ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

(ESMF)

for

Just Transition in Select Coal Regions in Bosnia and Herzegovina

October 2024

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Abbreviations

BAM	Convertible Mark
BiH	Bosnia and Herzegovina
EHSG	Environmental, Health and Safety Guidelines
EIA	Environmental Impact Assessment
EnCT	Energy Community Treaty
EPBiH	Elektroprivreda Bosne i Hercegovine
ERS	Elektroprivreda Republike Srpske
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESA	Environmental and Social Assessment
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESPOO	Convention on Environmental Impact Assessment in a Transboundary Context
ESSs	Environmental and Social Standards of WB
E&S	Environment & Social
EU	European Union
FBiH	Federation of Bosnia and Herzegovina
FMERI	Federal Ministry of Energy, Mining and Industry
FMoET	Federal Ministry of Environment and Tourism
FPV	Floating Photovoltaic
GBV	Gender Based Violence
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GIIP	Good International Industry Practices
GM	Grievance Mechanism
HPP	Hydro Power Plant
ILO	International Labor Organization
ISO	Independent System Operator
JT	Just Transition
JTC	Just Transition Committee
LMP	Labor Management Procedures
LRMP	Land Repurposing Master Plan
LRTAP	Geneva Convention on Long-Range Transboundary Air Pollution
LURA	Land Utilization Repurposing Application
MoEM	Ministry of Energy and Mining of Republika Srpska
MoFTER	Ministry of Foreign Trade and Economic Relations
MoSPCE	Ministry of Spatial Planning, Construction and Ecology of Republika Srpska
M&E	Monitoring and Evaluation
NDC	Nationally Determined Contributions
NECP	National Energy and Climate Plan
NERP	National Emission Reduction Plan
NREAP	National Renewable Energy Action Plan
OHS	Occupational Health and Safety
O&M	Operation and Maintenance
PCB	Project Coordination Body
PI	Public Institution
PIU	Project Implementation Unit

PPE	Personal Protective Equipment
PRTR	Protocol on Pollutant Release and Transfer Registers
PV	Photovoltaic
RE	Renewable Energy
LULRP	Land Use and Livelihood Restoration Plan
LULRF	Land Use and Livelihood Restoration Framework
RS	Republika Srpska
SAA	Stabilization and Association Agreement
SBUR	Second Biennial Report on Greenhouse Gas Emissions
SEA/SH	Sexual Exploitation and Abuse / Sexual Harassment
SEP	Stakeholder Engagement Plan
SERC	State Electricity Regulatory Commission
SME	Small and Medium Size Enterprises
SPE	Special Purpose Entity
TA	Technical Assistance
TNC	Third National Report of Bosnia and Herzegovina
TPP	Thermal Power Plant
UNFCCC	United Nations Framework Convention on Climate Change
USD	US Dollar
WB	The World Bank

1. EXECUTIVE SUMMARY

Project Background, Objectives and Components

The World Bank (WB) support to Bosnia and Herzegovina (BiH) ehas the objective to support a Just Transition in selected coal regions in BiH .

The Project location are coal mines in Federation of Bosnia and Herzegovina (FBiH) with the possibility of extension to regions in Republika Srpska (RS).

The Project is designed to achieve its objectives through four Components:

- **Component 1: Institutional Strengthening and Project Management**
  - Subcomponent 1.1: State-level Measures on Just Transition
    - ✓ Committee on Just Transition and Annual Just Transition Forum
  - Subcomponent 1.2: FBiH-level Measures on Just Transition
    - ✓ Institutional Strengthening for a Just Transition in FBiH
    - ✓ Policy Development, Legal and Regulatory Updates
  - Subcomponent 1.3: Project Management
- **Component 2: Repurposing of Post-Mining Lands (Banovici and Kreka) and Closure of Select Underground Works (Zenica)**
  - Subcomponent 2.1: Assessing, Planning and Executing Repurposing
    - ✓ Conduct repurposing works
    - ✓ Scoping additional mine closure and land repurposing sites, per government request
  - Subcomponent 2.2: Planning and Executing Closure of Select Underground Work(s)
    - ✓ Development of a closure plan, following international coal mine closure standards, and execution of closure of the Raspotocje pit
- **Component 3: Renewable Power Generation in RMU Banovici and Kreka Mine**
    - ✓ Installation of 27 MWp PV across two locations on existing mine sites with capacity to generate more than 30GWh of electricity annually
- **Component 4: Support to Labor Transition in Banovići and Zenica Mines**
  - Subcomponent 4.1: Financial Obligations
    - ✓ Financing Zenica mine's obligations (social arrears and statutory severance payments) towards retrenched employees to ensure their access to social insurance and adequate social protection during transition
  - Subcomponent 4.2. Support the Transition of Mine Workers
    - ✓ Establishment of In-House Labor Transition Units (LTUs) in the mines' HR departments
    - ✓ Voluntary separation incentives for mine workers in RMU Banovici
    - ✓ Top-up to separation packages for income-support for Zenica workers involuntarily separated and nearing retirement age
  - Subcomponent 4.3: Community-delivered productive measures for affected unemployed workers and community engagement
    - ✓ Pilot new redeployment measures relevant for coal-mine communities
    - ✓ Support small and medium enterprise (SME) development. Several donors are currently considering complementing the project's financing with grant resources
    - ✓ Community engagement and small grants for local initiatives

The Project will produce positive developmental benefits to both the BiH government (state and entity), as well as people and communities in selected coal regions. Over the short term, the project will develop renewable power generation, initiate labor transition for mine workers, and reclamation and repurposing of selected mining lands, setting the stage for future economic transition and broader scale energy transition. Over the medium to long-term, the project will provide a core benefit of positioning BiH to be guided by principles of "Just Transition for All" that will allow the government to begin a decarbonization program (coal mine closure set of activities) that will reposition the country in alignment with its updated Nationally Determined Contributions (NDCs), which

calls for a reduction of emissions in the country by over one-third by 2030 and almost two-thirds by 2050 compared to emission levels in 1990.

Project beneficiaries

Direct beneficiaries will be people directly employed in the Banovici Mine and Zenica Mine (subcomponent 4.1 and 4.2) as well as people in coal mining communities (subcomponent 4.3), EPBiH and Banovici companies, and government institutions. Indirect beneficiaries of the proposed project would be coal mining communities, including residents of Zenica and Banovici, the municipalities and surrounding cantons' economies, cantonal public employment services and their local offices, local businesses (including those whose clients are mine employees), and people employed directly and indirectly in the renewable energy (PV) value chain.

Purpose of the Environmental and Social Management Framework (ESMF)

The project includes a number of subprojects but they may be subject to changes or new subprojects may be added at a later stage, and therefore a Framework approach is used for reviewing the potential impacts of the proposed activities. This ESMF provides a roadmap on environmental and social due diligence procedures that ensure implementation of the Project compliant to and in line with the WB Environmental and Social Framework (ESF).

The ESMF incorporates mandatory screening procedures each subproject will undergo. Subproject activities will be screened against environmental and social risks, risks assessed, and further instruments developed to apply mitigation measures (including measures to address residual risks) compliant to WB's ESF applicable Standards. This document serves as a guidance tool for the Project Implementation Unit (PIU) to ensure risks are identified, impacts anticipated and mitigation measures designed and implemented to minimize adverse environment and social impacts. To track the Project E&S performance, requirements for environmental and social monitoring and reporting have been included.

Any activity to be financed under this Project will be subject to an Environmental and Social Assessment (ESA) to ensure that subprojects are environmentally and socially sound and sustainable, compliant to the WB ESF. The ESA will be proportionate to the risks and impacts of the subproject and conducted using the process and tools defined under this ESMF.

Environmental and social assessment of the subprojects will be carried out in line with the ESF, WB's Environmental and Social Standards (ESS) and BiH entities' environmental laws and will include preparation of a site-specific ESIA, ESMP or ESMP Checklist compliant to this ESMF and ESF relevant Standards.

This document outlines the project background and context, the policy and regulatory framework, a brief description of project activities and entailed environmental and social risks and impacts associated with them, environmental review procedures, including ESA procedures and guidelines, institutional arrangements, consultations and disclosure procedures, and monitoring, evaluation, reporting and supervision procedures as well as distribution of responsibilities.

Institutional arrangements

The Project proposes a two-layered implementation arrangement.

The project will be managed by a **Project Implementation Unit (PIU)** housed in the Federal Ministry of Energy, Mining and Industry (FMERI) with the Project Coordinator appointed by the Minister, and will assume overall financial management and procurement responsibilities.

Project Management Teams (PMTs) will be housed in RMU Banovici and EPBiH.

Also, Intersectoral Ministerial Committee – Federation of BiH Steering Committee (SC) will be established, to support Energy Sector Just Transition Projects in FBiH, appointed by the Decision made by the Government of the Federation of Bosnia and Herzegovina and consisting of the Prime Minister and Ministers of the relevant Ministries, with the below defined responsibilities.

Potential environmental and social impacts

The overall Project's **environmental risks** are rated substantial, while the risk of subprojects may vary from low to substantial. Works to be financed under the Project include large-scale civil works under the remediation and

repurposing of mining lands which may include activities above and below ground. Works to be financed also include small-scale construction works under the installation of the renewable energy systems.

The environmental impacts of the project are expected to be manageable, mitigatable through application of ready measures, and temporary. The exact geographical scope of the impacts is yet unknown but is not expected to exceed the existing footprint of mines and their associated facilities. Civil works may produce typical construction related adverse impacts: dust, noise and vibration, accidental leakage/spillage of machine oil, fuel, and other, as well as management of large amounts of waste. Adverse impacts to the environment during the project implementation are a direct consequence of operating machinery and civil works at a location. In particular, special attention should be paid to the management of waste that will be generated by the remediation of the mining land. No significant long-term negative impacts are envisaged if the Project is implemented with due care and observing the relevant procedures as prescribed by the ESF, WB Environmental, Health and Safety Guidelines (EHSG) and Good International Industry Practices (GIIP). Project activities at this stage are not fully defined and environmental impacts identified at this stage are preliminary in nature and will need to be further elaborated specifically within a site-specific ESA.

The overall Project's **social risks** are rated substantial, while, again, the risk of subprojects may vary from low to substantial. Major social risks and impacts are associated the expected loss of jobs that will occur after the closure of the mines, stakeholder engagement and managing public perceptions on a Just Transition, and social inclusion issues. The activities related to remediation and repurposing of mining lands may have land use impacts. A Land Use and Livelihood Restoration Framework (LULRF) in line with WB's ESF has been prepared to guide land use changes for subprojects with the physical footprint unknown at stage of the project. It is unlikely that the works will require acquisition of a new land or physical displacement, and the impacts will be constrained to a limited impact to livelihoods.

Social impacts of civil works include typical construction related adverse impacts to OHS and community health and safety. OHS impacts shall be mitigated by adequate enforcement of the Labor Management Procedure (LMP) and site-specific ESA. All reasonable precautions to protect the health and safety of workers commensurate to the risks will be implemented, including hiring contractors that have the technical capability and positive track record in managing the OHS issues of their employees. Workers' Grievance Mechanism (GM) has been included in the LMP prepared for the Project as a standalone document. The major risks tied to community health and safety relates traffic safety risks to the affected communities. Adequate Traffic Management Plans shall be in place. GM at community level has been included in the SEP prepared for the Project as a standalone document.

Environmental and social management

The procedure of environmental and social review of the sub-projects will be carried out in several steps as described below.

Step 1. Sub-project screening and risk classification

Each sub-project will be screened for (i) eligibility (against WBG exclusion list – Annex A) and (ii) risks, and classified into one of the risk categories: high risk; substantial risk; moderate risk; low risk. Based on the risk category, for each sub-project relevant E&S instruments will be developed, as follows:

- **Low risk projects** - sub-projects expected to have negligible/low environmental and social impacts. Eligible for financing. A ESMP Checklist will be prepared for the sub-project.
- **Moderate risk project** - sub-projects expected to be of manageable, easy to envisage, temporary and of local impact. Eligible for financing. A site-specific ESMP will be prepared in line with this ESMF.
- **Substantial risk project** - sub-projects with potential and very significant or irrevocable environmental and social impacts, the scope of which is difficult to determine in the project identification phase. A site-specific ESIA will be prepared in line with this ESMF.
- **High risk project** - sub-projects likely to have highly significant, diverse, and/or long-term adverse impacts on human health and natural environment, the magnitude of which is difficult to determine at the subproject identification stage. These impacts may also affect an area broader than the subproject sites. Measures for mitigating such environmental risks may be complex and costly. A site-specific ESIA will be prepared in line with this ESMF.

Step 2. Carry out an environmental and social assessment

ESIA, ESMP or ESMP Checklist are to be prepared for each individual sub-project, prior to bidding procedures, by the PIU's E&S Specialists or other qualified external consultants, and shall be subject to review and approval of the WB. Technical Assistance is also subject of E&S review.

Step 3. Public disclosure and public consultations

ESIA, ESMP or ESMP Checklist shall be publicly disclosed and public consultations held. The documents shall be disclosed in line with the requirements of the SEP developed for the Project. All comments/suggestions and questions shall be processed and together with feedback incorporated in the final version of the ESIA, ESMP or ESMP Checklist and captured in the minutes of the meeting.

Step 4. Obtain various permits and approvals (If needed and where applicable)

Other permits, opinions, conditions and similar, such as water permits in line with the requirements of the Water Laws as described in Chapter 5.2.3., as well as construction related permits in line with the requirements of the construction regulations as described in Chapter 5.2.4., shall be obtained before construction commences, as appropriate.

Step 5: Integration of E&S instruments in tender documents

The E&S instruments (ESIA, ESMP, ESMP Checklist) will be prepared prior to the bidding of works and the PIU will be responsible for mandatory integration of the final version into tender documents for the selected sub-projects and in the contracts for their execution to be signed with the selected works contractor. The Contract agreements shall impose the Contractors' obligation to comply with the requirements specified in the E&S instruments. The Contractors will be required to demonstrate that all mitigation measures have been accounted for to ensure sub-project implementation in environmentally and socially acceptable manner.

Step 6. Implementation, supervision, monitoring and reporting

Implementation of mitigation measures and environmental and social monitoring is an obligation of the Contractors compliant to ESIA, ESMP or ESMP Checklist. The Supervision Consultant for the works engaged by PIU, alongside other routine activities, shall supervise the Contractor`s environmental and social performance and verify compliance with E&S Instruments.

The overall implementation and compliance responsibilities lies with the PIU. The PIU (E&S Specialists) will report on ESCP implementation and E&S compliance to the WB in Progress Reports.

2. INTRODUCTION

2.1. Context of the Project

2.1.1. World Bank Coal Sector Transition Assessment Framework

The World Bank supports energy transitions in coal regions using a new methodology based on lessons learned from past coal World Bank Sector Adjustment Loans in Ukraine, Poland, Romania, and Russia, alongside ongoing engagements across Europe and globally. The World Bank's Coal Sector Transition Assessment Framework considers policy action on climate change and energy sector transition in an immediate and broad social justice context, recognizing the urgency of present needs - better jobs, access to basic services, health, social protection programs, strong institutions and policies that sustain livelihoods - while plotting an ambitious course to decarbonization, sustainable management of ecosystem services, and overall resilience to long term impacts and emerging shocks and stresses. Lessons learned from past engagements points to the critical need to engage communities from the earliest stages in transparent dialogue on transitions to garner public support for decarbonization and ensure that local voices are reflected in the planning and implementation of mine closures. To that end, the framework builds upon three thematic pillars: (a) institutional governance, (b) people and communities, and (c) environmental remediation and repurposing land and assets. The three pillars are then set against three phases of transition: (i) pre-closure planning; (ii) closure; and (iii) regional transition. These pillars underpin the World Bank's approach to providing programmatic assistance aimed at easing the transition to a new energy economy. This WB's methodology is called the "3x3" Matrix (Table 1).

Table 1 The World Bank Coal Sector Transition Framework (3x3 Matrix)

	Pilar 1 **Institutional Governance**	**Pilar 2** **People and Communities**	**Pilar 3** **Environmental Reclamation** **Repurposing of Land & Assets**
Phase 1: **Pre-closure Planning** 10-18 months	Strengthen policies, institutions, inclusive processes, and build vision/strategies for fiscal, macroeconomic & socio-economic transformations with communities	Early-stage dialogue and community engagement to ensure local voice and influence in planning; appraisal of social sustainability outcomes; pre-layoff social protection assessment & planning, labor profiles, user needs	Asses land & assets, prepare for reclamation and repurposing, resource environmental remediation costs
Phase 2: **Closure** 2+ years	Coordinate closure/decommissioning activities between enterprises and agencies	Social assistance to workers, reskilling; active labor market policies; community engagement in preparation, management and repurposing of closed facilities	Implementation of appropriate technical standards, transfer of assets, mitigation of methane
Phase 3: **Regional Transition** 5-10 years	Special Purpose Entity (SPE) coordinating transition projects implementation, managing funding resources	Longer, term re-skilling, education, active labor market policies, preparing workers for future jobs, locally-led participatory planning for adaptive management, CDD, smart villages investments	Environmental remediation of select lands & assets by private / public sector, re-permitting and repurposing for private investors to sustain regional transformations

Pillar 1: Institutional Governance. Responsibility for planning, preparing, and implementing transition rests with State, Entities and lower-level authorities. Clearly defined policy and government participation is indispensable, but actions taken by the government should not be unilaterally determined. The World Bank has found that successfully planning for regional transition hinges on input from a broad range of diverse stakeholders, often concentrated at the local / regional level where they otherwise are disadvantaged in terms of voice and influence in decision-making processes. National, Entity, regional, and local leadership play important and varying roles in the evolving energy economy and should lead a Just Transition which satisfies local needs and respects the community's vision of the future. In this way, governments manage transition by developing policy tailored to fit regional requirements and by providing needed support through a robust and flexible framework for economic assistance.

Pillar 2: People and Communities. People and the mining communities in which they live and work are at the epicenter of any transition. Their well-being is paramount as the impacts of mine closure on employment and health are most intensely felt in communities surrounding mines. Beyond job losses, the social impacts of mine closures stemming from disrupted livelihoods can lead to intrahousehold stress, substance abuse, gender-based violence, and social tension, among others. The extent to which affected communities recover is the metric by which successful transition is measured. While physical closure of a coal mine may be the end of active mining in a community, it marks the abrupt and often difficult beginning of social and labor transition. It is critical to have a clear understanding of the poverty and social impacts of the mine closure, and to engage communities in the preparation, management, and repurposing of closed facilities. Reskilling workers, rebuilding the local economy, and repurposing formerly mined land in alignment with community goals and needs leads to a secure future for mining communities, and ultimately, the regional economy.

Pillar 3: Repurposing Mining Lands and Thermal Power Plants and Other and Assets. Coal extraction and processing at a mine and associated facilities may have occurred over many years or even decades, so it is not surprising that closing a mine, reclaiming the land, and protecting the remaining assets and natural resources for beneficial future use is a complicated and often a lengthy and expensive process. Corporate governance plays an important role in determining the early outcomes of closure and mined land repurposing. Managers of mining corporations confront and manage the early social and economic impacts of mine closure, but mine management, who may have the best firsthand knowledge of the closing mine and its impact on the natural resources and surrounding communities, will withdraw once the mine is closed and all titles and permits to operate are relinquished.

2.1.2. Just Transition in Bosnia and Herzegovina

Since 2005, Bosnia and Herzegovina has been one of the nine contracting parties to the Energy Community Treaty, and is therefore obligated to establish a common electricity and gas market that will operate in accordance with the standards of the EU energy market into which it will integrate. In 2020, with the signing of the Sofia Declaration, Bosnia and Herzegovina and its neighboring Western Balkans countries agreed to align with the European Union's Green Agenda, including a pledge to reduce CO_2 emissions and work towards the 2050 target of a carbon-neutral continent. In April 2021, Bosnia and Herzegovina presented its second national climate pledge to the United Nations Framework Convention on Climate Change (UNFCCC), marking its renewed commitment to the Paris, and became one of the first countries in Western Balkans to adopt the updated Nationally Determined Contributions (NDCs) with the plan to cut greenhouse gas (GHG) emissions for 33.2% by 2030, and almost 66% by 2050, compared to 1990 levels. An Environmental Strategy and Action Plan 2030+ has been developed, which provides strategic goals and feasible actions on "air quality, climate and energy" policy area, among others.

Energy production accounts for over 60% of greenhouse gas emissions in Bosnia and Herzegovina, equivalent of 7.1 metric tons of CO_2 emissions per capita. According to the data in 2019, Bosnia and Herzegovina's CO_2 emissions per capita ranks 16th among 44 European countries, representing the second highest CO_2 emissions per capita in Western Balkans behind Serbia. Coal dependence is such that in 2020, a total of 67.9% of electricity in Bosnia and Herzegovina was produced by coal-fired thermal power plants (TPP). Hence, the phasing down of coal-based energy production is the first, and possibly the most important, step towards achieving Bosnia and Herzegovina's decarbonization targets.

Transitioning away from coal – the world's most dominant and most carbon-intensive source of energy – is crucial to ensuring a clean energy future. But it is not just climate ambition that is driving the transition away from coal. Other factors, such as increasingly affordable renewable energy and rising air pollution and health risks, are driving coal out of business. At the same time, coal tends to be a vital employer and driver of economic activity in coal regions, which are often mono-economies. These communities are understandably concerned about what a zero-coal future will mean for them.

In 2019 the World Bank launched a global initiative entitled **Support to a Just Transition in Coal Regions**, with the objective of supporting client countries to plan for a Just Transition of their coal sectors.

There is no single agreed definition of what a just transition could or should look like. In the case of "Just Transition" in Bosnia and Herzegovina coal regions, a "Just Transition" means a well-managed closure of coal mines, a delicately-planned retirement of coal power plants, policies and programs to facilitate the transition of affected workers, and a massive scale-up in clean energy, which are essential to achieving the Sustainable Development Goals and the targets of the Paris Agreement. With proper planning and strong private sector engagement, a "Just Transition for All" can help coal regions build a new, low-carbon economic future.

The proposed project "Just Transition in Select Coal Regions in Bosnia and Herzegovina", with a focus on Just Transition in BiH coal regions, will directly contribute to: a) Increased inclusive private sector employment, and b) Improved environmental outcomes and climate change resilience, by:

1) testing early-stage social protection, reskilling and economic opportunities for male and female workers and community members in coal regions to qualify for jobs in new sectors;
2) preparing mining lands for future use and investment - supporting the decarbonization of the BiH economy by enabling "just transitions" in coal producing regions through former mining land reclamation and repurposing, and renewable power generation;
3) improving BiH's air quality by promoting a modern approach to coal phase down and repurposing of thermal power plants and associated coal mines.

The project will produce positive developmental benefits to both the BiH government (state and entity), as well as people and communities in the selected coal regions. Over the short term, the project will develop renewable power generation, initiate labor transition for mine workers, and pilot the reclamation and repurposing of selected mining lands, setting the stage for future economic transition and broader scale energy transition. Over the medium to long-term, the project will provide a core benefit of positioning BiH to be guided by principles for "Just Transition for All" that will allow the government to begin a decarbonization program (coal mine closure set of activities) that will reposition the country in alignment with its updated Nationally Determined Contributions (NDCs), which calls for a reduction of emissions in the country by over one-third by 2030 and almost two-thirds by 2050 compared to emission levels in 1990.

2.2. Objectives of the Environmental and Social Management Framework

According to the WB ESF[1] (2018) (ESS 1: Assessment and Management of Environmental and Social Risks and Impacts), the Environmental and Social Management Framework (ESMF) is an instrument that examines the risks and impacts when a project consists of a program and/or series of sub-projects, and the risks and impacts cannot be determined until the program or sub-project details have been identified. In order to facilitate the adequate preparation of such program or sub-projects, the ESMF is used to define and guide the environmental and social (E&S) due diligence mechanisms for the said activities. The ESMF establishes principles, rule and procedures for assessment of E&S risks and impacts.

It includes measures and plans for reduction, mitigation and/or compensation of negative risks and impacts, rules for estimating and budgeting costs of such measures, as well as information on the agency or agencies responsible for addressing project risks and impacts, including information on such body's capacity to manage E&S risks and impacts. It also includes adequate information on the area where a program or sub-project is expected to be implemented, including any potential E&S vulnerability of such area; as well as information on the potential impacts and mitigation measures which could be implemented. The environmental and social assessment will be based on current information, environmental and social data at the appropriate level with an accurate description and assessment of the project and any associated aspects.

This ESMF has been prepared with the aim to ensure:

- Project compliance with all relevant local polices and legislation, as well as WB requirements, (defined in the ESF and Project E&S Commitment Plan), and therefore

[1] The ESF is accessible at - https://www.worldbank.org/en/projects-operations/environmental-and-social-framework

- Mitigation hierarchy is applied as well as adequate mitigation of all potentially adverse E&S impacts of the Project.

The ESMF provides a detailed description of the procedures related to assessment, management and monitoring of E&S risks and impacts of the program or sub-projects. All sub-projects to be financed under the Project will be subject to an assessment of E&S risks by the implementing agencies, following the procedures described in this document. For "high" and "substantial" risk sub-projects, an Environmental and Social Impact Assessment (ESIA) will be developed, while for "moderate" and "low" risk sub-projects assessment will include preparation of a site-specific Environmental and Social Management Plan (ESMP), ESMP Checklists and other, all in line with this ESMF and provisions set forth under the WB ESS 1 and ESF.

2.3. Project Description

The Development objective of the Project is to support a Just Transition in select coal mine regions in BiH. A Just Transition addresses the needs of workers and surrounding communities affected directly or indirectly by the shift away from coal; provides clear energy access to millions of people; repurposes mining lands and other assets for new economic use; and creates a shared vision (nationally and regionally) for the country's energy transition pathway.

The areas of the Just Transition approach are coal mines in the Federation of Bosnia and Herzegovina (FBiH) with the possibility of extension to regions in Republika Srpska (RS).

The Project is designed to achieve its objectives through four Components.

COMPONENT 1: INSTITUTIONAL STRENGTHENING AND PROJECT MANAGEMENT ($4.8M), with the following subcomponents:

- ***Subcomponent 1.1: State-level Measures on Just Transition***
  - The **Committee on "Just Transition"** appointed by the Council of Ministers of Bosnia and Herzegovina, in close cooperation with the two entities and Brčko Distrikt of Bosnia and Herzegovina .
  - The project will support an annual **Forum on Just Transition** to promote and exchange knowledge and experience, and discuss issues related to Just Transition.

    The Ministry of Foreign Trade and Economic Relations (MOFTER) will implement these activities. The project will support costs related to the Secretariat function of the Committee, the annual Forum and peer-to-peer exchanges. These costs will be financed by the additional grant that is still to be identified and secured.
- ***Subcomponent 1.2: FBiH-level Measures on Just Transition***
  - **Intersectoral Ministerial Committee – Federation of BiH Steering Committee** (SC) will be established, to support Energy Sector Just Transition Projects in FBiH, appointed by the Decision made by the Government of the Federation of Bosnia and Herzegovina and consisting of the Prime Minister and Ministers of the relevant Ministries. A Post-Closure Mine Monitoring Unit will be established in FMERI with links to the Cantonal ministry to maintain and monitor closed coal mines to ensure public safety and environment.
  - **Policy Development, Legal and Regulatory Updates.** The Project will finance technical assistance for the government to hire consultants in support of drafting a few specific revisions to existing laws such as:(i) the law on intermediation to ensure that counsellors can focus on providing support to unemployed and laid-off people; (ii) the Public Employment Services rulebook to clarify how Public Employment Services organize their services in mining areas when labor transitions are expected; and (iii) the social assistance law to consider providing income support to laid-off workers in vulnerable households.

- ***Subcomponent 1.3: Project Management***

  - **Project management** will be executed through a **Project Implementation Unit (PIU)** in FMERI supported by **Project Management Teams (PMTs)** in RMU Banovici and EPBiH. This subcomponent will finance overall project management, procurement and financial management, monitoring and evaluation, as well as environmental and social monitoring functions within a single PIU, with the Project Coordinator appointed by the Minister of Energy, Mining, and Industry. There will also be funds made available for the PMT functioning for Banovici and EPBIH.

COMPONENT 2: REPURPOSING OF POST-MINING LANDS (BANOVICI AND KREKA) AND CLOSURE OF SELECT UNDERGROUND WORKS (ZENICA) ($16,76M), with the following subcomponents:

- ***Subcomponent 2.1: Assessing, Planning and Executing Repurposing***

  - **Conduct repurposing works:** In the case of RMU Banovici, activities will support the establishment of a new Land Reclamation Unit under the Banovici technical department. Activities will support remediation of mining lands to safe and stable conditions for their targeted use. Typical civil works would include the levelling, grading and compaction of surfaces; stabilization of local landslides and slope failures; improving and / or construction of access roads, drainage systems and power supply; installation of equipment for environmental and geotechnical monitoring; and temporary and permanent greening of surfaces to prevent erosion.

  - **Scoping additional mine closure and land repurposing sites, per government request:** Activities under this sub-component will finance scoping and design of closure plans for additional underground workings in Kreka and Kakanj mines. Scope of documents would include surface and ground water assessment, thorough coal mine methane (CMM) assessment, and geotechnical assessment. Closure technical design and feasibility studies, as well as permitting (e.g. land repurposing assessment, post-closure spatial plans, environmental and social impact assessments and management plans, production of closure designs, and obtaining all necessary approvals and licenses). The subcomponent is also to finance an Environmental and Social Impact Assessment (ESIA) following international standards to ensure risk management and maximize sustainability.

- ***Subcomponent 2.2: Planning and Executing Closure of Select Underground Work(s)***

  - Activities under this sub-component would include development of a closure plan, following international coal mine closure standards, and execution of closure of the Raspotocje pit. At a minimum, ground water, thorough coal mine methane (CMM), and geotechnical assessments will be completed, complimenting the country's mine closure requirements. The second part of the sub-component is the physical closure of one underground working in Zenica: Raspotocje pit. Activities to be financed under the project include the demolishing of surface structures, as well as reclamation of underground workings, post closure water, methane management and monitoring measures according to good international practice and country laws. The detailed activities of the physical closure will follow the technical designs of the mine closure plan, and recommendations from the ESIA.

COMPONENT 3: RENEWABLE POWER GENERATION IN RMU BANOVICI AND KREKA MINE ($33.70 M):

- The component covers installation of 25 MWp PV across two locations on existing mine sites with capacity to generate more than 28 GWh of electricity annually. Transmission lines pass by both sites, so the connection to the medium voltage (MV) distribution network could be made relatively easily and at minimal cost. Feasibility studies have been prepared for Kreka but will need to be conducted for Banovici to confirm the suitability of the micro sites chosen by the mines. In addition, a small number of informal users are using lands for grazing occurring on the proposed site in Banovici, requiring RMU Banovici to follow the World Bank's environmental and social standards (Standard

5: Land Acquisition and Involuntary Resettlement). The activities under this component, including tendering, contracting, and implementation, will be executed by EPBiH and the Banovici mine.

COMPONENT 4: SUPPORT TO LABOR TRANSITION IN BANOVICI AND ZENICA MINES ($31.80M), with the following subcomponents:

- ***Subcomponent 4.1: Financial Obligations***
  - This subcomponent will finance Zenica mine's obligations (social arrears and statutory severance payments) towards retrenched employees to ensure their access to social insurance and adequate social protection during transition. Such support will be contingent on the retrenchment process aligning with national laws and will meet World Bank standards. RMU Banovici does not have social arrears and will undertake retrenchments on a voluntary basis, therefore is not considered here.
- ***Subcomponent 4.2: Support the Transition of Mine Workers***
  - Establishment of an **In-House Labor Transition Units (LTUs)** in the mine's HR departments. The LTUs will provide coordinated support before layoffs, prepare workers for a labor transition ahead of layoffs, and to initiate coordination with municipality and local employment offices. LTUs will be established at both Zenica and Banovici mines, complemented by a focal point for EPBiH at their headquarters. LTUs will provide information on rights, support programs, labor market information, along with non-technical skills training and career counseling. They will also profile and identify workers eligible for additional project-funded redeployment measures, such as upskilling and outplacement to ease their transition. In Zenica, those measures will be extended to formerly retrenched mine workers who would be unemployed when project implementation starts.
  - **Voluntary separation incentives for mine workers in RMU Banovici**. The management will propose voluntary separation packages, targeting employees with low productivity levels and/or nearing retirement. The amount and conditions of the incentive will be detailed in a "Voluntary Departure Plan" to be prepared by the mine, in consultation with trade unions and approved by the World Bank beforehand.
  - Furthermore, **for Zenica workers** involuntarily separated and nearing retirement age, the project proposes **a top-up to separation packages for income-support**. Given existing unemployment insurance parameters (limited duration and modest replacement rate), stringent eligibility criteria for social assistance, and the reduced likelihood of re-employment given their advanced age, these workers may face financial shortfalls if they exit the labor market early. The proposed top-up, equivalent to one extra year of unemployment benefit (subject to age criteria), aims to address this gap.
- ***Subcomponent 4.3: Productive measures for other affected unemployed workers and community engagement***
  - The subcomponent will test new redeployment measures relevant for coal-mine communities. The project will finance services delivered on a pilot basis by private providers, and will include **specialized job counselling, outplacement, and/or retraining/upskilling**. These services will be offered to registered unemployed, including displaced miners and others affected by coal transition. In parallel, the capacity of local and cantonal employment services will be increased, by supporting counsellors on improved worker profiling, revised business processes (including outsourcing monitoring) and by expanding and improving the delivery of counselling. Peer-learning exchanges between relevant municipalities in the two cantons will be organized.
  - **Support small and medium enterprise (SME) development**. Several donors are currently considering complementing the project's financing with grant resources. Once such resources have been secured, the project will assist the Banovici municipality in leveraging the role of the diaspora for the municipality's development, by stimulating diaspora investment in partnership with local (SMEs), and by providing technical and institutional support to address existing bottlenecks. Economic activity in the municipality relies heavily on coal mining, so the project aims to support

diversification efforts by leveraging diaspora investments in local firms. Support will be provided to the municipality to engage with the diaspora. Matching grants will be offered to eligible companies (namely, subject to a sound business plan that will create new jobs) attracting such investments, thereby stimulating job creation in low-emission sectors. Grants, to range from EUR10,000 to EUR100,000, will encourage diaspora engagement and will be complemented by technical assistance to beneficiary firms and the municipality.

- **Community engagement and small grants for local initiatives**. The objective will be to raise awareness of the forthcoming transition process, on both potentially positive impacts (e.g., reduced pollution, remediated and repurposed land, renewable energy generation), as well as risks for increased intra-household violence and the availability of support services (including for victims of gender-based violence). Land repurposing efforts proposed in component 2 will be complemented by community-driven investment initiatives in Banovici aligned with local development priorities and determined through stakeholder consultation.

2.4. Project Beneficiaries

Direct beneficiaries will be people directly employed in the Banovici Mine and Zenica Mine (subcomponent 4.1 and 4.2) as well as people in coal mining communities (subcomponent 4.3), EPBiH and Banovici companies, and government institutions.

Indirect beneficiaries of the proposed project would be coal mining communities, including residents of Zenica and Banovici, the municipalities and surrounding cantons' economies, cantonal public employment services and their local offices, local businesses (including those whose clients are mine employees), and people employed directly and indirectly in the renewable energy (PV) value chain.

2.5. Implementation Arrangements

The Project will be managed by FMERI through **Project Implementation Unit (PIU)** and supplemented by **Project Management Teams (PMTs)** in RMU Banovici and EPBiH.

The PIU in FMERI will be established no later than one month following the Effective Date of the project and will consist of (i) a project coordinator responsible for overall project coordination; (ii) a financial management specialist; (iii) a procurement specialist; (iv) an environmental and social safeguard specialist; (v) an M&E specialist; and (vi) a mine repurposing and closure specialist. The PIU will have primary responsibility for project execution, ensuring that the project development objectives are met and that financial resources are budgeted, disbursed, expended, accounted and audited. The PIU shall ensure the timely execution of procurement, compliance with environmental and social requirements, physical, financial and performance audits, and coordination of data gathering and progress reporting. Other responsibilities include, but are not limited to, preparation of consolidated annual work programs and related budget requirements, quality assurance of annual performance audits, oversight of review meetings, supervision of project staff and consultancy assignments, and other such work as required by the project from time to time. The PIU's responsibilities regarding the WBG's safeguards policies and procedures will include the monitoring of activities related to citizen engagement, climate change mitigation and adaptation, and collection and evaluation of data on GHG emissions.

The PIU will handle execution of activities under **Component 2** and **Component 4.2 related to Zenica mine**. Namely, the PIU will contract out and oversee all feasibility, technical studies and ESIA requirements related to underground working closure, procure (if necessary) third party firms for specialized works, and report on technical and financial progress. The majority of the works related to underground working closure will be implemented using existing Zenica mine labor for which labor expenses will be reported on.

RMU Banovici and **EPBiH** will have **PMTs** for overall implementation and fiduciary responsibilities for a number of activities under the project. In both cases (RMU Banovici and EPBIH), the World Bank has been working with technical teams over the course of project preparation. These teams will stay in place once the project is effective and will be formalized as PMTs. The PMTs will assist in developing and approving TORs, procuring specialized works as required, implementing directly some activities, and reporting on progress to the PIU.

In the case of **EPBIH**, it will be responsible for all aspects of **Component 2 and 3** on land repurposing and solar PV installation in Kreka. It will handle, through its existing PMT, all procurement, financial and technical monitoring. It will contract out and oversee all feasibility and ESIA assessments, procure third party firms for land repurposing and PV installation, and report on technical and financial progress. In the case of **RMU Banovici**, it will be responsible for fiduciary and technical monitoring of **Component 2, 3 and sub-component 4.2**. RMU Banovici will formalize the existing project preparation team and add two other individuals: (i) environmental and social safeguards monitoring and (ii) legal. Each PMT will hire M&E specialists.

An Inter-Sectoral Ministerial Committee – Federation of BiH Steering Committee (SC) will be established, to support Energy Sector Just Transition Projects in FBiH, appointed by the Decision made the Government of the Federation of Bosnia and Herzegovina and consisting of the Prime Minister and Ministers of the relevant Ministries. The committee will: (i) coordinate with vertical and horizontal levels of governments the activities related to development of Just Transition projects in the Federation of Bosnia and Herzegovina; (ii) provide maximum contribution and invest efforts to meet joint objectives, needs and directions by proposing activities, which fall under its responsibility, towards Just Transition projects development in the Federation of Bosnia and Herzegovina; (iii) follow up preparation and development of energy sector just transition strategic documents in the Federation of Bosnia and Herzegovina; (iv) provide contribution to activities under FMERI Minister's actual responsibilities related to preparation and closure of mines in the Federation of Bosnia and Herzegovina; and (v) by its activities, contribute to mobilization of financial resources necessary for energy sector just transition in Bosnia and Herzegovina.

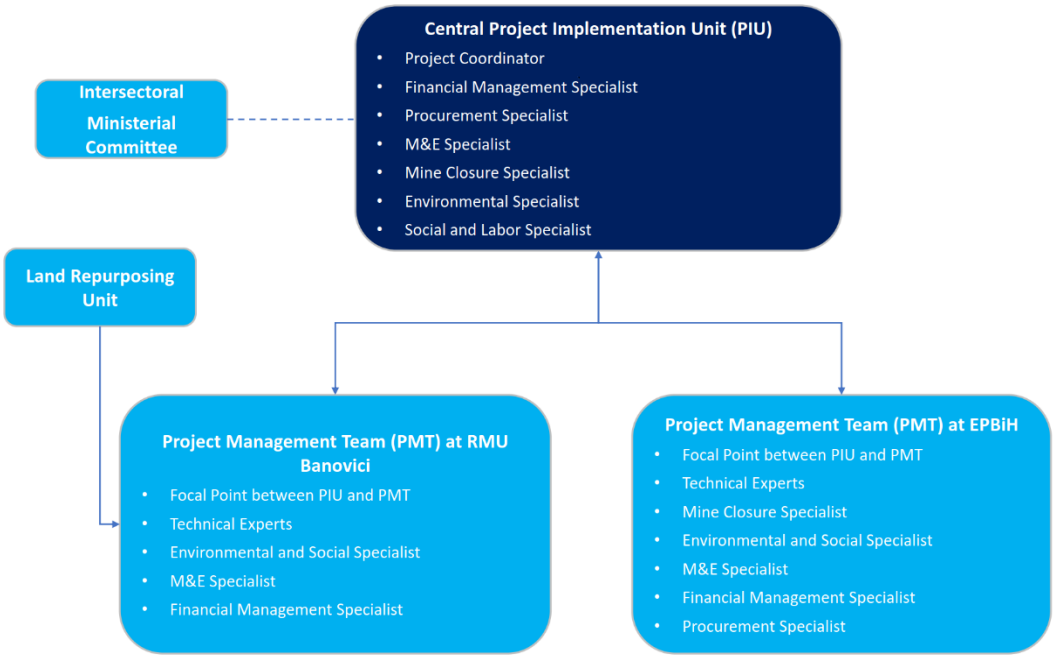

Figure 1 Proposed project implementation arrangements

2.6. Basic Information about the country

Bosnia and Herzegovina	
Abbreviation:	BiH
Capital:	Sarajevo
Population (2013 census):	3,531,159
Area:	51,209.2 km^2
Administrative structure:	・ Federation of Bosnia and Herzegovina (FBiH), ・ Republika Srpska (RS), ・ Brčko District of Bosnia and Herzegovina (BD BiH).
Geographical position:	BiH borders Croatia, Montenegro and Serbia and the Adriatic Sea.
Government structure:	BiH is an independent country with several levels of government: ・ at state of BiH level; ・ at the level of entities/district (FBiH, RS and BD BiH), ・ at the level of cantons in FBiH only, ・ at the level of municipalities. The highest legislative body in BiH is the Parliamentary Assembly of BiH. Other institutions at the national level are: Presidency of BiH, Council of Ministers of BiH, Constitutional Court. In FBiH, the Parliament of FBiH has legislative authority, while in RS the National Assembly of RS and the Council of Peoples have legislative authority. BD BiH is placed under the authority of the state of BiH and it has its own government with an assembly, executive committee, judiciary and police forces.
Official languages:	Bosnian, Croatian and Serbian
Official currency:	Convertible Mark (BAM)
Main industries:	Mining, electrical industry, metal industry, wood industry, special purpose industry, paper and graphics industry, agricultural food industry, textile and leather industry, oil refining
GDP:	EUR 19,755 million (2021)
GDP per capita:	EUR 5,724.4 (2021)
Employment rate:	39.6% (2021)
Unemployment rate:	17.4% (2021)
Average net salary:	EUR 574 (2022)
EU status:	BiH has an EU candidate status.

3. BASELINE ENVIRONMENTAL CHARACTERISTICS OF THE PROJECT AREA

The project area covered with this ESMF are coal regions in FBiH, with a possibility of extension to regions in RS. Currently, according to the Project's scope, the Project includes coal mines in three municipalities: Banovići, Zenica, and Tuzla.

3.1. Energy Sector in BiH

3.1.1. Main Characteristic of Energy Sector

The energy sector of Bosnia and Herzegovina is mainly dependent on the entity level public companies, EPBiH and EPHZHB in Federation of BiH and ERS in RS. Today, BiH's coal mining operations extend across 11 major mines operated by EPBiH, ERS, the Banovici mine (in FBiH), and EFT[2]. In addition, there are several smaller mines operated by private companies under concession contracts but their production output is much lower compared to mines operated by the major public companies. Coal-fired power plant operations extend across five TPP plants, operated by EPBiH, ERS, and EFT. These power plants represent 45% of the total installed capacity of the interconnected power system of BiH. However, 58.7% of gross electricity production in 2021 in BiH comes from coal, 36.7% from hydropower, 4.7% from other sources - wind, solar, industrial power plants (Figure 2).

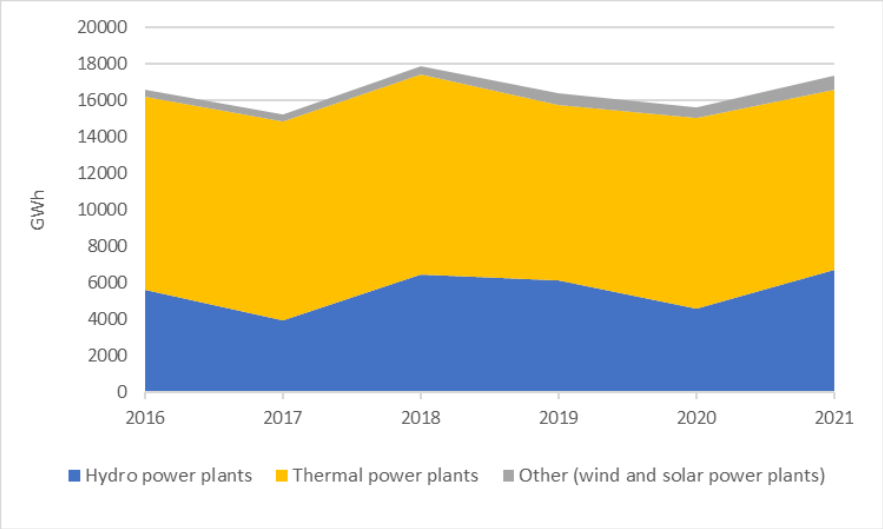

Figure 2 Electricity production mix in BiH (2016-2021)[3]

Bosnia and Herzegovina has the potential to scale up its diversified energy base. As of 2021, Bosnia and Herzegovina has an installed capacity of around 4,610 MW with 2,065 MW coal (mostly lignite), 2,077 MW hydropower (larger than 10 MW), 180 MW of small hydro, 135 MW wind and 57 MW solar; industrial powers plants add 93 MW to the system. The majority of existing hydro capacity is with reservoir storage (1,295 MW), contributing significantly to regulation and reserve provision. As a backup, these are helped further by a 440 MW pumped-storage hydro plant Čapljina, which has a limited operational capability, though.[4]

At 2,264 million t, Bosnia and Herzegovina's reserves of lignite are significant.[5] Most BiH coal is extracted through surface mining, in which the soil and rock covering the mineral deposits are removed (85%). Underground mining, in which the overlying rock is left in place and the mineral deposits are removed through shafts or tunnels, accounts for 15% of coal extraction.[6] In 2021, BiH produced 12.83 million tons of brown coal and lignite, roughly equal amounts on the FBiH and RS sides[7]. This was mostly used to generate electricity at power plants near to

[2] UK-based private company which owns/operates the Stanari coal-fired power plant in Republika Srpska
[3] Agency for statistics of BiH: Energy Statistics – Electricity and Heat, years 2016-2021
[4] The World Bank: Road Map for Just Transition in Coal Regions of Bosnia and Herzegovina, November 2022
[5] The World Bank: Road Map for Just Transition in Coal Regions of Bosnia and Herzegovina, November 2022
[6] The World Bank: Bosnia and Herzegovina Jobs Diagnostic and Implications of Coal Transition, December 2022
[7] Agency for statistics of BiH: Energy Statistics – Coal, November 2022

coal mines. The largest coal deposits are located in the north-east of the country around Tuzla in the Kreka-Banovići coal basin.

BiH is a net exporter of electricity; the average net exports between 2016 and 2021 were 3,792 GWh (Figure 3).

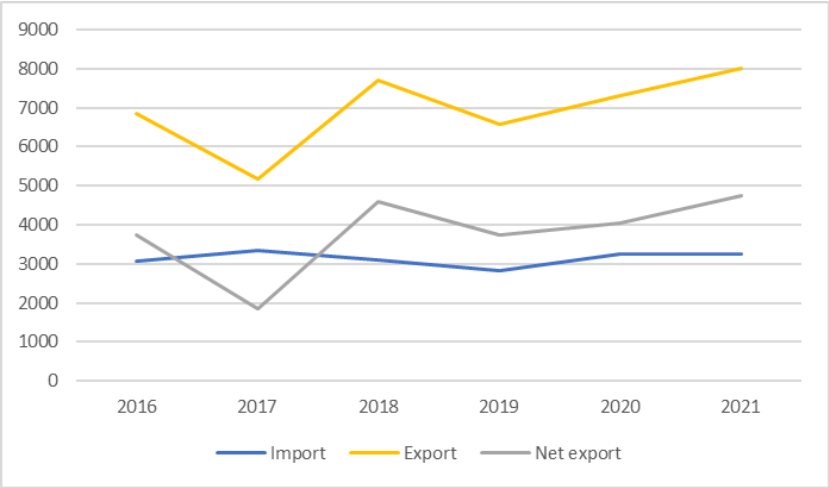

Figure 3 Electricity import and export in BiH (2016-2021)[8]

3.1.2. Strategic Documents for Energy Sector

Main strategic documents related to energy policy adopted by the Council of Ministries of BiH are:

- National Emission Reduction Plan for Bosnia and Herzegovina (NERP BiH), adopted in 2015;
- National Renewable Energy Action Plan (NREAP) of BiH, adopted in 2016;
- Action Plan for Energy Efficiency in Bosnia and Herzegovina for the period 2016-2018, adopted in 2017;
- Framework Energy Strategy until 2035, adopted in 2018.

NERP BiH provides targets for reduction of emissions from large combustion plants. This primarily refers to two TPPs in the FBiH - Tuzla and Kakanj, with a total of seven units, and two thermal power plants in RS - Gacko and Ugljevik. Namely, it is prescribed that the implementation of the Directive on Large Combustion Plants and the Directive on Industrial Emissions is mandatory for all signatories to the Energy Community Treaty, which also includes Bosnia and Herzegovina. The implementation of NERP in BIH will result in the reduction of emissions of three main pollutants: sulfur dioxide (SO_2), nitrogen oxides (NOx) and solid particles (dust). The most important thing is to reduce SO_2 emissions because they have a huge impact on health and the environment. Current emissions of SO_2 in BiH are around 270,000 t/year, and after the implementation of the NERP, emissions will decrease to 15,000 t/year by the end of 2027. The benefits of NERP implementation for human and environmental health significantly exceed the investment costs, and this is exactly the reason why Bosnia and Herzegovina should implement NERP.

NREAP BiH is based on previously adopted entity's Action Plans for the use of renewable energy sources. Entity's Action plans define policies, measures, mandatory targets concerning the share of RES energy in the overall final consumption of electric energy, heating/cooling energy, and energy for transport, taking into consideration effects of regulatory measures concerning improving energy efficiency and energy savings by the end user, as well as other measures aimed at reaching the set goals. NREAP BiH is harmonized with strategic and planning documents of the FBiH, RS, and the BD of BiH and, among other things, defines an overview of RES energy consumption in the reference year 2009, and in the period 2010 to 2020, where it includes:

- total planned final consumption of RES energy for heating and cooling, electric energy and transport, taking into consideration effects of energy efficiency and energy saving, expressed in kilotons of oil equivalent (ktoe);

[8] Agency for statistics of BiH: Energy Statistics – Electricity and Heat, years 2016-2021

- planned share of RES energy in total final consumption of RES energy for heating and cooling, electric energy and transport expressed in percentage;
- share of renewable energy of each sector in the total energy consumption.

