Environmental and Social Management Plan (ESMP)

For the Rehabilitation of the Bistrica Hydropower Plant

August 2025

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1. Introduction

1.1 Project Overview

The project involves the rehabilitation of the **Bistrica Hydropower Plant**, located in the **Nova Varoš Municipality** in Serbia.

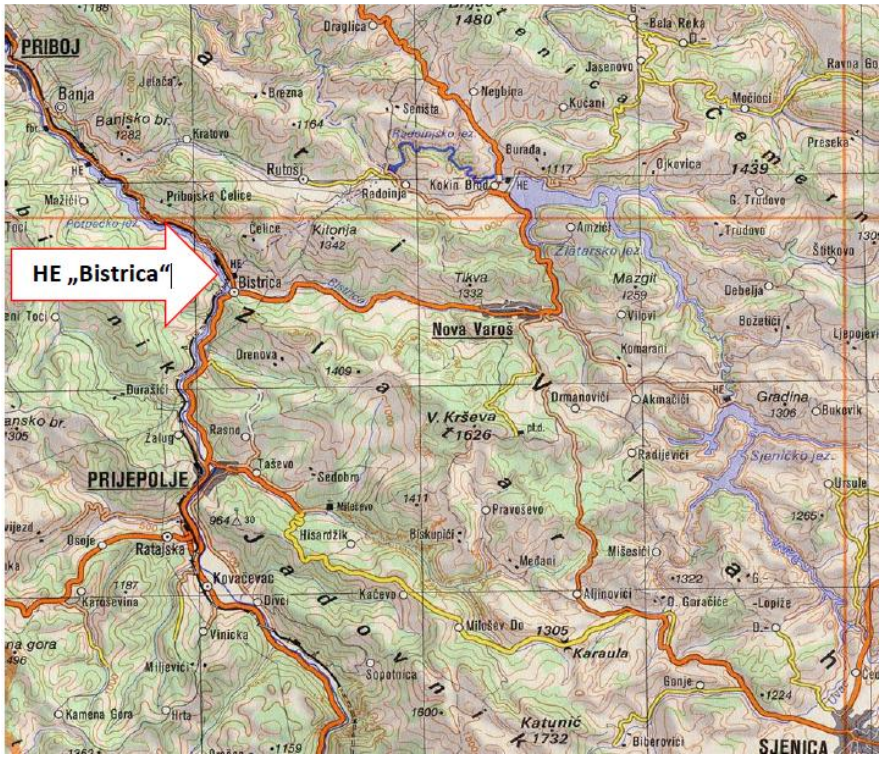

Figure 1 Macro location of HPP Bistrica

HPP "Bistrica" is a cascade-type derivation hydroelectric power plant. It uses regulated waters of the Uvac River in the upstream reservoirs of Kokin Brod and Uvac. The system of HPP "Bistrica" consists of the following facilities: the Radoinja dam with associated structures and reservoir, intake, water supply system, and the powerhouse.

The useful volume of Radoinja reservoir is 4×10^6 m³. The natural flow is 13.9 m³/s, while the installed capacity is 36 m³/s, which, at a net head of 336 m to 374 m, provides a power output of 102.6 MW and an annual production of approximately 335 GWh.

The generators in HPP "Bistrica" (two Francis turbines) are connected to the 220 kV grid via a 220 kV switchgear, which is located directly next to the power plant. The generators are engaged depending on the system's needs and the state of the upstream reservoirs. Units can distribute energy to cover any part of the load diagram and participate in covering the operational and cold reserve of the system. In this regard, the "Bistrica" hydroelectric power plant represents a highly flexible energy generation facility in the EPS (Electric Power Industry of Serbia) power system.

The rehabilitation works are primarily focused on the **modernization** and **upgrade of existing infrastructure**, with no change in the plant's **original operational capacity** or **power output**. The main activities include replacing/refurbishing old turbines, upgrading electrical systems, and ensuring the continued safe and efficient operation of the plant.

The rehabilitation is planned to be financed by Western Balkans Investment Framework (WBIF) and the **European Investment Bank (EIB)**, which requires the project to comply with both **national Serbian regulations** and **EIB's Environmental and Social Standards (EIB-ESS)**. The rehabilitation does not entail new infrastructure or capacity expansion, which means it is classified as an **adaptation** project under Serbian regulations and does not require a formal **Environmental Impact Assessment (EIA)**.

