

Waking up to its potential

Indochina's political and legislative frameworks are at last showing signs of encouraging significant inward investment

BY SUKHJEET CHAWLA, TUMMAKAJORN NUNTAPONG, PRAE PIROMYA, CHRIS LARKIN, VICTOR RATTANAVONG AND LE DUC SON



VIETNAM: FAST FACTS

Capital:	Hanoi
Population:	90.5 million (July 2011)
GDP growth rate:	6.8% (2010 est)
Currency:	dong

THE Vietnamese government has shown continuous commitment to develop the mineral sector of the country. Mining laws were first enacted in 1996 and new laws came into effect on July 1 this year. The new mining law brings about increased transparency in the regulations of mining activities.

Mining zones have been clearly defined under the new law, which helps investors map out which agencies are in charge and what geological areas are opened for commercial mining activities.

Licences can now be granted for four years, with a four-year extension (in contrast to a two-year licence, with a two-year extension).

Investors are voicing their concerns, however, over the 'auction' of mining rights, a process whereby the state will collect fees for issuing licences based on value, reserves, quality of minerals and mining conditions.

International companies tend not to accept reserve estimations made by a government, or by a process that does not incorporate the company's own standards. As such, this issue will have to be handled very carefully in order to achieve the development of a modern mining industry in Vietnam.

The mining-law amendments prompted debate in the state assembly, where concern about the impact of mining on the environment and communities, as well as sufficiently securing the country's resources were raised.

RARE EARTH MINERAL DEVELOPMENT

Japanese companies such as Toyota Tsusho and Sojitz are working with Vinacomin to develop a rare-earth mine in Son La province.

Sumitomo Corp is also showing strong interest in a rare-earth project in Yen Bai province, where a feasibility study is underway.

In 2010, high-ranking officials of Vietnam and Japan held a series of talks on agreements for rare-earth development.

The legal framework for the agreement is in progress.



However, investment in the mining sector would undoubtedly benefit from a sound regulatory framework that provides protection and fairness to all stakeholders.

RECENT PROGRESS

The Phuoc Son gold plant (pictured above) was completed in June 2011, marking a key milestone for Olympus Pacific Mineral Inc, which is currently producing about 40,000oz/y of gold from its two deposits in Vietnam. The gold processing plant has a plated capacity of 500t/d and the potential to increase capacity to 1,000t/d with minimal capital expenditure.

Strategic Mining Corp has a joint venture with Vietnamese mining company Ba Dinh Minerals JSC, in which Strategic holds 51% of the Nat Son gold property, where drilling activities have begun.

Triple Plate Junction plc has two mineral exploration licences in Vietnam, including a 70% interest in the Pu Sam Cap project in the province of Lao Cai in the north. Its potential discovery of major deposits in Vietnam has attracted three of the world's largest mining companies (Newmont Mining Corp, Barrick Gold Corp and Newcrest Mining Ltd) to enter into separate joint ventures with the company.



Axiom Mining Ltd has four gold project areas, most notably the Quang Binh and Quang Tri projects adjacent to the large Sepon gold and copper mines.

Meanwhile, Masan Resources Corp is one of the largest private sector natural resource companies in Vietnam, and is currently developing the Nui Phao polymetallic project in northern Vietnam.

It owns one of the largest tungsten mines in the world, with significant deposits of fluor spar, bismuth and copper. As an open-pit mine, Nui Phao will be one of the lowest-cost producers of tungsten in the world. Over US\$130 million has already been invested in the project, which has 55Mt of reserves and a projected life of 16 years.

In 2010, the industrial conglomerate Vinacomin had a coal output of 45Mt. Half of the production was for export as Vinacomin claimed that new power plants were not commissioned as scheduled and the company lacked storage capacity.

Nevertheless, the export trend will not continue for long. In June 2011, Vinacomin imported 9,500t of coal from Indonesia to test the infrastructure for Vietnam's future import demand.

