

MINING



Mining is the economic activity that is performed by people to extract valuable materials from an ore body in an efficient, responsible, and economically viable way.

Mining represents the cornerstone of the development of civilizations and is key in the supply chain of most industries in the world.

Virtually all materials that are not generated by agricultural processes or synthetically in laboratories or factories have a mineral origin in the lithosphere of the Earth.

These materials can be exploited to develop pigments, ceramics, cement, plastics, ornaments, medical equipment, electronics, solar panels, vehicles, roads, bridges, buildings, hotels and a host of technologies and tools that facilitate modern human life.

Before their use, these materials are accumulated in different forms in nature in places on the ground or soil known as “reserves” or “ore bodies” in the solid state (such as precious metals, iron and coal) liquid state (such as oil or mercury) and gas state(including natural gas).

The mining process starts from the discovery, exploration and quantification of a mineral, the technical, environmental and economic analysis, the decision to design and implement the project, the construction of infrastructure, the use of the site and finally rehabilitation or reclamation under acceptable environmental standards so it can have other uses once mining ends.

Normally ore bodies are nested in materials that are not of immediate interest to the mining activity and depending on their nature will be necessary to know the nature and properties of this material to remove responsibly (to handle properly avoiding the generation of unwanted elements such as acids, heavy metals, or basic substances), stable (to ensure its adaptation to avoiding environmental field collapses and erosion) and intelligent (they represent a high economic cost without use).

Mining operations can be grouped into five main categories in relation to their resources nature, “Oil and Gas Extraction”, “Coal Mining”, “Metallic Mineral Mining”, “Non-Metallic Mineral Mining” and “Activities to Support Mining”.

The nature of the mining operation will depend on variables such as international prices of the resource to be harnessed, the amount of reserves found, the technical and environmental feasibility of the project, the nature of the deposit, the variables in the environment of the site, the most appropriate process for the use of resources and the cost-benefit relationship between the energy used to achieve the desired materials and reward the value of such material.

These variables are used to determine the most suitable extraction method, which basically is divided in two techniques “Surface mining” and “underground mining” and similarly to determine the best method to process the minerals extracted to obtain the desired materials in an effective way.

To develop the exploration and extraction operation on a mining activity requires the use of heavy equipment such as trucks, drills, tractors, cranes, loaders and excavators, while for mineral processing it can be used crushers, mills, sifters, pumps, reactors and other equipment to consolidate the material and extract the desired components

In most countries, mining companies must follow very strict security and environmental laws, codes and standards for the operation and rehabilitation of the mine in order to minimize their impact to nature and avoid impacts on human health.

These codes and regulations require common steps of Environmental impact assessment and develop environmental management plans, which include mine closure plans and environmental monitoring during operation and after closure.

Source: <http://www.artinaid.com/2013/04/mining/>