Framework Energy Strategy until 2035 provides the context and direction of energy development in BiH. The guidelines for BiH are based on sustainable development policies that balance three aspects: a) security of supply, b) price competitiveness, c) decarbonization policy, i.e. cleaner energy. The goal of this document is the prioritization of the key energy strategic guidelines of BiH with clearly set goals and priorities for implementation in the coming years. The clear strategic guidelines of this document are the basis for the application and withdrawal of, among other things, IPA and WBIF funds for energy in Bosnia and Herzegovina, as well as for attracting other investors in the energy sector.

National Energy and Climate Plan of Bosnia and Herzegovina (NECP BiH) for the period until 2030 is one of the most important strategic documents defining the energy transition process in Bosnia and Herzegovina, with the ultimate goal of achieving climate neutrality in 2050. The plan defines the goals that need to be achieved by 2030, related to the reduction of greenhouse gas emissions, the increase in the share of renewable energy sources in the gross final energy consumption and the increase in energy efficiency in the final and primary energy consumption. The following goals for 2030 are given in the framework of the draft NECP for BiH:

- reduction of greenhouse gas emissions compared to 1990: 41.21%;
- share of renewable energy sources in gross final energy consumption: 43.62%;
- energy efficiency - primary energy consumption: 6.84 Mtoe;
- energy efficiency - final energy consumption: 4.34 Mtoe.

3.1.3. Renewable Energy Sources

By joining the Energy Community ("Official Gazette of Bosnia and Herzegovina - International Agreements", number 9/06), Bosnia and Herzegovina undertook the obligation to reduce harmful emissions. The long-term development of the BiH energy sector implies a reduction in the emission of polluting substances and the production of energy from fossil fuels. Hydropower, solar energy, wind energy, biomass energy, geothermal energy, and wave/tidal energy are considered renewable energy sources. There is considerable technical potential of renewable energy sources in Bosnia and Herzegovina. For example, the solar potential is 2,963.7 MW, the wind potential is 13,141.1 MW, and the hydro potential is 6,110 MW, etc.[9] Until now, energy from renewable sources in Bosnia and Herzegovina has been based predominantly on hydropower potential and wood biomass.

According to ***National Renewable Energy Action Plan (NREAP) of BiH***, the target share of energy from renewable sources in the gross final energy consumption for the year 2020 was 40%. The share of renewable energy sources in the electricity sector was expected to increase from 495.2 ktoe in 2009 to 741.4 ktoe in 2020. That would have presented an increase of the share of energy from renewable sources from 50.3% to 56.9%, which is an increase of 6.6%.

Renewable energy sources in project municipalities

In the area of **Banovići municipality**, several small hydropower plants were planned in the Spreča river basin with a total installed capacity of 1945 kW. However, in the meantime, amendments were made to the FBiH Electricity Law[10] suspending the issuance of energy permits for small hydropower plants (up to and including 10 MW). Since the municipality of Banovići is located in an area with an average annual solar irradiation on a horizontal surface ranging between 1.2 and 1.5 MWh/m^2, it is possible and economically profitable to use the potential of solar energy[11]. In April 2023, EPBiH took possession of a plot of 100,000 m^2 in the area of Banovići, with plans to build the strongest solar power plant in BiH. The installation of the solar power plant is planned at

[9] Framework energy strategy of Bosnia and Herzegovina until 2035
[10] Official Gazette of FBiH, no. 66/13, 94/15, 54/19, 1/22, 61/22
[11] Spatial Plan of the municipality Banovići 2015-2035

the location Selo II – local community Banovići Selo. Planned installed power is 8.8 MW[12], and the electricity produced will initially be used for the operation of the Banovići Coal Mine.

In the area of the **City of Zenica**, the construction of several hydropower plants is planned, which would contribute to the reliable supply of electricity in the territory of the FBiH, and also to the reduction of the emission of pollutants compared to the burning of fossil fuels, i.e. the contribution to environmental protection. Potential hydropower plants on watercourses of category I and II are defined by the Spatial Plan of the Zenica-Doboj Canton 2009-2029, and some of them have already been built (SHPP Bistričak and SHPP Čajdraš). The planned bigger HPPs in the area of the City of Zenica are: Janjići (16 MW) and Kovanići (12,2 MW). Small HPPs which were planned but will probably not be built due to the abovementioned amendments to the FBiH Electricity Law are: Zenica I, Zenica II, Zenica III on the Bosna River, and Lašva on the Lašva River. As for other renewable energy sources in Zenica, the project of building a biomass facility in the settlement of Nemila has already been implemented which was one of the planned measures to reduce CO_2 emissions until 2020 from the Action Plan for Energy Sustainable Development of the Municipality of Zenica. According to data on solar irradiation, the area of Zenica can expect irradiation in the amount of approximately 1.3-1.4 MWh/m^2 of total solar energy. In Zenica, one private solar power plant has already been built, with a capacity of 119 kWp and a projected annual production of electricity of 139,000 kWh. For a qualitative assessment of the wind energy potential in Zenica, a series of activities are needed, i.e.: a systematic description of wind climatology in the city area, a program for measuring wind parameters, the selection of suitable locations for the construction of wind turbines, an analysis of costs and benefits from the use of wind energy, and also activities to establish the necessary institutional and legislative framework.[13]

In the area of the **City of Tuzla**, there is no justification for the construction of small hydropower plants. Also, the area of Tuzla can be considered unpromising in terms of relative abundance of wind potential. When it comes to solar energy, in 2002, a solar water heating system was installed and put into operation in the Tuzla Health Center, which consisted of 3 solar collectors with an area of 2 m^2 and a power of 800 W/m^2, which represents a total of approx. 5kW installed power.[14]

3.2. Geographic and Topographic Characteristics

The territory of BiH is mainly a mountainous with lowland areas along the banks of major rivers. From north to south, the lowland area gradually turns into wide foothills that rise from 200 to 600 m above sea level, and gradually turns into a mountainous area. The remaining part of the area is occupied by the Dinaric Mountains with the direction of extension from northwest to southeast. The central part of BiH is dominated by elevations of non-carbonate rocks, with relatively wide river valleys and ravines situated in between - Sarajevo-Zenica and Tuzla valleys. The southwestern area is built of Jurassic and limestone rocks. In the karst region of the Dinarides, at different altitudes, lie karst fields. The hilly eastern area is mostly built of impermeable rocks. The southern part, which gradually descends towards the Adriatic Sea, is mostly built of Cretaceous and Jurassic limestone. The upper part consists of the Dinaric Mountain range, with karst fields in between, and the lower part is dominated by plateaus, also with karst fields (Ljubuško and Mostarsko). In general, the area of BiH belongs to the central mountain relief.

The **municipality of Banovići** belongs to the region of northeastern Bosnia and Herzegovina. It is located in Tuzla Canton, in the Federation of Bosnia and Herzegovina. The surface area of the municipality is 183.24 km^2 and in terms of size it is among the smallest municipalities of BiH because it occupies only 0.36% of its territory. The southern part of the Banovići municipality is a hilly area that shifts into a mountainous area where the Konjuh mountain is located, with the highest altitude of 1328 m. The central part of the municipality is part of the Banovići basin, that is, a part of the basin within the hilly-mountainous terrain with an altitude of 300-450 m. The northern part of the municipality is characterized by a slightly undulating hilly relief with heights up to 500 m.[15]

The **City of Zenica** is located in the central part of Bosnia and Herzegovina, in the Federation of Bosnia and Herzegovina, in the Zenica-Doboj Canton, about 70 km northwest of the capital Sarajevo. The surface area of the

[12] https://ba.ekapija.com/news/4142881/nekoliko-kompanija-zeli-graditi-solarnu-elektranu-u-banovicima-vrijednost-investicije-15-mil
[13] Spatial Plan of the City of Zenica 2016-2036
[14] Spatial Plan of the City of Tuzla 2010-2030
[15] Development Strategy of the municipality Banovići 2017-2027

city is 550.3 km² and occupies 1.07% of the territory of Bosnia and Herzegovina. The city area of Zenica is located on a relatively spacious erosive extension of the central course of the Bosna River, which belongs to the basins of the central-bosnian low mountains with an altitude of 334 m. The lowest area of the city is downstream from the Zenica in the north direction along the course of the Bosna River and in the area of Topčić polje with an elevation of 214 m a.s.l. The base of the relief consists of mountains cut by the Bosna River and they are in average between 500 and 1000 m a.s.l., while only smaller parts of the relief exceed 1000 m a.s.l., namely the western, northwestern and eastern parts of the city.[16]

The **City of Tuzla** belongs to the region of northeastern Bosnia and Herzegovina. It is located in Tuzla Canton, in the Federation of Bosnia and Herzegovina. The surface area of the municipality is 294 km^2 and it occupies 0.57% of the territory of Bosnia and Herzegovina. Tuzla is located on the slopes of the Majevica mountain, at altitudes between 200 and 700 m a.s.l., and with an average altitude of 239 m a.s.l. The mountain ridge of Majevica in the northeast (943m), Ozren in the southwest, as well as Konjuh and Javornik, together with the rivers of Jala and Spreča, form a rounded ecological environment. The area of Tuzla belongs to the peri-Pannonian area, i.e. the contact zone of the Dinarides and the Pannonian Plain. The area consists mainly of long transverse stream valleys and slopes that end in the Jala river valley. The valleys are located on the southern side of the Majevica ridge. The terrain is slightly inclined to the south. Tuzla, due to its geographical location, is a mild hilly-mountainous area with characteristic natural, geomorphological and hydrographic resources, flora, fauna and landscapes of rare preserved beauty.

3.3. Climate

Due to the influence of geographical and climatological factors, the climate of BiH is complex and is conditioned by its geographical position. The Adriatic Sea significantly affects the climate, especially in the colder part of the year, when it alleviates extreme winter temperatures. Altitude and relief, especially the layout of mountain massifs, lowlands, valleys, karst fields, etc. affect the climate and modify it to a large extent. The mountains of the Dinaric system have a particularly pronounced climatic influence, as they represent a natural obstacle thus preventing the penetration of cold air masses from the north and warm air masses from the south. Through the karst valleys and valleys of large rivers, cold air masses from the north and warm air masses from the south penetrate deeper into the inland, and with them the influences of the Central European continental and Mediterranean climate. The type of substrate, as well as plant and snow cover, affect the character of the climatological elements, thus modifying the climate of a particular place. The climate is also affected by cyclonic activity over our country, as well as by numerous local influences.

There are three basic types of climates on the territory of BiH (Figure 4): (1) continental and moderate - continental, (2) mountain and mountain-valley, and (3) Mediterranean and modified Mediterranean climate.[17]

The continental climate occurs in the north, the Mediterranean one in the south, and the line separating these two regions is the area of high mountains, plateaus and gorges where, depending on the altitude, the mountain climate dominates.

[16] Spatial Plan of the City of Zenica, 2016-2036
[17] INC 2009

Figure 4 Climate in BiH [18]

In the **municipality of Banovići**, a moderate-continental climate prevails, which is characterized by distinct seasons, with harsh winters, short springs, and warm and humid summers. Mean annual temperature for the period 1961-1990 in the Banovići municipality was 10°C on average, while for the period 2012-2015, the mean annual temperature was 11.8°C, which represents an increase of 1.8°C. The coldest month in the period 1961-1990 in the municipality of Banovići was January with an average temperature of -0.8°C, while the coldest month in the period 2012-2015 was February with an average temperature of 1.8°C. The warmest month in the period 1961-1990 was July with an average monthly temperature of 19.3°C, and the same month was the warmest for the period 2012-2015 with an average monthly temperature of 22.2°C.[19] Autumn is warmer than spring. Lower temperatures in spring are the result of longer snow cover in that part of the year. It rains the most in spring and autumn, but the precipitation is fairly evenly distributed. The average annual amount of precipitation is 982 mm. This region is quite foggy, and the fog is formed during cold sunny days.[20]

In the **City of Zenica**, a moderate-continental climate also prevails. Mean annual temperature for the period 1961-1990 was 10.2°C, while the mean annual temperature for the period 2012-2021 was 12°C, which represents an increase of 1.8°C. The highest air temperatures in the period 1961-1990 were in July with an average temperature of 19.7°C, and the same month was the warmest in the period 2012-2021 with an average temperature of 22.4°C. The lowest air temperatures in the period 1961-1990 were in January with an average temperature of -0.9°C, and the same month was the coldest in the period 2012-2021 with an average temperature of 1.1°C. The amount of precipitation in the Zenica area is fairly evenly distributed throughout the year. The average annual amount of precipitation in Zenica for the period of the last 10 years is 857 mm, with a maximum in May and a minimum in March. In the area of Zenica, snowfall is a regular phenomenon during the colder part of the year.[21]

[18] https://fhmzbih.gov.ba/latinica/KLIMA/klimaBIH.php
[19] Development Strategy of the municipality Banovići 2017-2027
[20] https://banovici.gov.ba
[21] Federal Hydrometeorological Institute: Meteorological Yearbook, issues from 2012 to 2021

The area of the **City of Tuzla** has a moderate continental climate with certain specificities caused by the local relief and position in relation to the Bosnian mountain massif on the one hand and the Pannonian plain on the other. The general characteristics of a moderately continental climate are warm summers, with average July temperatures of around 20°C and moderately cold winters with average January temperatures of around -1° to -2°C. The average annual temperature is 10°C. The highest recorded temperature in this area was 40.4°C in 2000, and the lowest temperature was -20.1°C in 2003. The highest monthly precipitation is in June, and the lowest in October and February. The largest number of days with snow cover is in January. A snow-cover greater than 30 cm occurs on average 5 days a year, and the maximum height of the snow-cover in the last 35 years was 97 cm. Considering its geographical position, it can be said that this area is exposed to the wind, mostly from the northeast, north and southwest.[22]

3.4. Climate Change[23, 24]

The First National Communication (FNC), the Second National Communication (SNC), the Third National Communication (TNC) of BiH on Climate Change, as well as the National Adaptation Plan (NAP) of BiH, recognize the fact that climate change affects Bosnia and Herzegovina, as well as the fact that these changes will occur rapidly until the end of the 21st century.

According to the conducted analyzes of meteorological data for the period 1961-2018[24], the average annual temperature maintains a continuous increase in the entire territory. A positive linear trend was observed in the average annual temperature, which was particularly pronounced in the last 40 years. Annual temperature trends at all analyzed meteorological stations are statistically significant, and the changes are more pronounced in the continental part. The annual increase in air temperature ranges from 0.4 to 1.2°C, and during the growing season (April - September) goes up to as much as 1.4°C. However, temperature increases have been even more pronounced over the last 18 years. In the analyzed period, all indices of warm temperature extremes show an upward trend, while those for cold temperature extremes indicate a downward trend. The most significant change in this period is observed in the number of cold days and the number of warm days. At all meteorological stations, the number of cold days has a negative trend. In the central mountainous areas, the number of cold days has decreased by 4 days per 10 years, while in the south of the country the decrease is somewhat smaller and ranges from 2 days per 10 years. The number of warm days has a positive trend and is statistically significant.

In the period 1961-2018[24] a slight increase in annual precipitation was recorded in most parts of the country. Linear trends for the period 1961-2018 indicate stagnation or a marginal increase in the amount of precipitation in the entire area of BiH. Changes in precipitation are more pronounced seasonally than annually. Although no significant changes in the amount of precipitation were recorded, the pluviometric regime, i.e. the annual distribution, has been greatly affected. Due to the increased intensity of precipitation and its greater variability, as well as due to the increased share of heavy rains in the total distribution of precipitation, the risk of floods has increased, especially in the central and northern parts of BiH, where catastrophic floods were recorded in May 2014.

As part of the preparation of the Fourth National Communication (FNC) in accordance with the UNFCCC, a projection of the future climate for BiH was made based on four different scenarios of future concentrations of greenhouse gases. All future changes are shown for the period 2016-2100, in relation to the reference period 1986-2005. According to global climate models, for the most extreme climate scenario, the expected change in mean daily temperature is 4.8°C, with a range of 4 to 6°C compared to the reference period 1986-2005. For the middle of this century, the mean change according to this scenario is slightly higher than 2.5°C, while for the periods of the near future (2016-2035) the expected change is about 1°C compared to the value from the reference period.

Unlike temperature changes, precipitation changes show a slightly more complex structure, with possible positive and negative changes compared to the reference period, especially for periods in the near future, when all four future scenarios show that the overall changes range from -5 to + 5% in relation to the value from the reference period. The differences between the scenarios are noticeable only for the periods at the end of the 21st century,

[22] Action plan for energy sustainable development of the municipality of Tuzla (SEAP), 2011
[23] Strategy for Adaptation to Climate Changes and Low-emission Development of Bosnia and Herzegovina for the period 2020-2030, Draft, 2020
[24] National Adaptation Plan (NAP) of BiH, September 2021

where for the most extreme climate scenario the expected change value is around -10% with a range of -4 to -15%. According to the results, only in the case of this scenario, future changes can be significant and in the second half of the 21st century, when we should expect a decrease in total precipitation and a change in climate conditions in terms of a potential loss of precipitation on an annual basis.

3.5. Hydrography

In hydrographic terms, the territory of BiH, whose area is 51,209.2 km^2, belongs to the two watershed areas: the Black Sea, which includes approx. 38,719 km^2, and the Adriatic Sea, which includes approx. 12,410 km^2.

Of the total area of the FBiH (26,127 km^2), 17,506 km^2 (67%) belong to the Black Sea basin, i.e. to the Sava River watershed area, and 8,621 km^2 (33%) belongs to the Adriatic Sea watershed area. The Sava River watershed area in FBiH includes parts of the basins of the Una River, with Glina and Korana, the Vrbas River, the Bosna River, the Drina River and the immediate Sava River Basin, with a total of 548 water bodies. The watershed area of the Adriatic Sea includes parts of the basins of the Neretva River with Trebišnjica, the Cetina River and the Krka River, with a total of 222 water bodies.[25]

The territory of RS is divided into two regional river basins: the regional river basin of the Sava River and the regional river basin of the Trebišnjica River. The regional river basin of the Sava River includes the sub-basin of the Una River (3,340 km^2), the sub-basin of the Vrbas River (3,987 km^2), the sub-basin of the Ukrina River (1,500 km^2), the sub-basin of the Bosna River (3,104 km^2), the sub-basin of the Drina River (6,146 km^2) and other direct tributaries of the river Sava (2,378 km^2), with a total of 718 water bodies. The regional river basin of the Trebišnjica River consists of the Trebišnjica sub-basin (1,980 km^2) and the Neretva sub-basin in the RS (2,078 km^2) with a total of 73 water bodies.[26]

The basic hydrographic network of **Banovići municipality** consists of the Turija, Oskova and Litva rivers, with their tributaries belonging to the Spreča basin, and the Ribnica river belonging to the Krivaja basin. The river Turija rises in the municipality of Banovići and flows into Lake Modračko in the territory of the municipality of Lukavac. The main polluter of Turia is the coal mine Banovići. The rivers Litva and Zlaća, as well as other smaller watercourses, flow into the river Oskova, which has a length of 32 km. The Litva river flows through the central part of the Banovići municipality and its length is 13.3 km. The Radina and Breštica rivers flow into Litva from the right, and the Draganja river with its tributaries Slatina and Ostrošna from the left. Other smaller tributaries of Litva are: Slatina stream, Brezički stream, Begov stream, Omazički stream and Beširovića stream. In the territory of Banovići municipality, there are two artificial lakes created after the exploitation of brown coal from the mines, namely Lake Breštica and Ramićko Lake. Lake Breštica is located next to the Banovići-Zavidovići regional road and has a total area of 22,500 m^2. The lake was created 60 years ago and has a rich fish stock. Ramićko Lake has an area of about 89,218 m2. In addition to these lakes, there is also a natural lake in the territory of the Banovići municipality, as well as the hydroaccumulation formed on the Oskova river.[27]

In the area of the **City of Zenica**, most watercourses belong to the Bosna river basin, which is the only watercourse of Ist category and the main recipient for all other watercourses of IInd category in the area of the city. In the territory of the City of Zenica, the surface area of the Bosna river basin is approximately 4,167 km^2 or 4.8% of the total basin area of this river. Most of its tributaries originate in the city area, and a smaller number outside the city. Category II watercourses in the area of the City of Zenica are: Lašva, Kočeva, Bistričak, Babina rijeka, Ograjina, Bistrička rijeka, Orahovička rijeka, Gračanička rijeka, Nemilska rijeka, Pepelarska rijeka, Bukovačka rijeka, Šerička rijeka, Seočka rijeka, Pošćanska rijeka, Stranjanska rijeka, Velika rijeka, Jezeračka rijeka, Mala rijeka, Šagovića rijeka, Potočka rijeka, Vrseljska rijeka, Đulanova rijeka. Only Lašva river belongs to the larger watercourses, whose mouth itself is located in the territory of the City of Zenica.[28]

The biggest river in the **City of Tuzla** is Jala River with a length of 37 km, whose catchment area of 245.50 km^2 is mostly located in the territory of the City of Tuzla. It originates in the area of Mount Majevica (700.00 m.a.s.l.) and flows into the river Spreča in Lukavac (186.00 m.a.s.l.). The hydrographic network of the basin is irregularly

[25] Environmental Protection Strategy of FBiH 2022-2023
[26] Environmental Protection Strategy of RS 2022-2023
[27] Development Strategy of the municipality Banovići 2017-2027
[28] Spatial Plan of the City of Zenica 2016-2036

developed. All the more important tributaries of the Jala River, 13 of them in total, flow into the Jala River on its right side. The only larger tributary, out of 6, on the left is Požarnička Jala. The most important tributaries of the river Jala are: Požarnička Jala with Kovačica, Solina, Mramorski creek and Joševica creek, as well as Grabov, Tušanjski and Moluški creeks. There are no significant natural lakes in the area of Tuzla. There are also, in the true sense, no hydro-reservoirs built that would respond to any water management purpose, with the exception of the Modrac lake/reservoir, which with 1.4% of its total area is located in the area of the City of Tuzla. As a result of the surface exploitation of coal at coal-mine "Šički Brod", a crater remained in which water reservoir formed as a significant water surface. A considerable number of different types of mineral waters, thermal and thermo-mineral waters are present in the Tuzla area: Slanica - salt water created by the exploitation of the Salt Mine, mineral water called “kiseljak” in the village of Dragunja, kiseljak near the village of Ševara, kiseljak in the village of Kiseljak, and thermo-mineral water in the village of Slavinovići. Only some have been tested to a certain level, and the rest are mostly just registered.[29]

3.6. Land Use

3.6.1. Forests and Forest Land

Forests and forest land in the FBiH cover an area of approximately 1,518,466 ha or about 58% of the surface area. About 1,241,336 ha or 82% is state-owned, and about 277,130 ha or 18% is privately owned. In relation to the state-owned forests and forest land in FBiH, high forests with natural regeneration occupy approximately 40%, high degraded forests 1%, forest plantations-crops 5%, coppice forests 21%, productive bare land suitable for afforestation 13% of forest and forest land area. The overgrown unproductive areas cover about 1%, whilst the non-productive areas in terms of forestry cover about 9% of forests and forest land. The total mined area is significant and occupy about 10% of the forests and forest land surface area.[30]

Forests and forest land in the RS cover an area of approximately 1,093,326 ha or about 44.4% of the surface area. About 791,818 ha or 72% is state-owned, and about 301,508 ha or 28% is privately owned. In relation to the state-owned forests and forest land in RS, high forests with natural regeneration occupy approximately 47%, high degraded forests 1.6%, forest cultures 5%, coppice forests 22.3%, areas appropriate for afforestation and management 16% of forest and forest land area, and areas inappropriate for afforestation 8.1%.[31]

According to available information, the vulnerability of forests and forest land in the BiH is the result of different activities - forest fires, plant diseases and pests, unplanned and illegal deforestation, exploitation of mineral resources, hydro-accumulation, as well as mines contamination.

In the **Banovići municipality**, the largest area is occupied by high forests with natural renewal, 6,465.23 ha or 65.80% of the total forest land in the Banovići municipality. Smaller areas of up to 5% of the total forest land are occupied by wider categories of forests, of which forest plantations with an area of 410.97 ha or 4.18% and coppice forests with an area of 251.94 ha or 2.56%.[32]

The forest resources of the **City of Zenica** cover about 60% of the city's territory. High forests with natural regeneration occupy 66.9% of forest land, coppice forests 27.8%, and 5.3% refers to bare forest land. The forests are mainly deciduous forests, and coniferous forests account for only 0.4% of the forest land. Wood stock or wood mass is 4,891,000 m³ or 159 m³/ha.[33]

Forests and forest land in the **City of Tuzla** occupy an area of 11,068 hectares, which is 36.6% of the total area of the City. Coppice forests dominate with 76% of the total forest area, high forests with 16% and other forests with around 8%. 26% of forests are state-owned while 74% are privately owned. Forest stands of high technical

[29] Spatial Plan of the City of Tuzla 2010-2030
[30] Federal Ministry of Agriculture, Water Management and Forestry: Information on Forest Management in the FBiH in 2021 and Forest Management Plans for 2022, September 2022
[31] RS Institute of Statistics: Annual Yearbook of RS, November 2022
[32] Development Strategy of the municipality Banovići 2017-2027
[33] Development Strategy of the municipality Zenica 2012-2022

and biological value cover only 19% of the total forest land area. The structure by types of trees is as follows: beech 78%, sessile oak 9%, Turkey oak 5%, noble broad-leaved trees 0.4% and other broad-leaved trees 7%.[34]

3.6.2. Agricultural land

Agricultural land in the Federation of BiH covers an area of approximately 1,164,000 ha or about 44.5% of the FBiH surface area. Agricultural land by type of cultivation is divided into cultivable land (720,000 ha or 62%) and pastures (445,000 ha or 38%). Cultivable land is further divided into arable land (399,000 ha or 55.5%), orchards (45,000 ha or 6%), vineyards (4,000 ha or 0.5%) and meadows (272,000 ha or 38%). Only 197,000 ha or 49% of arable land is under crops (sown area). Cereals are most represented crops (45% of area sown), followed by fodder crop (33%), and vegetables (22%).[35]

The total area of agricultural land in the RS in 2018 was 971,000 ha (25.80% of the total territory), of which cultivable land occupies 792,000 ha (82% of the total agricultural land).[36] In 2021, there were 201,428 ha under arable land and gardens, 30,776 ha under orchards, 604 ha under vineyards and 94,338 ha under meadows. Pastures occupy an area of 50,673 ha. Cereals are most represented crops (76% of arable land), followed by fodder crop (12%), vegetables (6%), and industrial crops (5%).[37]

The area of agricultural land in the **Banovići municipality** is 2,620 ha or 14.3% of the municipality's territory. In the total structure of agricultural land, arable land and gardens make up 32%, orchards 13%, meadows 22%, pastures 33%.[38] 99% of the total arable land and gardens is actually farmed. In the structure of the farmed areas, cereals (46%) and vegetables (47%) are equally represented, while fodder plants are least represented (7%).[39] In the structure of production, the most represented crops are corn and potatoes. The average yields of agricultural crops per hectare are very modest. In the structure of fruit production, the highest yield is in the production of plums, apples and cherries. Private land holdings are fragmented, and agriculture is mostly of a mixed, extensive nature.[40] According to 2013 census[41], 3,952 households were engaged in agricultural activity in the municipality or 52% of the total number of households, of which 246 households (3%) were selling their products in the market, which means that majority of those households produces only for their own needs.

The area of agricultural land in the **City of Zenica** is 16,615 ha or 30.2% of the City's territory. In the total structure of agricultural land, arable land and gardens make up 38%, orchards 11%, meadows 44%, and pastures 7%.[42] Only 47% of the total arable land and gardens is actually farmed. Areas under cereals occupy 20% of arable land. The largest areas are under wheat and corn. A significantly larger part of the arable land (75%) is under vegetable crops, which is proof of the correct market orientation of the producers. Most of the area is planted with potatoes, carrots and onions. Along with vegetable crops, the production of fodder plants also has favorable conditions and gives relatively high yields per hectare. However, the sown areas are significantly below the realistic conditions for this type of production and represent only 5% of the total arable areas.[43] According to 2013 census[44], 8,853 households were engaged in agricultural activity in the municipality or 23% of the total number of households, of which 1,231 households (3%) were selling their products in the market, which means that majority of those households produces only for their own needs.

The area of agricultural land in the **City of Tuzla** is 10,740 ha or 37% of the City's territory. In the total structure of agricultural land, cultivable land accounts for 89%, of which arable land and gardens make up 57%, orchards 17%, and meadows 15%.[45] 74% of the arable land and gardens is actually farmed. In the structure of the farmed areas, different types of crops are almost equally represented cereals (46%) and vegetables (47%), while fodder

[34] Spatial Plan of the City of Tuzla 2010-2030
[35] FBiH Institute of Statistics: Federation in Numbers, 2022
[36] Environmental Protection Strategy of RS 2022-2023
[37] RS Institute of Statistics: Statistical Yearbook of RS, November 2022
[38] Federal Institute for Development Programming: Socio-economic indicators by municipalities, 2022
[39] FBiH Institute of Statistics: Statistical Yearbook of FBiH, December 2022
[40] Spatial Plan of the municipality Banovići 2015-2035
[41] Agency for Statistics BiH: Census of population, households and dwellings in Bosnia and Herzegovina, 2013, Final results, June 2016
[42] Federal Institute for Development Programming: Socio-economic indicators by municipalities, 2022
[43] FBiH Institute of Statistics: Statistical Yearbook of FBiH, December 2022
[44] Agency for Statistics BiH: Census of population, households and dwellings in Bosnia and Herzegovina, 2013, Final results, June 2016
[45] Federal Institute for Development Programming: Socio-economic indicators by municipalities, 2022

plants are least represented (7%).[46] The largest areas are under corn and potatoes, followed by fodder and wheat. The basic characteristic of the current use of arable land in Tuzla would be very low yields per unit area, for all crops grown, and inadequate representation of certain crops. In the Tuzla area, an extraordinary development of fruit production has been possible and the cultivation of all types of Central European fruit, especially plums, apples, pears, cherries, sour cherries.[47] According to 2013 census[48], 6,752 households were engaged in agricultural activity in the municipality or 16% of the total number of households, but only 393 households (1%) were selling their products in the market, which means that majority of those households produces only for their own needs.

3.6.3. Mineral exploitation

In the **Banovići municipality**, there are two groups of mineral resources that appear in the Earth's crust. The first group consists of non-metallic mineral raw materials, which include technical diabase stone, marlstone, magnesite and limestone. The second group consists of energy mineral raw materials, which includes brown coal. The total stock of **brown coal** reserves in the Banovići municipality is 176,842 million tons. Banovici's open cast mines occupy 55 km^2. The Banovići coal basin has been exploited continuously for the last 50 years, where the concessionaire (RMU "Banovići") produces over 1,500 thousand tons of coal annually. Currently, coal is being mined at two surface mines - Grivice and Turija, and one underground mine - Omazići. Total reserves of **diabase-dolerite** in the territory of Banovići municipality amount to 16,584,356 m^3. Diabase-dolerite is exploited in the municipality of Banovići as part of the Velika Ribnica quarry, which is located on the regional road Banovići-Zavidovići, about 13 km southwest of Banovići. Diabase-dolerite is exploited for concrete production, road and railway construction, etc. The method of exploitation is both surface and pit. **Marlstone** is not currently exploited in the territory of Banovići municipality, so there is no accurate data on the amount of balance and potential reserves. In the territory of the municipality of Banovići, significant deposits of industrial **limestone** were recorded in the localities of Pribitkovići and Seona, especially in the locality of Sklopovi. This industrial stone is exploited as part of the "Vijenac" limestone mine. As part of the mineralogical-petrographic characteristics research, the limestone in the Banovići municipality area has the characteristics that meets the needs for use in industrial production, i.e. in the construction and energy sectors.[49]

In the **City of Zenica**, **coal** represents a stable strategic energy resource in the deposits of Raspotočje, Stara jama, Strajani and Mošćanica. The Raspotočje pit includes the central part of the exploitation area of the Zenica Mine, 3 km east of the city center of Zenica on the left side of the Bosna River. The exploitation area Stara jama is located in the north-western part of the Zenica basin and has a developed productive series consisting of coal zones with several coal layers. The exploitation area of the Stranjani pit covers the northwestern area of the Zenica coal basin. The exploitation area of the surface mine "Stranjani" occupies an area of 700 ha. The exploitation field of Mošćanica occupies an area of 1300 ha in the area of Zenica, and also extends to the territory of the municipality of Kakanj.[50] Coal has been continuously exploited in these areas for the past 40 years, where the concessionaire (RMU "Zenica") produces coal in three pits, namely: Stara jama, Raspotočje and Strajani. The total reserves in these exploitation fields are currently estimated at about 956 million tons, and RMU "Zenica" annually produces about 960 thousand tons of coal[51]. The following raw materials are also exploited in the area of the City of Zenica: **limestone** at the "Crkvice-Kamenolom" locality, limestone at the Široka stijena deposit near Zenica, **flysch and chert** at the "Bistricak-Nemila" locality, **diabase** at the "Krmance" Kovanići locality, Upper Cretaceous flysch at the locality "Veliki Gradac" - Mošćanica. Potential deposits, determined by the Spatial Plan of the Zenica-Doboj Canton (2009-2029) are the Radići limestone deposit and the Kapica diabase deposit, localities where detailed research will define the possibility and justification of the exploitation of these non-metallic raw materials.[52]

The most important mineral raw materials in the area of the **City of Tuzla** are: coal - lignite, rock salt, quartz sand, mineral and thermo-mineral water, oil deposits. **Lignite** reserves are generally represented in the so-called the "Kreka coal basin" which includes part of the territory between the southern slopes of Majevica and the Spreča

[46] FBiH Institute of Statistics: Statistical Yearbook of FBiH, December 2022
[47] Spatial Plan of the City of Tuzla 2010-2030
[48] Agency for Statistics BiH: Census of population, households and dwellings in Bosnia and Herzegovina, 2013, Final results, June 2016
[49] Development Strategy of the municipality Banovići 2017-2027
[50] Spatial Plan of the City of Zenica 2016-2036
[51] https://rmuzenica.ba
[52] Spatial Plan of the City of Zenica 2016-2036

valley. The coal basin is spread over an area of about 200 km^2 and on the territory of 4 municipalities of the Tuzla Canton: Tuzla, Lukavac, Živinice and Kalesija. Three mines are active: mine "Mramor" (under-ground mining), mine "Dubrave" (surface exploitation), and mine "Šikulje" (surface exploitation). Annual production in these mines amounted to about 1.8 million tons (2015), while reserves amounted to over 2 billion tons (2016)[53]. **Rock salt** was exploited in the "Tušanj" mine and in the "Hukalo" and "Tnovac" regions, but they were shut down. New production capacities are being developed at the new deposit - the "Tetima" mine. Exploitation reserves of the rock salt at the "Tetima" location amount to 46 million tons, and with an annual production of 2.6 million m^3 the service life would be 62 years[54]. In the Kreka coal series, deposits of **quartz sand** appear as accompanying sediments, where the potential is estimated at around 6-7 million tons of quartz sand. In the deposits of Bukinje, Moluška Rijeka, Kužići and Šićki-Brod, there are exploitation reserves of quartz sand of about 10 million tons[55].

3.6.4. Possibilities for future land use at project mining sites

In the framework of Just Transition in Coal Regions of Bosnia and Herzegovina, WB's Land Repurposing Methodology (LRM) was operationalized to assess the coal mining locations, with the help of the GIS-based Land Use Repurposing Application (LURA). LURA is a fact-based analytical and decision-support tool that evaluates the land characteristics in relation to different land typologies, analyzes and optimizes how land value can be developed, and how mine lands can spatially and economically be integrated into a regional planning framework.

The Banovići and Zenica coal mine areas which were assessed for future optimal land repurposing are presented in Figures 5, 6, 7 and 8.

LURA analysis was not applied for the coal mining locations in Tuzla area.

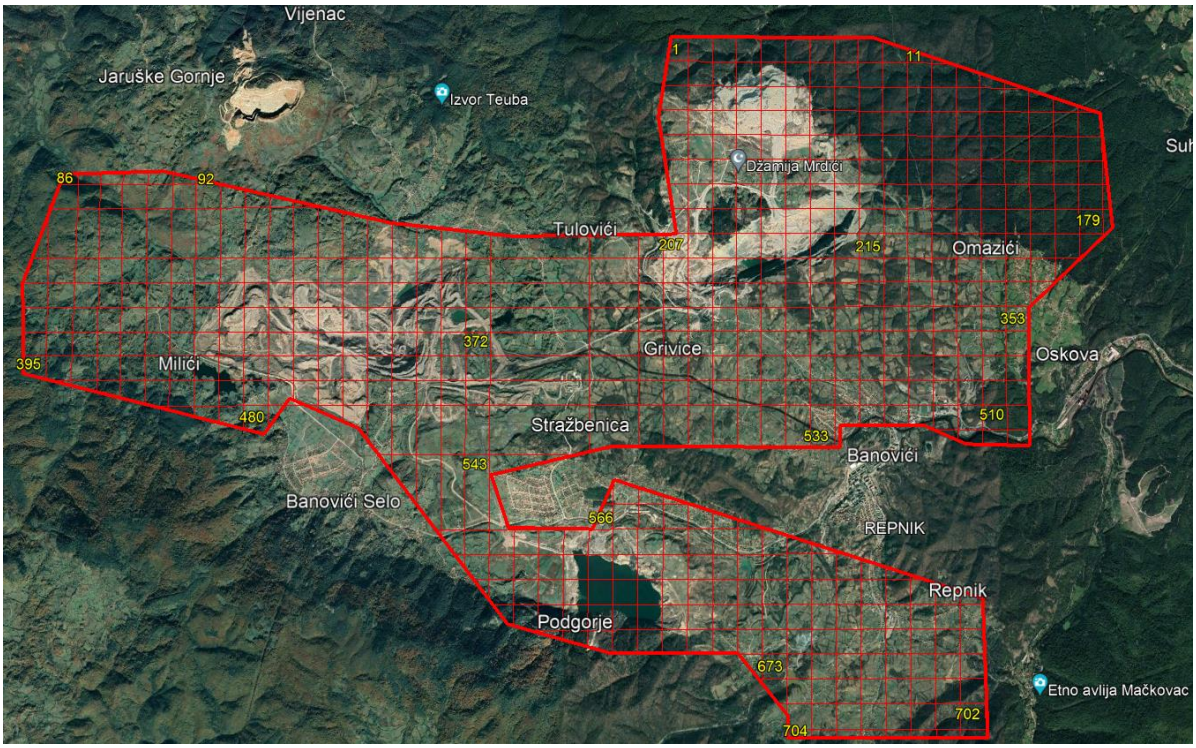

Figure 5 Banovici mine area

[53] Framework energy strategy of the FBiH until 2035; 2017
[54] Spatial Plan of the City of Tuzla 2010-2030
[55] Ibid

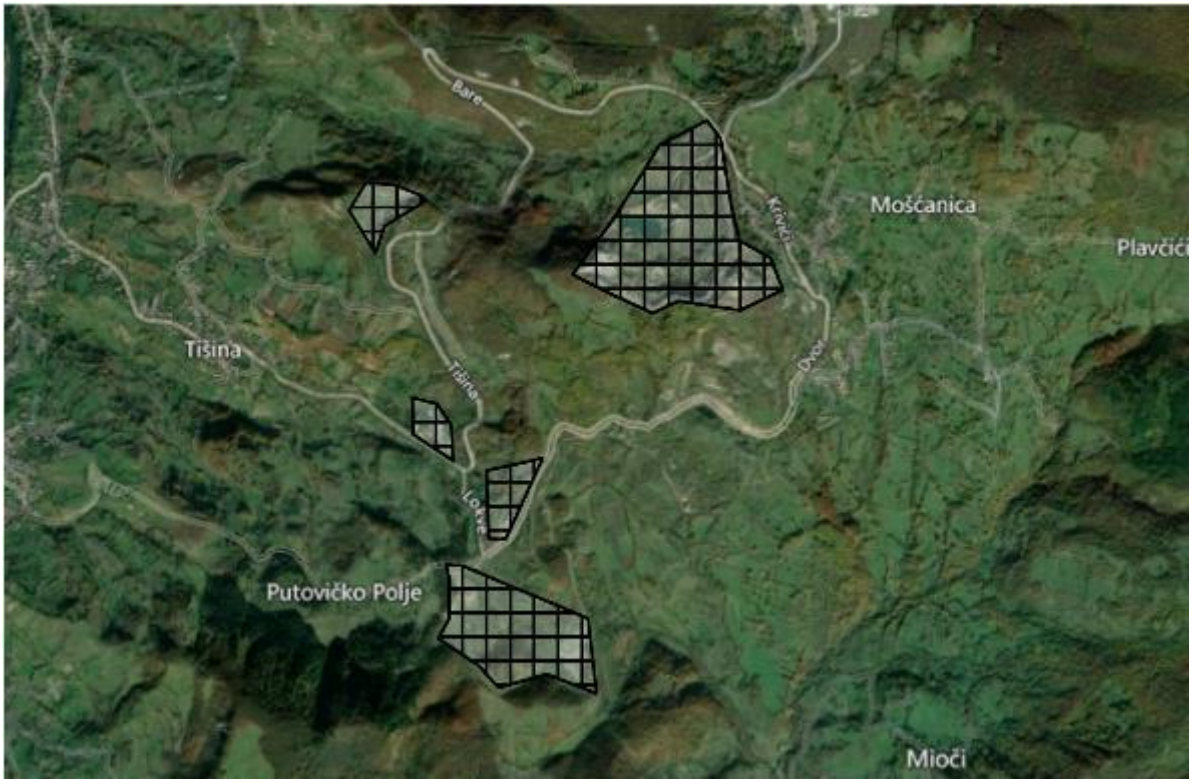

Figure 6 Moscanica abandoned pit coal mine area (Zenica)

Figure 7 Raspotocje underground mine area (Zenica)

Figure 8 Pogon closed underground mine area (Zenica)

As visualized in Figure 9, the majority of the Banovici mine lands is best suited for business, recreation and tourism (35%), followed by agricultural lands (31%), industry and energy production (21%). The rest will be residual ponds and lakes.

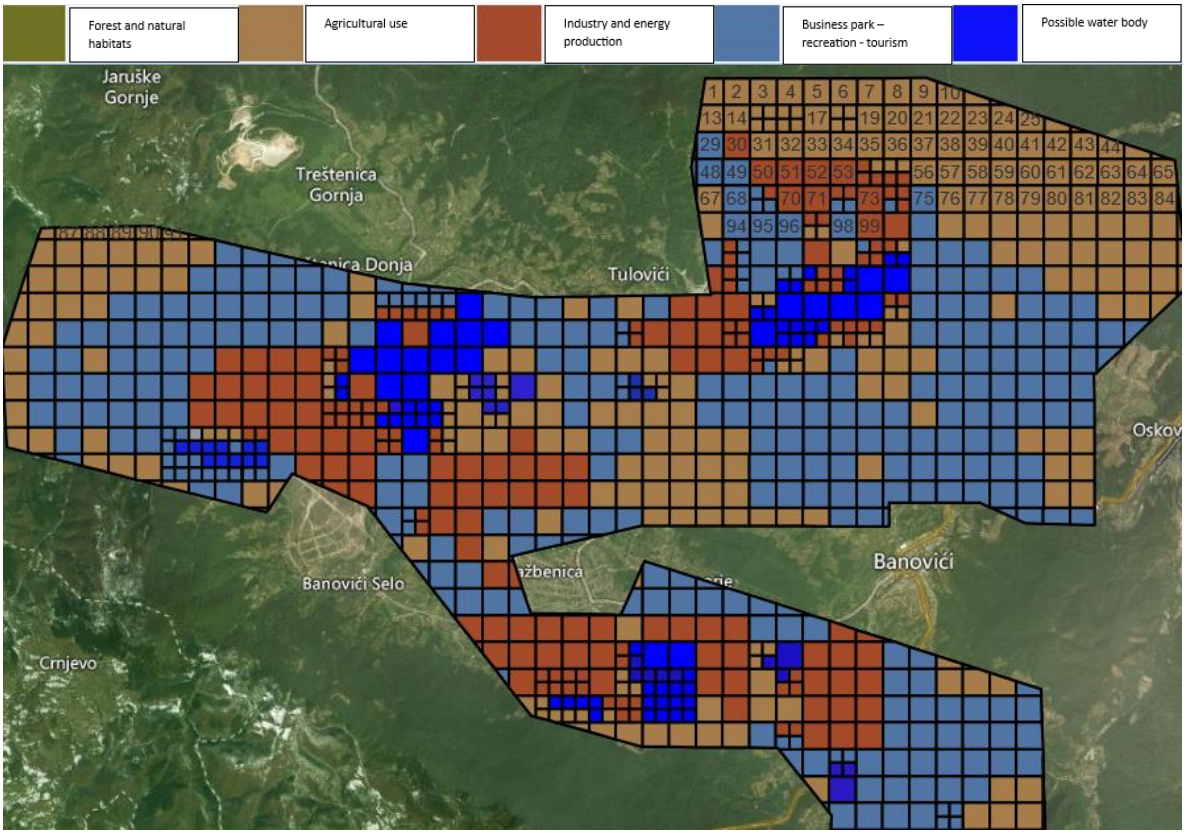

Figure 9 Banovici mine land use rating map

The main utilization options for the Zenica mining complex are: agriculture (40%), energy production (30%), forest, natural habitats (20%), business/residential development (6%). The remaining area is currently covered by the possible water body (<1%) (Figure 10, Figure *11*, Figure *12*).

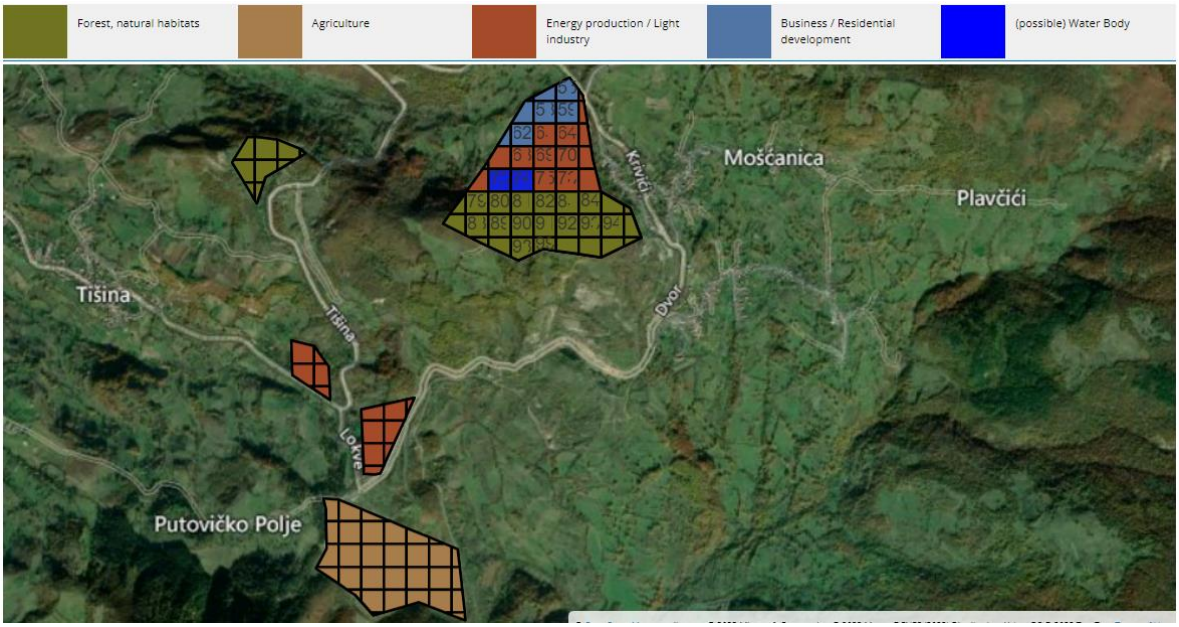

Figure 10 Location at Moscanica abandoned pit land use rating

Figure 11 Location at Raspotocje Underground Mine land use rating

Figure 12 Location at Pogon underground mine and waste fields land use rating

3.7. Air quality

The biggest industrial air polluters in BiH are coal-fired thermal power plants (they belong to the category of large combustion plants). Coal is still responsible for the largest emissions of carbon dioxide, sulfur dioxide and nitrogen oxides into the environment, although some power plants are striving to improve their environmental standards. Coal-fired TPPs are among the biggest polluters of the environment in the energy sector. Burning large amounts of coal has significant environmental impacts related to air pollution with solid particles and acid gases (sulfur dioxide and nitrogen oxides).

The results of measuring the concentrations of polluting substances in the air in FBiH indicate that very high, health-threatening concentrations of sulfur dioxide are evident in the area of impact of large-scale coal burning plants, such as in Banovići, Zenica and Tuzla. High concentration values of these substances occur throughout the year. According to the Spatial Plan of the municipality Banovići, the air quality in Banovići is primarily determined by the atmospheric transport of pollutants from surrounding local and sources in wider area, accompanied by the emission of polluting substances from the TPP in Tuzla and the Banovići Cement Plant[56]. According to the Development Strategy of Zenica-Doboj Canton, the biggest air polluters in the Zenica area are the industries Arcelor Mittal Zenica, Coal Mine Zenica, and Dairy industry Zenica[57]. In the City of Tuzla**,** TPP is also the biggest source of pollution, as well as industrial-chemical plants and motor vehicles (traffic), which emit significant emissions of polluting substances into the air. In all the municipalities/cities, a very significant source of pollution are large numbers of household fireplaces for heating, many of which use coal as an energy source.

There are no air quality measuring stations in Banovići and the closest one is in Živinice. There are 5 stations in the Zenica area, and 3 stations in the Tuzla area. The following table shows the measured values of air quality for the year 2022.

