

# PROJECT PLANNING AND MANAGEMENT

## ENVIRONMENTAL AND SOCIAL FEASIBILITY ANALYSIS

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CHAPTER

9

# Chapter Introduction

*A project may be:*

- Commercially attractive
- Technically feasible
- Financially profitable
- Institutionally manageable

*but still be unacceptable if it causes serious:*

- Environmental damage
- Community displacement
- Health and safety risks
- Social conflict
- Inequality
- Legal noncompliance

# Central Feasibility Question

Can the project be designed, implemented and operated without causing unacceptable environmental or social harm, and can its risks be effectively avoided, minimized, mitigated and monitored?

# Learning Objectives

*By the end of this chapter, students will be able to:*

- Explain environmental and social feasibility
- Conduct environmental and social screening
- Describe baseline environmental and social conditions
- Identify direct, indirect and cumulative impacts
- Explain the purpose and process of an ESIA
- Apply the mitigation hierarchy
- Assess climate-related risks
- Analyze land acquisition and resettlement
- Integrate gender and social inclusion
- Assess occupational and community health and safety
- Develop an Environmental and Social Management Plan
- Design a grievance mechanism
- Establish environmental and social monitoring systems
- Assess compliance and residual risk
- Make an environmental and social feasibility recommendation

# Chapter Roadmap

*This chapter covers:*

1. Meaning and purpose
  2. Environmental and social screening
  3. Baseline conditions
  4. Impact identification
  5. Environmental and Social Impact Assessment
  6. Mitigation hierarchy
  7. Climate risk
1. Land acquisition and resettlement
  2. Gender and inclusion
  3. Occupational and community safety
  4. Environmental and social management plans
  5. Grievance mechanisms
  6. Monitoring and compliance
  7. Feasibility decision

# Opening Reflection

*A proposed industrial project will:*

- Create 500 jobs
- Generate strong profits
- Increase exports
- Support local suppliers

*However, it will also:*

- Acquire community land
- Increase traffic
- Generate wastewater
- Affect nearby livelihoods

*Should the project proceed? What conditions should be satisfied first?*

# What Is Environmental Feasibility?

*Environmental feasibility assesses whether a project's effects on the natural and physical environment are:*

- Acceptable
- Legal
- Preventable
- Manageable
- Monitorable
- Sustainable

# What Is Social Feasibility?

*Social feasibility assesses whether the project's effects on people, communities and institutions are:*

- Equitable
- Acceptable
- Rights-respecting
- Inclusive
- Manageable
- Sustainable

# Combined Perspective

*Environmental and social feasibility examines how the project interacts with:*

- Air
- Water
- Land
- Biodiversity
- Climate
- Workers
- Communities
- Livelihoods
- Vulnerable groups
- Cultural resources

# Why This Analysis Matters

*Environmental and social analysis helps prevent:*

- Project delays
- Community opposition
- Legal disputes
- Reputational damage
- Worker injuries
- Environmental restoration costs
- Financing rejection
- Loss of social licence to operate

# Social Licence to Operate

*Social licence to operate refers to the ongoing acceptance of a project by:*

- Communities
- Workers
- Local authorities
- Civil society
- Other stakeholders

*It is not a formal legal licence, but it strongly affects project success.*

# Relationship with Other Feasibility Studies

*Environmental and social analysis interacts with:*

- Location selection
- Technology choice
- Project capacity
- Cost estimation
- Risk analysis
- Legal feasibility
- Implementation planning
- Financial appraisal

# Main Assessment Outputs

*The assessment should produce:*

- Screening result
- Baseline profile
- Impact register
- ESIA report where required
- Mitigation measures
- Environmental and Social Management Plan
- Resettlement plan where required
- Stakeholder-engagement plan
- Grievance mechanism
- Monitoring framework

# What Is Screening?

Screening is the early classification of a project according to the nature, scale and significance of its potential environmental and social risks.

# Purpose of Screening

*Screening determines:*

- Whether further assessment is required
- The level of assessment required
- Major risk areas
- Specialist studies needed
- Stakeholders to consult
- Whether the project concept should be redesigned

# Timing of Screening

*Screening should occur:*

- During project identification
- Before site confirmation
- Before major design commitments
- Before substantial expenditure
- Before final approval

# Screening Questions

- Where will the project be located?
- What activities will be undertaken?
- How large is the project?
- Which resources will be used?
- Which communities may be affected?
- Will land be acquired?
- Will hazardous materials be used?
- Are sensitive ecosystems nearby?

# Screening Factors

*Screening normally considers:*

- Project type
- Project scale
- Location sensitivity
- Pollution potential
- Land requirements
- Labour conditions
- Community impacts
- Cumulative risks

# Project-Type Risk

*Higher-risk project types may include:*

- Mining
- Large dams
- Heavy industry
- Major roads
- Oil and gas
- Chemical facilities
- Large-scale agriculture
- Waste-disposal facilities

# Location Sensitivity

*Sensitive locations may include:*

- Protected areas
- Wetlands
- Forests
- Water catchments
- Densely populated settlements
- Indigenous or traditional communities
- Cultural heritage sites
- Disaster-prone areas

# Scale and Intensity

*A project's risk may increase with:*

- Land area
- Production capacity
- Water consumption
- Energy consumption
- Workforce size
- Emissions
- Traffic
- Waste generation

# Risk Classification

*A practical classification may include:*

## High Risk

Potentially significant, diverse or irreversible impacts.

## Moderate Risk

Site-specific and generally manageable impacts.

## Low Risk

Minimal and readily mitigated impacts.