1.2 Objectives of the ESMP

The **Environmental and Social Management Plan (ESMP)** aims to ensure that the rehabilitation of the Bistrica Hydropower Plant is conducted in an environmentally responsible and socially inclusive manner. The objectives of the ESMP are as follows:

- **Minimize potential environmental impacts**: Identify and mitigate risks related to air quality, water quality, noise, waste management, during the rehabilitation process.
- **Ensure social responsibility**: Address potential social impacts, including worker health and safety, community engagement, and equitable access to benefits from the project.
- **Compliance with national and international standards**: Ensure adherence to Serbian regulations, **EIB Environmental and Social Standards (EIB-ESS)**, and relevant international guidelines.
- **Transparency and stakeholder engagement**: Ensure effective stakeholder consultation and communication, particularly with local communities and relevant authorities.

1.3 Legal Framework for ESMP (Without EIA Requirement)

1.3.1 Overview of EIA Requirements in Serbia

In Serbia, the **Environmental Impact Assessment (EIA)** process is regulated under the **Law on Environmental Protection** and the **Law on Environmental Impact Assessment**. EIA is generally required for projects that could significantly impact the environment, such as large-scale infrastructure developments or projects that change operational capacity.

- **General EIA Requirement**: The EIA process is mandatory for new projects or significant expansions that might cause major environmental effects.
- **EIA Exemption for Adaptation Projects**: The Bistrica Hydropower Plant rehabilitation is considered an **adaptation project**, meaning there is no increase in installed power capacity or infrastructure. Since the project does not change the plant's installed capacity or significantly alter its operations, it is exempt from the EIA requirement according to Serbian law.
- **EIB Considerations**: Despite the exemption from EIA under national law, the **European Investment Bank (EIB)** requires a thorough environmental and social review for projects

it finances. For the Project a **proportional environmental and social assessment** to evaluate and mitigate potential risks has been done by the EIB in cooperation with EPS.

1.3.2 Classification of the Bistrica Hydropower Rehabilitation Project

The **rehabilitation** of the Bistrica Hydropower Plant is classified as an **adaptation project**, which involves upgrading existing infrastructure without altering the plant's **overall capacity** or **power output**.

- **Adaptation Project Definition**: The adaptation refers to modernizing the plant's turbines, electrical systems, and infrastructure without expanding its operational scope or generating more power.

1.3.3 Serbian Legislation Defining EIA Exemption

- **Law on Environmental Protection (Article 25)**: According to this law, **adaptation** or **modernization projects** that do not alter the plant's operational capacity or environmental impacts are exempt from requiring an EIA.

1.3.4 Justification for Exemption from EIA

Since the rehabilitation does not introduce new infrastructure or change the hydropower plant's capacity, the environmental impacts are expected to be **minimal**. Key justifications for exemption from the EIA include:

- **No increase in power output** or land use.
- **No major environmental disturbances**: The project focuses on improving existing systems without introducing new facilities.
- **EIB-ESS Compliance**: Even though the project does not require an EIA under Serbian law, the **EIB's guidelines** require that any potential environmental or social risks be evaluated and managed through a comprehensive **Environmental and Social Management Plan (ESMP)**.

1.3.5 Relevant National and Local Regulations

- **Water Use Permit**: As the project involves the management of water resources, a **Water Use Permit** will be required in accordance with the **Water Law**. However, since the plant's operational capacity remains unchanged, the focus will be on ensuring that water use continues in line with environmental standards. The existing Water Use Permit is valid until 2032.
- **Noise and Emissions**: Compliance with the **Law on Noise Protection** and **Law on Air Protection** will ensure that noise and air quality levels during the rehabilitation are within acceptable limits.
- **Waste Management**: The project will comply with the **Law on Waste Management**, and a waste management plan will be prepared to address construction debris and other materials generated during the rehabilitation.

- **Nature protection**: The project will comply with the **Conditions for nature protection** issued by competent authority to ensure that project will pose no risk to the biodiversity.

1.3.6 Conclusion of Exemption

Given the nature of the rehabilitation project, which does not involve a significant increase in capacity or change in operational processes, the project is exempt from the **EIA** under Serbian law. However, **EIB-ESS guidelines** will still be applied, and an **Environmental and Social Management Plan (ESMP)** will be implemented to manage any potential adverse impacts.

