Ministry of Agriculture, Water Management and Forestry of the Federation of Bosnia and Herzegovina

Project Implementation Unit (PIU)

Environmental and Social Management Plan (ESMP)

for the Subproject:

"PRESSURE PIPELINE PUMP STATION

BILETIĆ POLJE - WATER RESERVOIR JELINA GLAVICA AND

WATER RESERVOIR JELINA GLAVICA – MUNICIPALITY ČITLUK"

prepared as part of:

BiH WATER AND SANITATION SERVICES MODERNIZATION PROJECT

(WSSM)

March 2026

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List of Abbreviations

BiH	Bosnia and Herzegovina
CSOP	Construction Site Organization Plan
E&S	Environmental and Social
EHS	Environment, health and safety
EHSG	Environmental, Health and Safety Guidelines
EIA	Environmental impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and social management plan
ESS	Environmental and social standards of the World Bank
EU	European Union
FBiH	Federation of Bosnia and Herzegovina
FMAWMF	Federal Ministry of Agriculture, Water Management and Forestry
GBV	Gender-based violence
GIIP	Good International Industry Practices
GM	Grievance Mechanism
GRM	Grievance Redress Mechanism
LMP	Labor Management Procedure
OHS	Occupational Health and Safety
PIT	Project Implementation Team
PIU	Project Implementation Unit
PS	Pump station
RPF	Resettlement Framework
SCADA	Supervisory Control and Data Acquisition
SEA	Sexual exploitation and abuse
SEP	Stakeholder Engagement Plan
SH	Sexual harassment
ViK	Water and Sewer System
WB	The World Bank
WSSM	BiH Water and Sanitation Services Modernization Project

Summary

Table 1: General information about the project

Subproject Name:	"Pressure pipeline pump station Biletić Polje-water reservoir Jelina Glavica and water reservoir Jelina Glavica V = 2 × 2,000 m³ "
Project description:	The improvement of the existing operation of the Čitluk water supply system involves the construction of a new pressure pipeline and the upgrade of the existing system, that is, the construction of a new water reservoir with an increase in the volume of Jeline glavice to 4,000 cubic meters. The new pressure pipeline should be constructed over a length of approximately 3,000 meters, up to the exit shaft of the existing pumping station. The extension of the Jeline Glavica water reservoir will be done as a standalone structure with a volume of V = 2 x 2000 m³.
Subproject location:	Municipality Čitluk
Population	18.140 – (last census in 2013)
Sector and type of subproject:	Water sector Water supply system
Implementing of the subproject:	Project Implementation Unit within the Ministry of Agriculture, Water Management and Forestry of the Federation of Bosnia and Herzegovina in cooperation with representatives of the municipality and the water supply company
Implementation modality:	Contractor
Size of the subproject:	The new pressure pipeline should be constructed over a length of approximately 3,000 meters, up to the exit shaft of the existing pumping station; The extension of the Jeline Glavica water reservoir will be done as a standalone structure with a volume of V = 2 x 2000 m³.
Estimated Cost of subproject:	4,230,000 BAM
Field visit (yes/no; date):	Yes, 11th November, 2024 and 19th February 2026
Was Consultation Carried out? (Yes/No):	No
Estimated project risk (low to high):	Moderate

1 INTRODUCTION

1.1 Subproject background

Project Development Objective

The **Water Sanitation Services Modernization Project** in Bosnia and Herzegovina aims to strengthen the institutional, financial, and legal framework, as well as the capacity in the water and utility sectors, with the goal of ensuring the sustainability of investments in infrastructure. The objective is to increase the efficiency of public utility companies in municipalities within the Federation through a series of gradual improvements and to achieve the economic sustainability of utility companies at the local level. This project will enhance the water services provided by utility companies and implement activities to improve the sustainable use and protection of water in local self- government units.

The project consists of three components:

Component 1: Modernization of regulatory and institutional environment

Component 2: Strengthening the municipal framework for the provision of water supply and drainage service.

Component 3: Municipality investment projects - Improving access to safely managed WSS services and the efficiency of WSS service providers. Construct, upgrade, and modernize WSS infrastructure, including water treatment and distribution facilities and wastewater collection and treatment facilities.

The project is supported by World Bank credit funding and is aligned with existing projects and available financial resources from other international financial institutions and bilateral donors.

Infrastructure projects in the field of water services in local communities in the Federation of Bosnia and Herzegovina (FBiH) will be implemented within Component 3 of the Project, under category (b).

Financing under this component would include two categories: (a) performance and efficiency improvements including, but not limited to, the implementation of nonrevenue water reduction, energy efficiency programs, and improvements in metering and commercial systems (which should accrue to reductions in greenhouse gas [GHG] emissions); 41 and (b) construct, upgrade, modernize and improve WSS services and infrastructure, including water treatment and distribution facilities and wastewater collection and treatment facilities as well as technical assistance needed to improve performance of selected WUs.

The project will enable all local governments and water supply utilities to apply for participation and utilize the project's support, including activities for institutional strengthening and, if eligible, investments in infrastructure. The Federal Ministry of Agriculture, Water Management, and Forestry (FMPVŠ) has promoted the project, and some local governments and utility companies have expressed interest in joining the program. Utility companies participating in the program will benefit from technical assistance under Component 2, which, based on performance improvements, will allow them to meet the conditions for participation in Component 3.

1.2 World Bank requirements

WB's Environmental and Social Framework (2016)[1] became effective in October 2018. 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 of ending extreme poverty and promoting shared prosperity. The Bank's Framework consists of three parts:

[1] Available in English at: http://pubdocs.worldbank.org/en/837721522762050108/Environmental-and-Social-Framework.pdf

- A Vision for Sustainable Development, which sets out the Bank's aspirations regarding environmental and social sustainability
- The Environmental and Social Standards, which set out the mandatory requirements that apply to the Borrower and projects
- The World Bank Environmental and Social Policy for Investment Project Financing, which sets out the mandatory requirements that apply to the Bank

The bank classifies all projects according to the following classification:

- high risk
- Substantial risk
- moderate risk
- low risk.

In determining appropriate risk classification, the Bank takes into account relevant issues such as:

- Type, location, sensitivity and scale of the project,
- Nature and magnitude of potential environmental and social risks and impacts,
- The capacity and commitment of the Borrower (including any other entity responsible for the implementation of the project) to manage the E&S risks and impacts in a manner consistent with the ESSs.

Borrowers and projects must also apply the relevant requirements of the World Bank's Environmental, Health and Safety Guidelines (EHSG). These are technical reference documents, with general and industry examples of Good International Industrial Practice (GIIP).

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, which are designed to avoid, minimize, reduce or mitigate the adverse E&S risks and impacts of projects. The desired outcomes are described in the objectives of each ESS, followed by specific requirements to help Borrowers achieve them. The projects supported by the Bank must comply with the following ESSs:

Environmental & Social Standard 1	• Assessment and Management of Environmental and Social Risks and Impacts
Environmental & Social Standard 2	• Labor and Working Conditions
Environmental & Social Standard 3	• Resource Efficiency and Pollution Prevention and Management
Environmental & Social Standard 4	• Community Health and Safety
Environmental & Social Standard 5	• Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
Environmental & Social Standard 6	• Biodiversity Conservation and Sustainable Management of Living Natural Resources
Environmental & Social Standard 7	• Indigenous Peoples
Environmental & Social Standard 8	• Cultural Heritage
Environmental & Social Standard 9	• Financial Intermediaries
Environmental & Social Standard 10	• Stakeholder Engagement and Information Disclosure

These ESSs are accompanied by non-binding guidelines, best practice notes, templates and checklists.

The standards applicable to WSSMP are: ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS8, ESS10.

Below is an overview of the World Bank's E&S standards that are considered applicable to the Water and Sanitation Services Modernization Project at the time of evaluation, as well as a brief explanation of their significance.

Table 2: ESSs considered relevant for the WSSM Project at the time of the appraisal

ESS		Relevance to the WSSMP
ESS1	Assessment and Management of E&S Risks and Impacts	This standard guides the preparation of E&S instruments including those that have been prepared for WSSM Project: (i) ESMF, (ii) SEP, (iii) RPF (iv) LMP and appropriate risk assessment for individual activities implemented under the project.
ESS2	Labor and Working Conditions	This standard guides the creation of sound worker-management relationships. The primary labor risk is the risk of informal work. The risks of unpaid and underpaid work, work overload, poor terms and conditions of engagement, lack of occupational health and safety measures, and denied access to social security, pension or health insurance are associated with informal work. Labor Screening and Compliance Checklist, and Monitoring and Evaluation procedures have been developed to be included as mandatory in the tender documentation providing compliance of third parties i.e. different contractors to the ESS2 requirements.

ESS		Relevance to the WSSMP
ESS3	Resource Efficiency and Pollution Prevention and Management	This standard sets out the requirements to address resource efficiency and pollution prevention and management throughout the project life cycle. Considering that most of the activities involve construction works, the major risk is that Contractors will not be aware of best practices to avoid or minimize pollution from project activities or avoid or minimize adverse impacts on human health and the environment. The site-specific ESMP will guide contractors to implement adequate pollution prevention and management measures.
ESS4	Community Health and Safety	This ESS sets out the requirements to avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials and to have in place effective measure to address emergency events. The works anticipated in this project will be carried out mostly in remote or publicly restricted areas and will not employ use or generation of hazardous substances and waste. The main risk associated with the project is related to workers health and safety that is addressed by ESS2.
ESS5	Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	This ESS guides the procedures to avoid or implement involuntary resettlement and economic displacement with least possible impacts. The WSS Modernization Project involves the possibility of land acquisition and economic displacement. To minimize the risk, an appropriate RPF has been developed at the project level. The main risk is associated with inappropriate implementation of the RPF.
ESS6	Biodiversity Conservation and Sustainable Management of Living Natural Resources	The project area is the whole entity, which includes several nationally and internationally recognized natural and critical habitats, protected areas, wetlands and Ramsar sites as well as hundreds of locally designated nature sites. The activities will be assessed for relevant risks, and the mitigation hierarchy will be applied. Development of site-specific ESMPs will be considered as part of screening and approval procedure. Environmental screening will ensure that no activities with potential negative impacts are eligible for funding in natural or critical habitats. In case of activities to be funded by the project and to be implemented in modified habitats, the project-level will present requirements to avoid or minimize the respective impacts on biodiversity and implement mitigation measures as appropriate.
ESS8	Cultural Heritage	Information that are available in the project appraisal phase indicate that it is very unlikely that there will be any interaction of construction works with known cultural heritage sites. In the event of chance finds, the Borrower will deal with it taking into account national legal requirements that are fully consistent with UNESCO and good international practice.
ESS10	Stakeholder Engagement and Information Disclosure	This ESS guides the inclusion of relevant stakeholders in the project lifecycle. In line with the requirements of this ESS, a Stakeholder Engagement Plan including a Grievance Mechanism has been

ESS		Relevance to the WSSMP
		developed for this project. The main risk is associated with inappropriate implementation of SEP.

1.3 Role and objective of the ESMP

This ESMP was prepared for the sub-project "PRESSURE PIPELINE PUMP STATION BILETIĆ POLJE - WATER RESERVOIR JELINA GLAVICA AND WATER RESERVOIR JELINA GLAVICA V = 2 × 2.000 m³ – MUNICIPALITY ČITLUK ". Environmental and Social Management Plan (ESMP) for this sub-project was prepared in accordance with the Environmental and Social Management Framework (ESMF) as part of the Water and Sanitation Services Modernization Project in BiH (WSSM).

The goal of the ESMP for sub-project Pressure pipeline pump station Biletić Polje - water reservoir Jelina Glavica and water reservoir Jelina Glavica V = 2 × 2,000 m³ is to: (i) analyze the policies, legal and administrative framework relevant to the construction of water supply infrastructure, (ii) analyze the available basic data on environmental issues and trends, (iii) identify possible negative and positive impacts of the project on the environment, society and propose mitigation measures, (iv) specify the key criteria for monitoring the quality of the environment and social issues in the area of project implementation; (v) develop guidelines for environmentally friendly construction practices; (vi) assist in the inter-institutional coordination and process of public/NGO discussions and (vii) to integrate the significant features of the developed SEP, LMP and ESMF documents for the WSSM.

As mentioned in the introduction, according to the ESMF project impacts are classified as "high", "moderate", "low" and "minor/no impact" based on the size of the project and the scope of works (new construction, repair and maintenance). The sub-project activities for design/project "Construction of a new pressure pipeline and expansion of the water reservoir" were classified as moderate risk from environmental and social aspects according to the screening and risk assessment prepared by PIU's E&S expert based on stakeholder input and WSSM ESMF guideline. Subproject activities are simple and relatively easy to implement.

Prepared by the PIU, the ESMP is aligned with the requirements of the Environmental and Social Management Framework for the Federation of BiH (ESMF), relevant environmental and social standards (ESS) and environmental regulations of the Federation of BiH.

The sub-project includes construction works, which means that the scope of work requires the applying of ESS1 (Assessment and Management of Environmental and Social Risks and Impacts).

The work will involve Project workers (direct and contracted), which requires applying ESS2 (Labor and Working Conditions).

Work activities use resources and generate waste, which leads to the application of ESS3 (resource Efficiency and Pollution Prevention and Management).

Moreover, activities and equipment may increase the community's exposure to the risks and impacts of project implementation, therefore ESS4 (Community Health and Safety) should be applied to address the health and safety risks and impacts on the community.

ESS5 (Land acquisition, restrictions on land use and forced displacement) will not be applicable to the activities under this Agreement, because the actual acquisition of land for the purposes of project implementation is not foreseen.

In addition, ESS6 (Conservation of Biodiversity and Sustainable Management of Living Natural Resources) is not relevant, as the sub-project does not involve and will not affect biodiversity or natural resources and is not implemented in protected nature areas.

ESS7 (Indigenous peoples) and ESS9 (Financial intermediaries) are not relevant, because there are no indigenous peoples and the sub-project does not include financial intermediaries that could be affected by the implementation.

Although there are no cultural heritage areas near the project sites, ESS8 (Cultural Heritage) remains relevant to this project due to land excavation.

Furthermore, open and transparent engagement with the subproject's stakeholder is an essential element of good international practices, therefore, ESS10 (Stakeholder Engagement and Information Disclosure) will be applied to ensure the environmental and social sustainability of the subprojects, enhance subprojects acceptance and make a significant contribution to successful design and implementation throughout the subproject life cycle.

The subproject is obliged to comply with the Labor Management Plan (LMP) regarding labor working conditions and Occupational Health and Safety (OHS) standards to address any related issues. Additionally, the Stakeholder Engagement Plan (SEP) will be followed for consultation and information disclosure.

It is expected that, for the purposes of this project, the ESMP will effectively manage the potential impacts and risks during implementation through the measures defined within it. These impacts are anticipated to be manageable, temporary, and localized, as they pertain to general construction activities.

Furthermore, it is important to note that the ESMP will be disclosed, consulted and disseminated to stakeholders and available on the websites of the Ministry of Agriculture, Water Management and Forestry of the Federation of Bosnia and Herzegovina; PIU and the Citluk Municipality, as well as the World Bank.

2 SUBPROJECT DESCRIPTION

Municipality Čitluk (Brotnjo) is part of Herzegovina-Neretva County (Federation of Bosnia and Herzegovina) and covers an area of 181 km2. The municipality of Čitluk borders the cities: Mostar, Čapljina, Ljubuški and Široki Brijeg. Terrain descends towards Mostarsko Blato northeast of the Municipality and southwest towards Trebižat Valley, and on its southeast side towards the course of the Neretva River.

The municipality of Čitluk has nominated a sub-project under the Project titled 'Improvement of Water Supply Security, Rationalization of the Transport System, Phase I - Pressure Pipeline Pumping Station Biletić Polje - Water reservoir Jelina Glavica and Water reservoir Jelina Glavica V = 2 × 2,000 m³ "

The objective of this project is to improve the system of public and utility services by enhancing the current operation of the water supply system, which includes the construction of a new pressure pipeline and the upgrade of the existing one, i.e., the construction of a new water reservoir with an increased capacity of 4000 m³. These are fundamental facilities for the entire water supply system of Čitluk municipality. Upon completion of the planned activities, the operation and maintenance of the water supply system in question will be improved.

2.1 Existing water supply system in the project area

Water sources and amounts

The service area of the water supply system of the municipality of Čitluk covers the entire area of the municipality, except for the part of the settlement along the Neretva River (Biletić Polje and Krućevići); as well as parts of neighboring municipalities – Miletina in the municipality of Ljubuški and Sretnice – the urban area of Mostar city.

