1. OVERVIEW OF MINING AND ITS IMPACTS
   1.1 Phases of a Mining Project
      1.1.1 Exploration
      1.1.2 Development
         1.1.2.1 Construction of access roads
         1.1.2.2 Site preparation and clearing
      1.1.3 Active mining
         1.1.3.1 Open-pit mining
         1.1.3.2 Placer mining
         1.1.3.3 Underground mining
         1.1.3.4 Reworking of inactive or abandoned mines and tailings
      1.1.4 Disposal of overburden and waste rock
      1.1.5 Ore extraction
      1.1.6 Beneficiation
      1.1.7 Tailings disposal
      1.1.8 Site reclamation and closure
   1.2 Environmental and Social Impacts of Mining
      1.2.1 Impacts on water resources
         1.2.1.1 Acid mine drainage and contaminant leaching
         1.2.1.2 Erosion of soils and mine wastes into surface waters
         1.2.1.3 Impacts of tailing impoundments, waste rock, heap leach, and dump
            leach facilities
         1.2.1.4 Impacts of mine dewatering
      1.2.2 Impacts of mining projects on air quality
         1.2.2.1 Mobile sources
         1.2.2.2 Stationary sources
         1.2.2.3 Fugitive emissions
         1.2.2.4 Incidental releases of mercury
         1.2.2.5 Noise and vibration
      1.2.3 Impacts of mining projects on wildlife
         1.2.3.1 Habitat loss
         1.2.3.2 Habitat fragmentation
      1.2.4 Impacts of mining projects on soil quality
      1.2.5 Impacts of mining projects on social values
         1.2.5.1 Human displacement and resettlement
         1.2.5.2 Impacts of migration
         1.2.5.3 Lost access to clean water
1.2.5.4 Impacts on livelihoods
1.2.5.5 Impacts on public health
1.2.5.6 Impacts to cultural and aesthetic resources
1.2.6 Climate change considerations

2. OVERVIEW OF THE EIA PROCESS
   2.1 What Is The Purpose of the EIA Process?
   2.2 Who Prepares an EIA?
   2.3 Stages of the EIA Process

3. REVIEWING A TYPICAL EIA FOR A MINING PROJECT
   3.1 Evaluating the Executive Summary
   3.2 Evaluating the Project Description
      3.2.1 Project alternatives
         3.2.1.1 Alternative siting of mine facilities
         3.2.1.2 Alternative ore beneficiation methods
         3.2.1.3 Alternative methods of tailings disposal
         3.2.1.4 The no-action alternative
   3.3 Evaluating the Environmental Baseline
      3.3.1 Characterization of mined materials
         3.3.1.1 Mineralogy and whole rock analysis
         3.3.1.2 Acid generation potential - static and kinetic testing
         3.3.1.3 Contaminant leaching potential short- and long-term leach tests
         3.3.1.4 Identification of contaminants of concern
      3.3.2 Characterization of existing climate
      3.3.3 Characterization of existing seismic conditions
      3.3.4 Characterization of existing surface water quality
      3.3.5 Characterization of existing surface and groundwater quantity
      3.3.6 Characterization of existing air quality
      3.3.7 Characterization of existing soil quality
      3.3.8 Characterization of wildlife
         3.3.8.1 Characterization of terrestrial species
         3.3.8.2 Characterization of aquatic species
         3.3.8.3 Characterization of habitats critical to ecological processes
      3.3.9 Local socio-economic baseline
   3.4. Evaluating Potential and Predicted Environmental Impacts
      3.4.1 How to understand and evaluate environmental impact matrices
      3.4.2 Impacts on water quality and quantity
         3.4.2.1 Water pollutant releases from pit lakes
         3.4.2.2 Water pollutant releases from tailings impoundments
         3.4.2.3 Water pollutant releases from waste rock dumps
         3.4.2.4 Assessing the significance of water quality impacts
      3.4.2.5 Impacts of surface water diversions
      3.4.3 Impacts on air quality
      3.4.4 Impacts on global climate
      3.4.5 Impacts on ecological processes
         3.4.5.1 Impacts on vegetation and soil quality
      3.4.6 Impacts on wildlife
      3.4.7 Social impacts
3.4.7.1 Cost-benefit analysis
3.4.8 Impacts on public safety
  3.4.8.1 Dam break analysis
  3.4.8.2 Traffic
3.4.9 Cumulative impacts
  3.4.9.1 Impacts of related or connected actions
3.5 Evaluating Proposed Mitigation Measures and Contingency Plans
  3.5.1 Protection of water resources
    3.5.1.1 General measures regarding acid mine drainage
    3.5.1.2 Water management
    3.5.1.3 Stormwater, sediment and erosion control
    3.5.1.4 Management of waste rock dumps
    3.5.1.5 Management of open pits and pit lake prevention
    3.5.1.6 Management of wet tailings impoundments
    3.5.1.7 Management of leach facilities
  3.5.2 Protection of air quality and noise levels
    3.5.2.1 Control of fugitive dust emissions
    3.5.2.2 Control of noise and vibrations
  3.5.3 Management of hazardous materials
    3.5.3.1 Cyanide use
    3.5.3.2 Mercury management
    3.5.3.3 Storage of fuel and liquid substances
  3.5.4 Protection of wildlife
3.6 Evaluating the Environmental Monitoring Plan
  3.6.1 Water quality monitoring
    3.6.1.1 Surface water quality monitoring
    3.6.1.2 Groundwater quality monitoring
    3.6.1.3 Water quality monitoring parameters
  3.6.2 Air quality monitoring
  3.6.3 Vegetation and soil quality monitoring
  3.6.4 Monitoring impacts on wildlife and habitat
    3.6.4.1 Monitoring of key species
    3.6.4.2 Monitoring habitat loss
  3.6.5 Monitoring impacts on affected communities
    3.6.5.1 Community health
    3.6.5.2 Promised investments for socio-economic development
  3.6.6 Monitoring of threats to public safety
3.7 Evaluating the Reclamation and Closure Plan
  3.7.1 Conceptual versus actual plans
  3.7.2 Post-mining land use and reclamation objectives
  3.7.3 Reclamation schedule
  3.7.4 Reclamation and closure of specific mine facilities
    3.7.4.1 Overburden and waste rock piles
    3.7.4.2 Open pits
    3.7.4.3 Wet tailings impoundments
    3.7.4.4 Leach and dump piles
  3.7.5 Revegetation
  3.7.6 Financial assurances for reclamation and closure
    3.7.6.1 Timing of provision of financial assurances
4. HOW TO BE AN EFFECTIVE PARTICIPANT IN THE EIA PROCESS

4.1 Understanding the Regulatory Framework

4.2 Understanding Public Participation Rights and Opportunities

4.3 Access to Information and EIAs

4.4 The Importance of Participating as Early as Possible

4.5 How to Prepare Effective Written Comments

4.6 How to Participate Effectively at Public Hearings

4.7 Challenging Adverse Decisions Made During the EIA Process

4.7.1 Administrative review

4.7.2 Judicial review

4.7.2.1 Standing to sue

4.7.2.2 Scope of judicial review

4.8 Enforcing Promises, Commitments and Conditions Related to the Project

4.8.1 Promises contained in the EIA

4.8.2 Conditions contained in the grant of environmental clearance

Glossary

References

Appendix - EIA Review Checklist