2. Legal and Regulatory Framework

2.1 Relevant National Legislation

This section outlines the key national laws and regulations in Serbia that govern the rehabilitation project, ensuring compliance with environmental, social, and operational standards.

- **Law on Environmental Protection**: Provides the framework for environmental protection in Serbia. Since the project does not require an EIA under Serbian law, it will comply with other provisions related to pollution control, waste management, and natural resource use.
- **Law on Water Management**: Governs the use of water resources. The project will require a **Water Use Permit** but will not introduce new water use or impact water quality, as the plant's capacity remains unchanged.
- **Law on Waste Management**: Ensures that the rehabilitation project will comply with waste disposal regulations, ensuring proper handling of construction debris and other materials.
- **Law on Air Protection and Noise Protection**: Ensures that construction activities will comply with air quality and noise pollution standards to protect local communities and ecosystems.
- **Law on Energy**: Regulates energy production and safety in hydropower plants, ensuring the plant operates in line with national energy standards.

2.2 International Conventions and Agreements

Serbia aligns its environmental standards with international conventions and agreements, especially in its process of European Union integration. Relevant agreements include:

- **EU Environmental Directives** (e.g., **Water Framework Directive**, **Habitats Directive**, **Air Quality Directive**).
- **United Nations Framework Convention on Climate Change (UNFCCC)**: Serbia's obligations under this convention will guide the project's environmental footprint.
- **Convention on Biological Diversity (CBD)**: Ensures that biodiversity is considered, even if the project's direct impact on ecosystems is minimal.
- **International Labour Organization (ILO)** Conventions: Ensures compliance with labor standards for worker safety and rights during rehabilitation activities.

2.3 Applicable Local Regulations and Guidelines

Local regulations specific to the Nova Varoš Municipality will be adhered to, including:

- **Zoning and Land Use Regulations**: These ensure that the rehabilitation does not interfere with protected areas or affect land use in the vicinity of the hydropower plant.
- **Local Environmental Laws**: Any additional local standards for waste management, water quality, or pollution control will be followed.
- **Cultural Heritage Protection**: If there are any nearby protected cultural sites, the **Cultural Heritage Protection Law** will apply to ensure that these sites are preserved.

2.4 Environmental and Social Standards

- **EIB-ESS Compliance**: The rehabilitation project must comply with the **EIB's Environmental and Social Standards**, which include guidelines for environmental management, stakeholder engagement, health and safety, and cultural heritage protection.
- **ISO Standards**: ISO 14001 (Environmental Management Systems) and ISO 26000 (Social Responsibility) are also relevant for structuring and implementing the ESMP.

3. Environmental and Social Baseline Conditions

3.1 Description of the Project Area

The project area encompasses the region surrounding the **Bistrica Hydroelectric Power Plant (HE "Bistrica")**, located in the vicinity of the Uvac and Lim rivers. These rivers are significant not only for hydroelectric production but also for local ecology and community livelihoods. The area is characterized by:

- **Topography:** A mix of mountainous terrain, river valleys, and natural reserves.
- **Land Use:** The primary land uses include hydroelectric power generation, small-scale agriculture, and forested areas. There are also settlements in proximity to the plant.
- **Infrastructure:** The existing infrastructure includes roads, powerlines, and access routes necessary for both operational and construction purposes.

3.2 Existing Environmental Conditions

3.2.1 Water Quality and Resources

- **Rivers:** The Uvac and Lim rivers are the main water sources for the power plant. Both rivers support aquatic life and are integral to the energy production process.
- **Water Quality:** The water quality is generally considered high, with low levels of pollutants. Regular monitoring of water quality is undertaken to ensure that it remains within acceptable environmental standards.

3.2.2 Air Quality

- **Current Air Quality:** The area has minimal air pollution due to its rural setting. Local pollution arises from transportation and occasional agricultural activities.
- **Air Emissions:** The major sources of air emissions during construction will include machinery and vehicle emissions, though these impacts are expected to be temporary and localized.

3.2.3 Noise Levels

- **Existing Noise Conditions:** Ambient noise levels are low, with natural sounds such as river flow and wildlife dominating. Human-induced noise comes mainly from transportation and occasional industrial activity.
- **Construction Noise:** The construction phase will introduce elevated noise levels, primarily from machinery, trucks, and heavy equipment. Noise mitigation strategies will be developed for the operational phase.