Table 2 Air quality monitoring data for project areas (2022)[58]

	Limit value	Živinice	Zenica					Tuzla		
			Centar	Radakovo	Tetovo	Brist	Vranduk	Skver	BKC	Bukinje
Mean annual concentration of SO_2 (ug/m^3)	> 50 ug/m^3	99	71	-	58	-	92	94	87	76
The highest daily concentration of SO_2 (ug/m^3)	> 125 ug/m^3	404	398	241	233	457	422	342	339	336
Number of days with exceeded daily concentration of SO_2	-	100	43	21	19	49	62	313	277	200
Mean annual concentration of NO_2 (ug/m^3)	> 40 ug/m^3	22	21	21	-	12	-	27	22	20
The highest daily concentration of NO_2 (ug/m^3)	> 85 ug/m^3	65	50	67	145	44	-	63	60	61
Number of days with exceeded daily concentration of NO_2	-	0	0	0	16	0	-	0	0	0
Mean annual concentration of PM10 (ug/m^3)	> 40 ug/m^3	-	44	42	55	-	43	-	-	-
The highest daily concentration of PM10 (ug/m^3)	> 50 ug/m^3	-	187	222	254	154	195	-	-	-
Number of days with exceeded daily concentration of PM10	-	-	85	114	151	84	105	-	-	-
Mean annual concentration of PM2.5 (ug/m^3)	> 25 ug/m^3	-	-	-	43	-	36	36	34	-

[56] Spatial Plan of the municipality Banovići 2015-2035
[57] Development Strategy of Zenica-Doboj Canton for the period 2021-2027
[58] Federal Hydrometeorological Institute: Annual report on air quality in FBiH for 2022, Sarajevo 2023

	Limit value	Živinice	Zenica					Tuzla		
			Centar	Radakovo	Tetovo	Brist	Vranduk	Skver	BKC	Bukinje
The highest daily concentration of PM2.5 (ug/m^3)	> 50 ug/m^3	234	-	-	241	-	184	159	187	-
Number of days with exceeded daily concentration of PM2.5	-	54	-	-	102	-	81	80	74	-
Mean annual concentration of CO (ug/m^3)	> 3 ug/m^3	0.8	0.6	0.3	0.8	-	-	1.4	1.7	0.6
The highest daily concentration of CO (ug/m^3)	> 5 ug/m^3	3.9	1.8	1.1	2.2	-	-	4.4	5.3	2.5
Number of days with exceeded daily concentration of CO		0	0	0	0	-	-	0	2	0

According to the above data, air quality at all measuring stations is dangerously impaired by high concentrations of SO_2 and floating particles to the extent that it can seriously harm people's health. This applies both to annual averages and to the number of permitted hourly or daily concentration exceedances. The number of days with exceeded daily concentration of SO_2 is especially concerning in Tuzla area. The daily concentration of NO_2 are exceeded only at one measuring station in Zenica. The exceedance of daily concentration of CO is recorded only shortly at one measuring station in Tuzla.

3.8. Biodiversity and Protected Areas

The global goal of the world community until 2020, established by the UN Convention of Biological Diversity, was to have 17% of the land and 10% of the aquatic territory of each country under protection[59].

The total area of protected areas in the FBiH is 3.98% which is low compared to the extremely high values of nature. In the FBiH, the following protected areas have been declared: one national park (36,629.08 ha), four nature monuments (9,207 ha), two nature parks (43,624.07 ha) and five protected landscapes (14,415.59 ha). This makes 12 protected areas with a total area of 103,875.74 ha. The last declared area is the Protected landscape Vjetrenica – Popovo Polje, with an area of 4,712.19 ha. From the aspect of protection of species diversity, numerous species of plants, animals and fungi have been placed on the FBiH Red List due to a certain degree of threat. The Red List of the FBiH includes 658 plant species, 27 mammal species, 40 bird species, 6 reptile species, 4 amphibian species, 36 fish species, and a large number of different groups of invertebrates.[60]

Today in the RS there are registered two strict nature reserves (592.82 ha), three national parks (26,275.20 ha), 16 nature monuments (1,552.65 ha), three protected habitats (1,159.76 ha), four protected landscapes (23,887.08 ha); three protected areas with sustainable use of natural resources (66.07 ha), which is a total of 53,533.85 ha or 2.17% of the total territory of the RS (January 10, 2022).[61]

In the territory of the **Banovići municipality**, the Protected Landscape (PL) Konjuh has been established as an area of special characteristics. The total area of the PL is 8,016 ha, and it covers parts of the municipalities of Kladanj, Banovići and Živinice. The surface area of PL Konjuh in the territory of Banovići municipality is 2,546.28 ha or 13.90% of the total territory of the municipality, i.e. 31.28% of the total PL Konjuh. The area of the PL Konjuh is hilly and mountainous, with heights ranging from 300 to 1,328 m a.s.l. On the central ridge of Konjuh and Javor are the highest peaks in this area, from where the terrain gradually descends towards the north in the direction of Sprečka plain. This area is almost completely covered by forest ecosystems, which have many

[59] https://www.unep.org/news-and-stories/press-release/world-met-target-protected-area-coverage-land-quality-must-improve
[60] Environmental Protection Strategy of FBiH 2022-2023
[61] Environmental Protection Strategy of RS 2022-2023

natural values.[62] However, there are no protected areas in the vicinity of the project area that may be affected by the Project supported activities.

There are no protected natural areas in the territory of the **City of Zenica** nor in the **City of Tuzla**.

3.9. Cultural and historical heritage

In the territory of **Banovići municipality**, there is a protected national monument Stećci in Banovići Selo. It is located about 7 km west of the town center of Banović at an altitude of 431 m.

Protected cultural monuments in the area of the **City of Zenica** are: Vranduk Fortress - a medieval and Ottoman fortress with the mosque of Sultan Fatih, the Sultan Ahmed Mosque in Zenica, the Sejmenska Mosque in Zenica, the Old Mosque with the Harem in Orahovica, the Orthodox Church of the Nativity of the Blessed Virgin Mary in Zenica, the Paper factory Papirna" in Zenica - architectural complex, the Church of St. Elijah with parish office in Zenica - architectural complex, the Building of the former Synagogue in Zenica.

In the **City of Tuzla**, as national cultural monuments are proclaimed 2 mosques, 4 churches located mostly within the city and one necropolis with tombstones (stečci) in the settlement Donje Breške, north of Tuzla town.

These protected monuments are not in the vicinity of the project areas and are not expected to be affected by Project supported activities.

[62] Spatial Plan of the municipality Banovići 2015-2035

4. BASELINE SOCIAL CHARACTERISTICS OF THE PROJECT AREA

4.1. Demography

The population numbers in entities and in project municipalities show a decreasing trend (Table 3).

Table 3 Population number

Canton	2013 (census)[63]	2021 (estimate)[64]
Banovići	22,773	22,291
Zenica	110,663	108,278
Tuzla	110,979	108,533
FBiH	2,219,220	2,168,602
RS	1,228,423	1,128,309

Majority of population belongs to 15-64 age group, which accounts for 67%, 68% and 72% of total population in Tuzla, Zenica and Banovići respectfully (Figure 13).[65]

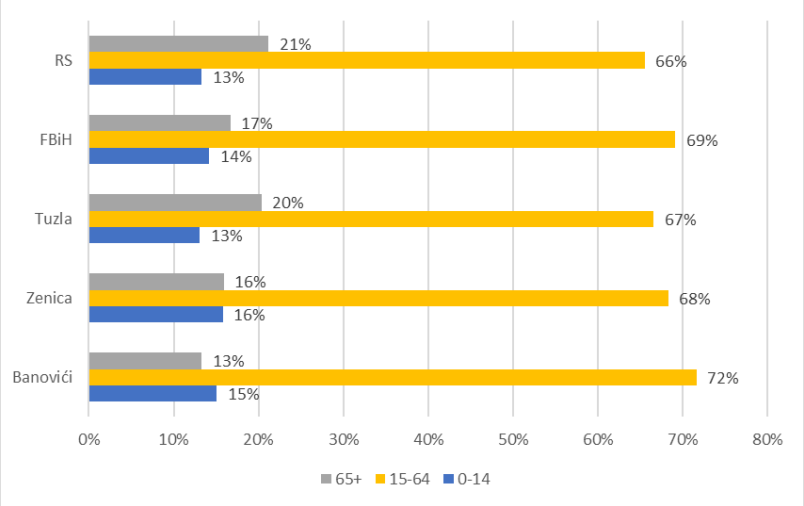

Figure 13 Population by age (2021)

For a number of years, population growth rate in BiH has been continuously negative including in the project municipalities, and especially in the last two years (Figure 14).[66]

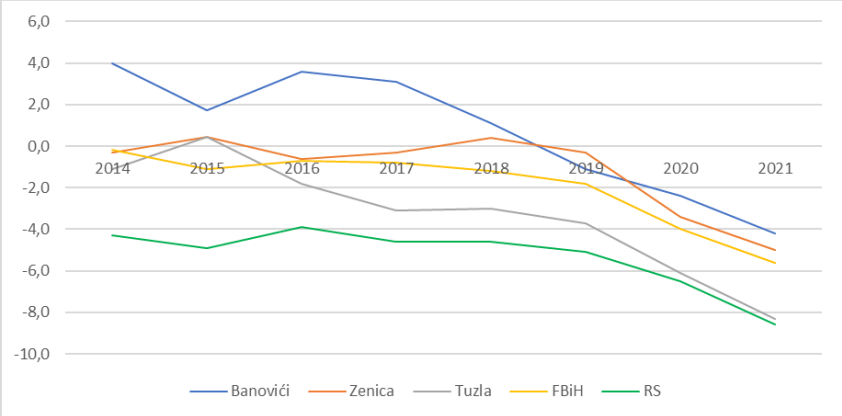

Figure 14 Population growth rate

[63] Agency for Statistics BiH: Census of Population, Households and Dwellings in Bosnia and Herzegovina, 2013, Final Results, 2016
[64] FBiH Institute for Statistics: Cantons in Numbers, 2022; RS Institute of Statistics: Cities and Municipalities of RS, December 2022
[65] *Ibid*
[66] *Ibid*

Population density in 2021 was 83 inhabitants/km^2 in FBiH and 46 inhabitants/km^2 in RS. The population density in the project municipalities is above the average - Zenica (194 inhabitants/km^2), Banovići (120 inhabitants/km^2), Tuzla (369 inhabitants/km^2).

The average level of urbanization is 46.9% in FBiH and 45.7 in RS (2013, census data), while the differences at municipal level are significantly high. Majority of population in Zenica and Tuzla are urban, while majority of population in Banovići are rural (Figure 15).

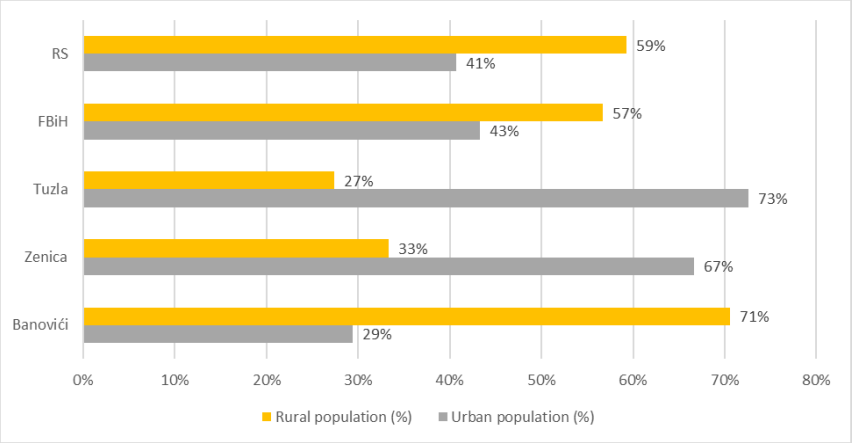

Figure 15 Urban area and urban population (2013)[67]

4.2. Local Economy

The largest company and the biggest employer in the **municipality of Banovići** is the Coal Mine "Banovići", which is the largest mine in Bosnia and Herzegovina in terms of revenues, number of workers and the amount of exploited brown coal. Another significant company in the mining industry in the Banovići municipality in terms of revenues is "Plantrans-Dijabaz", which is engaged in the exploitation of dolerite stone, with annual revenues of over 1 million BAM. In 2016, this company employed 13 people[68]. In the municipality of Banovići, manufacturing industry is also developed, namely the metal and textile industries. Legal entities engaged in sectors of transport and construction are also well represented in the municipality of Banovići. In the previous 20 years, agricultural production in Banovići mostly served to meet the personal needs of households. The focus of agricultural production is on animal and plant production. Production of animal origin products (production of fresh cow's milk, livestock breeding, beekeeping) is the most represented agricultural branch in Banovići municipality. In the field of plant production, the most represented productions are: production of fruit, corn, wheat, barley, gherkins for industrial processing, production of vegetables in greenhouses, production of mushrooms (champignons, oyster mushrooms and shiitake mushrooms), production of strawberries.

The economy of the **City of Zenica** is characterized by the dominant share of mining, energy and manufacturing industry (coke production, metal production and production of metal products, except machines and equipment). In some economic activities the concentration of employment is higher than the average concentration of employment in these activities at FBiH level. These activities are: coal and stone mining, manufacturing industry, transportation and storage.[69] Trade and industry account for over 60% of total employment and 75% of revenues. Tourism and catering, agriculture and ICT together account for less than 10% of total employment. Economic activity in Zenica strongly depends on large industries and public enterprises. The largest company in Zenica is steel production company ArcelorMittal. Over 80% of total export in Zenica is provided by ArcelorMittal. Local small and medium size enterprises (SME) generate 50% of the revenues in Zenica and participate in the total employment with 53.3%.[70] A trend of increasing the number of SMEs and decreasing the number of micro-enterprises has been recorded. Of the total number of SMEs in Zenica in 2019, more than a third are in the trade

[67] www.statistika.ba
[68] Development Strategy of the municipality Banovići 2017-2027
[69] Development Strategy of the municipality Zenica 2012-2022
[70] GCAP Zenica, 2019

sector (34.9%), followed by SMEs in the manufacturing industry sector (16.4%), in the sector of professional, scientific and technical activities (14.2%) and in construction (8.1%)[71]. In the structure of the SMEs in the manufacturing industry, the largest number of SMEs are metal industries (not including machinery and equipment) and food industries.

Natural resources and rich deposits of energy and mineral raw materials were the determining factor for economic development of the **City of Tuzla**. Tuzla has a great industrial tradition, based on rich deposits of salt and coal. In addition to energy and mining, other branches of industry such as the chemical industry and the manufacturing have also been developed in Tuzla. Great progress in Tuzla took place in terms of the development of tourism, trade, and entrepreneurship. The largest number of business entities is registered in the wholesale and retail trade. The number of registered business entities has a trend of continuous growth. The development index of Tuzla compared to FBiH is 36% higher, measured on the basis of the most important parameters that are monitored (employment, unemployment, GDP, etc.)[72]. The unemployment rate in Tuzla is the lowest compared to other municipalities in Tuzla canton and other cantons of FBiH. Tuzla is the leader in the number of employees. Company Bingo Tuzla is not only the largest, but also the most profitable company in Tuzla, and employs the largest number of workers. In second place in terms of number of employees is Kreka Mine[73]. Other bigger companies in Tuza, either by the number of employees or the amount of profit, are from the field of services, construction, wholesale, and manufacturing industry.

4.3. Labor Market and Employment

4.3.1. Overview of labor market in BiH

A large share of BiH's working-age population is underutilized, whether unemployed or outside the labor force. The country's high unemployment levels have improved markedly but remain significant.

The BiH labor market is highly distorted by a large public sector presence, leading to segmentation between good-quality public sector jobs and poor-quality private sector jobs. The generally high unemployment rates observed in BiH mask significant unreported informal employment and also reflect a marked preference for public sector jobs and a willingness to queue for them rather than taking a job in the private sector. The public sector (including state-owned entities (SOEs)) still accounts for one-third of total employment. Men comprise three-fifths of all public sector workers. The public sector attracts a large and growing share of the most educated workers, primarily due to better salaries, benefits, and working conditions. The private sector exhibited a degree of dynamic job creation in the last decade, but mostly in low-productivity sectors. Private employment is dominated by jobs in low-productivity, low-paying sectors such as agriculture, manufacturing, transport, and wholesale and retail. Between 2011 and 2019, the private sector added about 44,000 jobs in net terms.

Younger workers in particular struggle to access high-quality, permanent jobs and are more likely to remain outside the labor force or migrate for work. Young people in BiH need on average about 60 months to find employment after graduation, which represents a very long period during which skills can degrade. Youths who leave school with a secondary education require relatively more time to transition into work compared to those with tertiary education. Despite an apparent excess supply of youth entering the labor market, young people are still rejecting job offers because of unattractive working conditions such as low wages, unacceptable working hours, and mismatch in qualifications, among others. Some youths opt to seek work abroad; 30% of those who migrated between 2015 and 2020 were between the ages of 18 and 35.

Employed workers tend to be better educated than the unemployed, but educational attainment in BiH is generally low. The educational structure of labor force shows that 69,9% persons have finished the secondary school and specialization, whereas the highest share in the educational structure of persons outside labor force have persons who finished the primary school or lower education - 47,8% (Figure 16).

[71] Strategy for the development of SMEs of the City of Zenica for the period 2021-2027
[72] Development Strategy of City of Tuzla 2012-2026, revised for the period 2019-2021
[73] https://www.akta.ba/vijesti/bih/146497/top-20-kompanije-u-tuzlanskom-kantonu-povecale-prihode-i-dobit

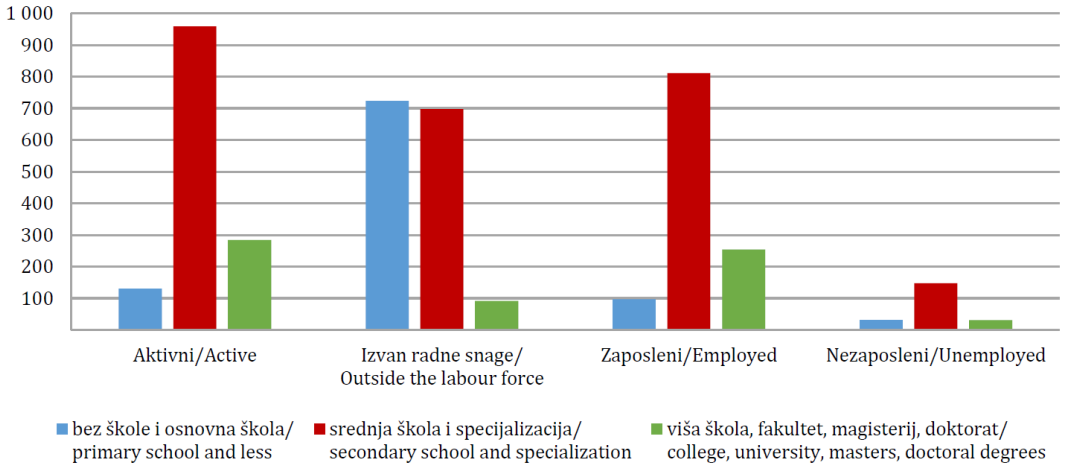

Figure 16 Education levels of working age population in BiH[74]

The BiH labor market struggles with skills mismatch. Part of this is due to migration. People of all educational levels are migrating, including the highly skilled; one in every six doctors trained in BiH now works in Germany. A misalignment of school curricula with employers' actual labor demand also contributes to skills mismatch. Nearly two-thirds of pupils at the secondary level are enrolled in technical and vocational schools (technical and vocational education and training (TVET)), despite the misalignment between school offerings and the needs of the labor market. Many TVET offerings are outdated and/or poorly equipped to provide the skills in demand by employers. The largest skills mismatch is observed among technicians and associate professionals (for example, construction, mechanical, and electrical workers), where only 24% of workers have the appropriate level of education based on International Labour Organization (ILO) classifications, and 76% have inadequate formal education[75]. Three-quarters of those engaged in skilled agriculture, forestry, and fisheries and three-fifths of craft and related trades workers are also undereducated, according to this metric, whereas there are large numbers of overeducated workers in blue-collar occupations such as plant and machine operators and elementary occupations.

Low labor force participation, high outmigration, high unemployment, and extensive skills mismatch are all symptoms of inefficient allocation of human capital. This results in suboptimal output because workers' potential productivity is underutilized, which in turn acts as a drag on economic growth and at the same time constrains labor incomes and worker welfare.

4.3.2. Employment, unemployment and salaries in project municipalities

Employment rates in entities and in project municipalities are continuously increasing, with the exception of 2020 due to the crises caused by COVID-19 (Table 4). Employment rate in Banovići is below, whereas in Zenica and Tuzla it is above the FBiH's average.

Table 4 Employment rate trend (2016-2021)[76]

	2016	2017	2018	2019	2020	2021
Banovići	30,6%	29,9%	30,6%	32,7%	32,5%	32,6%
Zenica	31,4%	33,2%	35,4%	36,4%	36,2%	36,4%
Tuzla	39,2%	45,9%	47,6%	49,4%	50,2%	52,9%
FBiH	**29,4%**	**30,2%**	**33,8%**	**34,8%**	**34,4%**	**35,0%**
RS	**32,2%**	**33,5%**	**34,6%**	**35,9%**	**36,6%**	**37,8%**

[74] Agency for Statistics BiH: Labor Force Survey 2022
[75] The World Bank: Bosnia and Herzegovina Jobs Diagnostic and Implications of Coal Transition, December 2022
[76] Federal Institute for Development Programming: Macroeconomic Indicators by Cantons FBiH, 2017-2022; RS Institute of Statistics: Cities and Municipalities of RS, December 2022

Unemployment rates in entities and in project municipalities show a decreasing trend over the years (Table 5). Unemployment rate in Banovići and in Zenica is above the FBiH's average, whereas in Tuzla it is below the FBiH's average.

Table 5 Unemployment rate trend (2016-2021)[77]

	2016	2017	2018	2019	2020	2021
Banovići	51,1%	50,6%	48,2%	44,3%	44,7%	44,6%
Zenica	47,3%	45,2%	42,3%	40,4%	40,9%	40,1%
Tuzla	38,3%	33,6%	32,0%	30,2%	31,8%	27,9%
FBiH	**45,2%**	**43,3%**	**39,2%**	**37,1%**	**38,2%**	**37,2%**
RS	**33,2%**	**30,5%**	**26,5%**	**24,2%**	**23,3%**	**20,1%**

Employment and unemployment rates for 2021 are presented in the following diagram.

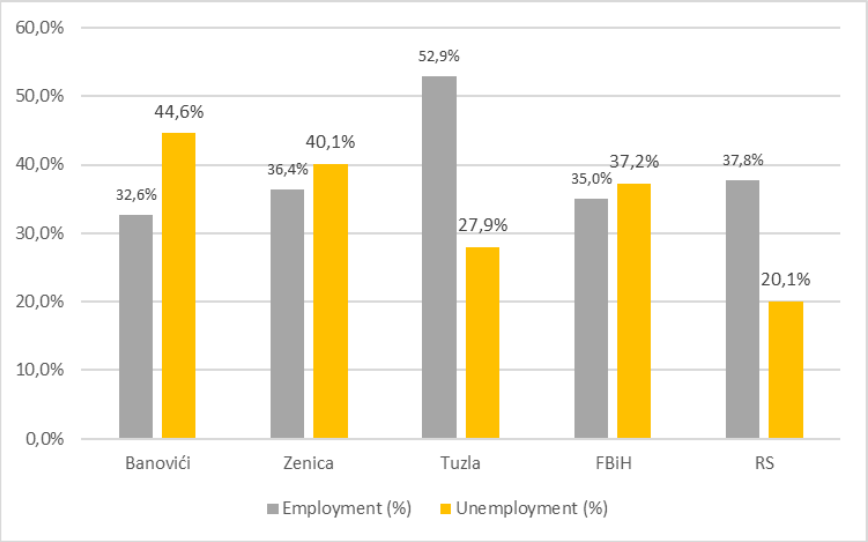

Figure 17 Employment and unemployment rates (2021)

Of the total number of people who make up the workforce in FBiH, 52% are men and 48% are women. Women make up 42% of the employed and 59% of the unemployed in FBiH. Situation is almost the same in RS. Employment structure by gender in Zenica and Tuzla show similarities in comparison to FBiH level. However, the unemployment figures show discrepancies in Zenica where women make up 62% of the unemployed. In Banovići, both employment and unemployment structure by gender deviate from FBiH level, where women make up only 26% of the employed and even 73% of unemployed. These data indicate that it is more difficult for women to find employment than for men especially in smaller (and coal-dependent) communities such as Banovići.

Table 6 Working-age population by activity and gender (2021)[78]

	Working age population (15-65)	Workforce			Persons outside the labor force	Activity rate
		Total	Employed	Unemployed		
FBIH						
total	1,499,495	825,114	525,397	299,717	674,381	55%
male	750,971	426,945	303,094	123,851	324,026	57%
female	748,524	398,169	222,303	175,866	350,355	53%
RS						
total	739,139	354,532	279,030	75,502	384,607	48%
male	375,752	186,572	151,329	35,243	189,180	50%
female	363,387	167,960	127,701	40,259	195,427	46%

[77] *Ibid*
[78] Federal Institute for Statistics: Annual Yearbook FBiH, 2022; Information on population estimates in FBiH in 2021, 2022

	Working age population (15-65)	Workforce			Persons outside the labor force	Activity rate
		Total	Employed	Unemployed		
BANOVIĆI						
total	15,971	9,185	5,204	3,981	6,786	58%
male	N/A	4,922	3,833	1,089	-	-
female	N/A	4,263	1,371	2,892	-	-
ZENICA						
total	73,966	44,266	26,906	17,360	29,700	60%
male	N/A	22,420	15,778	6,642	-	-
female	N/A	21,846	11,128	10,718	-	-
TUZLA						
total	72,229	53,053	38,233	14,820	19,176	73%
male	N/A	28,578	22,393	6,185	-	-
female	N/A	24,475	15,840	8,635	-	-

The average salaries in entities and in project municipalities show that salaries in Zenica are below the entity's average whereas salaries in Banovići and Tuzla are above the entity's average (Table 7).

Table 7 Average salaries (2021)[79]

	Banovići	Zenica	Tuzla	FBiH	RS
Average salary (BAM)	1,017	967	1,074	996	1,004

4.3.3. Employment in the Coal Sector

Although the coal sector is not a major employer in the broader Bosnia and Herzegovina economy (jobs in coal mining and power generation accounted for only 3% of total national employment in 2019), it can be a significant player at the local level. This is especially the case around Banovici, Gacko, Ugljevik, Breza and Kakanj. These municipalities are vulnerable to economic fall-out from mine closure, not only due to their dependence on the coal sector, but also because of already high unemployment.

As of end-2022, **14.6 thousand workers were directly employed in coal mines and thermal power plants**: 9.9 thousand in FBiH and 4.7 thousand in RS. Employment in mining has decreased steadily over the past decade: in FBiH, for which there are data since 2009, employment declined from 12.8 thousand workers in 2009 to 10.3 thousand in 2020, and another 1500 mining jobs were lost by end-2022.[80] Power plants account for fewer jobs compared to mines but are nevertheless significant (no trend data available for TPPs). **Coal mine Banovići** employs 2,788 workers[81], which is 53.6% of the total number of employees (5,204[82]) in the Banovići municipality in 2021. This indicator speaks volumes about the importance of the Coal mine "Banovići" for the economy and its development in the territory of Banovići municipality. **Coal Mine Zenica** employs 915[83] workers, which is 3.4% of the total number of employees in Zenica in 2021 (26,906[84]) showing that mining is not of significant importance for Zenica's economy. **Coal Mine Kreka in Tuzla** employs 1,870[85] workers, which is 4.9% of the total number of employees in Tuzla in 2021 (38,233[86]).

In addition to workers directly employed in coal mines and TPPs, **workers in other sectors also support coal production and would be impacted by mine and power plant closure**. These include workers employed upstream in the coal value chain, specifically in firms supplying inputs to mines and TPPs. **Number of these workers is between 1,900-2,400** who are also at risk of losing their jobs in the event of mine and power plant closures[87]. Other workers who are indirectly affected by mining activity are those employed in firms providing

[79] Federal Institute for Development Programming: Macroeconomic Indicators by Cantons FBiH, 2017-2022; RS Institute of Statistics: Cities and Municipalities of RS, December 2022
[80] The World Bank: Bosnia and Herzegovina Jobs Diagnostic and Implications of Coal Transition, December 2022
[81] Data from financial report of Coal Mine Banovići for 2021 (https://www.rmub.ba/izvjestaji)
[82] FBiH Institute for Statistics: Cantons in Numbers, 2022
[83] The World Bank: Bosnia and Herzegovina Jobs Diagnostic and Implications of Coal Transition, pg. 23, December 2022
[84] FBiH Institute for Statistics: Cantons in Numbers, 2022
[85] The World Bank: Bosnia and Herzegovina Jobs Diagnostic and Implications of Coal Transition, pg. 23, December 2022
[86] FBiH Institute for Statistics: Cantons in Numbers, 2022
[87] The World Bank: Bosnia and Herzegovina Jobs Diagnostic and Implications of Coal Transition, pg. 29, December 2022

goods and services to coal-sector workers and their families, i.e., SMEs in and around the mining regions. Most suppliers and most supplier contract value are spatially concentrated close to mining and TPPs sites or in Bosnia and Herzegovina's major urban centers.

4.3.4. Workforce Profile in Coal Sector

Education. Employees of coal mines have relatively low levels of education compared to TPP employees and the national average. 50% of coal sector employees are in low-skilled occupations, which is much higher than the national average of 21% and higher than other industrial sectors of activity such as construction (40%) and manufacturing (33%). 58% of the coal mines' workforce ended their education at lower-secondary school or before. The vast majority comprises semi-specialized workers, individuals who graduated from 2-3 years of vocational school. The coal sector also attracts high-skilled workers (such as engineers and technicians), who account for 25% of the coal sector workforce, slightly higher than the national average (23%), and much higher than other industrial sectors of activity like construction (9%) and manufacturing (15%).[88]

Figure 18 shows education structure of coal mines' workforce in comparison to the education structure TPP's workforce.

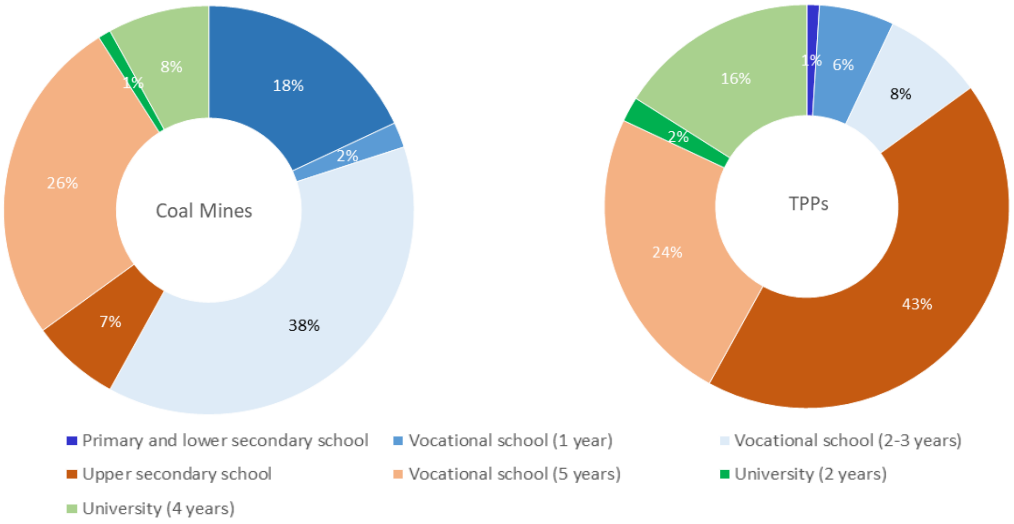

Figure 18 Education profile of workforce in coal mines and TPPs[89]

Skills. Miners account for the largest segment of workers employed by mining firms, especially in underground mines (Figure 19). Data from the mining conglomerates show that 58% of underground mines' employees are miners. For opencast mines, 44% of employees are miners. Most miners left school after primary or lower-secondary education or after 1-3 years of vocational training. The second largest segment of mine employees comprises technical positions, including those requiring electrical skills (10%), mechanical knowledge (18%), and ventilation shaft skills (less than 5%). Those positions require upper-secondary general or vocational education. Underground mines have very few positions dedicated to supporting activities and services, most of which are carried out by a centralized administrative support unit that serves multiple extraction sites. Opencast sites exhibit a larger share of employment in maintenance and transportation activities (10% and 6%, respectively).

[88] Ibid
[89] The World Bank: Bosnia and Herzegovina Jobs Diagnostic and Implications of Coal Transition, December 2022

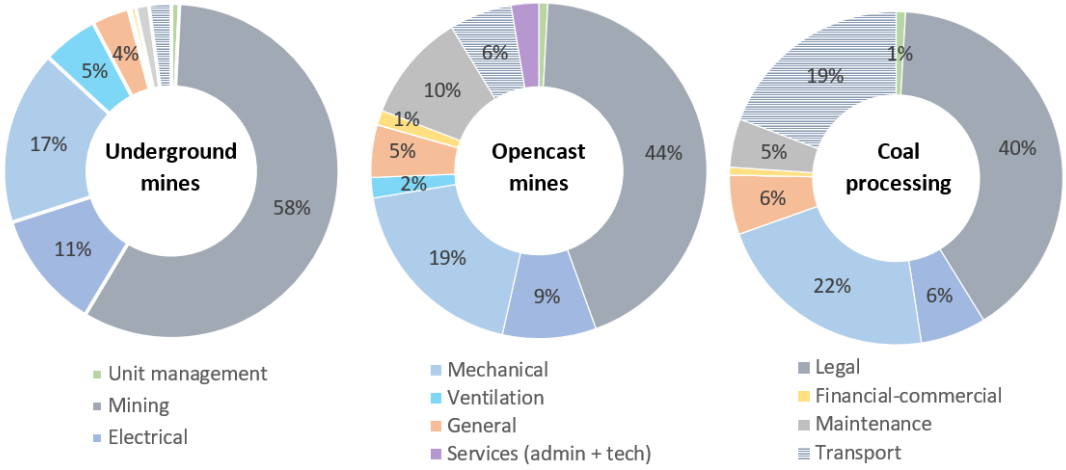

Figure 19 Skills profile of workforce in coal mines[90]

Gender and age. Coal workers are mostly male, rural, and in prime age. As in other countries, most coal workers are male (90%), second only to construction. 80% of coal sector workers live in rural locations. Similar to other traditional industrial sectors, the coal sector has a larger-than-average share of prime-age employees: 74% are between the ages of 26 and 55, compared to the national average of 70% (Figure 20). The sector attracts a lower share of young workers (4% of 15–25-year-olds, versus 10% in the general working population).

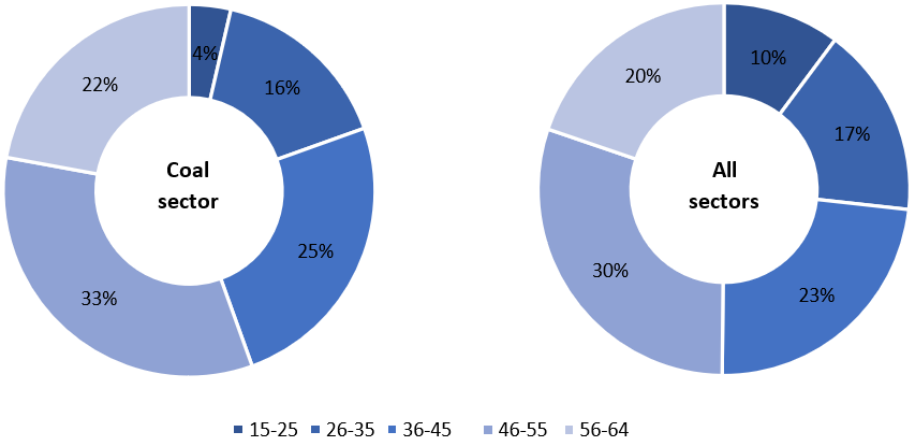

Figure 20 Age profile of coal sector employees compared to others[91]

Compensation. Lower-skilled mining employees are paid an average of BAM 954 per month, much higher than the national average of BAM 752 for low-skilled workers. Higher-skilled coal sector workers earn 17% more (BAM 1046) than the national average for higher-skilled workers (BAM 905). In fact, lower-skilled employees of the coal sector are the highest paid lower-skilled workers among all sectors, and higher-skilled coal workers are the second highest paid higher-skilled workers, after public administrations. This means that coal sector workers who seek jobs in other sectors are likely to struggle to find comparable compensation.

Because most coal sector jobs are in the public sector, they receive good nonwage benefits. While pension coverage is widely available to workers in general (80% have access to a pension), almost all coal workers have access to pension (97%), on par with other workers in the public sector. Union membership is very high within the coal sector, and compensation packages include relatively high wages, extra compensation for transportation costs, meals, hardship and performance targets, disability benefits, and severance provisions as a result of collective bargaining.

[90] The World Bank: Bosnia and Herzegovina Jobs Diagnostic and Implications of Coal Transition, December 2022
[91] The World Bank: Bosnia and Herzegovina Jobs Diagnostic and Implications of Coal Transition, December 2022

4.3.5. Labor Conditions

The share of informal employment in total employment in Bosnia and Herzegovina is relatively high (14%, ILO 2020)[92]. Informal labor is most common among the youth, older and unskilled workers and in the agricultural sector. In addition, many self-employed are informally employed. The most common violations of labor rights include unreported employment, not allowing workers to use annual leave and not concluding employment contracts for an unspecified period with workers (by giving preference to fixed-term employment contracts).

The International Labor Organization (ILO) has warned that unreported employment is on the rise in all Southeast European countries. According to their data, between 150,000 and 200,000 workers across all sectors in BiH work illegally (every fourth worker), and the economic crisis, layoffs, and the difficult financial situation are contributing to the increase in this number. Half of this number are young people who have up to ten years of work experience "on the black market", and not a single day of recorded work experience. In FBiH, an estimated 20% of all labor relations are without a legal basis, meaning that labor is performed without signing an employment contract.[93]

According to the annual report for 2022 published by the Federal Directorate for Inspection Affairs, there were 52 violations of labor relations and 99 violations of OHS recorded during inspection control activities of the Federal Labor Inspectorate. In the same year, on the basis of collected data on accidents at work submitted by cantonal inspectors in FBiH, 280 work-related injuries were recorded, including 13 deaths and 267 cases of serious injuries. This means that there is 2.43 fatal accidents per 100,000 employees in FBiH 2022, whereas the EU average was 1.77 fatal accidents per 100,000 persons employed in 2020. However, it should be emphasized that these data are relative, given that some cantonal authorities do not regularly submit the requested data, and that employers unfortunately do not report accidents at work in all cases. In the field of “mining and tunneling”, 610 injuries at work were recorded, of which 51 were serious, with no fatal outcome. The highest number of injuries at work was recorded in Coal Mine Banovići (141) and Coal Mine Kakanj (127). The total number of injuries at work at the level of observed mines and contractors at other facilities of interest to the FBiH has been in constant decline for the last five years (2018-2022). Federal mining inspectors conducted three investigations of accidents in the Breza and Banovići mines in 2022, where three accidents occurred in which 10 miners were injured, 8 minor and 2 serious (without fatal consequences). The largest number of injuries at work, as in previous periods, was found in the areas of construction, production and processing of metals, and accidents at work are mainly the result of non-implementation of prescribed occupational safety measures, untrained workers in this area, failure to use personal protective equipment, as well as non-compliance with the provisions of technical regulations and standards.[94]

In RS, according to the official report published by the Republic Labor Inspection, the Inspection visited 2,589 employers in 2022, and labor law breaches were found in 35%. 200 workers were found without a signed employment contract and without insurance. In the field of labor relations, controls were carried out on the realization of rights from the employment relations of workers, primarily the length of working hours and other rights from the labor relations, especially the realization of wages for work performed. In this period, there were no data on work-related injuries. The most frequent breaches of the labor legislation are related to calculations and payments of wages and compensations, termination of employment, working hours, lack of employment contracts, and holidays and leave. In this period, there were no data on work-related injuries.[95]

4.4. Transport Infrastructure

Although the **Banovići municipality** has a favorable geographical location, the transport connections with the rest of the Tuzla Canton are very poor because there are no highways, speed roads or main roads. There are two regional roads: R-469 Živinice-Banovići-Zavidovići and R-471 Banovići-Lukavac. The route of the Orašje-Tuzla-Žepče highway is planned through the Banovići municipality and the Tuzla Canton, with a planned connection in the Žepče municipality to the Vc corridor, which is under construction. The municipality of Banovići will be connected to the highway with the connection road and the junction in the settlement of Seona, which will provide

[92] https://www.ilo.org/budapest/countries-covered/bosnia-herzegovina/WCMS_471903/lang--en/index.htm
[93] Federal Institute for Development Programming: Report on the Development of the Federation of BiH 2019, 2020
[94] Presentation of the results of the work of the Federal Directorate for Inspection Affairs for 2022, January 2023
[95] Report on the work of the Republic Administration for Inspection Works for 2022, February 2023

an extremely good connection between the municipality and other parts of Bosnia and Herzegovina. The railway network in the Banovići municipality is part of the Brčko-Tuzla-Banovići railway which is used for cargo traffic only because the existing state of the railway infrastructure does not meet the conditions for the development of passenger railway transport. The total length of this railway line is 92 km and it needs to be reconstructed with the aim of electrification and modernization to be competitive to other transport infrastructure. It is of great importance to both the Banovići municipality and the Tuzla Canton to establish a railway connection between Banovići and Vareš, which would enable access to the Doboj-Sarajevo railway.[96]

The geographical position of the **City of Zenica** is satisfactory considering that the city is located on the most important transport corridors in Bosnia and Herzegovina, on the Vc (A1) corridor, i.e. the north-south direction and the Xe corridor, i.e. the northeast-southwest direction. Also significant is the planned transport corridor Orašje-Tuzla-Žepče, with a connection via the inter-regional junction in the area of Žepče with the corridor Vc (A1). The highway A1 on the corridor Vc passes through the City of Zenica in the lenght of 32.0 km, two main roads M17 in the lenght of 37.2 km and M5 in the lenght of 1.6 km, four regional roads R413a (10.7 km), R441 (7.7 km), R445 (36.6 km), and R473 (15.6 km), which favorably affects the geotraffic position of the city, i.e. traffic connections within the Canton, the state and beyond. The Šamac-Sarajevo-Ploče railway line exists in the territory of the City of Zenica, which is of major importance and represents a very important transport route in railway traffic, and it is part of the transport corridor Vc.[97]

The **City of Tuzla** is a complex traffic center of the Tuzla Canton, from where the main traffic routes east-west and north-south, spread radially. The east-west direction enables a good connection of the City of Tuzla with the neighboring municipalities (Zvornik, Kalesija, Sapna, Bijeljina, Lukavac, Gračanica, Doboj East, Doboj) and also with other countries (Serbia, Croatia). The north-south route connects Tuzla, via Srebrenik and Orašje, with Županja (in Croatia), where it connects to the highway to Zagreb and Belgrade, and further to most European road routes. The direction to the south is also of great importance, to Sarajevo via Živinice, Kladanj and Olovo, which provides a connection with the capital, but also with the Adriatic coast. Three freight railway routes pass through Tuzla: Doboj-Tuzla, Brčko-Banovići, Živinice-Karakaj. There is no passenger railway traffic in the Tuzla Canton. Air traffic operates through the international airport "Tuzla".[98]

4.5. Water and Sanitation Infrastructure

There are no significant sources of drinking water in the **Banovići municipality**. The urban area of the town of Banovići is supplied from the sources of Studešnica and Krabašnica, which are located in the municipality of Živinice (Studešnica) and the municipality of Kladanj (Krabašnica). The water intake Palučak, which is located in the municipality of Kladanj, is also included in the water supply system. In some places, springs with a yield below 1 l/s appear, but they mostly dry up in the dry part of the year. The settlements of Banovići, Stražbenica and Repnik are supplied from the public water supply system.[99] Other local communities are supplied with water from local systems, which they manage on their own. The sewage system exists in the urban area of Banovići and several local communities. Drainage of waste water from areas outside the narrow urban area is handled through septic tanks.[100]

The water supply of the **City of Zenica** and suburban settlements is done from the Kruščica spring in the neighboring municipality of Vitez, from which about 400 l/s is taken, and from the water intake on Babina river, from which about 150 l/s is taken.[101] The public water supply system, which is managed by Public company ViK Zenica, covers the entire urban area of Zenica and most of the suburban settlements, which accounts for approximately 90% of connected households (consumers) living in the service area. Currently, about 76,000 inhabitants are connected to the public water supply system, which is about 54% of the total number of inhabitants. About 2,400 different legal entities are also connected. The remaining part of the municipality (rural part) is supplied with water from local water supply systems. The majority of the urban area (approx. 90%) and part of the suburban settlements is covered by the public sewage system. The system is of mixed type. A separate sewage

[96] Development Strategy of the municipality Banovići 2017-2027
[97] Spatial Plan of the City of Zenica 2016-2036
[98] Spatial Plan of the City of Tuzla 2010-2030
[99] Spatial Plan of the municipality Banovići 2015-2035
[100] Development Strategy of the municipality Banovići 2017-2027
[101] Local Environmental Action Plan Zenica 2008/2009

system exists only in the settlements of Babina Rijeka and Novo Radakovo. The area of public sewage system covers a total of 26 local communities, where the total number of inhabitants is about 87,100, of which 76% is covered by public sewage (about 66,200 inhabitants). Currently, 50% of the wastewater from this system is discharged into the ArcelorMittal company's industrial sewage system, while the remaining 50% is discharged directly into the Bosna River. However, the sewage system from the ArcelorMital company has direct discharges into the Bosna River too, so that all the city's wastewater ends up in the Bosna River without treatment.[102]

City of Tuzla and part of Lukavac and Živinice are supplied with water through the inter-municipal water supply system Tuzla - Živinice - Lukavac, which covers around 165,000 inhabitants. The basis of this water supply system are water intakes: "Sprečko polje" - groundwater intake with intergranular porosity, "Stupari" and "Toplice" - groundwater intake from fissure karst environments, and reservoir "Modrac" - intake of surface water, which at the same time represents the largest and most significant multi-purpose water resource for the Tuzla Canton and the FBiH. On the territory of the Tuzla Canton, the degree of coverage of the population by the public water supply system is, on average, about 73%[103]. Public comapany "Vodovod i kanalizacija" Tuzla supplies 49,226 residential and business units in the City of Tuzla. The total capacity is about 960 l/s. 97% of the City of Tuzla is covered by water supply, while 80% of that number is covered by the sewage network. The number of water service users in 2021 was 136,751 households and 10,325 legal entities.[104]

4.6. Information and Communication Technologies

The Regulatory Agency for Communications (RAK) regularly publishes reports on the results of the annual surveys of users of RAK licenses for the provision of internet services in Bosnia and Herzegovina. In the period covered by the research, ending with December 31, 2021, a total of 60 internet service providers were operating in Bosnia and Herzegovina.

The results of the survey showed that at the end of 2021 there were a total of 797,893 internet subscribers in Bosnia and Herzegovina. The Agency estimates that in the same period there were 3,374,094 Internet users, that is, that the Internet usage rate in BiH for 2021 is 95.55%. When it comes to the type of Internet access, there are no more registered subscribers via dial-up analog and ISDN modems on the BiH market, and the number of broadband access connections is equal to the total number of Internet subscribers and amounts to 797,893 subscribers.

Statistics show that in 2021 the dominant type of internet access was xDSL, whose number of subscribers is 52.14% of the total number of internet subscribers in Bosnia and Herzegovina. In second place is cable access, the number of subscribers of which is 33.26% of the total number of Internet subscribers.

The data provided in the report show that the use of broadband Internet in Bosnia and Herzegovina is constantly increasing, which has influenced the improvement of the offered services for end users, which is especially reflected in the offer of service packages that combine several electronic communication services in one package.

Table 8 Telecommunication indicators for BiH[105]

	2017	2018	2019	2020	2021
FIXED TELEPHONE NETWORK OPERATORS					
Total number of active telephone lines of incumbent operators	695.536	652.502	583.729	560.796	543.797
Total number of physical person subscription lines	550.337	503.345	447.010	423.137	404.723
Total number of legal person subscription lines	144.052	148.035	135.858	136.849	138.394
Number of alternative fixed telephony operators	11	12	12	13	14
Total number of individual subscribers of alternative operators	125.230	140.033	144.593	146.149	145.498
MOBILE OPERATORS					
Total number of active mobile network subscriptions	3.440.085	3.461.058	3.755.521	3.509.674	3.728.775
Percentage of population coverage (GSM) with mobile network	99%	99%	99%	99%	100%
Percentage of population coverage with 3G mobile network	95%	95%	95%	96%	97%

[102] Spatial Plan of the City of Zenica 2016-2036
[103] Development Strategy of Tuzla Canton 2021-2027
[104] Business Report of ViK Tuzla, 2022 (https://viktuzla.ba/o-nama/izvjestaj-o-radu-i-poslovanju/)
[105] RAK: Telecommunication Indicators for BiH, issues from 2017 to 2021

	2017	2018	2019	2020	2021
Percentage of population coverage with 4G mobile network	-	-	-	82%	93%
Percentage of population coverage with 5G mobile network	-	-	-	-	-
FIXED INTERNET					
Number of ISP operators	71	67	65	60	60
Total number of fixed internet subscribers	663.913	693.873	746.271	770775	797.893
Total number of dial-up subscribers	231	319	384	351	0
Total number of broadband subscribers	663.682	693.554	745.887	770424	797.893
Total number of subscribers via xDSL connection	398.110	404.795	413.902	411.850	416.028
Total number of subscribers via cable modem	221.251	230.028	239.551	258.020	265.411
Number of subscribers via FWA (Fixed Wireless Access) connection	40.886	40.719	60.936	53.567	55.658
Total number of subscribers via leased lines	1.142	1.036	980	1.689	2.167
Total number of subscribers via FTTH connection	1.939	16.691	30.231	45.046	58.604
Total number of subscribers via other technologies	354	285	287	252	25
MOBILE INTERNET					
Number of mobile internet subscribers via standard mobile broadband access	1.421.817	1.789.989	1.544.760	1.608.820	1.817.489
Number of mobile internet subscribers via dedicated broadband access	98.607	50.819	15.643	14.903	16.030

4.7. Education

Education structure of population 15 years and over show that 35% of population in FBiH and 36% in RS have low level of education – primary school or less. Share of female in this education group is 65% in FBiH and 62% in RS. Majority of population have secondary school education – 51% in both FBiH and RS, whereas 14% of population in FBiH and 13% in RS have higher level education (Figure 21). Education structure of female in Tuzla is better than the FBiH average, in Zenica is similar to the FBiH average, whereas education of female in Banovići is below the FBiH average. More than half of female in Banovići have primary school education or less compared to 20% of male (Figure 22).

