

The Mining Sector and Its Sustainability

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INTRODUCTION

The mining sector has been important to Thailand for many decades. For example, although tin mining in the southern region of the country has declined, at one time it was a major export earner for Thailand and created jobs for many rural workers. The limestone industry in Saraburi Province as well as that of many other provinces also provides an essential input for the manufacture of construction materials and supports the growth of the Thai cement industry. In the future, Thailand stands to gain substantially from its many mineral resources. Some of those that potentially will play a role in this regard are gold and potash.

Despite the positive contributions of the mining sector to the economy, whether in the form of export earnings, employment creation or the supply of inputs to downstream industries, some mining activities have also generated negative effects on society, such as environmental contamination and its consequent health impacts. With these aspects in mind, TDRI investigated six mining operations throughout Thailand that have produced adverse environmental health consequences: tin mining in Nakhon Si Thammarat Province, which resulted in arsenic contamination; lead mining in Kanchanaburi Province, which resulted in lead contamination; zinc mining in Tak Province, which resulted in cadmium contamination; lignite mining in Lampang Province, which resulted in sulphur dioxide contamination; rock quarrying in Saraburi Province, which resulted in air pollution; and gold mining in Phichit Province, which caused death and injury among villagers in that area.

Because the above-mentioned adverse effects have raised public concern regarding the sustainability of the mining sector, the Office of Natural Resources and Environmental Planning (ONEP) of the Ministry of Natural Resources and Environment and TDRI have formulated a set of strategies that, if implemented, should help to minimize the negative environmental and health impacts of mining, and help Thailand to realize the potential benefits of its rich mineral resources.

THE MINING SECTOR IN THAILAND

In support of Thailand's economic momentum, mineral resources serve as important inputs for many local industries. Figure 1 shows the importance of the country's mineral resources in terms of the continued expansion of mineral extraction; for example, the value of mineral production rose from 29,647 million baht in 2002 to 39,681 million baht in 2007. Thailand is also a major importer of minerals, the value of which rose tremendously in the same five-year period, from 18,071 million baht to 50,902 million baht. In 2007, the export of mineral resources was modest at a value of about 20,000 million baht. Table 1 shows the diversity of Thailand's mineral resource deposits, the known mineral reserves in concession areas and estimated potential mineral reserves. These statistics indicate that, even at the current rates of extraction, Thailand's remaining reserves are significantly large compared with its potential reserves.

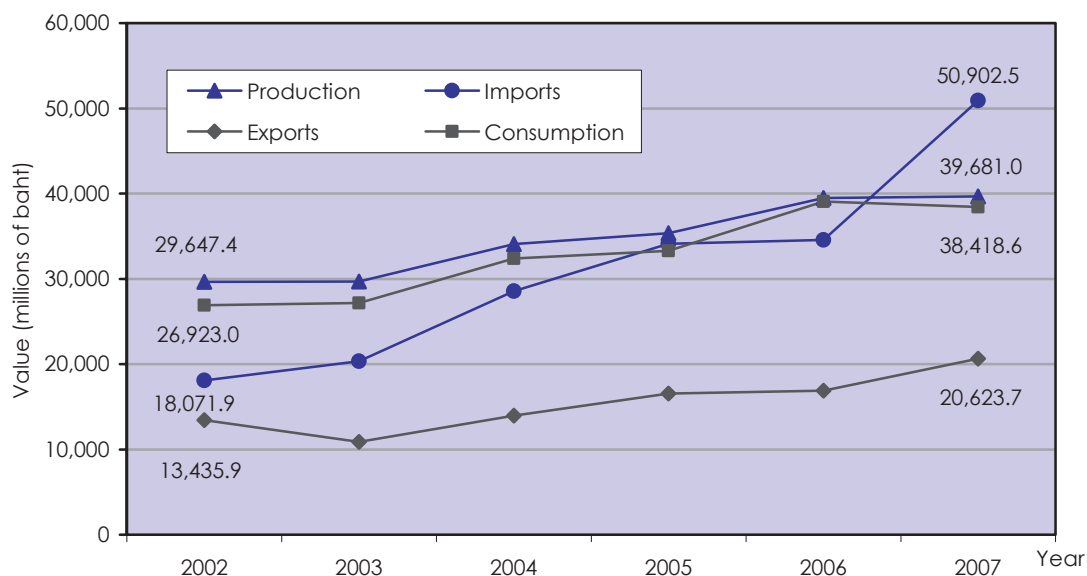
ADVERSE ENVIRONMENTAL AND HEALTH IMPACTS FROM MINING

Among the numerous mining sites that are scattered throughout Thailand, it was found that, while many mining sites have been in operation without producing much environmental impact, others have created adverse environmental and health impacts but may not have been well reported. However, the following six mining cases not only show the magnitude of environmental and health impacts from mining sites but also illustrate the nature of mismanagement in the mining sector of Thailand.

Tin mining in Nakhon Si Thammarat Province has been in operation for as long as 100 years. Although tin mining has ceased, its impact is still being felt by the people of Ronphiboon District. After the tin had been extracted, the residuals that were left behind contain arsenic substances that later found their way into water reservoirs. Currently, more than 6,000 villagers in

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Figure 1 Key Mining Statistics of Thailand, 2002-2007



Source: Department of Primary Industries and Mines, Ministry of Industry, 2008.

Table 1 Mineral Reserves in Concession Areas and in Potential Mining Reserves of Thailand (as of 2005)

Kind of mineral	Mineral reserves in concession areas (tons)	Potential mineral reserves (tons)	Percentage of remaining reserves to potential reserves (%)
Lignite	2,248,078,910	12,248,078,910	81.65
Limestone (industrial rock construction)	2,313,846,783	295,313,846,783	99.22
Basalt (industrial rock)	152,860,662	42,252,860,662	99.64
Granite (industrial rock)	290,766,593	11,290,766,593	97.42
Andesite (industrial rock)	157,389,078	16,157,389,078	99.03
Sandstone	31,004,709	31,031,004,709	99.90
Limestone (cement industry)	1,041,826,453	612,841,826,453	99.83