3.2.4 Flora and Fauna (Biodiversity)

- **Flora:** The surrounding region is home to various forested and natural habitats, with a mix of native plant species.
- **Fauna:** Wildlife includes several species of birds, mammals, and aquatic species. Notably, the **Griffon vulture**, a protected specie, is present in the nearby **Uvac Special Nature Reserve**. The project area is not within protected zone.
- **Ecological Sensitivity:** The surrounding areas are critical for local and migratory species, and the project will need to implement measures to minimize disturbance.

3.2.5 Soil and Land Use

- **Soil Quality:** The soil in the area is fertile, supporting agricultural activities. However, there may be minor impacts to soil quality due to construction activities such as excavation and material storage.
- **Land Use:** The land is used for hydroelectric generation, agriculture, and forestry. There are no significant urban developments nearby, but the land is important for the livelihoods of local communities.

3.2.6 Nature Protection Conditions

The Institute for Nature Conservation of Serbia has issued the following nature protection conditions:

1. Adaptation and investment maintenance can only be carried out on **cadastral parcels no. 1473 and 1474, Cadastral Municipality Bistrica, Municipality of Nova Varoš;**

2. Strict adherence to the location planned for adaptation and investment maintenance must be followed to ensure that the works **do not leave any consequences** on the wider area, and the manipulation areas should be spatially limited during the works;
3. **The entire zone that will be affected by the works must be precisely defined**, so that its arrangement can be planned in a way that fully ensures the functionality of the facilities while also protecting the surrounding area from negative impacts;
4. Municipal and all other **waste generated during the works must be temporarily stored in a prescribed manner until it is finally disposed** of at a location determined by the competent municipal service, in accordance with Article 3 of the **Waste Management Law** ("Official Gazette of the Republic of Serbia", no. 36/2009, 88/2010, 14/2016, and 95/2018—other laws), according to which waste management is conducted in a manner that ensures control and the implementation of measures to reduce: a) water, air, and soil pollution; b) dangers to plant and animal life; c) risks of accidents, explosions, or fires; d) negative impacts on areas and natural assets of special value; e) noise levels and unpleasant odors;
5. The planned works must **not cause any engineering-geological or other degradation processes**;
6. Pipelines, as well as water supply, turbine, and other channels, must be equipped with **appropriate devices that prevent the entry of fish**;
7. The performance of **any work that may cause water turbidity for more than 3 days** and/or whose intensity may negatively impact aquatic organisms **is prohibited**;
8. In all stages of the work, efforts must be made to **prevent or minimize air, soil, underground, and surface water pollution**;
9. During the adaptation and maintenance at the site, it is necessary to **protect and preserve the Lim River from degradation and pollution**;
10. The **free deposition of any waste** in the riverbed and along the banks of the Lim River **is prohibited**.
11. **No servicing or repairing of machines, equipment, and devices** may be carried out at the site in question;
12. The **disposal of fuels, lubricants, and other harmful and hazardous substances, or the creation of any landfill, is prohibited**;
13. **It is prohibited to endanger biodiversity, geodiversity, and landscape diversity at the site with hazardous and harmful substances** (waste and construction materials); the use, removal, and disposal of these materials must comply with the applicable legal regulations and normative acts of the local government;
14. In the event of an accidental spill of fuel, lubricants, or other hazardous and harmful substances in the riparian area or the watercourse of the Lim River, **the contractor is obliged to remove the spilled material and remediate the contaminated soil as soon as possible**, in accordance with **Article 2 of the Rulebook on the Method of Storage, Packaging, and Labeling of Hazardous Waste** ("Official Gazette of the Republic of Serbia", no. 92/2010 and 77/2021). It is also necessary to take measures to protect the aquatic life of the watercourse;

15. Work teams are required to comply **with general safety measures, rules on waste collection and disposal, workplace safety regulations**, and others;
16. Special attention should be given to **protective measures in the event of an accidental situation**, and appropriate environmental protection measures should be foreseen;
17. The noise level during works must not exceed the permissible limit values for the working space, in accordance with **Articles 10 and 16 of the Law on Protection Against Noise in the Environment** ("Official Gazette of the Republic of Serbia", no. 96/2021);
18. Upon completion of all works, it is mandatory **to rehabilitate all surfaces and remove all excess construction materials, equipment, and machinery**.