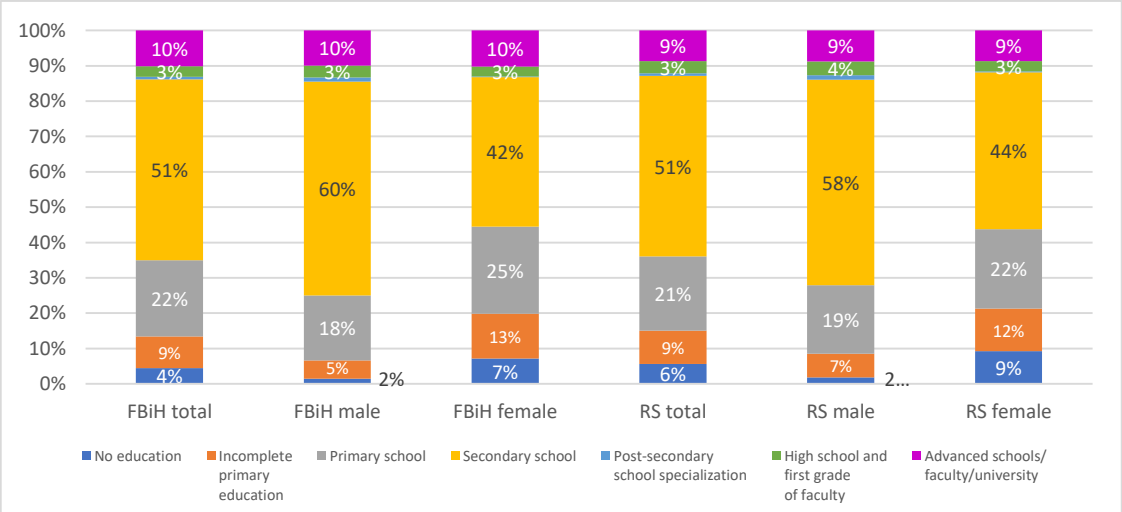

Figure 21 Population 15 years and over by highest level completed education and gender – FBiH, RS[106]

[106] Agency for Statistics of BiH: Census 2013 – Characteristics of Education, 2018

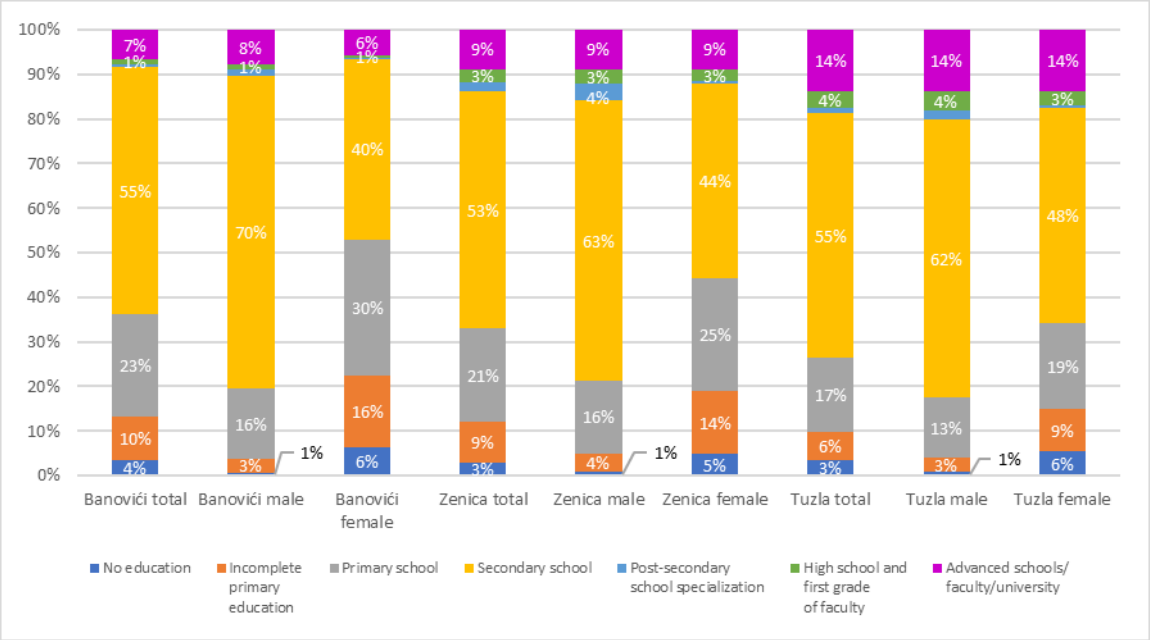

Figure 22 Population 15 years and over by highest level completed education and gender – Banovići, Zenica, Tuzla[107]

Majority of all age groups have completed secondary school, younger generations have significant share among those with university diplomas, whereas older generations present majority of those with no education and incomplete primary education (Figure 23 - Figure 27).

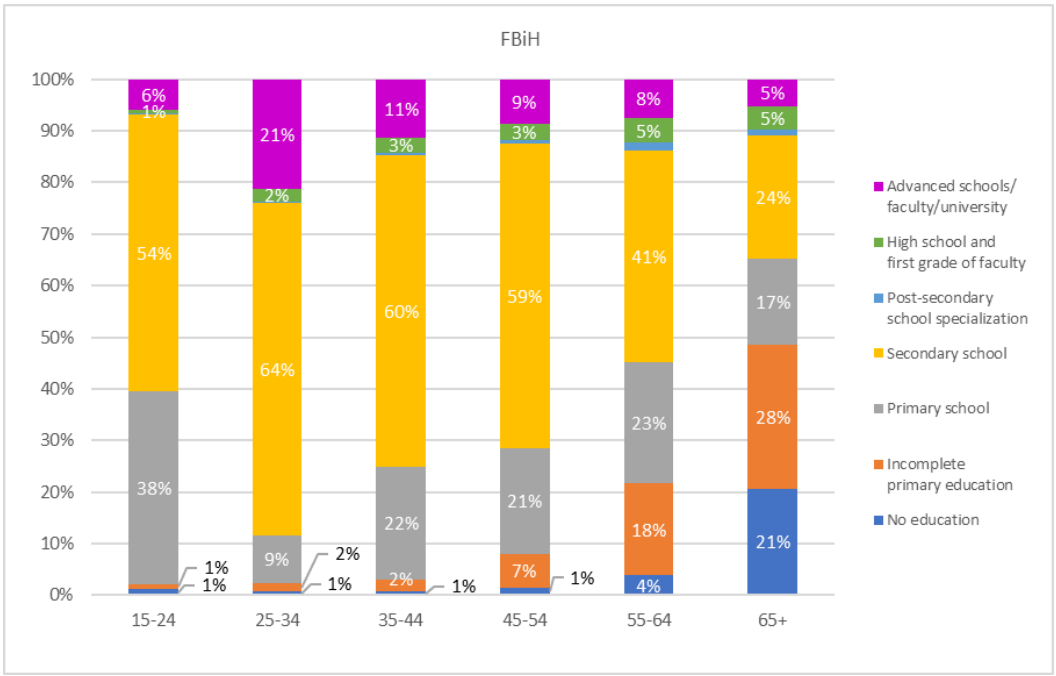

Figure 23 Population 15 years and over by highest level completed education and age in FBiH[108]

[107] Agency for Statistics of BiH: Census 2013 – Characteristics of Education, 2018
[108] Agency for Statistics of BiH: Census 2013 – Characteristics of Education, 2018

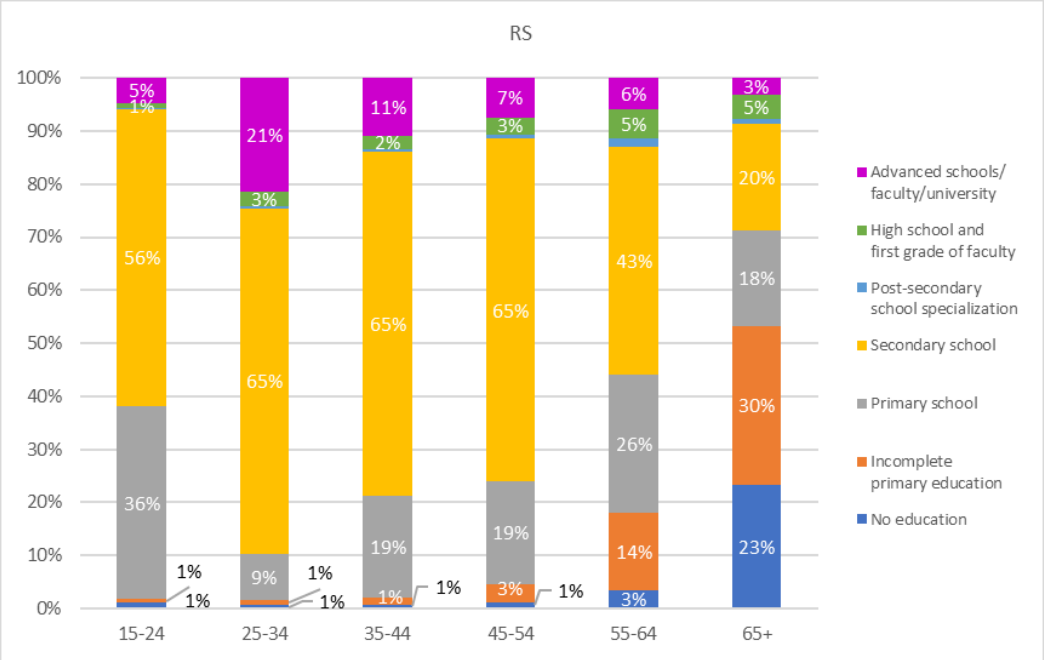

Figure 24 Population 15 years and over by highest level completed education and age in RS[109]

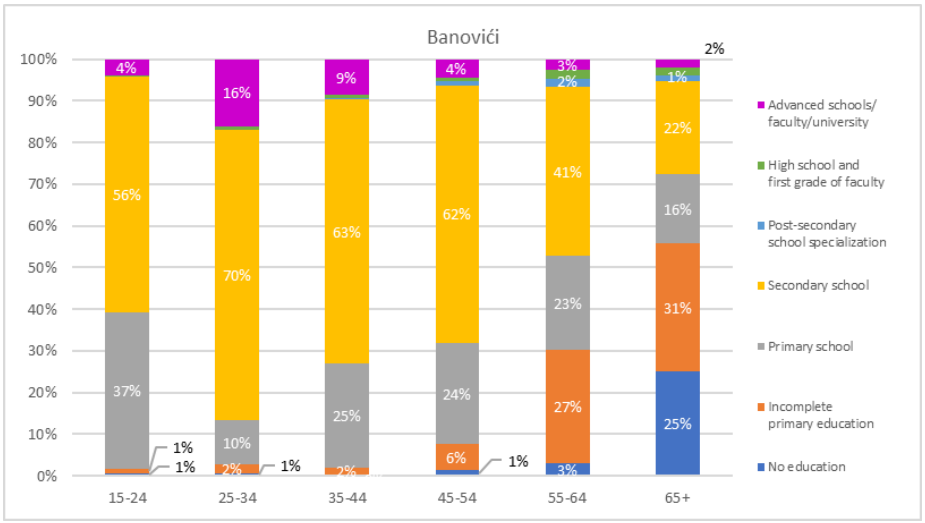

Figure 25 Population 15 years and over by highest level completed education and age in Banovići[110]

[109] Agency for Statistics of BiH: Census 2013 – Characteristics of Education, 2018
[110] Agency for Statistics of BiH: Census 2013 – Characteristics of Education, 2018

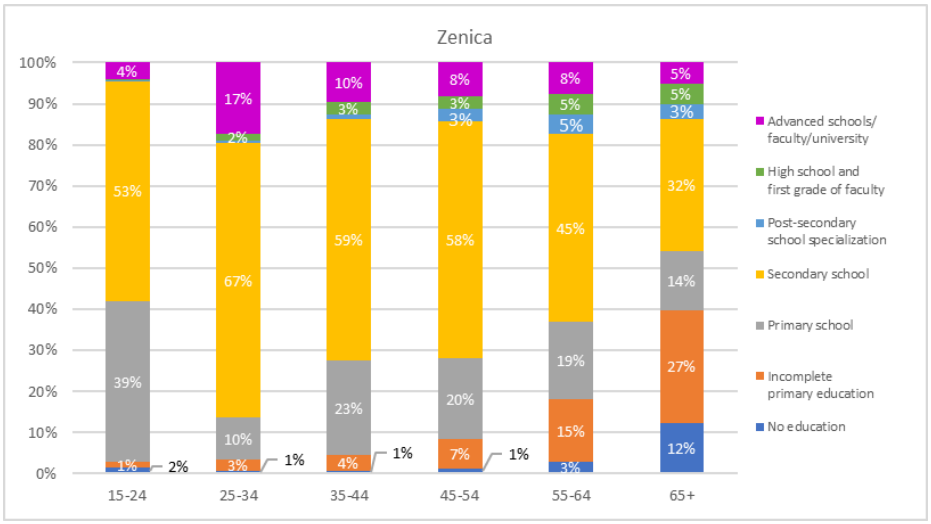

Figure 26 Population 15 years and over by highest level completed education and age in Zenica[111]

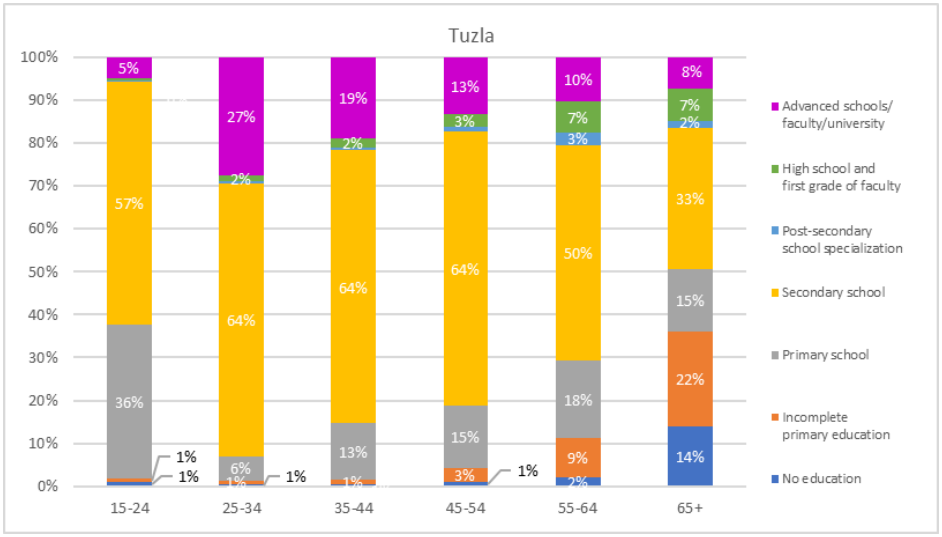

Figure 27 Population 15 years and over by highest level completed education and age in Tuzla[112]

In the **municipality of Banovići**, there is a network of five central and nine branch schools for primary education. In the school year 2021/2022, 2,148 students[113] were enrolled in primary schools which is 8% more students than 5 years ago. There is also an elementary music school in the Banovići municipality. Secondary education in the municipality of Banovići is organized in the Mixed Secondary School "Banovići" through four four-year vocational programs, five three-year vocational programs, while in the gymnasium students are educated according to the general gymnasium program. The following professions are represented: Mechanical engineering and metal processing; Geology, mining and metallurgy; Electrical engineering; and Economics, law and trade[114]. In the school year 2021/2022, 647 students[115] were enrolled in secondary schools. In order to support students, the municipality's budget allocates scholarship funds for secondary school and university students. The number and amounts of scholarships are determined from year to year in accordance with the possibilities of the budget.

The **City of Zenica** is a regional educational center with a developed network of preschool, primary, secondary, university, undergraduate and postgraduate education. There are 43 primary schools and 1 special needs school

[111] Agency for Statistics of BiH: Census 2013 – Characteristics of Education, 2018
[112] Agency for Statistics of BiH: Census 2013 – Characteristics of Education, 2018
[113] FBiH Institute of Statistics: Tuzla Canton in figures, 2022
[114] https://www.eduinfo.ba/drzavne-srednje-skole
[115] FBiH Institute of Statistics: Tuzla Canton in figures, 2022

in the City of Zenica. In the school year 2021/2022, 9,843 students[116] were enrolled in primary schools with a decreasing trend over the last 5 years. Secondary education in the City of Zenica is organized in the following secondary schools: 2 Gymnasiums, 2 Mixed secondary schools (Traffic, Civil Engineering and Geodesy, Electrical Engineering, Textiles and Tannery, Other activities), 4 vocational schools (Economics School, Technical School, Vocational Secondary School education and work training; Medical School) and one Music School[117]. In the school year 2021/2022, 3,885 students[118] were enrolled in secondary schools which is 14% less students than 5 years ago. Zenica acquired the status of a university city and formed the University with 8 faculties (Faculty of Mechanical Engineering, Faculty of Metallurgy and Materials, Islamic Pedagogical Academy, Faculty of Economics, Faculty of Law, Faculty of Health, Faculty of Pedagogy and Faculty of Polytechnics). The University also includes: the Kemal Kapetanović Institute of Metallurgy, the University Library, and the Center for Innovation and Entrepreneurship. At the University of Zenica, in the academic year 2021/2022, 2,727 students[119] were enrolled.

In the **City of Tuzla** primary education is organized in 33 schools and 2 special needs schools. In the school year 2021/2022, 8493 students[120] were enrolled in primary schools. Secondary education is organized in the following secondary schools: 3 Gymnasiums, 9 vocational schools (electrotechnical, mining, construction-geodetic, chemical, traffic, mechanical, medical, economic-trade, tourism-hospitality), 1 Mixed secondary school, 1 Religious school, 1 Music School, and 1 International Secondary School[121]. In the school year 2021/2022, 5753 students[122] were enrolled in secondary schools which is 10% less students than 5 years ago. Tuzla is a university city with 13 public (Economics, Law, Electrical Engineering, Mechanical Engineering, Natural Sciences and Mathematics, Mining-Geology and Construction, Faculty of Technology, Faculty of Medicine, Pharmacy, Philosophy, Academy of Dramatic Arts, Faculty of Education and Rehabilitation, Faculty of Sports) and 4 private faculties. At the University of Tuzla, in the academic year 2021/2022, 8048 students[123] were enrolled which is 29% less students than 5 years ago.

4.8. Social welfare

Socially sensitive and marginalized groups of the population are individuals, families and social groups who are deprived of the opportunity to achieve key social values such as: the right to work, the realization of creative and creative potential, material well-being, human dignity, social security, future perspectives, etc. These groups of people make up the largest part of the users of public systems that deal with issues of social security and social welfare of citizens in BiH. The quality of life of socially sensitive and marginalized groups often and to the greatest extent depends on the efficiency of public systems that deal with planning, organizing and implementing protection and support measures.

The provision of social welfare in the Federation of BiH is carried out through the work of ten cantonal ministries responsible for social protection, municipal centers for social work, municipal social protection services, institutions for the care of children with disabilities, and institutions for the care of children without parental care. Centers for social work also keep records of protective measures imposed in accordance with the Law on Protection from Domestic Violence.

Social welfare in the RS is organized in institutions founded by the RS (Institution for Children and Youth without Parental Care Banja Luka, Public Institution for Persons with Disabilities Prijedor, Public Institution for Persons with Disabilities Višegrad, Public Institution for Elderly Persons Prijedor, Public Institution for elderly people East Sarajevo, Public Institution Gerontological Center Banja Luka, Center for Children and Youth with Developmental Disabilities "Budućnost" Derventa) and in centers for social work and social protection services founded by the Municipality/City.

[116] FBiH Institute of Statistics: Zenica-Doboj Canton in figures, 2022
[117] https://www.eduinfo.ba/drzavne-srednje-skole
[118] FBiH Institute of Statistics: Zenica-Doboj Canton in figures, 2022
[119] *Ibid*
[120] FBiH Institute of Statistics: Tuzla Canton in figures, 2022
[121] https://montk.gov.ba/obrazovanje-i-nauka/srednje-obrazovanje/srednje-skole/
[122] *Ibid*
[123] *Ibid*

Social welfare beneficiary is any person who, due to particular living conditions or to a special mental or physical situation, used certain forms and measures of social welfare and social work services, once or several times. The categories of beneficiaries of social welfare in the FBiH and the RS, according to official statistics, are as follows: beneficiaries of subsidies, mentally and physically disabled persons, persons with socially unacceptable behavior, mentally ill persons, persons not having sufficient income to support themselves, persons in different social and protective needs, others without a specific category. The number of adult beneficiaries of social welfare in FBiH in 2021 was 271,055, while the number of minor beneficiaries was 73,275[124]. The number of adult beneficiaries of social welfare in RS in 2021 was 111,966, while the number of minor beneficiaries was 35,089[125]. However, the actual number of beneficiaries is certainly lower because this number also includes people who use their rights to social welfare on several grounds and in several systems.

The main institutions for provision of social welfare are municipal Centers for Social Work whose role is to provide social assistance and protection, especially to families and vulnerable people. The services provided by Centers for Social Work are, among others: providing material and professional assistance and support to individuals and families living in unfavorable circumstances; performing advisory work; providing assistance in solving problems of violence, abuse, neglect and exploitation of children, as well as domestic violence; keeping records and collecting documentation on beneficiaries of social welfare, types of social assistance and spent material resources. Typical types of social assistance are: financial and other material assistance (one-off and permanent), training for life and work, accommodation in social protection institutions, temporary accommodation and care in a safe house, disability allowance, allowance for care and assistance for disabled persons, allowance for children, etc.

In the **municipality of Banovići**, social protection is provided in the Public Institution (PI) "Center for Social Work" Banovići. The material costs of the Center are financed from the municipal budget, while the social benefits stipulated by the federal and cantonal laws on social protection, the protection of civilian victims of war and the protection of families with children are financed from the federal and cantonal budget. In accordance with the cantonal law, municipalities can, according to their possibilities, expand the rights on social protection as well as the list of beneficiaries by municipal decisions. The Municipality of Banovići annually allocates between 150,000 and 230,000 BAM for the PI "Center for Social Work".[126] The data on the number of beneficiaries of social care services are not available.

In the **City of Zenica**, social protection is provided in the PI "Center for Social Work", the PI "Home and Family" for children without parental care, the PI "Home for the Elderly" Zenica, and the PI "Center for Children and Adults with Special Needs" of Zenica-Doboj Canton. The PI "Center for Social Work" acts as a public institution for issues in the fields of social security, social care, child care and as custody body with public authority. The Disciplinary Center for Juveniles also operates within this PI. Between 9,000 and 10, 000 residents of the City of Zenica exercise rights in the field of social and child care at the PI "Center for Social Work". In 2017[127], a total of 9,767 beneficiaries exercised rights from social, child or family protection, of which 9,461 beneficiaries were entitled to financial assistance. During the same year, the Center provided 20,894 social and other professional services to the population and users, of which over 1,000 were in the field: in the family, school or community. The number of beneficiaries of permanent financial assistance provided to persons unable to work and earn money and with insufficient income was 634, while 377 persons were entitled to one-time financial assistance. 7 families were entitled to other material assistance. Assistance in the form of meals from the Public Kitchen at 10 points in the city and suburbs, was used by 1,044 beneficiaries. Accommodation in a social protection institution was used by 204 persons, whereas 43 children were in foster families. The main activity of the PI "Home and Family" is accommodation, upbringing, education and training for independent life and work of children and youth placed in the Institution. The main activity of the PI "Home for the Elderly" Zenica is accommodation for the elderly and

[124] Federal Institute for Statistics: Annual Yearbook FBiH, 2022
[125] RS Institute for Statistics: Annual Yearbook RS, 2022
[126] Development Strategy of the municipality Banovići 2017-2027
[127] Report of Work of PI Center for Social Work Zenica for 2017; https://dokumen.tips/documents/javne-ustanove-centar-za-socijalni-rad-zenica-u-2017-o-radu-u-2017pdf-centar.html?page=3

people with disabilities without or with minimal care and institution with accommodation that includes a certain degree of health care.[128]

In the **City of Tuzla**, social protection is provided in the PI "Center for Social Work", the PI "Home for children without parental care", the PI "Retirement Home". The PI "Center for Social Work" acts as a public institution for issues in the fields of social security, social care, child care and as custody body with public authority. The number of different types of beneficiaries of social protection rights is around 10,000, of which 58% are women[129]. In the Center for Social Work Tuzla, the requests of users from different areas of social protection are dealt with, which are financed from the budget of the FBIH, the Tuzla Canton and the City of Tuzla. In 2023[130], the number of beneficiaries of permanent financial assistance provided to persons unable to work and earn money and with insufficient income was 752, and the amount of disbursed funds to these users was 1.7 million BAM. The number of beneficiaries with disabilities was 732. 642 beneficiaries received financial assistance for help and care from third persons. The number of beneficiaries of one-time financial assistance, which is granted for various social needs, was 569. In 2017, 204 elderly people used the accommodation services of the PI "Retirement Home", whereas 23 children used the accommodation services of the PI "Home for children without parental care"[131].

4.9. Health care

In the **municipality of Banovići**, the public health institution (PHI) "Health center" Banovići is an institution that implements primary health care through the family medicine service. Mental health care center operates within the "Health Center". In addition to this institution, there are also three private dental practices, one pediatric and one gynecological practice. There are also equipped branch infirmaries in the local communities: Aljkovići, Seona, Pribitkovići, Banovići Selo, Treštenica, Tulovići, Brezovaca and Oskova. PHI "Health center" has 12 family medicine teams. In addition to these infirmaries, there are also the two workers' infirmaries within the company Coal Mine Banovići. PHI "Health center" Banovići has three medical vehicles that meet general needs (transportation of patients to the University Medical Center Tuzla, emergency interventions).[132]

The health care of the population in the **City of Zenica** is provided by the following public institutions: Health Center, Cantonal Hospital, Institute of Occupational Medicine of Zenica-Doboj Canton, Institute for Addictive Diseases of Zenica-Doboj Canton, and Institute of Public Health of Zenica-Doboj Canton. There is also a mental health care center within the Health Center. In addition to these public institutions in the field of healthcare, there are also private healthcare institutions, private specialist practices, private dental practices, as well as private pharmacies.[133] Services of PHI "Health center" are provided in a central facility with four buildings in the Zenica City, and 27 branch family medicine infirmaries spread over the entire area of the City of Zenica[134]. The current capacity of the Cantonal Hospital is 912 beds, 38 beds for hemodialysis and 8 beds in the daily hospital[135].

The health care in the **City of Tuzla** is provided by the public health and educational institution Health Center "Dr. Mustafa Šehović" Tuzla, University-clinical center Tuzla, and six private hospitals/polyclinics[136]. Health Center is a health institution that provides primary health care and specialist-consultative health care. The Institution's activities are carried out in the Service of General Family Medicine, Service of Specific Health Protection of Workers, Emergency Room, Service of Hygienic Epidemiological Protection, Service of Health Protection of Women and Pregnant Women, Dental Service, Polyclinics and Medical Diagnostics Service[137]. There is also a mental health care center within the Health Center. The public health institution University-clinical center Tuzla has 42 organizational units, of which 23 Clinics, 2 Polyclinics, 2 Departments, the Center for Palliative Care and the Emergency Center, the Hospital Pharmacy, 7 sectors and 5 services. In this institution, whose capacity is 1333 hospital beds, about 46,000 patients are treated annually, over 20,000 operations are

[128] Spatial Plan of the City of Zenica 2016-2036
[129] Development Strategy of the City of Tuzla 2012-2026
[130] Program of Work of PI Center for Social Work Tuzla, 2024
[131] Development Strategy of the City of Tuzla 2012-2026
[132] Development Strategy of the municipality Banovići 2017-2027
[133] Development Strategy of the municipality Zenica 2012-2022
[134] https://dzz.ba/o-nama/
[135] https://www.kbze.ba/index.php/o-nama#
[136] https://zzotk.ba/privatne-ustanove-ordinacije/
[137] https://dztuzla.ba/

performed for inpatients, about 9,000 operations for outpatients, and more than 3,000,000 services and examinations are provided[138].

4.10. Poverty

Poverty in BiH is most often measured by consumption-related indicators, while the multidimensionality of poverty is observed through health, education, employment opportunities and access to social protection institutions.

The only poverty data available for BiH is from a 2015 Household Budget Survey (HBS) conducted by the Agency for Statistics BiH. According to this survey, 16.9% of the population lived in relative poverty. The poor are disproportionately concentrated in rural areas and the poverty rates are higher than in urban areas (19% poverty rate in rural areas and 12% poverty rate in urban areas) and where jobs tend to be scarce and salaries low. Approximately 40% of poor rural workers are employed in the agricultural sector, which faces low and declining productivity and competitiveness. Across entities, poverty remained stable in RS at about 14% between 2011 and 2015, whereas it increased in FBH from 15% to 17% during the same period.[139].

The number and percentage of the poor are important indicators, but they are still one-dimensional data that do not say enough about living conditions, i.e. how deep that poverty is. This information is obtained from the poverty gap indicator, which measures how far the consumption expenditures of poor households are, on average, away from the poverty line (Table 9).

Table 9 Main indicators of relative poverty in BiH (2015)[140]

Indicators	2015
Relative poverty line for single-member household (monthly)	BAM 389
Number of relatively poor households	170,619
Number of relatively poor individuals	505,816
Relative poverty rate	16.9%
Poverty gap	24.6

4.12. Gender, gender equality and SEA/SH

The Constitution of Bosnia and Herzegovina contains key international standards related to human rights and gender equality, primarily the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) from 1979, which is directly applied in BiH. Furthermore, BiH is a signatory to other international legal acts and documents, including - among other international treaties - the Beijing Declaration with a Platform for Action from 1995, United Nations Security Council Resolution 1325 Women, Peace and Security (UNSCR 1325) from 2000, the UN Convention against Transnational Organized Crime from 2000, as well as a total of 83 International Labor Organization (ILO) conventions and one protocol, of which 65 are in force. BiH has also ratified the Council of Europe Convention on preventing and combating violence against women and domestic violence from 2013 (Istanbul Convention).

The Law on Gender Equality BiH FBiH[141] proclaims principles of gender equality, defines gender-based discrimination and prohibits discrimination based on gender and sexual orientation in all spheres of life. This is additionally stated in the Law on Prohibition of Discrimination[142], which defines direct and indirect discrimination on all grounds, including gender and sexual orientation, as well as what does not constitute discrimination. This law also regulates the system of protection against discrimination in all areas of life, including work and employment, social and health care, justice and administration, housing issues, public information, education, sports, culture, science and economy. Furthermore, this law prohibits sexual harassment and all other forms of harassment, mobbing, segregation and incitement to discrimination.

[138] https://www.ukctuzla.ba/ukctuzla/?page_id=98&lang=bs
[139] The World Bank: BiH Country Partnership Framework for the period FY2023-27, June 2022
[140] Agency for Statistics BiH: Household Budget Survey in Bosnia and Herzegovina in 2015, 2018
[141] "Official Gazette of BiH", No. 102/09, 32/10
[142] "Official Gazette of BiH", no. 59/09, 66/16

The terms and conditions provided by Labor Laws of FBiH and RS include prohibition of gender discrimination in terms of employment requirements and selection of candidates, education, training and professional development, promotion and employment contract termination.

The institutional framework for gender equality in Bosnia and Herzegovina includes the ***BiH Agency for Gender Equality***, the ***FBiH Gender Center*** and the ***RS Gender Center*** as key institutional mechanisms for gender equality in the executive branch. The BiH Agency for Gender Equality performs functions related to gender equality at the state level, such as elections and political parties, defense, reporting to bodies of international committees, and the like. Gender centers focus on the inclusion of gender-aware policies in areas under the entity's competence and include, among other things, education, work, agriculture, internal affairs, protection from domestic violence, in cooperation with lower levels of government.

Gender Action Plan for Bosnia and Herzegovina (GAP) for the period 2018-2022 is a key medium-term public policy document adopted by the BiH Council of Ministers in accordance with the Law on Gender Equality. According to this law, the BiH Agency for Gender Equality is responsible for initiating and coordinating the development of the Gender Action Plan in cooperation with entity gender centers, as well as for monitoring its implementation and coordinating activities with all relevant bodies in the implementation process. The Gender Center of the RS and the Gender Center of the FBiH coordinate specific sector strategies and action plans at the entity level related to domestic violence, improving the position of women in rural areas, introducing gender-sensitive budgeting and responding to natural disasters (***Strategy for the Prevention and Combating of Violence in family in FBiH for the period 2021-2027; Strategy for suppression of violence in the family of the Republika Srpska for the period 2020-2024***). In accordance with the Law on Gender Equality, several local self-government units have adopted ***Local Gender Action Plans (LGAP)***, which operationalize at the local level the priorities from the state level contained in the Gender Action Plan. The Municipality of Banovići and the City of Zenica have prepared and adopted such LGAPs.

According to UNDP research[143], Bosnia and Herzegovina has a Gender Inequality Index (GII) value of 0.149, ranking it 38 out of 162 countries in the 2019 index.

The protection of victims of violence is regulated by the entity Laws on Protection from Domestic Violence[144]. These laws define safe houses as institutions for accommodating the victims, and stipulate that 70% of the total costs of safe houses should be covered by entity governments, and the remaining 30% by cantonal budgets in the FBiH and municipal budgets in the RS.

There are eight ***safe houses*** for victims of violence in BiH, and they are run by non-governmental organizations, with a total capacity of 181 beds. In FBiH, there are five safe houses that operate within the framework of non-governmental organizations "Foundation of Local Democracy" - Sarajevo, Association of Citizens "Vive Women" - Tuzla, Association "Women from Una" - Bihać, Association of Citizens "Medica" - Zenica and Association "Women of BiH" - Mostar, and have a total of 126 beds. In the RS, there are three safe houses at the non-governmental organizations “Future” - Modriča, “United women” - Banja Luka and “Lara” - Bijeljina, with a total of 55 beds.[145]

Despite the fact that entity laws prescribe their financing, the most significant challenge faced by safe houses for women in Bosnia and Herzegovina is related to financial resources. In the territory of FBiH, only the safe house in Sarajevo regularly receives public funds, while other safe houses, such as those in Tuzla and Zenica, receive only 10 to 15% of their funding from entity authorities, whilst funding from the cantonal level is still inconsistent.[146]

There are two free ***SOS lines for helping the victims of violence*** in BiH: help line 1265 in FBiH and help line 1264 in RS.

[143] Human Development Report, UNDP, 2020
[144] “Official Gazette of FBiH”, no. 20/13, 75/21; “Official Gazette of RS”, no. 102/12, 108/13, 82/15, 84/19
[145] BiH Agency for Gender Equality (https://arsbih.gov.ba/209-2/)
[146] Gender profile of Bosnia and Herzegovina, UN Women, 2021

Prevention of gender-based violence, protection of victims and response to violence are integrated into the ***healthcare system of BiH***. This was achieved by preparing two comprehensive resource packages containing guidelines and training material for health professionals as a response of the health sector in FBiH and RS to gender-based violence and sexual violence associated with armed conflicts. Resource packages were adopted by entity ministries of health. By the end of 2018, a total of 277 service providers in the healthcare and social sectors were trained in responding to gender-based violence/sexual violence related to armed conflict (47 men and 230 women).[147] The training was intended for experts from the primary healthcare sector, but also for experts from mental health centers and centers for social protection. In the framework of this technical assistance, internal protocols of the healthcare system for cases of gender-based violence were created, the relevant ministries in FBiH and RS approved them and they were implemented in individual local communities.

Civil society organizations are considered active and key partners in combating violence against women. As stated above, only these organizations provide accommodation in safe houses to victims of violence.

In 2016, Bosnia and Herzegovina adopted the ***Law on Providing Free Legal Aid***[148], which defines victims of violence as beneficiaries in proceedings before BiH institutions. The RS also adopted the ***Law on Exercising the Right to Free Legal Aid in the Republic of Srpska***[149], which defines victims of domestic violence as persons who have the right to free legal aid before the competent authority, regardless of financial criteria. According to this Law, the institution that prepares the report of domestic violence must inform the victim of their right to legal aid. On the other hand, the legal aid systems in FBiH do not recognize victims of violence as special beneficiaries, although these persons are not excluded from the right to legal aid. Non-governmental organizations also provide legal assistance to victims of violence.

Significant efforts have been made to establish ***mechanisms for adequate and comprehensive collection of official data on violence against women and domestic violence***, but there is no aggregated data in one place or data that is easy to access. Alternative data sources provide insight into the frequency and consequences of violence. According to the findings of the research conducted by the OSCE[150] in 2018, the issue of violence against women is a widespread concern in BiH. This study emphasizes that just under half (48%) of women in BiH have experienced some form of abuse, sexual harassment since the age of 15. More specifically, nearly four in ten (38%) say they have experienced psychological, physical or sexual violence since the age of 15 at the hands of a partner or non-partner (FBiH: 36%, RS: 39%). However, significantly fewer women said they experienced violence compared to women in the EU, with 35% experiencing psychological (43% in the EU), 10% physical (20% in the EU) and 4% sexual violence (7% in the EU) at the hands of partner.

When it comes to ***gender equality in the labor market***, there are significant differences regarding the activity and employment of women and men in Bosnia and Herzegovina. Of the total number of people who make up the workforce in 2022, 61.2% are men and 38.8% are women. The activity rate of women is 36.0%, in contrast to men, where it is 59.7%. Of the total number of inactive persons, 37.6% are men, and 62.5% are women. Women make up 36.8% of the employed and 49.8% of the unemployed. The employment rate of women is 23% lower than the employment rate of men. Furthermore, the unemployment rate for women is 19.7%, which is 7.1 percentage points higher than for men.[151]

According to the registered unemployment in December 2022, the majority of unemployed women have secondary school education (32%), while the majority of unemployed men are highly-skilled and skilled (40%). The second highest percentage of the unemployed are persons without any qualifications, both among men (27%) and among women (29%). Possession of university education does not necessarily affect women's employment, considering that 10% of women with university qualifications, in contrast to 6% of men, were part of the educational structure of the unemployed in 2022.[152]

[147] Ibid
[148] "Official Gazette of BiH", no. 83/16
[149] "Official Gazette of RS", no. 67/20
[150] Research on violence against women, Report on results for Bosnia and Herzegovina, OSCE, 2019
[151] Agency for Statistics BiH: „Labor Force Survey in BiH 2022", 2023
[152] Agency for Statistics BiH: „Registered unemployment, December 2022", 2023

Lower female employment and activity rates are direct consequences of women's assumed roles as primary caregivers for children and older family members, which is a consequence of deeply rooted social stereotypes and unequal distribution of family responsibilities between women and men. Research conducted in the RS showed that there are extremely patriarchal patterns in relation to the division of duties in the household and care for the family. This research also indicated that women and men do not share parental responsibilities equally, and that almost half of fathers do not take on any responsibilities of caring for young children. This was also confirmed by the research of the BiH Agency for Gender Equality on the impact of the gender-based division of family and household responsibilities, which showed that in 93.8% of partnerships, all routine duties in the household are performed by women, while a greater balance exists in the case of caring for children and occasional duties in the household. Women's family priorities usually affect the length of the job search, lead to interruptions in employment due to maternity leave or care for family members, as well as difficulties in finding employment in later life.[153]

The extent of ***gender-based discrimination at work*** is unknown, and awareness of it is generally low. The human rights ombudsman institution, the BiH Ministry of Human Rights and Refugees, the labor inspectorates, and finally the courts do not have comprehensive registers of complaints that could be searched and that would enable the analysis of complaints related to discrimination according to the content and basis of discrimination. OSCE research shows that three out of four complaints about any form of discrimination were filed by men, despite the fact that women are more often victims of discrimination, including in the field of labor relations. Other research states that awareness of gender-based discrimination at work is extremely low, both among employers and among employees, and that there is a justified fear of discrimination due to reporting discrimination, which is further aggravated by limited and inconsistent judicial practice in cases of discrimination.[154]

4.13. Vulnerable Groups

Disadvantaged / vulnerable individuals or groups are potentially disproportionally affected and less able to benefit from opportunities offered by the project due to specific difficulties to access and/or understand information about the project and its environmental and social impacts and mitigation strategies. Such groups are also more likely to be excluded from the consultation process. It also includes groups who may be difficult to reach due to communication barriers (language, illiteracy) and those who are in the informal housing market or informal economy and those who are very poor.

Disadvantaged / vulnerable individuals or groups in the project area include “low-income households”; women; youth; women-headed households; elder-headed households (≥ pension age) without any other household member bringing in income; persons with limited mobility; persons with disabilities; Roma groups. Various types of barriers may influence the capacity of such groups to articulate their concerns and priorities about project impacts.

Of particular concern is the impact of transition on already poor and vulnerable groups: at country-level, informal employment amounts to 30% of total employment and over 16% of all workers are employed on temporary contracts, and 24.5% of workers are working poor. A higher incidence of in-work poverty is recorded among self-employed (36%) and temporary workers (27.8%), part-time (39.9%) and young workers (31.4%) aged 18-24 years[155]. Women also display lower employment rate, higher unemployment, and higher level of informal employment than men.

The human development and economic development trends show vulnerability. Of critical importance, the population is shrinking and ageing. Out-migration is an urgent challenge, representing a loss of young people and skilled workers upon which future sustainable development will depend. Unemployment stands high at 15.7%[156], particularly among young people (47.3%), women, persons with disabilities, and Roma.[157]

In addition, a total number of 2,193 persons, that is, 21.61% of the total number of workers in all the coal mines are disabled, of which 2,049 are workers with occupational disability and 144 are war invalids. The highest

[153] Gender profile of Bosnia and Herzegovina, UN Women, 2021
[154] Ibid
[155] www.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---sro-budapest/documents/publication/wcms_774439.pdf
[156] Labor force survey, Agency for Statistics of Bosnia and Herzegovina, 2019.
[157] USDSEK Decarbonization of Residential Sector in Bosnia and Herzegovina, SIDA, April 2020.

number of disabled is in the Kreka mine, comprising 544 persons, which is 24.79% of the employees. The disabled employees will be particularly vulnerable in the transition process and targeted social protection efforts will be required.

A particularly marginalized group is the Roma, who is the largest ethnic minority group, comprising 25,000-50,000 persons living in what UNICEF describes as multidimensional, chronic poverty. The largest number live in Tuzla Canton (15-17,000), followed by Sarajevo Canton and Zenica-Doboj Canton.[158] The Roma employment rate is less than others, and significantly less for Romani women (30% less for women against 16% less for men). The rate of Roma without any employment experience is also significantly higher than of others. Roma live in severe poverty, on half the income of the total population in the country.[159]

Vulnerable groups within the communities affected by the Project will be further confirmed and consulted through dedicated means, as appropriate. Description of the methods of engagement that will be undertaken by the project is provided in the SEP developed for this Project.

4.14. Summary analysis of social baseline and main social risks of the Project

Based on the analysis above, it can be concluded that these municipalities are vulnerable to economic fall-out from mine closure, not only due to their dependence on the coal sector, but also because of already high unemployment. The highest economic and social dependency on coal mines is registered in Banovići where almost 54% of the total number of employees work. Zenica and Tuzla are not as dependent on coal mines as Banovići, as 3% and 5% of the total number of employees work in coal mines in Zenica and Tuzla, respectfully. Unemployment rates in Banovići and Zenica are already above the FBiH average and it is expected that these numbers will be even higher, especially in Banovići, in case of job losses due to mine closure.

In a scenario in which all coal-related jobs are eventually lost, the influx of displaced coal-sector workers into local labor markets would massively increase the pool of registered unemployed and likely exacerbate existing structural skills mismatch. The labor market's capacity to absorb displaced coal sector workers into alternative employment is severely limited, largely due to distortions related to a significant public sector presence, segmentation between good-quality public sector jobs and poor-quality private sector jobs. Most coal sector jobs are in the public sector, pay high wages, and provide good non-wage benefits. This means that most coal sector workers - and especially lower-skilled coal workers - would likely to struggle to find comparable compensation working in other sectors. Therefore, even in case of their re-employment in other sectors, their compensation would not match the current one, which will probably lead to social dissatisfaction.

Unemployment rate in project municipalities is higher among women than men, which is especially the case in Banovići where women make up only 26% of the employed and even 73% of unemployed. Although women comprise only a small proportion of the formal mining workforce, they are present in large numbers in the informal, artisanal, and small-scale mining sectors. Irrespective of the size or nature of the coal mining operation, women generally are poorly paid and typically engaged as low-level staff, casual, informal or daily-wage labor within the coal sector. Gender roles and relations in coal mining communities are at root of gender disparity. The important role of informal labor in coal-based economies further exaggerates the challenge to achieve gender equality during the transition. Rather than perpetuating existing gender inequalities, a transition away from coal needs to be seen as an opportunity to transform current gender relations, creating more gender equal conditions.

The social assistance schemes in BiH are not flexible enough and they lack funding to be able to quickly expand to newly poor.

In the event of a mine closure, some workers who lose their jobs may require social assistance or other interim income support during a transition period or as a bridge to retirement. Within the framework of the transition program, tailored transition support packages should be designed (and budgeted) in advance, and should include referral to social services. In this sense, Centers for Social Work will play an important role in providing both financial social assistance benefits as well as psychological support to affected workers and other affected members of the local community. Also, Centers will provide help in resolving any arising conflict situations in

[158] https://www.osce.org/files/f/documents/2/a/110495.pdf
[159] www.rcc.int/romaintegration2020/files/user/docs/Roma%20Inclusion%20Index%202015.pdf

families as a result of lob loss, participation in procedures for protection against violent behavior in the family, both with partners, as well as with children.

For both entities, legislation stipulates a relatively short duration for receiving unemployment assistance benefits (e.g. 10 years of service grants only 9 months of benefits), and the adequacy of the unemployment support is low. In each entity, Public Employment Services have undergone a series of reforms to strengthen counseling and intermediation services provided to jobseekers, but the caseload per counsellors remains high and further improvements to facilitate intermediation are pending.

5. LEGAL FRAMEWORK

5.1. The World Bank Requirements

5.1.1. The World Bank Environmental and Social Framework

In August 2016, the WB's Board of Executive Directors approved the Environmental and Social Framework (ESF)[160]. WB's ESF became effective in October 2018. As of October 1, 2018, the ESF applies to all new WB investment project financing. The ESF is a strong and comprehensive package that sets a high standard in terms of scope and depth in environmental protection and management of social issues. It brings the WB's environmental and social protections in line with those of other development institutions, and makes advances in important areas.

The Framework sets out the Bank's commitment to sustainable development, through a Bank Policy and a set of Environmental and Social Standards that are designed to support Borrowers' projects, with the aim to reduce poverty and increase prosperity in a sustainable manner for the benefit of the environment and citizens. The ESF also places more emphasis on building borrower governments' own capacity to deal with environmental and social issues.

The standards will:

(a) support Borrowers in achieving good international practice relating to environmental and social sustainability;
(b) assist Borrowers in fulfilling their national and international environmental and social obligations;
(c) enhance non-discrimination, transparency, participation, accountability and governance; and
(d) enhance the sustainable development outcomes of projects through ongoing stakeholder engagement.

The ESF comprises:

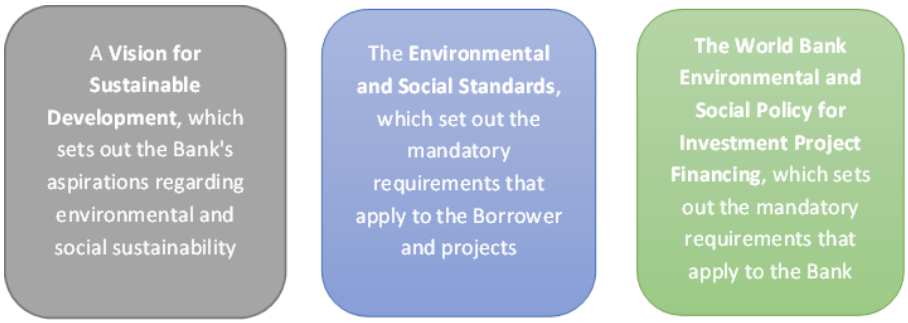

Figure 28 Environmental and Social Framework

5.1.2. Environmental and Social Standards

The Bank is committed to supporting Borrowers in the development and implementation of projects that are environmentally and socially sustainable, and to enhancing the capacity of Borrowers E&S frameworks to assess and manage the E&S risks and impacts of projects. To this end, the Bank has defined specific ESSs, that are designed to help Borrowers to manage risks and impacts of the project, and improve their environmental and social performance, through a risk and outcomes-based approach. These ESSs are accompanied by WB Environmental Health and Safety Guidelines (EHSG), International Good Industry Practices (GIIP), Best Practice Notes, Templates and Checklists[161]. Implementation of WB EHSG and GIIP is mandatory under ESF.

The desired outcomes for the project are described in the objectives of each ESS, followed by specific requirements to help Borrowers achieve these objectives through means that are appropriate to the nature and

[160] Available in English at: http://pubdocs.worldbank.org/en/837721522762050108/Environmental-and-Social-Framework.pdf
[161] Available in English at: http://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-framework-resources#guidancenotes

scale of the project and proportionate to the level of environmental and social risks and impacts which are designed to avoid, minimize, reduce or mitigate the adverse E&S risks and impacts of projects.

The projects supported by the Bank must comply with the following ESSs:

ESS 1: Assessment and Management of Environmental and Social Risks and Impacts

Environmental & Social Standard 1 (ESS 1) sets out the Borrower's responsibilities for assessing, managing and monitoring environmental and social risks and impacts associated with each stage of a project supported by the Bank through Investment Project Financing, in order to achieve environmental and social outcomes consistent with the ESSs.

ESS 1 objectives are:

- To identify, evaluate and manage the environment and social risks and impacts of the project in a manner consistent with the ESSs.
- To adopt a mitigation hierarchy approach to:
    - Anticipate and avoid risks and impacts;
    - Where avoidance is not possible, minimize or reduce risks and impacts to acceptable levels;
    - Once risks and impacts have been minimized or reduced, mitigate; and
    - Where significant residual impacts remain, compensate for or offset them, where technically[162] and financially[163] feasible.
- To adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not disadvantaged in sharing development benefits and opportunities resulting from the project.
- To utilize national environmental and social institutions, systems, laws, regulations and procedures in the assessment, development and implementation of projects, whenever appropriate.
- To promote improved environmental and social performance, in ways which recognize and enhance Borrower capacity.

ESS 1 includes the following annexes, which form part of ESS 1, and set out certain requirements in more detail:

- Annex 1: Environmental and Social Assessment
- Annex 2: Environmental and Social Commitment Plan and
- Annex 3: Management of Contractors

The Borrower will assess, manage and monitor the environmental and social risks and impacts of the project throughout the project life cycle so as to meet the requirements of the ESSs in a manner and within a timeframe acceptable to the Bank.

As per ESS 1, the Borrower will:

- Conduct an environmental and social assessment of the proposed project, including stakeholder engagement;
- Undertake stakeholder engagement and disclose appropriate information in accordance with ESS 10;
- Develop an ESCP, and implement all measures and actions set out in the legal agreement including the ESCP; and
- Conduct monitoring and reporting on the environmental and social performance of the project against the ESSs.