Meanwhile, Vinacomin's Tan Rai bauxite plant, with a capacity of 650,000t/y in Lam Dong province, is scheduled for commissioning. A second plant with the same capacity in Nhan Co (Dac Nong) will begin production in 2013. These projects have huge potential for bauxite but may not run at full capacity due to the country's weak infrastructure.

LAOS: FAST FACTS

Capital:	Vientiane
Population:	6.4 million (July 2011)
GDP growth rate:	7.7% (2010 est)
Currency:	kips

Mining, as one of the two major sectors for foreign investment, has been a major contributor to Laos's increased GDP growth of approximately 6% per year,



Photo: Bloomberg News

and the government appears keen to promote the sector.

The 2008 Mining Law is still in the implementation stages but under a moratorium implemented in 2009, no new mining licences will be granted until at least 2013-2014 (due to the lack of effective monitoring capabilities in the country).

The moratorium was initially interpreted as the Lao government favouring Chinese and Vietnamese miners, blocking western investment by those looking to follow in the footsteps of PanAust Ltd and OZ Minerals Ltd's Sepon operation (now owned by Minerals and Metals Group).

“Mining has been a major contributor to Laos’s increased GDP growth of approximately 6%”

These fears and concerns have largely passed as recent signals indicate that there may be some hope that the implementation decrees may be approved in the near future.

In October 2010, Kingsgate Consolidated Ltd announced that the company would acquire Dominion Mining in an all-shares deal for A\$376 million. The latter company has applications on three tenements for gold and copper exploration that lies within the Loei Fold Belt.

Argonaut Resources NL, which has permits to two tenements in Laos, announced significant progress in its 2011 drilling programme, particularly in the Xekong tenement in the south of Laos.

The company is also conducting a soil-sampling programme at the Phu Tuang prospect east of Ban Bak.

Argonaut has spent about US\$9 million on exploration activities to date and also farmed out exploration activities at its Century tenement to Aurum Inc in January 2011.

In February 2011, Chinalco Yunnan Copper Australia Ltd formed a joint venture with Yunnan Copper Industry to explore for copper resources in Oudomxai Province

in five tenements near the Chinese border. The company is expecting 100Mt at a grade of 1% copper and 150g/t silver. A resource statement is expected by the end of 2011.

PanAust’s copper-gold operation Phu Kham (pictured above) processed about 9.7Mt of ore in the first nine months of 2011 and is currently being upgraded to improve ore processing and metal recovery rates. The company is also planning to start its Ban Houayxai gold-silver project in late 2011, with an expected mine life of nine years.

Meanwhile, the bauxite sector, mainly in the southern part of the country, has estimated inferred resources of up to 5,000Mt, one of the largest in the world.

The Australian-Chinese joint venture Sino-Australian Resources Corp (SARCO) has announced that it intends to list its Laos bauxite-alumina project on the Australian stock exchange by early 2012.

SARCO, in which ORD River Resources Ltd has a 49% stake and China Non Ferrous Metal Mining Company Ltd has a 51% stake, plans to raise up to US\$200 million for the project.

The estimated capacity of the refinery in the first phase is 600,000t/y with expansion to 1.2Mt/y should sufficient reserves be found. In October, SARCO increased the resource estimate for the project to 77Mt at 30.6% Al₂O₃.

Another significant bauxite player in southern Laos is Sino-Lao Aluminum Corp, a Thai-Chinese and Lao joint venture.

The company is developing a project that, once completed, would be the largest single foreign investment in Laos to date, with an estimated capital expenditure of US\$2.3 billion. The company is currently in the pre-development stage. Mining and construction of the refinery will start in the March quarter of 2012.

These developments have paved the way for the major diversified miners to take an interest in Laos.

Rio Tinto is back in Laos with a project to explore for bauxite with Japanese trading company Mitsui Corp after selling off its stake in the Sepon copper project.

The company has a five-year exploration and feasibility study programme and is expected to spend about US\$9 million, with US\$1.4 million spent as of July 2011.

