

Scaling up climate resilient flood risk management in Bosnia and Herzegovina

Environmental and Social Assessment Report And Environmental and Social Management Framework

CONTENTS

Contents	2
Executive Summary	10
Introduction.....	12
1.1 Background	12
1.2 Overview of the Project	12
1.2.1 Summary of Activities	13
1.3 Project Alternatives	35
1.3.1 Do Nothing	35
1.3.2 Alternate Locations.....	35
Legal and Institutional Framework for Environmental and Social Matters	36
1.4 Legislation, Policies and Regulations	36
1.4.1 Environmental laws and regulations:	36
1.4.2 Laws relating to employment:	37
1.4.3 Human Rights.....	37
1.5 Environmental Impact Assessment in Bosnia and Herzegovina	38
1.6 Multilateral Agreements and Biodiversity Protocols	39
1.7 UNDP Principals and Standards	40
Description of Existing Environment	56
1.8 Climate	56
1.9 Geology, Topography and Soils.....	56
1.9.1 Geology	56
1.9.2 Topography	60
1.9.3 Soils.....	60
1.10 Surface Water	61
1.10.1 Water Quality.....	64
1.10.2 Flooding.....	65
1.11 Groundwater.....	67
1.12 Flora and Fauna.....	67
1.12.1 Terrestrial	67
1.12.2 Aquatic	68
1.12.3 Impacts of Hydropower Schemes	69
1.12.4 Protected areas	69
1.12.5 Economic Contribution of Ecosystems	74

1.13	Air Quality	74
1.14	Ambient Noise	75
1.15	Socio-economic.....	76
1.15.1	Land Use	76
1.15.2	Land Tenure	76
1.15.3	Population	77
1.15.4	Internally Displaced Persons.....	77
1.15.5	Political / Governance	77
1.15.6	Employment, Labor and Working Conditions.....	78
1.15.7	Gender	78
1.15.8	Archaeology and Cultural Heritage	79
1.15.9	Unexploded Ordinance	80
	Environmental and Social Risk Assessment.....	82
1.16	UNDP Social and Environmental Screening.....	82
1.17	Impact Risk Assessment Methodology	82
1.18	Direct Impacts	97
1.19	Indirect Impacts	98
1.20	Cumulative Impacts.....	98
1.21	Transboundary Impacts	98
1.22	Potential Benefits	98
	Avoidance and Mitigation Measures	99
	Stakeholder Engagement and Public Participation.....	99
1.23	Public Consultation and Environmental and Social Disclosure	99
1.24	Safeguard Instruments Applicable to Project.....	100
	Environmental and Social Risk Management	101
1.25	Purpose and Objectives of the Environmental and Social Management Framework.....	101
1.26	Overview of Institutional Arrangements for the Environmental and Social Management Framework	101
1.26.1	Administration.....	102
1.27	Implementation and operation.....	103
1.27.1	General Management Structure and Responsibilities.....	103
1.27.2	Safeguard Officer and Field Officers.....	104
1.27.3	UNDPs Role and Responsibilities.....	104
1.28	Project Delivery and Administration	104

1.28.1	Project Delivery	104
1.28.2	Administration of Environmental and Social Management Framework	104
1.28.3	Environmental procedures, site and activity-specific work plans/instructions.....	105
1.28.4	Environmental incident reporting.....	105
1.28.5	Daily and weekly environmental inspection checklists.....	105
1.28.6	Corrective Actions	105
1.28.7	Review and auditing	105
1.29	Training	106
Communication		106
1.30	Public consultation and Environmental and Social Disclosure	106
1.31	Complaints Register and Grievance Redress Mechanism	107
1.31.1	Complaints Register	108
1.31.2	Grievance Redress Mechanism	108
Key Environmental and Social Indicators		113
1.32	Surface Water	113
1.32.1	Performance Criteria	113
1.32.2	Monitoring.....	113
1.32.3	Reporting.....	113
1.33	Erosion, Drainage and Sediment Control	116
1.33.1	Background	116
1.33.2	Performance Criteria	116
1.33.3	Monitoring.....	116
1.33.4	Reporting.....	116
1.34	Ecology.....	120
1.34.1	Performance Criteria	120
1.34.2	Monitoring.....	120
1.34.3	Reporting.....	120
1.35	Air Quality.....	123
1.35.1	Background	123
1.35.2	Performance Criteria	123
1.35.3	Monitoring.....	123
1.35.4	Reporting.....	123
1.36	Noise and Vibration	126
1.36.1	Background	126

1.36.2	Performance Criteria	126
1.36.3	Monitoring.....	126
1.36.4	Reporting.....	126
1.37	Waste Management	129
1.37.1	Background	129
1.37.2	Performance Criteria	129
1.37.3	Monitoring.....	129
1.37.4	Reporting.....	129
1.38	Social Management	132
1.38.1	Background	132
1.38.2	Performance Criteria	132
1.38.3	Reporting.....	132
1.39	Archaeological and Cultural Heritage	135
1.39.1	Performance Criteria	135
1.39.2	Reporting.....	135
1.40	Unexploded Ordinance	137
1.40.1	Performance Criteria	137
1.40.2	Reporting.....	137
1.41	Emergency Management Measures	139
1.41.1	Performance Criteria	139
1.41.2	Monitoring.....	139
1.41.3	Reporting.....	139
	Budget for ESMF Implementation.....	141
	Appendix 1	1
	Project Screening using UNDP SESP Template	1
	Appendix 2	2
	SEAH Action Plan	2
	Appendix 3	7
	Cultural Heritage Chance Finds Procedure	7
	Chance Finds Procedure	8
	Introduction.....	8
	Chance Finds Procedure	8
	Reporting.....	8
	Appendix 4	9

Stakeholder Engagement Plan and Stakeholder Consultation	9
Introduction.....	11
1.42 Overview of the Project	11
1.42.1 Purpose of this Document	11
Regulations and Requirements	12
1.43 UNDP requirements	12
1.44 GCF requirements.....	13
1.44.1 Information Disclosure	13
1.44.2 Stakeholder Engagement.....	13
1.44.3 Grievance Redress Mechanisms (GRM)	14
1.45 GoBiH requirements For Construction	14
Summary of Previous Stakeholder Engagement Activities.....	16
Project Stakeholders	16
1.46 Stakeholder Analysis.....	16
1.46.1 Project Stakeholder Register	20
Stakeholder Engagement Programme.....	20
Resources and Responsibilities	27
1. Overview	29
2. Initial consultation with key national stakeholders, GCF Project Development Mission – BiH 11th – 16th March 2018	29
3. Presentation of the Idea Note - 24 Jul 2018	38
4. Idea note acceptance meeting - 27 Sept 2018	39
5. Concept note validation workshop – 05 Feb 2019.....	40
6. Meeting with GCF focal point Minister Srebrenka Golic – 06 Feb 2019	42
7. Full proposal validation workshop – 16 Oct 2019	42
8. Consultation with representatives of BiH municipalities/local communities, 2019.....	44
a. Dobož Municipality	44
b. Dobož South Municipality.....	44
c. Modrica Municipality.....	44
d. Bijeljina Municipality	45
e. Prijedor Municipality	45
f. Gradiska Municipality	45
g. Srbac, Municipality	46
h. Laktasi Municipality	46

i. Banja Luka City	46
j. Ravno Municipality, Herzegovina.....	47
9. Meeting with GCF focal point Minister Srebrenka Golic – 06 Dec 2019.....	47
10. Meetings with GCF focal point Minister Srebrenka Golic – 2022	48
11. MEETINGS WITH AGENCY FOR GENDER EQUALITY AND GENDER CENTRES	48
Appendix 5	49
Appendix 6	60
Appendix 7	67
Appendix 8	76
Introduction.....	77
1.47 Background to the project	77
1.48 Project localities	77
1.49 Conflict and Conflict Sensitivity	77
1.49.1 What is Conflict?	77
1.49.2 Conflict Sensitivity	78
Methodology.....	80
1.50 Historic Context	80
1.51 Mapping the actors.....	80
1.52 Analysis of the drivers of conflict and insecurity	80
1.53 Understanding conflict dynamics	80
Conflict Data.....	81
1.54 Historic conflict	81
1.55 Actors And Actor Dynamics	83
1.55.1 Basic conflict lines between actors	83
1.55.2 Distribution of Major Ethnic Groups	84
1.55.3 Actors Associated with the Project.....	85
1.56 Drivers of Conflict and Insecurity	88
1.56.1 Political Causes of Conflict.....	88
1.56.2 Economic Sources of Conflict	90
1.57 Recent Conflict and Tensions	93
1.57.1 Conflicts events between 2009 and 2021	93
1.57.2 Conflicts Events October 2021-September 2022.....	103
1.57.3 Conflict Dynamics.....	106
Assessment of Project Elements	106

1.58	Summary of Project Activities	106
1.59	Assessment of Project Activities Potential to Cause Conflict	108
	Conclusions.....	115
	Recommendations	115
1.60	Recommended Conflict Mitigation Measures	115
1.60.1	Stakeholder Engagement.....	116
1.60.2	Grievance Redress Mechanism	116
1.60.3	Collaborative Approach to Enhance Cooperation.....	118
1.60.4	Implementation of Safeguard Plans	118
1.61	Monitoring.....	118
	Table 1 Proposed EBA/non-structural measures under Activity 2.2	15
	Table 2 Measures to be under Activity 3.3.....	Error! Bookmark not defined.
	Table 3 Summary of UNDP Social and Environmental Standards triggered by the project and their requirements for the project.	42
	Table 4 Historical Flooding Events and Fatalities in Bosnia and Herzegovina.....	66
	Table 5 Endangered Species that potentially occur within the project river systems	68
	Table 6 Overview of the existing protected areas in Bosnia and Herzegovina, as at July 2017	70
	Table 7 Bosnia and Herzegovina age breakdown (2017).....	77
	Table 8 World heritage sites in Bosnia and Herzegovina	79
	Table 9 Rating of Probability of Risk.....	82
	Table 10 Rating of Impact of Risk	83
	Table 11 UNDP Risk matrix	84
	Table 12 Risk Assessment.....	85
	Table 13 Water Quality Management Measures	114
	Table 14 Erosion, Drainage and Sediment Control Measures	117
	Table 15 Flora and Fauna Management Measures.....	121
	Table 16 Air Quality Management Measures.....	124
	Table 17 Noise and Vibration Management Measures.....	127
	Table 18 Waste Management Measures	130
	Table 19: Social Management Measures	133
	Table 20: Archaeological and Cultural Heritage	136
	Table 21 Unexploded Ordinance Management Measures	138
	Table 22 Emergency Management Measures	140
	Figure 1 Location of proposed GCF financed interventions for Activity 2.2.2.....	22

Figure 2 Average weather conditions in Bosnia Herzegovina	56
Figure 3 Geological map of Bosnia and Herzegovina. (Hrvatovic 2006)	57
Figure 4 Bosnia and Herzegovina Earthquake Hazard Map (UNDP 2016).....	59
Figure 5 Topography of Bosnia and Herzegovina	60
Figure 6 Soils in Bosnia and Herzegovina	61
Figure 7. River basins and rivers of Bosnia and Herzegovina	63
Figure 8 Location of hydropower plants in BiH	64
Figure 9 Location of Ramsar wetlands in BiH.....	71
Figure 10 Location of project site relative to Hutovo Blato wetland	72
Figure 11 Relationship between Hutovo Blato wetland boundary and proposed Krupa River site	73
Figure 12 Landmine situation in Bosnia and Herzegovina in 2016.....	81
Figure 13 Project organization structure	103
Figure 14 Multi-tiered GRM.....	109

EXECUTIVE SUMMARY

Bosnia and Herzegovina is particularly vulnerable to extreme precipitation and river basin flooding and results in the highest damages of all natural hazards facing B&H. Increased intensity and variability of rainfall due to climate change have been causing more frequent and intensive floods on the territory of B&H. The main flooding sources in B&H are fluvial, pluvial, torrents and groundwater.

