MINE PLANNING AND DESIGN
(AFTER EXPLORATION IS DONE)

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Planning is the primary step
Designing is the secondary step
What does planning consist of
- Available resource planning
- Production planning
- Machine planning
- Manpower planning
- Closure planning
Other areas that require planning are
- Disaster management planning
- Environmental planning
- Material planning
- Construction planning
- And so on so on so on
Types of planning

- Long term planning (Generally for the life)
- Medium range planning (Generally 5 years)
- Short term planning (Yearly or monthly)
Inputs and outputs

- The inputs for mine planning
  - Material available for production
  - Demand of the mineral both quality and quantity
  - Legal needs for mines safety
  - Legal needs for mineral conservation
  - Legal needs for environmental protection
Actual work during mine planning

- Borehole logging,
- Decision on slice (machine height)
- Drawing of slice plans and sections
- Computation of volumes and quality with slices and also sections.
- Compare volumes arrived from ‘X’ sections and CAL section taken on either side
- Form regression curves
Outputs of mine planning

- Schedule of production
- Recruitment plan phase wise
- Safe operation
- Rational conservation
- Matching equipment life and mine life
How is planning done? Step-1

- With the data available check the reserves for different cut-off grades
- If crusher is used check for AHD,
- Decide on the annual production Q&Q
- Decide on type of machinery needed
- Decide on the fleet sizes and matching
- Take care of IRR for the machine
- This completes the first step
Step II

- Production data is input to step 2
- Do manpower planning,
- Follows machine maintenance planning
- Infrastructure planning
- Storage facilities
- Spare part planning
- DMP (Disaster Management plan)
Designing consists of

- Actual layout of roads,
- Locations of access and egress
- Location of crushing plant
- Slope design,
- Strata control in the case of UG mines
- Ventilation design in the case of UG mines,
- Drainage layout
- Overall pit slope (Final pit slope)
Practical problems in mine planning and design

- Incorrect input data like wrong quality
  - This occurs due to wrong core data record
  - Either lean or rich material will be stacked in one place geologically, making planning difficult
  - The stripping will be erratic (Neither reducing, nor increasing, nor constant)
  - Environmental restrictions and safety restrictions
You can approximately check the correctness of the reserves and quality.

You can compare the design compatibility with the legal needs.

You can check yourself whether the quantity and quality is compatible with slice quantity or not.