Minerals have various uses in our daily lives. Practically all the things that we see around us have some mineral components in them, hence, the adage “Anything that is not grown is mined.” Minerals are found in the very basic things that we use everyday, such as toothpaste, cosmetics, food and pharmaceutical products, jewelries, utensils, appliances, electrical and electronic gadgets, coins, and household implements. They are also present in various industrial products, such as lubricants, paints, fertilizers, photographic and drawing materials, coatings, machineries and equipments, and chemicals. The transportation, communication and construction industries are also heavily dependent on minerals. However, despite these benefits, minerals are grossly underrated because of the lack of information as to their significance to society.

The Philippines is blessed with abundant mineral resources. This may be attributed to its strategic location, being situated along the “Pacific Rim of Fire”. The country is geologically endowed with copper, gold, nickel and chromite. The country is also significant producer of these minerals, in addition to iron and other industrial minerals.

The development of the country’s mineral wealth rests on the government and its partners in the private sector. Together, they play an important role in ensuring that the benefits derived from these minerals are optimized for the ultimate benefit of the country in general, and the people in particular, with emphasis on environmental protection.
Quartz, one of the most common minerals on earth, usually occurs as major component of plutonic igneous, sedimentary and metamorphic rocks, as veins, sand deposits, and siliceous clay.

Deposits of quartz are found in San Vicente, Dumarlan, Roxas and Rizal Palawan; Lubang Island, Occidental Mindoro; Tagkawayan, Quezon; and Siruma Peninsula, Camarines Sur.

Uses. Quartz is primarily used in the manufacture of glass. Other important uses of quartz include: 1) as gemstone; 2) as abrasive material for sand blasting and scouring cleansers; 3) in foundry work as grinding media and grit for sanding and sawing; 4) in the petroleum industry; 5) as flux in the smelting of metals and in the manufacture of rubber, paint and putty; 6) as filter media and roofing granules; 7) as filters, frequency controls and timers; 8) essential component of cellular phones, watches, clocks, game consoles, television sets, computers, navigational instruments and other similar products; and 9) as lenses and windows in lasers for optical grade quartz variety.
Nickel Minerals

- Nickel is found as sulfide and laterite deposits commonly associated with dunite, pyroxenite, and gabbroic rocks. Garnierite (Ni, Mg,Si,O,(OH)) is a green nickel ore found in pockets and veins in weathered and serpentinized ultramafic rocks. Nickel is also found in association with green chromite, aluminum, lead, cobalt, silver, and gold.

- Deposits of garnierite are found in Sta. Cruz and Candelaria, Zamboanga; Jaro, Leyte; Nonoc Island, Surigao City; Taganaan (Hinatuan Island), Surigao del Norte; and Bataraza (Rio Tuba), Palawan.

- Uses. Garnierite is used as gemstone and as an important nickel ore. Nickel is a component of many industrial and consumer products, including stainless steel, kitchen and laboratory sinks, magnets, batteries, electric guitar strings, microphone capsules, and as plating material.
Mica

- Mica is a common rock-forming mineral. Muscovite, a white mica, is found in abundance in granitic pegmatite.
- Deposits of mica are found in Quezon Province.
- Uses. Muscovite is ideal as an electrical insulator in high temperature power cables in aluminum plants, blast furnace, defense systems, heater, boiler, and flat iron. Mica is found in capacitors, in diaphragms for oxygen breathing equipment, in marker dials for navigation compasses, optical filters, and pyrometers, in stove and kerosene-heater windows, and in circuit breakers.
Manganese Minerals

- Manganese is associated with submarine volcanic rocks, chert, and tuffs.
- Deposits of manganese are found in Coron, Palawan; Siquijor Island; Jibong, Samar; Ibajay, Aklan; San Joaquin, Iloilo; Tawi-tawi, Jolo; Mogpog, Marinduque; Calatrava and Kabankalan, Negros Occidental; Borongan, Samar; and Guindulman and Anda, Bohol.
- Uses. Manganese serves as hardening alloy for steel. Steel, on the other hand, is an important component in the fabrication of machines, as well as in the manufacture of ferroalloys, dry cell batteries, disinfectants, glass decolorizer and paints. Manganese is also used in the construction and transportation industries. Manganese sulfate (MnSO₄) is used as a chemical intermediate and as a micronutrient in animal feeds and plant fertilizers. Manganese metal is an important ingredient in coloring bricks and ceramics, as alloys in copper and aluminum, and as a chemical oxidizer and catalyst.
Iron Minerals

- Iron usually occurs as irregular bodies of magnetite in contact metasomatic deposits, as magnetite sand, laterites, and as banded iron in bogs and springs. Magnetite is one of the most common ores of iron in the Philippines.