The NDA and Water Entities of Bosnia and Herzegovina with support from UNDP, is formulating a project on adaptation to climate change impacts associated with flooding for submission to the GCF. The project will seek to improve the resilience of vulnerable communities to climate change impacts by scaling up climate resilient flood risk management in Bosnia and Herzegovina.

The project will reduce vulnerability to floods across B&H (pluvial, fluvial and torrential flooding) through improved climate information and establishment of flood forecasting and early warning systems. Improved generation and use of climate information will enable sound decision making and investment into climate resilient flood risk reduction measures.

To achieve this the project will pursue the following outputs:

Output 1: Climate-informed flash flood early warning systems (FFEWS) and an increased generation and use of climate data to reduce vulnerability to flood related disasters.

Output 2: Scaled-up ecosystem-based and non-structural climate resilient flood risk reduction.

Output 3: Climate-proof flood protection investments strengthen adaptive capacity and reduce exposure to climate induced floods.

The project is expected to benefit an estimated 924,453 direct beneficiaries.

This Environmental and Social Management Assessment Report has been prepared to support the project proposal and subsequent implementation. The ESAR has been prepared using publicly available information, project reference documents, consultation with stakeholders such as government, NGOs and project development team members, and field-visits by a safeguard specialist to representative sites.

The ESAR has been prepared based on the risks identified through screening of activities using UNDPs Social and Environmental Standards procedure. The risk profile of the project has been determined to be moderate (Category B). The risks are considered acceptable and manageable through the application of mitigation measures.

The ESAR includes an Environmental and Social Management Framework (ESMF), which provides an outline of the types of mitigation measures that are likely to be required when implementing the project. Where appropriate, site specific Environmental and Social Management Frameworks or site work instructions may be prepared to deal with specific issues.

The ESAR and ESMF outline a range of mitigations and plans that are required. The following table highlights the key plans required and their approximate timing.

Key Plans / Actions Required	Timing
Review, update and implement ESMF	Project inception and annually thereafter, or as required
Review, update and implement Stakeholder Engagement Plan	Project inception and annually thereafter, or as required
Review, update and implement Gender Analysis and Action Plan	Project inception and annually thereafter, or as required
Develop and Implement Induction Plan	Pre-construction/construction
Site specific preliminary EIAs and subsequent environmental permits for construction works to ensure compliance with the applicable regulatory requirements in the BiH and UNDP SES Policy	Pre-construction (Minister to confirm requirement)
Grievance Redress Mechanism	Project Inception
Monthly Contractor Reports	Construction
Procurement Plan	Pre-procurement
Waste Management Plan	Construction
Checks and Audits	Monthly/Annually
Guidelines for nature-friendly stabilization of the riverbed and riparian areas to guide river-works projects.	Pre-construction

INTRODUCTION

This Environmental and Social Assessment Report (ESAR) has been prepared as part of the development of a project proposal for “Scaling up climate resilient flood risk management in Bosnia and Herzegovina” by the NDA and State Entities of Bosnia and Herzegovina to the Green Climate Fund (GCF).

The ESAR has been prepared using publicly available information (legislation, reports, papers, maps, images, internet searches etc), project reference documents (e.g., Concept Note, Feasibility Study, Gender Analysis and Action Plan etc), consultation with stakeholders such as government, NGOs and project development team members, and field-visits by a safeguard specialist to representative sites. The risk assessment and proposed mitigation measures draws on the available information and the experience of team members with similar projects.

As this project is supported by UNDP in its role as a GCF Accredited Entity, the project has been screened against UNDP’s Social and Environmental Standards and deemed a Moderate Risk (GCF Category B) project. To manage the low to moderate risks identified, an Environmental and Social Management Framework (ESMF) has been prepared for the project and forms part of this document (Section 0).

1.1 BACKGROUND

Bosnia and Herzegovina (B&H) is a middle-income country with an estimated 3.531 million inhabitants and total surface area of 51,209.2 km². The 1992-1995 war has had a devastating impact on its human, social and economic resources, leading to enormous challenges of the post-war reconstruction and economic and social recovery. This challenge has been further compounded by the transition towards market economy requiring structural reforms and improved governance.

Bosnia and Herzegovina is particularly vulnerable to extreme precipitation and river basin flooding and results in the highest damages of all natural hazards facing B&H. Increased intensity and variability of rainfall due to climate change have been causing more frequent and intensive floods on the territory of B&H.

The main flooding sources in B&H are fluvial, pluvial, torrents and groundwater. The river basins with high flood risk are the Una (in B&H 9,130 km²), Vrbas (6,386 km²), Bosna (10,457 km²), Ukrina (15,15 km²), Neretva and Trebišnjica (10,110 km²), which comprises 75% of the total surface area of B&H. Under climate change conditions, the total number of people affected is 924,453 and 314,630 households, which is 26.2% of total B&H population or 27.2% of total households in B&H.

One of the root causes of increasing vulnerability and damages from floods is lack of quality climate data and flood forecasting and early warning system. As a result, the BiH authorities are unable to make qualified decisions and the affected population cannot effectively cope with the risk. Lack of climate information and risk knowledge increase the vulnerability and costs from flooding.

The NDA and Water Entities of Bosnia and Herzegovina with support from UNDP, has formulated a project on adaptation to climate change impacts associated with flooding for submission to the GCF. The proposed activities in the project have been developed based on programs of works conceived by the Water Entities working with local authorities and communities. The project will seek to improve the resilience of vulnerable communities to climate change impacts by scaling up climate resilient flood risk management in Bosnia and Herzegovina.

1.2 OVERVIEW OF THE PROJECT

The project objective is to address the increasing vulnerability of B&H communities and livelihoods to intensified climate-induced hydro-meteorological flood-related disasters (pluvial, fluvial and torrential). This will be accomplished by adopting a comprehensive and integrated approach to

flood risk management, resulting in strengthened institutional, technical, and financial capacity to develop and implement long-term flood risk management strategies, including a combination of structural and non-structural measures which protect communities, employ eco-system-based approaches, and re-balance natural eco-system functions. In addition, strengthened early warning and emergency response systems will provide forecasts and early warning to at-risk populations.

The project will reduce vulnerability to floods across B&H (pluvial, fluvial and torrential flooding) through improved climate information and establishment of flood forecasting and early warning systems. Improved generation and use of climate information will enable sound decision making and investment into climate resilient flood risk reduction measures.

1.2.1 Summary of Activities

The proposed project will have the following activities:

OUTPUT 1: CLIMATE-INFORMED FFEWS AND AN INCREASED GENERATION AND USE OF CLIMATE DATA REDUCE VULNERABILITY TO FLOOD RELATED DISASTERS

Activity 1.1: Upgrade and expand the coverage of the hydrometric network for enhanced monitoring of climate variables in Category I catchments. Activity 1.1 will include the following sub-activities:

- **1.1.1:** Develop optimized hydrometric network specification, develop ICT strategy and plan for hydrometric network
- **1.1.2:** Procure and install equipment to increase density of the hydro-meteorological observation network and expand monitoring to include greater range of hydrometric variables that climate change is bringing, in particular:
 - Meteorological and hydrological network for improved monitoring of torrents
 - Integration of the HPPs hydrometric network into the national network
 - Groundwater monitoring network for Adriatic Sea basin (include development of groundwater monitoring methodologies and protocols)
 - Sediment monitoring
- **1.1.3:** Set-up sustainable O&M for the network and,
- **1.1.4:** Develop long-term financing mechanisms for the maintenance of the hydrometric network

Activity 1.2: Enhance climate-induced flood hazard, risk and vulnerability information for strategic management and sound decision making for climate induced flood management. Activity 1.2 will include the following sub-activities:

- **1.2.1:** Develop hydrological modelling for all main basins (Category I rivers) to complement WBIF project's EUFD hazard and risk models
- **1.2.2:** Develop full basin hydraulic models
- **1.2.3:** Produce country-wide maps of torrents hazard, risk and vulnerability
- **1.2.4:** HPP modelling for development of enhanced operating rules for Hydro Power Plants (HPPs). Incorporation of HPP operations into flood hazard and risk modelling

Activity 1.3: Develop an integrated centralized and community-based flood forecasting and early warning system (FFEWS). Activity 1.3 will include the following sub-activities:

- **1.3.1:** Develop and implement impact based FFEWS system (centralized and Community-based)
- **1.3.2:** Implement CBEWS for high priority communities for which CBEWS will be supported based on the following considerations: relatively high risk, short lead time of the extreme events, potential technical constraints for the central system to effectively service the community (e.g. due to remote location or connection problems)
- **1.3.3:** Review, identify and develop sector specific FFEWS products (based on market research and WTP surveys). Review existing access to, and use of climate and flood risk information in specific sectors (agriculture, hydropower/energy)

- **1.3.4:** Develop and implement a capacity development plan for embedding flood hazard and risk modelling approaches and FFEWS into appropriate institutions in BiH (based on Institutional capacity report developed for Vrbas).

Activity 1.4: Developing and implementing national protocols and SOPs on data generation, data management and communication for effective FFEWS and flood risk management. Activity 1.4 will include the following sub-activities:

- **1.4.1:** Implement SoPs for “last-mile” warning and dissemination and communication system. Based on Vrbas design, specify the last-mile system (including dissemination and warning technologies) will be implemented
- **1.4.2:** Develop national protocols and SOPs on data generation, data management for FRM.
- **1.4.3:** Develop data sharing protocols and platform for climate data, across all government institutions in both entities. Spatial Data Infrastructure to be developed/enhanced to ensure climate data flow/exchange

OUTPUT 2: SCALED-UP ECOSYSTEM-BASED AND NON-STRUCTURAL CLIMATE RESILIENT FLOOD RISK REDUCTION.