# High-Risk Characteristics

*High-risk projects may involve:*

- Large-scale displacement
- Critical habitats
- Hazardous materials
- Major pollution
- Significant worker risk
- Serious community conflict
- Irreversible impacts
- Weak regulatory capacity

# Moderate-Risk Characteristics

*Moderate-risk projects may have impacts that are:*

- Site-specific
- Predictable
- Temporary
- Reversible
- Manageable through standard measures

# Low-Risk Characteristics

*Low-risk projects may involve:*

- Office activities
- Training
- Minor rehabilitation
- Small equipment installation
- Limited physical works
- Minimal resource use

# Screening Output

*The screening decision may require:*

- Full ESIA
- Limited environmental and social assessment
- Environmental and Social Management Plan
- Specialized study
- Standard mitigation measures
- No further detailed assessment

# Screening Checklist

| Screening Area | Key Question                                |
|----------------|---------------------------------------------|
| Land           | Will land be acquired or restricted?        |
| Water          | Will water availability or quality change?  |
| Biodiversity   | Are sensitive habitats affected?            |
| Pollution      | Will emissions or waste increase?           |
| Labour         | Are there serious worker risks?             |
| Community      | Are health, safety or livelihoods affected? |

# Fatal Environmental or Social Flaw

*A fatal flaw is an impact that cannot be reduced to an acceptable level. Examples:*

- Destruction of an irreplaceable habitat
- Unavoidable catastrophic safety risk
- Illegal land acquisition
- Severe water depletion
- Unmanageable community displacement

# What Is a Baseline?

A baseline describes existing environmental and social conditions before project implementation.

*It establishes the reference point for impact assessment and monitoring.*

# Purpose of Baseline Data

*Baseline data help determine:*

- What currently exists
- Who may be affected
- Existing environmental quality
- Existing vulnerabilities
- Future changes caused by the project
- Monitoring indicators

# Environmental Baseline Components

*The environmental baseline may cover:*

- Climate
- Air quality
- Water resources
- Soil
- Geology
- Noise
- Biodiversity
- Land use
- Waste conditions

# Social Baseline Components

*The social baseline may cover:*

- Population
- Livelihoods
- Income
- Employment
- Land tenure
- Health
- Education
- Gender relations
- Vulnerable groups
- Cultural heritage

# Physical Environment

*Assess:*

- Topography
- Geology
- Soil type
- Erosion
- Drainage
- Flood risk
- Seismic conditions
- Existing contamination

# Climate Baseline

*Climate data may include:*

- Temperature
- Rainfall
- Seasonal patterns
- Drought frequency
- Flood frequency
- Wind
- Extreme-weather events

# Air-Quality Baseline

*Air-quality assessment may examine:*

- Dust
- Particulate matter
- Smoke
- Industrial emissions
- Vehicle emissions
- Existing pollution sources

# Water-Resource Baseline

*Assess:*

- Surface water
- Groundwater
- Water quality
- Water quantity
- Seasonal variation
- Current users
- Water rights
- Ecosystem dependence

# Soil and Land Baseline

*Assess:*

- Soil fertility
- Erosion
- Contamination
- Land capability
- Current land use
- Agricultural use
- Grazing
- Settlement

# Biodiversity Baseline

*Assess:*

- Flora
- Fauna
- Habitats
- Migration routes
- Endangered species
- Ecosystem services
- Protected areas
- Invasive species

# Ecosystem Services

*Ecosystem services are benefits people receive from ecosystems. Examples:*

- Water supply
- Grazing
- Pollination
- Flood regulation
- Soil fertility
- Fuelwood
- Cultural value

# Population Baseline

*Population analysis may include:*

- Population size
- Density
- Growth
- Age structure
- Migration
- Household size
- Settlement patterns

# Livelihood Baseline

*Assess dependence on:*

- Agriculture
- Livestock
- Fishing
- Wage employment
- Trade
- Natural resources
- Informal business
- Seasonal migration

# Land-Tenure Baseline

*Land rights may be:*

- Formally titled
- Customary
- Communal
- Leased
- Informally occupied
- Seasonally used
- Shared for grazing or access

# Health Baseline

*Assess:*

- Existing diseases
- Health-service access
- Water and sanitation
- Nutrition
- Occupational health
- Road safety
- Vulnerable populations

# Gender Baseline

*Gender analysis may examine:*

- Division of labour
- Resource ownership
- Decision-making
- Employment
- Safety
- Access to services
- Time burden
- Participation

# Vulnerable Groups

*Vulnerable groups may include:*

- Low-income households
- Female-headed households
- Persons with disabilities
- Older people
- Children
- Displaced persons
- Minority communities
- Landless households

# Cultural Heritage Baseline

*Cultural heritage may include:*

- Archaeological sites
- Historic buildings
- Religious places
- Burial grounds
- Sacred landscapes
- Traditional practices
- Intangible heritage

# Baseline-Data Sources

*Sources may include:*

- Field surveys
- Government records
- Satellite images
- Maps
- Community interviews
- Scientific studies
- Household surveys
- Administrative records

# Seasonal Baseline Variation

*A one-time survey may be misleading where conditions vary by:*

- Rainfall season
- Agricultural cycle
- Migration
- Water availability
- Wildlife movement
- Disease patterns

# Baseline-Data Quality

*Baseline data should be:*

- Relevant
- Current
- Accurate
- Representative
- Geographically appropriate
- Disaggregated
- Verifiable

# What Is an Impact?

An impact is a change in environmental or social conditions caused wholly or partly by the project.

# Positive and Negative Impacts

## Positive

- Employment
- Infrastructure
- Income
- Improved services
- Environmental restoration

## Negative

- Pollution
- Displacement
- Accidents
- Resource depletion
- Social conflict

# Direct Impact

A direct impact results immediately from a project activity.

*Example: Vegetation cleared for construction.*

# Indirect Impact

An indirect impact occurs through a secondary pathway.

*Example: A new road encourages settlement and land-use change.*

# Cumulative Impact

*A cumulative impact results from the project combined with:*

- Existing activities
- Planned projects
- Regional development
- Natural trends

# Induced Impact

*An induced impact results from changes encouraged by the project. Examples:*

- In-migration
- New businesses
- Settlement growth
- Increased traffic
- Pressure on services

# Temporary and Permanent Impacts

## Temporary

Occur during construction or for a limited period.

## Permanent

Continue throughout operation or beyond closure.

# Reversible and Irreversible Impacts

## Reversible

Can return to the previous condition.

## Irreversible

Cannot be fully restored.