In Laos, there are also at least five major Chinese companies involved in potash projects.

Sino-Agri Resources has plans to build a world-class potash processing complex with a target capacity of 3Mt/y within five to eight years. The plant will be completed in three stages, depending on the viability of new fields currently being explored.

The first stage involves constructing a 100,000t pilot facility in Khammuan province.

In recent years, the surge of foreign investment in hydro-power production and infrastructure have led Chinese companies to enter the mining sector after learning about Laos's largely unexplored potential.

Sino Hydro reached an agreement to prospect for potash resources with the Lao government to develop a series of hydro-power projects in 2006. A 120,000t/y processing plant is expected to be commissioned in late 2011, with further expansion expected to increase capacity to 1Mt/y.

CAMBODIA: FAST FACTS

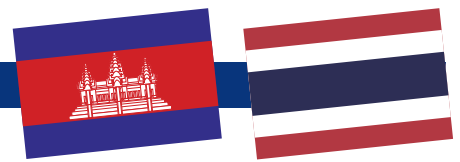
Capital:	Phnom Penh
Population:	14.7 million (July 2011)
GDP growth rate:	6% (2010 est)
Currency:	riels

Large mineral deposits in neighbouring countries have led investors to believe that there is tremendous untapped potential for the mining industry in Cambodia.

The focus in Cambodia, the least developed mining sector of Indochina, has been gold exploration with Australian companies Indochine Mining Ltd and Oz Minerals Ltd leading the way.



Brighton Mining is exploring in Cambodia



The government believes that gold, copper, iron ore and zinc are just some of the metals that could be found in the country.

Geological mapping conducted in the 1960s indicated the existence of 25 types of minerals but, many decades later, the government has yet to see significant amounts of revenue from this source.

The mining laws of the country need to be further improved to welcome foreign investment.

Recent exploration results could prove beneficial to the economy of Cambodia since it is widely believed that mining activities could start within the next five years.

OZ Minerals has four exploration projects in the province of Mondulkiiri. The most advanced exploration is the Okvau project, which has a JORC-compliant inferred mineral resource of 8.1Mt at 2.3g/t gold for 605,000oz of contained gold (at a 0.5g/t cut-off), according to a March 2010 estimate.

Indochine, meanwhile, began trading on the Australian securities exchange (ASX) in December 2010, raising A\$20 million.

The company has the largest package of gold and copper leases in Cambodia, spanning in excess of 4,000km².

Indochine has two main areas of exploration: Kratie in central Cambodia, and Ratanakiri in the northeastern part of the country. It began the drilling programme in April at its 100%-owned Kratie North gold project, where gold-bearing veins have been discovered.

Southern Gold Ltd has eight projects in eastern Cambodia. In 2008, the company increased its security of tenure with four Memorandum of Understanding (MOU) tenements being converted to exploration licences, bringing the total of granted licences to seven.

Of these seven tenements, the company holds three in joint venture with Japan Oil, Gas and Metal National Corp (JOGMEC) and the remaining four are held 100% by Southern Gold.

Exploration on the three joint-venture tenements is being fully funded by JOGMEC at a total of US\$4.5 million over three years to earn a 51% interest in Kratie North, Preak Khlong and Kratie South.

Brighton Mining Group Ltd began trading on the ASX on November 3, 2011, and will acquire an interest of 70% in an incorporated joint venture that owns three partly contiguous mining concessions at Antrong, Ropoah and Kang Roland North in the gold-rich province of Mondulkiiri in north-eastern Cambodia.

The company has been conducting early-stage exploration at its projects, including rock-chip sampling, metallurgical test work and planning prospective drilling targets.

Angkor Gold Corp (formerly known as Weifei Capital Inc) is the second-largest landholder of mineral concessions in Cambodia, covering approximately 2,600km² in the northeastern provinces of Ratanakiri and Mondulkiiri.