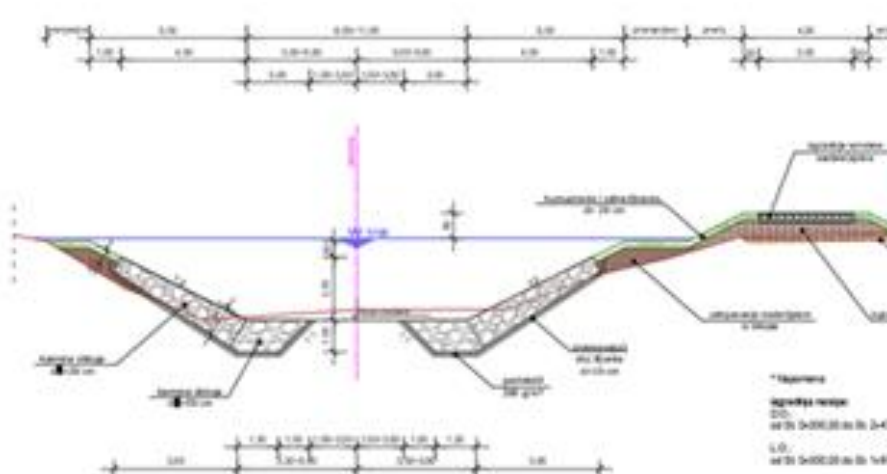
Activity 2.1: Mainstream climate induced flood risk reduction into sectoral planning (agriculture, hydropower, critical infrastructure, forestry) and spatial planning. Activity 2.1 will include the following sub-activities:


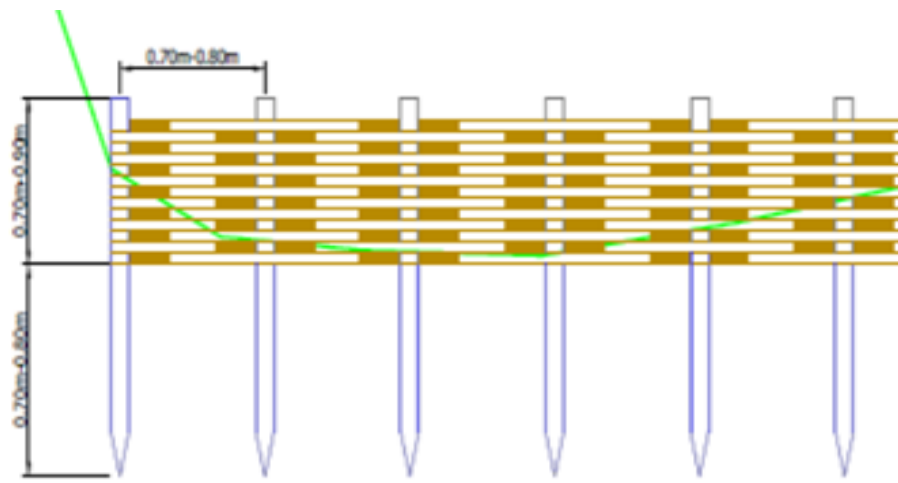
- **2.1.1:** Mainstream climate induced flood risk reduction into sectoral strategies, plans and technical guidelines for agriculture, hydropower and critical infrastructure, forestry and environment.
- **2.1.2:** Develop national floodplain zoning policy and legislation, based on hazard, risk and vulnerability mapping, flood resilient building codes and embedding of climate change considerations in the design and construction standards of critical infrastructure.
- **2.1.3:** Update climate risk-informed methodologies and standards for infrastructure design, construction material, use and maintenance of critical infrastructure in B&H
- **2.1.4:** Deliver training and technical advice on climate resilient infrastructure design, construction and O&M approaches

Activity 2.2: Implement and mainstream new ecosystem-based flood risk reduction and climate change adaptation methods. Activity 2.2 will include the following sub-activities:

- **2.2.1:** Implement catchment management measures for reduced erosion
 - Erosion reduction on torrential watercourses e.g., gabion walls, sediment barriers etc.
 - The stabilization of excessively eroding riverbanks with vegetation cover and its root network
 - Planting of forest stripes in agricultural land
 - Identify agriculture infrastructure that could address climate threats, such as irrigation systems and reservoirs and rainwater collection in each target basin. Assess and identify flood risks to agricultural infrastructure in target basins, as well as flood risk management opportunities associated with agricultural infrastructure under climate change and potential new infrastructure such as irrigation retention basins that could also serve as flood storage areas;
 - Design an agro-forestation scheme identified area of floodplain and develop an implementation plan for the scheme.
- **Error! Reference source not found.** provides examples of the measures proposed.

Table 1 Proposed EBA/non-structural measures under Activity 2.2.1

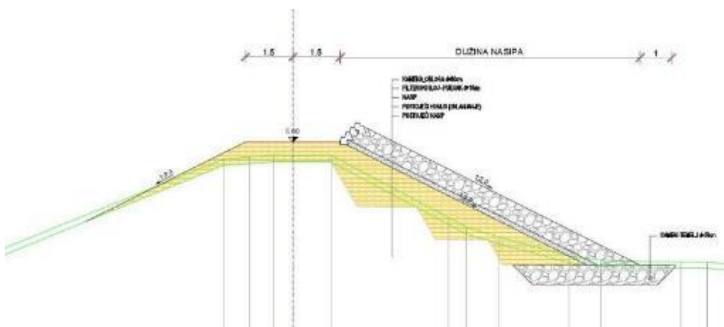
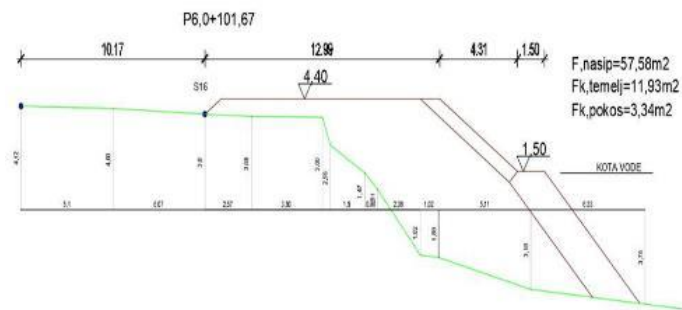
River Basin	Name of the measure	Brief description of measure
Vrbas river Basin	Rehabilitation of downstream parts of Jošavka river, on critical locations where erosion is significant. 	<p>Rehabilitation on critical parts river Jošavka. Total length of eroded banks is approx. 500m.</p> <p>Removing flood deposit, protecting the banks with natural stone and erecting small dykes in order to keep 1:100 flood flows within riverbed.</p>
Vrbas river Basin	Flood deposit torrential barriers on Jošavka basin	<p>Construction of torrent barriers for sediment control.</p> <p>9 barriers are planned for construction.</p> <p>Total volume of stone barriers is approx. 17,000.00 m³.</p>

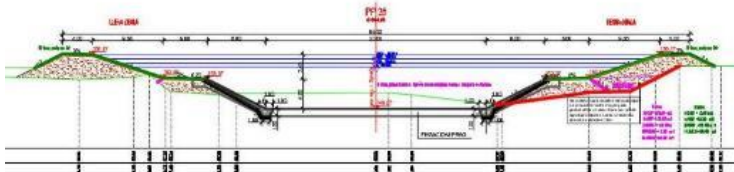
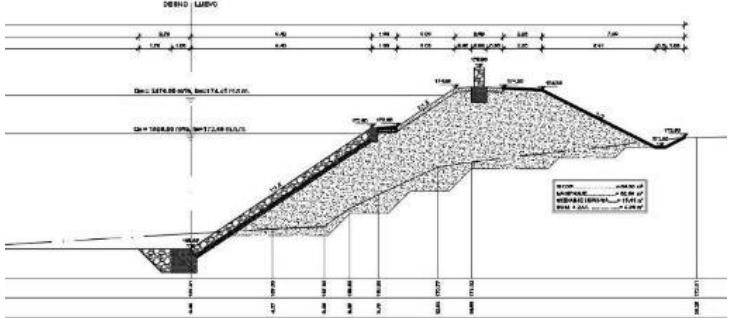
		
<p>Vrbas Basin</p>	<p>river</p> <p>Wickers</p> 	<p>Construction of wicker barriers for sediment control.</p> <p>16 barriers are planned for construction within whole river basin.</p> <p>Total length of 16 wicker barriers is approx. 1100m.</p>

Vrbas Basin	<p>river</p> <p>Forestation</p> 	<p>Recommended forestation in Jošavka river basin is approximately 200ha.</p>
Vrbas Basin	<p>river</p> <p>Grassing</p> 	<p>Recommended grassing in Jošavka river basin is approximately 80ha.</p>

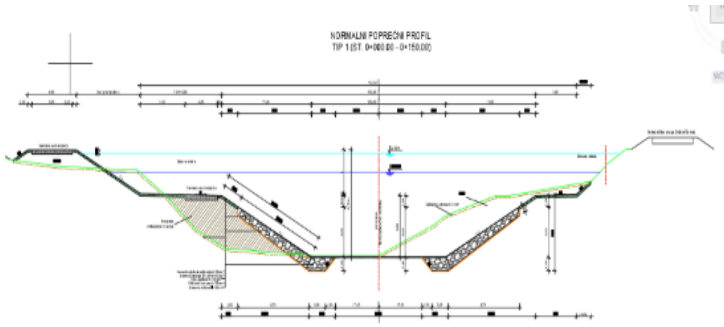
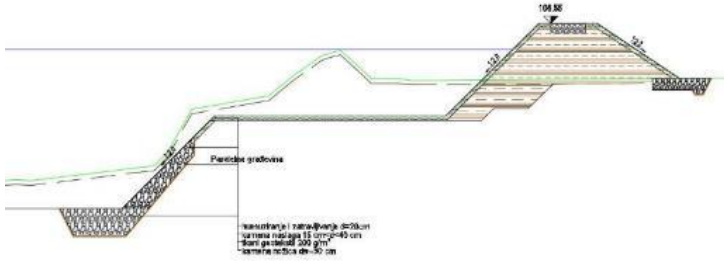
Appendix 5 provides supplementary information on flood deposit torrential barriers on Jošavka basin.

- 2.2.2: Implement 21 selected non-structural flood risk reduction measures. Eight (8) of these 21 non-structural flood risk reduction measures will be financed by GCF resources. **Error! Reference source not found.** provides examples of the measures proposed.

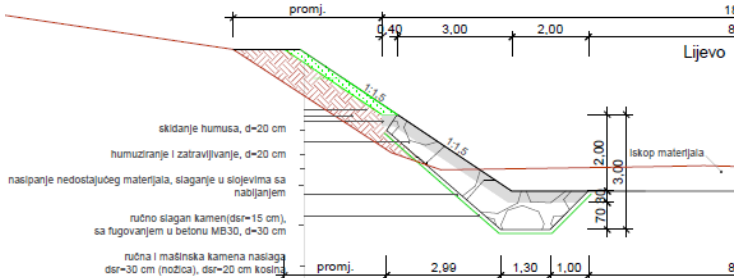
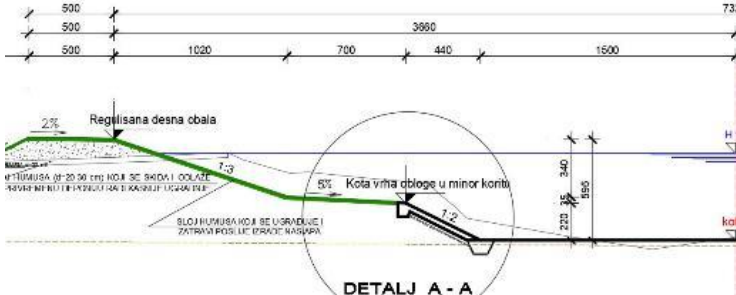
River Basin	Name of the measure	Brief description of measure
Neretva river Basin	<p>Rehabilitation of the right defensive embankment on the Krupa River in Višići settlement. L=4,000m</p> 	<p>Works consists of upgrading of existing protective dyke on the right bank of Krupa river. Existing dyke can not withstand climate change induced flood levels for 1:100 events.</p>
Neretva river Basin	<p>Flood deposit removal and rehabilitation of damaged banks of the Neretva River at the Struge-Čapljina section.</p> 	<p>Removing of excessive flood deposits from the riverbed and protecting riverbanks - left river bank with natural stone lining, to prevent further erosion. No additional excavation is necessary from the riverbed (ie natural bed level will be retained).</p> <p>On critical parts, excavated flood deposit from riverbed will be used for backfilling of eroded bank. No additional excavation of eroded banks is required.</p>

