



2011 Minerals Yearbook

CYPRUS

THE MINERAL INDUSTRY OF CYPRUS

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The mineral resources of Cyprus¹ included asbestos, chromite, copper, gypsum, lime, sand and stone, and umber. In 2011, 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, 1958–1979; and the Cyprus Standard and Control of Quality Law 1975 (Ministry of Agriculture, Natural Resources, and Environment, 2011).

The Geological Survey Department was placed under the auspices of the Ministry of Agriculture and Natural Resources in the late 1960s and is responsible for oversight of the country's mineral exploration programs and for evaluating the country's mineral resources. The Geological Survey Department serves as the technical advisor of the Government for all geologic matters (Geological Survey Department, 2011).

The gross output of the mining and quarrying sectors in 2010 (the latest year for which data were available), was valued at €90.4 million (\$120.2 million²) which was an increase of 9% compared with that of 2009. The output of mining and quarrying value-added products increased to €55.5 million (\$74 million), or by 9.7% 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, 2011).

Cyprus became a full member of the European Union (EU) on May 1, 2004. The Government replaced the Cyprus pound (C£) with the euro (€) after joining the euro area in 2008 (U.S. Department of State, 2012).

International trade was important to the economy of Cyprus. The country's lack of energy resources, heavy industry facilities, and raw materials required for the production of capital goods necessitated the importation of such items. 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 (U.S. Central Intelligence Agency, 2012).

U.S. exports to Cyprus in 2011 totaled \$97 million and included, in order of value, \$3.4 million in finished metal shapes, \$3.3 million in petroleum products, \$1.6 million in materials handling equipment, and \$32,000 in nonmetallic minerals (U.S. Census Bureau, 2011a).

U.S. imports from Cyprus in 2011 totaled \$21 million. This included, in order of value, \$935,000 in sulfur and nonmetallic minerals, \$55,000 in material handling equipment, \$36,000 in stone, sand, cement, and lime, and \$25,000 in excavating, paving, and construction equipment (U.S. Census Bureau, 2011b).

¹Unless 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.

²Where necessary, values have been converted from euro area euros (€) to U.S. dollars US(\$) at a rate of €0.75=US\$1.00.

Production

Data on mineral production are in table 1. Bentonite, cement, sand and gravel, and stone were the major mineral commodities produced by the mineral industry of Cyprus. Other mineral commodities produced included common clay for brick and cement manufacture, gypsum, ocher, and umber. In 2011, the production of building stone and cement decreased whereas that of refined copper and umber increased compared with that of 2010 (table 1).

Structure of the Mineral Industry

Table 2 is a list of the major mineral industry facilities, their locations, and their annual production capacities. All facilities were privately owned.

Commodity Review

Metals

Copper.—Copper exploration areas in Cyprus were centered on the Troodos ophiolite complex. All Cyprus's copper deposits that had been identified as of 2011 were volcanic-hosted massive sulfide (VMS) deposits that were under shallow cover rocks. Cyprus-type deposits form a mid-ocean ridge setting; however, the term Cyprus-type is somewhat misleading as the Troodos ophiolite to which the Cyprus-type name refers is not a typical mid-ocean ridge ophiolite. Rather, it was considered to be a supra-subduction zone ophiolite and should be separated from normal oceanic ridges and mature back-arc basins. VMS deposits on Cyprus take the form of layered deposits that contain, on average, about 60% pyrite, with minor amounts of chalcopyrite and sphalerite. Deposited on or close to the seafloor, the deposits can be found anywhere within the volcanic sequence. These deposits are similar in type to those of Cyprus's larger historical copper mines (Jowitt, 2011).

Historically, more than 30 copper deposits had been discovered as of yearend 2011. The deposits ranged in size from an estimated 50,000 metric tons (t) to an estimated 20,000,000 t of copper-bearing material with grades of from 0.3% to 4.5% copper. There were four main copper mining districts in Cyprus—the Kalavassos area, the Kambia area, the Limni area, and the Skouriotissa area. Hellenic Copper Mines Ltd.'s Skouriotissa Mine was the world's longest producing copper mine. In 2010, which is the latest year for which data were available, Hellenic Copper exported about \$13.1 million worth of copper from the Skouriotissa Mine. The majority of the copper produced came from the processing of waste material from previous mining operations. The Skouriotissa facility produced 99.99% pure copper cathodes using the heap-leaching and solvent extraction-electrowinning method. In 2011, Hellenic Copper was investigating reopening some of the mine's ancient pits (Toovey, 2011).

EMED Mining Public Ltd. was a Cyprus-based mineral development and exploration company. In 2011, EMED was focused on the Klirou, the North Alestos, the South Mathiatis, and the South Pano Koutrafas prospects. EMED considered the 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 potentially was minable by open pit methods (EMED Mining Public Ltd., 2011).