The Čitluk water supply system has a water source with 4 captured wells, located in the **watershed** of the Neretva River in Biletić field, municipality of Čitluk. After being pumped from these wells into the pumping station's reservoirs, the water is pressurized into the Jelina Glavica reservoir, which serves as the starting reservoir for the distribution of water throughout the entire supply area.

- The Biletić Polje pumping station was built in the 1980s, and it is designed to pump water at a rate of 215 l/s, which is achieved by installing 4 pumping units;
- Existing pressure pipeline is constructed as two separate pipeline in corridor of approximately 5-6 m, with numerous issues in operation and significant losses;
- Jelina Glavica water reservoir is a transitional reservoir for the water supply system of the municipality of Čitluk. It serves as a distribution reservoir for a large part of the water supply system (City of Čitluk and Međugorje) and as a transport reservoir for the remaining part of the system. It is circular in shape with a pre-chamber – a valve chamber, with a volume of 2x1000 m³, which is insufficient taking into account its role in the water supply system. A chlorination station has been built alongside the reservoir.

The reservoir has a capacity of 2000 m³, which in the summer months does not meet the minimum safety requirements for water supply, as it is too small for the area it serves. The "Jelina Glavica" reservoir supplies settlements that had water supply systems built before 1990, as well as pumping stations that supply water to settlements whose water supply systems were constructed as part of the famous initiative: "Water for the Life of Brotnjo.».

In order for the settlements that received water as part of this initiative to have normal water pressure, the water pressure must be increased by a factor of 1-5. This means that in some areas, the pressure needs to be increased by up to five times the normal level. The height of the water lift for these settlements ranges from 420 to 550 meters. All of this is achieved through two pumping directions, with a total of 7 pumping stations and 4 reservoirs constructed. This highlights how complex the system is, and it can be said that it is one of the

most complex systems in Bosnia and Herzegovina. The height of the water lift, as indicated by the aforementioned facts, shows that this is the highest water lift in all of Bosnia and Herzegovina, and even beyond.

Due to the operational issues in water supply system, municipality Čitluk invested in drafting the documentation in order to identify these problems and propose the sequence of problem solving. The development of project documentation presented the main issues of the current functioning of the water supply system in the municipality of Čitluk and established guidelines for further actions in its development, as well as priorities for investing in the improvement of the existing water supply system in Čitluk. This includes the construction of a new pipeline and the upgrade of the existing or the construction of a new water reservoir. Main designs have been completed by company „Integra“ ltd. Mostar in March 2009. (Design Id number: PR-H-1G/2009-1 and PR-H-1G/2009-2), and were reviewd and updated in January 2026 by the same designer (Design Id number: PR-H-01G/2026 and PR-H-01G/2026-1). Following these updates, the main designs were subject to audit in the same month by the design company “Habitat” d.o.o. Mostar, also in January 2026.

The Municipal Service for Spatial Planning, Property and Legal Affairs, and Land Cadastre – Department for Urbanism and Construction – Čitluk Municipality has issued the following decisions:

a) Approval for the construction of a pressurized pipeline from the pumping station Biletić Polje to the water reservoir Jelina Glavica – phase I, issued on 19 July 2024, No.: UP-06-01-19-2-705/24, amended on 5 February 2026 by the Amendment of the Approval No.: UP-06-01-19-2-132/26: and
b) Approval for construction of water reservoir Jelina Glavica V=2 x 2000 m^3 - phase I in Blizanci, issued on on 19 July 2024, No.: UP-06-01-19-2-706/24,amended on 5 February 2026 by the Amendment of the Approval No.: UP-06-01-19-2-133/26;

Price and conditions of water services

Currently, the Čitluk Municipality water supply system serves approximately 20,000 residents, with 6,427 metering points, and the water billing collection rate from households is 98%. The length of the water supply network in the Čitluk Municipality is approximately 200 km, of which around 90 km pertains to the primary water supply network. All settlements within the Čitluk Municipality, as well as settlements in the city of Mostar and the municipality of Čapljina that are in the vicinity of Čitluk, are covered by the water supply network. The public utility company "J.P. Broćanac d.o.o. Čitluk" is responsible for the maintenance of the water supply network. 500,000 KM is spent annually on the reconstruction and maintenance of the water supply network.

The water price is uniform for all users, but there are two different rates based on the amount of water consumed:

- 1,60 KM/m^3 for monthly water consumption up to 25 m^3 per metering point;
- 2,10 KM/m^3 for monthly water consumption over 25 m3 per metering point.

2.2 Technical description and location of the subproject

Planned activities

Project objective is improvement of Water Supply Security, Rationalization of the Transport System in Čitluk municipality which includes the following:

- Construction of a pressurized pipeline from the pumping station Biletić Polje to the water reservoir Jelina Glavica;
- Construction and increase the capacity of water reservoir Jelina Glavica.

Construction of a new pressurized pipeline

The pressurized pipeline route is adopted according to the request from ToR respecting the limitations on the route itself. Total length je L= 2728,87 m.

The separate operation of the new pressurized pipeline and the existing pressurized pipes has been ensured, which will remain operative after the construction of the new pressurized pipeline. The pressurized pipeline is connected to the outlet shaft near the pumping station. In the relevant shaft, the connection of the existing pressurized pipelines (DN 300 mm) has been made, and the possibility of connecting the new pressurized pipelines has been established.

Considering that the newly designed water reservoir will function together with the existing one, the new pressure pipeline is connected directly before the junction with the new water reservoir to the existing pressure pipelines that are connected to the existing water reservoir.

Ductile iron pipes (ductile) have been selected according to international standards EN 545.

Structures at the pressure pipeline

- starting manhole/shaft;
- non return valve manhole;
- manhole - Installation point for connecting the new pressurized pipeline to the existing water reservoir;
- anchor blocks;
- stabilization sills;
- hectometer poles (each 100m)

Construction of the new water reservoir

Construction of new water reservoir is planned (V= 2x2000 m^3). New water reservoir is designed at the bottom height of 300,80 m above sea level as the existing water reservoir due to possibility of mutual functioning, so total volume upon construction of new water reservoir will be V= 6000 m^3. This volume will significantly increase the liability in exploitation of Čitluk water supply system and ensure its operation.

Simultaneous and separate operation of the existing and new water reservoir has been ensured. This was achieved by connecting the newly designed pressure pipeline to the existing pressure pipelines in the junction chamber.

The new water reservoir has two (2) rectangular-shaped water chambers with internal dimensions of 30.00x15.00 m, a height of 5.5 m, and are structurally completely separated; there is a free space of 80 cm between them, which ensures the possibility of separately constructing the water chambers.

At the locations of the water intakes from the water chambers, the bottom of the chambers has been lowered by 1.70 m, creating a space with dimensions of 2.10×1.50 m, where the suction baskets and the baskets for sludge (foundation) discharge are placed.

- the walls of the water chambers are 35 cm thick, with slight reinforcements at the junction with the bottom slab, with height of 125 cm and a thickness of 25 cm; the roof reinforced concrete slab has a thickness of 15 cm.
- thermal insulation – Styrofoam with a thickness of 8 cm – is designed along the external surfaces of the walls, which is protected by a wall of concrete blocks.
- On the interior side of the walls, a finish with plastic 'Sika' plaster is provided to ensure waterproofing.

Valve chamber

The closing (or reinforcement) chamber within the reservoir is designed as a separate structural unit. The dimensions of the closing chamber at the base are 4.2×8.4 m. It is divided into two levels:

- The lower level contains the appropriate hydro mechanical equipment for the water reservoir;

- The upper level is used to accommodate the control and electronics cabinets, as well as a space that provides access to the water chambers via a steel staircase.
- The load-bearing structure of the valve chamber is made of reinforced concrete walls with a thickness of 25 cm. The roof slab is 15 cm thick and is supported by the front wall and the reinforced concrete beam on the opposite side with a cantilever extension above the water chambers to cover the openings in the upper slabs of the water chambers.

Hydromechanics equipment in valve chamber –pump station

Pipe distribution has been envisaged in valve chamber as follows:

- Supply pipe Ø 500 mm with branching into 2x Ø 300 mm;
- Drainage with 2x Ø 300 mm intakes, which merge into Ø 500 mm;
- Overflow Ø 300 mm which connects with sludge discharge Ø 100 mm;

With installation of rebar, fittings and pipes.

Fence around the water reservoir

The construction of a metal fence with an entrance gate on the access road is planned to protect the facility from unauthorized entry. In this context, it will be integrated with the existing fence of the water reservoir, so there will be a single point of entry into the water reservoir area.

Description of construction works

Figure 1: The location of the planned construction of the pipeline and the new water reservoir (source: GOOGLE EARTH – 2024)

Specific works at the facilities

Pressure pipeline:

I- PREPARATORY WORKS / Staking out the water supply pipeline; Saw-cutting and removal of the existing asphalt pavement at trench excavation locations; Saw-cutting and removal of existing concrete driveways at vehicle access points to residential houses; Construction of an access road/platform for an excavator from the connection manhole near the pumping station to the to the Kameno Vineyards plateau.

II- EARTH WORKS / Mechanical excavation of the surface/loose layer ('cleaning layer') with an average thickness of approximately 10 cm; Mechanical excavation of pipeline trench in soil categories V and VI; Levelling of the full width of the pipeline trench bottom after excavation; Creation of a sand bedding at the trench bottom with a minimum thickness of 10 cm; Backfilling a sand layer around the pipe and above the pipe crown to a minimum height of 30 cm; Backfilling of the remaining part of the pipeline trench with selected material from the excavation; Installation of a bedding layer, i.e., crushed stone, on pipeline sections beneath the road structure or at pipeline excavation locations; Transport of excess excavated material (in a compacted state) from the temporary construction site deposit to a permanent construction material location at a distance of approximately 5 km.

III- CONCRETE AND REINFORCED CONCRETE WORKS / Casting of a 10 cm thick unreinforced concrete bedding layer beneath the foundation slab of the shaft; Casting of the reinforced concrete (RC) foundation slab of the shaft, the shaft walls, and the flat slab of the shaft with 25 cm thick concrete; Casting of concrete anchors beneath shaped and reinforcement pieces within the structure/shaft along the pipeline; Casting of concrete anchor blocks at locations of horizontal pipeline bends and at locations with steep longitudinal pipeline slopes ; Construction of reinforced concrete stabilization sills on the pipeline where the terrain slope is greater than 20%; Procurement, transportation to the installation site, cutting, bending, fabrication, and installation of reinforcement made of reinforcing steel .

IV- ASSEMBLY WORKS / Procurement, transportation, distribution along the trench, lowering into the trench, and assembly of sewer pipes, pressure water pipes with sockets, and water pipe bends/elbows with sockets; Installation (assembly) of shaped and reinforcement pieces for the junction shaft, starting shaft, check valve shaft, and air valve shafts; Installation of covers with fittings (frames) on shafts/pipeline structures.

V- FINISHING WORKS / Paving of the road carriageway at pipeline excavation locations with a structural-wearing asphalt layer; Casting of driveway slabs at residential entrances at pipeline excavation locations with 15 cm thick concrete, including reinforcement mesh; Procurement and installation of warning/safety tape in the trench during pipeline laying; Cleaning, disinfection, and flushing of the completed pipeline; Testing of the completed pipeline for watertightness (pressure test); Installation of hectometer posts along the pipeline route; Preparation of an as-built pipeline project including all structures with mapping onto cadastral bases for approval.

<u>Water reservoir (Jelina Glavica):</u>

I - PREPARATORY WORKS / Staking out the structure, clearing the site of vegetation, construction of a maneuvering platform for construction machinery, and provision of all necessary conditions for the uninterrupted execution of works;

II - EARTH WORKS Excavation of degraded rock at the water reservoir location to a depth of 80 cm; Excavation of the foundation pit (forming the platform for embankment construction); Construction of an embankment for the placement of the water reservoir; Rough and fine leveling of the bottom of the excavation pit; Construction of a tampon layer with a height of h = 0.4 m; Backfilling and creation of a platform in front of the facility, 30 m in length; Spreading of topsoil on the embankment slopes in a 20 cm layer; Machine excavation for the expansion and deepening of the trench at locations designated for the construction of chambers in soil categories V and VI; Transport of excess excavated material to the disposal site.

III - CONCRETE AND REBAR WORKS / Placing of blinding concrete, concrete in the foundation slab and in the walls of the gate valve chamber; placing of concrete in the central slab, beams, columns, roof slab, roof parapets, internal and external staircases, and in the canopy in front of the entrance to the gate valve chamber; placing of blinding concrete, concrete in the foundation slab and manhole, in the walls, in columns with capitals, in the roof slab, in the roof parapets, and in part of Water Chamber 1 and Water Chamber 2; installation of reinforcement in the gate valve chamber, Water Chamber 1 and Water Chamber 2; placing of concrete and installation of reinforcement in the manholes;

IV - SHEETMETAL WORKS / Manufacturing, delivery, and installation of double-wing doors (200x180 cm); single-wing windows (180x130 cm); Manufacturing, delivery, and installation of ventilation openings in the sealing chamber; Manufacturing and installation of an iron fence on the concrete staircase in the sealing chamber. The fence is 90 cm high; Manufacturing and installation of an iron prefabricated staircase for access to the water chamber; Manufacturing and installation of prefabricated ladders for descending into the water chamber; Installation of a rainwater grating in the left corner of the floor slab of the gate valve chamber; Delivery and installation of steel hooks and steel support plates for installation and dismantling of hydromechanical equipment; Procurement, delivery, and installation of a fence around the site and the entrance gate; Installation of manhole covers with frames on pipeline manholes/structures;

V- MASONRY WORKS / Masonry wall of hollow clay bricks laid in cement mortar above the water chamber; Masonry construction of a protective wall for vertical waterproofing around the gate valve chamber and the water chamber; Rough and fine plastering of the protective wall of thermal insulation with cement mortar; finishing of the internal surfaces of the water chamber with 'Sika' plastic mortar; rough and fine plastering of hollow brick walls on the exterior and interior with cement mortar; rough and fine plastering of parapet walls above the gate valve chamber and water chambers on the interior side with cement mortar; rough and fine plastering of external and internal concrete wall surfaces, as well as ceilings of the gate valve chamber with cement mortar; application of cement screed on concrete stairs, landings, and floor slab;

VI- INSULATION WORKS / Procurement of materials and installation of vapor barrier, thermal and Hydro Insulation. The material that will be used for these purposes will be completely environmentally friendly (For hydroinsulation – Bitulit, Bitumen; and for termoinsulation – Tervol).

VII - METAL WORKS / Manufacturing of horizontal and vertical gutters with a rectangular cross-section made of galvanized sheet metal; Manufacturing of flashing for the parapet wall ends with galvanized sheet metal around the sealing and water chambers;

VIII - PAINTING WORKS / Painting of the interior walls of the sealing chamber with a primer paint; Painting of the exterior walls of the water chambers and sealing chamber with white facade paint.

IX - OTHER / Concrete design; Testing of the new water chamber for watertightness; Detailed cleaning and removal of excess materials from the reservoir area to a disposal site located up to 3 km away.

X - ASSEMBLY WORKS / Installation of shaped and reinforcement components for the manhole connecting the outlet pipeline from the new water reservoir to the existing outlet pipeline; Installation of shaped and reinforcement components for the inlet pipeline in the gate valve chamber, for the overflow and sludge outlet of the water chambers in the gate valve chamber, and for the outlet pipeline in the gate valve chamber.

3 ENVIRONMENTAL CONDITIONS AND SOCIAL CONDITIONS

3.1 Geographical and other natural characteristics of the project area

3.1.1 Geographical position and geomorphology

Municipality Čitluk (Brotnjo) is part of Herzegovina-Neretva County (Federation of Bosnia and Herzegovina) and covers an area of 181 km^2. The municipality of Čitluk borders the cities: Mostar, Čapljina, Ljubuški and Široki Brijeg. Terrain descends towards Mostarsko Blato northeast of the Municipality and southwest towards Trebižat Valley, and on its southeast side towards the course of the Neretva River.

Figure 2: Geographical location of the Municipality of Čitluk in BiH

There are 27 local communities in the Municipality of Čitluk, which, along with the municipal center Čitluk, **extend to** the following settlements: Bijakovići, Biletići, Blizanci, Blatnica, Dobro Selo, Čalići, Čerin, Dragićina, Veliki Ograđenik, Mali Ograđenik, Gradnići, Hamzići, Krehin Gradac, Krućevići, Međugorje, Paoča, Potpolje, Služanj, Tepčići, and Vionica. Due to its position between the continental hinterland to the west and northwest on one side, and the Neretva valley to the east and southeast on the other, the municipality of Čitluk has an exceptionally good geographical location. The highest point of the municipality of Čitluk is located on the Trtla mountain at 582 meters above sea level, while the lowest point is in the settlement of Krućevići, which is 22 meters above sea level.