<p>Bosna river Basin</p>	<p>Completion of flood protection line in urban areas (Sava River Basin) - Gračanica River Spreča - cross entity river.</p> 	<p>Right riverbank is in FBiH and left in RS.</p> <p>Total length of rehabilitation: 2,500 m. Removing flood deposit, protecting the banks with natural stone and erecting small dykes in order to keep 1:100 water within riverbed.</p>
<p>Bosna river Basin</p>	<p>Completion of flood protection line in urban areas (Sava River Basin) – Maglaj</p> 	<p>Measure consists of profiling of right riverbank of Bosna river, removing flood deposit, protecting the banks with natural stone in cement mortar and erecting small dykes in order to keep 1:100 water within riverbed. Stone embankment is elevated to height of 1:20 year water level, while rest of the embankment is constructed from soil and clay.</p> <p>To maintain “life with river” policy, Water Agency requested construction of staircases from top to bottom of embankment on every 100m of riverbanks. Also, pedestrian walking trail is designed on top of dyke.</p>
<p>Bosna river Basin</p>	<p>Construction of a bank revetment on the left bank starting from the New-Japanese Bridge in Doboj towards downstream at a length of approximately 1,0 km.</p>	<p>Removing flood deposit, protecting the banks with natural stone and erecting dykes in order to keep 1:100 water within riverbed. All material is provided from local quarries.</p>



		
<p>Bosna river Basin</p>	<p>Construction of protective structures in Dobor settlement:</p> <ul style="list-style-type: none"> • Regulation of the main riverbed of the Bosna River at a length of 2,000 m • Construction of a protective embankment along the Bosna River at a length of 2,000 m • Construction of an embankment along the Dusa River with a length of 250 m and the structure on the mouth of the Dubokovac canal. 	<p>Removing flood deposit, protecting the banks with natural stone and erecting dykes in order to keep 1:100 water within riverbed. All material is provided from local quarries.</p>
<p>Sana river Basin</p>	<p>Regulation of the canal of the Gomjenica River around the City of Prijedor from the confluence with the Sana River and upstream at a length of approximately 4 km.</p>	<p>Slashing and trimming of existing vegetation within inundation area, removing flood deposit, protecting the banks with natural stone and erecting dykes in order to keep 1:100 water within riverbed.</p>



	 <p>skidanje humusa, d=20 cm humuziranje i zatravljivanje, d=20 cm nasipanje nedostajućeg materijala, slaganje u slojevima sa nabljanjem ručno slagani kamen (d=15 cm), sa fugovanjem u betonu MB30, d=30 cm ručna i mašinska kamena naslaga d=30 cm (nožica), d=20 cm kosina</p>	<p>Total length of proposed works is from mouth of river Gomjenica upstream for 3,0 km.</p>
<p>Bosna river Basin</p>	<p>Completion of flood protection line in urban areas (Sava River Basin) – Lukavac L=1200 m</p>  <p>Regulirana desna obala Kotni vijeh obloge u minor koritu DETALJ A-A</p>	<p>Removing flood deposit, protecting the banks with natural stone and erecting dykes in order to keep 1:100 water within riverbed. All material is provided from local quarries.</p> <p>-Removing/Slashing vegetation from banks and within riverbed,</p>

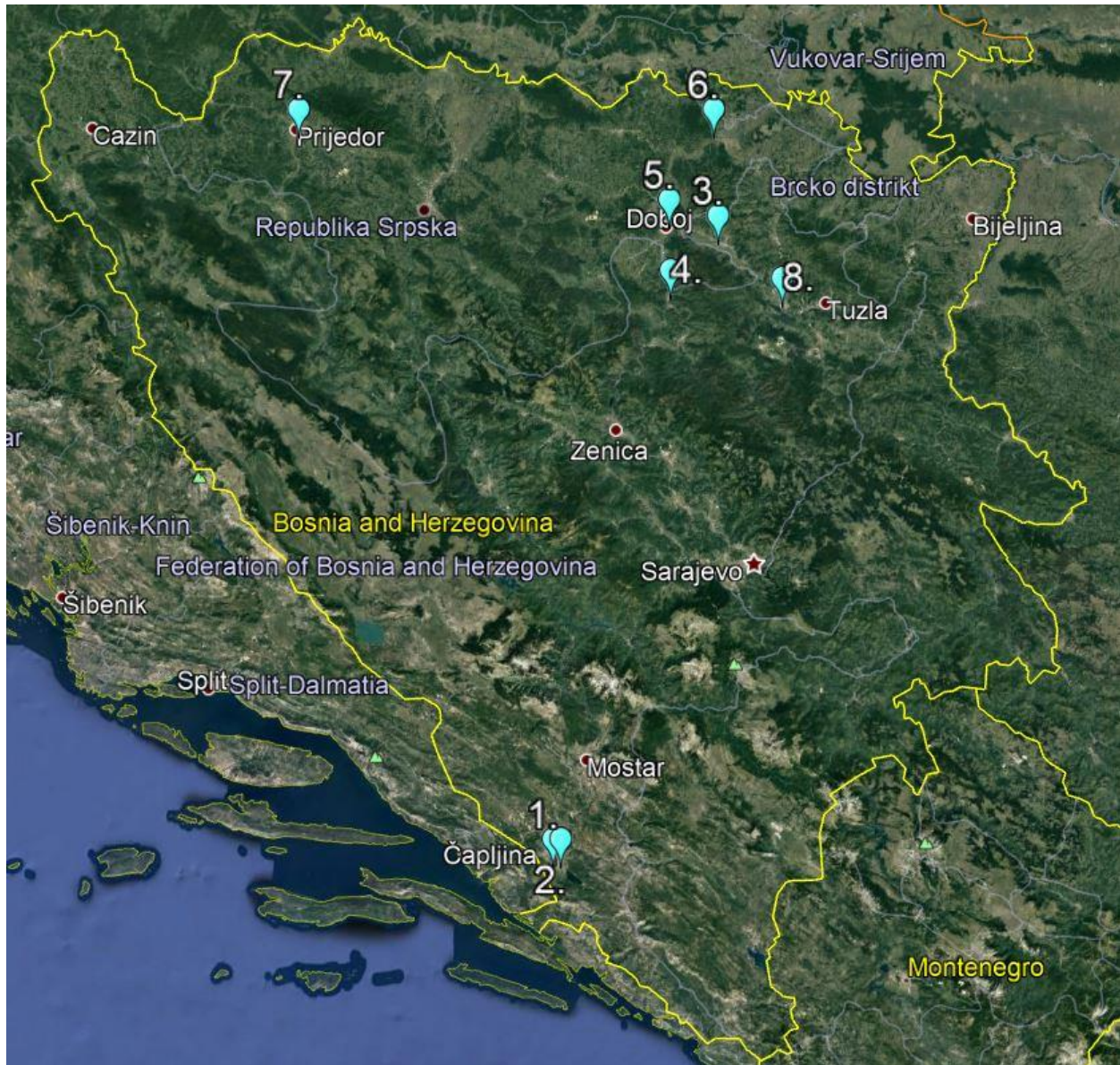


Figure 1 Location of proposed GCF financed interventions for Activity 2.2.2

More information on dikes and embankments on Neretva, Bosna, and Sana Rivers is provided in Appendix 5 to this report.

Activity 2.3: Codify and mainstream “ecosystem-based adaptation” (EbA) solutions into policies and regulations and build awareness about concepts of “making room for water” and/or “living with floods” among decision makers and communities. Activity 2.3 will include the following sub-activities:

- 2.3.1: Develop best-practice guidelines for non-structural measures:
- Develop the methodology and guidance for undertaking river basin analysis of the local socio-economic, environmental, and institutional conditions that would underpin the selection and design of basin appropriate EbA solutions.
- Develop the methodology for system evaluation to determine the pre-existing types of ecosystems and abiotic processes and identify opportunities and constraints for effective conservation and restoration of ecosystems
- Develop methodology and guidance for undertaking risk assessment and appraisal of EbA measures, by adapting traditional risk assessment and appraisal methods for nature-based solutions, to incorporate the full range of benefits generated by nature-based projects
- 2.3.2: Develop technical specification, standards and protocols for design and implementation of non-structural measures
- Review existing international technical specifications, standards and protocols for the design and implementation of nature-based structures and adapt and develop same for BiH.
- Develop a knowledge portal and common resource center to collect, collate and share knowledge and fill these gaps to advance uptake of nature-based solutions. Developing and applying quantifiable engineering protocols for ecosystems will require close collaboration between ecologists, or specialists with a strong understanding of the natural systems, and engineers. A knowledge portal of this nature allows to co-working and knowledge sharing
- 2.3.3: Review and implement of training required for new non-structural measures

Activity 2.4: Review and strengthening of institutional capacity and development of long-term institutional plans for climate resilient FRM. Activity 2.4 will include the following sub-activities:

- 2.4.1: Embed FRM training in existing government training programs for long-term FRM training in B&H.
- 2.4.2: Develop a costed and prioritized Institutional capacity development plan to address technical, functional and human capacity gaps identified through the completed institutional capacity assessment
- 2.4.3: Implement community-based training and awareness raising initiatives at community level.

OUTPUT 3: CLIMATE-PROOF FLOOD PROTECTION INVESTMENTS STRENGTHEN ADAPTIVE CAPACITY AND REDUCE EXPOSURE TO CLIMATE-INDUCED FLOODS

Activity 3.1: Development of a country-wide investment framework for climate induced flood risk reduction and management including provisions for private sector engagement in climate risk financing. Activity 3.1 will include the following sub-activities:

- 3.1.1: Develop investment framework for climate induced floods risk reduction and management including provisions for public and private/productive sector engagement in climate risk financing;
- 3.1.2: Develop risk financing and transfer mechanisms based on detailed socio-economic risk, damages and losses assessment;
- 3.1.3: Design natural disasters’ insurance scheme and explore, and identify, other risk financing and transfer mechanisms products and tools.
- 3.1.4: Develop tool for appraisal-led design for structural and non-structural FRM measures, FRM investment planning, climate risk financing mechanisms and for appraisal-led FRM options design and decision-making, based on CBA approaches.

Activity 3.2: Formulate and implement multi-year climate resilient municipal investment plans and gender responsive community preparedness plans in selected municipalities and in one canton in Vrbas, Una-Sana, Bosna, Drina, Neretva and Trebišnjica basins. Activity 3.2 will include the following sub-activities:


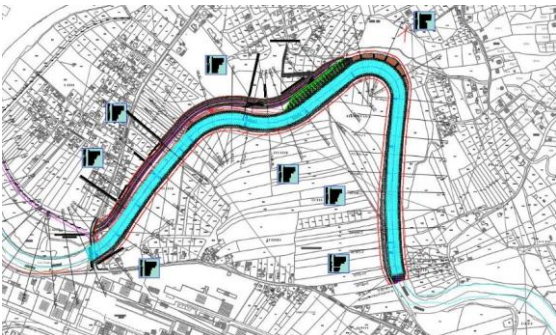
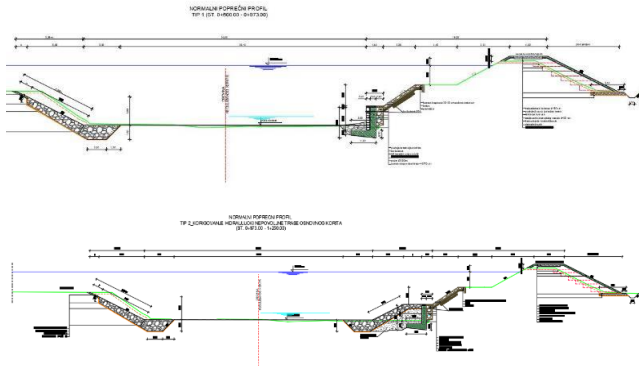

- 3.2.1: Develop municipal investment plan for climate resilient FRM planning for 10-12 highest risk communities and 1 canton
- 3.2.2: Develop preparedness plans for 10-12 highest risk communities and 1 canton based on Vrbas methodology

Activity 3.3: Implement climate-proof structural flood risk reduction and anti-erosion interventions in Vrbas, Una-Sana and Bosna, Neretva and Trebisnjica river basins. Activity 3.3 will include the following sub-activities:

- 3.3.1: Finalize detailed design of climate resilient flood protection structural measures identified using CBA methods and appraisal-led optioneering to identify and prioritize critical flood protection structures.
- 3.3.2: Implement new flood defenses and the rehabilitation and upgrade of existing flood defenses with climate proofing.