Through its acquisition of Prairie Pacific Mining Corp in March 2011, it has a joint-venture agreement with Liberty Mining International Pty Ltd, for four licences in northeastern Cambodia (Banlung North, Banlung South, Oyadao North and Oyadao South).

Angkor Gold owns 90% of the joint venture with an option to purchase the remaining 10%. The company has been conducting exploration drilling at its projects.

THAILAND: FAST FACTS

Capital:	Bangkok
Population:	66.7 million (July 2011)
GDP growth rate:	7.8% (2010 est)
Currency:	baht

Last year, Thailand's Democrat Party-led coalition



Angkor Wat in Siem Reap, Cambodia

Photo: Bloomberg News

government was again faced with street protests by the pro-Thaksin red shirts. Demanding parliament dissolution and elections, the protest gained momentum and resulted in violent clashes.

Despite the political instability, the stronger Thai baht and the effect of the global economic downturn, Thailand did remarkably well.

The Stock Exchange of Thailand (SET) provided returns of 41%, making it the sixth-best performing stock exchange in the world in 2010. The Thai economy expanded 7.6%, the fastest growth in more than a decade even though the tourism industry was negatively affected for several months.

“Large mineral deposits in neighbouring countries have led investors to believe that there is tremendous potential in Cambodia”

General elections were held in July 2011, and the Pheu Thai party won by a landslide. Yingluck Shinawatra (the sister of the self-exiled former prime minister, Thaksin Shinawatra) became prime minister. Ms Yingluck's government had only been in power for a few months when the country was hit by the worst flooding in over 50 years.

More than two-thirds of the country was affected by the floods, causing 270 deaths and damage of around US\$1.6 billion (as of October 11). According to the World Bank, the floods will reduce Thailand's GDP by around 2%.

Thai companies continued to focus on expansion to the neighbouring countries Myanmar, Indonesia and Laos for coal, bauxite and zinc.

As the global financial markets tumbled and gold prices soared, the interest and potential investment in gold increased. The theme of fuelling emerging-market demand for potash and obtaining food security in general has also spread to Thailand.

Political stability is essential for economic development and the growth of the mining industry.

Following the change in government this year, the Moratorium on Special Prospecting Licences for gold was lifted in June 2011. A key issue for mining and exploration licensing in Thailand is the Environmental and Health Impact Assessment (EHIA), where communities and NGOs have strongly argued against coal-fired power plants, gold and potash mines.

A solid regulatory framework and ensuring stakeholder value are thus necessary for a thriving mining industry in Thailand.

COAL

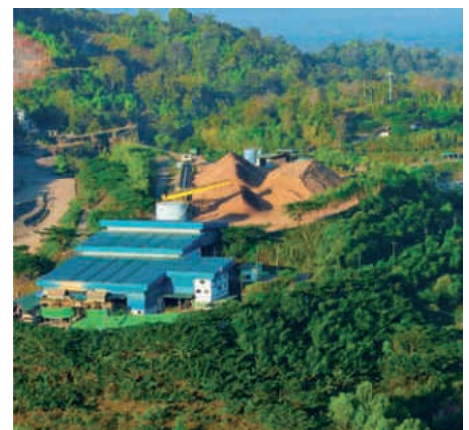
The lignite mine of the Electricity Generating Authority of Thailand (EGAT), the largest coal producer in the country, is located in Mae Moh, Lampang.

It has a 25-30-year mine life, with 1,140Mt of resources and 825Mt of reserves. In 2010, 16Mt of lignite was produced, a 3% increase from 15.6Mt in 2009. The entire lignite production was used to fuel its own mine-mouth power plant.

EGAT has signed an agreement with the Myanmar government on the Mong Koke thermal coal-mining project in Mogok, 40km north of Thailand's Chiangrai border.

The coal project is a joint operation by the Dawei deep seaport project developer, Italian-Thai Development plc (ITD) and EGAT and has a target production of 1.5Mt/y for a life of ten years.

However, the project is facing severe opposition by



environmental groups and local villagers in Myanmar and Thailand.