*Irreversible impacts generally require stronger justification and controls.*

# Impact-Identification Methods

*Methods include:*

- Checklists
- Expert judgment
- Site visits
- Stakeholder consultation
- Impact matrices
- Process-flow analysis
- GIS mapping
- Scenario analysis

# Activity–Impact Pathway



## Example Pathway

|                 |                                                |
|-----------------|------------------------------------------------|
| <b>Activity</b> | Construction excavation                        |
| <b>Change</b>   | Dust generation                                |
| <b>Receptor</b> | Nearby households                              |
| <b>Impact</b>   | Respiratory discomfort and reduced air quality |

# Environmental Receptors

*Receptors may include:*

- Rivers
- Groundwater
- Soil
- Forests
- Wildlife
- Air
- Agricultural land
- Ecosystems

# Social Receptors

*Social receptors may include:*

- Workers
- Households
- Farmers
- Pastoralists
- Businesses
- Road users
- Schools
- Health facilities
- Vulnerable groups

# Construction-Phase Impacts

*Possible impacts include:*

- Dust
- Noise
- Traffic
- Waste
- Worker accidents
- Temporary land use
- Community disruption
- Labour influx

# Operational-Phase Impacts

*Possible impacts include:*

- Emissions
- Wastewater
- Resource use
- Employment
- Occupational risk
- Community safety
- Traffic
- Long-term economic change

# Closure-Phase Impacts

*Possible impacts include:*

- Job losses
- Site contamination
- Abandoned infrastructure
- Hazardous waste
- Land restoration
- Community economic decline

# Labour-Influx Impacts

*Large labour influx may cause:*

- Housing pressure
- Increased prices
- Communicable disease
- Social conflict
- Gender-based violence risk
- Pressure on public services

# Supply-Chain Impacts

*Projects may indirectly affect:*

- Supplier labour conditions
- Child labour risk
- Resource extraction
- Transport safety
- Waste generation
- Local business competition

# Impact Significance

*Impact significance may depend on:*

- Magnitude
- Duration
- Geographic extent
- Reversibility
- Probability
- Receptor sensitivity
- Legal importance

# Magnitude

*Magnitude measures the scale or intensity of change. Possible ratings:*

- Negligible
- Low
- Moderate
- High
- Severe

# Receptor Sensitivity

*Sensitivity reflects how vulnerable or valuable the affected receptor is. Examples:*

- Endangered species
- Drinking-water source
- Hospital
- Low-income community
- Sacred site

# Significance Matrix

| Impact Magnitude | Low Sensitivity | Medium Sensitivity | High Sensitivity |
|------------------|-----------------|--------------------|------------------|
| Low              | Low             | Low–Moderate       | Moderate         |
| Moderate         | Low–Moderate    | Moderate           | High             |
| High             | Moderate        | High               | Very High        |

# Impact Register

| Activity   | Impact          | Receptor          | Significance | Mitigation      |
|------------|-----------------|-------------------|--------------|-----------------|
| Excavation | Dust            | Nearby households | Moderate     | Water spraying  |
| Wastewater | Water pollution | River users       | High         | Treatment plant |

# What Is an ESIA?

*An Environmental and Social Impact Assessment is a structured process for:*

- Identifying impacts
- Predicting significance
- Evaluating alternatives
- Consulting stakeholders
- Designing mitigation
- Supporting project decisions

# Purpose of ESIA

*An ESIA helps determine:*

- Whether the project should proceed
- Which design is preferable
- Which impacts must be controlled
- Which commitments are required
- Which risks remain after mitigation

# ESIA Process

1. Screening
  2. Scoping
  3. Baseline studies
  4. Impact assessment
  5. Alternatives analysis
1. Mitigation design
  2. Stakeholder consultation
  3. ESMP preparation
  4. Review and approval
  5. Monitoring

# Scoping

*Scoping identifies:*

- Key environmental and social issues
- Study boundaries
- Important stakeholders
- Required specialist studies
- Significant alternatives
- Assessment methodology

# Terms of Reference

*The ESIA Terms of Reference may include:*

- Project description
- Legal requirements
- Study area
- Baseline topics
- Impact methods
- Consultation
- Alternatives
- Required plans
- Reporting format

# Project Description

*A complete project description should cover:*

- Location
- Size
- Technology
- Inputs
- Outputs
- Construction
- Workforce
- Utilities
- Waste
- Associated facilities

# Area of Influence

*The area of influence may include:*

- Project site
- Access roads
- Transmission lines
- Pipelines
- Supplier areas
- Waste-disposal sites
- Downstream communities
- Labour-source communities

# Associated Facilities

*Associated facilities are facilities not necessarily financed as part of the project but essential to its operation. Examples:*

- Access road
- Power line
- Water pipeline
- Worker camp
- Waste facility

# Analysis of Alternatives

*Alternatives may include:*

- No-project option
- Different site
- Different technology
- Different capacity
- Different design
- Different schedule
- Different waste-management approach

# No-Project Alternative

*The no-project alternative examines what would happen if the project were not implemented. It provides a comparison with:*

- Expected benefits
- Avoided impacts
- Continuing problems
- Alternative investments

# Site Alternatives

*Sites should be compared based on:*

- Environmental sensitivity
- Social displacement
- Infrastructure
- Water
- Biodiversity
- Community acceptance
- Cost
- Climate exposure

# Technology Alternatives

*Technology alternatives may differ in:*

- Emissions
- Energy use
- Water use
- Waste
- Safety
- Cost
- Maintenance
- Resource efficiency

# Stakeholder Consultation

*Consultation should involve people who:*

- Are directly affected
- May be indirectly affected
- Have relevant knowledge
- Have regulatory authority
- Represent vulnerable groups
- Influence project acceptance

# Consultation Principles

*Consultation should be:*

- Early
- Inclusive
- Accessible
- Transparent
- Culturally appropriate
- Documented
- Responsive

# Disclosure

*Stakeholders should receive understandable information on:*

- Project design
- Potential impacts
- Proposed mitigation
- Land requirements
- Safety risks
- Grievance channels
- Monitoring commitments

# ESIA Report Structure

*A typical ESIA report may include:*

- |                        |                             |
|------------------------|-----------------------------|
| 1. Executive summary   | 1. Impact assessment        |
| 2. Project description | 2. Mitigation measures      |
| 3. Legal framework     | 3. Stakeholder consultation |
| 4. Baseline conditions | 4. ESMP                     |
| 5. Alternatives        | 5. Conclusions              |

# Independent Review

*High-risk projects may require independent review to assess:*

- Technical quality
- Impact significance
- Mitigation adequacy
- Legal compliance
- Stakeholder concerns
- Residual risk

# ESIA Approval

*Approval may be:*

- Unconditional
- Conditional
- Subject to redesign
- Subject to further study
- Refused

# What Is the Mitigation Hierarchy?

The mitigation hierarchy is the preferred order for managing environmental and social impacts.