Annex VI (b) – Environmental and Social Assessment Report

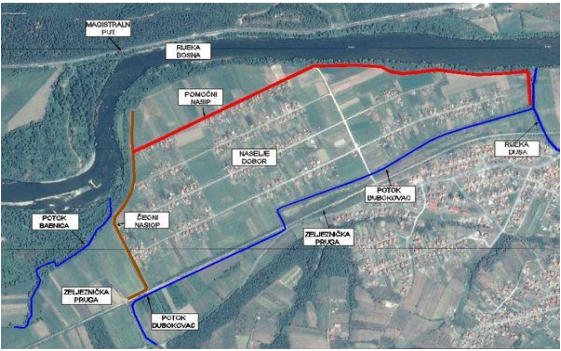

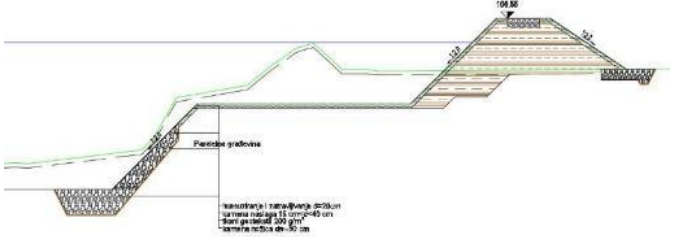
Green Climate Fund Funding Proposal

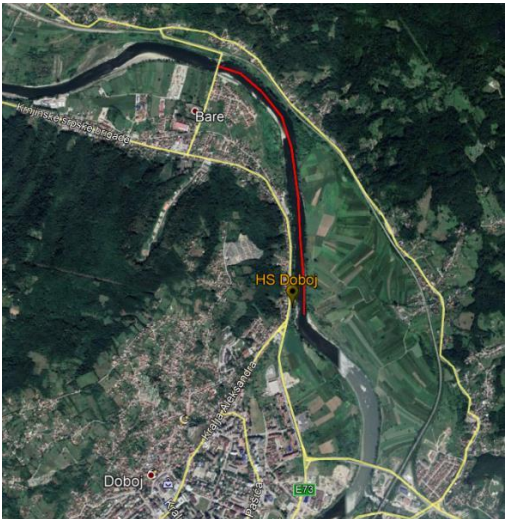
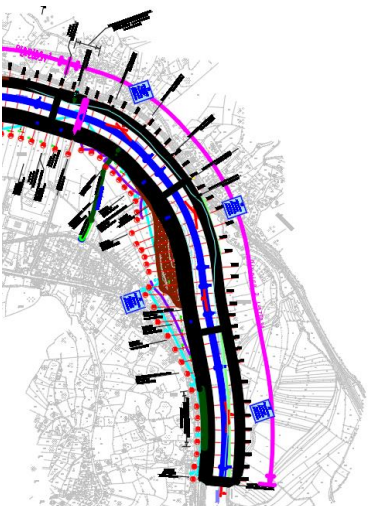
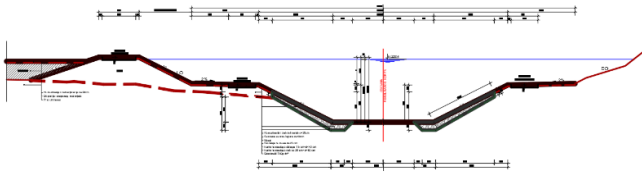

Structural measures to be implemented under sub-activity 3.3.2				
No.	River basin	Google image/Design Layout/Photo from location	Name of the measure	Brief description of measure
1.	Vrbas	 	<p>Rehabilitation of the Vrbanja River bed in Banja Luka</p>  	<p>Works on landscaping of the main riverbed in terms of stabilization and securing of river banks, as well as on the profiling of the riverbeds.</p> <p>The project will additionally improve the concave curve at the site of "Crni Vir" and will include rehabilitation and overhanging of the existing right embankment.</p>



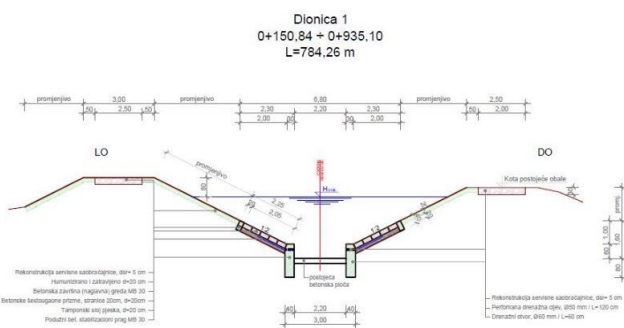
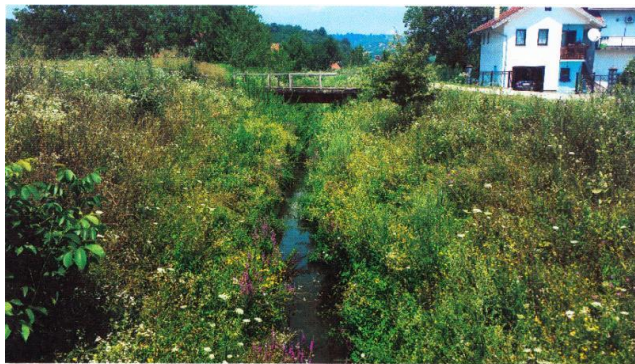
Annex VI (b) – Environmental and Social Assessment Report


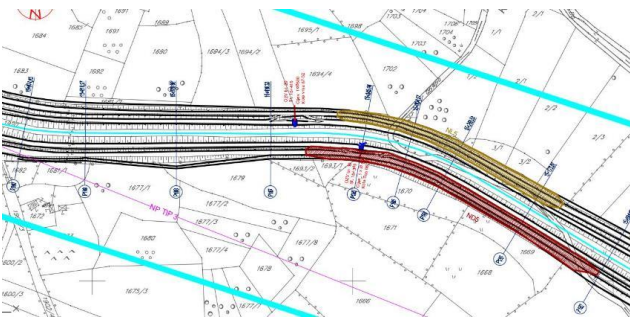
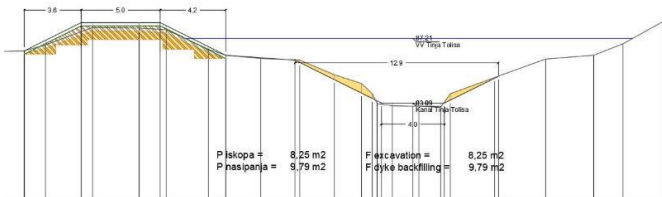

Green Climate Fund Funding Proposal


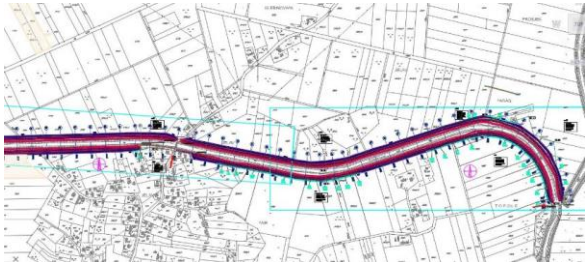
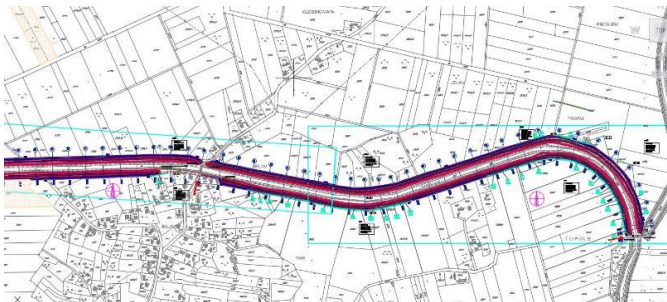

Structural measures to be implemented under sub-activity 3.3.2				
No.	River basin	Google image/Design Layout/Photo from location	Name of the measure	Brief description of measure
2.	Vrbas	 	Revitalization of Borna channel in Gradiska Municipality	Rehabilitation on the left bank of the canal with 2,1 km long dyke along the canal. On the left bank, an elevation of about 0.4 m is required on average 300 m in length, as a concrete wall along the existing road. On the right bank, an elevation of 0.6 m in length of about 2 km is required. Bottom of canal in the length of 2,1km is required which also includes restoration of 4 existing cascades.


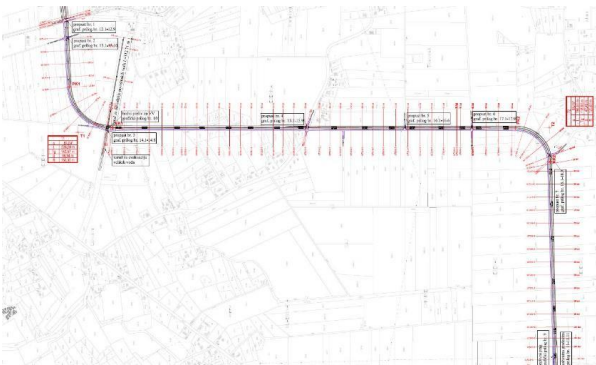
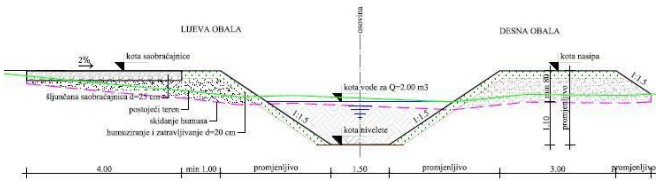

3.	Bosna	 	<p>Upgrading of Bosna River dykes in Modrica IV settlement in Modrica Municipality</p> 	<p>The system of protection of the settlement Dobor from the high waters of the river Bosna through the construction and reconstruction of the right defensive embankment.</p> <p>Removing flood deposit, protecting the banks with natural stone and erecting dykes in order to keep 1/100 water within riverbed. All material is provided from local quarries.</p> <p>It also envisages regulation of two watercourses of the tributaries of the river Bosna, Dusa and Dubokovac in the area of the settlement Dobor as well as internal drainage through the construction of primary, secondary and tertiary channel network</p>
----	-------	---	---	---

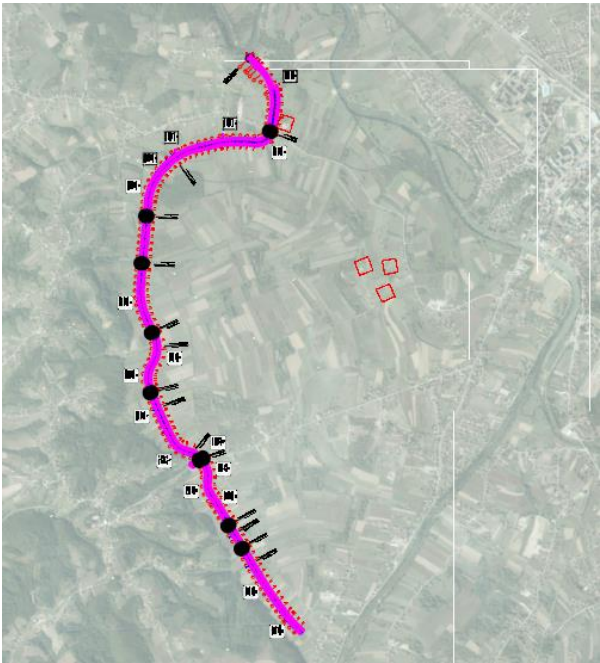
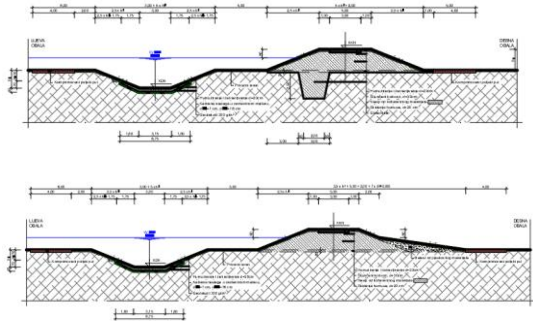