Gold.—Northern Lion Gold Corp. of Canada was continuing exploration efforts for gold in the Troodos complex and announced that significant amounts of gold and other valuable minerals had been discovered. Northern Lion's permits were for about 75 square kilometers that covered the contact between the Upper and Lower Pillow Lavas. This contact was considered to be the most productive geologic environment for Cyprus-type VMS deposits. The permit area was selected based on the presence of ancient workings, slag piles, and (or) the presence of anomalous geochemical signatures. Mapping and surface sampling located a series of gossan outcrops following a northwest-trending structure along the west edge of the known VMS deposit. Drilling was continuing at the Anglides and the Pitha sites in the Larnaca district to build a clearer picture of the possible amount of ore in these deposits (Northern Lion Gold Corp., 2011).

Industrial Minerals

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

Cement.—Vassiliko Cement Works Public Co. Ltd. was a significant producer and distributor of cement and clinker. The company produced several types of cement: ordinary portland cement, low-alkali sulfate-resistant portland cement, portland composite cement, and white low-alkali limestone cement. Vassiliko also had a presence in the ready-mix concrete market and aggregates quarrying (Vassiliko Cement Works Public Co. Ltd., 2011).

Clay and Shale.—Peletico Penta Ltd. consisted of a quarry and a bentonite processing plant at Pentakomo. Peletico Penta redesigned the production process at its processing plant to enable the creation of bentonite bars through dry compaction. Under the new process, the activation of the bentonite is achieved without the use of soda and with a parallel decrease in energy demand and use of natural resources. In addition, particles of the byproducts (collected dust) of the mining process are used as raw material, which helps to increase productivity and decrease production costs for the company. The new production process allows bentonite to be produced during the rainy season (Eco-innovation Observatory, 2011).

Mineral Fuels

The energy policy of Cyprus was harmonized with the energy policy of the EU. The main goals of the energy policy were to safeguard competition in the market place, secure a reliable supply of energy, fulfill the energy demands of the country, and impose the least possible burden on the economy and the environment. The energy policy also included promotion of petroleum products and other sources of energy friendly to the environment, such as natural gas (Ministry of Finance, 2011).

Natural Gas and Petroleum.—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, 2011).

Although Cyprus produced no natural gas or petroleum in 2011, Nobel Energy Inc. of the United States announced that it had discovered a natural gas field of from 5,000 to 8,000 billion cubic meters of natural gas offshore the southeast coast of Cyprus. The discovery was the first of its kind in Cyprus and, if the field is developed, it could possibly end the imports of natural gas for the country. It was estimated that the natural gas field could satisfy the production of electricity on the island for 200 years (AsiaNews.it, 2011).

VTT Vassiliko Ltd. and the J and P Group of the United Kingdom joint venture announced that it had plans to build a petroleum import and distribution terminal in the industrial area of Vassiliko. The \$129 million terminal, which was scheduled for completion in 2014, would establish Cyprus as a major petroleum trading hub. The terminal would be linked with other VTT storage and refinery assets. 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 (Famagusta Gazette Online, 2011).

Outlook

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 COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity ²	2007	2008	2009 ^e	2010	2011 ^e
Cement, hydraulic	1,873	1,914	1,481 ³	1,328 ^r	1,207 ³
Clays:					
Bentonite	154,655	155,125	152,722 ³	162,169	160,625 ³
Other:					
For brick and tile manufacture	476	490	480	210	160
For cement manufacture	620	635	400 ³	445	405
Total	1,096	1,125	880	655	565
Copper, refined	3,012	2,986	2,380	2,595	3,660
Gypsum, crude ⁴	304,000	405,500	317,000	333,300	335,000
Lime, hydrated	13,497	14,285	12,000 ³	9,951 ^r	9,824 ³
Sand and stone:					
Limestone, crushed (Havara)	875	766	800	800	750
Marble, granules and chippings	800	550	400	1,195	1,900
Marl, for cement production	2,540	2,595	2,600	1,805 ^r	1,640
Sand and gravel ⁵	13,129	14,174	11,468 ^{r,3}	12,981	11,826 ³
Building stone ⁶	38	71	70	97 ^r	59 ³
Umber and Ochre, for cement	43,630 ^r	44,710 ^r	43,360 ^r	52,039 ^r	61,553 ³

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. do. Ditto.

¹Table includes data available through August 1, 2012.

²In addition to the commodities listed, small quantities of the mineral pigments ocher 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.

³Reported figure.

⁴About 4,000 metric tons per year of gypsum was calcined.

⁵Includes crushed aggregate.

⁶Includes crude, semifinished, and worked stone.

TABLE 2
CYPRUS: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(Metric tons unless otherwise specified)

Commodity	Major operating companies and 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 Public Co. 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 Tuchni	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.

¹Inactive since 2008.