# Mitigation Hierarchy Steps



# Avoidance

*Avoidance prevents the impact from occurring. Examples:*

- Select another site
- Change project design
- Avoid sensitive habitat
- Avoid displacement
- Eliminate hazardous material

# Why Avoidance Is Preferred

*Avoidance is usually more effective because:*

- No residual harm remains
- Long-term monitoring is reduced
- Compensation disputes are avoided
- Legal and reputational risk is lower
- Costs may be lower over the project life

# Minimization

*Minimization reduces the:*

- Magnitude
- Duration
- Frequency
- Geographic extent
- Number of affected people

# Minimization Examples

- Install pollution controls
- Limit working hours
- Reduce land footprint
- Use low-noise equipment
- Control vehicle speed
- Reduce water use

# Restoration and Rehabilitation

*Restoration seeks to return affected areas to an acceptable condition. Examples:*

- Replant vegetation
- Restore drainage
- Remove contamination
- Rehabilitate borrow pits
- Restore temporary work sites

# Compensation

*Compensation provides replacement value or support where impacts cannot be fully avoided. Examples:*

- Cash compensation
- Replacement land
- Livelihood restoration
- Community infrastructure
- Medical support

# Offset

An offset provides measurable environmental benefits to compensate for significant residual impacts.

*Offsets should generally be considered only after avoidance, minimization and restoration.*

# Residual Impact

Residual impact is the impact remaining after mitigation measures are implemented.

# Residual-Risk Decision

*Management should ask:*

- Is the residual impact acceptable?
- Is it legal?
- Is it reversible?
- Can it be monitored?
- Are affected stakeholders adequately protected?
- Does it exceed organizational risk tolerance?

# Mitigation Register

| Impact          | Avoid       | Minimize         | Restore        | Compensate             |
|-----------------|-------------|------------------|----------------|------------------------|
| Habitat loss    | Change site | Reduce footprint | Replant        | Biodiversity offset    |
| Livelihood loss | Avoid land  | Reduce area      | Restore access | Replacement livelihood |

# Climate and Project Feasibility

*Climate change can affect both:*

- The project's impact on the climate
- The climate's impact on the project

# Climate-Mitigation Perspective

*The project may contribute to greenhouse-gas emissions through:*

- Energy use
- Fuel combustion
- Transport
- Industrial processes
- Land clearing
- Waste

# Climate-Adaptation Perspective

*The project may be exposed to:*

- Flood
- Drought
- Extreme heat
- Storm
- Water scarcity
- Sea-level rise
- Changing disease patterns

# Physical Climate Risk

*Physical risks arise from actual climate hazards.*

## Acute Risks

- Flood
- Cyclone
- Heatwave
- Wildfire

## Chronic Risks

- Rising temperatures
- Water scarcity
- Long-term rainfall change
- Desertification

# Transition Risk

*Transition risks arise from the movement toward a low-carbon economy. Examples:*

- New regulations
- Carbon pricing
- Technology changes
- Customer preferences
- Financing restrictions
- Reputation pressure

# Climate-Risk Assessment

1. Identify climate hazards
2. Assess exposure
3. Assess vulnerability
4. Estimate consequences
5. Design adaptation measures
6. Monitor climate indicators

# Climate Exposure

*Exposure depends on whether the project's:*

- Site
- Assets
- Workforce
- Suppliers
- Customers
- Transport routes

*are located in hazard-prone areas.*

# Climate Vulnerability

*Vulnerability depends on:*

- Design strength
- Resource dependence
- Backup systems
- Insurance
- Emergency capacity
- Adaptation readiness

# Climate-Adaptation Measures

- Elevate critical equipment
- Improve drainage
- Use heat-resistant materials
- Diversify water sources
- Increase storage
- Strengthen emergency plans
- Diversify suppliers

# Greenhouse-Gas Reduction Measures

- Renewable energy
- Energy-efficient equipment
- Cleaner fuel
- Reduced transport
- Waste recovery
- Efficient buildings
- Reforestation

# Climate Scenario Analysis

*Assess performance under scenarios such as:*

- Higher temperature
- Reduced rainfall
- More frequent flooding
- Higher energy prices
- Carbon regulation
- Supply-chain disruption

# Climate-Resilient Design

*A climate-resilient project should be capable of:*

- Withstanding expected hazards
- Recovering quickly
- Maintaining essential services
- Adapting to future changes
- Avoiding maladaptation

# Land Acquisition

*Land acquisition occurs when a project obtains rights to use land through:*

- Purchase
- Lease
- Expropriation
- Easement
- Access restriction
- Temporary occupation

# Physical Displacement

*Physical displacement occurs when people must move from:*

- Homes
- Settlements
- Business premises
- Community facilities

# Economic Displacement

*Economic displacement occurs when people lose or have reduced access to:*

- Land
- Livelihoods
- Natural resources
- Business locations
- Employment
- Customers

# Why Resettlement Is High Risk

*Resettlement may cause:*

- Poverty
- Social disruption
- Food insecurity
- Loss of cultural identity
- Conflict
- Psychological stress
- Long-term livelihood decline

# Resettlement Principles

*Projects should:*

- Avoid displacement where possible
- Minimize land acquisition
- Compensate at replacement value
- Restore livelihoods
- Consult affected people
- Protect vulnerable groups
- Monitor outcomes

# Replacement Value

*Replacement value should enable an affected person to replace the lost asset without being worse off. It should consider:*

- Market value
- Transaction cost
- Replacement cost
- Moving cost
- Registration fees

# Eligibility

*Eligible affected people may include:*

- Formal owners
- Customary land users
- Tenants
- Informal occupants
- Seasonal users
- Resource users
- Businesses

## Cut-Off Date

A cut-off date identifies the deadline for eligibility.