4.	Bosna	 	<p>Flood protection of the settlement Bare, City of Doboj</p>  	<p>Cleaning and stabilization of the basic river bed of the river Bosna from the bridge in Bare settlement and upstream at a length of 1.78 km. The river bed is 100 m wide with a slope of 1: 2 and a stone embankment up to a water level of 1/10 years.</p> <p>The embankments were designed to protect the Bare settlement from the high waters of 2014 with a overhang of 30 cm.</p>
----	-------	--	---	---

Structural measures to be implemented under sub-activity 3.3.2				
No.	River basin	Google image/Design Layout/Photo from location	Name of the measure	Brief description of measure
5.	Bosna	 	<p>Rehabilitation of the Lijesanj and Grab Rivers beds, City of Doboj</p> <p>Dionica 1 0+150,84 + 0+935,10 L=784,26 m</p>  	<p>Permanent regulation-regulation of the perimeter canal and the Ljesanj stream at a length of about 2,000 m, regulation of the perimeter canal Grab at a length of about 650 m.</p> <p>The degree of protection against flooding is defined by the coincidence of the water levels of the 20-year-high water of the Bosna River and the 100-year-old large water of the Liješanj Canal.</p> <p>Top of dyke is 80cm higher that 1/100 water level</p>

Structural measures to be implemented under sub-activity 3.3.2				
No.	River basin	Google image/Design Layout/Photo from location	Name of the measure	Brief description of measure
6	Drina	 	<p>Rehabilitation of channels network in area of PS Đurići (Tinja-Tolisa)</p>  	<p>Rehabilitation of canal: cleaning and slashing of in-canal vegetation, cleaning flood deposit and sediment. On critical parts, additional elevation of top on levee is needed.</p> <p>In addition, strengthening of canal banks due to erosive process is needed Total length of the proposed works is 940m.</p> <p>In order to connect back coastal waters, reconstruction of existing inlets as proposed as well as construction of three new.</p>


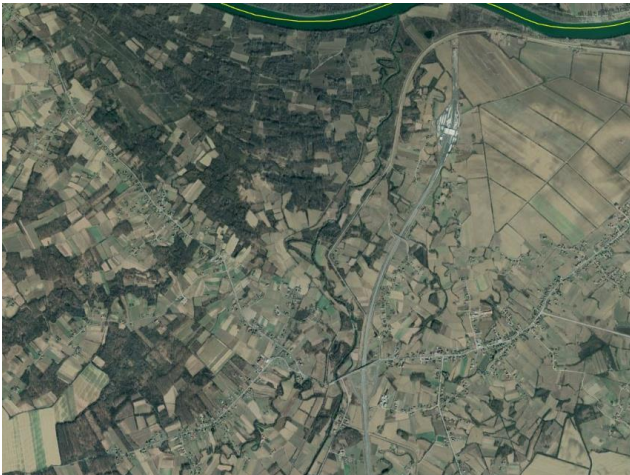
Structural measures to be implemented under sub-activity 3.3.2				
No.	River basin	Google image/Design Layout/Photo from location	Name of the measure	Brief description of measure
7.	Drina	 	<p>Rehabilitation and raising of dyke on the GOK channel in the City of Bijeljina</p>  	<p>The works include rehabilitation of eroded banks as well as the overhang of the embankment crown on critical sections. In order to allow ongoing maintenance in the full profile of the embankment, slashing of low vegetation will be conducted. New service road will be constructed on top of the embankment.</p>

Structural measures to be implemented under sub-activity 3.3.2				
No.	River basin	Google image/Design Layout/Photo from location	Name of the measure	Brief description of measure
8.	Drina	 	<p>Construction of channel (Selište - Dašnica)</p>  	<p>Construction of new canal that connects two existing ones. By connecting the Selište canal to the Dašnica-old canal, gravity supply of irrigation water to the subsystems and planned pumping stations is ensured, which will also enable drainage of inland surface waters to the Drina river.</p> <p>The canal is 2.8 km long, 2.5 m wide at the bottom and slope 1: 1.5.</p>

9.	Una-Sana		<p>Construction of the Lateral channel in west part of Prijedor</p>  	<p>Construction of a perimeter canal in Mataruško field, total length 5.29 km, for protection against flooding of agricultural parcels and drinking water intake for the City of Prijedor. The channel is variable width at the bottom with partial stone lining sections. The embankment crown on the right bank of the Lateral Canal is above 1/100 high with additional overhang of 0.80m.</p>
----	----------	---	---	---

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Structural measures to be implemented under sub-activity 3.3.2				
No.	River basin	Google image/Design Layout/Photo from location	Name of the measure	Brief description of measure
10.	Vrbas, Bosna, Drina, Sava	 	Cleaning of areas near canals and dykes in north RS	Cleaning of areas near canals and dykes in north RS Total area 110ha.

1.3 PROJECT ALTERNATIVES

As part of the project development, a range of alternatives were considered.

1.3.1 Do Nothing

Without undertaking the river works activities, significant flooding and loss of life and assets would continue to occur.

The GCF project will support the commitment of the various level of government in Bosnia and Herzegovina to avoid losses of lives and to reduce economic and infrastructure losses caused by climate-induced hydro meteorological disasters. The project will achieve this by nation-wide scaling-up of the FFEWS, developing capacities for climate information services, enabling, and embedding the use of climate risk information in sector planning and decision-making, and reduction of exposure of the most vulnerable communities to climate-induced hazards through community-based risk reduction measures. Without undertaking these interventions, the country would not be able to reduce the potential for loss or damage to assets and/or loss of life.

1.3.2 Alternate Locations

The proposed activities could be undertaken in a number of different locations. However, the proposed locations, particularly the river works interventions have been identified by the relevant water agencies in Bosnia and Herzegovina as priority sites within their strategic plans, that is, sites that provide the greatest economic, environmental, and social benefit.

LEGAL AND INSTITUTIONAL FRAMEWORK FOR ENVIRONMENTAL AND SOCIAL MATTERS

1.4 LEGISLATION, POLICIES AND REGULATIONS

The following legislation is relevant to the project.

Constitution

Parts of the BiH Constitution that relevant to social and environmental aspects:

- Article II: Human Rights and Fundamental Freedoms
 - 3. Enumeration of Rights
 - a) The right to life.
 - d) The rights to liberty and security of person.
 - f) The right to private and family life, home, and correspondence.
 - g) Freedom of thought, conscience, and religion
 - k) The right to property.
 - m) The right to liberty of movement and residence.

1.4.1 Environmental laws and regulations:

- **Act of 30 August 2013 on protection of the environment (Environmental, Climate and Sustainable Development Laws).** Determines the mandate of institutions in charge of protection of the environment, ecologically significant areas, protection of particular eco-systems, protection measures, planning and organization, monitoring, access to information, promotion of education in environment protection, financing, inspections.

In regard of EIA, the rulebooks that defines criteria on projects for which the environmental assessment impact is necessary, contains the list of related objects/projects ("Rulebook on plants and facilities that require EIA and plants/facilities that require environmental permit" Official Gazette FBiH 19/04 for FBiH, and Official Gazette RS No: 124/12 and Official Gazette RS No 124/12). In water sector the projects that require EIA are groundwater pumping (10mil m³/annually), hydro technical facilities for water transport (for more than 100mil m³/annually), waste water processing facilities, dams and other facilities that accumulate water (for 10mil m³/annually). Type of measures that we will implement is not on the list (so, the project will be exempt).

Construction of flood protection facilities is regulated by "water guidelines" issued by water agencies. However, the local communities issue permits for activities of lower complexity for the waters under their responsibility (riverbed cleaning, removal of sediment, stone embankments, etc).

- **Act of 10 July 2012 on Fisheries.** Regulates waters used for fishing, commercial and sport fishing, protection of fish stocks, register, and supervision. The FBiH Fisheries law defines:

Article 35: Physical and legal entities carrying out certain activities on watercourses and reservoirs that lead to the death of the fish, and it is determined that they caused it, have to compensate to the user of fishing area for the damage.

The RS Law on Fishery forbids the following activities in "fishery zone"

- installation of fences or any other barriers that prevent persons holding a license for commercial or sport fishing and fishermen, to access to fishing zone
- carry out works that result in fishing waters being muddy for more than 48 hours,
- **Act of 21 December 2012 on protection against noise.** The Act defines allowed noise level in db. and time when is not allowed or must be minimized (during the night, from 22:00h-06:00h and during the non-working days (this is for FBiH, in RS there is no special act that regulates noise).

1.4.2 Laws relating to employment:

- **Labor Relations Act of 1993.** (Conditions of employment; Conditions of work). Labour laws falls within the competence of entities FBiH, RS, Brcko District and cantons (with exception of civil servants at state BiH level institutions). The issues of work conditions are regulated by legislation (numerous rulebooks) taken from former Yugoslavia (in both entities)
- **Act No. 59 of 2009 on Prohibition of Discrimination.**
 1. For the purposes of this Law, discrimination shall be considered to be any different treatment
 - including any exclusion, limitation or prioritization based on real or
 - assumed grounds against any person or group of persons and those with them
 - kinship or other relationship based on their race, skin color, language, religion, ethnicity
 - affiliation, disability, age, national or social origin, links to
 - national minority, political or other beliefs, wealth, union membership
 - or other association, education, social status and gender, sexual orientation,
 - gender identity, gender characteristics, as well as any other circumstance for the purpose or
 - the consequence of denying or threatening to any person the recognition, enjoyment or enjoyment of
 - equal rights, rights and freedoms in all areas of life.
 2. The prohibition of discrimination shall apply to all public bodies as well as to any physical or legal persons, both in the public and private sectors, in all fields, and in particular: employment, membership of professional organizations, education, training, housing, health, social care, goods and services intended for the public and public places, and the pursuit of economic activities and public services.
- **Act of 1 April 2003 on the protection of members of national minorities** (Text No. 105) and Act of 5 October 2005 to amend and supplement the Act on the protection of members of national minorities (Text No. 502). (Establishes rights and obligations of members of national minorities in Bosnia and Herzegovina, and obligations of government bodies to respect and protect ethnic, cultural and religious identity of every member of national minorities who is a citizen of BiH.
- **Act of 21 May 2003 on gender equality in Bosnia and Herzegovina** (Text No. 161) – Provides for the promotion and protection of sex equality, guarantees equal opportunities to all citizens in all areas, public or private, and prevents direct or indirect sex discrimination. Contains, inter alia, provisions on education, employment (Chapter V: sections 7 to 10), social and health protection.
- **Act of 16 June 2010 on Mining and Act of 6 June 2012 on Mining. (RS)** Regulates mining activities in the region. Includes provisions on workers employed in mining and occupational health and safety.
- **Act of 31 October 2005 on occupational safety and health.** OHS requirements will need to be met by project, therefore this Act relevant. OHS is regulated by both entities
- **Act on Safety at Work (Official Gazette of the Republic of Sprska, No. 1/08, amended 2010).** OHS is regulated by laws and numerous rulebooks in both entities, the acts are in force and define all aspects of occupational health, safety.
- **Act of 30 October 2002 on Construction** (Text No. 680). Contains provisions on security, protection from fire and explosion, health protection, protection from accident, noise and vibration.