- Deposits of iron ore are found in Mopog, Marinduque; Agoo, La Union; Central Cordillera; Southern Sierra Madre; Eastern Bicol; Samar; Diwata Range, Agusan del Sur; Abra de Ilog and Mamburao, Occidental Mindoro; Puerto Galera San Teodoro and Baco, Oriental Mindoro; Busuanga Peninsula; Cebu; Guimaras; Southwestern Negros; Malangas and Sibuguey, Zamboanga del Sur; and Daguma Range, South Cotabato.

- Uses. When iron ore is mixed with carbon, it is turned into steel. It is an important component of metallurgical products, such as magnets, high-frequency cores, and car parts as a catalyst. It is also used in the manufacture of medicines and as tracer element in biochemical and metallurgical research. Iron is further found in paints, printing inks, plastics, cosmetics (eye shadows), artist colors, laundry blue, paper dyes, fertilizers, baked enamel finishes for cars and appliances, industrial finishes, and as pigment in polishing compounds.
Gypsum Mineral

- Gypsum, a common rock-forming mineral, occurs in different varieties such as selenite (crystalline gypsum), alabaster (massive gypsum), and satin spar (fibrous gypsum).

- Deposits of gypsum are found in Lobo and Mabin, Batangas; Toledo City, Cebu; Buenavista, Marinduque; Sanchez Mira, Cagayan and Ambaguio, Nueva Vizcaya; Oas, Albay; Batalan, Camarines Sur; Bulalacao and San Jose, Occidental Mindoro; and Tayasan, Negros Oriental.

- Uses. Gypsum is chiefly used as retarder in Portland cement, as soil conditioner for agricultural lands, and in making plaster of Paris. Alabaster is used as an ornamental stone.
Gold mineralization is observed to be more localized along specific segments of the Philippine Fault Zone and is considered to be genetically linked to island-arc igneous activity.

Deposits of gold are clustered within four gold districts (Baguio, Mankayan, Camarines Norte, and Masbate) and one gold province (Eastern Mindanao). Several sporadically distributed areas of gold mineralization are also recognized.

Uses. Gold is chiefly used for jewelry. Gold, being a good semi-conductor, is ideal for electronics and electrical appliances. It can be made into thread and used in embroidery. Gold is also used in photography as toners and as a help to increase color stability. Gold alloy is beneficial in restorative dentistry. Gold is used as the reflective layer on some high-end compact discs.
Feldspar

Feldspar is the most common rock-forming mineral on earth. It is a major component of igneous rocks (like diorite, quartz diorite, trondhjemite, pumice and pegmatite dikes) and of sedimentary rocks (arkosic sandstone).

Deposits of feldspar are found in Cabangan, Sta. Cruz and San Felipe, Zambales; T'boni (Mt. Parker), South Cotabato; Sta Fe, Nueva Ecija; Atimonan, Quezon; Lubang Island (Looc), Occidental Mindoro; Pinamalayan, Oriental Mindoro; Pagudpud and Pasuquin, Ilocos Norte; Porac, Pampanga; Gabaldon, Nueva Ecija; San Miguel, Bulacan; Puerto Galera, Oriental Mindoro; Sar and Ajoy, Iloilo; Iligan City (Ragongon), Lanao del Norte; San Ildefonso, Bulacan; Paracale and Mambulao, Camarines Norte; Infanta, Pangasinan; Tagkawayan, Quezon; and Quezon, Palawan.

Uses. Feldspar is commonly used in the ceramic, pottery and glass industries. It is utilized as glaze in dinnerware, enamel ware, bathroom and building tiles, and as a flux that lowers the melting temperature of other material/s. It is also a component in soaps, abrasives, bond for abrasive wheels, cements, concretes, insulating materials, fertilizers, poultry grit, tarred roofing materials, and as a sizing (or filler) material in textiles and paper.
Copper Minerals

- Copper occurs mostly as disseminated, stratified or lenticular deposits, or fillings in veins/cracks in basalt/andesite and diorite-granodiorite rocks.