*It helps prevent opportunistic settlement after the project area has been formally identified.*

# Census and Asset Inventory

*A resettlement census records:*

- Affected persons
- Households
- Assets
- Land
- Businesses
- Livelihoods
- Vulnerability
- Compensation eligibility

# Resettlement Action Plan

*A Resettlement Action Plan may include:*

- Project impacts
- Legal framework
- Census
- Compensation
- Livelihood restoration
- Consultation
- Grievance mechanism
- Budget
- Schedule
- Monitoring

# Livelihood Restoration

*Possible measures include:*

- Replacement land
- Agricultural support
- Employment
- Business support
- Skills training
- Transitional allowances
- Market access
- Credit

# Vulnerable Households

*Additional assistance may be required for:*

- Female-headed households
- Elderly persons
- Persons with disabilities
- Landless households
- Very poor households
- Displaced populations

# Temporary Land Use

*Temporary occupation should include:*

- Written agreement
- Compensation
- Access protection
- Restoration
- Defined duration
- Monitoring

# Resettlement Completion

*Construction should not begin on affected land until required:*

- Compensation
- Relocation
- Transitional support
- Livelihood arrangements

*have been completed according to the approved plan.*

# Why Gender Analysis Matters

*Projects may affect women and men differently because of differences in:*

- Resource ownership
- Employment
- Household roles
- Mobility
- Safety
- Decision-making
- Access to information

# Gender-Blind Project Design

*A gender-blind project assumes impacts are the same for everyone. This may unintentionally:*

- Exclude women
- Increase unpaid work
- Reduce access to benefits
- Increase safety risks
- Reinforce inequality

# Gender-Responsive Design

*Gender-responsive projects:*

- Analyze different needs
- Remove participation barriers
- Promote equitable benefits
- Address safety
- Track gender-disaggregated results
- Include women in decisions

# Inclusion

*Inclusion ensures that people can participate and benefit regardless of:*

- Gender
- Disability
- Age
- Income
- Ethnicity
- Location
- Social status
- Displacement status

# Accessibility

*Accessibility may require:*

- Ramps
- Accessible toilets
- Clear signage
- Appropriate communication
- Transport support
- Flexible meeting arrangements
- Assistive technology

# Inclusive Consultation

*Consultation may require separate or adapted engagement with:*

- Women
- Youth
- Persons with disabilities
- Minority groups
- Displaced people
- Remote communities

# Gender-Based Violence Risk

*Project-related GBV risk may increase through:*

- Labour influx
- Power imbalance
- Unsafe transport
- Poor worker conduct
- Weak reporting
- Inadequate lighting
- Economic dependency

# Sexual Exploitation and Abuse

*Projects should prevent exploitation and abuse through:*

- Codes of conduct
- Worker training
- Safe reporting channels
- Survivor-centred referral
- Confidentiality
- Investigation procedures
- Contractual sanctions

# Child Protection

*Project controls should address:*

- Child labour
- Unsafe access
- School disruption
- Exploitation
- Construction hazards
- Worker interaction with children

# Inclusive Employment

*Measures may include:*

- Fair recruitment
- Equal pay
- Anti-discrimination
- Accessible workplaces
- Maternity protection
- Flexible arrangements
- Harassment prevention

# Gender and Inclusion Indicators

*Examples:*

- Percentage of women employed
- Percentage of women in management
- Participation of vulnerable groups
- Equal-pay compliance
- Number of accessibility measures
- Satisfaction by demographic group

# What Is Occupational Health and Safety?

*Occupational health and safety protects workers from project-related:*

- Injury
- Illness
- Exposure
- Fatality
- Stress
- Unsafe working conditions

# Employer Responsibility

*The project should provide:*

- Safe workplace
- Safe equipment
- Training
- Supervision
- Personal protective equipment
- Emergency response
- Incident reporting
- Medical support

# Hazard Identification

*Common hazards include:*

- Machinery
- Electricity
- Chemicals
- Falls
- Confined spaces
- Heat
- Noise
- Dust
- Vehicle movement

# Risk-Control Hierarchy

*Preferred controls are:*

1. Eliminate the hazard
2. Substitute
3. Engineering controls
4. Administrative controls
5. Personal protective equipment

# Elimination

Elimination completely removes the hazard.

*Example: Redesign the process so workers do not enter a confined space.*

# Engineering Controls

*Examples:*

- Machine guards
- Ventilation
- Barriers
- Automatic shutoff
- Noise enclosure
- Fall protection systems

# Administrative Controls

*Examples:*

- Procedures
- Training
- Work permits
- Shift rotation
- Warning signs
- Supervision
- Restricted access

# Personal Protective Equipment

*PPE may include:*

- Helmet
- Gloves
- Boots
- Respirator
- Eye protection
- Hearing protection
- Safety harness

*PPE is generally the final line of defence.*

# Occupational-Health Risks

*Health risks may arise from:*

- Chemical exposure
- Dust
- Noise
- Repetitive work
- Heat
- Poor ergonomics
- Stress
- Communicable disease

# Contractor Safety

*Contractors should be required to:*

- Follow project safety standards
- Train workers
- Report incidents
- Provide PPE
- Supervise subcontractors
- Maintain records
- Correct unsafe conditions

# Incident Classification

*Incidents may include:*

- Near miss
- First-aid case
- Lost-time injury
- Occupational illness
- Serious incident
- Fatality
- Environmental incident

# Incident Investigation

*Investigation should identify:*

- What happened
- Immediate cause
- Root cause
- Control failure
- Corrective action
- Responsible owner
- Completion date

# Emergency Preparedness

*Emergency plans may cover:*

- Fire
- Explosion
- Chemical spill
- Medical emergency
- Flood
- Security incident
- Transport accident
- Evacuation

# Community Health and Safety

Community health and safety addresses risks to people outside the project workforce.

