unprecedented interest in exploiting their bauxite resources. Much of the demand is driven by China's need to feed its growing industry, and the three Mekong countries are perfectly situated to facilitate the product to the market. While these projects will provide revenue to the governments of Cambodia, Vietnam and Laos, how local communities will benefit is unclear. Unfortunately, most of the bauxite resources found in the triangular region of southern Laos, the Central Highlands of Vietnam and Monduliri province in Cambodia lie in environmentally sensitive areas that are home to a large number of people, in some cases ethnic minority groups. Local communities often appear to bear a disproportionate burden of the costs, both economic and environmental, of such projects.

All three governments have adopted social and environmental laws and regulations for the mining industry, along with other relevant policies such as EIAs. However, in all cases, these sound policies are not being fully implemented. As the bauxite mining industry is just starting to take shape and none of the countries has moved beyond the exploration phase, there is still time to ensure that mining laws are updated and capacity is built to implement policies to ensure the best possible outcome.

China's own environmental and social policies are becoming more progressive, and China could play a leading role in shaping the industry in a more sustainable manner. As many Chinese companies 'go out' to find investment, they will need to comply with their host countries' laws and regulations. However, where these regulations are weaker than China's, an opportunity can be created for China to become a global leader in environmentally and socially sustainable investment in bauxite. This can be achieved by adopting and ensuring compliance with global best practices and principles such as the Equator Principles for banks and the International Council on Mining and Metals Sustainable Development Framework. Additionally, China should carefully monitor Chinese overseas investments and strengthen its own investment regulations. However, the onus cannot be on China alone, and it will be important for China to strategically partner with governments within the countries its companies operate in to help resource providers strengthen their own national regulations and adopt global best practices. This does not necessarily have to come at the expense of investment inflows, but could ensure that high environmental and social standards are met.

This policy brief is part of a research project entitled *Understanding China as an Actor in the Mekong Region*, jointly implemented by the Heinrich Böll Stiftung, WWF and the International Institute for Sustainable Development. The project aims to shed some light on China's economic role in Vietnam, Laos and Cambodia as a basis for constructive dialogue between decision makers and other stakeholders in China and the Mekong countries. This document builds on a scoping study carried out at the outset of the project. The project outputs are available at: [www.boell-cambodia.org](http://www.boell-cambodia.org), [www.wwf.dk](http://www.wwf.dk) and [www.tradeknowledgenetwork.net](http://www.tradeknowledgenetwork.net).