3.3 Existing Social Conditions

3.3.1 Demographic Profile

- **Population Density:** The area surrounding the hydropower plant is sparsely populated. However, there are several small settlements within the vicinity that may be affected by project activities.
- **Community Structure:** The population consists largely of agricultural workers, local entrepreneurs, and some employees at the hydropower plant.

3.3.2 Local Economy and Livelihoods

- **Economic Base:** Agriculture, forestry, and energy production are the primary economic activities. The plant plays a significant role in local employment, and many people rely on it for direct or indirect income.
- **Impacts on Livelihoods:** The modernization of the plant could create new job opportunities, but construction activities may temporarily disrupt local businesses and livelihoods.

3.3.3 Community Health and Safety

- **Health Services:** Local healthcare services are adequate but limited, with the nearest hospital being some distance away. Health risks are minimal, though there is potential for construction-related accidents or traffic incidents.
- **Safety Concerns:** During construction, there may be increased risks related to machinery, transportation, and workers on-site. Community safety measures will be established to minimize these risks.

3.3.4 Cultural and Heritage Sites

- **Cultural Heritage:** There are no significant cultural or heritage sites within the project area itself, though the surrounding natural environment holds cultural importance for local communities.
- **Potential Impacts:** The project is not expected to impact any known heritage or cultural sites. However, proper protocols will be followed if any items of cultural significance are discovered during construction.

4. Environmental and Social Impacts

4.1 Potential Environmental Impacts

4.1.1 Water Quality and Aquatic Ecosystems

- **Impact:** Construction activities will not lead to increased sedimentation and runoff, temporarily degrading water quality and impacting aquatic ecosystems. However, water quality monitoring control measures will be implemented.
- **Mitigation:** Regular monitoring of water quality during and after construction.

4.1.2 Air Quality and Emissions

- **Impact:** Increased emissions from construction machinery and vehicle traffic could result in localized air pollution. Dust and exhaust emissions could affect air quality temporarily.
- **Mitigation:** Dust control measures, including water spraying on unpaved roads and construction areas, and maintenance of machinery to minimize emissions.

4.1.3 Noise and Vibration

- **Impact:** Construction activities, including heavy machinery and transportation, will result in elevated noise levels.
- **Mitigation:** limiting working hours, and maintaining equipment to reduce noise.

4.1.4 Waste and Pollution

- **Impact:** Construction activities could generate waste, including solid waste, hazardous materials (e.g., oils, lubricants),.
- **Mitigation:** Preparation of waste management plan and perform project activities in accordance with it, segregating hazardous waste, and ensuring proper disposal.

4.1.5 Biodiversity and Habitats

- **Impact:** The project could cause minor temporary disturbances to wildlife,
- **Mitigation:** conduct project activities in line with Nature protection conditions.

4.2 Potential Social Impacts

4.2.1 Community Health and Safety

- **Impact:** Increased traffic and construction-related activities may pose risks to community health and safety.
- **Mitigation:** Providing safety awareness programs, and enhancing local emergency response capabilities.

4.2.2 Land Acquisition and Resettlement

- There won't be any land acquisition required for the project implementation

4.2.3 Employment and Labor Conditions

- **Impact:** The construction phase will provide employment opportunities but may introduce labor-related risks related to the working conditions.
- **Mitigation:** Ensuring that labor standards are followed, providing safety training, and offering fair wages.

4.2.4 Cultural Heritage and Community Relations

- **Impact:** Project activities will have negligible influence on local community relations, including ones regarding cultural significance of the natural environment.
- **Mitigation:** perform project activities in accordance with conditions issued by competent authorities. Raise the awareness on project activities within local community

4.3 Cumulative Impacts

- Summary of impacts and their significance is presented below.