# Community-Safety Risks

*Possible risks include:*

- Traffic accidents
- Pollution
- Noise
- Hazardous materials
- Structural failure
- Fire
- Disease transmission
- Security-force misconduct

# Traffic Safety

*Measures may include:*

- Traffic-management plan
- Speed limits
- Driver training
- Vehicle maintenance
- Safe routes
- Road signs
- School-zone controls
- Community awareness

# Hazardous Materials

*Hazardous-material management should cover:*

- Identification
- Labelling
- Storage
- Transport
- Emergency response
- Worker training
- Community notification
- Disposal

# Structural Safety

*Buildings, dams, storage facilities and other structures should be designed and maintained to prevent:*

- Collapse
- Flooding
- Fire
- Explosion
- Uncontrolled release
- Public injury

# Communicable Disease

*Projects may affect disease risk through:*

- Labour influx
- Worker camps
- Poor sanitation
- Increased mobility
- Limited health services
- Community interaction

# Security Personnel

*Where security personnel are used, the project should ensure:*

- Lawful conduct
- Proportional use of force
- Appropriate training
- Community sensitivity
- Incident reporting
- Grievance access

# Community Emergency Planning

*Communities should receive appropriate information on:*

- Emergency risks
- Warning systems
- Evacuation routes
- Contact points
- Response procedures
- Grievance channels

## What Is an ESMP?

An Environmental and Social Management Plan converts assessment findings into specific implementation commitments.

# Purpose of the ESMP

*The ESMP specifies:*

- Impact
- Mitigation measure
- Responsible party
- Timing
- Budget
- Indicator
- Monitoring method
- Reporting requirement

## ESMP Structure

| Impact     | Mitigation       | Responsibility | Timing       | Indicator         | Cost |
|------------|------------------|----------------|--------------|-------------------|------|
| Dust       | Water spraying   | Contractor     | Construction | Dust complaints   | ETB  |
| Wastewater | Treatment system | Operator       | Operation    | Discharge quality | ETB  |

# Construction ESMP

*A construction ESMP may address:*

- Site management
- Dust
- Noise
- Waste
- Worker safety
- Traffic
- Community safety
- Labour management
- Emergency response

# Operational ESMP

*An operational ESMP may address:*

- Emissions
- Wastewater
- Waste
- Resource efficiency
- Occupational safety
- Community risk
- Maintenance
- Monitoring

# Contractor Environmental and Social Plan

*Contractors may be required to prepare detailed plans covering:*

- Site safety
- Waste
- Traffic
- Worker accommodation
- Labour conduct
- Emergency response
- Community communication

# Labour-Management Procedures

*Labour procedures may include:*

- Employment terms
- Nondiscrimination
- Worker grievance mechanism
- Occupational safety
- Contractor labour
- Child-labour prohibition
- Forced-labour prohibition

# Stakeholder-Engagement Plan

*The plan may specify:*

- Stakeholder groups
- Information needs
- Engagement method
- Frequency
- Responsible person
- Documentation
- Feedback process

# Emergency-Response Plan

*The plan should identify:*

- Emergency scenarios
- Roles
- Communication
- Equipment
- Evacuation
- Medical response
- External agencies
- Drills

## ESMP Budget

*The ESMP budget may include:*

- Pollution controls
- Safety equipment
- Monitoring
- Training
- Compensation
- Consultation
- Grievance management
- Rehabilitation
- Specialist staff

# Integration into Project Cost

*Environmental and social measures should be included in:*

- Technical specifications
- Tender documents
- Contracts
- Project budget
- Work schedule
- Staffing plan

# Contractual Enforcement

*Contracts should specify:*

- Required standards
- Reporting
- Inspection
- Corrective action
- Penalties
- Suspension
- Termination for serious noncompliance

# What Is a Grievance Mechanism?

A grievance mechanism is a structured process through which affected people or workers can raise concerns and seek resolution.

# Purpose of a Grievance Mechanism

*It helps:*

- Identify problems early
- Resolve complaints fairly
- Prevent escalation
- Strengthen trust
- Improve accountability
- Inform project improvement

# Types of Grievance Mechanisms

- Community grievance mechanism
- Worker grievance mechanism
- Contractor grievance process
- Resettlement grievance mechanism
- Specialized safeguarding channel

# Grievance Channels

*Possible channels include:*

- Telephone
- Email
- Help desk
- Suggestion box
- Community focal person
- Website
- In-person submission
- Anonymous reporting

# Grievance Principles

*The mechanism should be:*

- Accessible
- Free
- Transparent
- Confidential where required
- Timely
- Culturally appropriate
- Non-retaliatory
- Documented

# Grievance Process

1. Receive complaint
  2. Register
  3. Acknowledge
  4. Assess and classify
  5. Investigate
1. Propose resolution
  2. Communicate decision
  3. Close or appeal
  4. Monitor implementation

# Grievance Register

| ID | Date | Complaint | Category | Owner | Status | Resolution |
|----|------|-----------|----------|-------|--------|------------|
|    |      |           |          |       |        |            |
|    |      |           |          |       |        |            |
|    |      |           |          |       |        |            |

# Grievance Time Standards

*The mechanism should define:*

- Acknowledgement time
- Assessment time
- Investigation period
- Resolution period
- Appeal period
- Escalation rules

# Sensitive Complaints

*Sensitive complaints may require:*

- Confidential handling
- Restricted access
- Specialist referral
- Survivor-centred procedures
- Protection against retaliation
- Separate reporting protocols

# Appeals

*Complainants should be informed of options to:*

- Request internal review
- Approach a higher authority
- Use mediation
- Seek administrative or judicial remedies

# Grievance Analysis

*Management should analyze complaints to identify:*

- Recurring issues
- High-risk locations
- Contractor problems
- Weak communication
- Unresolved social impacts
- Needed design changes

# Environmental and Social Monitoring

*Monitoring tracks whether:*

- Impacts occur as predicted
- Mitigation measures are implemented
- Standards are met
- Unexpected impacts arise
- Corrective actions are completed

# Compliance Monitoring

*Compliance monitoring assesses adherence to:*

- Laws
- Permits
- Financing conditions
- ESIA commitments
- ESMP requirements
- Contract conditions
- Organizational policies