In 2010, Banpu Co Ltd expanded its Pan-Asian coal group to Australia, where it acquired Centennial Coal for US\$2.5 billion. Banpu has also gained US\$669 million from the divestment of its Chinese coal operation, Daning.

The total coal output from Indonesian-listed ITMG, China coal, and Centennial for 2010 was 25.9Mt.

In March 2011, Banpu took its first step into Mongolian thermal coal by acquiring 12% in Hunnu Coal Ltd, then acquired the remaining shares in September for US\$477 million.

Coal producer Lanna Resources plc has three subsidiaries in Kalimantan, Indonesia. PT Lanna Harita Indonesia (55% owned), has production capacity of around 2Mt/y. The company's remaining mineable reserves are estimated at 15-20Mt, with 20 years left in its concession period.

PT Citra Harita Minerals (55% owned) was ordered by a court to suspend operations due to a dispute between the government and former owner of the mining licence. Meanwhile, PT Singlurus Pratama (65% owned), has production capacity of around 2Mt/y with remaining mineable reserves estimated at 20-25Mt, with 28 years remaining in the concession agreement. The coal production capacity of this mine will be expanded to 5Mt/y by 2013.

ZINC

Padaeng Industry plc, Thailand's major producer of zinc, reported a net profit in 2010 of Bt418 million (US\$13.9 million), up from Bt296 million in 2009. The company produced a total of 119,382t with 21.4% zinc content at the Mae Sod mine, equivalent to 25,529t of zinc.

As of December 2010, the total mineral resource of zinc silicate and carbonate at the Mae Sod mine was estimated at 2.5Mt (dry) at 10.4% Zn (cut-off grade of 3.0% Zn) containing about 257,000t of zinc metal.

The company has submitted an application for a new mining lease in the Mae Sod concession to allow recovery of more resources.

As it is preparing the closure of the Mae Sod mine in 2016, Padaeng has been pro-active in acquiring operating rights in Myanmar. The company was granted a five-year concession extension by the Myanmar government, with operations beginning since the end of 2010, while exploration to improve mineral reserves is expected to start before the end of this year.

Applications for the renewal of the licenses at Li

"Thai companies continued to focus on expansion to the neighbouring countries Myanmar, Indonesia and Laos for coal, bauxite and zinc"

North in Lamphun province were filed after their expiration in June 2010. It is believed that the area still has long-term exploration and development potential.

Padaeng's smelter cathode zinc production fell almost 6% from 2009 due to calcite shortage, which originated mainly from equipment failure and the late approval of the Environmental Impact Assessment (EIA) for the fresh-water cooling system of the Rayong calcination plant. The cast-zinc production also decreased 6%, but the ratio of alloys and value-added products increased to 37% from 28% in 2009.

The company continues to make efforts to increase zinc share from secondary raw material sourced from Turkey and other African countries at the smelter.

COPPER AND GOLD

Padaeng is also involved in a joint venture with Australian company PanAust Ltd, which will develop the Puthep copper project, located in Loei province in Thailand's northeast. Under the agreement, Padaeng will hold 51% and PanAust 49%.

Puthep Copper, a joint-venture company, has access to two deposits, PUT1 and PUT2, under a concession agreement with the Thai government.

PUT1 is known to hold substantial copper resources, and could be the largest in Thailand, with initial drilling results as part of the feasibility study indicating a combined resource estimate of 160Mt at 0.53% Cu and 0.09g/t Au (copper cut-off grade 0.30%).

PanAust will earn a 51% interest in Puthep by completing a feasibility study on the copper project, but has the option to acquire a total 60-70% interest in Puthep. The government of Thailand has a right to acquire a 10% interest.

If the Thai government exercises this right, Padaeng and PanAust must each transfer half of the shares required to the government of Thailand (provided that Padaeng's interest does not fall below 26%).

The objective for the Puthep project is to develop an

open-pit mine and leaching process to produce 25,000-30,000t/y of cathode copper over an eight-year mine life.

