

ENVIRONMENTAL IMPACT OF MINING AND ITS MITTIGATION MEASURES



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WHAT IS MINING?

- ✘ Mining is the process of extracting useful materials from the earth.
- ✘ Some examples of substances that are mined include coal, gold, or iron ore.



TYPES OF MINING

- ✘ Open Cast Mining
- ✘ Underground Mining



ANTICIPATED ENVIRONMENTAL IMPACT AND MITIGATION MEASURES

- ✘ The environmental parameters likely to be affected by mining are related to many factors, i.e. physical, social, economic, agriculture and aesthetic. Opencast ,manual method ,
- ✘ Benching pattern, drilling, blasting, loading and transport.
- ✘ Environmental components are:
 - ✘ Land use pattern
 - ✘ Air Environment
 - ✘ Noise Environment
 - ✘ Soil Environment
 - ✘ Water Environment
 - ✘ Ecology & Biodiversity
 - ✘ Socio-Economic

LAND USE

IMPECT

Land use pattern

- ✘ Pits development
- ✘ Change topography
- ✘ Change drainage pattern
- ✘ Surface run-off
- ✘ The soil erosion on adjacent land due to mining.
- ✘ Excessive mining or unscientific mining

MITIGATIONS AND MEASURES

- ✘ Scientific mining
- ✘ Mining according to mining plan
- ✘ Garland drains system
- ✘ The increased green cover
- ✘ The top soil management
- ✘ Waste/overburden management

AIR ENVIRONMENT

- ✘ The major sources of **air**
- ✘ Loading and unloading of OB/ore/minerals
- ✘ Transportation
- ✘ Stone Crusher
- ✘ Air borne particulate matter.
- ✘ Emissions of Sulphur dioxide (SO_2), Oxides of Nitrogen (NO_2).

HAUL ROADS AIR POLLUTION



MITIGATION AND MEASURES

- ✘ Water sprinkler
- ✘ Regular watering of haul and access roads.
- ✘ By haul roads maintain
- ✘ Regular maintenance of all equipment
- ✘ Use PUC Certified vehicles
- ✘ Tarpaulin Covered Vehicles
- ✘ Green Belt Development
- ✘ Control blasting
- ✘ Dust suppression
- ✘ Provision for personal protective equipment
- ✘ Periodical monitoring & testing ambient air quality

NOISE ENVIRONMENT

- ✘ Main noise generating sources are:
- ✘ Blasting activities
- ✘ Operation of mining equipment's/ stone crusher plant
- ✘ Transportation activities
- ✘ Loading activities