Impact	Significance	Comment on the Effect
Water Quality and Resources	Low to Moderate: Minimal impact expected due to controlled activities in the machine hall.	Any potential contamination from accidental spills can be mitigated through proper containment measures.
Air Quality and Emissions	Low: Limited emissions due to equipment installation activities.	Dust and emissions from transportation and machinery can be controlled through regular maintenance and dust suppression.
Noise Levels	Low to Moderate: Noise restricted to the construction phase, with minimal impact on local communities.	Operating within designated hours and using noise-dampening measures will minimize disturbances.
Biodiversity and Habitats	Low: Activities confined to the existing infrastructure, with no significant disturbance to surrounding habitats.	Project activities performed in line with issued permits and conditions will ensure that the project will pose no risk to the nature.
Soil and Land Use	Low: No new land disturbance; activities limited to the existing facility footprint.	Proper storage of materials will prevent soil contamination risks.
Community Health and Safety	Moderate: Increased activity around the plant may pose minor risks.	Enhanced site security, traffic management, and communication with local communities will reduce concerns.

Local Economy and Livelihoods	Positive: Employment opportunities for skilled and unskilled local labor during the rehabilitation process.	Prioritizing local workforce and businesses enhances the socioeconomic benefits.
Cultural and Heritage Sites	Negligible: No known cultural or heritage sites are affected by the project.	Continued monitoring ensures the absence of unforeseen impacts.
Waste and Pollution	Moderate: Minor risk of waste generation during equipment replacement and disposal of old materials.	Effective waste management and recycling plans will mitigate pollution risks.
Employment and Labor Conditions	Positive: Job creation and skill enhancement for local workers.	Compliance with labor standards and offering fair wages will maximize benefits.
Land Acquisition and Resettlement	Negligible: No land acquisition is anticipated as activities are limited to existing infrastructure.	Ongoing dialogue with local communities ensures their concerns are addressed.

5. Mitigation and Management Measures

5.1 Environmental Mitigation Measures

5.1.1 Water Quality Management

- Regular monitoring of water quality during and after construction,
- Responsibility: **Investor**

5.1.2 Air Quality and Dust Control

- Use of dust suppression techniques such as water spraying and ensuring that vehicles and machinery are properly maintained.
- Responsibility: **Contractor**

5.1.3 Noise Reduction Measures

- Implementing noise reduction strategies such as limiting construction hours, using quieter machinery, and establishing noise barriers where necessary.
- Responsibility: **Contractor**

5.1.4 Waste Management and Disposal

- Preparation of construction waste management plan and performing project activities in accordance with this document Providing waste management training to workers.
- Responsibility: **Contractor**

5.1.5 Biodiversity Conservation and Habitat Restoration

- Perform project activities according to the nature protection conditions

- Responsibility: **Contractor**

5.2 Social Mitigation Measures

5.2.1 Health and Safety Measures

- Providing personal protective equipment (PPE) for workers, and conducting training on safety practices.
- Responsibility: **Contractor**

5.2.2 Resettlement and Compensation

- **Not applicable**

5.2.3 Community Engagement and Consultation

- Continuous engagement with local communities, public consultations, and the establishment of grievance redress mechanisms.
- Responsibility: **Investor and Contractor**

5.2.4 Labor Rights and Employment Conditions

- Ensuring fair labor practices, providing workers with appropriate contracts, and creating safe working conditions.
- Responsibility: **Contractor**

5.3 Monitoring and Reporting Framework

- Regular environmental and social monitoring through surveys and audits, with feedback mechanisms to ensure the effectiveness of mitigation strategies.
- Responsibility: **Investor and Contractor**

6. Environmental and Social Monitoring and Reporting

6.1 Monitoring Plan

6.1.1 Environmental Monitoring

- **Air Quality**:
  - Project will have minor influence on air quality during limited time frame. Therefore, no need for targeted air quality measurements. Information available through the state and local air quality are sufficient.
  - Responsibility: **Contractor**

- **Water Quality**:
  - Conduct water quality monitoring according to the national regulations
  - Responsibility: **Investor**

- **Noise Levels**:
  - Measure decibel levels using portable sound level meters at the border of the construction site on a bi-weekly basis.
  - Responsibility: **Contractor**

6.1.2 Social Monitoring

- **Community Health and Safety**:
  - Monitor the incidence of health complaints or disease outbreaks submitted through grievance mechanism linked to project activities.
  - Responsibility: **Contractor and Investor**
- **Labor Practices**:
  - Perform monthly audits to ensure compliance with labor standards, including wage payments, working hours, and use of personal protective equipment (PPE).
  - Responsibility: **Contractor**
- **Grievance Mechanism**:
  - Track the number of grievances lodged, their resolution times, and community satisfaction with outcomes using a centralized database.
  - Responsibility: **Investor**

6.2 Performance Indicators

- **Environmental Indicators**:
  - Volume of generated and disposed construction waste.
- **Social Indicators**:
  - Percentage of grievances resolved within 30 days.
  - Proportion of local labor employed in the project.