As of June 2011, the joint-venture partners were still reviewing the preferred development and ownership structures and plans to complete pilot-scale vat leach test, submit a mine plan as part of an application for mining leases and complete community consultation.

Kingsgate Consolidated Mines Ltd and its Thai subsidiary, Akara Mining Ltd, operate the Chatree gold mine in central Thailand (pictured below).

Chatree began operations in November 2001 with a processing plant capacity of 1Mt/y, which was expanded to 2Mt/y in 2006.

The company is in the process of upgrading processing capacity from 2Mt/y to 5Mt/y, which should be completed by the December quarter of 2011.

Of the US\$125 million budget, US\$75 million has been spent thus far and is under budget. Kingsgate plans to list 51% of the Chatree goldmine on the Thai bourse, but the timing has not been confirmed thus far. As of June 2011, Chatree gold production of 16,180oz was down 4% compared with the March quarter.

Gold grades were lower than expected, at 1.0g/t, as mining continued to be restricted to lower-grade areas, however, approval to gain access to the high grade 'C' North deposit has been obtained and mining of the overburden started in late June.

Mining of the higher-grade ore is not expected until late September, once overburden has been removed, and will have a significant positive impact on production in the December 2011 and March 2012 quarters.

Costs were also under pressure with total cash costs up 37% on the March quarter at US\$583/oz (including Thai royalties).

Underlying costs reflect the grade of ore processed and the lower recoveries but are expected to improve as higher-grade material is processed later in the year.

Matsa Resources Ltd is an Australian mineral exploration company with iron ore, copper and gold projects in Thailand.

The company is developing the Khlong Tabae (KT) gold project, under 11 Special Prospecting Licence Applications (SPLAs).

At the time of SPL application, the Thai government had a moratorium on granting new gold mineral licences pending a review of objections from various sectors of the public. The first ten SPLs have already passed local-government requirements and are at the





Bangkok head office for final assessment.

Tongkah Harbour operates tin mining in Phuket through Tungsum Ltd, andesite mining in Saraburi through Cholsin Ltd, and gold exploration and mining in Loei through Sea Minerals Ltd.

Tungsum Ltd has six mining licences valid until 2027 and 2028, covering 2.07km².

In late 2009, the local community sought to halt the expansion plans for its gold processing and cyanidation plant. However, in early 2010, Tungsum Ltd's application for a new mining licence was approved by the local community and is under process for EIA approval.

POTASH

Italian-Thai Development plc has a 90% stake in Asia Pacific Potash Corporation Co Ltd (APPC), while the Ministry of Finance holds the remaining 10%.

APPC's Somboon project is planned for the northeast province of Udon Thani, with an expected mine life of 25 years and a production of 2Mt/y.

The concession for potash mining has been delayed, primarily due to opposition from the local community and environmental groups. Nevertheless, the government approved in principle the APPC's underground mining plans in December 2010 and allowed a study of Environmental and Health Impact Assessment (EHIA) to be carried out.

If the project is allowed to start, it will make Thailand the third-largest potash producer in the world (after Canada and Russia), and will position



Photo: Bloomberg News

the country as the leading producer in Asia.

ASEAN Potash Mining Co (APMC) was established in 1991 under the ASEAN Industrial Project, intended to utilise the natural resources of each country for the benefits of the ASEAN member countries.

The project experienced major setbacks when Thailand's Ministry of Finance no longer wanted to assist in loan financing followed by the lack of adequate strategic partners.

No further activity occurred until 2009, when the Abhisit-led government decided to revitalise the project

at the time when commodity prices have an upward momentum.

In 2010, two key developments occurred. First, Bangchak Petroleum expressed its strong interest in the project by raising its stake in the company to 16% with an aim to become a major shareholder. Second, consultants were hired from Germany to suggest appropriate mining methods for the project (although the shareholders continued the argument over the future course of action). The project plans to start the EIA process in 2013.

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