Figure 3: *Inner urban area of the Municipality of Čitluk*

The distribution of settlements according to elevation ranges from the settlement of Krućevići, which is located at 25 meters above sea level, to the settlement of Garišta, which is located at 400 meters above sea level. According to the Basic Geological Map (BGM), Mostar sheet, the area is composed of limestones of Upper Cretaceous age, part of the Stolac-Čitluk tectonic unit. It is represented by a typical karst plateau at an elevation of 300 to 400 meters above sea level.

3.1.2 Climate and climate change

The climate in the municipality of Čitluk is Mediterranean, with exceptionally long, hot, and dry summers, and mild winters, at least for the part of the municipality that is predominantly (99%) inhabited and where *economic operations* and everyday life take place. A very small portion of the municipality of Čitluk extends into a mountainous area, specifically in the region of Trtla mountain, so it can be said that Čitluk also experiences mountain climates in these areas. The municipality of Čitluk receives about 1,700 hours of sunshine per year, or around 170 days annually (these figures are estimated based on surrounding data analysis). The average annual **precipitation** in the municipality of Čitluk is about 1,200 mm.

The Federal Hydro Meteorological Institute does not have data directly related to the Municipality of Čitluk, but it is considered that the data from the Meteorological Station Mostar is valid for the mentioned area:

Table 3: Average annual temperature and precipitation in the territory of Mostar for the period2001-2023

METEOROLOGICAL STATION MOSTAR 2001 - 2023												
Month	**I**	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**	**IX**	**X**	**XI**	**XII**
Average temp (°C)	5.9	7.5	10.8	14.6	19.3	23.9	26.9	26.5	21.2	16.1	11.2	7.2
Max. Temp (°C)	20.0	24.9	26.6	31.6	35.6	41.2	42.5	43.1	38.6	30.9	27.4	19.8

METEOROLOGICAL STATION MOSTAR 2001 - 2023												
Month	**I**	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**	**IX**	**X**	**XI**	**XII**
Min. Temp (°C)	-9.3	-7.4	-5.7	-1.2	5.9	8.0	13.6	11.9	7.4	2.8	-2.6	-7.8
precipitation mm	163.1	143.8	131.9	117.9	100.5	73.1	49.6	61.1	127.7	135.5	187.2	166.7

(Source: Federal Hydrometeorological Institute of BiH)

3.1.3 Air quality

There are no measurement stations for monitoring air pollution in the municipality of Čitluk. However, based on the indicators from measurement stations outside the municipality of Čitluk, which show that pollutant emissions are low and below the limit and recommended values, as well as the fact that no significant air pollutants have been recorded in the area, we can conclude that the air in the municipality of Čitluk is relatively clean.

3.1.4 Noise

There is no noise map in Čitluk. Outdoor noise is measured as necessary in accordance with the environmental impact assessment procedures.

Noise in the communal environment comes mostly from traffic. In addition to noise in the environment caused by vehicles in traffic, increased levels of noise and vibration can occur from various sources (industrial facilities, hospitality industry, etc.).

Problems with noise are most often the result of poor planning of space and poor organization of residential and business zones.

3.1.5 Hydrology and water quality

The sector in which Čitluk is the poorest in terms of natural potential is surface water. The only permanent watercourse is the river flow of the Neretva, which touches the edge of the municipality of Čitluk over a stretch of approximately 9 km. Other watercourses are primarily associated with rainy periods, i.e., autumn and winter, when numerous underground flows emerge to the surface. The most significant of these is the Lukoć stream, which originates at the edge of the Broćansko field at the Elezovac spring in the village of Hamzići, flows through the entire field, and along the edge of Čitluk passes through Međugorje, eventually flowing into the Studenčica River in Studenci. Not as long, but still quite significant, is the watercourse of the Dunajac stream, which originates in the village of Biletić Polje and flows into the Neretva River. In close proximity to the Dunajac and Neretva is the water intake for the entire municipality of Čitluk, at an elevation of 24 meters above sea level. Additionally, in the autumn and winter period, after several days of precipitation, the underground springs at the edge of the Broćansko field become active, leading to the flooding of the entire Čitluk field. This water then flows through the Lukoć stream, passing through a dam built in the 1950s, which was originally designed as an irrigation accumulation system for the Međugorje field, but now serves to protect the central part of Međugorje from flooding.

3.1.6 Hydrography and floods

The entire area of the municipality of Čitluk belongs to the Neretva River basin, and all surface and underground waters from the municipality of Čitluk flow, either directly or indirectly, into the Neretva. The Neretva flows through the eastern part of the municipality, continuing south through Bosnia and Herzegovina and flowing into the Adriatic Sea south of Metković (Republic of Croatia). The Neretva River, with its tributaries, holds significant socio-economic and ecological value for both countries, for Bosnia and Herzegovina as well as for Croatia. These

administrative boundaries within the river basin and coastal area indicate the need for joint, planned management of these water resources on a bilateral basis and in accordance with existing conventions. In addition to its substantial hydroelectric potential and importance as a water source for water supply and irrigation, the Neretva River also holds exceptional ecological value. Namely, the lowland section of the river has not been drained and has been left as a wetland in its natural form. The lowland part of the Neretva river mouth, i.e., the Neretva delta, along with the Kuti marsh reserves in Croatia and Hutovo Blato in Bosnia and Herzegovina, forms one of the most important wetland areas in the Mediterranean. It is very rich in plant and animal species and, among other things, has been included in the Ramsar Convention list as a globally important bird habitat and a significant destination during the winter period for migratory birds traveling from Central and Northern Europe to Africa. It is also a habitat for a large number of fish and diverse vegetation with many endemic species. It is important to emphasize that the wetland is not located near the construction site, it is situated in the Neretva river valley that flows along the eastern border of the municipality for approximately 8 km. Another significant permanent surface water resource is the Dunajac stream, which originates in the settlement of Biletić Polje, in close proximity to the Neretva River, and after a short flow, it flows into it. Near the mouth of the Dunajac stream into the Neretva is also the water intake for the municipality. The longest intermittent water resource in the municipality is the Lukoć stream, which forms during the rainy season. One branch of the stream originates in the western part of the municipality and flows through the entire Brotnjo field, where it meets another branch of the same stream coming from the north of the municipality, passing through Čitluk, continuing through Potpolje, Bijakovići, and Međugorje, and then continues its flow through the municipality of Ljubuški, where it flows into the Studenčica River in Studenci, eventually reaching the Neretva River via the Trebižat River. The area of the "Brotnjo" plateau is rich in underground waters, and recently, a number of wells have been established (private investments by business entities) which have a substantial water capacity. These wells include those in the Business Zone Tromeđa-Međugorje, two wells at "Herceg Ethno Village" and "Barpeh," in the vicinity of the SC Circle Međugorje, Majčino Selo in Bijakovići, and Blatnica).

It is important to note that in the recent period, no floods have been recorded in the project area that could affect the regular water supply to the population. At the end of August 2025, heavy rains caused floods in Čitluk, particularly damaging the City Sports Hall, but they did not affect the area covered by the subproject.

3.1.7 Geology

Area of Municipality Čitluk is located on Brotnjo plateau. Distribution of inhabited settlements spreads from Local Community Krućevići located on 25 m above sea level, all the way to settlement Garišta located on 400 m above sea level. According to Main Geological Map (MGM), sheet Mostar, soil is limestone of Upper Cretaceous age in composition of Stolac-Čitluk tectonic unit. It is represented by typical karst plateau on the elevation of 300 to 400 m above sea level.

3.1.8 Seismology

Čitluk Municipal Council, by the Decision on the Adoption of the Assessment of Vulnerability to Natural and Other Disasters, has defined the project area as Zone VIII and IX on the Mercalli-Cancani-Sieberg (MCS) seismic intensity scale.

3.1.9 Soil and erosion

Micro location where **reservoir** is built represents smaller anticline terrace built of fine-grained limestone of equal mechanical and chemical properties. It leads to equal wear of main rock, subject especially to frost, and creation of thicker degradation zone that those processes penetrated into. Thickness of this zone is approx. 1.5 m, and it can be divided into the zone of total degradation where worn material is partially mobile and zone of degradation in which material is not mobile, and it is still in fused condition. Zone of total degradation of the rock needs to be removed during construction of the object and it is of estimated thickness of around 80 cm. The position and thickness of the layers could not be measured, but it is estimated to be around 90/20.

Figure 4: *Location of existing and area for construction of new reservoir*[2]

Pipelines shall be laid in or along the roads.

Figure 5: Planned pipeline route and area in immediate vicinity of planned route

3.1.10 Waste management

In the municipality of Čitluk, organized collection of municipal waste and regular transportation to the local landfill are carried out. It is estimated that about 90% of the municipality is covered by organized waste collection. This percentage of waste collection in containers has been ensured by placing containers at three locations in the local communities. In this way, all residents of the respective local community are given the opportunity to dispose of waste in the provided containers. About 10% of households are not covered by organized waste collection due to the large distance of containers from households where elderly and sick people live. Waste in the municipality of Čitluk is disposed of at the "Stražnica" landfill, which has a local

[2] Proposed location for the construction of the new pipeline and water reservoir, as well as old one, is on public property, expropriation is not required, and the building permit has already been obtained.

character, and disposal must take place at this landfill until the regional landfill "Uborak" in Mostar becomes operational. The landfill itself does not meet all sanitary standards, but due to the inability to dispose of waste at other locations, the municipality invests around 90,000 KM annually for the arrangement and maintenance of the landfill. The landfill is located at an elevation of 420 meters above sea level and covers the areas of the local communities of Gradnići, Dobro Selo, and Čitluk Selo. It is 8 km away from the town center, and approximately 800 meters from the first residential buildings.

The management of waste (including hazardous waste) is regulated by the Law on Waste Management (Official Gazette of FBiH, No. 33/03, 72/09, 92/17 and 72/24) and its by-laws, while the development of construction waste management plans is regulated by the Law on Spatial Planning and Land Use at the Level of FBiH (Official Gazette of FBiH, No. 2/06, 72/07, 32/08, 4/10, 13/10, 45/10, 85/21, 92/21 and 72/24), as part of procedure for issuing of construction permits.

3.1.11 Flora, fauna and landscape

In the municipality of Čitluk, the area covered by forests is 3532.8 ha (special purpose forests) and 1748.0 ha (protection forests), classified into two categories: I and II. The largest category is occupied by protection forests Š1 (which are listed here as the first category with an area of 3532.8 ha) and special purpose forests Š2 (which are the second category forests with an area of 1748.0 ha. Agricultural land covers 8654 ha (47.8% of the municipality's area). Of this, 3120 ha is allocated to the first category, i.e., high-value agricultural land. According to the spatial plan of the municipality of Čitluk, areas with land of the I category (high-value agricultural land) may only be used for primary agricultural production. Class I land may only exceptionally be used for economic and infrastructural facilities that serve agricultural activities when there is no land of lower quality categories nearby. Areas with land of category II (valuable agricultural land) must be part of the integrated development strategy of the municipality of Čitluk, designated for agricultural production with at least 50% of the area. In this process, it is necessary to protect the most valuable lands, as well as those where agro technical measures can improve their quality. The spatial plan protects larger areas of agricultural land (P1, P2, and P3) by excluding them from the construction area. The exclusion from the construction area fulfills the primary task of preventing the loss of agricultural land to construction areas. In other areas of land outside the construction zone, there are no restrictions regarding land use change, but it can only be used in accordance with the provisions for implementing this plan. Soil contamination levels in the municipality of Čitluk have not been tested. Actions to address soil contamination from acidification and heavy metals need to be carried out in a broader area beyond the municipality of Čitluk. A special problem of soil pollution is contamination caused by the extraction of mineral resources and construction activities. Sand in the Čitluk area has been exploited in an unorganized and haphazard manner. There is no record of the number of such locations, so it is necessary to conduct research on the consequences of uncontrolled sand extraction and to rehabilitate these areas. In order to form areas for intensive agricultural production, utilizing drainage and irrigation, the preparation of an analysis – a report on the possibilities and necessary measures for ensuring water for irrigation and protecting these areas from external waters – is planned. Land of category II includes land of V and VI quality classes. Plans to be developed in the future should protect the most valuable, deepest areas with favorable natural drainage and minimal stoniness, as well as anthropogenic land of this category within the boundaries of the construction area. Protection of this land should be ensured by planning residential zones with lower population density, where agricultural land will be appropriately integrated, protected, and used for small farms and household plots.

Čitluk is one of the regions in Bosnia and Herzegovina that can be described as having a sub-Mediterranean climate, with mild, rainy winters and warm, dry summers, allowing plants such as grapevine, fig, olive, almond, apricot, walnut, peach, cherry, sour cherry, oak (sessile and pedunculate), hornbeam, spiny broom, juniper, ash, boxwood, and various medicinal and aromatic herbs to grow. The number of sunny days is significantly higher than the number of rainy days, and the amount of sunlight, expressed in hours, is around 2340 hours per year. The average annual precipitation is about 1500 mm. The most widespread types of soil in the Čitluk area are mineral-carbonate soils, specifically colored types – red and brown soils. The youngest fluvial-alluvial soils are

found in the Neretva Valley, and there are also eroded soils. These soils are the most favorable for growing grapevines, especially the famous varieties of Blatina and Žilavka. The climate, soil, and altitude have determined the flora and fauna of the Brotnjo plateau. This area lies in the sub-Mediterranean lowlands of Herzegovina, and the Neretva Valley is influenced by the Adriatic Sea, which are the very factors that have determined the vegetation of the municipality. High summer temperatures influence the development of Mediterranean species. Cooler winters limit the life of evergreen Mediterranean species, and instead, sub-Mediterranean vegetation has developed. The plant and animal life of the Mediterranean region is adapted to the rocky soil and Mediterranean climate with hot summers, humid autumns, mild winters, and strong winds. Plants and animals form an inseparable community – a biocenosis. This area is home to: hares, foxes, badgers, weasels, wolves, numerous bird species, as well as venomous and poisonous snakes (e.g., horned viper, European adder) and other non-venomous snakes, amphibians, and lizards.

3.1.12 Protected areas

In accordance with the written statement of the Mayor of the Municipality of Čitluk, the proposed location for the construction of a new pressure pipeline and the expansion of the water reservoir's capacity does not fall under any type of protected area, historical or cultural site, nor any critical aquatic or terrestrial habitat. The proposed project is not located in an ecologically sensitive or hazardous zone. In accordance with the Federation of Bosnia and Herzegovina's regulations on environmental protection, it is not necessary to conduct an environmental impact assessment for the proposed project.

3.1.13 Cultural and historical heritage

In the Municipality of Čitluk, there are 2 protected national monuments, 4 monuments are on the Provisional List, and 2 are on the Petition List.

Protected national monuments:

- *The "Mainovac" cemetery and the Bedra area as a presumed archaeological site, historical area,*
- *Hajduk Tower on Kručevića Hill, historical building.*

Provisional List of National Monuments includes following:

- *P1 Brdo Križevac – Međugorje,*
- *P2 Church of St. Blaise – Gradnići,*
- *P3 Church of St. Jacob – Međugorje,*
- *P4 Church of St Stephen – Čerin.*

Petition List for declaring national monuments:

- *L1 cemetery „Gomila" in Donji Veliki Ograđenik,*
- *L2 The residential building "Stari tavan" in Donji Veliki Ograđenik.*

The protection measures established by the Law on the Implementation of the Decisions of the Committee for the Protection of National Monuments, established in accordance with Annex 8 of the General Framework Agreement for Peace in Bosnia and Herzegovina (Official Gazette of FBiH, No. 2/02, 27/02, 6/04 and 51/07) apply to these monuments.

None of the objects that have been recorded as cultural and historical monuments so far is on the route of the planned works or in the zone of direct impact of the project.

3.2 Socio-economic characteristics of the project area

3.2.1 Demographic characteristics

According to the latest population census from 2013, the Municipality of Čitluk has 18,140 inhabitants. Čitluk, along with the municipalities of Neum and Čapljina, is the only municipality in the Herzegovina-Neretva Canton

that recorded an increase in population compared to the 1991 census. Specifically, according to the 1991 census, the municipality of Čitluk had 15,083 inhabitants. Compared to that period, the population has increased by just over 18% according to the 2013 census.

The trend of population growth is expected to continue in the future. According to data from the Federal Institute for Development Programming, in 2016, the municipality of Čitluk recorded more births than deaths, resulting in a positive natural population increase compared to the previous four-year period. In comparison to other local self-government units in the Herzegovina-Neretva County, as well as to the Herzegovina-Neretva County as a whole in the same period, the municipality of Čitluk was the only one to record a positive natural population increase in 2016.

According to the 2013 census, the municipality of Čitluk's population average age is 38.2 years, with the working-age population (between 15 and 64 years of age) making up 65.3% of the total population.