# Effects Monitoring

*Effects monitoring measures actual changes in:*

- Air quality
- Water quality
- Noise
- Biodiversity
- Livelihoods
- Health
- Safety
- Community satisfaction

# Leading Indicators

*Leading indicators provide early warning. Examples:*

- Safety training completed
- Inspections conducted
- Equipment maintained
- Complaints received
- Mitigation actions overdue

# Lagging Indicators

*Lagging indicators measure events after they occur. Examples:*

- Injuries
- Spills
- Pollution exceedances
- Displacement
- Community conflict
- Regulatory penalties

# Environmental Indicators

*Examples:*

- Water consumption
- Energy use
- Waste generated
- Waste recycled
- Emissions
- Discharge quality
- Area rehabilitated

# Social Indicators

*Examples:*

- Local employment
- Compensation completed
- Livelihoods restored
- Female participation
- Grievances resolved
- Community satisfaction
- Vulnerable households supported

# Safety Indicators

*Examples:*

- Lost-time injury frequency
- Near misses
- Safety inspections
- Training completion
- Corrective actions closed
- Emergency drills
- Contractor incidents

# Monitoring Plan

| Indicator           | Baseline | Target      | Method          | Frequency | Responsibility    |
|---------------------|----------|-------------|-----------------|-----------|-------------------|
| Wastewater quality  | Existing | Legal limit | Laboratory test | Monthly   | E&S Officer       |
| Grievances resolved | 0        | 90% timely  | Register review | Monthly   | Community Officer |

# Internal Monitoring

*Internal monitoring may be performed by:*

- Environmental and social staff
- Project manager
- Safety officer
- Community liaison
- Contractor supervisors
- Internal audit

# External Monitoring

*External monitoring may involve:*

- Regulator
- Independent consultant
- Lender
- External auditor
- Community representative
- Certification body

# Site Inspection

*A site inspection should examine:*

- Physical conditions
- Worker practices
- Pollution controls
- Waste
- Safety
- Community risks
- Documentation
- Corrective actions

# Noncompliance

*Noncompliance occurs when the project fails to meet:*

- Legal requirements
- Permit conditions
- Contract requirements
- ESMP commitments
- Safety standards
- Financing conditions

# Corrective-Action Process

1. Record noncompliance
  2. Assess severity
  3. Identify root cause
  4. Define corrective action
1. Assign responsibility
  2. Set deadline
  3. Verify completion
  4. Close the finding

# Corrective-Action Register

| Finding              | Severity | Corrective Action     | Owner         | Deadline | Status |
|----------------------|----------|-----------------------|---------------|----------|--------|
| Untreated wastewater | High     | Repair treatment unit | Plant Manager | 10 days  | Open   |
| Missing PPE          | Medium   | Issue PPE and retrain | Contractor    | 3 days   | Closed |

# Escalation

*Immediate escalation may be required for:*

- Fatality
- Serious pollution
- Major spill
- Community violence
- GBV allegation
- Illegal land acquisition
- Significant regulatory breach

# Environmental and Social Reporting

*Reports may include:*

- Performance summary
- Monitoring results
- Incidents
- Grievances
- Land and compensation status
- Contractor performance
- Corrective actions
- Emerging risks

# Management Dashboard

*A dashboard may show:*

- Overall E&S risk rating
- Safety performance
- Environmental exceedances
- Grievances
- Resettlement progress
- Overdue corrective actions
- Regulatory status

# Feasibility Assessment Questions

- Are impacts fully identified?
- Are alternatives analyzed?
- Can significant impacts be avoided?
- Are mitigation measures technically feasible?
- Are costs included?
- Are affected people consulted?
- Are residual risks acceptable?
- Can compliance be monitored?

# Feasibility Ratings

*The project may be rated as:*

- Environmentally and socially feasible
- Feasible with standard mitigation
- Feasible with substantial conditions
- Requiring redesign
- Requiring additional study
- Not feasible

# Conditional Approval

*Conditions may include:*

- Complete ESIA
- Change project site
- Install treatment technology
- Complete compensation
- Recruit qualified E&S staff
- Establish grievance mechanism
- Prepare emergency plan
- Obtain permits

# Residual-Risk Acceptance

*Residual risks should be accepted only by the appropriate authority after considering:*

- Legal compliance
- Stakeholder concerns
- Reversibility
- Magnitude
- Financial exposure
- Reputation
- Organizational risk tolerance

# Financial Implications

*Environmental and social costs may include:*

- Mitigation
- Monitoring
- Compensation
- Resettlement
- Safety
- Rehabilitation
- Insurance
- Delays
- Closure obligations

# Impact on Investment Criteria

*Environmental and social issues may affect:*

- Initial investment
- Operating cost
- Project schedule
- Revenue
- Working capital
- NPV
- IRR
- Financing availability

# Reputational and Strategic Value

*Strong environmental and social performance may improve:*

- Community acceptance
- Customer trust
- Employee morale
- Investor confidence
- Access to finance
- Long-term project resilience

# MBA Case Exercise

*The project will:*

- Acquire 30 hectares
- Employ 300 workers
- Use significant water
- Generate wastewater
- Increase truck traffic
- Source crops from local farmers

# Screening Exercise

*Students should determine:*

- Risk category
- Main sensitive receptors
- Required studies
- Whether a full ESIA is required
- Whether land planning is required

# Baseline Exercise

*Identify required baseline data on:*

- Water
- Soil
- Biodiversity
- Population
- Livelihoods
- Gender
- Land tenure
- Community health

# Impact-Identification Exercise

*Identify impacts during:*

- Construction
- Operation
- Closure

*Classify each impact as:*

- Positive or negative
- Direct or indirect
- Temporary or permanent
- Reversible or irreversible

# Mitigation Exercise

*Apply the mitigation hierarchy to:*

- Land acquisition
- Water use
- Wastewater
- Dust
- Worker accidents
- Traffic
- Community complaints

# Climate-Risk Exercise

*Assess the project's exposure to:*

- Drought
- Flood
- Extreme heat
- Crop-supply variability
- Electricity disruption
- Water scarcity

# Resettlement Exercise

*Assume that:*

- 20 households lose farmland
- Five businesses lose roadside locations
- A communal grazing route is affected