[162] Technical feasibility is based on whether the proposed measures and actions can be implemented with commercially available skills, equipment, and materials, taking into consideration prevailing local factors such as climate, geography, demography, infrastructure, security, governance, capacity, and operational reliability

[163] Financial feasibility is based on relevant financial considerations, including relative magnitude of the incremental cost of adopting such measures and actions compared to the project's investment, operating, and maintenance costs, and on whether this incremental cost could make the project nonviable for the Borrower

ESS 1 is also applied to all Associated Facilities/Activities which must meet ESSs requirements to the extent that the Borrower has control or influence over such Associated Facilities/Activities.[164]

The environmental and social assessment will be proportionate to the risks and impacts of the project and will assess in an integrated way all relevant direct, indirect and cumulative E&S risks and impacts throughout project life cycle.

For projects which involve a set of sub-projects, identified, prepared and implemented during the Project, environmental and social assessment is carried out using the instrument of ESMF. The ESMF sets out the principles, rules, guidelines and procedures to assess the environmental and social risks and impacts of any future sub-projects.

ESS 2: Labor and Working Conditions

Environmental & Social Standard 2 (ESS 2) recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. Borrowers can promote sound worker-management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and the scope of its application depends on type of employment relations between the Borrower and project workers. The term "project worker" refers to:

- people employed or engaged directly by the Borrower (including the project proponent and the project implementing agencies) to work specifically in relation to the project (direct workers);
- people employed or engaged through third parties to perform work related to core functions of the project, regardless of location (contracted workers);
- people employed or engaged by the Borrower's primary suppliers (primary supply workers); and
- people employed or engaged in providing community labor (community workers).

ESS 2 objectives are:

- To promote safety and health at work
- To promote the fair treatment, non-discrimination and equal opportunity of project workers.
- To protect project workers, including vulnerable workers such as women, persons with disabilities, children (of working age, in accordance with this ESS) and migrant workers, contracted workers, community workers and primary supply workers.
- To prevent the use of all forms of forced labor and child labor
- To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law.
- To provide project workers with accessible means to raise workplace concerns.

The applicability of ESS 2 is established during the environmental and social assessment according ESS 1. The Borrower has to develop and implement written labor management procedures applicable to the project. These procedures set out the way in which project workers will be managed, in accordance with the requirements of national law and ESS 2.

ESS 3: Resource Efficiency and Pollution Prevention and Management

Environmental and Social Standard 3 (ESS 3) sets out the requirements to address resource efficiency and pollution prevention and management throughout the project life cycle consistent with GIIP. Applicability of this EES is established during environmental and social assessment.

The Borrower is obliged to consider ambient conditions and to apply technically and financially feasible measures to improve efficient consumption of energy, water and raw material, as well as other resources. Such measures shall integrate cleaner production principles into the product design and production processes in order to conserve

[164] The term "Associated Facilities" means facilities or activities that are not funded as part of the project and are: (a) directly and significantly related to the project; (b) carried out, or planned to be carried out, contemporaneously with the project; and (c) necessary for the project to be viable and would not have been constructed, expanded or conducted if the project did not exist. For a facility or an activity to be defines as associated facility, all three criteria must be fulfilled.

raw material, energy, water and other resources. The measures have to proportionate to the risks and impacts associated with the project and mandatory consistent with GIIP, in the first instance the WB EHSGs[165].

ESS 3 objectives are:

- To promote the sustainable use of resources, including energy, water and raw materials;
- To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities;
- To avoid or minimize project-related emissions of short and long-lived climate pollutants;
- To avoid or minimize generation of hazardous and non-hazardous waste;
- To minimize and manage the risks and impacts associated with pesticide use.

Besides, the Borrower will avoid the release of pollutants or, when avoidance is not feasible, minimize and control the concentration and mass flow of their release using the performance levels and measures specified in national law or the WB EHSG[166], whichever is most stringent. This applies to the release of pollutants to air, water and land due to routine, non-routine, and accidental circumstances, and with the potential for local, regional, and transboundary impacts.

Pollution prevention and management includes management of:

- Air pollution;
- Hazardous and non-hazardous waste;
- Chemicals and hazardous material;
- Pesticides.

ESS 4: Community Health and Safety

Environmental and Social Standard 4 (ESS 4) recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration or intensification of impacts due to project activities. ESS 4 addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of Borrowers to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable.

Objectives of ESS 4 are the following:

- To anticipate and avoid adverse impacts on the health and safety of project-affected communities during the project life cycle from both routine and non-routine circumstances.
- To promote quality and safety, and considerations relating to climate change, in the design and construction of infrastructure, including dams.
- To avoid or minimize community exposure to project-related traffic and road safety risks, dis-eases and hazardous materials.
- To have in place effective measures to address emergency events.
- To ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities.

The applicability of this ESS is established during the environmental and social assessment under ESS 1.

The Borrower will evaluate the risks and impacts of the project on the health and safety of the affected communities during the project life cycle, including those who, because of their particular circumstances, may be vulnerable. The Borrower will identify risks and impacts and propose mitigation measures in accordance with the mitigation hierarchy.

[165] World Bank Group Environmental, Health and Safety Guidelines (EHSG), available at: https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/Policies-Standards/EHS-Guidelines/
[166] World Bank Group Environmental, Health and Safety Guidelines (EHSG), available at: https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/Policies-Standards/EHS-Guidelines/

ESS 5: Land Acquisition, Restriction on Land Use and Involuntarily Resettlement

ESS 5 recognizes that project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons. Project-related land acquisition or restrictions on land use may cause physical displacement (relocation, loss of residential land or loss of shelter), economic displacement (loss of land, assets or access to assets, leading to loss of income sources or other means of livelihood), or both. The term "involuntary resettlement" refers to these previously mentioned impacts. Resettlement is considered involuntary when affected persons or communities do not have the right to refuse land acquisition or restrictions on land use that result in displacement.

ESS 5 objectives are:

- To avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring project design alternatives;
- To avoid forced eviction;
- To mitigate unavoidable adverse social and economic impacts from land acquisition or restrictions on land use by:
    - providing timely compensation for loss of assets at replacement cost, and
    - assisting displaced persons in their efforts to improve, or at least restore, their livelihoods and living standards, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher;
- To improve living conditions of poor or vulnerable persons who are physically displaced, through provision of adequate housing, access to services and facilities, and security of tenure;
- To conceive and execute resettlement activities as sustainable development programs, providing sufficient investment resources to enable displaced persons to benefit directly from the project, as the nature of the project may warrant;
- To ensure that resettlement activities are planned and implemented with appropriate disclosure of information, meaningful consultation, and the informed participation of those affected.

A Resettlement Policy Framework has been developed and any sub-project involving land acquisition and involuntary resettlement, regardless of whether physical relocation is present, will develop a Resettlement Plan as per the RPF and this will be approved by the World Bank and disclosed in-country. The screening process will screen for all the sub-projects which may involve involuntary land acquisition.

The applicability of this ESS is established during the environmental and social assessment under ESS 1.

ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

Environmental and Social Standard 6 (ESS 6) is applicable to all projects that potentially affect biodiversity or habitats, either positively or negatively, directly or indirectly, or that depend upon biodiversity for their success It is also applied to projects that involve primary production and/or harvesting of living natural resources[167].

ESS6 recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development. Biodiversity is defined as the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species, and of ecosystems. Impacts on biodiversity can therefore often adversely affect the delivery of ecosystem services[168].

ESS 6 objectives are:

- To protect and conserve biodiversity and habitats;
- To apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity;
- To promote the sustainable management of living natural resources, and

[167] Harvesting of living natural resources, such as fish and all other types of aquatic and terrestrial organisms and timber, refers to productive activities that include extraction of these resources from natural and modified ecosystems and habitats.
[168] Requirements related to ecosystem services are set out in ESS 1.

- To support livelihoods of local communities, including Indigenous Peoples, and inclusive economic development, through the adoption of practices that integrate conservation needs and development priorities.

The Borrower is obliged to avoid adverse impacts on biodiversity and habitats. When avoidance of adverse impacts is not possible, the Borrower will implement measures to minimize adverse impacts and restore biodiversity in accordance with the mitigation hierarchy provided in ESS 1 and with the requirements of this ESS. Where significant risks and adverse impacts on biodiversity have been identified, the Borrower will develop and implement a Biodiversity Management Plan[169].

ESS 8: Cultural Heritage

Environmental and Social Standard 8 (ESS 8) recognizes that cultural heritage provides continuity in tangible and intangible forms between the past, present and future. People identify with cultural heritage as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions. Cultural heritage, in its many manifestations, is important as a source of valuable scientific and historical information, as an economic and social asset for development, and as an integral part of people's cultural identity and practice. ESS 8 sets out measures designed to protect cultural heritage throughout the project life cycle- It also sets out general provisions on risks and impacts to cultural heritage from project activities.

Objectives of ESS 8 are the following:

- To protect cultural heritage from the adverse impacts of project activities and support its preservation;
- To address cultural heritage as an integral aspect of sustainable development,
- To promote meaningful consultation with stake-holders regarding cultural heritage;
- To promote the equitable sharing of benefits from the use of cultural heritage.

The requirements of this ESS 8 will apply to all projects that are likely to have risks or impacts on cultural heritage. This will include a project which:

- Involves excavations, demolition, movement of earth, flooding or other changes in the physical environment;
- Is located within a legally protected area or a legally defined buffer zone
- Is located in, or in the vicinity of, a recognized cultural heritage site
- Is specifically designed to support the conservation, management and use of cultural heritage.

The requirements of ESS 8 apply to cultural heritage regardless of whether or not it has been legally protected or previously identified.

ESS 10: Stakeholder Engagement and Information Disclosure

Environmental and Social Standard 10 (ESS 10) recognizes the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation.

Stakeholder engagement is an inclusive process conducted throughout the project life cycle. Where properly designed and implemented, it supports the development of strong, constructive and responsive relationships that are important for successful management of a project's environmental and social risks. Stakeholder engagement is most effective when initiated at an early stage of the project development process, and is an integral part of early project decisions and the assessment, management and monitoring of the project's environmental and social risks and impacts.

ESS 10 objectives are the following:

[169] Depending on the nature and the scale of the risks and impacts, to address cultural heritage as an integral aspect of sustainable development the project, the Biodiversity Management Plan may be a stand-alone document or it may be included as part of the Environmental and Social Commitment Plan prepared under ESS 1.

- To establish a systematic approach for stakeholder engagement that will help Borrowers identify stakeholders and build and maintain a constructive relationship with them, in particular project-affected parties
- To assess the level of stakeholder interest and support for the project and to enable stake-holders' views to be taken into account in project design and environmental and social performance.
- To promote and provide means for effective and inclusive engagement with project-affected par-ties throughout the project life cycle on issues that could potentially affect them
- To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format.
- To provide project-affected parties with accessible and inclusive means to raise issues and grievances, and allow Borrowers to respond to and manage such grievances.

ESS 10 applies to all projects supported by the Bank through Investment Project Financing. The Borrower engage with stakeholders as an integral part of the project's environmental and social assessment and project design and implementation, as outlined in ESS 1.

In the terms of this ESS, "stakeholder" refers to individuals or groups who:

- are affected or likely to be affected by the project (project-affected parties); and
- may have an interest in the project (other interested parties).

5.1.3. World Bank Group Environmental Health and Safety Guidelines

The WB EHSG are technical reference documents with general and industry-specific examples of GIIP as described in the IFC Performance Standards. The General EHSG are designed to be used together with the relevant Industry Sector EHSG which provide guidance to users on environmental, health, and safety (EHS) issues in specific industry sectors.

The General EHSG contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. These Guidelines contain information on cross-cutting environmental, health, and safety issues potentially applicable to all industry sectors.

According to the General EHSG, effective management of EHS issues entails the inclusion of EHS considerations into corporate- and facility-level business processes in an organized, hierarchical approach that includes the following steps:

- Identifying EHS project hazards and associated risks as early as possible in the facility development or project cycle, including the incorporation of EHS considerations into the site selection process, product design process, engineering planning process for capital requests, engineering work orders, facility modification authorizations, or layout and process change plans.
- Involving EHS professionals, who have the experience, competence, and training necessary to assess and manage EHS impacts and risks, and carry out specialized environmental management functions including the preparation of project or activity-specific plans and procedures that incorporate the technical recommendations presented in this document that are relevant to the project.
- Understanding the likelihood and magnitude of EHS risks, based on:
    - The nature of the project activities, such as whether the project will generate significant quantities of emissions or effluents, or involve hazardous materials or processes;
    - The potential consequences to workers, communities, or the environment if hazards are not adequately managed, which may depend on the proximity of project activities to people or to the environmental resources on which they depend.
- Prioritizing risk management strategies with the objective of achieving an overall reduction of risk to human health and the environment, focusing on the prevention of irreversible and/or significant impacts.
- Favoring strategies that eliminate the cause of the hazard at its source, for example, by selecting less hazardous materials or processes that avoid the need for EHS controls.

- When impact avoidance is not feasible, incorporating engineering and management controls to reduce or minimize the possibility and magnitude of undesired consequences, for example, with the application of pollution controls to reduce the levels of emitted contaminants to workers or environments.
- Preparing workers and nearby communities to respond to accidents, including providing technical and financial resources to effectively and safely control such events, and restoring workplace and community environments to a safe and healthy condition.
- Improving EHS performance through a combination of on-going monitoring of facility performance and effective accountability.

The General EHSG are organized according to thematic sections, as follows:

1. Environmental, including: Air Emissions and Ambient Air Quality, Energy Conservation, Wastewater and Ambient Water Quality, Water Conservation, Hazardous Materials Management, Waste Management, Noise, Contaminated Land;
2. Occupational Health and Safety, including: General Facility Design and Operation, Communication and Training, Physical Hazards, Chemical Hazards, Biological Hazards, Radiological Hazards, Personal Protective Equipment (PPE), Special Hazard Environments, Monitoring;
3. Community Health and Safety, including: Water Quality and Availability; Structural Safety of Project Infrastructure; Life and Fire Safety; Traffic Safety; Transport of Hazardous Materials; Disease Prevention; Emergency Preparedness and Response;
4. Construction and Decommissioning, including: Environment, Occupational Health & Safety, Community Health & Safety.

5.2. Overview of Environmental and Social Requirements in BiH

5.2.1. Environmental Protection Regulatory Framework

Federation of Bosnia and Herzegovina

Environmental protection in FBiH is under the jurisdiction of the Federal Ministry of Environment and Tourism (FMoET), and is regulated by the following legislative acts:

- Law on Environment Protection of FBiH[170],
- Regulation on projects for which an environmental impact assessment is mandatory and projects for which a decision is made on the need for an environmental impact assessment[171],
- Regulation determining plants and facilities which must have an environmental permit[172],
- Rulebook on the content of Environmental Impact Assessment Study[173].

Strategic environmental assessment

According to the Law on Environment Protection, a strategic environmental assessment must be carried out for strategies, plans and programs in the following areas: spatial planning or land use, agriculture, forestry, fishing, hunting, energy, industry, transport, waste management, water management, telecommunications, tourism, preservation of natural habitats, which establish a framework for approving future development projects.

The basis of the strategic assessment is a strategy, plan or program that determines the scope for the development of a certain sector, i.e. its characteristics, goals and spatial scope.

The strategic assessment is carried out during the drafting of a strategy, plan or program, before determining the final proposal of the strategy, plan or program and its adoption procedure.

[170] Official Gazette of FBiH, No. 15/21
[171] Official Gazette of FBiH, No. 51/21, 33/22, 104/22
[172] Official Gazette of FBiH, No. 51/21, 74/22
[173] Official Gazette of FBiH, No. 63/21

As to current understanding, Land Repurposing Master Plans (LRMP), which are envisaged as one of the Project activities and which will be linked to municipal and/or regional spatial planning instruments, will most likely trigger an obligation to conduct strategic environmental assessment.

In the process of strategic environmental assessment (SEA), a Strategic study is prepared, and information and public participation in the manner prescribed by law is mandatory. A strategic study is prepared by authorized legal entities that meet the conditions for performing the activity. The study is evaluated by an expert commission appointed by the FMoET (Art. 56 of the Law), on the basis of which the Ministry issues an opinion on the draft strategy, plan or program taking into consideration results of the assessment of the strategic study from the expert commission, consultations with bodies and organizations and the public, and consultations with representatives of RS, Brčko District, or another state (Art. 50 of the Law).

Environmental impact assessment

For projects that may have a significant impact on the environment due to their nature, size or location, an environmental impact assessment (EIA) is carried out and a decision on the approval of the environmental impact assessment study is obtained.

For projects for which an environmental impact assessment is mandatory and projects for which a decision is made on the need for an environmental impact assessment the assessment procedure begins by submitting a Request for Preliminary Environmental Impact Assessment to the FMoET. The Request is prepared by the legal entities authorized by FMoET. The content of the Request is prescribed by the Law on Environment Protection. FMoET publicly discloses the prepared Request and invites the stakeholders to submit their written comments within 30 days. After the preliminary environmental impact assessment procedure has been carried out and the factual situation has been established, FMoET issues a Decision which determines:

- that there is no need to carry out an environmental impact assessment (development of EIA Study); or
- that environmental impact assessment is obligatory.

The content of the EIA Study is prescribed by the Rulebook. FMoET publicly discloses the EIA Study, informs and invites all the stakeholders to a public consultation, and appoints an expert commission to evaluate the EIA Study. Within the 30 days after completion of the public consultation process, the evaluation by the expert commission must be completed. Once the process of evaluation of the EIA study is completed, the FMoET issues a Decision on Approval or Decision on Rejection of the EIA Study within the 60 days. If the Study is rejected, a new EIA Study can be submitted 6 months after issuance of the Decision on the EIA Study, at the earliest.

Environmental impact assessment is performed for: a) projects listed in the *Regulation on projects for which an environmental impact assessment is mandatory and projects for which a decision is made on the need for an environmental impact assessment*, b) significant changes in existing projects, determined by Art. 95 of the Law, where the change of the project reaches the prescribed thresholds set by the FBiH Government, c) projects whose production growth, energy use, water use, use of space, emissions or production of waste exceeds 25% of the originally determined values, and d) cessation of operation, demolition and closure of facilities subject to impact assessment as well as plants and facilities subject to the obligation to obtain an environmental permit (Art. 68 of the Law).

It is stipulated that the environmental impact assessment is mandatory for surface mines where the site area exceeds 25 ha, whereas the Ministry decides on the need for the environmental impact assessment for underground mines and surface mines where the site area is up to 25 ha. Therefore, the same rules apply for the cessation of operation of such mines. The Ministry also decides on the need for the environmental impact assessment for: i) industrial plants for the production of electricity, water steam, technological steam, hot water and heated gases, including steam boilers using all types of fuel, with a capacity of more than 10 MW_{th}, ii) production of biofuel with a capacity of 20,000 t/year and more.

Issuance of environmental permits

For projects which must have an environmental permit, the Regulation determines for which projects environmental permit is issued by the Federal Ministry and for which projects by the competent cantonal ministry for the environment (jointly hereafter: the competent ministry). The procedure begins by submitting a Request for Environmental Permit to the competent ministry. The content of the Request is prescribed by the Regulation. The

competent ministry publicly discloses prepared Request and invites the stakeholders to submit their written comments within 30 days. The competent ministry issues a Decision on the issuance of an environmental permit within 90 days from the day of receipt of the final version of the Request. The competent ministry also prescribes limit values for polluting substances in the Decision on issuing an environmental permit. Environmental permit is issued for a period of five years.

As to current understanding, envisaged project activities do not trigger environmental permitting procedure.

For plants and facilities for which neither an environmental impact assessment nor an environmental permit is required, the competent authority, when issuing other necessary permits (water acts, urban planning approval, construction permit, etc.), will determine whether the requirements of environmental protection, i.e. the general obligations of the operator, have been met. which must be fulfilled during the construction, operation, maintenance and shutdown of plants and facilities, in accordance with Article 84 of the Law.

Cantonal Environmental Legislation

Cantons have their own cantonal environmental legislation which must be harmonized with the environmental legislation on federal level. Procedures for environmental assessment and environmental permitting are the same as on federal level.

Republika Srpska

Environmental protection in RS is under the jurisdiction of the Ministry of Spatial Planning, Construction and Ecology (MoSPCE), and is regulated by the following regulations:

- Law on Environment Protection[174],
- Rulebook on plants that can be built and put into operation only if they have an environmental permit[175],
- Rulebook on projects for which environmental impact assessment is conducted and criteria for deciding on the obligation to assess environmental impact[176],
- Rulebook on the procedure of revision and renewal of environmental permits[177],
- Rulebook on the content of the report on strategic environmental impact assessment[178],
- Instruction on the content of environmental impact assessment study[179].

Strategic environmental assessment

In the process of strategic environmental assessment (SEA), a Report on strategic assessment is prepared, and information and public participation in the manner prescribed by law is mandatory. A strategic assessment report is prepared by authorized legal entities that meet the conditions for performing the activity. The strategic assessment report is assessed by the MoSPCE, taking into account the results of consultations with bodies and organizations and the public, and consultations with representatives of FBiH, Brčko District, or another state, and issues an opinion on the strategic assessment report (Art. 51 of the Law).

As to current understanding, Land Repurposing Master Plans (LRMP), which are envisaged as one of the Project activities and which will be linked to municipal and/or regional spatial planning instruments, will most likely trigger an obligation to conduct strategic environmental assessment.

Environmental impact assessment

The environmental impact assessment (EIA) is carried out in two phases:

a) in the preliminary impact assessment procedure, in which decisions are made on:
   - the obligation to carry out an impact assessment,
   - the scope of the impact assessment, if the implementation of the impact assessment is mandatory,
b) in the environmental impact assessment process.

[174] "Official Gazette of RS", No. 71/12, 79/15 and 70/20
[175] "Official Gazette of RS", No. 124/12
[176] "Official Gazette of RS", No. 124/12
[177] "Official Gazette of RS", No. 28/13 and 104/17
[178] "Official Gazette of RS", No. 28/13
[179] "Official Gazette of RS", No. 108/13

The assessment procedure begins by submitting a Request for Preliminary Environmental Impact Assessment to the MoSPCE. The Request is prepared by the legal entities authorized by MoSPCE. The content of the Request is prescribed by the Law on Environment Protection. MoSPCE publicly discloses the prepared and invites the stakeholders to submit their written comments within 15 days. MoSPCE issues a Decision, within 60 days from the day of receiving the Request, which determines:

- that the environmental impact assessment is obligatory (development of EIA Study); or
- that the environmental impact assessment is not needed.

The content of the EIA Study is prescribed by the Instruction. The prepared Study, before its submission to the Ministry, is subject of the revision by the authorized legal entity. The Ministry is obliged to deliver a copy of the revised Study to the interested parties defined in the Law, who give their opinion on the Study in writing, within 15 days. MoSPCE publicly discloses the EIA Study, informs and invites all the stakeholders to a public consultation. Within 15 days after the public consultation, the public can submit their comments in writing. The Decision on the approval or the rejection of the Study is made by the Ministry within 60 days from the date of receipt of the Study in its final form. In cases of projects for which it is not necessary to obtain an environmental permit, the decision on approving the Study for such projects is renewed every five years, in accordance with the provisions of the Law and by-laws that regulate the procedure for revising environmental permits.

According to the *Rulebook on projects for which environmental impact assessment is conducted and criteria for deciding on the obligation to assess environmental impact*, the environmental impact assessment is mandatory for surface coal mines of 10 ha and above. The Ministry decides on the need for the environmental impact assessment for surface mines of up to 10 ha and for underground mines. The same rules apply for the cessation of operation of such mines (Art. 63 of the Law). The Ministry also decides on the need for the environmental impact assessment for: i) industrial plants for the production of electricity, steam and hot water, with a capacity of 20 MW and above, ii) plants for the production of biogas.

Issuance of environmental permits

The following authorities (hereafter: the competent authority) are responsible for issuing an environmental permit in RS: MoSPCE (for large and medium-sized plants above the thresholds set by a special regulation) and the body responsible for environmental protection in local self-government units (for smaller plants, i.e. plants below the thresholds set by a special regulation). Both authorities follow the same permitting procedure as stipulated by the Law on Environment Protection of RS.

The procedure begins by submitting a Request for Environmental Permit to the competent authority. The content of the Request is prescribed by the Law. The Ministry and the Municipality on territory of which the project is located, publicly disclose the prepared Request and invite the stakeholders to submit their written comments within 30 days. The competent authority issues a Decision on the issuance of an environmental permit within 60 days from the day of receipt of the final version of the Request. The environmental permit prescribes, *inter alia*, limit values for polluting substances emissions. Environmental permit is issued for a period of five years.

According to the *Rulebook on facilities that can be built and put into operation only if they have an environmental permit*, environmental permit for surface coal mines which are below the threshold of 10 ha is issued by the body responsible for environmental protection in local self-government units.

5.2.2. Waste Management Regulatory Framework

Federation of Bosnia and Herzegovina

In FBiH, the waste management is regulated by the Law on Waste Management FBiH[180]. The Law on Waste Management is a legal act that regulates waste management activities: it determines the basic principles of waste management, encourages the prevention of waste generation, recycling, reuse and the use of waste for obtaining energy. The law includes all categories of waste (except for radioactive waste, waste water and gaseous waste emitted into the air) and management of operations and installations in the immediate function of waste management.

[180] Official Gazette of FBiH, No. 33/03, 72/09 and 92/17

According to the Law on Environment Protection FBiH, the Request for Environmental Permit must be accompanied by a Waste Management Plan. Waste Management Plan must contain the following:

- documentation on the waste generated by the company (origin, type of waste pursuant to waste classification list, composition, volume);
- measures to be taken to limit waste generation, particularly in case of hazardous waste;
- separation of waste, particularly separation of hazardous waste from other types of waste and from recyclables;
- waste disposal;
- waste treatment and/or disposal methods.

In addition to the Law, the field of waste management at the FBiH level is regulated by several by-laws, which, among others, include:

- The Regulation on Waste Categories with Lists[181] which defines waste categories by activities;
- Regulation of Construction Waste[182] which regulates management of waste from construction activities;
- Rulebook on handling hazardous waste that is not on the waste list or whose content is unknown[183].

Republika Srpska

In RS, the waste management is regulated by the Law on Waste Management RS[184]. Request for Environmental Permit must be accompanied by a Waste Management Plan. Waste Management Plan must contain the following:

- documentation on the waste generated during plant operating process, as well as on waste used in the plant or disposed by the plant (type, composition and volume of waste);
- measures to be taken to reduce waste, particularly hazardous waste generation;
- procedures and manner of separation of various types of waste, particularly hazardous waste and recyclable waste, in order to reduce volume of waste for final disposal;
- manner of storage, treatment and disposal of waste.

In addition to the Law, the field of waste management in RS is regulated by several by-laws, which, among others, include:

- The Regulation on Waste Categories, Testing and Classification[185] which defines waste categories by activities;
- Rulebook on report forms on the management of special categories of waste[186];
- Rulebook on storage, packaging and labeling of hazardous waste[187];
- Rulebook on the document form on the movement of hazardous waste and instructions for its filling[188].

5.2.3. Water Management Regulatory Framework

Federation of Bosnia and Herzegovina

In FBiH, the Water Law[189] regulates water management, including: water protection, water use, protection against the harmful effects of water and regulation of watercourses and other waters.

The Regulation on Requirements for the Discharge of Wastewater into the Environment and Public Sewerage Systems in FBiH[190] establishes: conditions for collection, treatment and discharge of municipal wastewater; conditions for treatment and discharge of technological wastewater into the environment or public sewage

[181] Official Gazette of FBiH, No. 9/05
[182] Official Gazette of FBiH, No. 93/19
[183] Official Gazette of FBiH, No. 9/05
[184] Official Gazette of RS, No. 111/13, 106/15, 16/18, 70/20, 63/21
[185] Official Gazette of RS, No. 19/15, 79/18
[186] Official Gazette of RS, No. 87/20, 56/23
[187] Official Gazette of RS, No. 49/15
[188] Official Gazette of RS, No. 21/15
[189] Official Gazette of FBiH, No. 70/06
[190] Official Gazette of FBiH, No. 26/20, 96/20

systems; limit values of wastewater emissions when discharged into the environment or public sewage systems; deadlines for reaching limit values; and monitoring and testing of wastewater.

The Water Law prescribes that water permits must be obtained, regardless of their impact on water abstraction in all industries and activities, especially for industry and energy, as well as for any other activity which may affect volume and quality of water.

According to the Water Law of FBiH, water-permitting process consists of three stages:

1) issuing of Preliminary Water Approval;
2) issuing of Water Approval;
3) issuing of Water Permit.

Preliminary Water Approval sets the conditions, which have to be meet by project documentation, such as project design. Request for issuing of Preliminary Water Approval should be submitted parallel with the Request for Environmental Permit, as they both are preconditions for issuing of Urban Permit. Request for Preliminary Water Approval has to be accompanied with Study for issuing of Preliminary Water Approval. This Study must be prepared by the company licensed by Federal Ministry of Agriculture, Water and Forestry. Preliminary Water Approval validity is expiring after three years, if Request for Water Approval was not submitted in that period.

Water Approval confirms that project documentation submitted with the Request for issuing of Water Approval is in accordance with Preliminary Water Approval, and other planning documentation. Water Approval sets the conditions, which have to be meet during construction works, necessary research and observations during the execution of works, obligations to keep records, submit data to the water information system, as well as obligations to compensate third parties for damages incurred as a result of the works and the validity period of the Water Approval. Request for issuing of Construction Permit has to be accompanied with Water Approval. Water Approval validity is expiring after two years, if Construction Permit was not issued and construction works were not started in that period.

Water Permit confirms that all the requirements set in the Water Approval are met and is issued before the Use Permit. The Water Permit defines purpose, terms and conditions of water use, facility and plant operating regime, terms and conditions of wastewater discharge, terms and condition of solid waste and liquid waste disposal and other terms and conditions. It also defines the applicant's obligations related to wastewater measurement, measurement frequency, quality control and records keeping on used water, as well as obligations related to water fees accounting and payment. Water Permit is being issued for limited time period, but not longer than for 15 years.

In FBiH, water documentation is issued pursuant to the Regulation on Content, Form, Conditions and Manner of Issuance and Keeping of Water Documentation[191].

In FBiH, the Sava River Water Agency, the Adriatic Sea Water Agency and Cantonal Ministries are responsible for issuing water management acts. The abovementioned federal regulations prescribe division of jurisdiction of Agencies and cantonal ministries for issuing water acts, who follow the same procedures.

Republika Srpska

Water management in the territory of RS is carried out on the basis of the RS Water Law[192]. According to the RS Water Law, water-permitting process consists of three stages:

1) issuing of Water Guidelines;
2) issuing of Water Approval;
3) issuing of Water Permit.

These water acts are issued for, among others, energy sector activities, and any activities that may temporarily or permanently derogate the quality of water, or hinder the improvement of its existing quality.

Water guidelines determine the conditions that must be met in the investment documentation for the construction of new, reconstruction or removal of existing facilities and other activities that are not considered construction, and may permanently, occasionally or temporarily cause changes in the water regime. For facilities or works for

[191] Official Gazette of FBiH, No. 31/15, 55/19, 41/20, 63/22
[192] Official Gazette of RS, No. 50/06, 92/09, 121/12, 74/17

which water guidelines have been obtained, and for which no application for the issuance of a water approval has been submitted, the water guidelines cease to be valid after a period of one year from the date of their issuance. Water guidelines are issued in the form of a Conclusion.

Water approval is required for the construction of new, reconstruction or removal of existing facilities and other activities, if they can cause changes in the quality and quantity of water, i.e. if they can cause permanent, occasional or temporary changes in the water regime. The water approval establishes that the documentation attached to the request for the issuance of the water approval is in accordance with the issued water guidelines, water regulations and planning documents. Construction permit for new or reconstruction of existing facilities is issued based on a previously issued water approval. Water approval is issued in the form of a Decision. The issued water approval ceases to be valid after the expiration of one year from the date of issuance, except for facilities for which a building permit is obtained and work on the facility started.

Water permit is required for the use of water, the emptying of reservoirs, the discharge of wastewater into water bodies and the disposal or release of hazardous substances into water bodies, on agricultural, construction and forest land, and trading of products made of hazardous substances that end up in water bodies after use. Water permit is issued in the form of a Decision. Water permit is required for all facilities for which, according to the provisions of the Water Law, a water approval must be issued. The water permit establishes that the conditions determined by the water approval have been met and that a general act on maintenance, use, observation and safekeeping of the facility, and procedures in the event of failure or damage to the facility, which is passed before issuing the water permit, has been obtained. Water permit is issued for a certain period of time, with a maximum term of up to fifteen years.

5.2.4. Construction Regulatory Framework

Federation of Bosnia and Herzegovina

In FBiH, construction is governed by the following legislation:

- Law on Spatial Planning and Land Use of FBiH[193],
- Decree on determining interventions in space and buildings for which the Federal Ministry of Physical Planning Issues Urban Consent and / or Location conditions[194],
- Cantonal Laws on Spatial Planning and Construction.

Pursuant to the Law on Spatial Planning and Land Use of FBiH and cantonal regulations on spatial planning and construction, for construct facilities it is necessary to obtain an Urban Permit, Construction Permit and Use Permit. Depending on the type of construction, these permits are issued by the Federal Ministry of Spatial Planning, the Cantonal Ministries relevant for spatial planning, or by the local self-government units (Cities or Municipalities). Construction, in terms of the Law, implies the following: construction of a new facility, reconstruction, extension, upgrade, repair, rehabilitation, performing other interventions in the area, facility removal, preparatory works, **change of purpose of facility or land** and constructing temporary facilities, except for routine maintenance works, rehabilitation operations which can be seen as an ongoing maintenance and upkeep of facilities.

An application for an urban permit has to be accompanied with a Preliminary design and environmental permit (if required), as well as other documents as set out in Art. 39 of the Law. Urban permit is valid one year, and within that period an application for a construction permit has to be submitted. For the complete and permanent suspension of exploitation, urban consent is required and issued on the basis of spatial plans, according to the Law on Spatial Planning and Land Use FBiH. The Federal Ministry of Spatial Planning is responsible for issuing urban permit for energy mineral raw materials - all types of fossil coals (Art. 4 of the Decree).

Construction can be performed only on the basis of a construction permit. An application for construction permit has to be accompanied with a Detail design and other documents as set out in Art. 55 of the Law. The Decree on Construction Site Organization, Mandatory Documentation on Construction Site and Construction Participants[195] specifies the type of documents that must be kept at construction sites, including a Construction Site Organization

[193] Official Gazette of FBiH, No. 2/06, 72/07, 32/08, 4/10, 13/10, 45/10, 85/21, 92/21
[194] Official Gazette of FBiH, No. 32/14
[195] Official Gazette of FBiH, No. 25a/22, 42/22, 93/22

Plan. This Plan, *inter alia*, includes a Safety Plan (composed of Protection at Work Elaborate and Fire Fighting and Explosion Protection Elaborate) developed by the Contractor.

Use permit is issued based on an application, a after the conducted technical inspection. A technical inspection determines that the construction is constructed in compliance with the technical documentation (Main design) on basis of which the construction permit was granted, technical regulations and standards, as well as conditions for construction of the established special regulations, all in accordance with the provisions of the Rulebook on the Technical Inspection of the Constructed Object[196].

Republika Srpska

In RS, construction is governed by the Law on Spatial Planning and Construction[197]. Pursuant to this Law, for design and construction of buildings it is necessary to obtain Location Conditions, Construction Permit and Use Permit. Depending on the type of construction, these permits are issued by the RS MoSPCE or by the local self-government units (Cities or Municipalities).

Location Conditions is a technical expert document that determines the conditions for design and construction, which is made on the basis of the Law, special laws and regulations adopted on the basis of these laws, as well as spatial planning documents, and do not constitute an administrative act. Location Conditions are usually issued by the administrative body responsible for spatial planning in the local self-government unit in whose area construction is required. Article 60 of the Law prescribes in which cases the Ministry of RS is responsible for issuing location permit. This is the case, for example, for the construction of facilities carried out in the area of two or more local self-government units, and, *inter alia*, for: (i) facilities for exploitation, processing and refining of ores, (ii) energy facilities and other facilities for electricity production, except for photovoltaic plants and other plants using renewable energy sources with an installed power of up to 250 kW. The Law does not stipulate that location permit must be obtained for the closure of the mine, as well as for land conversion.

In terms of Article 124 of the Law on Spatial Planning and Construction, the construction of a facility can be approached only if a construction permit is obtained, except in cases when it is not necessary to obtain a construction permit in accordance with the provisions of this Law. Article 127 of the Law prescribes that the construction permit is issued by the administrative body responsible for construction in the local self-government unit. The Ministry issues a construction permit as in the case of issuing location conditions. The application for a construction permit must be accompanied by: (i) Location conditions, (ii) Environmental permit if required or a Decision approving environmental impact study in accordance with environmental regulations, and (iii) other documents listed in Article 128 of the Law.

The mentioned Law specifies the type of documents that must be kept at construction sites, including a Construction Site Organization Scheme. The Scheme includes a Safety Plan developed by the Contractor.

Issuance of use permit in RS is regulated by the Rulebook on Technical Inspection of Facilities and Monitoring of Soil and Facilities During Their Use[198].

5.2.5. Land Acquisition Regulatory Framework

Federation of Bosnia and Herzegovina

The land acquisition in FBiH is regulated by the Law on Expropriation of FBiH[199]. This Law regulates the conditions, manner and procedure of expropriation of the property for the construction of facilities of public interest. Property can be expropriated for construction of roads, business and industrial zones, economic, communal, medical, educational and cultural structures, civil defense structures and other structures of public interest. The expropriation target includes real property owned by individuals and legal entities.

Property can only be expropriated upon the declaration of public interest for the projects. Expropriation may be carried out for the needs of the FBiH, cantons, cities, municipalities, public companies, their 100% owned subsidiaries and public institutions. Exceptionally, expropriation may establish easement in favor of citizens for

[196] Official Gazette of FBiH, No. 58/14, 89/18
[197] Official Gazette of RS, No. 40/13, 2/15 - Decision of Constitutional Court, 106/15, 3/16, 104/18 - Decision of Constitutional Court, 84/19
[198] Official Gazette of RS, No. 100/13
[199] Official Gazette of FBiH, no. 70/07, 36/10, 25/12, 8/15 and Decision of Constitutional Court 34/16

the purpose of installing water and sewage pipes, electric and telephone cables, gas pipelines and in other cases determined by Law as defined by the Article 6.

Public interest is declared by a special decree or the Law (Art. 14 and 15). The public interest in the construction of a facility or the performance of other works in the area for which a regulatory plan or urban plan has been adopted shall be considered determined by that plan, i.e., project.

Expropriation can be full or partial. Full expropriation allows the beneficiary of expropriation to obtain legal title over the expropriated property, while the rights of the previous owner over the property as well as other rights over that property cease to exist (Art. 7). Partial expropriation does not entail change of ownership of land. Partial expropriation can establish easement on land and buildings as well as lease on land for a certain period of time (Art. 8).

By expropriating the property, the beneficiary of the expropriation acquires the right to use the property for the purpose for which the expropriation was performed. Landowners affected by a partial loss of their property are entitled to request full expropriation and the corresponding compensation, in case partial expropriation would deteriorate the economic situation of the actual property owner or make the remaining part of the property useless or difficult to use. Owners must be informed of such right by the municipal/city authority. Such request may be submitted until the Decision on Expropriation is issued in the first instance, as well as during the appeal procedure if the affected owner was not informed of such right (Art. 11).

Prior to submitting the proposal for expropriation, the expropriation user is obliged to invite the property owners through a public announcement for the purpose of acquiring the property by mutual agreement as per Art 23. Expropriation can be started only after the required funds have been secured and deposited with the bank in the assessed total sum for payment, or proof of existence of replacement properties provided (Art. 24) and compensation must be provided prior to formal transfer of ownership (Art. 31).

Generally, compensation is provided by replacement with another appropriate property corresponding to the market value of the property expropriated in the same municipality or city but if the owner refuses such replacement property, or replacement property cannot be provided by the beneficiary of the expropriation, compensation is paid in cash at market value of the property.

The Law does not contain any specific provisions related to support for vulnerable groups or support for informal users and economic displacement.

The Law on Proprietary Rights[200] stipulates acquisition, use, disposal, protection and termination of ownership rights and other proprietary rights as well as possession rights, including issues of restricting such rights, the right of servitude, co-ownership and joint ownership rights, the procedure for acquiring property rights over land and/or structures build on someone else's land. Protection of ownership rights and other proprietary rights is guaranteed by this Law. According to the Article 2, ownership rights and other proprietary rights can only be limited or taken away only in public interest but only under specific conditions defined by the Law in accordance with principles of international law. For the purpose of protection of natural resources, the environment, human health, cultural and historical heritage, etc., the manner of use and disposal of certain items may be limited or specifically regulated. A significant provision of the Law is that occupants of property acquire ownership rights upon 10 years of conscientious and legal occupancy, or upon 20 years of conscientious occupancy. In addition, the Law provides that the conscientious builder of a structure on land owned by another person is entitled to acquire such land, if the land owner did not oppose to the construction. The land owner is in this case entitled to request to be compensated for the market value of the land.

Republika Srpska

The land acquisition in RS is regulated by the Law on Expropriation of RS[201]. This Law regulates the conditions, manner and procedure of expropriation of the property for the construction of facilities of public interest. Property can be expropriated for construction of the facilities in the following sectors: health, education, social protection, culture, water management, sports, traffic, energy, telecommunications and communal infrastructure, facilities for the needs of state bodies and local self-government bodies, industrial facilities, provision of environmental

[200] Official Gazette of FBiH, No. 66/13, 100/13 and Decision of Constitutional Court 32/19
[201] Official Gazette of RS, No. 112/06, 37/07, 110/08, 79/15

protection and protection from natural disasters, as well as for research and exploitation of mineral and other natural resources.

Public interest is established by a Decision, but may also be established by a dedicated law or physical planning documents. Following the submission of a proposal by the expropriation beneficiary, the Government of RS issues a Decision on Establishing Public Interest upon the prior opinion of the assembly of local self-governments on whose territory it is intended to construct or carry out works. The assembly is obliged to issue its opinion within 30 days upon receiving the request (Art. 14). The Government of RS is then obliged to decide upon the matter within 30 days upon receiving the opinion of the assembly (Art. 18).

Expropriation can be full or partial. Full expropriation allows the beneficiary of expropriation to obtain legal title over the expropriated property, while the rights of the previous owner over the property as well as other rights over that property cease to exist (Art. 7). Partial expropriation does not entail change of ownership of land. Partial expropriation can establish easement on land and buildings as well as lease on land for a certain period of time (Art. 8)

By expropriating the property, the beneficiary of the expropriation acquires the right to use that real estate for the purpose for which the expropriation was performed (Art. 10).

Landowners affected by a partial loss of their property are entitled to request full expropriation and the corresponding compensation, in case partial expropriation would deteriorate the livelihood of the owner or make the remaining part of the property difficult to use. Owners must be informed of such right by the official leading the procedure. Such request may be submitted until the Decision on Expropriation is issued in the first instance, as well as during the appeal procedure if the affected owner was not informed of such right (Art. 11).

The expropriation beneficiary is required to try to reach an amicable sale-purchase agreement with the affected owner. The expropriation beneficiary and the property owner may conclude an amicable sale-purchase agreement after the submission of the proposal for expropriation, i.e. until the Decision on Expropriation is issued, in which case the expropriation procedure is terminated. Expropriation can be started only after the required funds have been secured and deposited with the bank in the amount approximately necessary for providing compensation (Art. 25).

Generally, compensation is provided by replacement with another appropriate property corresponding to the value of the property expropriated in the same municipality or city (Art. 53). If the owner refuses such replacement property, or replacement property cannot be provided by the beneficiary of the expropriation, compensation is paid in cash which cannot be below the market value of the property (Art. 54).

The Law does not contain any specific provisions related to support for vulnerable groups or support for informal users and economic displacement.

The Law on Proprietary Rights[202] stipulates acquisition, use, disposal, protection and termination of ownership rights and other proprietary rights. Protection of ownership rights and other proprietary rights is guaranteed by this Law. According to the Article 2, ownership rights and other proprietary rights can only be limited or taken away only in public interest but only under specific conditions defined by the Law in accordance with principles of international law. For the purpose of protection of natural resources, the environment, human health, cultural and historical heritage, etc., the manner of use and disposal of certain items may be limited or specifically regulated by this Law. A significant provision of the Law is that occupants of property acquire ownership rights upon 10 years if the occupancy is legal and conscientious, or upon 20 years of conscientious occupancy (Art. 58). In addition, the Law provides that the conscientious builder of a structure on land owned by another person is entitled to acquire such land, if the land owner did not oppose to the construction. The land owner is in this case entitled to request to be compensated for the market value of the land (Art. 59).

[202] Official Gazette of RS, No. 124/08, 3/09,58/09, 95/11, 60/15, 18/16 - Decision of Constitutional Court, 1/21 - Decision of CC, 119/21 - Decision of CC

5.2.6. Labor Regulatory Framework

Federation of Bosnia and Herzegovina

Labor Law of FBiH[203] regulates conclusion of employment contract, working hours, breaks and leave, general protection of workers, salary, work contract termination, rights and obligations under employment contracts, collective bargaining, peaceful resolution of collective labor disputes and other issues related to the employment relationship. The Law, inter alia, treats rights of worker and employer to enter employment contract, rights of minor and female workers. Provisions of this Law are harmonized with International Labor Organization (ILO) Conventions on forced work, discrimination, child work, equal pay, freedom of association, freedom of organization and collective bargaining. The Law also regulates prohibition of discrimination, harassment and sexual harassment. The Law also regulates the process for collective dismissals and includes a requirement for the preparation of the retrenchment plan, and consultations with unions and national employment service. The Law also provides for the formula for the calculations for severance payments. Article 4 of the Law stipulates that the employer, after concluding the employment contract, is obliged to register the worker for pension and disability insurance, health insurance and unemployment insurance.

Law on Employment Mediation and Social Security of Unemployed Persons FBiH[204] regulates the rights and obligations of the FBiH in establishing and implementing measures to promote and improve conditions for employment, basic principles in employment mediation, material and social security of unemployed persons during temporary unemployment, establishment, organization and work of the Federal Employment Service, public employment services of the cantons, financing of the overall employment activity and other issues.

The right to financial compensation is acquired by an unemployed person who, at the time of termination of employment, has worked for at least eight months continuously or eight months with interruptions in the last 18 months (Art. 29). The amount of financial compensation is 40% of the average net salary paid in the FBiH in the last three months before the termination of employment of the unemployed person, which is published by the Federal Institute of Statistics (Art. 30). Financial compensation is paid to an unemployed person in duration of:

a) 3 months if employment was 8 months to 5 years;
b) 6 months if employment was 5 to 10 years;
c) 9 months if employment was 10 to 15 years;
d) 12 months if employment was 15 to 25 years;
e) 15 months if employment was 25 to 30 years;
f) 18 months if employment was 30 to 35 years;
g) 24 months if employment was more than 35 years.

An unemployed person acquires the right to financial compensation if the person registers and submits a request within 30 days from the day of termination of employment (Art. 33). An unemployed person is not entitled to financial compensation: a) when the person knowingly contributed to the termination of the employment; b) when it is established that the person voluntarily left their job without a valid reason (Art. 36).

Law on Safety at Work of FBiH[205] regulates the rights, obligations and responsibilities of employers and workers in connection with the implementation and improvement of the safety and health protection of workers at work, as well as the general principles of prevention, and the system of rules of safety and health protection at work, the application of which achieves the prevention of injuries at work, occupational diseases and other diseases related to work, as well as protection of the working environment, and other issues related to safety and health protection at work.

Republika Srpska

Labor Law of RS[206] governs employment relations, rights, obligations and responsibilities under employment contract, conclusion of employment contract, working hours, breaks and leave, general protection of workers, salaries, employment contract termination, protection of workers' rights, as well as organization of workers and employers such as workers' unions and other forms of organizing, collective bargaining, etc. The Law also

[203] Official Gazette of FBiH, No. 26/16, 89/18, 23/20 - Decision of Constitutional Court, 49/21 – other law, 103/21 – other law, 44/22
[204] Official Gazette of FBiH, No. 55/00, 41/01, 22/05, 9/08
[205] Official Gazette of FBiH", No. 79/20
[206] Official Gazette of RS, No. 1/16, 66/18, 91/21 - Decision of Constitutional Court, 119/21

regulates prohibition of discrimination, harassment and sexual harassment. The Law also regulates the process for collective dismissals and includes a requirement for the preparation of the retrenchment plan, and consultations with unions and national employment service. The Law also provides for the formula for the calculations for severance payments.

The Law on Employment Mediation and Rights During Unemployment of the RS[207] regulates activities in the field of employment, employment mediation, holders of employment mediation functions, employment on public works, unemployment insurance, rights of unemployed persons and conditions for their realization, and others issues of importance for organized employment in the RS.

An unemployed person whose employment has ended without his request, consent or fault in terms of labor regulations, and who has worked at least eight months continuously in the last 12 months, or 12 months with interruptions in the last 18 months, has the right to financial compensation (Art. 36). Financial compensation is due to an unemployed person from the first day after the termination of the employment, if the person registers in the records and submits a request within 30 days from the termination of the employment (Art. 38). Rights are exercised for a period depending on the length of time spent in employment (Art. 39):

a) up to 12 months - 1 month;
b) from 1 to 2 years - 2 months;
c) from 2 to 5 years – 3 months;
d) from 5 to 10 years - 6 months;
e) from 10 to 20 years - 9 months;
f) from 20 to 30 years - 12 months;
g) from 30 to 35 years - 15 months;
h) over 35 years - 18 months.

The financial compensation is paid: a) for an unemployed person who has been employed for up to 15 years, in the amount of 45% of the average salary earned by the unemployed person in the last three months of work; b) for an unemployed person who has been employed for 15 years or more, in the amount of 50% of the average salary earned by the unemployed person in the last three months of work (Art. 47).

The Law on Contributions of the RS[208] regulates the system of mandatory contributions for financing pension and disability insurance, health insurance, unemployment insurance and child protection in the Republic of Srpska. The payer of contributions in the sense of this Law is the employer.

Law on Safety at Work of RS[209] prescribes safety and health at work as an activity of general interest, responsibility of implementation and improvement of safety and health at work, rights, obligations, responsibilities and preventive measures. Safety and health at work, in terms of this law, include a set of organized measures and activities aimed at creating conditions that ensure: a) safety at work; b) prevention and elimination of risks and hazards that can cause injuries at work, professional and other diseases and damage to workers' health at work; v) protection of workers' health and work ability. Special protection is prescribed for the protection of minor workers, the protection of women, the protection of the disabled and occupationally ill persons, and the protection of older workers.