The proportion of the population under 15 years of age is constantly declining, while the proportion of those aged 25 to 65 and over 65 years is increasing. This shows us that the municipality of Čitluk is experiencing an aging trend, even though the total population is increasing. In 2017, according to the estimate of the present population in the municipality of Čitluk, there were 2,928 people under the age of 15, which accounted for 16% of the total population. The increase in the population during this period occurred for several reasons, namely:

- The migration of a certain number of families from other parts of Bosnia and Herzegovina and abroad, primarily to the areas of Međugorje and Bijakovići. During the war, some families were forced to leave their homes, and after the war, a certain number of families relocated due to business activities related to tourism.
- The second reason for the increase in population is the return of people working abroad, primarily after they have secured the right to a pension. In both cases, it mostly concerned individuals and families of middle and older age.

According to data from the Federal Development Programming Institute, the population density in the municipality of Čitluk in 2016 was 99.7 people per square kilometer. According to the same source, the municipality of Čitluk has double the population density compared to the Herzegovina-Neretva Canton (HNC). The most densely populated areas in the municipality of Čitluk are the center of the municipality, i.e., the urban core, Međugorje, Blatnica, and Veliki Ograđenik. Approximately 30% of the population of the municipality of Čitluk lives in these areas.

3.2.2 Economy

Based on the analysis of the municipality of Čitluk and by analyzing its strengths, weaknesses, threats, and opportunities, the strategic development directions for the municipality have been identified. From these strategic directions, a further analysis of the situation was conducted, resulting in a SWOT analysis of the economy, which led to the development of pathways that will guide the economic development of Čitluk in the next 5 years. The socio-economic analysis shows that the municipality of Čitluk is an exceptionally dynamic and entrepreneurial environment. Additionally, Čitluk is the largest tourist center in Bosnia and Herzegovina, attracting more than one million visitors annually.

3.2.3 Agriculture

The largest natural resources of the municipality of Čitluk are agricultural lands, which cover 8,654 hectares (47.8% of the municipality's area). Of this, 3,120 hectares are classified as high-value agricultural land (P1). Forested areas cover a total of 5,280.8 hectares, or 29.1% of the municipality's area, with **protection forests** accounting for 1,748 hectares (9.6%) and forests of special purpose covering 3,532.8 hectares (19.5%). According to estimates from the municipality, a total of 2,000 hectares of arable land is being cultivated. The size of land holdings is fragmented, with an average size of between 1.5 and 2.0 hectares, and 10.15 plots per owner. About 30% of the plots do not have permanent access and rely on seasonal paths. Additionally, the majority of the land

is located on slope terrain, which presents difficulty for use of e machinery and equipment intensively. Most plots do not have access to a water supply needed for irrigation, nor do they have wastewater drainage systems.

The structure of family agricultural holdings indicates that in 90% of cases, these are small farms that are only sufficient to meet the minimum living needs. Specifically, it involves production for personal consumption, without significant economic activity, which results in the abandonment of production and an increase in the average age of agricultural households. Among the cultivated agricultural crops, viticulture and wine production are the most prevalent. In recent years, the share of medicinal and aromatic herbs, specifically immortelle (Helichrysum), has increased. However, this type of production faces difficulties in market placement, whether in raw or processed form as essential oil. The cause of this phenomenon is the large areas planted with this crop across the entire Herzegovina region, which has led to an oversupply of raw material and a market disruption, thereby reducing demand. According to data from the business registry, in 2018, a total of 32 family farms (OPGs) were registered as business entities in the municipality of Čitluk, with 319 employees working on agricultural holdings. The number of members in these family farms is 502. Of the total number of family farms registered, the largest proportion comes from the Čitluk area (23%), followed by Veliki Ograđenik (18%). In Međugorje, 9% are registered, in Vionica 6%, and in Služanj and Blatnica, each has 5%. In all other settlements, 35% of family farms are registered

It is evident that there are potentials for the development of agricultural production, especially when considering the possibility of integrating it with tourism. Therefore, the municipality of Čitluk aims to focus on the development of the necessary infrastructure for more intensive agricultural production, creating conditions for the development of competitive agricultural production, fostering the development of family farms, and encouraging the association of agricultural producers, as well as the transfer of knowledge, skills, and technologies to agricultural producers.

3.2.4 Infrastructure

The municipality of Čitluk is located in the southwestern part of Herzegovina. The area of today's municipality of Čitluk, or Brotnjo, is first mentioned in 1306/07 in trade relations with Dubrovnik. Since the late 1950s, the town of Čitluk has developed as the administrative center of Brotnjo.

Today, the municipality of Čitluk (Brotnjo) is part of the Herzegovina-Neretva Canton and covers an area of 181 km². The municipality of Čitluk borders the cities of Mostar, Čapljina, Ljubuški, and Široki Brijeg. To the northeast of the municipality's borders, the terrain descends towards the Mostar Field, and to the southwest towards the Trebižat River valley, while on its southeast side, it borders the course of the Neretva River.

The municipality is connected to the wider area by regional roads, linking it to the most significant trunk road M-17 (Sarajevo-Mostar-Ploče, part of the European route E-73) and the trunk road M-6 Grude Ljubuški-Čapljina-Stolac-Trebinje.

The municipality also includes a section of the most significant railway line in Bosnia and Herzegovina, with a railway station in Biletić Polje. These transport routes, along with the municipality itself, are within the service area of Mostar Airport, which points to the fact that the municipality of Čitluk has a satisfactory geopolitical location.

The municipality of Čitluk consists of 27 local communities (MZ), which, along with the municipal center Čitluk, extend to the following settlements: Bijakovići, Biletići, Blizanci, Blatnica, Dobro Selo, Čalići, Čerin, Dragićina, Veliki Ograđenik, Mali Ograđenik, Gradnići, Hamzići, Krehin Gradac, Krućevići, Međugorje, Paoča, Potpolje, Služanj, Tepčići, and Vionica. Due to its location between the continental hinterland to the west and northwest on one side, and the Neretva River valley to the east and southeast on the other side, the municipality of Čitluk has an exceptionally good geographical position. The highest point in the municipality of Čitluk is located on the Trtla mountain at 582 meters above sea level, while the lowest point is in the settlement of Krućevići at 22 meters above sea level.

4 ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS AND MITIGATION MEASURES

4.1 Classification of environmental and social risks and impacts of the project

The risk assigned to the sub-project is **moderate**, therefore it requires the preparation of an ESMP as detailed in the ESMF. The activities are expected to have moderate environmental, social and OHS risks, which will require attention and appropriate mitigation measures, therefore Citluk Municipality, with the support of PMT, will include environmental and social requirements for the Contractor including all OHS requirements in the contract and tender documents.

E&S impacts for subproject "Pressure pipeline Crpna Stanica Biletić Polje - reservoir Jelina Glavica and reservoir Jelina Glavica V = 2 × 2,000 m³ " are present during the preparatory phase (planning/design), but given the nature of the project, primarily during the construction phase, and are attributed to activities such as mechanization, procurement, transportation and use of materials and raw materials for construction works, possible damage to private and public property, emissions of air pollutants, emissions of noise and vibrations, creation of solid waste and potential risks arising from incidents and hazards at work.

Environmental impacts and risks during the exploitation phase are minimized or absent. During the exploitation phase, the water network will have moderate positive effects on society, especially in newly supplied areas with improved water supply services. It is expected that these improvements will lead to improved efficiency of the water supply system, as well as an improvement in the quality and quantity of water delivered to consumers.

In the following part, the main risks and impacts of the project in the various phases of the project are classified and summarized.

General impacts in the preparatory phase (planning / designing):

- There is a risk of lack of consent from the community due to improper communication between the community and relevant institutions (such as the utility company or public companies that manage the infrastructure). Given the nature of the project, these risks are low to moderate. Inadequate planning of waste management from materials and excavations that will be created at the work sites is possible. These impacts are low due to the available landfills that are accessible for the legal disposal of waste.

Potential risks and environmental impacts during the construction phase:

- The creation of dust during cleaning, excavation maintenance work, backfilling and soil compaction is assessed as a short-term and local impact, but moderate because a longer duration of the dry period with the appearance of wind is possible.
- Local and temporary air pollution due to emissions of gases and particulate matter from vehicles and equipment. This impact is local and temporary, as it is about short sections of work without the presence of heavy machinery in large numbers. Impact is low with mitigation measures in place.
- Increased levels of noise and vibration due to heavy or defective vehicles and equipment, which represent a nuisance around the location of the works. This impact is moderate and can be reduced by applying prevention and mitigation measures and choosing a responsible and qualified contractor.
- Generation of various types of non-hazardous and hazardous waste, such as inert construction waste, municipal waste, biodegradable (organic) waste, packaging waste, oily waste, paints residue, waste tires, as a result of: clearing and removal of soil and vegetation, removal of concrete and asphalt or others, existing buildings, use of construction materials, construction of shafts, use of equipment and machinery, residence of workers, etc.

- Accidental oil or fuel spill from machines and vehicles or improper disposal of waste can cause soil, surface and underground water pollution. This impact is low due to the presence of a smaller number of machinery that stays relatively short at the construction site and a very small number of locations where works are carried out near water.
- Potential degradation of the soil at the place of work due to inadequate storage of excavations and materials, improper disposal of waste, accidental spillage of oily liquids, movement of trucks and machinery. This impact is assessed as moderate before the application of mitigation measures to reduce it to a low level.
- Vegetation removal works, works near watercourse crossings or near watercourse banks may locally disturb natural vegetation or cause bank erosion, disturbance and dispersal of fauna. These impacts can be assessed as low, short-term and locally limited.
- Although there are no known objects of cultural and historical heritage on the planned route, it is possible to find historical objects or archaeological objects of the site due to excavations.

Social risks and impacts during the construction phase:

- Occasional damage to public roads and other public or private property is possible. Land acquisition is not foreseen in the project.
- Land acquisition is not foreseen in the project and all property-legal relations have been resolved (The proposed location for the construction of the new pipeline and water reservoir is on public property, expropriation is not required, and the building permit has already been obtained.)
- Damage to communal and underground installations (existing plumbing, electricity, telephone, etc.). Considering the investor and the future user, all the necessary foundations are available, so the impact is assessed as low.
- Temporary interruption of access to houses/business activities due to construction works. Given that it is about works in stages that will cover sections of up to about 300 m along roads per day, this impact will be local and short term.
- Higher traffic frequency of construction machinery and contractor vehicles on the roads and temporary impassability. This impact is moderate but can be mitigated by good organization of work and respect of good construction practice.
- Safety risks associated with open trenches for pipes. This impact is relatively low due to the respect of good construction practices and the use of skilled labor.
- Lack of awareness and knowledge of workers about social risks and impacts. This impact is low considering the size of the project and the relatively short duration of works per section.
- The risk of SEA/SH in local communities is low due to the local context, no labor influx, short duration of works per section. The Project will work proactively and implement measures as per the Project's LMP, ESMF and SEP. These mitigation measures include a GRM sensitized to managing SEA/SH related grievances and a requirement for a workers' Code of Conduct with specific provisions on SEA/SH, as well as workers and community awareness raising activities.
- Increased pollution in populated areas due to trucks, machinery and equipment, construction works, transport, residence of workers, etc. activities that represent a disturbance regarding the location of the works.

Potential OHS risks and impacts during the construction phase:

- Coming into contact with dangerous chemicals that can cause irritation of the skin, eyes, upper respiratory tract, such as dust, cement, asphalt, suspended substances, etc.
- Workers tripping and falling into excavated trenches.
- Collapse of excavated trenches, especially when excavating on unstable ground.
- Accidents at work and injuries from lifting pipes, structures and excavation activities.
- Accidents at work and injuries caused by vehicles and machinery hitting workers.

- Risks of physical exhaustion.
- Risks originating from the natural environment (exposure to heat during high temperatures, storms, heavy rainfall, confined space, etc.).
- Risks of accidental electric shocks from existing electrical installations.
- The risk of working with water under high pressure.
- Traffic accidents during the transportation of materials and equipment and waste to and from the construction site.
- Gas/dust emissions and noise emissions during excavation and use of machinery.

Risks and impacts during exploitation and maintenance:

- Impacts on the emission of polluting substances into the environment during this phase do not exist or are negligible.
- Lack of maintenance and impact on the community (i.e. water shut-off, water supply interruptions, etc.) are possible due to damage, possibly improper maintenance or use.
- Poor hygiene of distributed water. This impact is considered low due to the regular practice of sampling and proper physical-chemical and microbiological analysis of the water practiced by the user.
- The appearance of invasive species of plants along the backfilling of trenches and land recultivation, using inadequate soil with seeds and vegetative parts of weeds and invasive plants. This impact is assessed as moderate before mitigation measures are applied.

Risks and impacts after the implementation/using of the project:

- Negative impacts on the environment due to inadequate waste disposal resulting from the removal of parts of the water supply system. Impacts are difficult to predict and quantify due to the lack of knowledge of the project's lifetime, but in the context of increasingly responsible waste management and the possibilities of proper waste disposal, these impacts are considered to be low.

4.2 Classification of prevention and mitigation measures

Mitigation measures to reduce the impact of potential environmental and social risks during the implementation of the subproject have been established and classified according to the different phases of the project. Mitigation measures are categorized as:

- Mitigation measures in the preparation phase, i.e. design/planning,
- Mitigation measures during the construction phase,
- Mitigation measures in the exploitation phase,
- Mitigation measures in the removal phase of the project.

Mitigation measures in the design and planning phase are: obtaining all relevant permits, planning of the waste disposal site, informing the public and relevant institutions and public companies, good organization of works by choosing a qualified contractor.

Mitigation measures during the construction phase mainly refer to the implementation of good construction practices to avoid negative impacts on air, soil and water quality, noise and vibration levels. The execution of the works will be adapted to the dynamics of the local community to avoid possible conflicts with the local population in traffic, and to adapt the working time to the needs of the local people. Maintain regular contacts with the local community, do not usurp other people's land and local roads. Construction works implementation is the responsibility of the Contractor and it is necessary to include that, together with the Environmental Monitoring Plan, in the Contract. The costs of implementing mitigation measures should be included in the construction costs, and it is necessary to emphasize that the costs could be significant if the Contractor does not

comply with the provided measures and good construction practices and causes significant damage. The investor and the designated supervisor will monitor the implementation of mitigation measures and the Monitoring Plan. A list of good construction practices (Annex D) should be incorporated into the Contract with the contractor.

Mitigation measures in the use phase refer to the mitigation of negative impacts that may occur as a result of breakdowns, inadequate use and maintenance of the system, and route maintenance.

Air pollution (dust and gases emissions) during construction and maintenance will be mitigated:

- By using correct equipment and machines that regularly maintained in order to reduce emissions CO, suspended particles and smoke.
- By spray water over dusty areas in order to reduce the dust.
- Covering truck which transport material of excavation, embankment material, construction and waste material in order to reduce its uncontrolled spreading across construction site.
- Storage and covering of materials at the excavation site, if necessary, in order to prevent possible spread by wind.

The noise pollution can be mitigated by:

- Use of quiet/well-maintained equipment.
- Use noise silencers in operation if this proves necessary.
- Limit noisy activities to normal daytime hours during prescribed working hours.
- Limit vehicle speed at critical locations.

Soil and groundwater pollution can be mitigated by:

- Ensure that waste or excavated materials are stored appropriately to prevent contamination of groundwater and/or water sources.
- Provide a waterproof base for all containers with chemicals.
- Ensure the appropriate equipment to prevent the spillage of dangerous substances.
- Proper storage of hazardous materials away from the ground, wells, streams and water tanks.
- Store chemicals, hazardous waste and materials such as cement according to their safety and technical data sheets (MSDS/BTL).

Production and disposal of waste can be mitigated by:

- Regular cleaning and maintenance of construction sites and collection of waste.
- By ensuring that solid waste is regularly collected and stored in designated locations in plastic or metal closed containers.
- Properly collect, transport and dispose of solid waste at certain locations or landfills in cooperation with the authorized utility company.
- Proper covering of trucks transporting solid waste to avoid waste spreading during transportation.
- Save and ensure insight into financial and other documentation as a proof of receipt of waste in the company responsible for the nearest landfill management.