*Prepare an outline of required measures.*

# Gender and Inclusion Exercise

*Identify how the project can:*

- Recruit women fairly
- Protect workers from harassment
- Include persons with disabilities
- Consult vulnerable households
- Improve access to project benefits

# Safety Exercise

*Identify controls for:*

- Machinery
- Chemicals
- Dust
- Traffic
- Fire
- Confined spaces
- Worker accommodation

# ESMP Exercise

*Prepare an ESMP table containing:*

- Impact
- Mitigation
- Indicator
- Responsibility
- Timing
- Budget
- Reporting

# Grievance-Mechanism Exercise

*Design:*

- Complaint channels
- Registration procedure
- Resolution timeline
- Appeal process
- Confidential channel
- Reporting framework

# Monitoring Exercise

*Select indicators for:*

- Water use
- Wastewater
- Air quality
- Safety
- Grievances
- Compensation
- Local employment
- Gender inclusion

# Group Assignment

*Each group should prepare:*

1. Environmental and social screening
  2. Baseline-study plan
  3. Impact register
  4. ESIA outline
  5. Alternatives analysis
  6. Mitigation hierarchy
  7. Climate-risk assessment
  8. Land and resettlement framework
1. Gender and inclusion plan
  2. Occupational-safety plan
  3. Community-safety plan
  4. ESMP
  5. Grievance mechanism
  6. Monitoring plan
  7. Final feasibility recommendation

# Common Assessment Mistakes

- Conducting screening too late
- Using weak baseline data
- Ignoring indirect impacts
- Ignoring cumulative impacts
- Treating consultation as a one-time event
- Relying on compensation instead of avoidance
- Underestimating land and livelihood impacts
- Excluding vulnerable groups

# Common ESMP Mistakes

- Using vague mitigation measures
- Assigning no responsibility
- Providing no budget
- Omitting monitoring indicators
- Failing to include contractor obligations
- Ignoring operational impacts
- Not tracking corrective actions

# Common Safety Mistakes

- Depending only on PPE
- Ignoring contractor workers
- Failing to investigate near misses
- Weak emergency planning
- No community traffic controls
- Poor hazardous-material management
- No incident escalation

# Feasibility Checklist

*Confirm that:*

- Screening is completed
- Baseline data are adequate
- Direct and indirect impacts are identified
- Cumulative impacts are considered
- Alternatives are analyzed
- Mitigation hierarchy is applied
- Climate risk is assessed
- Land impacts are addressed
- Gender and inclusion are integrated
- Worker and community safety are protected
- ESMP is budgeted
- Grievance mechanisms are accessible
- Monitoring and compliance systems are established

# Knowledge Check

1. What is environmental feasibility?
  2. What is social feasibility?
  3. What is environmental and social screening?
  4. Why is baseline data required?
  5. How do direct and indirect impacts differ?
  6. What is a cumulative impact?
  7. What is an ESIA?
1. What are the stages of the mitigation hierarchy?
  2. What is physical displacement?
  3. What is economic displacement?
  4. Why is gender analysis required?
  5. What is an ESMP?
  6. What is a grievance mechanism?
  7. What is residual impact?

# Knowledge Check Answers

1. Assessment of whether environmental impacts are acceptable and manageable
  2. Assessment of project effects on people, rights, livelihoods and communities
  3. Early classification of project environmental and social risk
  4. To establish conditions before the project and measure change
  5. Direct impacts occur immediately; indirect impacts occur through secondary pathways
  6. Combined impact of the project with other activities and trends
  7. Systematic assessment of environmental and social impacts and mitigation
1. Avoid, minimize, restore and compensate or offset
  2. Loss of home or required relocation
  3. Loss of land, livelihood, income or resource access
  4. Projects may affect women and men differently
  5. Plan defining mitigation, responsibility, timing, cost and monitoring
  6. Process for receiving and resolving complaints
  7. Impact remaining after mitigation

# Individual Assignment

*Select one proposed project and prepare:*

- Environmental and social screening
- Baseline profile
- Stakeholder map
- Impact-identification matrix
- Impact-significance assessment
- ESIA structure
- Alternatives analysis
- Mitigation plan
- Climate-risk assessment
- Land-acquisition assessment
- Gender and inclusion plan
- Worker-safety plan
- Community-safety plan
- Environmental and Social Management Plan
- Grievance mechanism
- Monitoring and compliance plan
- Final feasibility recommendation

# Chapter Summary

- Environmental feasibility assesses impacts on natural and physical systems.
- Social feasibility assesses impacts on people, rights, livelihoods and communities.
- Screening determines the level of assessment required.
- Baseline studies establish pre-project conditions.
- Impacts may be direct, indirect, cumulative, positive or negative.
- ESIA supports design, approval and risk management.
- Alternatives analysis is essential for avoiding impacts.
- The mitigation hierarchy prioritizes avoidance over compensation.
- Climate risk includes physical and transition risks.
- Land acquisition may cause physical and economic displacement.
- Gender and inclusion should be integrated throughout the project.
- Occupational and community health and safety require systematic controls.
- The ESMP converts assessment findings into accountable actions.
- Grievance mechanisms provide accessible routes for raising concerns.
- Monitoring verifies performance, compliance and corrective action.
- A project should proceed only when residual environmental and social risks are acceptable.

## Key Message

Environmental and social feasibility is not a compliance exercise completed after project design. It is a decision-making process that improves project location, technology, cost, stakeholder acceptance and long-term sustainability.

Screen

Establish  
Baseline

Identify  
Impacts

Assess  
Alternatives

Mitigate

Manage

Monitor

Correct

Sustain

# Next Chapter Preview

*The next chapter will cover:*

- Meaning of project risk
- Risk identification
- Risk categories
- Qualitative risk assessment
- Probability–impact analysis
- Quantitative risk analysis
- Expected monetary value
- Sensitivity analysis
- Scenario analysis
- Risk-response planning
- Risk registers
- Monitoring and escalation

# THANK YOU

## Questions and Discussion

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*A project is environmentally and socially feasible only when its benefits can be achieved without unacceptable harm to people, workers, communities, natural resources or future generations.*