1.4.3 Human Rights

- **Act of 3 July 2017 on protection of persons reporting corruption** (Official Gazette No. 62/17). RS Determines protection, procedure of reporting, obligations of responsible bodies and other relevant

questions. This will be important to reference in association with the GRM). In force from 2017 at the RS level. FBiH does not have this law - this issue in FBiH is partially covered by Work Law and Law on Public Servants

- **Act of 16 December 2013 on protection of persons reporting corruption in the institutions of Bosnia and Herzegovina** (Text No. 1310). In force from 2013 at the BiH level. It covers BiH (state) level institutions (servants) only, but not entities or cantons. This law has very limited range of enforcement.
- **Act of December 2000 on the Human Rights Ombudsman of Bosnia and Herzegovina.** The Human Rights Ombudsman of Bosnia and Herzegovina is an independent institution set up in order to promote good governance and the rule of law and to protect the rights and liberties of natural and legal persons.

Provides, inter alia, for powers and jurisdiction of the Ombudsman, appointment and resignation, co-operation with Ombudsman institutions of the entities, immunities, investigation procedure, obligation to co-operate with the institution, duty of discretion, and responsibility of authorities.

The BiH Ombudsman, together with the BiH Human Rights Chamber constitutes the BiH Human Rights Commission. Currently, the BiH Ombudsman operates based on the Constitution of BiH and the Law on the Ombudsman, which guarantees the independence and framework of the infrastructure for the protection and promotion of human rights and fundamental freedoms. There are three ombudsmen in BiH and any physical or legal entity may submit a complaint to the Ombudsman's office.

Their function is to:

- reviews cases related to poor enforcement or violations human rights committed by any authority of Bosnia and Herzegovina, its Entities or the Brcko District
- if finds a violation of rights, the Ombudsman shall issue recommendations or opinions to the competent authorities to take measures to correct issue of human rights violations or poor functioning of the administration. Also, the Institution advises citizens on how to use the most appropriate legal remedies or refers them to the appropriate institutions.

The Ombudsman can't:

- change decisions of the public authorities,
- assume the role of the bodies acting on appeal,
- cannot interfere with the decision-making process of the courts,
- Ombudsman doesn't represent complainants toward public authorities,
- does not make submissions or complaints on behalf of complainants,
- cannot award compensation for identified human rights violations.

1.5 ENVIRONMENTAL IMPACT ASSESSMENT IN BOSNIA AND HERZEGOVINA

There is no centralized Ministry for Environment – although the state-level Ministry for Foreign Trade and Economic Relations (MOFTER) does undertake some co-ordinating role, therefore the institutions responsible for environmental governance for major issues lies at the entity level. The EIA laws in the two Bosnian entities, the Federation of BiH (FBiH) and Republic Srpska (RS), broadly adhere to the provisions of the Aarhus Convention stipulating public participation in environmental decision-making. In both entity laws, there is a requirement for interested parties to be able to access relevant information and provide feedback at all stages of the environmental decision-making process (Art. 36 of FBiH Law, Art. 35 of RS law).

The first step in the process is to determine whether the construction and operation of the proposed infrastructure will have a significant environmental impact. For other projects, the decision to conduct an EIA will be made by the environmental ministry at the entity, cantonal or municipal level depending on the size of the potential environmental effects.

The stages of the process are then outlined in two phases¹:

- Phase I: If an EIA is needed, the project developer must submit the required information (called the Preliminary Environmental Assessment) to the responsible ministry to determine the scope of the EIA study.
- Phase II: In both entities, the responsible ministry defines the scope of the EIA and instructs the developer to select a consultant to carry out the study from a list of registered local institutions.

For projects deemed to have a smaller impact, cantonal (FBiH) or municipal (FBiH and RS) authorities execute the same function. In Phase I, the developer sends the following required documentation for the Preliminary EIA to the responsible ministry: general project description; proposed measures to mitigate negative environmental impact; discussion of alternatives and the justification for the selected alternative; relevant excerpt of planning documents; data needed for the impact assessment and potential difficulties with data collection; and a non-technical summary.

The responsible ministry then sends this documentation to relevant institutions and other stakeholders (including local authorities in affected communities) for comment within 30 days of receipt (Art. 58 of BiH law, Art. 59 of RS law).

After the 30 days have elapsed, the responsible ministry considers the comments from the relevant stakeholders to define the scope and content of the EIA for the developer (Art. 59 of FBiH law, Art. 60 of RS law). Once the scope and content of the EIA study are defined, the developer selects one of the companies or institutions that have obtained certification for EIA to carry out the study.

The developer then sends the completed draft EIA to the responsible ministry for further review and approval of the EIA study, which is Phase II of the EIA procedure. The draft EIA is sent by the ministry to relevant institutions for opinions and comments to be received within 30 days. The ministry also arranges a public meeting near the proposed site of the project, providing at least 15 days' notice of the details of the meeting (in local media and/or on the ministry website) and providing the relevant documents locally or on the ministry web pages (Art. 64–65 in RS law, Art. 62 in FBiH law). The responsible ministry must then publish minutes of the meeting promptly (within three days in FBiH, within eight days in RS), and the public can send further feedback to the ministry for a period of 30 days after the public meeting (Art. 61 in FBiH law, Art. 65 in RS law). The comments are then sent to the developer to address for the final EIA, which is resubmitted to the responsible ministry.

The responsible ministry decides whether to accept or reject the final EIA study after a series of evaluation processes (Art. 64 in FBiH law, Art. 68 in RS).

This process will apply to any completely new facilities built by the project e.g. construction of the Drina embankment. However, many of the proposed activities (reconstruction) fall within exemptions provided to the Water Authorities by the Minister. None the less, before starting any of the projects the water management ministry will seek confirmation that reconstruction activities are exempt in order to have clear documentation of that exemption.

1.6 MULTILATERAL AGREEMENTS AND BIODIVERSITY PROTOCOLS

Bosnia and Herzegovina is a signatory to a number of international and regional agreements and conventions, which are related to the environment. They include:

- Agreement between the Council of Ministers of Bosnia and Herzegovina and the Government of the Republic of Croatia on cooperation in the field of environmental protection and sustainable development (Official Gazette of BiH - MoU, No. 2/17)

¹ Fagan A., Sircar I. (2015) Environmental Impact Assessment (EIA) Processes in Bosnia-Herzegovina. In: Europeanization of the Western Balkans. New Perspectives on South-East Europe. Palgrave Macmillan, London

- Agreement between the Council of Ministers of Bosnia and Herzegovina and the Government of the Republic of Serbia on cooperation in the field of environmental protection and sustainable development (Official Gazette of BiH - MoU, No. 2/16)
- Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) - (Official Gazette of Bosnia and Herzegovina - MU No. 08/09)
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal - ("Official Gazette of Bosnia and Herzegovina" - MU No. 31/00)
- Aarhus Convention / Convention on Access to Information, Public Participation and Access to Justice - (Official Gazette of Bosnia and Herzegovina - MU No. 08/08)
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) - (Official Gazette of Bosnia and Herzegovina - MU No. 11/08)
- Convention on the Conservation of Migratory Species of Wild Animals (CMS) - (Official Gazette of BiH - MU, No. 8/2017)
- Protocol on Strategic Environmental Assessment to the Convention on Strategic Environmental Impact Assessment (SEA) - (Official Gazette of Bosnia and Herzegovina - MoU, No. 3/2017)
- United Nations Convention on Biological Diversity / UN Convention on Biological Diversity (UNCBD) - (Official Gazette of Bosnia and Herzegovina - MoU No. 12/02)
- United Nations Framework Convention on Climate Change (UNFCCC) - (Official Gazette of Bosnia and Herzegovina - MU No. 19/00)
- Convention on Wetlands of International Importance, especially on Habitats of Watercourses / Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention)
- Cartagena Protocol on Biosafety of the Convention on Biological Diversity (29.01.2000), Downloaded by Succession ("Official Gazette of Bosnia and Herzegovina" - MoU No. 12/08)
- Kyoto Protocol - Kyoto Protocol (Official Gazette of Bosnia and Herzegovina - MU No. 03/08)
- Stockholm Convention on Persistent Organic Pollutants (Official Gazette of Bosnia and Herzegovina - MU No. 01/10)
- Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) - (Official Gazette of Bosnia and Herzegovina - MU No. 08/08)
- Paris Agreement with the United Nations Framework Convention on Climate Change- ("Official Gazette of Bosnia and Herzegovina" -MU No. 1/17)
- Convention on Transboundary Effects of Industrial Accidents (TEIA) - (Official Gazette of Bosnia and Herzegovina - MU No. 13/12)
- Convention for the Protection of the Marine Ecosystem and the Coastal Areas of the Mediterranean (Barcelona Convention) - (Official Gazette of Bosnia and Herzegovina - MU No. 26/98)
- Protocol on Protected Areas and Biodiversity in the Mediterranean (Official Gazette of Bosnia and Herzegovina - MU No. 26/98)
- Vienna Convention for the Protection of the Ozone Layer - Accepted by Succession (Official Gazette of the SFRY - MU 01/90 and Official Gazette of the Republic of Bosnia and Herzegovina, No. 13/94)
- Montreal Protocol on Substances that Deplete the Ozone Layer - Downloaded by Succession (Official Gazette SFRY-MU, No 16/90)

1.7 UNDP PRINCIPALS AND STANDARDS

UNDP's Social and Environmental Standards (SES) underpin the organisations commitment to mainstream social and environmental sustainability into its programs and projects. The SES are an integral component of UNDP's quality assurance and risk management approach to programming. The project will be following the updated SES Policy 2021. Further details on the UNDP SES are available on the UNDP website: <https://www.undp.org/content/undp/en/home/librarypage/operations1/undp-social-and-environmental-standards/>

The UNDP SES have been applied during development of the project. The SES objectives are to:

- strengthen the social and environmental outcomes of programs and Projects
- avoid adverse impacts to people and the environment.
- minimize, mitigate, and manage adverse impacts where avoidance is not possible.
- strengthen UNDP and partner capacities for managing social and environmental risks; and
- ensure full and effective stakeholder engagement, including through a mechanism to respond to complaints from project-affected people.

The project has been screened against using the UNDP Social and Environmental Screening Template (Appendix 1). The screening indicated that the project would trigger most of the UNDP SES.

Table 2 describes the Principals and Standard triggers and outlines the requirements relevant to the project.

The proposed GCF interventions along with co-financed activities will be managed via a common project management structure (refer Section 1.27). The Government has signed a contract with EIB for the co-financed activities that commit it to implement and operate those activities in accordance with the EIB Environmental and Social Standards (2022) as a minimum. It will be the Board and the Project Management Unit's responsibility to ensure that all activities associated with the project meet the requirements of the UNDP SES including co-financing activities. The application of the ESMF and other safeguard documents will assist in achieving this.

During implementation the ESMF will be regularly reviewed and updated as necessary. Table 1

Table 2 shows the UNDP Standards that are triggered by the project, the relevant requirements under the standards as well as EIB Environmental and Social Standards and BiH laws relevant to those requirements. It is recommended that during the first review that a more detailed comparison is undertaken to confirm the highest standards that apply to each project activity.

