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Kick-off Meeting

Conducting a Pre-Feasibility Study – the First Step to Develop Small Hydropower projects,

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Pre-feasibility Study for Small Hydropower Plants - Scope and Methodology

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Scope of the study for SHP

The pre-feasibility study should comprehensively cover the following essential topics:

- Site selection
- Environmental impact assessment
- Technical feasibility assessment
- Legal Analysis
- Economic viability analysis

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Purpose and objectives of preliminary site assessment

The site selection process represents the foundational step in project development, requiring a thorough analysis of all pertinent factors to ensure optimal decision-making"

Factors considered:

- **Hydrological conditions**
- **Topography and geology**
- **Access and infrastructure**

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Data Collection and Analysis

Data collection is crucial in any study. To achieve precise and reliable results, meticulous data collection is essential.

Types of data collected:

- Hydrological data
- Meteorological data
- Geological and geotechnical data

Analysis methods used

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Layout and Equipment Selection

The technical layout and equipment selection are critical for achieving operational efficiency, maximizing energy output, and ensuring environmental sustainability of the small hydropower plant

Key Components:

- **Intake Structure: Location and design considerations**
- **Penstock: Sizing, material selection, and alignment**
- **Powerhouse: Layout for turbines, generators, and control systems**

Equipment Selection:

- **Turbine Selection**
- **Generator and Electrical Systems**

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Key considerations in environmental impact assessment (EIA)

Conducting a comprehensive Environmental Impact Assessment (EIA) is critical to systematically evaluate potential environmental effects, ensuring informed decision-making and regulatory compliance throughout the project lifecycle

Potential impacts:

- Habitat disruption
- Water quality
- Land use

Identifying and clearly presenting mitigation measures for all environmental impact assessment risks is imperative

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Importance of legal analysis in pre-feasibility studies

Legal analysis is essential in a pre-feasibility study to assess regulatory requirements, secure necessary permits, and ensure compliance with environmental, social, and legal frameworks

Objectives of legal analysis:

- **Regulatory framework assessment**
- **Permits and licenses required**
- **Compliance with environmental and social regulations**

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Economic evaluation criteria

Economic evaluation is crucial for investors and financiers, including banks and international financial institutions (IFIs), to assess the financial viability and attractiveness of the project, ensuring informed investment decisions and sustainable funding

Components of economic viability analysis:

- **Cost estimation (CAPEX and OPEX)**
- **Revenue projections**
- **Financing structure and interest rates**
- **Financial indicators (NPV, IRR)**

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Thank you for your attention!

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