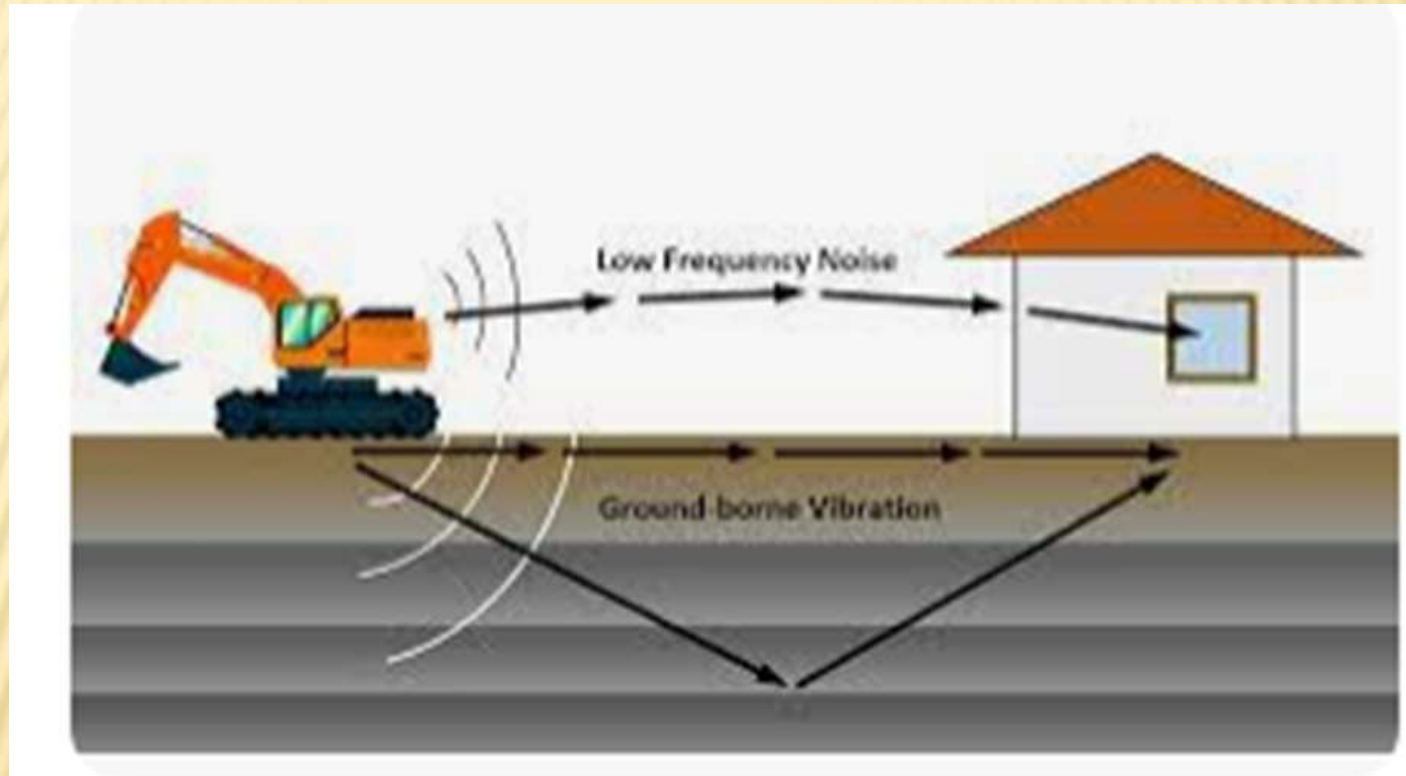
IMPACTS

- Mental disturbance, stress & impaired hearing.
- Wild / Domestic animals/Humans
- Occupational Hazard

MITIGATION AND MEASURE

- Use PUC Certified vehicles
- Green Belt Development
- Awareness Program
- Minimum use of horns
- By regular maintenance of vehicles/mining machinery
- Control Blasting provision of personal protective equipment
- Periodical monitoring & Testing
- Periodical monitoring & Testing of noise

Source of Noise pollution



SOIL ENVIRONMENT

- ✘ During development and operation of the mine, Soil layer removed and stored.

IMPACTS

- Physical Quality
- Chemical Quality
- Biological quality
- Soil erosion

METIGATION AND MEASURES

- Top soil Management
- Plantation /Green Belt.
- stored in sefty zone
- Periodical monitoring & Testing of Soil

WATER ENVIRONMENT

Water Pollutants sources :

- + Ground sources
- + Surface Sources
- + Leaching of contaminated water

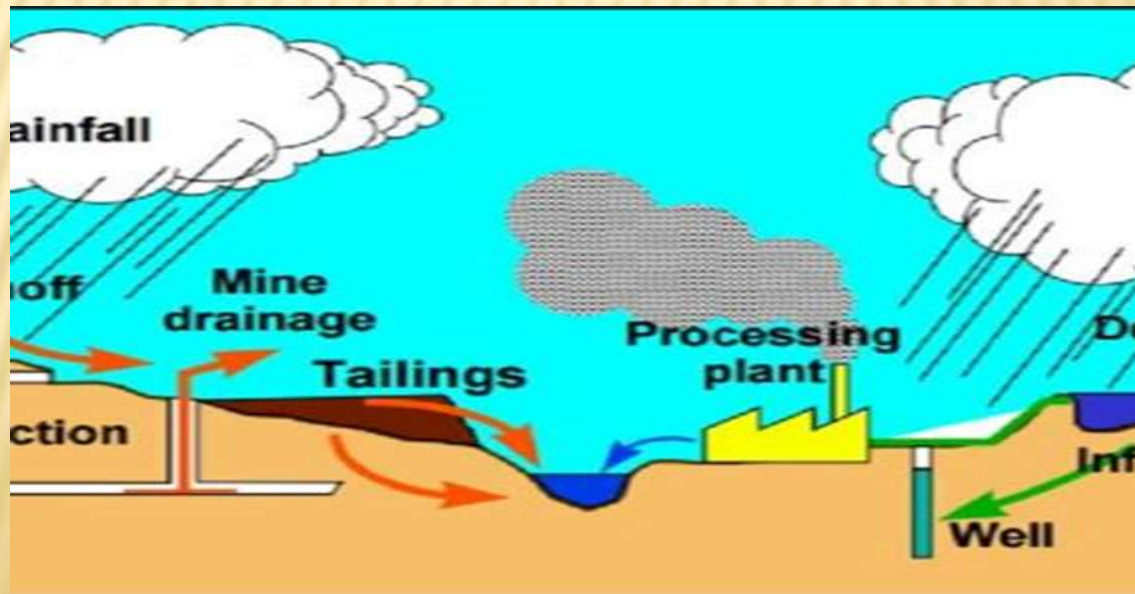
IMPACTS

- Surface Water, Ground Water Soil & Land Quality.
- Under Ground Water Level
- Availability of water both surface as well ground water.
- Natural drainage pattern

METIGATION AND MEASURE

- Garland Drainage System
- Avoided Under ground & Surface water in mining activity
- waste water treatment/proper disposal
- Rainwater harvesting and water conservation measures.
- Periodical monitoring & Testing of under ground /surface/waste water
- The domestic effluent -disposed off in soak pits via septic tanks

IMPACT: WATER RESOURCES



IN STREAM MINING (ILLEGAL MINING)

Small scale mining operations create both disturbances in aquatic environment and water pollution and damages natural bank.



MITIGATION: WATER SPRINKLER



BIOLOGICAL ENVIRONMENT

IMPACTS

Habitat loss, adverse changes in ecology and biodiversity.

MITIGATION AND MEASURES

- By greenbelt
- By day time Mining
- By follow wild life conservation rules&law
- strictly restricted during nights
- Mining activity dry zone(No instream mining)
- Rainy season(for river bed mining)

MITIGATION: GREEN BELT



SOCIO ECONOMIC ENVIRANMENT

- ✘ Air, water, soil and noise pollutants may cause adverse impact on the health of the population residing in and around the mining area.

IMPATCS

Health, agricultural crops, Socio economic, native people migration etc.

MITIGATION AND MEASURE

CER activity, Health camp

MITTIGATION: MEDICAL CAMP



MITTIGATION: TOILETS AND DRINKING WATER



THANK YOU