5.2.7. Regulatory Framework in the field of mining and mine closure

Federation of Bosnia and Herzegovina

The basic regulation that regulates mining activity in the Federation of BiH is the **Law on Mining of the FBiH**[210,211]. This law regulates the legal status of mineral raw materials-ore, manner and conditions of management, protection, execution of mining operations, suspension of execution and permanent interruption of mining works, technical documentation and designing, mining measurements and mining plans, and other matters

[207] Official Gazette of RS, No. 30/10, 102/12, 94/19, 112/23
[208] Official Gazette of RS, No. 114/17, 112/19, 49/21, 119/21, 56/22, 132/22
[209] "Official Gazette of RS", No. 1/08, 13/10
[210] "Official Gazette of FBiH", No. 26/10
[211] The new draft Law on Mining has been adopted by both federal parliaments (in 2021 and in 2022) and in mid-2022 public consultations were organized, but the Law hasn't been adopted yet in its final form.

related to mining. This law prescribes the competencies of the Federal Ministry of Energy, Mining and Industry (FMERI), and the competencies of the Cantons. Most of the Cantons have passed their own laws on mining.

According to the provisions of the Law on Mining in the Federation of BiH, the management of mineral resources is in the responsibility of both the Federation of BiH and the Cantons, which program, plan and supervise the exploitation of mineral resources, while ensuring their rational use in accordance with regulations on safety of mining facilities and employees (Article 4). According to the provisions of Article 7 of the law, FMERI is responsible for the management of energy minerals for all types of fossil coals, and is accordingly responsible for issuing permits for both exploitation and suspension of production and permanent interruption of mining operations.

The Federal Ministry, i.e., the Cantonal Ministries in charge of mining that have issued permits for the exploitation of mineral resources are obliged to keep a Cadastre of Approved Exploitation Fields, which is a public register that uniquely shows all relevant facts for each exploitation field for which a permit for exploitation of mineral resources.

Pursuant to the FBIH Mining Law, in order to perform mining operations aimed at closing the exploitation, reclamation and rehabilitation of the land that was the subject of exploitation (whether it is a suspension of works on all facilities or only one facility), it is necessary to obtain from the FMERI a **permit for complete and permanent suspension of exploitation**.

The basic stages in the **process of terminating mining works** are:

1. Submission of an **application** by a company that exploits mineral raw materials for the issuance of a **permit for the interruption of mining operations** (must be done 15 days before the closure of the mine) (Art. 58 of the Law).
2. FMERI establishes a **Commission** of representatives of FMERI, the Federal Ministry of Spatial Planning and the Federal Ministry of Environment and Tourism to review the situation on the spot.
3. After the review, the Commission referred to in item 2 shall compile a **Report with proposals for further measures** and **submit** it to the FMERI. The Minutes from the review represents the technical basis for **issuing permits for the suspension of operation** of Article 42. the Law.
4. **After obtaining a permit to suspend the exploitation of mineral resources, the company must carry out the final remediation of land and reclamation of the environment and eliminate the consequences of the mining works, based on the project of remediation and reclamation.** Continuing obligation of a company to the project of mining operations, is to perform soil remediation and reclamation of technical devastated surface due to mining operations (Art. 59, para. 2). Prior to the final remediation, the company is obliged to implement insurance measures in order to permanently exclude dangers to life and health of people and property and possible causes of environmental pollution, damage to buildings and the environment (Art. 59, para. 3).
5. After the rehabilitation and reclamation, the company is obliged to **notify** the FMERI and the competent Federal inspection in charge of mining and environmental protection.
6. Upon receipt of the notification referred to in item 5, FMERI will execute **technical control** which will determine if the remediation and reclamation of the environment is carried out in accordance with the mining project and whether the **security measures implemented are sufficient** (Item 4.) after which it will issue a certificate to the company. If the implemented measures are not sufficient, the company will be ordered to eliminate the identified deficiencies within a certain period of time (Art. 59, para. 5).
   In addition to FMERI, representatives of the competent federal ministries for physical planning, environment and tourism and agriculture, water management and forestry **participate** in the technical control.
7. The Federal Ministry, i.e., the Cantonal Ministry in charge of mining shall issue a Decision based on which the rights and duties from Permits (Art. 37, para. 1, point 1 – 7 of the Law on Mining of the FBiH) that regulated all mining operations shall **cease** and the mining company shall be **written out** from the **Cadastre of Exploitation Fields**.

In accordance with Art. 42 of the FBiH Law on Mining, with the application for the issuance of a permit for

complete and permanent suspension of exploitation, the company is obliged to enclose the following documents:

1. concession agreement;
2. mining project to suspend exploitation;
3. urban consent (administrative act issued by the competent authority in accordance with the regulation governing spatial planning and land use in the FBiH); in this case, the urban permit is issued by the Federal Ministry of Spatial Planning.[212] In the process of issuing an urban permit, it is necessary to enclose a number of documents, which include, among other things, a previous water permit.
4. environmental permit (administrative act issued by the competent authority in accordance with the regulations governing environmental protection in the FBiH); This permit is issued by the Federal Ministry responsible for the environment, or the cantonal ministry, depending on the capacity, eg. for underground mining, the environmental permit is issued by the Federal Ministry, and it is mandatory to conduct an environmental impact assessment;
5. explanation of complete and permanent suspension of exploitation and the decision of the company on complete and permanent suspension of exploitation.

According to the **Rulebook on the content, sequence of designing, components and manner of preparation of mining projects**[213] it is necessary that the ***Mining Project for complete and permanent suspension of mining operations*** contains:

1. technical-economic analysis of the justification of the suspension;
2. basic concepts of works for complete and permanent suspension of mining works;
3. technical solutions for individual phases.

The obligation of the company is, according to the Mining Operation Project[214], to continuously rehabilitate the land and perform technical reclamation of the devastated areas caused by the mining operations. Prior to the final remediation, the company is obliged to implement insurance measures in order to permanently exclude dangers to life and health of people and property, and possible causes of environmental pollution, ie damage to buildings and the environment.

According to the Mining Law of the FBiH, constructing within the boundaries of the exploitation field shall be allowed, but before issuing of the Urban Permit, it is necessary to obtain the Opinion/Consent of the mining company.

Respective Opinion/Consent can also be issued when, in the opinion of the company performing the exploitation, there is a danger of damage, but only if there is no danger to human life and health and if the investor waives in writing the right to compensation for damage that could occur as a result of mining works. A statement of waiver of damages must be recorded in the land register (Art. 110 of the FBiH Mining Law).

In addition, it is stipulated that if the public interest requires, public roads, railways, canals and other roads, high-voltage power lines, water mains, oil pipelines, pipelines and gas pipelines can be built on the surface of the exploitation field, if protective pillars are provided to prevent endangering human life and constructed facilities.

Before the project documentation for the mentioned facilities is made, the investor must request an opinion of the mining company, which direction and position of these facilities in the exploitation field would be the most appropriate.

In accordance with the applicable regulations, the mining company has the right to compensation for actual damage caused by the construction of such facilities (Art. 111 of the FBiH Mining Law).

Republika Srpska

The basic regulation that regulates mining activity in RS is the **Law on Mining**[215]. This law regulates the conditions and manner of exploitation of mineral resources, construction, use and maintenance of mining facilities, mining projects, mining geodetic measurements and plans, protection measures, conditions for issuing and revoking of mining licenses, and other issues related to the exploitation of mineral resources. Exploitation of

[212] In accordance to the Decree on determining interventions in space and buildings for which the Federal Ministry of Spatial Planning issues urban planning consent and / or location information ("Official Gazette of FBiH", No. 32/14).
[213] "Official Gazette of FBiH", No. 53/12
[214]The mining project is a part of the technical documentation on the basis of which the exploitation operations are performed. The types of mining projects are determined in Art. 65 of the Law on Mining, and their content is determined by a special rulebook issued by the Federal Minister, based on that article.
[215] "Official Gazette of RS", No. 62/18

mineral raw materials and performance of other mining operations can be performed only by a legal entity that has the appropriate license issued by the Ministry of Energy and Mining of RS (MoEM) (Article 1 of the Law 1).

Exploitation is allowed exclusively on the basis of a concession (Article 10). In the exploitation field where mining operations are performed, it is necessary in accordance with the mining projects, during the exploitation to carry out gradual rehabilitation of the terrain and perform biological reclamation. The Law also regulates the disposal and management of mining waste, which should be performed on the basis of a use permit for mining waste management, issued by MoEM with the prior opinion of the ministry responsible for environmental protection, in accordance with the waste management plan and other supporting documentation (Article 74). The legal authority for the RS Government to issue a decree regulating the issuance of a use permit has also been determined.

According to the **Rulebook on Preparation, Audit and Approval of Mining Projects**[216], the Decision on approving the performance of mining works under the main and supplementary mining project shall contain:

1) name and seat of the concessionaire,
2) name and components of the mining project,
3) name of the deposit and type of mineral raw material,
4) obligations related to obtaining a use permit for constructed mining facilities,
5) obligations related to obtaining an environmental permit, water consent and land repurposing,
6) obligations related to remediation and reclamation of degraded areas.

According to the Rulebook, environmental permit, water consent and land repurposing act, are mandatory documents that supplement the main and the supplementary mining project[217].

In case of permanent suspension of mining operations, the concessionaire is obliged to take all measures to protect the mining facility and land on which the operations were performed, measures to protect and rehabilitate the environment to ensure life and health of people and property, in accordance with the supplementary mining project (Article 78 of the Law). The **project of land reclamation** on the exploitation field is an integral part of the supplementary mining project. Mining projects can only be developed by legal entities licensed for such activities issued by the MoEM.

According to Article 79 of the Law on Mining, the concessionaire is obliged to bring the land on the exploitation field to the original or other purpose, during and after the completion of works on the exploitation of mineral raw materials, and no later than one year from the day of completion of works on the areas where mining works have been completed in accordance with reclamation project. After the execution of operations in accordance with the reclamation project, the concessionaire has the obligation to inform the MoEM. After receiving the notification of the concessionaire, the Ministry shall form a Commission to perform a technical inspection to determine whether the concessionaire has implemented the reclamation in accordance to the reclamation project and whether it has taken measures to protect the land on which the works and protection measures were performed, and rehabilitation of the environment and water in order to ensure the life and health of people and property, about which a **record** is made.

The Law has no other provisions that would apply to other mine closure requirements such as obtaining an environmental permit or urban consent as is the case in the FBiH. The Law also does not contain provisions on the composition of the Commission, i.e. which sector representatives participate in the approval of a mining project when closing a mine.

The RS Law on Mining prescribes that the most favourable remediation solution for all abandoned exploitation fields should be found, which implies the development of appropriate remediation projects that will give these areas a new quality in environmental, visual and multi-beneficial terms. The Law also stipulates that MoEM keeps **a register of abandoned mines** and mining facilities without applied technical and technological procedures of reclamation and remediation for which the holder of the exploitation permit is not known or no longer exists, or the ownership of the space cannot be determined. This register has not been established yet.

The Law on Mining in RS explicitly defines that **only mining facilities** can be built on the exploitation fields. Moreover, it prescribes that following facilities that are not considered as mining facilities can be built on the exploitation field, such as: administrative buildings, restaurants, storage facilities on the ground that are not related

[216] "Official Gazette of RS", No. 11/19, Art. 90.
[217] As an integral part is the project of land reclamation

to the technological process, asphalt bases and concrete plants.

Public roads, railways, canal and other roads, as well as high-voltage power lines with certain protective poles, can be built across the exploitation field, after previously obtained consent of the relevant Ministry. The opinion of the concessionaire on the most favourable direction and position of these facilities in the exploitation field is obtained before issuing the location conditions for the construction of these facilities. The concessionaire is entitled to compensation for the actual damage caused by the construction of the facilities

The construction of respective facilities is carried out in accordance with the regulations governing the field of construction.

5.2.8. Regulatory Framework for reclamation of land damaged by mining operations

Federation of Bosnia and Herzegovina

Remediation and technical reclamation of land damaged by mining operations is one of the mining activities under the Law on Mining. The permit approving the exploitation must already contain provisions on the obligation to remediate and reclaim the area affected by the exploitation of mineral resources. Provisions on the obligation to reclaim the soil during and after exploitation, in addition to the Law on Mining, are determined also by other regulations. Article 13 of the Law on Environmental Protection, in order to preserve the soil, prescribes the obligation that during and before the ore exploitation, adequate separation, disposal and protection of the surface layer of soil and protection and use of agricultural and forest land must be ensured. Upon completion of activities involving land use, the beneficiary must ensure the restoration of the area according to the reclamation project.

The reclamation of agricultural land that was used for the exploitation of the mineral resources, disposal of tailings, ash and slag is regulated by the **FBiH Law of Agriculture Land**[218]. Concerning the exploitation of mineral ore, temporary repurpose of agricultural land is considered to be the **surface mining of industrial minerals and other mineral substances, and other material and peat foreseen by** mining plans and projects, and creating landfill of solid and liquid waste and other mineral substances, until the end of exploitation (Art. 47, para. 5). Article 94 of the Law on Agricultural Land stipulates that agricultural land used for the exploitation of mineral and other substances, which does not have a permanent character, is brought to the appropriate purpose, ie to be provided for agricultural production according to the **project of agricultural land reclamation** prepared by registered scientific and professional institutions.

Federal Ministry of Agriculture, Water Management and Forestry has issued an **Instruction on the mandatory uniform methodology for the preparation of reclamation projects**[219], which prescribes the content and stages of project development. The Instruction regulates the objectives, manner of reclamation of surface mines, tailings, ash dumps, ores, quarries, dumps, industrial landfills, illegal dumps, natural soil damage (landslides, erosion, torrents, etc.), flotation materials, measures and types of reclamation, reclamation project, reclamation phases and deadlines, and sets the methodology for the development of reclamation projects of agricultural land that was used for the exploitation of mineral substances and other substances, which does not have a permanent character. This Instruction was adopted on the basis of the Law on Agricultural Land which regulates the basic principles and management of agricultural land, and protection, use, arrangement, disposal, records of that land, and other issues. The aforementioned Instruction prescribes all technical, bio-technical and biological measures used in reclamation, and prescribes the planting of certain crops.

Reclamation of soil foresees a system of technical, agro-technical and biological measures and procedures that ensure damaged land is returned to the original purposes (Art. 3. of the Instruction). The main goal of reclamation of physically, chemically and biologically damaged lands is to establish the function of land management, as a resource. The goal of reclamation is to "return" in some form, through the activities envisaged by the reclamation project, what was previously “borrowed” from nature through exploitation. The priority goals of reclamation of tailings, ash and flotation materials are the introduction of certain crops as well as the establishment of a certain ecological balance. The type of certain crops is set out in Article 33 of the Instructions. Article 3 of the Instructions stipulates that, **if the technical reclamation is adequately performed, surface mines can be turned into forests, meadows, pastures, orchards, vegetable gardens, landfills for a period of 10**

[218] “Official Gazette of FBiH”, No. 52/09
[219] “Official Gazette of FBiH”, No. 73/09

years with the possibility of reclamation and formation of new green areas, nurseries, new cemeteries, or water reservoirs.

Article 8 of the Instruction stipulates that the manner of reclamation of agricultural land used for the exploitation of mineral substances and other substances, which does not have a permanent character, is brought to the appropriate purpose (afforestation, landscaping, creation of terraced areas, etc.), i.e. preparation for agricultural production according to the project of reclamation of agricultural land, which is made by registered scientific and professional institutions.

Article 52 of the Instruction prescribes 3 phases of reclamation:

1. Phase 1 - registration of tailings, industrial landfills and landfills, illegal landfills and other exploitation areas, description of the situation, responsibility, identification of subject responsible for reclamation and financing (preliminary study);
2. Phase II. - rehabilitation and reclamation action plan (feasibility study);
3. Phase III. - monitoring and reporting on implementation.

The **preliminary study** from the Phase I is prepared by the competent cantonal ministry, which has issued a consent for a temporary change of use of agricultural land. Phase II refers to the preparation of a **feasibility study** issued by the cantonal ministry with the professional assistance of a scientific-professional institution, and must contain an action plan for remediation with strictly defined deadlines for the execution of certain actions, subjects of the obligation of reclamation, and the method of payment.

Referring to the Phase III, Art. 58 of the Instruction prescribes the establishment of a **reporting system between the competent authorities**, and prescribes the elements of data for running the system.

The consent to the reclamation project is issued by the Cantonal ministry in charge of agricultural affairs, with the obtained expert opinion of the institutions authorized and qualified for the preparation of reclamation projects (Art. 4).

The development of biological reclamation projects is performed by scientific and professional institutions that are registered for agricultural activities.

Law on Agricultural Land obliges beneficiary or investor for the advanced payment of 30% of the funds required for the reclamation, on the bank account designated by the Cantonal ministry, and the funds are returned to the user after the reclamation.

After obtaining the permit for the cessation of exploitation, in terms of the FBiH Mining Law, the company must carry out the final remediation of land and environmental reclamation and eliminate the consequences of mining works, based on the ***Rehabilitation and Reclamation Project***. The remediation and reclamation project is carried out according to the methodology prescribed in the Instruction. According to that Law, soil reclamation is defined as "a system of technical, agro-technical and biological measures and procedures by which the disturbed land is returned to its original purpose", and the same definition is prescribed by the Instruction.

Republika Srpska

The Mining Law stipulates that the main or supplementary mining project must contain a Reclamation Plan. According to Art. 79 of the Law on Mining, the concessionaire is obliged to bring the land in the exploitation field to the **original or other purpose** in accordance with reclamation project, and no later than one year from the completion of operations where the mining works have been completed. Mining projects can be developed only by legal entities that have a license to perform these activities issued by the MoEM (Art. 25). For reclamation projects, the legal entity may hire another legal entity that meets the conditions for the preparation of project documentation in accordance with the relevant regulations. The technical description of reclamation is set out in Art. 18 of the Rulebook on Preparation, Audit and Approval of Mining Projects. The content of the reclamation project is prescribed by the Rulebook on the content of the remediation and recultivation project[220].

The engagement of legal entities for the preparation of the reclamation project is also regulated by the provisions of the **Law on Agricultural Land**[221] which in Art. 30. prescribes that the reclamation project may be prepared

[220] "Official Gazette of RS", No. 97/20
[221] "Official Gazette of RS", No. 93/2006, 86/2007, 14/2010, 5/2012 and 58/2019 and "Official Gazette of BiH", No. 16/2020 - Decision of the Constitutional Court of BiH).

by a company, other organization or institution registered in the court for performing this activity, if it employs at least two persons with a university degree in agriculture or forestry, or specialists in a specific subject of reclamation, with work experience of at least three years in these jobs. The content of the reclamation project is determined in Art. 31, paragraph 4 of the Law on Agricultural Land[222].

Provisions on land reclamation are also contained in the **Law on Environment Protection** in the RS[223], in the provisions of Art. 16b. as a measure implemented on polluted and degraded areas in order to re-form the soil layer and establish plant communities on areas where mineral resources were exploited, failed afforestation, as well as in case of natural disasters, fires and other anthropogenic impacts. According to Article 16v., the reclamation project is submitted to the Ministry responsible for ecology in the procedures of environmental impact assessment and issuance of environmental permits. However, according to Article 16g. these provisions do not apply to agricultural land regulated by the Law on Agricultural Land. In the RS, no bylaw has been envisaged or published

5.2.9. Regulatory Framework for repurposing of agricultural land

Federation of Bosnia and Herzegovina

For the **repurpose of certain land,** it is necessary to initially make changes in **spatial planning documents**, and obtain a planning document whose implementation will meet the needs of the area.

Planning documents determine the purposeful organization, use and purpose of land, as well as measures and guidelines for the protection of space. Law on spatial planning and land utilization at the Federal level foresees conceptual basic land use, such as: agricultural, forestry, land and water, and other surfaces. The change of purpose is regulated in several laws in the Federation of BiH. Detailed purposes and change of purpose of land is laid down in the cantonal regulations on spatial planning, FBiH Law of Agriculture Land, as well as the laws of the Canton governing the management and use of agricultural land[224], laws governing forests, water, and other.

The change a purpose of agricultural land for non-agricultural purposes is carried out in accordance with **the spatial planning plans** and acts determined by the Law on Agricultural Land. Agricultural Land Law, inter alia, regulates repurposing of the agricultural land, which may be of permanent and temporary character.

The Law on Agricultural Land of FBiH determines arable and non-arable agricultural land. Arable agricultural land considers plough land (fields), gardens, orchards, vineyards and meadows. Non-arable land foresees pastures, ponds, reeds and swamps. Non-arable agricultural land can be converted into arable land by appropriate agro-technical measures, if it also serves the interests of increasing agricultural production (Article 4 of the Law).

In the Federation of BiH, agricultural land is mostly privately owned. Foreign citizens cannot acquire ownership of agricultural land by legal business, but it is possible by inheritance (Article 99 of the Law on Agricultural Land).

Permanent and temporary change of purpose of agricultural land for other purposes can be carried out only on the basis of the **category of the land**. A fee needs to be paid for each permanent and temporary repurpose of agricultural land (Article 18 of the Law).

A permanent repurpose of agriculture land is considered to be the physical disappearance of soil caused by construction or other form of use, where the land is permanently lost for agricultural production.

A **temporary repurpose** of agricultural land is considered a change of use for a specified period after which the land can be used for agricultural production. Temporary change of agricultural land is also considered a **surface exploitation of industrial mineral substances and other mineral substances** and peat coal envisaged by mining plans and projects, and also **creation of landfills for solid and liquid waste and other mineral**

[222]The project of reclamation of agricultural land should contain: the procedure of removing and storing the humus layer, the distance from neighboring plots, the depth to which the exploitation of mineral raw materials is allowed, the procedure of biological reclamation of agricultural land, deadlines for individual phases of biological reclamation of agricultural land, dynamics of repurposing to agricultural production or other purpose, hydrotechnical operations that establish the original water regime in the land, the procedure and deadline for testing hazardous and harmful substances in the reclaimed land and the financial plan for the implementation of the reclamation project.
[223]"Official Gazette of the RS", No. 71/12, 79/15 and 70/20.
[224] eg. in Tuzla Canton, the Law on Changing the Purpose of Agricultural Land was adopted ("Official Gazette of Tuzla Canton", No. 10/10)

substances until the end of exploitation (Article 47 of the Law).

The purpose of the land in the spatial planning plans is determined on the basis of the map of the usable value of agricultural land, as follows:

1. land from 1st to 4th rating category[225] is determined exclusively as agricultural land;
2. land from the 5th to the 6th rating category is determined as agricultural land and only exceptionally, as land for other purposes;
3. land from the 7th to the 8th rating category is determined as land that will be used for other purposes, as needed.

Exceptionally, when there are no other options, when it requires general interest declared by the Cantonal government, and when there are no less valuable agriculture land, agricultural land from 1 to 4 rating categories can be established as land for the construction of capital objects such as: roads, railways, airports, hydro-accumulations, water management facilities for flood protection and **facilities for the exploitation of industrial and other mineral substances by surface mining;**

If for some areas there are no established rating categories of land, i.e. there are only data on cadastral classes and crops, the Federal Institute for Agro-pedology and scientific-professional institutions will, at the request of the client, perform the necessary research and determine the rating category.

Agricultural land shall not be used for non-agricultural purposes nor may its repurpose unless the spatial planning documentation of the Federation and Cantons are agreed in accordance with the provisions of the Law on Spatial Planning and Land Use at the level of the Federation of BIH, and if **agricultural consent** has not been obtained on the basis of the Law on Agricultural Land. The agricultural consent is an administrative act, issued at the request of the client and issued in the form of a decision, after submitting proof of payment of the fee for changing the purpose of agricultural land no later than 30 days from the date of application. The consent is issued by the Cantonal ministries in charge of agriculture. The **urban consent** is issued by the ministry in charge of spatial planning after obtaining the agricultural consent ex officio.

The spatial plan of the Canton cannot be implemented if the consent of the Federal Ministry of Agriculture has not been obtained for it. The Federal Ministry issues the consent based on the expert findings and opinion of the Federal Institute of Agro-pedology. The Cantonal Assembly approves the spatial planning plans for smaller spatial units within the canton (municipal area, special area, cities, settlements).

In order to change the purpose of agricultural land, together with the application, the investor should submit the following documents:

- excerpt from the spatial plan for that area, copy of the cadastral plan of the parcels that make up the construction parcel,
- land registry excerpt (proof of ownership or possession),
- record of the agricultural inspector on the current situation regarding the manner of use of agricultural land for which consent is required,
- proof of paid administrative fee, and
- reclamation project, if the change of use is done for a certain period of time.

Republika Srpska

Repurpose of agricultural land is an administrative procedure regulated by the Law on Agricultural Land of RS. Repurpose of agricultural land, in terms of that law, considers any use of agricultural land for the construction of settlements, industrial, energy and mining facilities, railways, roads, water reservoirs, afforestation or other works that permanently disable the use of agricultural land for the agriculture production (Art. 30).

Exploitation of mineral raw materials and execution of works on disposal of tailings, ash, slag, gravel, stone, as well as hazardous and harmful substances on agricultural land for a certain period of time, is considered a temporary repurpose of agricultural land, after which the user is obliged to reclaim the land in accordance with

[225] Art. 2 and 3 of the *Instruction on a Uniform Methodology for the Classification of Agricultural Land and Rating Categories* ("Official Gazette of FBiH", No. 78/09): Land rating is the research and evaluation of land from the point of view of its production and use value. The criteria for rating are the properties of land of a more permanent character. Land rating determines the degree of land suitability for agricultural production, regardless of the previous way of land use. Land classification is also based on the possibility or impossibility of regular tillage.

reclamation project.

Prior to commence of exploitation, the concessionaire must obtain consent from local self-government units for a temporary repurpose of agricultural land, with previously obtained guidelines from the Ministry of Agriculture, Forestry and Water Management (Art. 30). Along with the request for the issuance of that consent, the concessionaire, in addition to other documents prescribed by Art. 31 of that Law, must enclose a reclamation project.

For changing the purpose of agricultural land, a one-time fee shall be paid by investor. The fee is determined in Art. 33 of the Law on Agricultural Land, and is determined by the competent body of the local self-government unit. Of the collected funds, 30% is directed to the budget of the RS and is spent on the development and implementation of the Basis and Programs for the Protection, Use and Arrangement of Agricultural Land; preparatory actions in the implementation of the procedure for allocating agricultural land owned by the RS through a concession (land identification, study, etc.); and for conducting the consolidation procedure.

The remaining 70% of the fee is directed to the budget of the municipality in whose territory the land is located and is spent on arranging and using agricultural land, capacitating and arranging agricultural land that is degraded, neglected, of poorer quality or infertile, for the procedure of allocating agricultural land of RS on lease, etc. (Art. 35).

Funds from the fee collected on the basis of repurposing of agricultural land for non-agricultural purposes, funds from rent, and concession fee for the use of land owned by RS, which are budget revenues of local self-government units, are used for purposes specified in Art. 35 of the Law. Funds from the fee collected on the basis of repurposing of agricultural land for non-agricultural purposes, and rent for land owned by the RS, which are the revenue of the RS budget, are used for the purposes specified in paragraph 3 of Art. 35 of the Law.

6. INTERNATIONAL AGREEMENTS

By signing the **Stabilization and Association Agreement (SAA)** of 2008, Bosnia and Herzegovina has undertaken to gradually harmonize domestic legislation with the EU law, with priority directed to the *acquis* relating to trade and the internal market with the obligation to extend the harmonization to all other elements of the *EU acquis*. That agreement did not enter into force until June 1, 2015.

In addition to the SAA, Bosnia and Herzegovina is a signatory to the **Energy Community Treaty (EnCT)** and a number of multilateral agreements and conventions in environmental protection sector. The EU is a party to these conventions but it implements them through its own legislation. BiH is obliged to implement ratified agreements also on the basis of obligation for approximation of legislation under the SAA, signed between the EU and BiH.

When it comes to energy policy, Article 107 of SAA provides that priority should be based on the EnCT with a view to the gradual integration of BiH in the European energy market.

Article 108 of the SAA requires close cooperation to improve the state of the environment with a view to sustainable development, strengthening administrative structures and procedures to ensure strategic planning of environmental issues and coordination between relevant actors, and **obliges to harmonize the regulations of BiH with the EU *Acquis Communautaire*.** This article also obliges the authorities of BiH to cooperate in developing strategies to significantly reduce air and water pollution at the local, regional and transboundary levels, which should include waste and chemicals, all with the aim of establishing an efficient system, clean, sustainable and renewable energy production and consumption, and strategies for conducting environmental impact assessments and strategic environmental assessments. This article also points to the obligation to ratify and implement the **Kyoto Protocol.**

Article 99 of the SAA prescribes the cooperation of the authorities *"in order to facilitate the reform of employment policy in Bosnia and Herzegovina, in the context of strengthened economic reforms and integration"*. It is the responsibility of the authorities in BiH to adapt social security systems to new economic and social requirements, and to ensure equal access and effective support to all vulnerable persons in terms of working conditions and equal opportunities for women and men, persons with disabilities and all vulnerable persons, including persons belonging to minorities, as well as improving the level of protection of the health and safety of workers, taking as a basis the level of protection that exists in the EU. BiH must pay particular attention to the priorities of the *Acquis*.

The institutional and regulatory structure for strategic planning of energy policies in BiH was defined on the basis of a request from the EnCT, which the state signed in 2005 for a period of ten years and which was extended to the next ten years by a unanimous decision of the EnCT on October 24, 2013.

EnCT enables the creation of the largest internal market for electricity and gas in the world, in which the EU effectively participates, as well as the following eight Contracting Parties (CP): Albania, Bosnia and Herzegovina, Montenegro, Kosovo*, Macedonia, Moldova, Serbia and Ukraine. By concluding this Treaty, the CPs from the region undertake to establish among themselves a common electricity and gas market that will function according to the standards of the EU energy market with which it will integrate. This is achieved through the **gradual adoption of parts of the EU *acquis***, i.e. the implementation of relevant EU directives and regulations in the areas of electricity, gas, environmental protection, competition, renewable energy resources, energy efficiency, oil and statistics.

As one of the CPs of EnCT, BiH has committed to harmonize its legislation with the *Acquis* in areas required by the EnCT, especially in the areas of: **electricity, gas, oil, renewable energy, energy efficiency, competition and state aid, security of supply, statistics, environment, infrastructure and climate change.**

However, alignment with the EU *acquis* in some sectors is very slow process in BiH. Due to the violation of the EnCT, before competent authority of EnC, some proceedings are currently being conducted against BiH. It is important to stress that following the 18th Ministerial Council of the Energy Community, convened on 17 December 2020, the *Ministerial Council by written procedure suspended certain rights of BiH under the EnCT on account of the country's serious and persistent failures to comply with the Second Energy Package in the gas sector, the Sulphur in Fuels Directive as well as the Third Energy Package in both electricity and gas. According to the Ministerial Council's Decision, BiH will not participate in the decision-making on matters of budget and*

enforcement for a period of two years, unless it rectifies the breaches in question in the meantime.[226] It was concluded in the report of the Secretariat of EnC of 2020 that "*In the past, BiH has generally not been performing well in terms of energy sector reform, which to some extent is due to the country's complex constitutional structure*".[227]

One of the key requirements arising from EU directives is that BiH must improve the functioning of the electricity sector within the Energy Community and establish a regional electricity market with a clear division of roles and responsibilities of all key parties in the system. The basis for such regulation is the proper legislative and institutional unbundling of transmission system operators, distribution system operators and suppliers, and electricity market operators in accordance with EU directives that BiH has not yet properly transposed and implemented.

At a recent conference in Sofia (November 10, 2020), BiH signed the so-called **Sofia Declaration**, and opted for the implementation of the latest EU energy policy - by 2050, as well as the de-carbonization of the economy by 2050 at the latest. The countries of the region are paving the way for significant funds from the Economic and Investment Plan for the Western Balkans for energy transition, de-carbonization obligations by 2050 at the latest and tasks related to the introduction of the price for carbon dioxide emissions. In this regard, it is necessary to develop a **National Energy and Climate Plan (NECP)** which should define the goals in the energy sector by 2030 with a vision by 2040. In March 2019, the EU Energy Community initiated proceedings against Bosnia and Herzegovina for state aid for Unit 7 of TPP Tuzla.

In 2020, Bosnia and Herzegovina ratified the **United Nations Framework Convention on Climate Change** (**UNFCCC**)[228], as one of the most important international agreements in the field of environmental protection. The **Kyoto Protocol** has been ratified in 2007.[229] The main objective of the Convention is to ensure the stabilization of greenhouse gas levels (CO_2, N_2O, CH_4, HFCs, PFCs, and SF6) in the atmosphere at a level that will prevent dangerous anthropogenic impacts on the climate system. In 2017, the Council of Ministers of BiH adopted the **Third National Report of Bosnia and Herzegovina** (TNC) and the **Second Biennial Report on Greenhouse Gas Emissions (SBUR) of Bosnia and Herzegovina** in accordance with UNFCCC which were handed over to the UNFCCC Secretariat in Bonn.[230] The TNC to the UNFCCC states that the major source of CO_2 emissions in BiH is still energy sector which contributes 53% of overall CO_2 emissions, followed by agriculture (14%), industrial processes (6%) and waste (5%). The share of emissions from other sectors in the twelve-year period is about 22%[231]. The **Fourth National Report of Bosnia and Herzegovina** (FNC) and the **Third Biennial Report on Greenhouse Gas Emissions** (TBUR) of Bosnia and Herzegovina have been completed and are currently in the adoption procedure.

In 2013, the Council of Ministers of BiH adopted the **Strategy for Adaptation to Climate Change and Low-Emission Development for Bosnia and Herzegovina,** which has two main objectives in the areas of adaptation to climate change and reduction of greenhouse gas emissions:

1. increase resilience to climate variability and climate change, whereby ensure development gains;
2. reaching the highest value and stopping the growth of greenhouse gas emissions around 2025 at a level below the EU27 average per capita emissions.

Among the basic priorities of BiH in the field of climate change mitigation is *strengthening its institutional and professional capacities for development and implementation of climate policy, monitoring of greenhouse gas emissions, as well as planning, implementation, monitoring, reporting and verification of climate change mitigation measures*[232]. For the successful implementation of BiH's obligations under the UNFCCC, a BiH **Climate Change Committee** with 32 representatives has been established. In accordance with the conclusions of the 66th session of the BiH Council of Ministers (held on 16 May 2002), a 10-members **Climate Change Subcommittee** was established, and a majority of the Subcommittee members were also appointed to the Climate Change Committee in BiH. The designated contact institution under the UNFCCC as well as the designated

[226] https://www.energy-community.org/news/Energy-Community-News.html, March 3, 2021.
[227] Annual Implementation Report, 1 November 2020, Energy Community Secretariat.
[228] Official Gazette of BiH - IA, number: 19/00.
[229] "Official Gazette of BiH - IA", number: 3/08.
[230] The preparation and submission of these reports is an obligation of Bosnia and Herzegovina, as a signatory to the UNFCCC, in accordance with Decision 17 / CP8 and other relevant documents of the Convention.
[231] http://www.unfccc.ba/en/site/upload/PDF_dokumenti/TNC_Report_ENG.pdf
[232] Climate Change Adaptation and Low Emission Development Strategy for Bosnia and Herzegovina, p. 12.

national authority (DNA) for the Clean Development Mechanism (CDM) is the Ministry of Spatial Planning, Construction and Ecology of RS.

The New **Strategy for Adaptation to Climate Change and Low-Emission Development of Bosnia and Herzegovina for the period 2020-2030** is in the final stages of development. The goal of the Climate Change Adaptation Strategy is to increase Bosnia and Herzegovina's resilience to climate variability and climate change, while ensuring economic progress.

The **National Adaptation Plan (NAP) of Bosnia and Herzegovina** provides assessment of vulnerabilities and risks arising from climate change and climate extremes as well as offer possible adaptation options, in particular measures to address short-term (2020-2023), medium-term (2023-2027) and long-term needs (2025-2030). The NAP aims to improve existing reporting on the development and implementation of adaptation measures and flow of information as well as contribute to the integration of climate change adaptation into relevant social, economic and environmental policies and actions.

With the adoption of the **Paris Agreement**, the provisions of the Kyoto Protocol cease to apply and all countries have the obligation to act in accordance with the new agreement[233]. Presidency of BiH, at its 32nd regular session, held on December 20, 2016, adopted a Decision on ratification of the Paris Agreement[234] to the UNFCCC. With this agreement, BiH has committed itself to reducing greenhouse gas emissions by at least 40% by 2030 in order to mitigate the effects of global warming and stop further rising air temperatures.[235] On March 17, 2021, at the proposal of the MoFTER, the Council of Ministers of BiH adopted the Plan – **National Determined Contribution of Bosnia and Herzegovina (NDC) for the period 2020-2030**, in accordance with the guidelines of the Paris Agreement and global policies of the EU in accordance with the Green Agenda for the Western Balkans, which is a set of guidelines and policies for achieving climate neutrality by 2050. According to that Plan, the unconditional goal of reducing GHG emissions for 2030 is 12.8% compared to 2014 or 33.2% compared to 1990. The conditional target (with more intensive international assistance for the decarbonisation of mining areas) for 2030 is 17.5% compared to 2014 or 36.8% compared to 1990. In the conditional goal, more intensive international assistance is expected for faster decarbonisation of the electricity sector, with an emphasis on a fair transition of mining areas.[236] It is foreseen that "*the reduction of emissions will begin with the commissioning of more efficient thermal power plants, which will enable the shutdown of a larger number of existing thermal power plants*". In parallel, the resources of the mine will be gradually used for the production of RES (biomass cultivation, space for solar power plants, etc.).[237]

When talking about strategic documents that regulate energy area on state level of BiH, it is necessary to point out that BiH has adopted the **Framework Energy Strategy of BiH until 2035**, on August 29, 2018. The coal sector is one of the key segments of this Strategy. The Strategy provides a strategic analysis and overview of the strategic priorities of the energy policy of BiH in its key segments, and provides several indicative scenarios for the development of the production mix for the period until 2035. According to one of the suggested scenarios in the period 2016-2035, BiH is projected to reduce the share of installed capacity of TPPs from 46% (1,876 MW) in 2016 to 30% (1,650 MW) in 2035, which is dominated by hydropower, with a 52% share, and other renewable energy sources, with an 18% share. Such a development would lead to a drop in TPP production from 10.6 TWh (64%) in 2016 to 9.3 TWh (48%) in 2035[238].

Based on the guidelines of the Energy Community, on December 30, 2015, the **National Emission Reduction Plan (NERP) of BiH** was adopted. Entity **Action Plans for Renewable Energy Sources until 2020** have been adopted, which were, among others, created to support the realization of climate change mitigation goals. Based on these entity plans, the Council of Ministers of BiH, on March 30, 2016 adopted the **National Renewable Energy Action Plan (NREAP) of BiH,** which is an initial step in creating a consistent cross-sectoral strategic approach to climate change and its recognition within individual sectoral policies. **The Energy Efficiency Action**

[233] http://www.mvteo.gov.ba/Content/Read/vodni-resursi-zastita-okoline-konvencije-sporazumi?lang=bs
[234] Official Gazette of BiH - International Agreements, No 1/17.
[235] The Paris Agreement is a global agreement on climate change reached in Paris on 12 December 2015. The agreement includes an action plan aimed at limiting global warming to "significantly less than 2° C. It covers the period from 2020 onwards.
[236] Determined contribution of Bosnia and Herzegovina (NDC) for the period 2020-2030, p. 4 and 5.
[237] *Ibid* p. 9.
[238] Framework Energy Strategy, p. 101.

Plan of BiH for the period 2016-2018 was also adopted, in December 4, 2017.

Based on the succession of the former SFR Yugoslavia, BiH acceded (ratified) the **Geneva Convention on Long-Range Transboundary Air Pollution (LRTAP)**[239], and its status as a full party has been recognized since March 6, 1992[240]. This convention was the first international legal instrument to address air pollution in the Earth's atmosphere, primarily due to the increasing occurrence of "acid rain", which causes transmissions of polluted air, through the emission of pollutants / pollutants over long distances, especially sulphur dioxide-SO_2 of industrial origin. The Convention was supplemented by eight protocols, of which BiH has not ratified any of the LRTAP protocols[241].

Bosnia and Herzegovina is a signatory to the **Vienna Convention for the Protection of the Ozone Layer** and the **Montreal Protocol on Substances that Deplete the Ozone Layer**[242], and are applied on the basis of succession of international agreements of SFR Yugoslavia.

The Montreal Protocol established a list of ozone-depleting substances, for the first time. This protocol has been amended several times so far: London (1990), Copenhagen (1992), Montreal (1997), Beijing (1999), and the Kigali Amendment which is the latest amendment to the Montreal Protocol, which entered into force on 1 January 2019. The Kigali Amendment defines measures to reduce emissions, as well as the production and consumption of hydrofluorocarbons, in order to reduce the market for products and equipment that contain or depend on these substances. BiH currently ratified the **Kigali Amendment.** In this regard, a *Decision on the conditions and manner of implementation of the Montreal Protocol and the phasing out of the use of ozone-depleting substances in Bosnia and Herzegovina*[243] was adopted, which will be amended in order to achieve a higher level of compliance with the Montreal Protocol or the Kigali Amendment after its ratification. The focal point for the Vienna Convention and the Montreal Protocol is the MoFTER.

It is important to mention the **Aarhus Convention on Access to Information, Public Participation and Access to Justice** which BiH ratified in 2008[244]. Holders of obligations and rights from the Aarhus Convention are public authorities - public administration, which is the main subject of obligations, and the public. Within the public, NGOs are a particularly prominent subject of certain rights. The EU is one of the signatories of the Aarhus Convention and has regulated its implementation with its own legislation. This convention has been largely implemented in BiH through environmental laws in both entities. The Aarhus Convention focal point in Bosnia and Herzegovina is the Federal Ministry of Environment and Tourism.

At an extraordinary meeting of the parties in Kiev, Ukraine, in 2003, within the 5th Ministerial Conference entitled: Environment for Europe, the **Protocol on Pollutant Release and Transfer Registers (PRTR)** to the Aarhus Convention was adopted. BiH signed the PRTR Protocol in 2003, but has not ratified it yet.

BiH has ratified the **Convention on Environmental Impact Assessment in a Transboundary Context (ESPOO)**[245]**.** The aim of the ESPOO Convention is to prevent, reduce and limit significant cross-border damage caused by the activity. In this regard, States should prescribe procedures for environmental impact assessment and enable Member States to influence the preparation of activities, which may have a significant negative impact on the environment in those States, outside their territory. BiH has regulated environmental impact assessment in a cross-border context through entity environmental laws, but has not developed clear procedures, although these matters are currently in the process of being regulated.

BiH has also ratified the **Protocol on Strategic Environmental Assessment**[246] to the ESPOO. The requirements of this protocol have been implemented through the entity's environmental laws.

[239] The Geneva Convention was adopted in November 1979 and entered into force in 1983.
[240] Official Gazette of the SFRY International Agreements, No. 16/90 and Official Gazette of the Republic of BiH, No. 13/94.
[241] https://www.fmoit.gov.ba/bs/zakoni/konvencije.
[242] The Montreal Protocol on Substances that Deplete the Ozone Layer is an international agreement concluded in 1987, with the aim of stopping the production and import of SDOL and reducing their concentration in the atmosphere. The protocol is designed in accordance with the Vienna Convention, in order to establish a more comprehensive framework of international cooperation in solving the problem of ozone depletion.
[243] Official Gazette of BiH, No. 36/07, 67/15.
[244] Official Gazette of BiH, No 08/08.
[245] Official Gazette of BiH, No 08/09.
[246] Official Gazette of BiH, No 3/2017.

7. INSTITUTIONAL FRAMEWORK

7.1. BiH Level

According to the Dayton Agreement, issues such as foreign policy, foreign trade policy and customs policy fall within the area of competence of BiH institutions. All governmental functions and authorities that are not expressly assigned to the institutions of BiH, are those of the entities/Brčko District. The Article III.5 of the Constitution of BiH stipulates that Bosnia and Herzegovina may assume additional competencies with the consent of the Entities, and additional institutions may be established to exercise those competencies. Furthermore, Article II.5.b) of the BiH Constitution establishes an obligation for the entities to start negotiations on the inclusion of other issues in the competence of BiH institutions, including the **use of energy sources** and **joint economic projects**, 6 months after the entry into force of the BiH Constitution.

In order to create conditions for unlimited and free trade and continuous supply of electricity according to a defined quality standard for the benefit of citizens, a package of laws has been adopted at the level of the state of BiH, which regulates the transmission policy. Competency to conduct a policy in the area of **electricity transmission system** is given to the **Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina (MoFTER)**.

The Law on Ministries and Other Administrative Bodies of Bosnia and Herzegovina[247], prescribed the competency for the Ministry of Foreign Trade and Economic Relations of BiH (MoFTER) for defining policy, basic principles, coordinating activities and harmonizing plans of entity authorities and institutions plan in the areas of agriculture, energy, environmental protection, development and use of natural resources, and tourism.

The following relevant sectors are established within MoFTER:

- For matters of energy, the **Sector of Energy** has been established which operates with *Sub-Department for primary energy policy*, the *Sub-Department of secondary and energy project*s, and the *Sub-Department for the implementation of projects.* The basic guidelines for the work of this sector are the **Framework Energy Strategy until 2035**, which provides the context and direction of energy development in Bosnia and Herzegovina, as well as the **NERP BiH**, the **NREAP BiH**, and the **Energy Efficiency Action Plan of Bosnia and Herzegovina 2016-2018**.
- For matters of environmental protection and use of natural resources, the **Sector of Water Resources, Tourism and Environmental Protection** has been established, whose activities are performed in the sub-departments for water resources, tourism and environmental protection. The main tasks of this sector include coordination and cooperation with competent institutions in the field of environment at all levels of government in BiH; participation in the implementation of international agreements; participation in the work of international bodies; preparation and implementation of projects, etc. The planning and strategic document relevant to the environment is a **Strategy for approximation of regulations to the EU *acquis communautaire* in the field of environmental protection of BiH**, which was adopted by the Council of Ministers in May 2017[248].
- For maters of agriculture and rural development, the **Sector of Agriculture, Food, Forestry and Rural Development** has been established with relevant sub-departments.

The MoFTER has competencies in a number of other areas, such as: business environment; single economic space; development and promotion of entrepreneurship; consumer protection; competition, etc.

At the level of BiH, the **State Electricity Regulatory Commission (SERC)** has been established as an independent institution of BiH, which has jurisdiction and responsibility over transmission of electricity, transmission system operations and international trade in electricity, as well as over production, distribution and supply of electricity customers in the Brcko District of BiH. SERC was established by the Parliamentary Assembly of BiH by adopting the Law on Transmission, Regulator and Operator of the Electricity System[249], and by

[247] Law on Ministries and other administrative bodies of Bosnia and Herzegovina ("Official Gazette of BiH", number 03/05, 42/03, 26/04, 42/04, 45/06, 88/07, 35/09 and 103/09).
[248] Official Gazette of BiH, No. 91/18.
[249] Official Gazette of BiH, no. 7/02, 13/03, 76/09 and 1/11.

appointing the members of that Commission. Such regulators have also been established in the Entities as well. Article 3 of that Law determines the competencies of state-level institutions with regard to the electricity transmission system.

An **Independent System Operator (ISO)**[250] was established to manage the electricity transmission system at the state level, namely, it manages the operation the high voltage network, balances the power market, prepares the Indicative Generation Development Plan (IGDP) and develops the Long-Term Transmission System Development Plan.

Ownership and maintenance of the transmission network and assets is entrusted to the electricity transmission company "**Elektroprenos Bosne i Hercegovine" - TRANSCO**[251].

7.2. Federation of BiH

7.2.1. Entity level

Article III.1. of the FBiH Constitution[252] determined exclusive competence of the federal authorities, which include, inter alia, the determination of economic policy, including planning and reconstruction, and land use policy at the federal level; creation of energy policy, including distribution between cantons, and providing and maintaining the necessary infrastructure.

Creating of the energy policy in the Federation of BiH is within the responsibility of the **Federal Ministry of Energy, Mining and Industry (FMERI)**. Within the FMERI, Sector for Energy and the Sector for Mining were organized. According to the provisions of Article 7 of the Law on Mining, that ministry is responsible for management of:

- energy mineral raw materials - **all types of fossil coals**, hydrocarbons in solid, liquid and gaseous state, all types of bituminous and oil rocks, other gases found in the ground and radioactive mineral raw materials;
- mineral raw materials from which metals and their compounds can be produced;
- all types of salt and salt water and gases that occur with them.

Cantonal ministries are in charge for other mineral resources.

In the performance of its duties, FMERI issues permits for the exploitation of mineral raw materials under its jurisdiction, as well as permits for the suspension and permanent cessation of mining operations for those mineral raw materials within its jurisdiction, as well as issuing a permit for the **suspension of production and permanent cessation of mining operations**.

Regulatory Commission for Energy in FBiH (FERK) is, among other things, responsible for: supervision and regulation of relations between production, distribution, supply and customers of electricity, including electricity traders, in accordance with the Law on Electricity in FBiH; supervision of the electricity market; issuing permits for production, distribution, supply, trade of electricity and operators for renewable energy sources and cogeneration.

The Federal Ministry of Spatial Planning has, among others, jurisdiction over spatial planning and development, policy of land use at the Federal level, development, application and implementation of the Spatial plan of the Federation of BiH, harmonization of spatial plans of Cantons with the spatial plan of the Federation of BiH, the development of geological background for urban planning, etc. This ministry is also responsible for issuing urban consent and construction permits for **coal exploitation**. Ministries for these issues also exist at the cantonal level, and partly some relevant matters are implemented within Municipal services.

The Federal Ministry of Environment and Tourism is, among other things, responsible for performing administrative, professional and other tasks within the competence of the FBIH related to: environmental protection of air, water and land; development of environmental strategy and policy; air, water and soil quality

[250] Law Establishing an Independent System Operator for the Transmission System of Bosnia and Herzegovina ("Official Gazette BiH", no 35/04 and 76/09)
[251] Law Establishing the Company for the Transmission of Electric Power in Bosnia and Herzegovina ("Official Gazette BiH", no. 35/04, 76/09, 20/14).
[252] Official Gazette of FBiH, No. 1/94, 13/97, 16/02, 22/02, 52/02, 63/03, 9/04, 20/04, 33/04, 71/05, 72/05 and 88/08.

standards; environmental monitoring and control of air, water and land. Ministries for these issues also exist at the cantonal level.

Federal Ministry of Agriculture, Water Management and Forestry is responsible for the areas of agriculture, rural development, water management and forestry. This ministry is responsible for the implementation of the Law on Agricultural Land of the Federation of BiH as well as the Cantonal ministries established in each canton.

