

# Mine Development Operations, Methods and Procedure

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# *Mine development*

The process of constructing a **mining** facility and the infrastructure to support the facility is known as **mine development**. The term employed to designate the operations involved in preparing a mine for ore extraction. These operations include:-

**Sinking-** It's Actually *Shaft* sinking

**Tunneling/Adit-** Access to develop ways & infrastructures

**Drifting & ramping-** Connecting passage of one or more levels

**Raising-** A raise is a vertical or steeply-inclined opening, serve as a ladder way access to stopes, as an ore pass or as an airway in the mine's ventilation system.

# *Mine Operations*

Mine operations is the process of managing many immediate and long-term activities in and around a mine site in order to facilitate the production of a mineral product.

## **A mine operation has five main activities:**

- Excavation of earth and rock
- Processing and separate the ore from waste rock
- Storage and maintenance of waste material
- Environmental monitoring - air & water quality and noise levels
- Operation of supporting services - repair shops, labs, living quarters, warehouses and offices

# *Mining Methods*

Mining technique can be divided into two common excavation types-

## ❖ **Surface/Open-pit/Open-pit mining method**

Today, surface mining is much more common, and produces, for example, 85% of minerals (excluding petroleum and natural gas) in the United States, including 98% of metallic ores.

## ❖ **Sub-surface/Underground mining method**

But in Bangladesh we have only underground/sub-surface mine

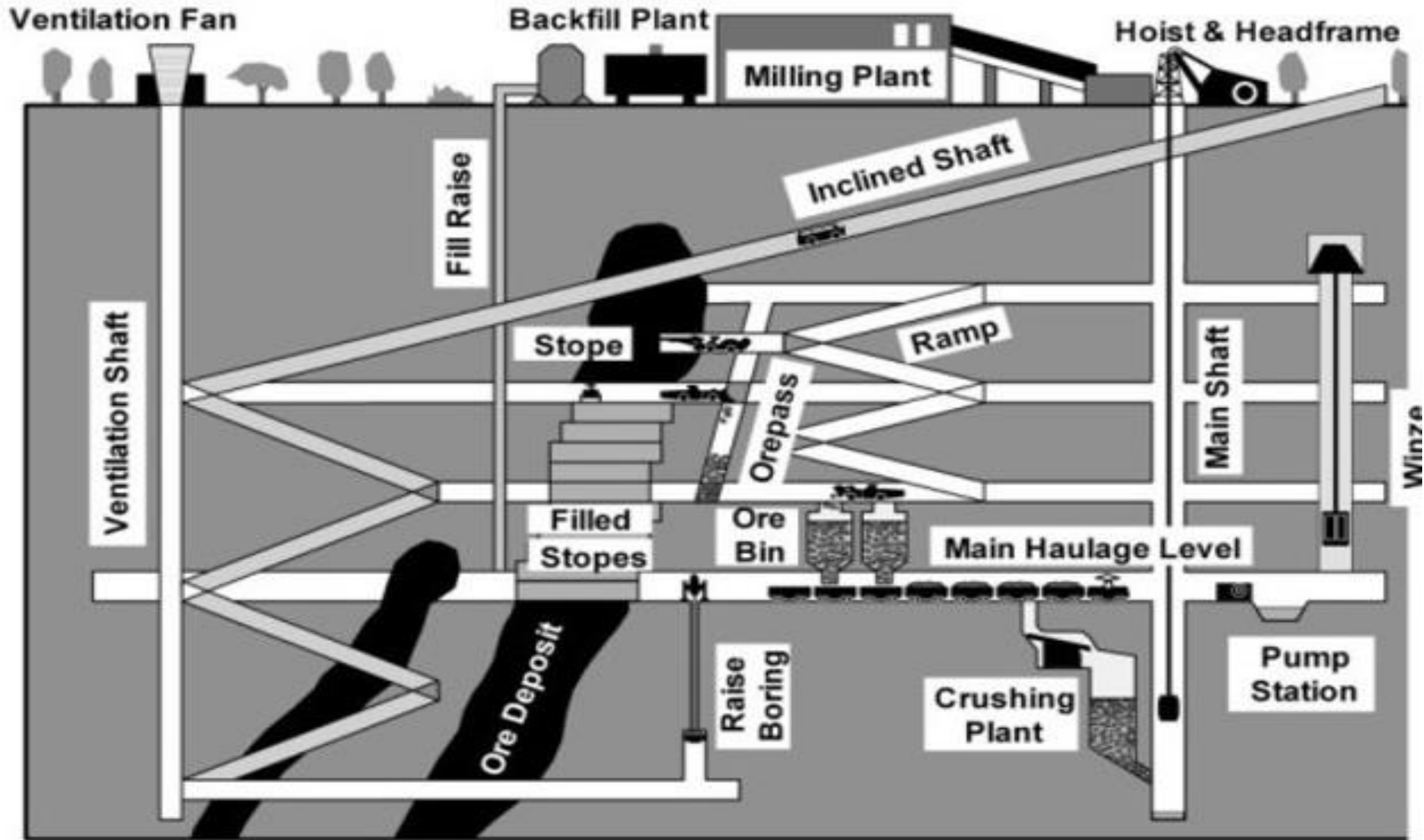
# *Methods for Underground Mining*

**Mining:** The activity, occupation and industry concerned with the extraction of minerals.

**Underground mining:** Mineral exploitation in which all the extraction is carried out beneath surface of the earth.

**Underground mining methods:** There are different techniques/methods of underground mining methods and the choice is closely related to the Geology of the deposit and degree of ground support necessary to make the method productive and safe.

Example layout of an underground mine



There are three classes of methods based on extent of supports utilized- these are included:

- **Supported:** Based on the importance, the methods required some type of artificial supports to maintain stability in the openings of mine.



- **Unsupported:** The unsupported class consists of the methods in which the rock is essentially self supporting and for which no major artificial support is necessary





- **Caving:** Caving methods are those associated with induced, controlled, massive caving of the ore body, the overlying rock, or both, essential to the conduct of mining