6.3 Reporting Protocols

- **Internal Reporting**:
  - Daily logs and summaries submitted to the Environmental and Social Management Team (ESMT).
  - Monthly comprehensive reports shared with project leadership.
- **External Reporting**:
  - Annual reports submitted to regulatory authorities and funding agencies.
  - Bi-annual public disclosure reports summarizing key findings and project updates.

6.4 Frequency and Duration of Monitoring

- Environmental monitoring:
  - Weekly during peak construction periods.
  - Monthly during the operation phase.
- Social monitoring:
  - Monthly during construction and quarterly during operation.

6.5 Corrective Actions and Adjustments

- Establish a protocol for immediate response to environmental exceedances, including halting activities and implementing containment measures.
- Hold regular review meetings to analyze monitoring data and adjust the ESMP as necessary to address unforeseen impacts or stakeholder concerns.
- Develop a feedback loop to integrate community input into the mitigation measures and project adjustments.

7. Institutional and Organizational Arrangements

7.1 Project Governance Structure

- At the Ministry of Mining and Energy, special unit for monitoring and evaluation of the project is formed.
- End beneficiary EPS JSC is responsible for overall implementation of the Project, including management of environmental and social issues under the Project. EPS JSC will form Project Implementation Unit for the purpose of Project realization.
- The Supervision (Engineer) will ensure compliance with the ESMP listed measures and provide reports on compliance.

7.2 Roles and Responsibilities for ESMP Implementation

The Contractors' Project Manager has overall environmental responsibility to:

- Include the environment into all aspects of project planning.
- Allocate project resources to handle environmental issues.
- Ensure suppliers and contractors comply with environmental requirements.
- Investigate and ensure that environmental incidents are reported and recorded.
- Review the implementation of ESMP and performance of environmental management monthly.
- Ensure environmental inspections are conducted.

During the development of the Project Supervisor (Engineer) on site shall:

- Update environmental aspects and requirements when necessary
- Develop environmental monitoring, monthly reports and ensure compliance with all preventive and corrective measures;
- Maintain EHS Manager informed of all remarkable environmental issues;
- Record, communicate and solve environmental incidents and accidents;
- Approve location site of hazardous waste storage;
- Develop environmental training.

- Training is intended for contractors and subcontractors and shall be held before commencement of work. Environmental training shall encompass the following topics:
  - Information about major environmental aspects during construction phase
  - Procedures regarding waste management (hazardous and nonhazardous waste handling)
  - Procedures regarding environmental accidents that may occur during construction phase

During the Project the subcontractors shall:

- Ensure compliance with all environmental requirements and protection and mitigation measures established in this document;
- Form and inform all workers in the environmental requirements and protection and mitigation
- measures established in the present document;
- Process and obtain all applicable permits or licenses needed to develop their activities during construction phase;
- Assume all costs derived from compliance with environmental requirements during development of the project and from processing and obtaining licenses or permits needed for the development of the project.

7.3 Capacity Building and Training

- Contractor will be providing ongoing training for its' project staff and sub-contractors to ensure they are capable of implementing the ESMP effectively.

7.4 Communication and Coordination Mechanisms

- Ensuring effective communication between project teams, local communities, and other stakeholders.

8. Risk Management and Contingency Plans

8.1 Identification of Key Risks

- Identifying environmental and social risks such as environmental degradation, community opposition, and health and safety concerns. Key activities to be addressed are presented in section 9.1.

8.2 Mitigation and Contingency Plans for Environmental and Social Risks

- Developing contingency measures to address these risks, including emergency response procedures, additional mitigation measures, and project adjustments. Key activities to be addressed are presented in section 9.1.

9. Conclusion

The Environmental and Social Management Plan (ESMP) for the project outlines the necessary actions to ensure responsible environmental and social management throughout the lifecycle of the project, from construction through to operation. Both the **Investor**, **Contractor**, and **Engineer** have clear roles and responsibilities to ensure compliance with these plans. This section highlights the key activities and obligations, along with the involvement of the **Engineer** as an overseeing third party.