Accidents and injuries at work can be mitigated:

- Provide occupational safety training for all employees involved in the work and work safety compliance.
- Provide PPE (protective masks, helmet, coveralls and protective shoes and safety glasses, antiphons, if necessary); In areas of high noise with earplugs or antiphons; Appropriate masks for work involving excavation, dust emission; Protective glasses and gloves to prevent injuries and irritation of eyes and mucous membranes from cement and asphalt.
- Ensure the regular availability of a complete and correct first aid kit and emergency plan.
- Details of the nearest ambulance and hospital should be present at the construction site.
- Adherence to safe driving instructions, i.e. trained drivers, adherence to speed limits, use of regularly maintained and technically correct trucks and other construction machinery.
- Ensure that all necessary warning signs are present at the construction site.
- Maintain worker insurance at the subproject location in accordance with the requirements and conditions of insurance in the tender documentation, which should be in accordance with the labor law.
- The contractor should submit daily reports on the work of qualified and trained workers to perform activities on the construction and adaptation of the water supply network.
- The contractor should protect workers and the public by covering excavated earth trenches and installing protective fences around construction site locations.
- The contractor will prepare and submit a health risk statement and assessment for high-risk work activities. Ensure drivers adhere to good driving practices such as maintaining speed limits and wearing seat belts.
- Ensure workers are familiar with proper lifting techniques to avoid back injuries
- Ensure regular breaks for rest, food and proper drinking water.
- Perform work in the day period during the permitted working hours.

The risk to workers from hazardous materials can be mitigated:

- Training workers on handling dangerous chemicals and materials.
- Handle, store and dispose of hazardous materials and waste in accordance with their BTLs (MSDS).
- Use proper PPE relevant to the type of hazard.

Risk of worker exhaustion can be mitigated:

- Provide employees with access to toilets, drinking water and hygiene products (soap, clean water).
- Provide and implement safety measures at the construction site during the implementation of the subproject.
- By ensuring regular breaks and drinking water for all workers.

The risk of collapse of excavated trenches on unstable ground can be mitigated by:

- By supporting the sides of the excavated earth trenches.
- By placing warning signs for safe excavation along the trenches.
- By removing temporary supports gradually as backfilling proceeds.

- Securing the excavation with piles and similar protection, if necessary, in order to avoid the collapse of the excavation or the fall of material into the pits and to ensure safe access and exit from the excavation for equipment, machinery and workers.
- By removing unnecessary material from the sides of the excavation to prevent uncontrolled backfilling of the excavation.
- Provision of occupational safety training for all employees involved in the execution of works.

The risk of rising water pipes can be mitigated by:

- By closing the space with a fence to prevent access to the space during the works;
- By placing warning signs for pipe lifting activities at the workplace and other danger zones;
- By carrying out pipe lifting by a well-trained and qualified worker;
- By providing workers with all the necessary personal protective equipment;
- Using regularly maintained lifting equipment that matches the expected weight of the load;
- By securing the load when lifting and using strong and reliable fastening materials to make sure the load is properly tensioned;
- The capacity of the lifting device must be at least 1.65 times the maximum calculated static load at that point;
- The ultimate load must be ≥4 times the maximum static load;
- By ensuring that workers stand a safe distance from the lifting zone.

Risks from adverse weather effects:

- Be sure to check weather conditions before performing any work;
- Work should be avoided in rainy weather, periods with strong winds and during intense heat;
- Ensure sufficient quantities of hygienically correct water for sanitary needs and regular breaks.

Risks of electric shock from electric poles:

- By maintaining proper distance from overhead or underground power lines;
- Make sure that areas with power lines near the construction site are not surrounded by wet soil;
- Raise workers' awareness of protection against electric shock;
- Avoid working during heavy and prolonged rains.

Risks of damage to underground utility infrastructure (electricity, internet, telephone, etc.) can be mitigated:

- By coordinating with local authorities, authorized utility companies and locating and marking the infrastructure before the start of works;
- Provide up-to-date technical data and drawings of all key underground installations;
- Before starting the excavation, carry out manual excavation, where necessary, in order to avoid damage to the underground infrastructure;
- By obtaining consent from authorized companies and institutions, for excavation in zones with underground infrastructure, before start of the works;
- Predict time for repairs to potentially damaged private or public property (infrastructure, etc.).

Risk of inadequate road grade after excavation which can be mitigated:

- Leveling and measuring should be carried out with a total station instrument in order to ensure surface drainage, i.e. storm water drainage and the absence of water flooding during the rainy season in the targeted areas.

Risks of temporary interruption of access to household/business activities due to construction that can be mitigated:

- By ensuring that traffic closures will not cause a loss of revenue to roadside businesses by providing alternative access to roadside residential and commercial properties at all times during construction works;
- Carry out construction activities in sections in such a way as to avoid any interference with the daily needs of people who live or engage in certain activities along the roads;
- Coordinating the execution of works on the timing of construction works and notifying the public before the start of works to avoid disrupting daily activities or disrupting traffic.
- Avoid blocking access and provide alternative temporary safe access to houses, shops and other areas of daily activities at all times during construction works.
- Ensure pedestrian access by placing steel plates over excavated trenches, which should be secured with barriers, while limiting vehicle access to the minimum necessary time.

In addition to all of the above, the contractor is responsible for the timely restoration and restoration of any public and private property damaged during the execution of the subproject. This includes the repair of any infrastructure, such as roads, sidewalks or utility infrastructure, that may be affected by construction activities. The contractor must ensure that all restoration work is carried out in accordance with the needs of the competent authorities and infrastructure owners, and that all disturbances caused by construction are minimized. Furthermore, the contractor should provide compensation for any resulting damage, in accordance with the terms of the contract and applicable laws and regulations in the Federation of Bosnia and Hercegovina

5 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

5.1 Plan of prevention and mitigation measures

Table 4: Potential impact on the environment and society and mitigation measures

Phase	Problem/Impact	Mitigation measure	Cost	Responsibility
General conditions				
Preparatory phase (planning / designing)	Informing public and relevant institutions and companies. Public information. Obtaining the necessary permits and consents in the field of spatial planning, construction and environmental protection. Waste management planning at the location of the works. Damage to existing infrastructure due to untimely identification and locating.	Inform all relevant institutions and organizations about the works (e.g. police, competent inspections, utility companies, etc.). Inform the public with timely and relevant information about the type of works and their temporal and spatial coverage. All permits and approvals (construction permits, water approval, etc.) should be obtained before the start of the works. Identify and contact legal landfills for disposal of construction and other waste from construction sites (hazardous and non-hazardous waste). Work on sections that cross the communal infrastructure must be agreed with the providers of public communal services (electricity, water supply and sewerage, telecommunications, etc.). Before the start of work on a particular section, accurately determine the positions of the infrastructure/installation routes and provide up-to-date printed and digital data with mapped routes.	Included in the performance costs	Contractor / Investor
Air quality and climate change				
Construction	Emission of dust and exhaust gases as a result of: site preparation (soil removal, clearance, etc.), construction, use of equipment and machinery.	Implementation of good construction practices; Spray water over dusty areas (manually or with sprinklers) on construction sites, temporary storage areas, roads; Installation of protective fences or temporary protective walls on construction sites, if necessary; Stabilizing and/or covering piles of inert materials;	Included in the performance costs	Contractor / Supervision

Phase	Problem/Impact	Mitigation measure	Cost	Responsibility
	Uncontrolled spreading of solid waste and bad unpleasant smells. Improper storage, handling of materials and waste.	Transport of excavated soil and other waste material in vehicles with a covered cargo area, if necessary; Implementing measures for waste management, especially municipal and organic waste; Transport optimization; Regular maintenance of vehicles, equipment and machinery; Use of fuel with less polluting substances; Regular tire washing; Daily cleaning of access roads; Implementing procedures for handling building materials;		
Noise and vibration				
Construction	Noise pollution and construction vibrations caused by the operation of machines, equipment, vehicles and mechanization.	The contractor will implement good construction practices; Limit construction noise in accordance with regulations in accordance with the appropriate zone; All construction equipment and machinery should comply with the requirements on noise emission in the environment; Use compressors or hydraulic equipment that emit a lower level of noise; All mechanical equipment should be technically correct, have usage permits and be regularly maintained; Do not carry out construction works in the evening and at night next to densely populated areas;	Included in the performance costs	Contractor/ Supervision
Water				
Construction	Water pollution with oily waste, fuel, etc. chemicals. River bank erosion as a result of construction activities.	Construction activities should be planned during dry weather to avoid flood risks and flow disturbances; Control soil erosion to avoid surface runoff and prevent soil or silt from entering watercourses;	Included in the performance costs	Contractor / Supervision

Phase	Problem/Impact	Mitigation measure	Cost	Responsibility
	Damage and disruption of the structure of natural vegetation along watercourses; Creation and improper disposal of solid waste near water. Maintenance, service and washing of equipment, vehicles and machinery;	Implement spill prevention measures and response in case of accidental release of pollutants into water or soil; Provide an equipment for preventing leaks and urgent cleaning and remediation of polluting substances; Regular implementation of measures for the management of waste (non-hazardous and hazardous) and hazardous substances; Prohibit the washing of equipment, machinery or vehicles in or near water; Minimize shoreline and riverbed disturbance and develop a restoration and rehabilitation plan to restore riverbeds and natural habitats after construction;		
Waste				
Construction	Solid waste pollution including municipal waste and hazardous waste (asphalt, cement, packaging waste, oily waste, inert waste) due to excavation, replacement of pipelines, construction of shafts, etc.	Implementation of proper waste management measures, as well as procedures for monitoring and periodic supervision of waste management) as part of good construction practices, and in accordance with the Law on Waste Management; Store the waste for a short time in adequate locations (metal or plastic containers, containers or barrels) protected from spillage and weather conditions; Collect waste in the shortest possible time in cooperation with an authorized utility company or a company for the management of hazardous waste, if it appears; Earth and other inert material should be properly stored and used for landscaping after construction; It is forbidden to burn waste outdoors and on site;	Included in the performance costs	Contractor / Supervision
Soil				

Phase	Problem/Impact	Mitigation measure	Cost	Responsibility
Construction	Degradation, erosion, compaction, destruction of the surface layer of soil as a result of construction activities. Storage of building materials, excavations and waste on construction sites. Soil pollution as a result of accidental release of fuel, oil, waste.	The upper layer of humus soil should be properly removed and adequately stored after excavation, used after the completion of the works, for the purpose of recultivating the terrain and stabilizing the slope; Removed piles of soil should be stabilized or covered (with nylon, geotextile, etc.) and temporarily stored in places away from river banks or locations subject to erosion or wind; In the case of discovered contaminated soil on construction sites, the Contractor should determine and prepare procedures for appropriate storage and handling of contaminated soil, in accordance with the relevant regulations on waste management, as well as through communication with institutions responsible for environmental protection (environmental inspections); In case of soil pollution by accidental spillage of oil, fuel or dangerous substances, the contaminated soil layer should be removed and treated as hazardous waste in cooperation with an authorized hazardous waste management company Ensure the implementation of procedures for responsible handling of construction materials, waste, etc. Ensure the implementation of measures for the responsible management of sanitary-fecal wastewater from mobile toilets and other wastewater. Construction activities should be carried out in a period without or with little rain in order to reduce the possibility of flooding;	Included in the performance costs	Contractor / Supervision
Biodiversity				
The phase after the end of the project	Soil excavation and locally removal of natural vegetation. Construction works in or near watercourses and possible water pollution.	Apply good construction practices that would avoid pollution that are also valid for the protection of other environmental media (prevention of air, water, soil pollution); Avoid natural vegetation clearing and habitat destruction in order to create new access roads, store raw materials or waste. In case it is necessary, constructor need to carry out vegetation removal with caution and after	Included in the performance costs	Contractor / Supervision

Phase	Problem/Impact	Mitigation measure	Cost	Responsibility
	Possible movement of vehicles and machines through smaller watercourses. Inadequate storage of construction materials and waste and occupation of space. Creation of waste and wastewater. Air pollution with gases and dust from construction works. Disturbance by construction noise and vibrations.	inspection by a qualified biodiversity expert; and consider revegetation replanting of trees. Preventing works and movement of vehicles in waters, except where necessary; Revitalization and careful landscaping of the construction site immediately after completion of construction activities, etc.; Placement of buildings and associated equipment should not endanger or damage the landscape values of the locality;		
Cultural and historical heritage				
Construction	Discovery of archaeological or other material or nonmaterial cultural and historical heritage.	In case of encountering archaeological sites or archaeological objects, the contractor is obliged to immediately stop the work and notify the Institute for the Protection of Cultural, Historical and Natural Heritage of the FBiH to take measures to ensure that the object is not destroyed or damaged and that it is preserved in the place and position in which was discovered.	-	Contractor
Social issues				
Construction	Damage to private property in the scope of planned construction works.	Coordination with supervision and the competent utility company in order to determine the exact location, including the area of the property that will be affected by the works; Agree with supervision and Utility company "Brocanac" the quantity and conditions of rehabilitation of property potentially affected by construction works before the start of works; Provide consent for entry to the area of work execution of Utility company "Brocanac" and the investor/PIT before entering the construction site.	Included in the performance costs	Contractor / Supervision

Phase	Problem/Impact	Mitigation measure	Cost	Responsibility
		Notify the land owners at least 7 days before entering the construction site; Ensure the restoration of potentially damaged public or private property to its original condition, before leaving the construction site;		
Construction	Damage to underground utility infrastructure (electricity, water, internet, telephone, etc.).	Coordination with local authorities and locating infrastructure before the start of works; Provision of detailed and up-to-date technical data and drawings of the complete infrastructure potentially threatened by the works; Before the machine excavation, it is recommended to carry out manual excavation in order to avoid damage to the underground infrastructure, where necessary; In the areas where the underground infrastructure is located, the consent of the authorized companies and institutions must be obtained; Ensure that the contractor repairs all damage to the infrastructure potentially destroyed during the execution of the works; Inform the public 48 hours before any planned disruption of water (or other utilities) supply. Provide information on location of water tanks, timeframe and cause of disruption.	Included in the performance costs	Contractor / Supervision
Construction	Temporary interruption/stoppage of traffic, economic activities or restriction of access of the population to houses during the execution of works.	Inform the local community and the population near the roads about the work schedule; Provide alternative access to houses and economy facilities along roads; Perform the work in the shortest possible time; Divide the works into sections; If necessary, speed up the execution of works by hiring additional workers and equipment; During works and emission of gases, dust and noise with residential and commercial buildings, public buildings, etc. inform the population before carrying out the works to close the windows;	Included in the performance costs	Mandatory (Contractual Obligation)

Phase	Problem/Impact	Mitigation measure	Cost	Responsibility
		Plan an alternative route for heavy machinery and freight vehicles to avoid zones with schools, markets, main city streets, etc. if possible; Prohibit the transport of construction materials and waste through populated areas during the part of the day with the heaviest traffic; Placing signs for detours before carrying out works in coordination with the police and local self-government; Assign construction maintenance workers to direct traffic in areas where work is being carried out, where the need arises; Park machines and equipment away from the streets in the designated space;		
Construction	Public access to the construction site.	Place fences, barriers, warning/prohibition signs around the work area that indicate a potential danger to people; Excavated earth, gravel and similar material should be stored outside of public roads; Limit, in coordination with the police, the movement of heavy vehicles on the roads used by the locals during the time of the most intensive traffic; Protect excavation trenches from unauthorized access;	Included in the performance costs	Mandatory (Contractual Obligation)
Construction	Low awareness of workers about respecting the culture of the local community and social protection issues (risks of abuse and sexual harassment).	Prepare and implement a Code of Conduct that reflects the contractor's core values and overall work culture and includes provisions related to GBV/SEA-SH; Conduct awareness raising on GBV/SEA-SH issues; Stick to the measures defined in the LMP.	Included in the performance costs	Mandatory (Contractual Obligation)
Construction	Exploitation of children	All workers should be over 18. Checking the age of workers by checking personal documents and official documents; Ensure that the records of workers are available for inspection by the competent authority and that all workers are registered;	Included in the performance costs	Mandatory (Contractual Obligation)

Phase	Problem/Impact	Mitigation measure	Cost	Responsibility
		Ensure that working conditions are in accordance with ESS2 and that forced labor is not used;		
Construction	Emissions of gases and particles from machines, vehicles and machinery.	Maintain machines in proper condition to reduce emissions of -PM, CO, NO_x and other gases; Provide adequate protective equipment for workers; Raising the awareness of workers about turning off machines, equipment, vehicles when they are not in use for the sake of economy and prevention of unnecessary pollution;	Included in the performance costs	Mandatory (Contractual Obligation)
Construction	Noise and vibration caused by machinery and vehicles.	Reduce noise to the lowest possible level with noise silencers, if necessary; Wherever possible, minimize transport through densely populated areas; Regular maintenance and service of machines, vehicles and equipment; Limit noisy activities to normal daily working hours; Limit vehicle speed in critical locations and densely populated areas; Perform work within densely populated areas manually;	Included in the performance costs	Mandatory (Contractual Obligation)
Construction	Production of solid waste from construction works or the residence of workers.	Ensure regular collection of communal waste and disposal in designated places (bins, containers, plastic bags for waste) by all workers and raise awareness among workers about these measures. Regular disposal of collected waste in cooperation with an authorized utility company. Waste management procedures (including hazardous waste) will be added to the tender documents to ensure proper waste management at construction sites.	Included in the performance costs	Mandatory (Contractual Obligation)
Construction	Disruption of the structure and reduction of the aesthetic value of the cultural and natural landscape.	In case of removal of trees (individual or rows of trees), compensate the damaged trees by planting new ones; Restore the banks of watercourses in order to provide ecological corridors and return them to their original state;	Included in the performance costs	Mandatory (Contractual Obligation)

Phase	Problem/Impact	Mitigation measure	Cost	Responsibility
		Remove all accumulated waste from construction works or workers' accommodation: Reconstruct damaged fences, walls, advertisements, damaged curbs and tiles, etc.		
Occupational Health and Safety (OHS)				
Construction	Risk of exposure of workers to toxic gases, noise, dust and vibrations. Danger of accidents and injuries at work, such as: danger of tripping and falling; risk of exhaustion; excavation hazards; equipment falling on workers; lifting pipes and heavy constructions; hazards associated with handling materials (e.g. lifting, being struck or hit, trapped worker, etc.); welding and other works that emit hot and glowing particles; work with electrical installations and equipment.	Implement all the above-mentioned measures related to mitigating the impact of gases, noise, dust and vibrations; Provide sanitary and hygienic facilities for workers; Prepare and implement the Construction Site Organization Plan and Worker Health and Safety Management Plan; Require all workers to comply with the Worker Health and Safety Management Plan; Provide workers with personal protective equipment (PPE) that meets the needs of performing work activities; Ensure that workers follow the procedures on the mandatory use of PPE and that they have received training on occupational safety; Adhere to the measures defined by the Workforce Management Procedure (LMP); Ensure that machines are operated only by qualified machine operators who have the necessary skills and experience; *Other measures to protect the health and safety of workers are given in the good construction practice section;	Included in the performance costs	Contractor
Removal				
Phase after realization	Negative impact on environment because of inadequate waste disposal due	Waste disposal in accordance with the Waste Management Plan at authorized landfills: Recycle waste that can be recycled (iron, pipes, etc.).	-	Utility company " Broćanac " / Contractor

Phase	Problem/Impact	Mitigation measure	Cost	Responsibility
	to removing not working parts of the water supply system.			

