



# 2010 Minerals Yearbook

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## CYPRUS

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# THE MINERAL INDUSTRY OF CYPRUS

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The mineral resources of Cyprus<sup>1</sup> included asbestos, chromite, copper, gypsum, lime, sand and stone, and umber. In 2010, mining made only a small contribution to the national economy.

The Mines Service of the Ministry of Agriculture, Natural Resources, and Environment administered mineral operations under the Mines and Quarries (Regulation) Law, chapter 270, 1959; the Mines and Quarries Regulations, 1958–79; and the Cyprus Standard and Control of Quality Law 1975. The Geological Survey Department was placed under the auspices of the Ministry of Agriculture and Natural Resources in the late 1960s and was responsible for the mineral exploration programs and for evaluating the country's mineral resources (Ministry of Agriculture, Natural Resources and Environment, 2010).

The gross output of the mining and quarrying sectors in 2010 was valued at €90.4 million (\$120.7 million<sup>2</sup>) which was an increase of 9% compared with that of 2009, whereas the output value of value-added products also increased by 9.7% to €55.5 million (\$74 million) compared with that of 2009. The number of people employed in the mining and quarrying sector was 585, which was a decrease of 0.5% (Statistical Service of the Republic of Cyprus, 2010).

Cyprus became a full member of the European Union (EU) on May 1, 2004, and its membership in the euro area became effective on January 1, 2008. The Government replaced the Cyprus pound (C£) with the euro after the country joined the euro area. In 2010, the C£ could be exchanged only at the country's banks (U.S. Department of State, 2010).

International trade was important to the economy of Cyprus. On the production side, the lack of energy resources for the production of heavy goods and the lack of raw materials necessitated the importation of these mineral commodities. Cyprus, on the other hand, exported agricultural production, manufactured products, and mineral commodities. The EU and Cyprus's neighbors in the Middle East absorbed the majority of Cyprus's exports and supplied the majority of Cyprus's imports (PriceWaterhouseCoopers, 2010).

U.S. exports to Cyprus in 2010 totaled \$134 million and included \$1.4 million in specialized mining equipment, \$1.2 million in finished metal shapes, \$684,000 in excavating equipment, \$595,000 in iron and steel mill products, and \$285,000 in petroleum products (U.S. Census Bureau, 2010a). U.S. imports from Cyprus in 2010 totaled \$11 million. This included \$1 million in sulfur and nonmetallic minerals, \$307,000 in nickel, and \$90,000 in industrial chemicals (U.S. Census Bureau, 2010b).

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<sup>1</sup>Unless specifically stated, all data in this chapter are for the Republic of Cyprus in southern Cyprus because data related to areas of northern Cyprus administered by Turkish Cypriots were sparse or unavailable. The two areas have been separated since 1974.

<sup>2</sup>Where necessary, values have been converted from euro area euros (€) to U.S. dollars (US\$) at a rate of €1.00 = US\$1.33.

## Production

Data on mineral production are in table 1. Bentonite, cement, sand and gravel, and stone were the major mineral commodities, in terms of value, produced by the mineral industry of Cyprus. Other mineral commodities produced included common clay for brick and cement manufacture, gypsum, ocher, and umber. In 2010, cement production increased by 10% compared with that of 2009 (table 1).

## Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities and their locations. All facilities were privately owned.

## Commodity Review

### Metals

**Copper.**—Copper exploration areas in Cyprus were centered on the Troodos ophiolite complex. The targeted mineralization type was volcanic-hosted massive sulfide (VMS) deposits under shallow cover rocks. These deposits were similar in type to those of the country's larger historical copper mines, three of which had reserves that exceeded 10 million metric tons (Mt) of ore at grades of between 1% and 4.5% copper (Minesite.com, 2010).

EMED Mining Public Ltd., which was a Cyprus-based mineral development and exploration company, considered its Klirou copper-zinc property a high-priority project. The project is located about 20 kilometers southwest of Nicosia. Exploration was primarily within the Upper Pillow Lavas of the Troodos complex. The Klirou deposit extends from the surface to about 200 meters (m) below the surface and was potentially minable by open pit methods (EMED Mining Public Ltd., 2010).

Northern Lion Gold Corp. of Canada announced an update on its projects in Cyprus, including results from a diamond drilling program at the Philani and the Red Rocks deposits. At Philani, historical data had indicated the presence of a large VMS body at shallow depth containing high copper and zinc values. The drill program was designed to confirm the presence of this VMS body and to provide core samples to understand better the structure and mineralogy of the sulfides. Northern Lion announced the results of the drill samples to be 5.1% copper and 5.7% zinc across 9 m. Mapping and surface sampling located a series of gossan outcrops following a northwest-trending structure along the west edge of the known VMS deposit. Surface rock sampling had returned a high value of 4.4 grams per metric ton (g/t) gold from this gossan. Similar gossans were located to the southeast of the VMS deposit (Northern Lion Gold Corp., 2010).

**Gold.**—Northern Lion began exploring for gold in the Troodos complex in January and announced that, as of

September, significant amounts of gold and other valuable minerals had been discovered. One sample at the Anglisides site was reported to assay at 50 g/t gold. Drilling was continuing at the Anglisides and the Pitha sites in the Larnaca district to build a clearer picture of the amount of ore in these deposits. Northern Lion received approval to explore in the Asproyia, the Limni, and the Paphos areas; the company also had two permits for the Klirou area, along with five more permits adjacent to these areas that covered about 20.7 square kilometers (Dewhurst, 2010).

### ***Industrial Minerals***

The sedimentary rocks of Cyprus are rich in industrial minerals, including aggregates, bentonite, building stone, chalk, clay, gypsum, and limestone. Information regarding ownership, location, and production of these resources was not readily available, however.