Federal Ministry of Labor and Social Policy is responsible for labor and employment policy, pension, disability, social care policy, international conventions in accordance with the Constitution of BiH, contracts and bilateral agreements in the field of employment; social security and solidarity, protection of civilian victims of war; family protection, adoption and guardianship; social protection and other tasks established by laws in these areas.

Federal Ministry of Health is responsible for implementation of health policy and strategy as a whole; development and improvement of the healthcare and health insurance system; monitoring and enforcement of federal laws in the field of health; creation of a program for the development of health activities, and adoption of plans and programs of health protection measures; inter-entity and inter-cantonal cooperation in the field of healthcare; ensuring the availability of effective, safe, quality and economical medicines and preventing their abuse; and other jobs established by law.

Federal Employment Agency implements policies and measures in the field of work and employment, social security of the unemployed, employment improvement, professional orientation, training and retraining, and unification of records in the field of work and employment, and other tasks in this field.

Federal Institute for Development Planning carries out research, analytical and other tasks within the jurisdiction of the Federation that relate to: development programming, analysis of economic development factors and opportunities and their presentation on the domestic and foreign markets; creation of development strategies and programs and creation of development and economic policy measures; analysis and programming of improvement of structural relations in economic and social development; programming of use, valorization and protection of natural resources and measures for their realization; programming of the development of social activities in accordance with the economic development strategy; regional and local development and the system of its encouragement and cooperation with institutions dealing with development issues in the country and abroad.

The Federal Institute of Geology is responsible for research and professional-analytical work in the field of geological research.

The Federal Institute for Agro-pedology has the duty to perform professional and other tasks within the competence of the Federation of Bosnia and Herzegovina, which relate to the mapping and determining the value of agricultural land; fertility control of agricultural land; arrangement of agricultural land; monitoring of contamination of agricultural land with pollutants (heavy metals); regionalization of agricultural land and its rational use; giving instructions for the management and administration of agricultural land resources; monitoring (monitoring the condition of agricultural land and changes in and on the soil); giving consent to the use of agricultural land as well as issuing opinions, attestations and certificates for the use and utilization of agricultural land; and keeps a land information system (LIS) of agricultural land and keeps records of agricultural land.

The parallel institutes **Federal Institute of Agriculture Sarajevo**, and the **Agro-Mediterranean Institute Mostar**, are both responsible for organizing the reporting and forecasting services in plant protection, breeding and selection operations in livestock production, certification of seeds and planting materials of agricultural plants, testing of foodstuffs, quality control and quality of agricultural products and their derivatives, mineral fertilizers and plant protection products, etc.

The Federal Administration for Inspection Affairs within its organization has mining, thermal and electro-energy inspectorate, as well as agriculture, forestry, water management, etc. It is responsible for controlling the implementation of the laws governing this area of the Federation of Bosnia and Herzegovina level. Inspection administrations also exist at the Cantonal level.

7.2.2. Cantonal level

Each Canton in the Federation of BiH has its own legislative, executive and judicial powers. In all matters falling within the joint competence of the Federation of BiH and the Cantons, the Cantons have established their own

institutions, i.e. ministries and administrations for inspection affairs, and have enacted their own laws which must be in accordance with the laws at the level of the Federation of BiH. This applies to mining, environmental protection, forestry, water, financial support in agriculture, spatial planning and construction, etc. The Cantons also have appropriate inspectorates. Since FMERI is responsible for management of energy resources - all types of fossil coal, mineral raw materials for the manufacture of metals and their compounds, and all types of salt and salt water, and gases with them occurring, Cantons are responsible for the management of other mineral resources. Cantonal ministries of agriculture are responsible for the **repurposing of agricultural land**.

Cantonal ministries responsible for social issues perform administrative and other professional tasks related to proposing and implementing social policy and the establishment of social protection services, regulation of the functioning and development of the social protection system, realization of the right to social protection and social safety, determining the rights for subsidizing the costs of social protection, the establishment and functioning of the child protection system, subsidizing the costs of child protection and child allowance, determining the conditions, standards and criteria for exercising the rights of elderly and infirm persons in social protection facilities for the old and infirm, supervision of the operation of public housing from the field of social and child protection.

Cantonal employment offices perform the following tasks: mediation in employment, information about employment opportunities, implementation of programs of professional orientation, training and retraining of unemployed persons and their re-employment in appropriate jobs, determination of the rights of persons in case of unemployment, adoption and implementation of a program of measures for faster employment certain categories of unemployed persons whose employment is difficult, cooperation with educational institutions in order to harmonize educational programs with the staffing needs of employers, collection and submission of data on unemployed persons to the Federal Employment Agency, and other tasks determined by relevant laws.

7.2.3. Municipal level

Municipalities do not have direct competence in the field of mining, but they are responsible for adopting programs and development plans of local self-government units and creating conditions for economic development and employment, ensuring and protecting human rights and fundamental freedoms in accordance with the Constitution, determining and implementing spatial planning policy, protection of the human environment, adoption of spatial, urban and implementation plans, including zoning, etc., in accordance with the Law on the Principles of Local Self-Government, and other laws. Municipalities also have the authority to adopt certain spatial planning documents.

Local self-governments also participate in agricultural and rural development programming and financing. The municipalities are competent to adopt its planning document which will regulate the purpose of using agricultural land on the basis of natural and other conditions (possibility of regionalization), areas to be arranged for more rational agricultural production (land reclamation, land consolidation, etc.), the degree of erosion of agricultural land, land that can be irrigated, areas that are protected as habitats of wild plant and animal species, and areas that cannot change the purpose (for the reason of preserving the natural balance).

Municipal economic planning services performs, among other things, the following tasks: analyzing and planning measures for stimulating the economy, planning and executing the promotion of Municipal measures of economy incentives; analyzing the needs of the economic sector on the Municipal territory with the profile of the workforce and forms of incentives of the economy and entrepreneurship; following the trends and possibilities of professional institutions to offer additional training of adults in accordance with the actual needs of the market and the real sector; promotion and implementation of incentive measures in local economic development (active employment policy, support for SMEs through favorable credits, support for start-up businesses, support for the employment of trainees, the organization of business events etc.).

Municipal employment offices are responsible for informing unemployed persons about their rights in case of unemployment, keeping records on unemployed persons, providing assistance to employers and persons seeking employment in finding a job, collecting data on employed persons seeking a change of employment, participating in the professional orientation of unemployed persons and other persons, collecting requests and assisting

unemployed persons in completing documentation for exercising rights on financial compensation and social welfare, etc.

Municipal centers for social work, or in smaller municipalities municipal social protection services, provide social assistance and protection, especially to families and vulnerable people. The services they provide are, among others: providing material and professional assistance and support to individuals and families living in unfavorable circumstances; performing advisory work; providing assistance in solving problems of violence, abuse, neglect and exploitation of children, as well as domestic violence.

7.3. Republika Srpska

7.3.1. Entity level

Energy policy is not explicitly mentioned in the RS Constitution. However, Article 3 stipulates that the RS has all governmental duties and powers except those explicitly transferred to BiH institutions by the Constitution.

The RS Ministry of Energy and Mining (MoEM) is generally, according to the Law on RS Administration[253], the responsible institution for formulating energy policy and implementing and making energy decisions, planning and implementing energy strategy, supervision over the work of public companies and other companies in the field of energy and mining. The Ministry performs administrative and other professional tasks related to, among other things, conducting electricity policy, exploitation of resources for the purpose of electricity production, geological research and exploitation of natural mineral raw materials, implementation of incentive measures and direct contacts with interested investors, encouraging investment interested parties in domestic economic entities in the fields of energy and mining. MoEM is responsible for issuing a license for the exploitation of mineral resources and performing other mining operations, based on the RS Mining Law[254]. The work of MoEM is organized through the departments for electricity, energy, mining and geology, and the department for legal affairs and European integration.

Regulatory Commission for Energy of Republika Srpska (RERS) is, among others, responsible for: supervision and regulation of relations between production, distribution and customers of electricity, including electricity traders in accordance with the Law on Electricity in RS; issuance of permits for the production, distribution and trade of electricity.

The Ministry of Spatial Planning, Construction and Ecology performs administrative and professional tasks related to integrated spatial planning and development, development of spatial information system, construction of facilities and improvement of construction, housing and municipal services, and comprehensive protection and improvement of the environment, nature protection and waste management.

The Ministry of Agriculture, Forestry and Water Management is responsible for policy and implementation of strategic documents, in the areas of rural development, food, forestry, water management, issues of organizing and implementing activities in the field of land policy, protection, arrangement and use of agricultural land, participation in project implementation. and programs in the field of agriculture and rural development financed by governmental, non-governmental and international organizations and from other sources, etc.

The Ministry of Health and Social Welfare is responsible for health and social policy. It performs, among other things, tasks related to improving the quality of the health care system; the organization of the health care system; supervision of the work of health institutions; planning and programming of capital investments in the health care sector; planning and functioning of the social, family and child protection system; preparation and implementation of strategic documents and programs in the field of social, family and child protection; etc.

The Ministry of Economy and Entrepreneurship is, among other issues, responsible for providing support for the construction of entrepreneurial and business infrastructure (business zones, free zones, incubators, technology parks, innovation centers, clusters, etc.)

The Ministry of Labor and Veterans-Disabled Protection is responsible for administrative and other professional tasks related to: labor relations of workers and their rights; employment; wages and other income

[253] Official Gazette of RS, No. 115/18
[254] Official Gazette of RS, No. 62/18

from employment; protection at work; pension and disability insurance for all forms of work; international labor conventions.

Employment Agency of RS is a key organization on the labor market, not only as an intermediary in employment and information on the labor market, but also as a partner, initiator, catalyst for full employment and the development of employment programs. The main competencies of the Agency are: mediation in employment, public information on employment opportunities and conditions, counseling on job choice (professional orientation), professional training and preparation for employment, implementation of employment programs of RS Government, performance of organizational, professional, administrative and other tasks related to exercising the right to financial compensation.

Administration for Inspection Affairs of RS, among other things, supervises the implementation of regulations related to the protection of agricultural land, energy, mining, geology, spatial planning, urban planning, construction, ecology, geodetic works, etc. This inspectorate is responsible for giving consent to the appointment of inspectors of local self-government units and direct supervision over their work.

The Institute for Geological Research of RS is responsible for research and professional analytical work in the field of geological research. All licenses and solutions for conducting geological research are issued by the RS Ministry of Energy and Mining.

Agriculture Institute of RS performs scientific research activities and professional work in agriculture.

7.3.2. Municipal level

The municipal level of government is, among other things, in charge of adopting the development program and urban plans; regulates and ensures the performance of municipal activities; regulates and ensures the use of city construction land and business premises; takes care of meeting the needs of citizens in culture, education, health and social protection, physical culture, information, crafts, tourism and catering, environmental protection and other areas. Municipal development documents must be in line with strategic and development documents adopted at the RS level.

Municipal economic planning services are responsible, among other things, for development planning and monitoring the implementation of strategic development plans, tasks related to private entrepreneurship, encouraging the development of small and medium-sized enterprises (SMEs), and all other relevant tasks related to industry, crafts, trade, catering, tourism, roads, natural resources, etc.

Municipal employment offices provide services to citizens that are related to the exercise of rights in accordance with the Law on employment, the most important of which are: keeping records of unemployed persons and issuing certificates proving the status of an unemployed person, exercising the right to financial compensation in accordance with the law, exercising rights to pension and disability insurance in accordance with the law, providing information and advertising about vacancies, as well as other rights established by law.

Municipal centers for social work, or in smaller municipalities municipal social protection services, provide social assistance and protection, especially to families and vulnerable people. They perform social protection tasks by providing support to citizens in overcoming social and life difficulties, ensuring material security and independence of individuals and families, performing advisory work, preserving and improving family relationships, providing assistance in solving problems of violence, abuse, neglect and exploitation of children, as well as domestic violence, and encouraging social inclusion and integration of vulnerable social groups into the local community.

8. ENVIRONMENTAL AND SOCIAL RISK ASSESSMENT OF THE PROJECT

8.1. ESSs Relevant to the Project

The WB has defined specific ESSs, that are designed to help Borrowers to manage the risks and impacts of a project, and improve their environmental and social performance, through a risk and outcomes-based approach. These ESSs are accompanied by non-binding Guidelines, Best Practice Notes, Templates and Checklists[255].

The relevance of the WB ESSs considered applicable to the BiH JT Project is presented in the following table.

Table 10 Relevance of ESS for the Project

E&S Standards		Relevance
ESS 1	Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 2	Labor and Working Conditions	Relevant
ESS 3	Resource Efficiency and Pollution Prevention and Management	Relevant
ESS 4	Community Health and Safety	Relevant
ESS 5	Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
ESS 6	Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
ESS 7	Indigenous Peoples	Not Relevant
ESS 8	Cultural Heritage	Not Relevant
ESS 9	Financial Intermediaries	Not Relevant
ESS 10	Stakeholder Engagement and Information Disclosure	Relevant

8.2. Risk classification according to the WB

As part of the environmental and social procedures, a categorization system for subprojects is established with clearly defined risk categories in line with the ESF. The risk categorization will inform the scope and nature of the environmental and social due diligence and risk management of activities and sub-projects.

The Bank classifies all projects in one of the four following groups, the:

- High Risk
- Substantial Risk
- Moderate Risk
- Low Risk.

To determine appropriate risk classification, the following issues are and will be taken into account:

- Type, location, sensitivity and scope of the project;
- Nature and magnitude of potential environmental and social risks and impacts;
- Borrower's (including any other agency responsible of project implementation) capacity and commitment to manage environmental and social risks and impacts in the manner consistent with ESSs;
- Other areas of risk that may be relevant to delivery of the ES mitigation measures and outcomes.

General guidance to risk classification is provided in Table 11.

[255] Available in English at: http://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-framework-resources#guidancenotes

Table 11 Risk Classification for sub-projects

Project type, location, sensitivity, scale	Nature & magnitude of ES risks & impacts, available mitigation	Borrower capacity and commitment	Context risk relevant to ES measures
HIGH RISK			
• complex • large to very large scale • in sensitive location(s)	• wide range of significant adverse risks and impacts; • long term, permanent and/or irreversible, impossible to avoid entirely; • some cannot be mitigated or require complex, unproven mitigation, sophisticated social analysis; • high in magnitude and/or in spatial extent (large to very large area or population); • significant adverse cumulative or transboundary impacts; • high probability of serious adverse effects to human health and/or the environment; • high value and sensitivity (eg. protected and internationally recognized areas); • high value, sensitive lands or rights of Indigenous Peoples and other vulnerable minorities; • Intensive or complex involuntary resettlement or land acquisition; • Impacts on cultural heritage or densely populated urban areas; • may give rise to significant social conflict, harm or human security risks; - a history of unrest in area or sector, concerns about use of security forces.	• uncertain, conflicting agency jurisdiction; • legislation, regulations not addressing risks and impacts; • changes to applicable legislation are being made; • enforcement is weak; • limited past experience of implementing agencies; • challenges and concerns about track record regarding ES issues; • significant stakeholder engagement capacity, commitment, track record concerns.	• factors outside project control impacting ES performance and outcomes
SUBSTANTIAL RISK			
• not as complex • large to medium scale • not such sensitive location	• some significant risks and impacts; • mostly temporary, predictable and/or reversible; • possibility of avoiding or reversing but with substantial investment and time; • may give rise to limited degree of social conflict, harm, human security risk; • medium in magnitude and/or in spatial extent (medium to large area and population); • less severe, more readily avoided/mitigated cumulative and/or transboundary impacts; • medium to low probability of serious adverse effects to human health and/or the environment (with known and reliable mechanisms to prevent or minimize);	• uncertain, conflicting agency jurisdiction; • legislation, regulations not addressing risks and impacts; • changes to applicable legislation are being made; • enforcement is weak; • in some respects, limited experience of implementing agencies; • some concerns about track record regarding ES issues readily addressed; • some stakeholder engagement concerns readily addressed.	

Project type, location, sensitivity, scale	Nature & magnitude of ES risks & impacts, available mitigation	Borrower capacity and commitment	Context risk relevant to ES measures
	• lower effects on areas of high value or sensitivity; • more readily available and reliable mitigatory and/or compensatory measures.		
MODERATE RISK			
• no activities with high potential for harming people or environment • located away from sensitive areas	• risks and impacts not likely to be significant; • not complex and/or large; • predictable and expected to be temporary and/or reversible; • low in magnitude; • site-specific, without likelihood of impacts beyond the project footprint; • low probability of serious adverse effects to human health and/or the environment; • routine safety precautions are expected to be sufficient to prevent accidents; • easily mitigated in a predictable manner.		
LOW RISK			
	• minimal or negligible risks to and impacts on human populations and/or the environment; • few or no adverse risks and impacts and issues; • no further assessment after screening.		

All sub-projects submitted for approval will further be assessed as per the definition of risk given in Table 11 and Table 14. Technical Assistance and studies produced within this project also need to include elements of the ESF.

Environmental and Social Screening Questionnaire is enclosed as Annex A to this ESMF. Before the assessment, PIU prepares a screening report, subject of the approval from WB Environmental and Social Specialists, who confirms the risk.

8.3. Environmental and Social Impacts Assessment of the Project

This chapter provides initial assessment of E&S impacts of the activities that will be financed under the BiH JT project components. Different types of activities that will be financed under this Project are presented in the following table.

Table 12 Summary of activities that are subject to the assessment of E&S impacts

Component	Description of Activities
Component 1: Institutional Strengthening and Project Management	Establishment of project institutional bodies: Just Transition Committee at state level; Inter-Ministerial Just Transition Committee at FBiH level. **TA** for organization of annual JT Forums. **TA** for Legal and Regulatory updates. **TA** for environmental and social project aspects.
Component 2: Repurposing of Post-Mining Lands (Banovici and Kreka) and Closure of Select Underground Works (Zenica)	**TA** for the development of: closure technical design and feasibility studies, as well as permitting (e.g. land repurposing assessment, post-closure spatial plans, environmental and social impact assessments and management plans, production of closure designs, and obtaining all necessary approvals and licenses). **Civil works** for remediation and land repurposing of surface coal mines: levelling, grading and compaction of surfaces, stabilization of local landslides and slope failures; improving and / or construction of access roads, drainage systems and power supply; installation of equipment for environmental and geotechnical monitoring; and temporary and permanent greening of surfaces to prevent erosion. **Civil works** for mine closure include: demolishing of surface structures, as well as reclamation of underground workings, post closure water, methane management and monitoring measures.
Component 3: Renewable Power Generation in RMU Banovici and Kreka Mine	**TA** for the development of feasibility studies, development of preliminary design, grid connection and design specifications for PV systems. **TA** for environmental impact assessment and/or permitting procedures. **Civil works** for installation of PV systems.
Component 4: Support to Labor Transition in Banovici and Zenica Mines	This activity includes various **TA** activities, such as: ▪ for establishing a Labor Transition Unit (LTU) in the mine's HR department, building the capacity of LTU's staff to provide in-house training sessions to mine employees to prepare workers for a labor transition ahead of layoffs. ▪ for provision to mine employees the following: counseling services, retraining, upskilling, self-employment support or soft or basic skills trainings. ▪ for strengthening the capacity of local and cantonal employment services. ▪ for raising community awareness of the forthcoming coal transition process.

8.3.1. Component 1: Institutional Strengthening and Project Management

These activities are not expected to have straightforward negative ***environmental impacts*** since it involves establishment of institutional structure for Just Transition, policy dialogues, etc. ESMP Checklist will be applied. Since policy dialogue could include changes in legislation, ***social impacts*** include a possibility that some stakeholders may experience negative perception or resistance to legislation changes. Other social impacts are related to possible risks related to typical labor rights and occupational health and safety of the persons engaged to perform different duties and activities within Component 1 (civil servants and outsourced experts/legal entities). Appropriate social instruments are implemented including the Labor Management Procedure (LMP) and the Stakeholder Engagement Plan (SEP) prepared for this Project, that reflect the principles and requirements of ESS2, ESS4 and ESS10.

8.3.2. Component 2: Repurposing of Post-Mining Lands (Banovici and Kreka) and Closure of Select Underground Works (Zenica)

Pre-works Phase

In the pre-works phase, closure technical design and feasibility studies, as well as permitting (e.g. land repurposing assessment, post-closure spatial plans, environmental and social impact assessments and management plans, production of closure designs, and obtaining all necessary approvals and licenses), will be developed. During the preparation of feasibility studies, designs and ESIA related to land repurposing and future use of post mining lands, stakeholder engagement activities (public disclosure of documents, public consultations) will be conducted.

The TA activities itself do not cause straightforward negative environmental and social impacts. However, the outputs provided by the TA on repurposing of post-mining lands may have E&S implications that may arise when the results of the TA may lead to future investments.

Therefore, at this stage, ***social risks*** may include:

- Negative public perceptions on Just Transition by the local community and potential resistance to land-repurposing and mine closure planning activities due to the anticipated lob loss and livelihood impacts. The project design already includes an awareness campaign on JT.
- Eventual mine closures and energy transition may also cause risks of increase in domestic violence, mental health issues and substance abuse as a consequence of job losses and change in living patterns. It will be important to address these risks during pre-closure planning phase.
- Social inclusion issues. A particular concern under Just Transition for All (JTA) approach is the impact of transition on already poor and vulnerable groups. A particularly marginalized group is the Roma, who is the largest ethnic minority group, living in chronic poverty.
- Land use impacts. New land acquisition and physical resettlement are excluded from the scope of this Project, however, there is a risk of informal land use on existing lands within mine sites, which may likely result in economic displacement of affected persons.

To mitigate these impacts, it is very important to conduct timely and socially sensitized consultations in line with ESS10 and Stakeholder Engagement Plan (SEP) developed for this Project. It is also important that the principles of ESS5, set in the Land Use and Livelihood Restoration Framework (LULRF) developed for this Project, are implemented and appropriate Land Use and Livelihood Restoration Plans (LULRPs) prepared if needed.

Construction Phase

Civil works phase may be complex, potentially of a significant scale, and associated with tangible environmental and social impacts. The civil works may have to be carried out above and below ground, as listed in Table 12.

Environmental impacts of civil works include: emission of dust, noise and vibration, emission of exhaust gases from the machinery, oil and fuel leakage/spillage from the machinery, waste generation, as well as increase in quantities of contaminated waste soils removed from mine sites. In cases of methane management activities, there are fire hazards which may lead to emission of harmful substances in the air. The provisions on resource efficiency and pollution prevention and management of ESS3 will be applied here.

Considering the ***social impacts*** of civil works, it is possible to experience impacts related to OHS and community health and safety. Impacts on OHS mostly include exposure of workers to dust, noise and vibration, exhaust gases, as well as risk of injuries that are common to construction sites. Community health and safety impacts include increased traffic frequency leading to increased risk of accidents and traffic disruptions, and exposure to dust and noise. In cases of methane management activities, social risks include risks to the community, worker health and safety and fire hazards. Minor negative impacts could be expected through workers' presence at site, which are limited to the location of works or its surrounding vicinity. Large influx of workers from outside communities is not expected. Therefore, it will be important that appropriate social instruments are implemented including the Labor Management Procedure (LMP) and the Stakeholder Engagement Plan (SEP) prepared for this Project, that reflect the principles and requirements of ESS2, ESS4 and ESS10.

The development and implementation of a site-specific ESIA or site-specific ESMP will help minimize and prevent the identified negative E&S impacts, in both works and operational phases.

Operational Phase

Activities under this component will have significant ***positive environmental impacts*** during the ***operational phase***, such as:

- improved soil stability and reduced soil contamination at mine sites;
- improved water quality as a result of remediated contaminated sites;
- improved air quality and biodiversity as a result of re-vegetation and afforestation;
- improved aesthetic value of the land;
- reduced health risks caused by the existing poor environmental conditions at mining sites;
- safe and stable land that can be utilized for a wide range of uses, including agriculture, natural habitats, forests, energy crops, space for Renewable Energy (RE) installations (Photovoltaic [PV], wind, batteries), recreational facilities, industrial and business parks.

8.3.3. Component 3: Renewable Power Generation in RMU Banovici and Kreka Mine

Pre-works Phase

In the ***pre-works phase***, the activities are not expected to have straightforward negative ***environmental impacts***, since this phase involves preparation of feasibility studies and preliminary designs for renewable energy installations (PV). ***Social impacts*** in form of land acquisition, physical resettlement or economic displacement are not expected as these activities will take place on the land already repurposed within the previous project activity.

Construction Phase

In the ***works phase***, activities related to the placement of photovoltaic systems include small-scale construction works. ***Environmental impacts*** of these works include: emissions of dust, noise and vibration, emissions of exhaust gases from machinery, oil and fuel leakage/spillage from machinery, waste generation. ***Social impacts*** are similar to those in Component 2. Impacts on OHS mostly include exposure of workers to dust, noise and vibration, exhaust gases, as well as risk of injuries that are common to construction sites. Community health and safety impacts include increased traffic frequency leading to increased risk of accidents and traffic disruptions, and exposure to dust and noise. Minor negative impacts could be expected through workers' presence at site, which are limited to the location of works or its surrounding vicinity. Large influx of workers from outside communities is not expected. Therefore, it will be important that appropriate social instruments are implemented including the Labor Management Procedure (LMP) and the Stakeholder Engagement Plan (SEP) prepared for this Project, that reflect the principles and requirements of ESS2, ESS4 and ESS10.

The development and implementation of a site-specific ESMP will help minimize and prevent the identified negative E&S impacts, in both works and operational phases.

Operational Phase

Activities under this component will have significant ***positive environmental impacts*** during the ***operational phase***, such as:

- reduced emissions of greenhouse gases by replacing fossil fuels with biomass and by integration of cleaner electricity from renewable sources such as photovoltaic systems;

- health benefits from the reduced air pollution;
- improvements of energy resilience and energy security as B&H is currently heavily dependent on energy generation via the burning of fossil fuels.

Negative environmental impacts during operational phase are related to waste generation during O&M of PV systems. Environmental impacts during operational phase of PV systems are generally related to the loss of land, loss of habitat and native vegetation. However, considering that placement of PV systems in this Project are planned on the repurposed mining land, the mentioned impacts can be discarded. PV systems may employ materials such as oils, hydraulic fluids, coolants, lubricants, and chemicals (e.g., dust suppressants) that may be hazardous and present spill risks. Accidental spills of these materials could result in contamination of surface or groundwater. A site-specific ESMP will be prepared for these activities.

Decommissioning Phase

Environmental impacts in the decommissioning/reinstallation phase of the PV systems include generation of large quantities of hazardous waste as solar panels and batteries contain hazardous materials. A site-specific ESMP will be prepared for these activities.

8.3.4. Component 4: Support to Labor Transition in Banovici and Zenica Mines

These activities are not expected to have straightforward negative ***environmental impacts*** since it involves engagement of TA services.

Long-term ***social impacts*** which are generally related to the whole project of transitioning from coal are significant. Closing coal mines has implications for labor markets beyond mine workers. It negatively affects workers along the coal value chain, hurts local economies reliant on mine workers' earnings, fragments community well-being and social capital. Closing mines can create a persistent, destabilizing demand shock as displaced workers struggle to transition to new jobs, because few alternatives are available or workers are unwilling to accept lower-paying options or move to regions with greater labor demand.

Negative ***social impacts*** of the labor transition include the following:

- loss of direct employment in coal mines due to long-term mine closures. In the short-term, the mine pit Stara Jama in Zenica will be closed.;
- loss of employment in coal-mine related businesses;
- lost opportunity to earn income by informal users of mining lands;
- increase in local poverty rates;
- increase in domestic and intimate partner violence;
- mental health issues;
- substance abuse among affected workers and communities.

On the other hand, there are ***positive social impacts*** that are resulting from these activities, such as:

- increasing the skills and capacity for labor redeployment;
- increasing the skills and capacity of women and youth to find employment;
- creation of new employment opportunities;
- creation of social support measures.

8.4. Summary of Environmental and Social Impacts and Proposed Mitigation Measures

A summary of the potential environmental and social impacts of the Project, which are described above, as well as proposed mitigation measures is presented in Table 13.

Table 13 Potential environmental and social impacts of the Project and mitigation measures

COMPONENT	DESCRIPTION OF COMPONENTS	PRELIMINARY ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT	MITIGATION MEASURES
Component 1: Institutional Strengthening and Project Management	i. Establishment and functioning of: 1) Just Transition Committee at state level; 2) Inter-Ministerial Just Transition Committee at FBiH level; ii. Annual JT Forums; iii. Policy Development, Legal and Regulatory Updates; iv. Project Management.	No straightforward environmental impacts. Social risks may include: - negative perception of exclusion from project activities by relevant stakeholders; - risks related to typical labor rights and occupational health and safety of those engaged to perform different duties and activities within this Component (civil servants, TA – external workers). These risks for the project workers are low as labor will be engaged from the governmental bodies and experts experienced in projects of similar scale. **Assessed risk level: low**	Implementation and monitoring of LMP and SEP will minimize and prevent the identified negative social impacts. Various stakeholder engagement activities are proposed in SEP to ensure public awareness and meaningful consultations about the project activities. Grievance mechanism (GM) will be set up for project-affected parties at project level and GM for project workers.
Component 2: Repurposing of Post-Mining Lands (Banovici and Kreka) and Closure of Select Underground Works (Zenica)	i. Assessment and Planning for Land Repurposing; ii. Repurposing works; iii. Development of a closure plan for the select underground work(s) in Zenica mine; iv. Closure of Raspotocje pit.	In the *pre-works phase:* No straightforward environmental impacts. SESA will be required in case of developing new or amending existing spatial planning documents. Water approval/permit, Urban consent, and Construction permit will be required in design phase. Social risks include: - labor rights, occupational health and safety for the engaged TA; - negative perception of the project by the local community; - potential resistance to land-repurposing and mine closure planning activities due to the anticipated job losses and livelihood impacts; - domestic violence, mental health issues and substance abuse as a consequence of anticipated job losses and change in living patterns; - perception of social exclusion from project activities by the already poor and vulnerable groups; - possibility of economic displacement of informal land users. In the *works phase:* i) environmental impacts include:	*Pre-works phase:* Public consultation during SESA preparation and implementation and monitoring of the SESA. Implementation and monitoring of the LMP and SEP will minimize and prevent the identified negative social impacts. Various stakeholder engagement activities are proposed in SEP to ensure public awareness and meaningful consultations about Project activities. Stakeholder engagement will be conducted in each stage of these activities, with special focus on vulnerable groups. The project design already includes an awareness campaign on JT. Preparation, and implementation and monitoring of retrenchment plans to manage risks of job losses. The Project design already includes measures such as trainings and reskilling of workers (in Component 4) which serve to address social risks of job losses. The project will include a set of mitigation measures to prevent SEA/SH and other forms of gender-based violence (GBV), which may be associated with Just Transition, such as GBV sensitization and training for communities affected by future mine closures, GBV service providers mapping in areas where the mines are located, and collaboration and referral mechanism with GBV service providers. In the event that any informal land users are identified, they will be compensated as appropriate under the LULRF. A site-specific Land

COMPONENT	DESCRIPTION OF COMPONENTS	PRELIMINARY ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT	MITIGATION MEASURES
		- air pollution caused by emissions of dust at the construction site and access roads, exhaust gases from machinery, fire hazards and associated air pollution; - generation of non-hazardous and construction waste; - increase in quantities of contaminated waste soils removed from mine sites, and associated water/soil pollution if not managed properly; - water/soil pollution from fuel leakage/spillage from machinery. ii) social impacts are mainly related to: - OHS risks: exposure of workers to dust, noise and vibration, exhaust gases, exposure to fire hazards, risk of injury at the construction site; - community health and safety risks: increased risk of traffic accidents, traffic disruption, exposure to dust and noise on access roads, exposure to fire hazards. In the *operational phase*: i) positive environmental impacts: improved soil stability and reduced soil contamination at mine sites; improved water quality as a result of remediated contaminated sites; improved air quality and biodiversity as a result of re-vegetation and afforestation; improved aesthetic value of the land. ii) positive social impacts: health benefits due to improved environmental conditions at mining sites; safe and stable land that can be utilized for a wide range of other uses. **Assessed risk level: substantial**	Use and Livelihood Restoration Plan (LULRP) will be prepared to mitigate this impact. Grievance mechanism (GM) will be set up for project-affected parties at project level and GM for project workers. *Works phase:* Implementation and monitoring of a site-specific ESIA or site-specific ESMP will help minimize and prevent the identified negative E&S impacts. Environmental impacts: The activities will be controlled to avoid excessive disturbance; the dust and noise level will be monitored at all times; attested transportation vehicles will be used; machinery and equipment will be maintained during civil works; best practices will be applied for waste management and disposal (in accordance with site-specific Waste Management Plan); best practices will be applied for fire prevention and protection (Fire Protection Elaborate). The waste management procedures will strictly follow the requirements of the Laws on Waste Management of FBiH and RS and the applicable bylaws, as well as WB EHSG. Contaminated waste soils will not be managed as municipal or construction waste. Therefore, specific provisions for management of contaminated soil will be prepared within the Waste Management Plan, which will define clear procedures and acceptable processing/disposal practices for management of this waste, subject to World Bank approval. The Waste Management Plan will be integrated into bidding and contracting documentation while its implementation will be a subject to PIU and WB supervision. Social impacts: Safety procedures must be observed by contractors during the civil works - use of PPE, fencing of the works site, signage, implementation of Traffic Management Plan; implementation of safety measures for fire prevention and protection. Implementation and monitoring of the LMP and SEP will minimize and prevent the identified negative social impacts. Various stakeholder engagement activities are proposed in SEP to ensure public awareness and meaningful consultations about Project activities. Stakeholder engagement will be conducted in each stage of these activities, with special focus on vulnerable groups. GM will be set up for project-affected parties at project level and GM for project workers as well.

COMPONENT	DESCRIPTION OF COMPONENTS	PRELIMINARY ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT	MITIGATION MEASURES
Component 3: Renewable Power Generation in RMU Banovici and Kreka Mine	i. Assessment of opportunities, design and installation of PV.	In the *pre-works phase:* No straightforward environmental impacts. Water approval/permit, Urban consent, and Construction permit will be required in design phase. Social risks are low and may include labor rights issues related to the engaged TA. There is a risk that some stakeholders may experience a feeling of exclusion from project activities if not consulted. In the *works phase:* i) environmental impacts include: - air pollution caused by emissions of dust at the construction site and access roads, exhaust gases from machinery; - generation of waste; - water/soil pollution from fuel leakage/spillage from machinery. ii) social impacts are mainly related to: - OHS risks: exposure of workers to dust, noise and vibration, exhaust gases, risk of injury at the construction site; - community health and safety risks: increased risk of traffic accidents, traffic disruption, exposure to dust and noise on access roads. In the *operational phase*: i) environmental impacts: - O&M of PV systems; - contamination of soil, surface or groundwater caused by accidental spills of hazardous materials during PV O&M; - ii) social risks are related to OHS issues for O&M workers. ii) positive environmental impacts: reduced emissions of greenhouse gases by replacing fossil fuels with biomass and by using renewable energy sources such as PV systems; improved energy resilience and energy security of B&H; reduced algal bloom by installation of FPV systems.	*Pre-works phase:* Implementation and monitoring of the LMP and SEP will minimize and prevent the identified negative social impacts. Various stakeholder engagement activities are proposed in SEP to ensure public awareness and meaningful consultations about Project activities. GM will be set up for project-affected parties at project level as well as GM for project workers. *Works phase:* Implementation and monitoring of a site-specific ESMP will help minimize and prevent the identified negative E&S impacts. Environmental impacts: The activities will be controlled to avoid excessive disturbance; the dust and noise level will be monitored at all times; attested transportation vehicles will be used; machinery and equipment will be maintained during civil works; best practices will be applied for waste management and disposal (in accordance with site-specific Waste Management Plan). The waste management procedures will strictly follow the requirements of the Laws on Waste Management of FBiH and RS and the applicable bylaws, as well as WB EHSG. The Waste Management Plan will be integrated into bidding and contracting documentation while its implementation will be a subject to PIU and WB supervision. Social impacts: Safety procedures must be observed by contractors during the civil works - use of PPE, fencing of the works site, signage, Traffic Management Plan. Implementation and monitoring of the LMP and SEP will minimize and prevent the identified negative social impacts. Various stakeholder engagement activities are proposed in SEP to ensure public awareness and meaningful consultations about Project activities. GM will be set up for project-affected parties at project level as well as GM for project workers. *Operational phase:* The best practices will be applied for waste management and disposal. The waste management procedures will strictly follow the requirements of the Laws on Waste Management of FBiH and RS and the applicable bylaws, as well as WB EHSG.

COMPONENT	DESCRIPTION OF COMPONENTS	PRELIMINARY ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT	MITIGATION MEASURES
		iii) positive social impacts: health benefits due to improved air quality. In the *decommissioning/reinstallation phase*: i) environmental impacts: generation of large quantities of hazardous waste from the PV systems. **Assessed risk level: substantial**	Proper planning and good maintenance practices can be used to minimize impacts from hazardous materials during O&M of PV. Implementation and monitoring of LMP will minimize and prevent the identified negative social impacts. *Decommissioning/reinstallation phase*: The best practices will be applied for management and disposal of end-of-life PV waste. Available possibilities of recycling and reuse will be assessed and the most appropriate ones applied. The waste management procedures will strictly follow the requirements of the Laws on Waste Management of FBiH and RS and the applicable bylaws, as well as WB EHSG.
Component 4: Support to Labor Transition in Banovici and Zenica Mines	i. Support to cover financial obligations towards retrenched mine workers ii. Support the Transition of Mine Workers iii. Community-delivered productive for affected unemployed workers, and community engagement	No straightforward environmental impacts. Social risks include: - loss of direct employment in coal mines due to mine closures; - loss of employment in coal-mine related businesses; - lost opportunity to earn income by informal users of mining lands; - increase in local poverty rates; - increase in domestic and intimate partner violence; - mental health issues; - substance abuse among affected workers and communities - negative perception of the project by the local community. Labor rights issues for the engaged TA are low as labor will mostly be provided by skilled, highly educated and experienced consultants. Positive social impacts include: increasing the skills and capacity for labor redeployment; increasing the skills and capacity of women and youth to find employment; creation of new employment opportunities; creation of social support measures. **Assessed risk level: substantial**	Implementation and monitoring of LMP and SEP will minimize and prevent the identified negative social impacts. Various stakeholder engagement activities are proposed in SEP to ensure public awareness and meaningful consultations about Project activities. Stakeholder engagement will be conducted in each stage of these activities, with special focus on vulnerable groups. Retrenchment plans, as per requirements of the ESF, will be prepared prior to any retrenchment activities. Preparation, and implementation and monitoring of retrenchment plans to manage risks of job losses. The Project design already includes measures such as trainings and reskilling of workers which serve to address social risks of job losses. The project will include a set of mitigation measures to prevent SEA/SH and other forms of gender-based violence (GBV), which may be associated with Just Transition, such as GBV sensitization and training for communities affected by future mine closures, GBV service providers mapping in areas where the mines are located, and collaboration and referral mechanism with GBV service providers. GM will be set up for project-affected parties at project level and GM for project workers. There will be a GM to report sensitive grievances related to GBV/SEA/SH.

9. ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT

Towards addressing the risks, following risk management instruments have been prepared: (i) this Environment and Social Management Framework (ESMF), (ii) Stakeholder Engagement Plan (SEP); (iii) Labor Management Procedures (LMP); and (iv) Land Use and Livelihood Restoration Framework (LULRF). The ESMF covers and integrates applicable ESF Standards and the World Bank Group's Environmental Health and Safety Guidelines.

The ESMF provides guidance helping to determine the project activities' risk level (screening) as well as determining where and when site-specific Environmental and Social Impact Assessments (ESIAs), Environmental and Social Management Plans (ESMPs) or ESMP Checklist are required, developed in line with the ESSs, World Bank Group General EHSG, as well as national legislation.

Indicative outlines of site-specific ESMP and site-specific ESIA have been prepared for the purpose of this Project and are provided in Annex B and Annex C to this ESMF.

In addition, legislative requirements on the need for an environmental impact assessment of project encompassing works and/or environmental analyses must be respected (relevant opinion on the need for undertaking an ESIA shall be sought, where applicable and needed), as well as relevant permits obtained.

9.1. Projects Consisting of Multiple Sub-Projects

For projects involving multiple sub-projects the World Bank requirements involve mandatory review of each sub-project's E&S risks.

The Borrower is obliged to carry out appropriate environmental and social assessment of sub-projects, and prepare and implement such sub-projects (substantial, moderate and low-risk sub-projects), in compliance with national legislation and requirements of ESSs which the Bank finds relevant for such sub-projects, stricter one prevailing.

The PIUs will ensure that environmental and social management is an integral part of sub-project planning, design, implementation, and operation and maintenance. The PIUs will screen, monitor and report on the environmental and social performance, as well as national legislation and ESF compliance under each sub-project and ensure efficient application of measures as defined in appropriate E&S management instruments (ESIA / ESMP / ESMP Checklist).

9.2. Associated Facilities

The World Bank Environmental and Social Policy for Investment Project Financing also requires the application of the ESSs to Associated Facilities. Associated Facilities will meet the requirements of the ESSs, to the extent that the Borrower has control or influence over such Associated Facilities. The WB will require the Borrower to demonstrate the extent to which it cannot exercise control or influence over the Associated Facilities by providing details of the relevant considerations, which may include legal, regulatory and institutional factors. The term "Associated Facilities" means facilities or activities that are not funded as part of the project and, in the judgment of the WB, are: (a) directly and significantly related to the project; and (b) carried out, or planned to be carried out, contemporaneously with the project; and (c) necessary for the project to be viable and would not have been constructed, expanded or conducted if the project did not exist. For facilities or activities to be Associated Facilities, they must meet all three criteria. Whether or not facilities not financed by the WB fall under this category will first be assessed, and if it may be the case, adequate E&S due diligence conducted and E&S instruments prepared/or applied to manage the risks in line with ESF.

9.3. Environmental and Social Requirements of the Just Transition in Select Coal Regions in BiH

Since the Project involves a set of sub-projects to be identified, prepared and implemented during the Project, pursuant to the WB E&S requirements described in ESS 1, the PIU will ensure assessment of E&S impacts of each sub-project using this ESMF. For each sub-project, the PIU will ensure preparation of E&S instrument using guidance provided in this ESMF, as appropriate. The selection of the E&S instrument will be based on the screening process and the determined sub-project's E&S risk.

Table 14 provides a review of the activities that will be implemented in the framework of the Project versus the WB and the FBiH/RS E&S requirements that need to be fulfilled in the process of project approval. The FBiH/RS requirements stem from the legal requirements in the field of environmental protection, water management and spatial planning and construction, previously described in detail in *Chapter 5.2 Overview of Environmental and Social Requirements in BiH.*

In case the PIU proposes other types of project activities which are not mentioned in the table below, the decision to finance such activities will be made through a dialogue with the Bank and based on project categorization and adequate due diligence.

In case of development of any strategic or other referent documents the Borrower will include any social and environmental risk management aspects in an integrated manner as part of the design.

Table 14 Environmental and social requirements for the Project

COMPONENT/ SUB-COMPONENT	TYPE OF ACTIVITIES	RISK CATEGORY PURSUANT TO WB	WB REQUIREMENTS		REQUIREMENTS OF FBIH/RS LEGISLATION		
			ENVIRONMENTAL & SOCIAL ASSESSMENT INSTRUMENT		ENVIRONMENTAL PROTECTION	WATER MANAGEMENT	SPATIAL PLANNING AND CONSTRUCTION
COMPONENT 1							
Policy Dialogue and Institutional Support to a Just Transition"	i. Establishment and functioning of: 1) Just Transition Committee at state level; 2) Inter-Ministerial Just Transition Committee at FBiH level; ii. Annual JT Forums; iii. Policy Development, Legal and Regulatory Updates; iv. Project Management.	To determine the risk, carry out the sub-project screening in line with the procedure in Chapter 9.4.	For "high" and "substantial" risk sub-projects, ESIA will be prepared in line with this ESMF For "moderate" risk sub-projects, a site-specific ESMP will be prepared in line with this ESMF. For "low" risk sub-projects, a ESMP Checklist will be prepared in line with this ESMF.	LMP, SEP	-	-	-
COMPONENT 2							
Repurposing of Post-Mining Lands (Banovici and Kreka) and Closure of Select Underground Works (Zenica)	i. Assessment and Planning for Land Repurposing;	To determine the risk, carry out the sub-project screening in line with the procedure in Chapter 9.4.	For developing new or amending existing spatial planning documentation, SESA will be prepared.	LMP, SEP	Strategic Environmental Impact Assessment is obligatory for strategies, plans and programs in the areas of spatial planning or land use, among others.	-	-
	ii. Repurposing works; iii. Development of a closure plan for the select underground work(s) in Zenica, mine; iv. Closure of Raspotocje pit.		For "high" and "substantial" risk sub-projects, ESIA will be prepared in line with this ESMF For "moderate" risk sub-projects, a site-specific ESMP will be prepared in line with this ESMF. For "low" risk sub-projects, a ESMP Checklist will be prepared in line with this ESMF.	LMP, SEP, LULRF, LULRP	ESIA/ESMP or the Ministry decides on ESIA based on Application for preliminary ESIA	Water approval/permit	Urban consent for repurposing of land. Construction permit for: land remediation (landslide protection, drainage, land leveling, etc.), construction of infrastructure, hydrotechnical works.

COMPONENT/ SUB-COMPONENT	TYPE OF ACTIVITIES	WB REQUIREMENTS		REQUIREMENTS OF FBIH/RS LEGISLATION			
		RISK CATEGORY PURSUANT TO WB	ENVIRONMENTAL & SOCIAL ASSESSMENT INSTRUMENT		ENVIRONMENTAL PROTECTION	WATER MANAGEMENT	SPATIAL PLANNING AND CONSTRUCTION
COMPONENT 3							
Renewable Power Generation in RMU Banovici and Kreka Mine	Assessment of opportunities, design and installation of PV.	To determine the risk, carry out the sub-project screening in line with the procedure in Chapter 9.4.	For "high" and "substantial" risk sub-projects, ESIA will be prepared in line with this ESMF For "moderate" risk sub-projects, a site-specific ESMP will be prepared in line with this ESMF. For "low" risk sub-projects, a ESMP Checklist will be prepared in line with this ESMF.	LMP, SEP, LULRF	Ministry decides on ESIA based on Application for preliminary ESIA	Water approval/permit	Urban consent, construction permit, use permit
COMPONENT 4							
Support to Labor Transition in Banovici and Zenica Mines	i. Support to cover financial obligations towards retrenched mine workers ii. Support the Transition of Mine Workers iii. Community-delivered productive for affected unemployed workers, and community engagement	To determine the risk, carry out the sub-project screening in line with the procedure in Chapter 9.4.	For "high" and "substantial" risk sub-projects, ESIA will be prepared in line with this ESMF For "moderate" risk sub-projects, a site-specific ESMP will be prepared in line with this ESMF. For "low" risk sub-projects, a ESMP Checklist will be prepared in line with this ESMF.	LMP, SEP, Retrenchment Plan	-	-	-

9.4. Environmental and Social Review (Step-by-Step)

This chapter describes the methodology to be followed by the PIU in identifying and managing environmental and social risks of each sub-project implemented. The review of the process is given in the following scheme.

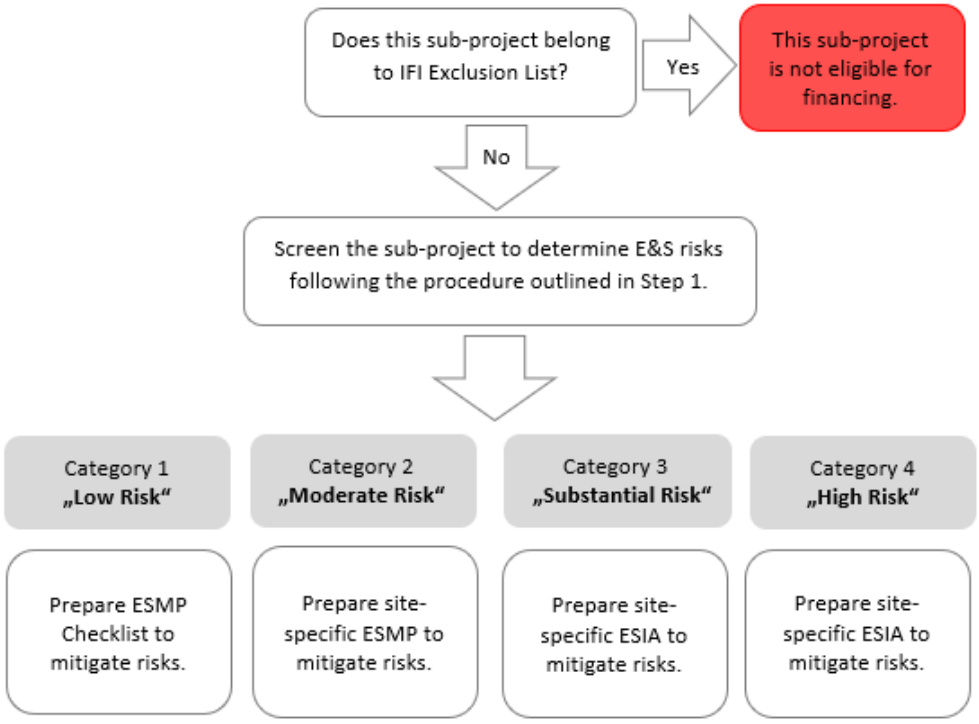

Figure 29 Schematic overview of the E&S risk assessment and management process

Step 1. Sub-project screening and risk classification

Sub-projects screening and risks classification is carried out to enable decision-making whether the sub-project can be financed, or it is on elimination lists, as well as which E&S instrument is needed for each sub-project.

The Environmental and Social Screening Questionnaire (ESSQ) provided in **Annex A** shall be completed by the PIU's Environmental and Social Specialists. It will be revised by the PIU (subject to WB approval) for specific sub-projects if needed. Once the ESSQ has been satisfactorily completed, the PIU will submit the document and the E&S Screening report to the WB together with the proposed decision on the category of the subproject/activity. The final decision requires endorsement of the World Bank.

After reviewing the ESSQ, the screening will result in the project being classified in one of the categories, as presented in table below. The ESSQ will be an integrated part of the subproject files and will be included in the relevant due diligence for the given subproject.