9.1 Commitment to Compliance and Sustainable Practices

The ESMP outlines critical actions to mitigate the potential environmental and social impacts, including water quality management, biodiversity protection, air quality control, waste management, community engagement, and labor safety. Each of these actions will be implemented by the **Investor** and **Contractor**, with the **Engineer** ensuring proper implementation and compliance.

The **Investor** and **Contractor** are committed to meeting national and international standards for environmental and social management. The **Investor** will ensure compliance with relevant legal and regulatory requirements, while the **Contractor** will implement the environmental and social mitigation measures on-site. The **Engineer**, acting as an independent third party, will oversee compliance and provide technical guidance, ensuring that all activities meet the standards set forth in the ESMP.

The following table summarizes the activities required for ESMP implementation, as well as the respective obligations for the **Investor**, **Contractor**, and **Engineer**:

Table: Key Activities and Responsibilities

Activity	Obligation	Details
Water Quality Management	Investor	Ensure ongoing water quality monitoring
Air Quality and Dust Control	Contractor	Implement dust suppression techniques (e.g., water spraying), maintain equipment, and limit emissions from construction machinery.
Noise and Vibration Control	Contractor	, monitor noise levels, restrict working hours to minimize disruption, and maintain machinery for optimal operation.
Waste Management and Disposal	Contractor	Segregate, recycle, and properly dispose of construction and hazardous waste, and provide training for workers on waste management practices.
Biodiversity and Habitat Conservation	Investor	Obtain nature protection conditions for project activities
Health and Safety Measures	Contractor	Provide workers with personal protective equipment (PPE), conduct safety training, and ensure a safe working environment in line with local laws.

Community Engagement and Consultation	Investor Contractor	Conduct public consultations, maintain regular communication with stakeholders, and address concerns raised by local communities.
Labor Rights and Employment Conditions	Contractor	Ensure compliance with labor laws, fair wages, proper contracts, and health and safety regulations for all workers.
Monitoring and Reporting of Environmental and Social Impacts	Investor	Establish a monitoring framework and submit periodic reports to regulatory bodies, including environmental and social performance indicators.
Grievance Redress Mechanism (GRM)	Investor	Set up and manage a grievance mechanism, ensuring complaints are addressed promptly and fairly. Contact persons will be Leaders of the Working group for Environmental Monitoring and Working group for Stakeholder Communication which are part of the Project Implementation Unit
Training and Capacity Building	Investor Contractor	Provide capacity building and training to both internal teams and local stakeholders to build the necessary skills for ESMP implementation. This training should be provided through presentations that will cover all necessary information. The presentations will be available to both internal teams and the local stakeholders. Contactor's responsibility will be preparation of the presentation, while organization will be covered by the Investor.
Emergency Preparedness and Risk Management	Contractor	Develop and implement contingency plans for emergency situations (e.g., spill containment, accidents), and train workers on response procedures.
Environmental Rehabilitation Post-Construction	Contractor	Upon completion of all works, it is mandatory to rehabilitate all surfaces and remove all excess construction materials, equipment, and machinery.
Periodic Review of ESMP Implementation	Engineer	Review the implementation of the ESMP periodically, verify compliance, and provide technical advice on any necessary corrective actions.
Final ESMP Report and Documentation	Investor	Prepare and submit a final ESMP report detailing compliance, mitigation efforts, and any corrective actions taken during the construction phase.
ESMP Compliance Monitoring	Engineer	Conduct regular inspections, audits, and assessments to verify that the **Contractor** is implementing the ESMP measures correctly and effectively.

9.2 Final Remarks

The involvement of the **Engineer** as an independent third party is crucial to ensuring transparency and accountability in the ESMP implementation. The **Investor** and **Contractor** will collaborate to

meet all requirements, with the **Engineer** overseeing and verifying the compliance of each party with environmental and social standards. Regular inspections, audits, and technical guidance from the **Engineer** will ensure that any potential issues are promptly addressed.

Together, the **Investor**, **Contractor**, and **Engineer** will work towards the goal of delivering a sustainable project that respects the environment and the local community, ensuring that environmental and social impacts are minimized and the benefits of the project are maximized.