5.2 Environmental and social monitoring plan

Table 5: Environmental and social monitoring plan

Phase	Which parameter is subject to monitoring?	Where is parameter monitoring performed?	How is monitoring of the parameter / type of monitoring equipment carried out?	When is parameter monitoring performed - measurement frequency or continuous?	The cost of monitoring/ what are the costs of the equipment or fees of the monitoring contractor?	Responsibility
Preparatory phase (planning/design)	Negative reactions of the public due to lack information and poorly coordination activities.	Local community.	By inspecting the registers complaints.	In case of citizens' complaints.	-	PIT Citluk/PIU
Construction	Damage to existing infrastructure and facilities, especially underground installations (water supply, telecommunications, electricity, etc.)	At the location of the works.	Visual overview of the construction site.	Continuously during construction and site clearance or when citizen complaint if services disruption reported in the vicinity of the project site.	-	Contractor / Supervision
Construction	Complaints of citizens because of impassability, slow	At the location of the works and in local community.	Visually and by comparison with CSOP.	Daily, during the works and	Included in the performance costs.	Contractor / Supervision

Phase	Which parameter is subject to monitoring?	Where is parameter monitoring performed?	How is monitoring of the parameter / type of monitoring equipment carried out?	When is parameter monitoring performed - measurement frequency or continuous?	The cost of monitoring/ what are the costs of the equipment or fees of the monitoring contractor?	Responsibility
	traffic, freight vehicles and disorder construction sites.			construction site removal.		
Construction	About restricting access, business activities and of use land.	Around the zones of construction works.	By insight in documentation.	After received citizens' complaints.	-	PIT Citluk/PIU
Construction	Number of recorded accidents because of construction works.	In local community.	By insight in documentation.	Continuously in regarding performance works and removal construction sites.	Included in the performance costs.	Contractor
Construction	Number recorded incidents related to GBV/SEA-SH.	In local community.	By insight in register of complaints.	Continuous in regarding construction works and construction sites removal.	Included in the performance costs.	Contractor
Construction	Dust generation during work.	At the location of the works.	Visual inspection of the construction site and machinery and equipment.	Daily / Weekly in case of complaints.	-	Contractor / Supervision
Construction	Air pollution due to emissions from equipment, machinery and transportation	At work site locations.	In cooperation with authorized and accredited laboratories for air quality monitoring, in accordance	In a case of complaints.	2,000 KM for basic and specific pollutants, per measuring point.	Contractor / Supervision

Phase	Which parameter is subject to monitoring?	Where is parameter monitoring performed?	How is monitoring of the parameter / type of monitoring equipment carried out?	When is parameter monitoring performed - measurement frequency or continuous?	The cost of monitoring/ what are the costs of the equipment or fees of the monitoring contractor?	Responsibility
	trucks (gases and PM, basic air pollutants and specific ones, as needed).		with the Rulebook on the Method of Air Quality Monitoring and the Definition of Pollutants, Limit Values, and Other Air Quality Standards.			
Construction	Construction noise.	At work site.	In cooperation with authorized companies for noise measurement using standard equipment, in accordance with the FBiH Law on Protection from Noise.	In a case of complaints.	200 KM 15-minute level, per measuring point.	Contractor / Supervision
Construction	Pollution of ground or underground water (basic pollutants and specific ones, if necessary).	At the location of the works.	By an authorized and accredited laboratory for testing the quality of surface and waste water, in accordance with the Regulation on the Conditions of Wastewater Discharge into the Environment and Public Sewage Systems.	In case of complaints from citizens or accidental spillage of polluting liquids into water or land (fuels, oils, etc.).	200 – 400 KM, per current sample.	Contractor / Supervision

Phase	Which parameter is subject to monitoring?	Where is parameter monitoring performed?	How is monitoring of the parameter / type of monitoring equipment carried out?	When is parameter monitoring performed - measurement frequency or continuous?	The cost of monitoring/ what are the costs of the equipment or fees of the monitoring contractor?	Responsibility
Construction	Solid waste management. Separation of hazardous and non-hazardous waste.	At the location of the works.	Visual supervision and comparison with waste management report.	Continuous in regarding with construction works and construction site removal.	Included in the performance costs.	Contractor / Supervision
Construction	Area which is subjected to restoration landscape/vegetation. Number and type of plants/trees planted.	At the location of the works.	Visual supervision and arrangement with the rehabilitation plan of degraded areas.	After implementation of the Plan.	Included in the performance costs.	Contractor / Supervision
Construction	Presence of findings of the cultural-historical heritage.	At work site locations.	Supervision of digging a earth trenches.	During excavation.	-	Contractor
Construction	Qualifications and age of employed workers.	At work site locations.	Verification of the construction site, documentation on the application of workers over 18 years.	Continuously during the execution of works and construction site removal.	-	Supervision
Construction	Control of works outside the scheduled working hours.	At work site locations.	Visually and comparison with CSOP.	After received citizens' complaints.	-	Supervision

Phase	Which parameter is subject to monitoring?	Where is parameter monitoring performed?	How is monitoring of the parameter / type of monitoring equipment carried out?	When is parameter monitoring performed - measurement frequency or continuous?	The cost of monitoring/ what are the costs of the equipment or fees of the monitoring contractor?	Responsibility
Construction	The existence of hygienic conditions for workers (mobile toilet, clean water, etc.).	At work site locations.	Visual inspection of the construction site and insight in construction sites documentation.	Continuous during performance of works and construction site removal.	-	Contractor / Supervision
Construction	Accidents and injuries at work (number of workers who do not use protective equipment at work, number of injuries during lifting loads and digging trenches, proper handling of tools and equipment, etc.).	At work site locations.	Visual inspection of the construction site and equipment, personal protective equipment, construction works to determine that all works are performed in accordance with occupational safety regulations.	Continuous during the works and construction sites removal.	-	Contractor / Supervision
Construction	Quality of performed works. Quality of built-in material.	At the location of the works.	Visually and by inspecting the documentation and records at the construction site.	Continuous during the works and construction site removal.	Included in the performance costs.	Supervision
Exploitation	Water system damage because of irregular	On location of the project.	Visually and through records of supply	Continuous.	Included in maintenance costs.	Utility company "Brocanac"

Phase	Which parameter is subject to monitoring?	Where is parameter monitoring performed?	How is monitoring of the parameter / type of monitoring equipment carried out?	When is parameter monitoring performed - measurement frequency or continuous?	The cost of monitoring/ what are the costs of the equipment or fees of the monitoring contractor?	Responsibility
	management or non-maintenance.		interruptions, breakdowns and citizen complaints.			
Exploitation	Hygienic correctness of distributed water.	At the project site.	By an authorized and accredited laboratory for testing the quality of drinking water, in accordance with the BiH Rulebook on the Health Safety of Drinking Water.	4x per year, i.e. in accordance with domestic regulations in the area of water hygiene for human use.	Included in maintenance costs.	Utility company "Brocanac"
Exploitation	Appearance invasive plant species.	On project location, at the place of backfilling of the trench and arrangement and leveling of the surrounding terrain.	Visual overview of the site.	The first year after the end of the project, during the vegetation season.	-	Investor

6 METHODS OF STAKEHOLDERS ENGAGEMENT

A SEP was prepared within the WSSM, with the aim of establishing an effective platform for productive interaction with stakeholders during the implementation of the project.

Purpose of SEP is to present targets groups and methods of engagement of stakeholders and their responsibilities and rights in implementation activities. In accordance with the requirements of the World Bank, the engagement of interested parties is a process that is carried out during the entire life cycle of the project, and is most effective if it is initiated at an early stage of project development.

Engagement should begin as early as possible in the preparation of the project, because timely identification and consultation with interested parties allows the views and opinions of those groups to be taken into account during the development and implementation of the project. The intention of SEP is to timely activate all interested parties during the preparation of the project and during its implementation.

In particular, the SEP serves the following purposes:

a) identification and analysis of interested parties;

b) planning engagement modalities and effective communication tools for consultation and publication;

c) defining the role and responsibility of various actors in the implementation of the Plan;

d) defining the Grievance Mechanism (GM) and

e) providing feedback to stakeholders.

In order to adequately meet the needs of different groups, communication and information channels were created for all identified interested parties in accordance with their needs. A participatory process will be used to obtain comments and suggestions for the design of the Project, which can help improve the design of the Project and bring greater benefits at the local level.

In order to meet the best practice approaches, the project will apply the following principles of stakeholder engagement:

- *Informed participation and feedback:* information will be provided and widely disseminated among all stakeholders in an appropriate format; opportunities are provided for providing feedback from stakeholders, for analyzing and resolving comments and concerns;
- *Openness and lifetime approach:* public consultations on the project will be organized throughout the lifetime, will be conducted in an open manner, without external manipulation, interference, coercion or intimidation.
- *Inclusion and sensitivity*: stakeholder identification are carried out to support better communication and build effective relationships. The project participation process is inclusive. All stakeholders are always encouraged to be involved in the consultation process. All stakeholders have equal access to information. Sensitivity to the needs of stakeholders is a key principle on which the choice of engagement methods is based.

Special attention is paid to vulnerable groups. Significant stakeholder engagement during the project cycle is an important aspect of good project management and provides opportunities for the following:

- Clarification of project objectives, scope and management of expectations,
- Ensuring the meaningfulness of citizen engagement

- Requiring for feedback to provide information for project design, implementation, monitoring and evaluation,
- Assessment and mitigation of project risks
- Better project results and benefits
- Dissemination of information and materials in the project
- Resolving project complaints.

6.1 Conclusions and comments of public hearings

The draft ESMP will be published on the websites of PIU and the Citluk municipality, in local and English language, together with invitations to public hearings. The invitation will indicate how to access the ESMP document, details of the project, the date, time and place of the consultation and contact information for feedback and/or questions.

The public invitation will be announced in credible newspapers with national coverage to enable a wide range of the public to be involved in the consultation process. In this way, the public will be given the opportunity to express their views on the project's risks, impacts and mitigation measures and enable the Citluk municipality to consider and respond to them.

After 14 days from the date of publication, the draft ESMP will be subject to public consultation in accordance with World Bank Guidelines. Public consultation and presentation of the Environmental and Social Management Plan (ESMP) for the sub-project: " Pressure pipeline pump station Biletić Polje - reservoir Jelina Glavica and reservoir Jelina Glavica V = 2 × 2,000 m³" prepared as part of: WATER AND SANITARY SERVICES MODERNIZATION PROJECT (WSSM).

When the consultations are completed, the Minutes of the meeting will be prepared and attached as annexes to the ESMP. The minutes will include feedback received, questions raised and how they were incorporated into the final version of the ESMP. Attendance of interested parties is verified through signed records of attendance, preferably with participant contact details and photographs with permission to publish.

The final version of the ESMP for the sub-project will be published on the website of the PIU, Citluk Municipality and will be visible throughout the duration of the project.

6.2 Grievance Mechanism

In accordance with the ESS10 and the Stakeholder Engagement Plan (SEP), a Grievance Mechanism (GM) will be implemented for the WSSM to ensure that all grievances, by Project Affected People (PAP) and other stakeholders, are dealt with appropriately, including taking corrective action and, once completed, that the complainant is informed of the outcome of the procedure. A hard copy **of the Project Grievance Form** (Annex A) will be available in the premises of the community(ies) affected by the project activities.

The Grievance Mechanism (GM) within the project is defined through a series of basic steps that include:

Filing grievances

All complaints can be submitted in person or by phone or in writing by filling out the Project Grievance Form, by phone, email, post, fax or in person at the addresses/numbers for the Project Implementation Unit (PIU) / Federal Ministry of Agriculture, Water Management and Forestry:

- By mail to the address: Project Implementation Unit, Federal Ministry of Agriculture, Water Management and Forestry, Hamdije Čemerlića 2, , 71000 Sarajevo with reference to the WSSM project
- Phone: +387 033 726-624 and fax + 387 033 726-669

- By e-mail: anela.rodic@fmpvs.gov.ba

Complaints can also be submitted in person, by phone, or by e-mail to the local PIT team at the following addresses:

- By mail to the address: Project Implementation Team, Public Company Broćanac d.o.o., Čitluk, Duhanski trg 6, 88260 Čitluk, BiH, with reference to WSSM Project
- Phone: +387 036 642-507 and fax + 387 036 642-617
- By e-mail: jela.miletic68@gmail.com

Complaints can also be submitted via the eCitizen application at the following link: https://ecitizen.ba/citluk/home, by clicking on the "Report a Problem" icon:

Complaints can also be submitted anonymously, in that case the answer will be published on the website of the Federal Ministry of Agriculture, Water Management and Forestry/Project Implementation Unit.

PIU will perform the function of the Central Grievance Redress Committee (CGRC), while the Local Grievance Redress Committees (LGRC) established and administered by the local Governments will consist of representatives from the key four stakeholders: PIU representative, Municipal representative and representative of the PAPs, NGO representative (female) working for Gender and GBV/SEA/SH issues.

Grievances management

Within 3 days of submission, it will be confirmed that the case has been registered and the complainant will be provided with basic information about the next steps. The GM will investigate the facts and circumstances and give a response, and the complainant should be notified of the final decision no later than 15 days after the complaint was submitted.

Reporting of user complaints and feedback

PIU will be responsible for maintaining and storage the received comments/complaints and maintaining the Grievance Log.

Grievance Log

Each complaint should be assigned a unique reference number and should be followed up appropriately, and recorded activities should be completed. The log should contain the following information:

- Name and surname of the complainant, location and details of the grievance,
- Date of submission,
- The date when the Grievance Log was uploaded to the project database,
- Details of the proposed corrective measures,
- The date when the proposed corrective measure was sent to the complainant (as applicable),
- Closing date,
- The date the response was sent to the complainant.

Channels for receiving grievances

All grievances can be submitted by completing the Project Grievance Form in printed form or online, or in any other form chosen by the complainant through the designated channels listed above under ***Filing Grievances.***

Monitoring and Reporting on Grievances

The CGRC will be responsible for::

- Collecting data from LGRC serving as local admission points on the number, substance and status of complaints and uploading them into the single regional database;
- Maintaining the grievance logs on the complaints received at the regional and local level
- Monitoring outstanding issues and proposing measures to resolve them;
- Disclosing quarterly reports on GRM mechanisms;
- Summarizing and analyzing the qualitative data received from the local Grievance Admission points on the number, substance and status of complaints and uploading them into the single project database;
- Monitoring outstanding issues and proposing measures to resolve them.

6.3 Workers Grievance Mechanism

In accordance with ESS2, the grievance redress mechanism (GRM) should be provided for all direct and contracted workers, with the aim to address workplace concerns. The Project Grievance Form is provided in the Annex A of this ESMP.