### ***Mineral Fuels***

**Natural Gas and Petroleum.**—Cyprus produced no natural gas or petroleum in 2010. Energy constituted one of the most important sectors of the country. The energy sector was characterized by a high dependence on imported energy, a dominance of petroleum in the energy balance, a rapid growth in energy demand, and difficulty interconnecting with European networks owing to Cyprus's geographic location (Ministry of Commerce, Industry and Tourism, 2010).

Vitol Tank Terminals International BV (VTTI) of the Netherlands announced that it had plans to build a petroleum import and distribution terminal in the industrial area of Vassiliki. The \$129 million terminal, which was scheduled for completion in 2012, would establish Cyprus as a major petroleum trading hub. The terminal would be linked in with VTTI's storage and refinery asset in Fujairah, United Arab Emirates, which was one of the largest oil bunkering ports in the world, and would help facilitate the supply of petroleum products to the Middle East region. Petroleum products would arrive at the new terminal from the international oil markets and be reexported to regional markets, as well as supply the domestic market in Cyprus (Arabianoilandgas.com, 2010).

### **Outlook**

In 2010, domestic industrial infrastructure construction is expected to continue to be the main source of domestic demand for cement, gypsum, sand and gravel, and stone and to be a significant contributor to the national economy. International demand is expected to continue to support Cypriot exports of bentonite, gypsum, perlite, and umber. Natural gas and petroleum exploration is expected to continue.

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TABLE 1  
CYPRUS: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Thousand metric tons unless otherwise specified)

Commodity <sup>2</sup>	2006	2007	2008	2009 <sup>e</sup>	2010 <sup>e</sup>
Cement, hydraulic	1,786	1,873	1,914	1,481 <sup>3</sup>	1,674 <sup>3</sup>
Clays:					
Bentonite metric tons	150,620	154,655	155,125	152,722 <sup>3</sup>	162,169 <sup>3</sup>
Other:					
For brick and tile manufacture	400 <sup>e</sup>	476	490	480	480
For cement manufacture	540	620	635	400 <sup>3</sup>	400
Total	940 <sup>e</sup>	1,096	1,125	880	880
Copper, refined metric tons	880	3,012	2,986	2,380	2,595 <sup>3</sup>
Gypsum, crude <sup>4</sup> do.	264,000	304,000	405,500	317,000	333,300 <sup>3</sup>
Lime, hydrated do.	12,715	13,497	14,285	12,000 <sup>3</sup>	12,000
Sand and stone:					
Limestone, crushed (Havara)	700	875	766	800	800
Marble, granules and chippings metric tons	100	800	550	400	1,195 <sup>3</sup>
Marl, for cement production	2,210	2,540	2,595	2,600	2,600
Sand and gravel <sup>5</sup>	12,199	13,129	14,174	11,468 <sup>r,3</sup>	12,981 <sup>3</sup>
Building stone <sup>6</sup>	57	38	71	70	80
Umber metric tons	5,757	4,363	4,471	4,363 <sup>3</sup>	4,500

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>r</sup>Revised. do. Ditto.

<sup>1</sup>Table includes data available through December 31, 2011.

<sup>2</sup>In addition to the commodities listed, small quantities of the mineral pigments ochre and terra verte are mined intermittently. Mineral production data from areas of northern Cyprus that are administered by Turkish Cypriots and the production of fertilizers, perlite, and secondary metals from scrap are not included in this table because available information is inadequate to make reliable estimates of output.

<sup>3</sup>Reported figure.

<sup>4</sup>About 4,000 metric tons per year of gypsum was calcined.

<sup>5</sup>Includes crushed aggregate.

<sup>6</sup>Includes crude, semifinished, and worked stone.

TABLE 2  
CYPRUS: STRUCTURE OF THE MINERAL INDUSTRY IN 2010

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum:			
Secondary	A & E Aluminium Recycling Ltd.	Nicosia	NA
Semimanufactures	Muskita Aluminum Industries Ltd.	Extrusion presses, Limassol	18,000
Cement	Vassiliko Cement Works Ltd.	Vassiliko	1,260,000
Do.	Cyprus Cement Co. Ltd.	Moni	400,000
Do.	Bogaz Endustri ve Madencilik	Near Famagusta, northern Cyprus	150,000
Clay, bentonite	Peletico Penta Ltd.	Mines at Pentakomo and Troulli	NA
Do.	Hellenic Mining Co.	Nicosia	NA
Do.	Drapia Mining Co. Ltd.	Drapia, Monagroulli, and Parsata	(1)
Do.	Oryktako Ltd.	Mine at Kato Moni and processing plant at Malounda	10,000
Do.	C & A Quarries Ltd.	NA	NA
Copper, cathode	Hellenic Copper Mines Ltd.	Skouriotissa	(1)
Gypsum	Peletico Ltd.	Quarry and processing plant at Aradipou, near Larnaca	NA
Do.	Zeiplast Chemical Industries Ltd.	Near Moni	NA
Do.	Various	Eledhio and Tichni	NA
Perlite	Peletico Ltd.	Expanded perlite facility at Larnaka	NA
Do.	Zeiplast Chemical Industries Ltd.	Expanded perlite facility at Moni	NA
Refined petroleum products thousand 42-gallon barrels	Cyprus Oil Terminal Ltd.	Larnaca storage facility	150
Steel, semimanufactures	B.M.S. Metal Pipes Industries Ltd.	Tube and pipe mill, Paphos	15,000

Do. Ditto. NA Not available.

<sup>1</sup>Inactive since 2008.