THE MINERAL RESOURCES OF CYPRUS

Cyprus has both metallic and non-metallic (industrial) mineral resources. The metallic mineral resources and the asbestos deposits are associated with the Troodos Ophiolite. The metallic mineral resources include: chromite and sulphides (copper and pyrite ores). The industrial minerals include: gypsum, crushed aggregates, clay, bentonite, chalk, marl, building stone, and natural pigments.

Metallic Minerals: The genesis of chromite is directly associated with the genesis of the ophiolite and in particular with the plutonic rocks (dunite) through the process of fractional crystallisation of the magma. The sulphide deposits are associated with the pillow lavas of the Troodos Ophiolite. More than 30 deposits have been discovered, ranging in size from less than 50,000 tonnes to more than 20,000,000 tonnes with a copper content from less than 0.5% to 4.3%. Chalcopyrite, chalcocite, covellite, bornite and cuprite represent the main copper minerals. The origin of the pyrite ore bodies is associated with the formation of new oceanic crust through seafloor spreading. The production of copper from sulphide deposits in Cyprus goes back to the Bronze Age. Most deposits are remnants of the ancient exploitation. Today, there is only one copper mine in operation.

Asbestos: Cyprus has been known for its asbestos since the Classical and Roman times. Chrysotile asbestos is a fibrous mineral found in veins. The genesis of asbestos is associated with the serpentinisation of the harzburgite (basal lithologic unit of the ophiolite). Asbestos has been mined from 1904 to 1988.

Industrial Minerals: Gypsum is an industrial mineral with a variety of uses that is found in many areas in Cyprus. It is one of the evaporite minerals, formed from the evaporation of sea water. Crushed aggregates (sand and gravel) are produced from diabase, reef limestone (Koronia and Terra Members of the Palepoh Formation) and calcarenite (Nicosia and Athalassa Formations). Chalcedony is used for gemstones and semi-precious stone production. Chicks suitable for brick, tile and pottery manufacture are sourced from sedimentary deposits of the Nicosia and Kypriena Formations. From alluvial deposits and from older and weathered ophiolite rocks. Chalks are also used in the cement industry.

Bentonite is a type of clay that was deposited as a deep-water sediment from the alteration of volcanic material. The main uses of bentonite include drilling muds, foundry sand binders, civil engineering, soil remediation and petroleum.”

Raw materials for the manufacture of cement comprise: chalk, marl and gypsum. These are all widely available in Cyprus. Building stone was for centuries the main construction material. The type of stone was related to the rocks of each area, such as: gabbro, diabase, and harzburgite in the mountainous areas; and chalk, limestone and calcarenite elsewhere.

Cyprus is known since the antiquity for its natural pigments such as: umber, ochre and terra verde, all associated with the ophiolite.
Chromite occurs as disseminated grains in nodular and massive and as lenses or irregular bodies within the dunite. The genesis of chromite is uncertain due to the lack of mineralization. Chromite deposits were discovered in association with high-temperature black smokers and vent biota at the crest of the East Pacific Rise.

The production of copper from sulphide deposits in Cyprus goes back to the Bronze Age (2000-1800 BC) and, up until the end of the Roman Era. Chromite was mined for its metallic value, and during the 19th century, chromite mining moved to the Kyrenia area, where chromite is still being mined.

Crushed fine aggregates.

Clay is a fine-grained natural sediment or soft rock composed primarily of clay-sized particles and characterized by high plasticity. It is mainly composed of clay minerals of the kaolinite, montmorillonite and illite groups, but also includes very fine fragments of quartz, decomposed feldspars, carbonates, feldspars, mica and other impurities.

In Cyprus, building stone was for centuries the main construction material. The type of stone was related to the rocks of the island, such as schist, diabase, diorite, gabbro, limestone and marble. Building stone deposits were extensively exploited for the construction of forts such as the Venetian Walls of Nicosia, castles, as well as public buildings, churches, and mansions.

Even though all of the above types of natural building stone are still produced and used today, their primary use has shifted from building to decorative (dimension stones). The building stone products are manufactured to be used for cladding as well as internal and external floor paving. These rocks that are extensively used at present are the calcarenite of the Kyrenia and Pallapa areas.

Bentonite is a soft, cohesive clay that has been used as a construction material for centuries. Bentonite deposits are extensive on the island reaching a thickness of up to 80 m, and the clay deposits are often associated with high-temperature black smokers and vent biota at the crest of the East Pacific Rise.

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