For direct workers (civil servants) in FBiH there is already established appeal boards for workers' complaints at the respective ministry.

A specific Grievance Mechanism for **directly employed workers** (external consultants employed by PIU) will be established to deal with workplace complaints, suggestions and problems, outlining the procedures to whom the worker should make a complaint, the time frame for receiving a response or feedback and the steps for referral to a higher level, while enabling transparency, confidentiality and practice without fear of retribution/repercussion.

Any third party that engages and employs **contract workers** is obliged to establish a mechanism for workplaces and an instrument for the peaceful resolution of disputes in accordance with the requirements of the LMP developed for this Project, ESS2 and the domestic labor law. In the tender itself the potential contractors shall be informed that it would be expected to have such a mechanism. If the bidders already have a mechanism established, they should submit in their bid statement on its existence, and if they do not, contractors would be under obligations to establish it by the contract signing. The contract shall specify that the contractor is confirming that the GRM has been established and that all workers are informed of its existence. Contracts concluded with contractors shall contain provisions on mandatory compliance with relevant legislation on labor and OHS, as well as the obligation to establish a grievance redress mechanism for workers (if such a mechanism is not already in place) in the manner defined in the LMP developed for this Project. The third parties statement/template on compliance with provisions of labor legislation and the Project's LMP is given in Annex B of this ESMP.

Contractors' labor management shall be monitored on the basis of Reports on Compliance of Conditions of Work with the ESS 2, which the contractors shall submit to the PIU on a semi-annual basis. The format of the report is provided in Annex C. In case any irregularities are found on the basis of these reports or through the mechanism for grievance management, the PIU shall inform the competent labor inspectorate.

6.4 World Bank Grievance Redress System

Communities and individuals who believe that they are adversely affected by a WB supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond.

For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit *http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service*. For information on how to submit complaints to the World Bank Inspection Panel, please visit *www.inspectionpanel.org*.

6.5 Stakeholders Engagement Plan

Table 6: Stakeholders Engagement Plan

Consultation / Meeting	Purpose	The way	Who	When
Beginning of works/ Mobilization of contractors	Inform stakeholders about the start of construction activities	Direct communication, Meetings	Utility company "Brocanac" PIT Contractor	[*Date*]
Fortnightly meetings on the progress of project implementation	Provide updates on project progress and receive feedback from stakeholders	Meetings, progress reports	Utility company "Brocanac" PIT Contractor Stakeholders	Biweekly
Information disclosure on utility disruptions	Notify the community about utility disruptions due to construction activities	Public notices, announcements through the media	Utility company "Brocanac" PIT Local media	As needed
Traffic rerouting / Road blocking	Inform stakeholders about traffic rerouting or road closures during construction	Public notices, announcements through the media	Utility company "Brocanac" PIT Local media	As needed
Informing the public about the progress of the project	Use local media to spread information about project progress in the local community	Public notices, announcements through the media	Investor Utility company "Brocanac" PIT Local media	As needed

7 ANALYSIS OF THE NEED FOR CAPACITY BUILDING AND TRAINING

PIU/PIT will organize capacity building in different phases of the sub-project life cycle based on the ESMF.

Comprehensive training for the staff of Utility company "Broćanac" will include training in line with the latest ESF of the World Bank.

The second part of the training will cover the responsibilities of each staff member, implementation procedures, required forms, risk assessment methods and general occupational health and safety (OHS) procedures.

Before handing over the construction site to the Contractor, representatives of Utility company "Broćanac" and PIU will hold training sessions to raise the awareness of workers and the local community, emphasizing environmental, social and occupational safety aspects that are necessary during implementation. During the implementation phase, the OHS contractor's associate will hold regular trainings to raise awareness of everyday risks and address issues such as Gender-Based Violence and Sexual Exploitation and Abuse (GBV&SEA-SH), Grievance Mechanism (GM) and Code of Conduct.

8 ESMP IMPLEMENTATION AND REPORTING

The following roles and responsibilities of the various participants involved in the implementation and reporting of the Environmental and Social Management Plan (ESMP) for the project are listed below:

Contractor: The contractor is responsible for the implementation of the Environmental and Social Management Plan (ESMP). They are required to report on a monthly basis regarding the implementation of the ESMP. Additionally, the Contractor must monitor, keep records, and report to PIT on various environmental and social issues, including safety, incidents, workers' grievances, and stakeholder engagement.

Supervision: The Supervisor is tasked with monitoring and reporting weekly, as well as extraordinary reporting, on the implementation of mitigation measures and environmental issues to PIT.

Beneficiary : Beneficiary Utility Company "Broćanac" has a supervisory role in the implementation process. They receive reports from both contractors and supervisors regarding environmental and social issues. It is responsible for overseeing the execution of the ESMP and ensuring compliance with environmental and social standards.

PIU/PIT : For WSSM, the existing PIU within FMAWMF is primarily responsible for project management, financial management, environmental and social compliance, as well as monitoring and reporting on evaluation within WSSM. PIU/PIT ensures fulfillment of sub-project development goals and facilitates communication with relevant ministries and local self-government bodies to ensure timely implementation of activities. PIU/PIT is responsible for reporting to the World Bank on ESMP implementation.

Cities/Municipalities: The Municipal/City Inspectorate supervises the implementation of the ESMP in its jurisdiction, ensuring compliance with environmental and social standards.

9 ANNEXES

A	Project Grievance Form
B	Third Parties Statement (Potential Contractors and Servise Providers) on Compliance with Provisions of Labor Legislation and the Project`s LMP
C	Format for Report on Compliance with Conditions of Work with ESS2 for Third Parties Engaging Contracted Workers
D	Good Construction Practices
E	Environmental And Social Screening Report
F	Photographs of the Sub-Project Location
G	Minutes from the public consultations

A. Project Grievance Form

BIH WATER AND SANITATION SERVICES MODERNIZATION PROJECT

Project Grievance Form

Designation (entered by the Project Implementation Unit)	
First name and Surname (not obligatory) ☐ I would like to lodge a complaint anonymously. ☐ Please do not disclose my identity without my consent.	
Contact data Signify the desired manner of contact (by mail, by telephone, by email).	☐ By mail: *Provide an address for mail delivery:* _____ _____ _____ ☐ By telephone: _____ ☐ By email: _____
Description of event to which the complaint relates	What occurred? Where did it happen? To which person did it happen? What came out as a consequence of the problem?
Date of the event / complaint	
	☐ Event that occurred once/complaint (date _____) ☐ It occurred more than once (how many times? _____) ☐ Ongoing (a problem that currently exists)
What would you want to be undertaken?	

Signature: _____
Date: _____

Please send this Form to the following address:

Attention: Anela Rodić-Jarebica – Environmental and Social Specialist within PIU, Federal Ministry of Agriculture, Water Management and Forestry
Address: Hamdije Čemerlića 2, 71000 Sarajevo
Phone: +387 033 726-624
Fax: +387 033 726-669
E-mail: anela.rodic@fmpvs.gov.ba

OR

Attention: Jelena Miletić, Secretary and responsible person for receiving consumer complaints at Public Company Broćanac d.o.o., Čitluk
Address: Duhanski trg 6, 88260 Čitluk
Phone: +387 036 642-507
Fax: + 387 036 642-617
E-mail: jela.miletic68@gmail.com

B. Third Parties Statement (Potential Contractors and Servise Providers) on Compliance with Provisions of Labor Legislation and the Project`s LMP

Date and place of issuance:_____

Name and address of the issuer (Bidder): _____

STATEMENT OF LEGAL AND REGULATORY COMPLIANCE

Hereby we declare that

- We are aware of, and comply with, the standards laid down in the Labor Management Procedures.
- We conform to all national laws* and applicable regulations concerning employment, labor and employee relations, and labor and working conditions.
- We are committed to providing a safe and healthy environment for our employees and to implementing all occupational health and safety requirements as stipulated by national legislation.
- We do not tolerate any form of child, forced or slavery work.
- We prohibit any form of harassment, sexual harassment, abuse, violence, including GVB at work and forbid direct or indirect discrimination against any employee or groups of employees on any ground and for whatever reason.
- We confirm that a worker GM is available.
- We confirm that no worker GM is available but will be established by the time the contract is signed.

We hereby state that should we be awarded with the contract; we shall adopt the Labor Management Procedures applicable to the project and incorporate them in our practice.

We understand that the failure to respect any of the above stated commitments could lead to termination of the contract and exclusion from the project.

Signature:

Name:

Position:

*National Laws refers to the Laws of FBiH and the domicile Law of the country in case the Bidder is foreign.

C. Format for Report on Compliance with Conditions of Work with ESS2 for Third Parties Engaging Contracted Workers

Assignment name:
Contract ref. No:
Contract period: Start date (M/D/Y) End date (M/D/Y)
Contractor/Service Supplier:
Reported period:
Date of report:
Signature of authorized person:

LABOR AND WORKING CONDITIONS COMPLIANCE REPORT

Company employees* statistics:

Total number of employee's gender disaggregated: M_____F_____

Number of employees with an employment contract out of total number of employees

Number of employees without an employment contract out of total number of employees

Number of employees with access to social security, pension and health insurance out of total number of employees

Number of employees who receives wages/salaries at least once a month out of total number of employees

Number of employees who left the company in the reported period out of total number of employees

Number of employees hired in the reported period

Number of hours worked per employee (monthly average)

Total overtime (monthly average per employee)

- Number of injuries at work (in reporting period and cumulative since contract start) out of total No. of employees
- Number of fatalities at work (in reporting period and cumulative) out of total No. of employees
- Number of reported violence out of total No. of employees
- Number of reported harassment/ abuses out of total No. of employees

Availability of an accessible and functioning employee grievance mechanism (Y/N)

Number of grievances raised with the GM (in reporting period and cumulative since contract start)

Number of grievances resolved by GM (in reporting period and cumulative since contract start)

Number of suits filed with regard to labor, employment and OHS issues

Number of disputes brought to peaceful settlement/ voluntary arbitration procedure

Number of visits by labor/ OHS inspection

*The employee is any natural person employed or engaged to work or perform service for the employer

1 The number of employees refers to the actual number/headcount on the date of the report.

2 The numbers imply the total number of incidents in the reported period.

Project workers statistics:

- Total number of project workers**:
- Number of project workers with an employment contract:
- Number of project workers without an employment contract:
- Number of project workers with access to social security, pension and health insurance verified by confirmation from registry:

No.	Terms and conditions	Yes / No	Notes
1	All project workers have an employment contract or engagement agreement in writing.	Yes ☐ No ☐	If "No" please specify and explain
2	All project workers are paid at least once a month	Yes ☐ No ☐	If "No" please specify and explain
3	All project workers worked 8 hours a day, 40 hours a week	Yes ☐ No ☐	If "No" please explain and specify the hours worked
4	All project workers had a regular daily and weekly rest	Yes ☐ No ☐	If "No" please specify and explain
5	Number of project workers were terminated from employment with termination in line with national labor law and **ESS2**	Yes ☐ No ☐	If "Yes" please specify number and explain conditions of termination
6	Number of project workers attended OHS related training programme	Yes ☐ No ☐	If "Yes" please specify number and explain

No.	Terms and conditions	Yes / No	Notes
7	Project workers were granted leaves they are entitled to	Yes ☐ No ☐	If "Yes" Please specify the type and number of leaves
8	Project workers were involved in accidents at work resulting in injuries or fatalities	Yes ☐ No ☐	If "Yes" please specify and explain
9	Project workers reported on cases of discrimination, harassment, sexual harassment or non-compliance with law	Yes ☐ No ☐	If "Yes" please specify and explain
10	All project workers are above the age of 18.	Yes ☐ No ☐	If "No" please specify and explain
11	Project workers raised grievances or started voluntary arbitration/ legal proceedings to settle a dispute	Yes ☐ No ☐	If "Yes" please specify and explain
12	In the reported period there were some incidents on noncompliance with the LMP	Yes ☐ No ☐	If "Yes" please specify and explain

D. Good Construction Practices

The requirements regarding good construction practices that will be included in the Contract for the performance of works are as follows:

General requirements:

- Contractors will be required to follow good environmental construction practices in all construction activities and minimize damage to vegetation, soil, groundwater, surface water, landscape, and disturbance of settlements and local communications.
- The implementation of environmental protection and mitigation measures, as well as monitoring, will be implemented in parallel with construction activities. They will commence at the moment when the workers, equipment and / or material are placed on the construction site, and will end with the termination of construction work, when all workers, equipment and / or material leave the construction site and when the environment is restored to its original state.
- The Contractor has an obligation to appoint an Occupational Safety and Health and Environmental Protection Coordinator who will be responsible for ensuring compliance with the laws and objectives of environmental, occupational safety and fire protection.
- The contractor should ensure the order, discipline and professional responsibility of all employees at construction sites. Work and residence must be limited solely to the area of construction work and damage to private property, land and crops should be avoided. Regular contacts with representatives of local residents (local communities) should be ensured for the purpose of exchanging information or finding solutions to possible disputes (resulting from property rights violations, damage during construction works, etc.).

Supply and transportation of materials:

- When purchasing materials for the construction works, the Contractor will select a manufacturer / supplier that operates in accordance with a valid environmental permit, if required in accordance with the Law on Environmental Protection (Official Gazette of FBiH, No. 15/21) or other environmental standards recognized in BiH and / or the EU.
- In order to prevent dust emissions, the Contractor is obliged to transport asphalt, gravel, stone, soil and other material in tarpaulin trucks. The transportation of stone and gravel is done in the wet state. Vehicle speed must not exceed 30 km/h. The contractor will avoid unnecessary driving.

Construction site organization

- Construction should start (if possible) at the time of year when the benefits of dry soil can be redeemed, i.e. when compaction and degradation through use is at a minimum.
- Appropriate machinery and / or protection plates will be used that could prevent compaction during land removal, e.g. using rails or low pressure tires in locations that indicate compaction. Appropriate procedures will be used for the separate removal, handling, storage and replacement of humus and underground.
- The contractor will establish a temporary landfill for construction material, a flush area for concrete pumps and a mixer, and a tire wash area with a suitable cleaner. Temporary dumps for excavation material will be reduced to a maximum of 2 m in height to prevent compaction caused by the weight of the land and storage time will be reduced to a minimum.
- The contractor will ensure that all construction equipment is licensed and approved in accordance with local regulations and, if possible, certified in accordance with EU standards.

- The contractor is obliged to use modern machines and vehicles that meet environmental standards in terms of emissions (full combustion). It will also use filters to reduce particulate matter emissions, and fuel with a favorable chemical structure (low sulfur content) and efficient / safe transfer.
- The contractor is obliged to use modern machines and vehicles representing noise sources (engine, exhaust system). This generally involves the purchase of new machines or the implementation of measures to install additional sound insulation as well as its constant maintenance. In addition, it is recommended that the machines only need to work in the period 07-17 hours on all sections of the route whose distance from the nearest dwelling house is less than 60 m.
- The contractor is required to use biodegradable lubricants and gearbox oils. Maintenance, filling and cleaning of machinery must be carried out outside the construction site and outside the surface water area.
- The contractor will determine and follow control measures for dust generated during the handling of equipment and / or during renovation work. The contractor must submit a plan outlining the routes for the transportation of materials, and should also provide statements on the proposed method for dust control in places where transportation through settlements cannot be avoided.
- Develop a project for the organization of a construction site with appropriate solutions for the drainage and treatment of sanitary wastewater, as well as stormwater from the construction site. Dispose of used water from construction sites with appropriate sewage systems, collect, if necessary, in watertight containers and dispose of in the prescribed manner (either on site or at a remote location) before discharging into a recipient or urban sewer system.
- The contractor shall ensure that the parking spaces of machinery and vehicles and workers' accommodation containers are not located within forest areas, that they do not affect water courses and do not affect the endangered flora and fauna.
- The contractor will ensure the protection of erosion-sensitive areas with stabilization agents (temporary dams, fences, pits) and grafting after completion of construction work).

Execution of construction works

- In order not to jeopardize the stability of the soil, on unstable or conditionally stable terrains, construction works will be performed in shorter intervals.
- During the land works, the humus layer will be deposited in piles that will not be more than 2m long and will be protected from pollution to maintain its fertility.
- In order to minimize negative impacts on the river and river banks, construction activities carried out on or near surface water bodies should be carried out during the low water season, which is most often between July and September. It is recommended that this be taken into account when preparing the activity schedule.
- All handling of oil and its derivatives in the process of construction and procurement of machinery are carried out with the utmost protection measures to avoid spills. All packaging for petroleum and other petroleum products must be collected and taken to a controlled landfill of the Contractor, from where they will be taken away by an authorized utility company. In the event of an accident, spillage of fuel or lubricant into the environment, emergency intervention is required in accordance with procedures for the discharge of fuel and lubricants.
- Machines and vehicles will not be washed in the work area.
- The waste water from the workers' restrooms will not be discharged into the ground or into water courses.