Table 15 Sub-project' risk level and accompanying E&S instrument

Category	Risk Level	Decision of E&S instrument
1	**Low Risk projects** - sub-projects expected to have negligible/low environmental and social impacts.	A ESMP Checklist will be prepared for the sub-project. In addition, site-specific SEP table, LMP as part of ESMP Checklist will also be prepared.
2	**Moderate Risk project** – sub-projects expected to be of manageable, easy to envisage, temporary and of local impact.	A site-specific ESMP will be prepared in line with this ESMF. An outline of ESMP is provided in Annex B to this ESMF. In addition, site-specific SEP table, LMP as part of ESMP will also be prepared. RP, as required by the risks and impacts.
3	**Substantial Risk project** – sub-projects with potential and very significant or irrevocable environmental and social impacts, the scope of which is difficult to determine in the project identification phase.	A site-specific ESIA will be prepared in line with this ESMF. An outline of ESIA is provided in Annex C to this ESMF. In addition, site-specific SEP table, LMP as part of ESIA will also be prepared. RP, as required by the risks and impacts.
4	**High Risk project** – sub-projects likely to have highly significant, diverse, and/or long-term adverse impacts on human health and natural environment, the magnitude of which is difficult to determine at the subproject identification stage. These impacts may also affect an area broader than the subproject sites. Measures for mitigating such environmental risks may be complex and costly.	A site-specific ESIA will be prepared in line with this ESMF. An outline of ESIA is provided in Annex C to this ESMF. In addition, site-specific SEP table, LMP as part of ESIA will also be prepared.

Step 2. Carry out an environmental and social assessment

ESIA, ESMP or ESMP Checklist are to be prepared for each individual sub-project, prior to bidding procedures, by the PIU's E&S Specialists or other qualified external consultants, and shall be subject to review and approval of the WB.

Additionally, PIU will be required to:

- In case of any issues identified related to previous land acquisition or economic displacement, prepare a site-specific Land Use and Livelihood Restoration Plan (LULRP) in line with the guidance given in the LULRF developed for the Project,
- In instances of any workforce reductions, the PIU will need to prepare the Retrenchment Plan in line with WB and national laws requirements,
- Implement the developed LMP for the Project, and update it as necessary,
- Undertake stakeholder engagement and disclosure of information in accordance with the SEP developed for the Project,
- Conduct monitoring and reporting on the E&S performance of the Project against the Project's ESMF, LULRF, SEP and LMP.

Step 3. Public disclosure and pubic consultations

ESIA, ESMP or ESMP Checklist shall be publicly disclosed at least 15 days before the public consultation[256], on the websites of the PIU, affected Cantonal and Local Governments, and the World Bank. For projects that fall under the obligation of environmental impact assessment according to domestic laws or for which the relevant Ministry for environment decides on the need for an environmental impact assessment, the documents will be disclosed on the web sites of the respective Ministries as well.

Disclosure packages will include:

1. Project announcement, including:
    a. Brief description of the project
    b. Description of the agreement on public consultations (time, place...)
    c. Methods of submitting comments and feedback

[256] This is also in accordance with the deadlines prescribed in the Law on Envuronment Protection of FBiH (Art. 76) and RS (Art. 69)

d. Key deadlines

2. Appropriate draft documents

By the end of the disclosure period, the public consultation meetings shall be conducted, inviting stakeholders and the general public to proactively participate.

Environmental and the Social Specialists of PIU will review the comments on all disclosed documents. The main comments will be incorporated into the final version of the documents and disclosed, together with a feedback report, i.e. (i) a list of the media in which the announcement was published, (ii) the content of the announcement, (iii) the time of publication, (iv) a list of the received feedback, (v) minutes from public consultations, (vi) list of participants. The E&S documentation will be available online for the duration of the Project along with a mechanism for comments.

Step 4. Obtain various permits and approvals (If needed and where applicable)

Other permits, such as water permits in line with the requirements of the Water Laws as described in Chapter 5.2.3, as well as construction related permits in line with the requirements of the construction regulations as described in Chapter 5.2.4., shall be obtained, when applies. All permits must be obtained before commencement of works, if not otherwise defined by the regulation.

Step 5: Integration of E&S instruments in tender documents

The E&S instruments (ESIA, ESMP, ESMP Checklist, LMP, site-specific SEP table, site-specific RP) will be prepared and finalized prior to the bidding of works and the PIU will be responsible to integrate the final version into tender documents for the selected sub-projects and in the contracts for their execution to be signed with the selected works contractor. E&S instrument shall be made an integral part of the works contract. The Contract agreements shall also impose the Contractors' obligation to comply with the requirements specified in the E&S instruments.

Contractors will be required to prepare Occupational Health and Safety (OHS) management plans. Contractors will be required to provide the periodic information on the performance in terms of labor, occupational health and safety issues, incidents and accidents as well as implementation of mitigation measures and results of the monitoring plan. The information will be included in the Contractor's monthly reports and will be reviewed by the Supervision Consultant's team.

Step 6. Implementation, supervision, monitoring and reporting

Implementation of mitigation measures and environmental and social monitoring, as defined in the E&S instrument, is an obligation of the Contractors. The Supervision Consultant for the works engaged by the PIU, alongside other routine activities, shall supervise the Contractor`s environmental and social performance and verify compliance with E&S Instruments. Based on monthly reports from the Contractor/supervision engineer/consultant, PIU shall report on E&S compliance with the E&S instrument semiannually if not differently agreed.

The overall implementation and compliance responsibilities lie with the PIU. The PIU (E&S Specialists) will report on ESCP implementation and E&S compliance to the WB in Progress Reports.

9.5. E&S Audit for activities already commenced

In case the Project finances any activities retroactively, the PIU will need to carry out an ES audit and prepare corrective action plan.

9.6. Labor Management

Pursuant to WB requirements, LMP has been developed as a separate document. The LMP aims to ensure fair treatment of workers and provision of safe and healthy working conditions.

The focus of the LMP is on workers engaged directly by the PIU (housed in FMERI) and the external consultants engaged by PIU to work on the Project - defined as **direct workers**, as well as on workers engaged or employed

by third parties i.e., contractors, sub-contractors and service and good providers - defined as **contracted workers** to which these procedures apply alike.

Direct workers will be engaged through the standard form of Contracts for Consultancy services provided by the WB. Where civil servants are working in connection with the project they remain subject to the national legislation regulating the status, rights and duties of employees in the public sector (unless a legal transfer of their employment occurs) and their employment relationship will remain subject to the terms and conditions of their existing public sector employment agreements or arrangements with the exception of requirements in the area of protecting the workforce and Occupational Health and Safety (OHS) and prohibition of child and forced labor shall apply to civil servants engaged in the project. The number of direct workers is unknown at this project stage.

Contracted workers will be engaged or employed by third parties, i.e. contractors, sub-contractors (to the extent that such sub-contracting is permitted under the parent contracts) and service providers/consultants to perform Project activities. The number of contracted workers is unknown at this project stage.

Given the nature of the Project and construction needs it might happen that **primary suppliers** are engaged. There will probably be a smaller number of such suppliers who will supply these goods continuously throughout the Project implementation. All primary suppliers must be formal businesses who procure and produce goods subject to high standards. Workers engaged by primary suppliers for procuring said goods and materials are defined as primary supply workers. All primary suppliers must comply to relevant provisions given in the LMP. As part of the environmental and social assessment, the Borrower will identify potential risks of child labor, forced labor and serious safety issues which may arise in relation to primary suppliers.

No child or forced labor will be permitted under the project.

The risk of informal labor and associated lack of protection will be mitigated through: i) labor and working conditions compliance report signed by any third party (form provided in the LMP); ii) statement of legal and regulatory compliance signed by any third party (form provided in the LMP), and iii) by providing access to the Project workers grievance mechanism.

Any third party (Contractor) employing and engaging contracted workers are expected to design and implement grievance mechanisms (GM) for workers ensuring an easy access to protective measures and effective remedial actions in work situations that may give rise to grievances and disputes. Contractors will prepare detailed description of workers' GM before the start of their assignment. The workers' GM must be well circulated and written in a language understood by all.

The PIU will develop and implement a workers' GM for direct workers to address workplace concerns.

Prior to contracting, the bidders will be required to submit a statement confirming their awareness of WB ESS2, their firm commitment to comply with the national labor and employment and occupational health and safety laws and labor management procedures in accordance with WB ESS2, and their willingness to refrain from any practice that can be interpreted or perceived as discriminatory or unfair to their employees. The failure to submit such statement will exclude a bidder from taking part in bidding. After the contract award, the contractors are required to provide their own Labor Management Procedures that have to be in line with the Project's LMP. Contractors should carry out due diligence to ensure that their subcontractors, suppliers and business partners involved in implementation of the Project are compliant with law and have no records on violating labor or OHS regulations. The contract to be made with the selected third party will incorporate terms and conditions of the Project's LMP as the minimum standard provided for the project workers employed or engaged by the third party.

During the implementation of the contract, the third parties engaging/employing project workers will have to submit quarterly compliance reports presenting their compliance with the LMP by using the reporting template provided in the Project's LMP. The report should include the number and status of project workers, the number of hired and terminated employees in the given period, the number of hours worked, overtime, regularity of payment, OHS issues (injuries and fatalities, if any), safety measures, grievances raised and resolved, training provided/attended, incidents of non-compliance with the law and the LMP. Reporting on OHS incidents

(significant injuries, fatalities and similar) is also a part of (i) incident report, and (ii) E&S compliance report (e.g. ESMP Checklist implementation report).

Contractors' labor management compliance with local legislation requirements related to labor and safety at work would be monitored based as described in Chapter 10. In case any irregularities are identified based on such reports or the project grievance mechanism, PIU would notify the responsible Labor Inspection.

9.7. Land Use and Livelihood Restoration Framework

Pursuant to WB requirements, a Land Use and Livelihood Restoration Framework (LULRF) has been developed as a separate document. The RF provides procedures for managing land use changes and liviely restoration including the Entitlement Matrix for project affected persons. This document also provides information on preparation of sub-projects' LULRPs as well as minimum elements LULRPs should contain. LULRPs will be prepared for all subprojects that entail land use changes or livelihood restoration, in order to satisfy the provisions of ESS5 and the requirements of domestic legislation regarding land use changes. Project activities that will cause land use changes and/or economic displacement will not commence until such specific plans have been finalized and approved by the Bank disclosed, consulted, finalized and implemented.

10. ESMF IMPLEMENTATION ARRANGEMENTS

10.1. Institutional responsibilities

The overall responsibility for ensuring compliance with ESF requirements as set out in this ESMF rests with the PIU.

The PIU shall monitor the implementation of this ESMF at overall Project level. PIU shall be supported by the PMTs at RMU Banovići and at EPBiH/Zenica. The PMTs play a critical coordinating and liaising function between the PIU and the local actors involved in the project. Local Governments will provide assistance to PIU related to implementation of specific sub-project activities such as land use changes and livelihood restoration, stakeholder engagement, receiving grievances at local level.

The PIU and PMTs shall be staffed with one Environmental and one Social Specialists as the basic requirement for implementation of the Project in line with the WB's ESF, relevant ESS and this ESMF. The capacity and staffing arrangements will be periodically reviewed by the World Bank and capacity improvements suggested if needed.

The E&S Specialists will also assess the workloads at any given time with head of the PIU, and anticipate them for the future in order to seek additional help, as needed. Adequate planning of outsourced preparation of due diligence required will also be essential to the project implementation timeline. The E&S Specialists shall work together with the WB E&S Specialists to ensure they receive the needed ESF training, obtain guidance, and help organize trainings for the project participants.

Preparation of technical assistance documents and site-specific ESIAs/ESMPs for investments will be undertaken by qualified Consultants. The Consultants will be selected by the PIU following the tender procedure according to the WB rules. The proof of qualification are the references/experiences in similar projects carried out for IFIs with at least 7 years of track record/working experience in the field. The indicative outlines of ESIA/ESMP to be included in the Terms of Reference (ToR) is given in Annex B and Annex C.

All relevant ToRs require the approval of the WB, and they must include at least the following: description of the project to be financed, list of available documentation and designs (and documentation on detailed analysis prepared for the Project), including those under development, list of sources of all relevant laws on environmental protection, OHS and other FBiH/RS laws, with a list of relevant environmental and social standards of the WB.

The ToR defines the content of the due diligence documentation and the package of the documentation specific to each sub-project site and list the deliverables of the assignment. The ToR shall specify that no deliverable will be completed without public consultations and finalization of the documents. If the documents are also to be used for obtaining environmental permits from the relevant authorities, the works envisaged under the ToR shall terminate only upon obtaining such permit.

The Contractor for works is responsible to ensure the proper execution of works, according to prescribed measures and in line with FBiH/RS and international standards. The Contractor shall appoint a person responsible for environmental and social protection with adequate experience to be responsible for the implementation of all environmental and social protection requirements and ESIA/ESMP/ESMP Checklist implementation and responsible for the application of OHS measures at construction sites.

The appointed person by the Contractor shall ensure compliance with the WB' ESSs and is responsible for environmental and social protection according to the ESIA/ESMP/ESMP Checklist and obtained permits, in line with clearly defined tasks and responsibilities, which include, among others: works are executed in line with good construction practices, waste is adequately managed at the construction site including contaminated waste, environmental and social protection issues are communicated with the supervising body and the local community. The works are supervised by the nominated Supervision Consultant, which controls that the activities are taken in line with the ESIA/ESMP/ESMP Checklist. The Contractor's OHS expert will ensure compliance with OHS measures and their application at the construction site. Contractors' labor management compliance with FBiH/RS legislation requirements related to labor and safety at work would be monitored on the basis of the Reports on Compliance of Conditions of Work with ESS2, which the Contractors shall submit to the PIU and Supervision Consultant on a monthly basis. The format of the report is provided in Annex 1 of the Project's LMP.

10.2. Monitoring and Reporting

The PIU shall monitor the overall implementation of the ESMF, establish and maintain records on:

- Screening of sub-projects;
- Engagement of consultants;
- Developed E&S instruments and their implementation (E&S instruments reports and supporting documentation, e.g. waste manifests);
- Progress of activities and works that require environmental and social supervision;
- Information on engagement of stakeholders in line with SEP;
- Records of grievances in accordance with the SEP, LMP and LULRF, and any retrenchment plans.

Environmental and social monitoring to be implemented by the PIU has to provide information about key environmental and social aspects of the Project, particularly the environmental and social impacts and the effectiveness of taken mitigation measures. Such information enables to evaluate the success of mitigation as part of project supervision and allows corrective action(s) to be implemented, when needed.

PIU shall report on regular basis to the World Bank on sub-projects screening, approval and monitoring results. Reporting on E&S compliance of sub-projects will be an integral part of Progress reporting on semi-annual basis, unless otherwise agreed with the WB. In the case of significant accidental situations, the PIU will notify and report on the occurrence promptly.

Monitoring of E&S performance of civil works will be carried out by PIU's and PMTs' E&S Specialists, as well as by Supervision Consultant as part of its wider scope of activities. E&S Specialists shall perform E&S monitoring (including onsite monitoring, as needed) to ensure full compliance with the contract conditions and the site-specific ESIA, ESMP or ESMP Checklist and the successful implementation and effectiveness of taken mitigation measures.

Summary of reporting obligations under Project components is provided in table below.

Table 16 Summary of Project's reporting obligations

Reports	Frequency	Prepared by
Component 1		
Report on E&S screening of sub-projects	Upon screening completion	PIU's E&S Specialists
Reports on ESMP/ESMP Checklist implementation	Quarterly	PIU's E&S Specialists
Report on Project's GM	Quarterly	PIU's Grievance Committee
Report on Workers' GM	Quarterly	PIU's Workers' Grievance Committee
Report on stakeholder engagement activities	Quarterly	PIU's E&S Specialists
Progress Reports to the WB on the environmental, social, health and safety (ESHS) performance of the Project, including summary of information on: - ESIA/ESMP/ESMP Checklist implementation; - Stakeholder engagement activities; - Land use changes process; - Project's GM and Workers' GM.	Semi-annually	PIU
Incident Report to the WB	Within 48 hours of any incident or accident related to the Project	PIU
Component 2		
Report on E&S screening of sub-projects	Upon screening completion	PIU's E&S Specialists
Completion Audit of the land use changes	At the end of the land use changes process	Independent third party contracted by PIU
Reports on ESIA/ESMP/ESMP Checklist implementation	Quarterly	PIU's E&S Specialists
Report on the Contractor`s E&S performance	Monthly (during works)	Supervising Consultant
Reports on Compliance of Conditions of Work with the ESS2	Monthly (during works)	Contractors
Report on Project's GM	Quarterly	PIU's Grievance Committee
Report on Workers' GM	Quarterly	PIU's Workers' Grievance Committee
Report on stakeholder engagement activities	Quarterly	PIU's E&S Specialists
Component 3		
Report on E&S screening of sub-projects	Upon screening completion	PIU's E&S Specialists

Reports	Frequency	Prepared by
Reports on ESIA/ESMP/ESMP Checklist implementation	Quarterly	PIU's E&S Specialists
Report on the Contractor`s E&S performance	Monthly (during works)	Supervising Consultant
Reports on Compliance of Conditions of Work with the ESS2	Monthly (during works)	Contractors
Report on Project's GM	Quarterly	PIU's Grievance Committee
Report on Workers' GM	Quarterly	PIU's Workers' Grievance Committee
Report on stakeholder engagement activities	Quarterly	PIU's E&S Specialists
Component 4		
Report on E&S screening of sub-projects	Upon screening completion	PIU's E&S Specialists
Reports on ESIA/ESMP/ESMP Checklist implementation	Quarterly	PIU's E&S Specialists
Reports on Retrenchment Plan implementation	Quarterly	PIU's E&S Specialists
Report on Project's GM	Quarterly	PIU's Grievance Committee
Report on Workers' GM	Quarterly	PIU's Workers' Grievance Committee
Report on stakeholder engagement activities	Quarterly	PIU's E&S Specialists

10.3. Capacity Building

For effective implementation of the ESMF, there will be need for capacity building of the project staff of implementing partners. Project staff will be trained by the Environmental Specialist and Social Specialist of the WB project team on the ESMF implementation, World Bank ESF and procedural requirements of the WB. The following areas (not limited to) for training have been identified for effective implementation of the ESMF:

- World Bank ESF;
- Sub-projects Screening and Scoping;
- Monitoring and reporting on environmental and social requirements;
- Grievance Mechanism;
- Environmental and Social Clauses in Contractors' contract and bidding documents.

The PIU shall ensure that PMTs, external consultants and contractor's staff receive training on the ESF requirements and its implementation, including the following:

- general ESF training;
- focused ESS2 training;
- focused ESS4 training;
- focused ESS5 training;
- focused ESS10 training;
- SEA/SH training;
- specific aspects of environmental and social assessment;
- emergency preparedness and response.

All contractors are expected to disseminate and create awareness within the workforce on E&S compliance, and any staff training necessary for their effective implementation, specific training on basic OHS considerations, use of PPP equipment and worker codes of conduct must be conducted. Where contractors do not have existing E&S staff, the PIU's and PMTs' E&S Specialists will plan for adequate capacity building within the workforce to be involved.

10.4. Key elements of a budget for ESMF compliance

The total cost for ESMF implementation cannot be accurately estimated at this stage of the Project as the number of activities or sub-projects is unknown. Key elements of the ESMF requiring a cost budget are highlighted and indicative unit costs are shown in the table below. These need to be reviewed and revised as necessary.

The training and monitoring activities outlined above would be financed from Component 6 of the Project (Project Management). Screening and preparation of required E&S due diligence documentation is imbedded in costs of respective Components.

Establishment of GMs as per the SEP, RF and the LMP and implementation of stakeholder engagement activities does not entail any additional costs.

Table 17 Key elements of a budget for ESMF implementation

Type of activitiest	Unit cost (USD)
PIU's E&S Specialists (one environmental, one social, and potentially one OHS expert)	Approx. 3000 USD monthly
Capacity building activities	The total cost will be calculated based on staff-days required, whereas an indicative all-inclusive consultant's daily fees are: - Local up to 300 USD - International up to 600 USD
Development of site-specific ESIA	Up to 50,000 USD
Development of site-specific ESMP	Up to 15,000 USD
Development of site-specific RP	Up to 7,000 USD

11. PUBLIC CONSULTATIONS PROCESS

The WB standard on Stakeholder Engagement and Information Disclosure 10 (ESS 10) recognizes the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance and make a significant contribution to successful project design and implementation.

Pursuant to the WB requirements, stakeholder engagement is a process implemented throughout project life-cycle, and it is most effective if launched at early stage of project development. Engagement should begin as early as possible at project preparation, as timely identification of and consultation with the stakeholders enable views and opinions of these groups to be taken into account in the project design and implementation.

In line with these requirements, set of documents in English and local language, including:

- the Environmental and Social Management Framework (ESMF);
- the Environmental and Social Commitment Plan (ESCP);
- the Stakeholder Engagement Plan (SEP);
- the Land Use and Livelihood Restoration Framework (LULRF); and
- the Labor Management Procedure (LMP).

will be disclosed to the public through the websites of PIU, affected Cantonal and Local Governments, and a public consultation held. Documents will be available at the PIU's website during project life and grievance mechanism for questions and answers will be active in that period.

(will be updated after the public consultation)

12. ANNEXES

Annex A	Exclusion List
Annex B	Environmental and Social Screening Questionnaire
Annex C	ESMP Checklist
Annex D	Indicative outline of site-specific ESMP
Annex E	Indicative outline of ESIA
Annex F	Indicative outline of a Retrenchment Plan
Annex G	Public Consultation Report

ANNEX A: Exclusion List

The WB does not finance the following projects:

- Production or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements, or subject to international bans, such as pharmaceuticals, pesticides/herbicides, ozone depleting substances, PCB's, wildlife or products regulated under CITES;
- Production or trade in weapons and munitions*;
- Production or trade in alcoholic beverages (excluding beer and wine) *;
- Production or trade in tobacco*;
- Gambling, casinos and equivalent enterprises*;
- Production or trade in radioactive materials. This does not apply to the purchase of medical equipment, quality control (measurement) equipment and any equipment where the WB considers the radioactive source to be trivial and/or adequately shielded;
- Production or trade in unbonded asbestos fibers. This does not apply to purchase and use of bonded asbestos cement sheeting where the asbestos content is less than 20%;
- Drift net fishing in the marine environment using nets in excess of 2.5 km in length;
- Production or activities involving harmful or exploitative forms of forced labor**/harmful child labor***;
- Commercial logging operations for use in primary tropical moist forest;
- Production or trade in wood or other forestry products other than from sustainably managed forests;
- Production, trade, storage, or transport of significant volumes of hazardous chemicals, or commercial scale usage of hazardous chemicals. Hazardous chemicals include gasoline, kerosene, and other petroleum products;
- Production or activities that impinge on the lands owned, or claimed under adjudication, by Indigenous Peoples, without full documented consent of such peoples.

In addition, the following activities are ineligible under the Project as part of the “exclusion list” in order to avoid adverse irreversible impacts on the environment and people:

- Activities of any kind within existing or proposed protected areas;
- Unsustainable exploitation of natural resources;
- Significant conversion or degradation of natural habitat or where the conservation and/or environmental gains do not clearly outweigh any potential losses;
- Introduction of non-native species, unless these are already present in the vicinity or known from similar settings to be non-invasive;
- Damage or loss to cultural property, including sites having archeological (prehistoric), paleontological, historical, religious, cultural and unique natural values;
- Activities that would likely have negative impacts on vulnerable (women and children) which cannot be mitigated.
- Activities requiring additional land acquisition or physical resettlement

* This does not apply to project sponsors who are not substantially involved in these activities. "Not substantially involved" means that the activity concerned is ancillary to a project sponsor's primary operations.

** Forced labor means all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty.

*** Harmful child labor means the employment of children that is economically exploitive, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health, or physical, mental, spiritual, moral, or social development.

ANNEX B: Environmental and Social Screening Questionnaire (Tentative)

SECTION A: GENERAL INFORMATION

SECTION A: General Information	
Date of screening	
Subproject title	
Subproject component	
Implementing Agency	
Proposed subproject budget	
Proposed subproject duration	
E&S Screening Team Leader and Contact Details	
E&S Screening Team Members	
Subproject/Site/Activity location	
Subproject description.	
Categorize Project Activities into High, Substantial, Moderate or Low, Refer to Subproject description and Project Categories	

SECTION B: POTENTIAL ENVIRONMENTAL/SOCIAL RISKS/IMPACTS OF ACTIVITIES

(At this stage, questions are answered without considering magnitude of impact – only yes, no or I don't know are applicable answers)	**Yes**	**No**	**I don't know**	**If these risks ('yes') are present, refer to:**	**Comments**
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts					
Is an Environmental and/or Social Assessment required where project is undertaken?				ESMF for guidance on step-by-step methodology	
Is there a risk of diversion of project benefits?				Stakeholder Engagement Plan (SEP) Grievance Redress Mechanisms (GRM)	
Is there a risk that the project will impact vulnerable individuals or groups?				Stakeholder Engagement Plan (SEP) Grievance Redress Mechanism (GRM)	
Is there a risk that the selection of the activity location or beneficiaries will lead to conflict?				Stakeholder Engagement Plan (SEP) Grievance Redress Mechanism (GRM)	
ESS 2: Labor and Working Conditions					
Does the activity include any of the known labor rights / ESS 2 non-compliance risks (child and forced labor, informal labor)?				Labor Management Procedures (LMP)	
Does the activity include a construction component?				Labor Management Procedures (LMP) Occupational Health and Safety Plan (OHS)	
Will the activity require a larger contractor workforce?				Labor Management Procedures (LMP) Occupational Health and Safety Plan (OHS)	
Is there an OHS risk for project workers?				Labor Management Procedures (LMP) Occupational Health and Safety Plan (OHS)	

(At this stage, questions are answered without considering magnitude of impact – only yes, no or I don't know are applicable answers)	**Yes**	**No**	**I don't know**	**If these risks ('yes') are present, refer to:**	**Comments**
Is there a risk of occurrence of GBV/SEA?				Labor Management Procedures (LMP)	
Is there a risk of delayed payment of workers?				Labor Management Procedures (LMP)	
Is there a risk that workers are underpaid?				Labor Management Procedures (LMP)	
ESS 3: Resource Efficiency and Pollution Prevention Management					
Will the activity result in the production of solid waste?				ESIA/ESMP Waste Management Plan	
Will the activity result in the production of toxic or hazardous waste? (e.g. used oils, inflammable products, pesticides, solvents, pharmaceutics, industrial chemicals, ozone depleting substances)				ESIA/ESMP Waste Management Plan	
Will the activity produce effluents (waste water)?				ESIA/ESMP Waste Management Plan	
Can the project affect the surface or groundwater in quantity or quality? (e.g. discharges, leaking, etc.)				ESIA/ESMP Waste Management Plan	
Will the project require use of chemicals? (e.g. fertilizers, pesticides, paints, etc.)				ESIA/ESMP Waste Management Plan	
Is there any risk of accidental spill or leakage of material?				ESIA/ESMP Waste Management Plan	
Will the activity result in soil erosion?				ESIA/ESMP	
Will the activity result in the generation of dust, noise?				ESIA/ESMP	
Will the activity result in increased levels of vibration from construction machinery?				ESIA/ESMP	
Will the project produce air pollution? (e.g. significant greenhouse gas emissions, dust emissions and other sources)				ESIA/ESMP	
Will the activity disturb any fauna and flora?				ESIA/ESMP	
ESS 4: Community Health and Safety					
Is there a risk of increased GBV/SEA cases due to labor influx?				ESMF Labor Management Procedures (LMP)	
Is there a risk of spread of communal diseases due to labor influx?				Labor Management Procedures (LMP) ESMF	
Does the activity have the potential to upset community dynamics?				Stakeholder Engagement Plan (SEP) Grievance Redress Mechanisms (GRM)	
Will the activity expose community members to physical hazards on the project site?				ESMF for compliance with ESS4	
Will the activity pose traffic and road safety hazards?				ESMF for compliance with ESS4 Traffic Management Plan	
Is there a possibility that the activity contaminates open wells?				Waste Management Plan ESMF	
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement					
Will the project lead to the physical resettlement or displacement of a population?				Land Use and Livelihood Restoration Framework	
Will the project require additional land acquisition from individual households?				Land Use and Livelihood Restoration Framework	

(At this stage, questions are answered without considering magnitude of impact – only yes, no or I don't know are applicable answers)	**Yes**	**No**	**I don't know**	**If these risks ('yes') are present, refer to:**	**Comments**
Will the project require additional land acquisition from communities				Land Use and Livelihood Restoration Framework	
Is there a risk that the activity leads to loss of income, assets or means of livelihoods?				Land Use and Livelihood Restoration Framework	
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources					
Will the subproject be located in proximity to existing or proposed protected areas?				See exclusion list	
Is there a risk that the project causes ecological disturbances?				ESMF for specific guidance in line with ESS6	
Is there a risk that the activity causes changes in land form and habitat, habitat fragmentation, blockage or migration routes, water consumption and contamination?				ESMF for specific guidance in line with ESS6	
Is there a risk that the activity causes loss of precious ecological assets?				ESMF for specific guidance in line with ESS6	
ESS 8: Cultural Heritage					
Will the project activities be performed in, or will it potentially affect, archaeological or cultural heritage site?				Chance Find Procedures	
ESS 10: Stakeholder Engagement and Information Disclosure					
Is there a risk that the activity fails to incorporate measures to allow meaningful, effective and informed consultation of stakeholders, such as community engagement activities?				Stakeholder Engagement Plan (SEP)	
Is there a risk that exclusion of beneficiaries leads to grievances?				Stakeholder Engagement Plan (SEP) Grievance Redress Mechanisms (GRM)	
Is there a risk that the activity will have poor access to beneficiaries?				Stakeholder Engagement Plan (SEP) Grievance Redress Mechanisms (GRM)	

SECTION C: SUMMARY OF THE SCREENING PROCESS

E&S Screening	**Results and Recommendation**	
Screening Results: Summary of Critical Risks and Impacts Identified	**Risk/Impact**	**Individual Risk/ Impact Rating**
	Eg. Land Degradation	Eg. Low
Is Additional Assessment Necessary?	**Screening Result**	**Summary of Screening Result Justification**
	No further E&S Assessment required.	
	No further E&S Assessment required but requires ESMP Checklist.	
	Site-specific ESMP and/or LULRP is required.	
	ESIA and/ or LULRP required.	

Prepared by PIU E&S Specialist: _____

Signature of responsible person: _____

Date: _____

Approved by WB E&S Specialist: _____

Signature of responsible person: _____

Date: _____

ANNEX C: ESMP Checklist

Introduction

[Briefly describe the project objective and components.]

Environmental and Social Category

[Briefly explain the environmental and social risk category of the subproject in accordance with the environmental and social review.]

Works Planned

[Briefly explain the types of works foreseen under the subproject.]

Potential Environmental and Social Impacts

[List the main potential environmental and social impacts that derive from the foreseen works under the subproject.]

Environmental and Social Management Plan Checklist

The scope and objective of the ESMP Checklist

ESMP Checklist structure

Application of the ESMP Checklist

Monitoring and Reporting

PART 1: GENERAL PROJECT AND SITE INFORMATION

INSTITUTIONAL & ADMINISTRATIVE				
Country	**Bosnia and Herzegovina**			
Project title	Just Transition in Select Coal Regions in Bosnia and Herzegovina			
Scope of project and activity				
Institutional arrangements (Name and contacts)	WB (Project Team Leader)	Project Management	Local Counterpart and/or Recipient	
Implementation arrangements (Name and contacts)	Safeguard Supervision	Local Counterpart Supervision	Local Inspectorate Supervision	Contactor
SITE DESCRIPTION				
Name of site				
Describe site location			Attachement 1: Site Map [ ] Y [ ] N	
Who owns the land?				
Description of geographic, physical, biological, geological, hydrographic and socio-economic context				
Locations and distance for material sourcing, especially aggregates, water, stones?				
LEGISLATION				
Identify national & local legislation & permits that apply to project activity				
PUBLIC CONSULTATION				
Identify when / where the public consultation process took place				
INSTITUTIONAL CAPACITY BUILDING				
Will there be any capacity building?	[ ] N or [ ]Y if Yes, Attachment 2 includes the capacity building program			

PART 2: SAFEGUARDS INFORMATION

ENVIRONMENTAL /SOCIAL SCREENING			
Will the site activity include/involve any of the following??	**Activity**	**Status**	**Triggered Actions**
	A. Construction works	[ ] Yes [ ] No	See Section **A, B** below
	B. Equipment installation works	[ ] Yes [ ] No	See Section **A, B** below
	C. Acquisition of land[257]	[ ] Yes [ ] No	See Section **C** below
	D. Hazardous or toxic materials[258]	[ ] Yes [ ] No	See Section **D** below
	E. Traffic and Pedestrian Safety	[ ] Yes [ ] No	See Section **E** below

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
A. General Conditions	Notification and Worker Safety	(a) The local construction and environment inspectorates and communities have been notified of upcoming activities (b) The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works). (c) Contractor and subcontractors have valid operating licenses. All legally required permits have been acquired for construction and/or rehabilitation (d) The Contractor formally agrees that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. (e) Workers' Personal Protective Equipment (PPE) will comply with international good practice (always hardhats and gloves, as needed masks and safety glasses, harnesses and safety boots) (f) Appropriate signposting of the sites will inform workers of key rules and regulations to follow. (g) The workers are adequately trained and experienced for the work performed. (h) Fire prevention and fire protection measures are in place. Workers are well informed and trained to use the available equipment. (i) Emergency procedures are in place and known to workers.
B. General Rehabilitation and /or Construction Activities	Air Quality	(a) The surrounding environment (side walks, roads) shall be kept free of debris to minimize dust (b) There will be no open burning of construction / waste material at the site (c) There will be no excessive idling of construction vehicles and machinery at sites, (d) All machinery and transportation vehicles are equipped with appropriate emission control equipment, regularly maintained and attested. (e) While transporting dust prone materials the load must be covered or sprayed. (f) The machinery and vehicles use petrol from the official sources (licensed gas stations) and running on fuel determined by the machinery/vehicles producer. (g) Capacity of transport will be harmonized with the waste generation pace and quantities.

[257] Land acquisitions includes displacement of people, change of livelihood encroachment on private property this is to land that is purchased/transferred and affects people who are living and/or squatters and/or operate a business (kiosks) on land that is being acquired.
[258] Toxic / hazardous material includes but is not limited to asbestos, toxic paints, noxious solvents, removal of lead paint, etc.

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
	Noise	(a) Construction noise will be limited to restricted times agreed to in the permit. Night work will be avoided and if necessary relevant permits must be obtained and the public informed. (b) During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible. (c) Contractor should use state of the art machinery with low levels of noise emission.
	Water and Soil Quality	(a) The site will establish appropriate erosion and sediment control measures (including surface runoff management and disposal) such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers, but also jeopardize surrounding land or buildings or other constructions. (b) Asphalt, soil and other works will be isolated from watercourses. (c) Stored materials and waste stored outside must be placed on concrete or asphalted surfaces with the collection system or fully covered and protected from the weather conditions. (d) Machinery and transport vehicles shall not be washed, parked (for long hours) or maintained at site, but at predefined suitable areas (equipped by grease and oil separators). (e) If fuel, oil, lubricants or other hazardous or toxic liquids are stored at site they should be kept in secondary containment system tanks (e.g. double walled or bund containers). (f) Existing water sources should be used. (g) A plan in the case of emergencies /accidental pollution should be developed and workers informed on procedures. (h) In the case of leakage, the contaminated soil or water should be retained and collected and disposed as hazardous waste.
	Waste management	(a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities. (b) Mineral construction wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers. (c) Waste types will be collected separately. All waste will be collected and disposed properly by licensed collectors and in accordance with waste regulation, including existing waste at the site (which will be removed before the works start). The records of waste disposal will be maintained as proof for proper management as designed. (d) Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos). (e) Discarding any kind of waste (including organic waste) into the surrounding (especially watercourses) is strictly forbidden and so is burning of waste.
	Resource efficiency and landscape conservation	(a) Only existing licensed asphalt and cement plants, and stone quarries will be used. (b) Only suppliers of sand and gravel with valid licenses and concessions will be used. (c) Suppliers must obtain/hold and present all required working and emission permits and quality certifications as well as proof of conformity with all national environmental and H&S legislation. (d) All materials need to be approved by the site engineer.
C. Acquisition of land	Land Use and Livelihood Restoration Plan / Land Use and Livelihood Restoration Framework	(a) If expropriation of land was not expected but is required, or if loss of access to income of legal or illegal users of land was not expected but may occur, that the Bank's Task Team Leader shall be immediately consulted. (b) The approved Land Use and Livelihood Restoration Plan (if required by the project) will be implemented.

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
D. Toxic Materials	Toxic / hazardous substances/waste management	(a) Temporary storage on site of all hazardous or toxic substances and wastes will be in safe containers with secondary containment system tanks (e.g. double walled or bund containers), labeled with details of composition, properties and handling information. Hazardous materials should be kept on impermeable surface and adsorbents like sand or sawdust should be kept for handling small spillage. (b) Hazardous waste is collected separately. (c) The containers of hazardous substances/wastes shall be placed in a leak-proof container to prevent spillage and leaking. The containers must be kept closed, except when adding or removing materials/waste. (d) All hazardous waste should be weighed, recorded (in waste manifests) and records archived. The wastes shall be transported by specially licensed carriers, temporarily stored and disposed in a licensed facility. (e) Paints with toxic ingredients or solvents or lead-based paints will not be used. (f) The containers holding ignitable, hazardous, explosive or reactive substances must be located at least 15m from the facility and 30 from the water line. (g) Contractors/subcontractors' employees and individuals employed for the construction works have received training in relevant toxic or hazardous waste/substances related issues. (h) All hazardous waste will be temporarily stored at the storage facility which shall be designated prior to any works and approved by the Competent Authority. The designated building must be kept secured/locked. The stored waste must be well protected from the weather impacts (wind, rain). (i) Eating, drinking and smoking is prohibited in the working area.
E. Traffic and Pedestrian Safety	Direct or indirect hazards to public traffic and pedestrians by construction activities	(a) In compliance with national regulations the contractor will insure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to: ▪ Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards. ▪ Comply with the national traffic safety regulation. ▪ Only identified and agreed roads can be used. ▪ No materials or wastes should be kept on the roads or pavement. ▪ Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes. ▪ Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement ▪ Active traffic management by trained and visible staff at the site, if required for safe and convenient passage for the public. ▪ Ensuring safe and continuous access to office facilities, shops and residences during works, if the buildings stay open for the public.

PART 3: MONITORING PLAN

Phase	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)
During activity **preparationa**	Permits and valid operation licenses	On site	By checking whether all permits according to the law are available on site	Prior to works commencement	It is recommended to make sure that all good practices apply	Project cost	Site supervising engineer
	Site organization	On site	By checking proper fencing, installation of temporary sanitary facilities	Prior to works commencement	To ensure safety	Project cost	Site supervising engineer
	Plan for emergencies /accidental pollution	Contractor's office	Check if the documents are in place	Prior to works commencement	To ensure safety of workers and local population	Project cost	Site supervising engineer
During activity **implementation**	Air quality (dust)	On site	Visual observation – check if spraying is applied, visibility, presence of dust on site, load covered or sprayed	Continuous on a daily basis, however special attention should be put during transport of materials and wastes	To keep the dust level at minimum to protect health and prevent irritations and to keep visibility for safety purposes	Project cost	Site supervising engineer
	Noise	On site, Contractor's office	Checking if there is non-authorized night work, if engines are covered, noise abatement equipment is in place, if there were complaints or negative inspection findings	Regularly	Managing health hazard and prevent disturbance of local population and users of space	Project cost	Site supervising engineer

Phase	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)
	Workers' safety	On site	Random safety inspection	Continuously checking if the PPE is available to workers, in sufficient quantities and it is used/worn at all times. The workers have been adequately trained.	To prevent accidents and health hazard	Project cost	Site supervising engineer, Inspection
	Hazard to public traffic and pedestrian safety	On site and on roads permitted to use for accessing site, traffic plans	Visual observation and potential complaints from the public	Daily checking the signs, fences, accesses and traffic signalization and patterns	To prevent traffic disruption and accidents	Project cost	Site supervising engineer, Inspection
	General waste management	On site	Visual observation if there is littering, inadequate disposal, burning, separate collection	Regularly	Preventing pollution	Project cost	Site supervising engineer
	Hazardous waste management (separate collection, labelling, transport)	On site	Checking if the waste is collected separately, stored appropriately and labeled. Transport is carried out by licensed companies. Temporarily stored in designated building. The workers handling this waste are adequately trained. Lead paint dust and materials are packed in adequate bins.	Regularly	Preventing pollution and managing health hazard	Project cost	Site supervising engineer

Phase	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)
	Waste pollution (non-hazardous and hazardous such as– paints, chemicals, coatings or construction material on which these are used)	On site pollution assessment	Waste accompanying documentation that is submitted to Ministry of Environment in which type and quantities of the waste are identified	Continuous during construction, i.e. each time waste is taken from the site	Required by series of regulation on waste	Project cost	Site supervising engineer Ministry of Environment (inspection)
	Materials management	Contractor's office	Check if suppliers are properly licensed and hold valid concessions and conform to relevant regulation.	Prior to works commencement	Preventing unauthorized non-renewable resources use, nature protection, landscape preservation	Project cost	Site supervising engineer
	Toxic / Hazardous material	On site visual assessment	Proper handling and storage is checked according to Material Safety Data Sheets (MSDS)	Regularly	To prevent accidental spilling or injuries	Project cost	Site supervising engineer, Inspection

ANNEX D: Indicative outline of site-specific ESMP

The content of the site-specific ESMP will include the following:

(a) Background information (location, environmental and socioeconomic setting)

(b) Sub-project activities

(c) E&S aspects

(d) Mitigation

- The ESMP identifies measures and actions in accordance with the mitigation hierarchy that reduce potentially adverse environmental and social impacts to acceptable levels. The plan will include compensatory measures, if applicable. Specifically, the ESMP:

  i) identifies and summarizes all anticipated adverse environmental and social impacts (including those involving indigenous people or involuntary resettlement);

  ii) describes - with technical details - each mitigation measure, including the type of impact to which it relates and the conditions under which it is required (e.g., continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate;

  iii) estimates any potential environmental and social impacts of these measures; and takes into account, and is consistent with, other mitigation plans required for the project (e.g., for involuntary resettlement, cultural heritage).

(e) Monitoring and reporting

- The ESMP identifies monitoring objectives and specifies the type of monitoring, with linkages to the impacts assessed in the environmental and social assessment and the mitigation measures described in the ESMP. Specifically, the monitoring section of the ESMP provides (a) a specific description, and technical details, of monitoring measures, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions; and (b) monitoring and reporting procedures to (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation.

(f) Capacity Development and Training

- To support timely and effective implementation of environmental and social project components and mitigation measures, the ESMP draws on the environmental and social assessment of the existence, role, and capability of responsible parties on site or at the PIU and Ministry level.
- Specifically, the ESMP provides a specific description of institutional arrangements, identifying which party is responsible for carrying out the mitigation and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training).
- To strengthen environmental and social management capability in the agencies responsible for implementation, the ESMP recommends the establishment or expansion of the parties responsible, the training of staff and any additional measures that may be necessary to support implementation of mitigation measures and any other recommendations of the environmental and social assessment.

(g) Implementation Schedule and Cost Estimates

- For all three aspects (mitigation, monitoring, and capacity development), the ESMP provides (a) an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and (b) the capital and recurrent cost estimates and sources of funds for implementing the ESMP. These figures are also integrated into the total project cost tables.

(h) Integration of ESMP with Project

- The Borrower's decision to proceed with a project, and the Bank's decision to support it, are predicated in part on the expectation that the ESMP will be executed effectively. Consequently, each of the measures and actions to be implemented will be clearly specified, including the individual mitigation and monitoring measures and actions and the institutional responsibilities relating to each, and the costs of so doing will be integrated into the project's overall planning, design, budget, and implementation.

MITIGATION PLAN TABLE FORMAT

Phase	Issue	Mitigation measure	Cost of mitigation (If substantial)	Responsibility*	Supervision observation and comments (to be filled out during supervision)
Preparation phase					
Project Execution / operate					
Post-project phase					

*Items indicated to be the responsibility of the contractor shall be specified in the bid documents

MONITORING PLAN TABLE FORMAT

Phase	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored/ type of monitoring equipment?	When is the parameter to be monitored-frequency of measurement or continuous?	Monitoring cost/ what is the cost of equipment or contractor charges to perform monitoring?	Responsibi-lity*	Supervision observation and comments (to be filled out during supervision with reference to adequate measuring reports)
Preparation phase							
Project Execution / operate							
Post-project phase							

*Items indicated to be the responsibility of the contractor shall be specified in the bid documents

ANNEX E: Indicative outline of ESIA

(a) Executive Summary

- Concisely discusses significant findings and recommended actions.

(b) Legal and Institutional Framework

- Analyzes the legal and institutional framework for the project, within which the environmental and social assessment is carried out, including the issues set out in ESS1, paragraph 26[259].
- Compares the Borrower's existing environmental and social framework and the ESSs and identifies the gaps between them.
- Identifies and assesses the environmental and social requirements of any co-financiers.

(c) Project Description

- Concisely describes the proposed project and its geographic, environmental, social, and temporal context, including any offsite investments that may be required (e.g., access roads, power supply, water supply, housing, and raw material and product storage facilities).
- Through consideration of the details of the project, indicates the need for any plan to meet the requirements of ESS1 through 10.
- Includes a map of sufficient detail, showing the project site and the area that may be affected by the project's direct, indirect, and cumulative impacts.

(d) Baseline Data

- Sets out in detail the baseline data that is relevant to decisions about project location, design, operation, or mitigation measures. This should include a discussion of the accuracy, reliability, and sources of the data as well as information about dates surrounding project identification, planning and implementation.
- Identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions.
- Based on current information, assesses the scope of the area to be studied and describes relevant physical, biological, and socioeconomic conditions, including any changes anticipated before the project commences.
- Takes into account current and proposed development activities within the project area but not directly connected to the project.

(e) Environmental and Social Risks and Impacts

- Takes into account all relevant environmental and social risks and impacts of the project. This will include the environmental and social risks and impacts specifically identified in ESS2–8, and any other environmental and social risks and impacts arising as a consequence of the specific nature and context of the project, including the risks and impacts identified in ESS1, paragraph 28.

(f) Mitigation Measures

- Identifies mitigation measures and significant residual negative impacts that cannot be mitigated and, to the extent possible, assesses the acceptability of those residual negative impacts. Identifies differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable.

[259] ESS1, paragraph 26, states that the environmental and social assessment takes into account in an appropriate manner all issues relevant to the project, including: (a) the country's applicable policy framework, national laws and regulations, and institutional capabilities (including implementation) relating to environment and social issues; variations in country conditions and project context; country environmental or social studies; national environmental or social action plans; and obligations of the country directly applicable to the project under relevant international treaties and agreements; (b) applicable requirements under the ESSs; and (c) the EHSGs, and other relevant GIIP.

- Assesses the feasibility of mitigating the environmental and social impacts; the capital and recurrent costs of proposed mitigation measures, and their suitability under local conditions; and the institutional, training, and monitoring requirements for the proposed mitigation measures.
- Specifies issues that do not require further attention, providing the basis for this determination.

(g) Analysis of Alternatives

- Systematically compares feasible alternatives to the proposed project site, technology, design, and operation - including the "without project" situation - in terms of their potential environmental and social impacts.
- Assesses the alternatives' feasibility of mitigating the environmental and social impacts; the capital and recurrent costs of alternative mitigation measures, and their suitability under local conditions; and the institutional, training, and monitoring requirements for the alternative mitigation measures.
- For each of the alternatives, quantifies the environmental and social impacts to the extent possible, and attaches economic values where feasible.

(h) Design Measures

- Sets out the basis for selecting the particular project design proposed and specifies the applicable EHSGs or if the EHSGs are determined to be inapplicable, justifies recommended emission levels and approaches to pollution prevention and abatement that are consistent with GIIP (if applicable).

(i) Key Measures and Actions for the Environmental and Social Commitment Plan (ESCP)

- Summarizes key measures and actions and the timeframe required for the project to meet the requirements of the ESSs. This will be used in developing the Environmental and Social Commitment Plan (ESCP).

(j) Appendices

- List of the individuals or organizations that prepared or contributed to the environmental and social assessment.
- References - setting out the written materials both published and unpublished, that have been used.
- Record of meetings, consultations and surveys with stakeholders, including those with affected people and other interested parties. The record specifies the means of such stakeholder engagement that were used to obtain the views of affected people and other interested parties.
- Tables presenting the relevant data referred to or summarized in the main text.
- List of associated reports or plans.

ANNEX F: Indicative outline of a Retrenchment Plan

1. Description of Anticipated Retrenchment and Rationale

- anticipated magnitude, rationale, and timeframe
- characteristics of the labor force (number of men and women employed by skill level and type of contract)
- adequacy of current staffing levels and need for retrenchment from a business point of view
- size of the planned retrenchment (number of men and women to be retrenched by skill level and type of contract)
- retrenchment schedule

2. Relevant Economic Context

- situation of the local economy, as it relates to the retrenched workers' ability to find new jobs or start new businesses
- importance of the firm/enterprise in the local economy
- main trends in the sector in which the firm operates (e.g., projected growth, level of employment, wages, foreign and domestic investment)

3. Retrenchment Methods and Procedures

- methods anticipated (e.g., voluntary retirement, severance packages, lay-offs)
- consultation and negotiation (e.g., with labor organizations, workers' representatives, community organizations, government representatives, and NGOs)
- selection criteria for worker dismissal
- strategies to prevent the disproportionate representation of a social group (e.g., women or members of a particular ethnic or religious group) among the retrenched workers

4. Management Arrangements

- person or people who will direct/supervise the retrenchment process
- grievance and appeal procedures

5. Legal/Institutional Framework

- legislation that applies to early retirement, provision of severance packages and lay-offs
- legal role of trade unions or other representative bodies in the retrenchment process
- relevant agreements with labor unions or other labor representatives
- compliance of planned retrenchment with applicable legislation and agreements
- coverage of retrenched workers by unemployment insurance or any other welfare programs
- eligibility of part-time or contract workers to receive benefits or assistance

6. Anticipated Impacts on Retrenched Workers and Communities

- prospects for retrenched workers (market demand for their skills and alternative sources of income/employment)
- eligibility of retrenched workers for unemployment or other benefits
- impacts on wider communities and remedial measures proposed

7. Compensation and Any Additional Assistance to Be Provided to Retrenched Workers

- compensation anticipated by skill level and type of contract
- training programs
- career counseling
- assistance to set up micro-enterprises
- financial counseling

8. Monitoring of the Retrenchment Process

- indicators to be monitored (e.g., situation of the retrenched workers, payment of entitlements, outcomes of assistance provided)
- frequency of monitoring activities
- party or parties that will carry out the monitoring activities

9. Supporting Documentation

- references of written materials, record of consultations with affected workers, tables, and the like included in an annex

ANNEX G: Public Consultation Report

(will be updated after the public consultation)