- Deposits of copper are found in Mankayan, Tublay (Sto. Niño) and Itogon (Antamok), Benguet; Lobo, Batangas; Toledo City (Lutopan), Cebu; Batoan and Cabangan, Zambales; Mogpog (Ina and Pilip); and Sta. Cruz (Tapian), Marinduque; San Mariano, Isabela; Dupax, Nueva Vizcaya; Rapu-rapu Island, Albay; Baria, Pangasinan; Polillo Island, Quezon; Jose Panganiban (Larap), Camarines Norte; Sipalay, Negros Occidental; Hinabangan (Bagacay), Samar; Taal, Bohol; Pag-ibig and Batong Buhay, Kalinga; Baleno, Masbate; Pilar, Capiz; Sibutad, Zamboanga del Norte; Bongbongan, Antique; Labuan, Zamboanga del Sur; and Maco (Masara), Compostela Valley.

- Uses. Because copper is a good conductor of electricity, it is used in all electrical wirings in building, construction, power generation, and the production of industrial machinery. Copper is integral to all electronic products and appliances, heating and cooling systems, and telecommunication devices and gadgets. It is also an essential component in motors of vehicles, radiators, connectors, brakes, bearings of cars and trucks, alloy castings, electroplated protective coatings and undercoats for nickel, chromium, zinc, etc., that are used in the manufacture of cooking pans and utensils.
Chromite, a source of chromium, is often found as podiform or disseminated deposits associated with ultramafic rocks such as harzburgite and dunite of ophiolite complexes. Chromite also occurs as residual deposits.

Deposits of chromite are found in Masinloc and Sta. Cruz, Zambales; Llorente, Eastern Samar; Puerto Princesa and Narra, Palawan; Paluan, Sablayan and Lubang Island, Occidental Mindoro; Loretto, Dinagat; Homonhon Island, Eastern Samar; San Mariano and Palanan, Isabela; and Impasug-ong, Bukidnon.

Uses: Chromite is used in the production of stainless steel to induce hardness, toughness and chemical resistance. Chromite forms alloy with iron and nickel and is used in making heating units such as ovens and other appliances. Chromium-bearing chemicals are used in the tanning process of leather.
Calcite is a common constituent of sedimentary rocks, especially in limestone and marble formations. It occurs as vein minerals and sometimes as secondary minerals in rocks.

Deposits of calcite are found in Mindoro, Palawan, Agusan del Norte, Catanduanes, Rizal, Polillo, Caramoan Peninsula, Cebu, Bohol, Negros, Leyte, and Samar.

Calcite is used in the construction industry as cement raw material; in steel and glass industries as an acid neutralizer; in pharmaceutical industry as an ingredient of antacid tablets; in the animal industry as a feed additive; and in the mining industry as absorbent of harmful gasses emitted by fossil fuels and as reducer of coal dust in the air. Calcite is a component of paints, as cleaning and whitening agent, and as abrasive in toothpaste.
Sulfur can be found as pure native element and/or in sulfide and sulfate minerals. In the Philippines, pyrite is one of the sources of sulfur. Pyrite is rarely mined for its iron content because the associated sulfur contaminates the iron and renders it brittle and useless for most applications. Sulfur is usually associated with volcanic areas and hot springs. It also exists in salt domes and in evaporites.

Deposits of sulfur are found in Camiguin Island; Bacon, Sorsogon; Tiwi, Albay; and Biliran Island. Deposits of pyrite are found in Hinabangan (Bagacay), Samar; Mankayan and Tuba, Benguet; Dupax, Nueva Vizcaya; Jose Panganiban, Camarines Norte; Sibalong, Antique; and Toledo City, Cebu.

Uses. Sulfur is most commonly used in the manufacture of sulfur dioxide, which is utilized in the paper industry; and sulfuric acid, which is necessary for various chemical and industrial purposes. It is an important raw material in the manufacture of fertilizers, animal feeds, cement, adhesives, slat blocks, explosives, glass, fumigants, matches, inorganic chemicals, natural rubber and steel. Sulfur is also used in sugar and petroleum refining, and soil amelioration. It further has several uses in the pharmaceutical industry. It is an essential ingredient in skin treatment ointments, bar soaps, lotions and creams as it is extremely beneficial in the treatment of dandruff, acne, scabies, seborrheic dermatitis, warts, and other common skin lesions.