- The waste will be managed in accordance with the Waste Management Plan. Disposal of excavated material and any other solid waste into watercourses will be prohibited. Driving machines in rivers, streams, or on their banks should not be allowed, except in situations where this cannot be avoided due to the construction of a special structure.
- The riverbeds will be protected and not completely blocked during digging in order to protect existing water corridors for undisturbed communication between living species at the bottom and those that are free to swim. Restoration of existing shores should be ensured through the planting of adequate vegetation in damaged terrain.
- The contractor shall implement appropriate traffic control measures, in accordance with the law, for the duration of the contract, and such measures must first be approved by the Supervising Engineer. Traffic safety management measures will include temporary lighting and appropriate signage during digging and rehabilitation work.
- The contractor should appoint permanent staff to be engaged in traffic safety issues and be responsible for implementing traffic safety measures and implementing traffic measures prescribed by national laws, which will include: (i) inspection of the condition and location of control equipment traffic in use, (ii) draft review - the part relating to traffic control equipment needed to ensure safe and efficient flow of traffic, (iii) rectification of any traffic defects where applicable, (iv) control of work zones, handling equipment and storage, material handling and storage related to traffic safety.
- The contractor must not leave the trenches unsupervised, and must enclose and mark all open trenches to prevent possible accidents.

Organization of the construction site after the completion of the works:

- The contractor must also remove all special facilities and sites used to support construction including temporary buildings and their foundations, temporary installations (electrical, water and sewage installations) and equipment (sedimentation basin), restoration of temporary roads (especially in forest area and private property), and work areas, removal of fences, signs and notices.
- The contractor will remove all construction waste.
- All construction sites and other areas that were affected during construction will return to their original condition, depending on future land use.
- The restoration activities will start immediately after the pipe is buried. The construction site must be planted with species preserved in peat and supplemented with appropriate material, if necessary.
- Agricultural land must be returned to a condition suitable for the landowner to be able to replant their own plantations.

E. Environmental And Social Screening Report

On the official website of World Bank Group International Finance Corporation (IFC), projects and activities that are listed in the IFC Exclusion List (2007) are not eligible to be supported under the WSSM project and its sub-projects.

Subproject Name	**„Improvement of water supply reliability rationalization of transport system, Phase I – pressure pipeline Pumping Station Biletić Polje – water reservoir Jelina Glavica and water reservoir Jelina Glavica V = 2 × 2,000 m³ “**
Subproject Location	**Municipality Čitluk, Federation BiH**
Subproject Proponent	**FMAWMF – PIU for WSSM Project**

Activity	**Answer**	
	Yes	No
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.[1]		✓
Production or trade in alcoholic beverages (excluding beer and wine). [1]		✓
Production or trade in tobacco. [1]		✓
Gambling, casinos and equivalent enterprises. [1]		✓
Production or trade in radioactive materials. This does not apply to the purchase of medical equipment, quality control (measurement) equipment and any equipment where IFC considers the radioactive source to be trivial and/or adequately shielded.		✓
Production or trade in unbounded 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[2]/harmful child labor.[3]		✓
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.		✓
Affecting lands or rights of minorities		✓
Significant adverse social impacts and may give rise to significant social conflict		✓

Footnotes:

1. 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.

2. Forced labor means all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty.

3. 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.

SCREENING FOR SUBPROJECT'S ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS

The screening results are presented in following table:

No.	Environmental and social risk questions	YES/NO		COMMENTS
1	Does this sub-project belong to WB Exclusion list?		NO	
2	Does the proposed activity belong in list of projects for which full EIA is mandatory under the FBiH Law on Environment Protection?		NO	EIA procedure and Environmental permit are not needed.
3	Will the sub-project be located in or near some sensitive or protected area?		NO	The sub-project is not within any areas that are protected for their biodiversity or sensitivity.
4	Is there a possibility that the proposed sub-project will adversely affect the local landscape?		NO	
5	Does the proposed activity require other type of EA under the local/ national legislation?		NO	
6	Will the sub-project use natural resources such as land, water, materials, or energy, particularly any resources that are non-renewable or in short supply?	YES		The sub-project activity will ensure efficient use of water in the water supply system.
7	Is the sub-project likely to cause microclimate changes, e.g. includes activities such as significant deforestation, forest degradation & land use change?		NO	
8	Will the sub-project generate significant quantities of non-hazardous and/or inert waste?		NO	
9	Are there any risks of contamination of surface waters?		NO	Activity related to new water distribution pipeline in public road area.
10	Are there any risks of contamination of ground waters?		NO	There will be no activity related to any kind of drilling of well to obtain water from groundwater aquifer.
11	Are there any risks of soil pollution?		NO	
12	Are there any risks of physical changes of the terrain, sediment loads, erosion, etc.?		NO	

No.	Environmental and social risk questions	YES/NO		COMMENTS
13	Will the sub-project be source of noise and vibration?	YES		During construction, temporary and localized impacts will be associated with the operation of machines for excavation and installation of water distribution pipeline/branches.
14	Will the proposed activity require vegetation removal?	YES		During site preparation, only low vegetation and shrubs will be removed. A plan for re-vegetation after the completion of construction works will be considered.
15	Will the implementation of the project cause physical displacement of formal users OR informal users and occupants?		NO	The project will not cause any physical displacement.
16	Will the implementation of the project affect any vulnerable individuals or groups?		NO	Taking into account nature and scale of civil works (daily progress-construction site not fixed), potential impacts of project activity, on population of local communities and the overall socio-economic dynamics in the area along routes, will be localized and short-term. There is no information obtained from local partners/representatives of local communities that indicates that some elderly, persons with disabilities, people in need will have difficulties in daily activities during construction phase. Water fees are subsidies by Municipality Čitluk for vulnerable social groups. The Assembly of the Municipality Čitluk adopted the Decision on subsidizing water consumption for socially vulnerable categories of residents made by the Centre for Social Work, which defined that the Municipality Čitluk pays 3 m^3/member of a socially vulnerable family/month.
17	Will the implementation of the project cause economic displacement?		NO	The project will not cause any economic displacement.
18	Will the project need temporary or permanent land acquisition?		NO	Project implementation will require a traffic regulation study in accordance with the law on construction in FBIH (WORKS ON PUBLIG ROAD). No property issues. Construction permits are issued.
19	Will the project result in the temporary or permanent loss of crops, fruit trees or household infrastructure?		NO	

No.	Environmental and social risk questions	YES/NO		COMMENTS
20	Is there a right of way issue?		NO	
21	Is there probability of impacts to community health and safety?	YES		By their nature, all construction work carries certain risks to the community health and safety. The sub-project will provide and optimize the water delivery services for population and increase the reliability and quality of water supply, and make the Čitluk community more resilient to the drought risks caused by climate change. Before works public will be notified through appropriate canal of communication.
22	Are probability of impacts to occupational health and safety:	YES		Contractor is obliged to apply good construction practice, including PPE to minimize potential adverse impacts on workers' safety. Local police officers will support and control traffic safety during works to minimize traffic disturbance. The works will be supervised by an authorized supervisor hired by the PIU and a certified engineer from the Municipality of Čitluk. Works will be adjusted to working hours during daylight. Risk related to labour influx is minimal as works are of small-scale nature.
23	Are there any indications that informal labour will be used for the needs of the sub-project?		NO	
24	Will the proposed activity require specific public consultations under the FBiH legislation?		NO	
25	Whether project activities will have an impact on increase of water utility fees and/or creation of new fees/financial obligations to project beneficiaries?		NO	Water utility company "J.P.BROĆANAC" d.o.o. owns and operates water systems that deliver municipal water to households and others connected to the public water supply systems, including water fees. The company is a joint stock company founded by the Municipality of Čitluk and 51% owned by the Municipality of Čitluk, and the remaining owners are small shareholders. As part of determining water prices, the Municipality of Čitluk introduced two tariffs for calculating water consumption from the water supply system. Taking

No.	Environmental and social risk questions	YES/NO		COMMENTS
				account of socially sensitive categories, water prices were determined for two tariffs: 1.6 KM/m3 for up to 25 m3 of water used and 2.1 KM/m3 for more than 25 m3 of water used. Concerning water services providing, it should be improved as result of project activity. An increase in fees for consumed water from the water supply system should not occur because it is envisaged that the loan for these projects will be returned from the municipal budget.
26	Whether the Project will have impacts on access to private or public property including public institutions like schools, hospitals, ambulates etc.?	YES		Works on planned section will complete in one day (backfilling of the excavated trench is completed after the mechanical joining of the pipeline parts). The length and digging of the trench for the pipeline varies between 100-300 m depending on the conditions on the ground. Where necessary, and for the purpose of access to private and public facilities, the necessary metal crossings for vehicles and pedestrians are installed with fencing and markings in order for activities for the local business and population to take place smoothly.

RISK CLASIFICATION

Proposed Environmental and Social Risk Rating (high, substantial, moderate or low).

PIU considered the following elements in the E&S screening and risk assessment process:

- Risk category and parameters from the *rapid risk assessment matrix* and *sensitivity of receiving environment* (ESMF, Chapter 7.4);
- analysis of data and information from the content of the ToR and Main Project for the construction of the pressure pipeline PS Biletić polje – water reservoir Jelina glavica and water reservoir Jelina glavica – Municipality of Čitluk;
- analysis of information from statements provided by the Municipality of Čitluk regarding location conditions and the expropriation carried out;
- previous experiences of the PIU team from contracts for works that are similar in nature and scope to the proposed works.

1. Assessment of project impact

A quick impact assessment of the water supply sub-project was carried out using the following matrix:

Component	*Magnitude*	*Scope*	*Impact*
Pipeline/ distribution network (including rehabilitation as a part of NRW or EE measures)	[ ] Length more than 10 km	[ ] New construction [ ] Rehabilitation [ ] Maintenance	[ ] Moderate [ ] Moderate [ ] Low
	[■] Length between 1 and 10 km	[■] New construction [ ] Rehabilitation [ ] Maintenance	[■] Moderate [ ] Low [ ] Minor or no impact
	[ ] Length less than 1 km	[ ] New construction [ ] Rehabilitation [ ] Maintenance	[ ] Low [ ] Low [ ] Minor or no impact
Storage reservoir/Reservoir	[ ] Volume more than 5000m^3	[ ] New construction [ ] Rehabilitation [ ] Maintenance	[ ] Moderate [ ] Moderate [ ] Low
	[■] Volume between 500-5000m^3	[■] New construction [ ] Rehabilitation [ ] Maintenance	[■] Moderate [ ] Low [ ] Minor or no impact
	[ ] Volume less than 500m^3	[ ] New construction [ ] Rehabilitation [ ] Maintenance	[ ] Moderate [ ] Minor or no impact [ ] Minor or no impact

2. Assessment of sensitivity of receiving environment:

LOW	[■] Intervened areas out of protected areas (national parks, or buffer areas) [■] Low danger of environmental degradation (deforestation, hunt, and so forth) [■] Sensitive or critical ecosystem areas not in the direct influence area (wetlands, peatlands, primary or secondary forests, and others) [ ] Flat topography (<15% of slope), when the project expects the construction of access road, pipelines, etc. [■] Zones at low risk to natural disasters (floods, earthquake, and others) [■] Absence of places with cultural and historical significance [■] No resettlement activities [■] No risk of negative impact and exclusion of vulnerable and marginalized groups [■] No labor influx and minimal risk of sexual exploitation and GBV

3. Determine the category of risk

The following matrix will be used to determine the category of risk:

Project impact	**Sensitivity of receiving environment**		
	High	Moderate	Low ■
High	High	Substantial	Moderate

Moderate	Substantial	Moderate	**Moderate**
Low	Moderate	Moderate	Low
Minor or no impact	Moderate	Low	Low

4. Description of risk categories:

MODERATE risk level: The Project is likely to have a significant adverse impact on the environment, and the magnitude of that impact is known.

According to the rapid risk assessment the following actions will be taken:

Risk category	*Action to be taken*	*Result of the action*
Moderate risk subprojects	A site-specific ESMP will be produced in line with this ESMF. Sections related to all applicable ESSs shall be included.	WB requirements on E&S impacts mitigation and monitoring included in the tender dossier/bidding documents. Mitigation obligations assigned to the hired contractor. Monitoring assigned to supervisor.

At this point, the screening and assessment concluded that potential adverse risks and impacts of Connection of water supply systems from PS Biletić polje to the water reservoir with a new distribution pipeline, along with the construction of new capacities for the existing water reservoir Jelina glavica, are likely to be **MODERATE risk** *subproject activity*.

The purpose of the construction of the new transport pipeline is to improve the operation of water supply systems and their existing distribution pipelines. The project activities will have a positive impact on the satisfaction of existing users as they will enable more reliable water supply.

Justification:

- Land acquisition is NOT required.
- Local EIA is NOT required.
- The sub-project activity aims at the operational optimization of the existing water supply system by building a new pressure pipeline and connecting it to the existing distribution pipelines, and expanding the existing water storage capacity, which constitutes the elements of the water supply system. The result of the sub-project activity would have a positive impact on the environment and society, as it would ensure a more rational management of water as a resource through continuous and reliable water supply to all users of the water supply system, which would contribute to consumer satisfaction. The nature and dynamics as well as the technology of performing these hydro technical works are simple without innovation and include the installation of a new pipeline to optimize water distribution,

which is done according to well-known standards and practices. It is a simple activity to implement, and for monitoring the implementation on the ground (local supervision), the works will be supervised by an authorized supervisor engaged by the PIU and an authorized engineer from the competent department of the municipality of Čitluk, who has experience in the implementation of similar activities.

Municipality	*Sub-project Activity*	*Conducted E&S risk assessment*	*Recommended E&S instrument for construction works contract*	*Comments*
Čitluk	- Connection of water supply systems by distribution pipelines from Pump Station to new reservoir; - Building a new reservoir;	**MODERATE risk subprojects**	A site-specific **ESMP**	**Impacts of works** will be localized in a narrow stretch of state-owned land/road to lay pipelines and obtain consent from the Public Road Company if needed; No property issues are expected. According to FBiH legislation EIA procedure and Environmental permit **are not needed**.

Conclusion and Recommendations

- The implementation of the subproject "Construction of pressure pipeline PS Biletić polje – water reservoir Jelina glavica and water reservoir Jelina glavica –Čitluk municipality" involves the installation of a new transport pipeline and its connection with the existing one, as well as the construction of a new water reservoir. This will directly affect the efficiency improvement measure monitored under the WSSM project and Component 2: Support for the water services sector reforms at the local level, as it will improve water delivery to 20,000 users (50% women) in the municipality of Čitluk.
- The subproject is relatively small in scale and simple to implement on the ground. It involves building a pipeline that will connect the existing water supply systems and increase the capacity of the existing water storage, without changing the primary purpose of these facilities.
- Additionally, there is no need for procedures under the environmental protection regulations of FBiH, nor for obtaining an Environmental Permit.
- Considering the overall context of the project and the technical solution, it's assessed that the activities during the construction of the said pipeline pose a **moderate risk to the environment** because, by their nature, size, and area of impact, they are minimal and limited to the precise route (water infrastructure) and a specific location for construction of a new water reservoir. They can be relatively easily managed since the project activity involves excavation for laying the pipeline and excavation for construction of additional capacity of the water storage. Additionally, the works will be carried out on the road belt (public land), which will avoid impacts on private property (land and buildings).

Proposed E&S Instruments:

Subprojects activities for construction of new distribution pipeline and construction of additional water storage capacities are screened as Moderate Risk from both the Environmental and Social aspects. The Subprojects activities are simple and relatively easy to implement and **PIU recommends site-specific ESMP** for the purposes of this project with the measures defined in it to mitigate/minimize potential impacts and risks during

implementation on minor/small-scale works that are expected to be of manageable, temporary and with localized impacts as they are related to the general construction activities

Regular operation and functioning of the water supply systems will remain during planned works for pipelines so the users will have a continuous and uninterrupted access to water services.

Screening and risk assessment for Sub-project activity for „Construction of pressure pipeline Pumping Station Biletić polje - reservoir Jelina Glavica i reservoir Jelina Glavica“ is prepared by PIU’s Environmental and Social Specialist based on inputs from stakeholders and WSSM ESF guidelines.

F. Photographs of the Sub-Project Location


Figure 6: Location of the existing water reservoir


Figure 7: Planned route of the pipeline along regional road R425


Figure 8: Location of the crossing of the pressure pipeline and regional road R425

Figure 9: Planned route of the pipeline towards the pumping station

G. Minutes from the public consultations

TBA