Table 2 Summary of UNDP Social and Environmental Standards triggered by the project and their requirements for the project, along with EIB Environmental and Social Standards and BiH policies and legislation that align with UNDP SES requirements .

	Triggered	UNDP SES Requirements relevant to project	EIB Environmental and Social Standards (2 February 2022)	Relevant BiH Polices, Legislation, Regulations
Programming Principles				
Overarching Principle: Leave No One Behind	Yes	<ul style="list-style-type: none"> Follow the rights-based approach to development, including the application of a gender perspective. Identify and include poor, vulnerable, excluded and marginalized groups 	Standard 7 – Vulnerable Groups, Indigenous Peoples and Gender	BiH Constitution
Human Rights	Yes	<ul style="list-style-type: none"> Further the realization of human rights as laid down in the Universal Declaration of Human Rights and other human rights instruments. Uphold the principles of accountability and the rule of law, participation and inclusion, and equality and non-discrimination 	<p>Throughout EIB Standard, human rights considerations are fully integrated in environmental and social aspects</p> <p>Standard 1 – Environmental and Social Impacts and Risks</p> <p>Ensuring respect for human rights by integrating human rights impacts and risks into the impact assessment process</p> <p>Standard 2 – Stakeholder Engagement</p> <p>Engagement process shall be respectful of human rights</p>	<p><u>Constitution BiH</u></p> <p>All persons in the territory of Bosnia and Herzegovina enjoy the human rights and freedoms referred to in paragraph 2 of this member, which includes:</p> <p>a) The right to life. b) The right of a person not to be subjected to torture or to inhuman or degrading treatment or penalties. c) The right of a person not to be held in slavery or servitude, or under duress or compulsion work. e) The right to liberty and security of person. e) The right to a fair hearing in civil and criminal matters and other rights related to criminal proceedings.</p>

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

				<p>f) The right to private and family life, home and correspondence. g) Freedom of thought, conscience and religion. h) Freedom of expression. i) Freedom of peaceful assembly and freedom of association with others. j) The right to marry and to found a family. k) Right to property. l) The right to education. m) The right to freedom of movement and residence.</p> <p>Act of December 2000 on the Human Rights Ombudsman of Bosnia and Herzegovina</p>
Gender Equality and Women's Empowerment	Y e s	<ul style="list-style-type: none"> Promotion of gender equality and the empowerment of women Prevention and elimination of sexual exploitation, abuse and harassment (SEAH) 	<p>Standard 7 – Vulnerable Groups, Indigenous Peoples and Gender</p> <p>Address inequalities, including those that are gender-based, and other factors contributing to vulnerability, marginalization and/or discrimination within the context of the project.</p> <p>Promote gender equality as a basic human right crucial for sustainable development.</p> <p>Standard 9 – Health, Safety and Security</p> <p>Identify, assess and manage risks to the health and safety of project-affected people and communities, (including project related gender-</p>	<p><u>Law on gender equality (official gazette no. 102/09</u> https://advokat-prnjavorac.com/zakoni/zakon_o_ravno_pravnosti_spolova_BiH.pdf</p> <p>This law regulates, promotes and protects gender equality, guarantees equal opportunities and equal treatment of all persons regardless of gender, in the public and private spheres of society, and regulated by protection from gender discrimination.</p> <p>Criminal Code of the Federation of Bosnia and Herzegovina, Official Gazette of FBiH, Nos. 36/03, 37/03, 21/04, 69/04, 18/05, 42/10 and 42/11); Criminal Code of Republika Srpska, Official Gazette of RS, Nos. 49/03,</p>

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

			based violence risks including SEAH) during the project lifecycle.	108/04, 37/06, 70/06, 73/10 and 67/13; Criminal Code of the Brčko District (BD) of Bosnia and Herzegovina, Official Gazette of BD, No. 10/03 FBiH Law on Protection from Domestic Violence; RS Law on Protection from Domestic Violence,
Sustainability and Resilience	Y e s	<ul style="list-style-type: none"> Identify opportunities to advance sustainability and resiliency dimensions of development initiatives and to strengthen environmental management and protection Use and promote precautionary approach 	<p>Standard 4 – Biodiversity and Ecosystems</p> <p>Seek opportunities to enhance biodiversity and ecosystems whenever possible</p> <p>Application of precautionary principle</p> <p>Standard 5 – Climate Change</p> <p>Assess project's resilience to physical climate risks, its alignment with climate-resilient development pathways, and the options to reduce physical climate risks to the project, its natural environment and the people that may be affected by it.</p>	<p>International agreements (refer above)</p> <p>Act of 30 August 2013 on protection of the environment (Environmental, Climate and Sustainable Development Laws).</p>
Accountability	Y e s	<ul style="list-style-type: none"> Compliance with national law and obligations under international law, whichever is the higher standard Enable active local community engagement and participation in decision-making, particularly those at risk of being left behind Transparency through provision of timely, accessible 		<p><u>Law on construction and spatial planning</u></p> <p>Local stakeholders' engagement is required by law on Construction in both entities as well as cantons. As per Law on Construction, all type of physical planning documentation (including water management objects), must be publicly displayed for period of at least 30 days (Article 47, Law on</p>

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

		<p>and functional information regarding supported activities, including on potential environmental and social risks and impacts and management measures</p> <ul style="list-style-type: none"> • Ensure stakeholders can communicate their concerns and have access to rights-compatible complaints redress processes and mechanisms • Effective monitoring 		<p>Construction RS). After that period, public hearing must be organized in local community within period of 30 days upon closure of public display (article 48, Law on Construction RS).</p>
Project Level Standards				
Standard 1. Biodiversity Conservation and Sustainable Natural Resource Management	Y e s	<ul style="list-style-type: none"> • Precautionary approach to be applied • Risk identification and assessment: Identify and address direct and indirect impacts on natural resources, biodiversity, ecosystems and ecosystem services • Risk reduction measures follow a mitigation hierarchy that favors avoidance of potential adverse impacts over minimization, mitigation where adverse residual impacts remain, and, as a last resort, application of offset and compensation measures. • no adverse impacts on critical habitats • under no circumstances will species known to be invasive be introduced into new environments 	<p>Standard 4 – Biodiversity and Ecosystems</p> <p>Application of precautionary principle</p> <p>Use of sectoral, land use and marine planning, the application of mitigation hierarchy to avoid, or where unavoidable, minimize further losses, restore and as last resort compensate any residual impacts on biodiversity and ecosystems – regardless of formal conservation status.</p> <p>Use of an ecosystem-based approach to assess biodiversity related impacts and risks</p> <p>Seek opportunities to enhance biodiversity and ecosystems whenever possible</p>	<p><u>Law on Forest 2016</u></p> <p>This law regulates the preservation and protection of forests and forest land, strengthening their environmental functions, forestry planning and forest management and forest land, economic functions, social functions, biological financing restoration and improvement of forests on the territory of the Federation of Bosnia and Herzegovina</p> <p><u>Law on environment protection 2008</u></p> <p>This Law regulates the competencies of bodies that perform nature protection activities, general measures nature conservation, assessment of the acceptability of interventions in nature, habitat types and ecologically significant areas, species and subspecies, protection of wild birds,</p>

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

	<ul style="list-style-type: none"> • Forests: project activities: <ul style="list-style-type: none"> ○ are consistent with the conservation of natural forests and biological diversity, ensuring that they are not used for the conversion of natural forests; ○ incentivize the protection and conservation of natural forests and their ecosystem services, and enhance other social and environmental benefits; ○ enhance the sustainable management of forests, including the application of independent, credible certification for commercial, industrial-scale timber harvesting; ○ maintain or enhance biodiversity and ecosystem functionality in areas where forest restoration is undertaken; ○ ensure that plantations are environmentally appropriate, socially beneficial and economically viable, and utilize native species wherever feasible. • Use integrated water resources management approach to water resources • Avoid, and where avoidance is not possible, minimize 	<p>Multiple criteria for critical habitats, including no measurable adverse impacts on critical habitats</p> <p>Species known to be invasive cannot be introduced under any circumstances</p> <p>Ecosystem services, including at a regional scale, to be considered in assessment</p> <p>Supply chains to be identified and impacts and risks affecting biodiversity and ecosystems to be assessed.</p> <p>Renewable natural resources shall be managed in a sustainable way.</p>	<p>protection and conservation of biodiversity, forest ecosystems, karst ecosystems, water and wetlands, protection of marine and coastal natural values, establishment of the European ecological network of specially protected areas - Natura 2000, protection measures species and subspecies, transboundary movement of protected wild species and subspecies, protection measures minerals and fossils, protected natural values, compensation, incentives, giving proposals for concessions on protected natural values and protected natural objects, planning and organization, inventory and monitoring, access to information and public participation, nature protection, promotion of education in nature protection, recognition and awards for achievements in nature protection, financing of nature protection, inspection supervision, penal provisions, transitional and final provisions.</p> <p>Act of 10 July 2012 on Fisheries</p>
--	---	--	--

		<p>adverse impacts on soils, their biodiversity, organic content, productivity, structure, water-retention capacity.</p> <ul style="list-style-type: none"> • Sustainable management of living natural resources • When purchasing natural resource commodities, where possible, use primary suppliers that can demonstrate that they are not contributing to significant conversion or degradation of natural or critical habitats 		
Standard 2. Climate Change and Disaster Risks	Y e s	<ul style="list-style-type: none"> • Climate change and disaster risk analysis, planning and implementation – assess for climate change and disaster risks and their impacts to project activities and outputs as well as the possibility that project activities could increase exposure to such risks • Minimize and avoid unwarranted increases in greenhouse gas emissions or other drivers of climate change from supported activities. 	<p>Standard 5 - Climate Change</p> <p>Assess project's resilience to physical climate risks, its alignment with climate-resilient development pathways, and the options to reduce physical climate risks to the project, its natural environment and the people that may be affected by it.</p> <p>Assess GHG emissions at the project level and the projects alignment with pathways to limit global warming</p>	<p><u>Law on construction and spatial planning</u></p> <p>This law regulates the system of spatial planning and spatial planning, preparation, preparation and adoption of spatial planning documents, location conditions, construction land management, issuance of building permits, types and content of technical documentation, construction of facilities and mutual relations between participants in construction, use and removal of buildings, legalization of buildings, supervision over the application of this law, competence and work of the Chamber of Engineers, and other issues of importance for landscaping, construction land and construction of buildings.</p>

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

				<p>Article 11: Spatial planning is based on the principles of:</p> <p>a) protection of space in accordance with the principles of sustainable development,</p> <p>b) integrated planning, which combines all significant factors of development with consideration of the dynamics of needs and changes in space and resolving conflicts of interest in space by harmonizing functional, aesthetic, energy, economic and other criteria in planning, design and construction,</p> <p>c) harmonization of natural values with human activities (use of renewable energy sources, construction of energy efficient facilities, correct choice of location and inclusion of bioclimatic factors, respect for climate change, protection against earthquakes and other natural disasters and technical accidents, etc.),</p>
Standard 3. Community Health, Safety and Security	Y e s	<ul style="list-style-type: none"> Protect communities from hazards caused and/or exacerbated by project activities (including flooding, landslides, contamination or other natural or human-made hazards), disease, and the accidental collapse or failure of project structural elements. Assess the risks to, and potential impacts on, the safety of affected communities during the design, construction, operation, and 	<p>Standard 9 – Health, Safety and Security</p> <p>Promote, protect and monitor the health, safety and security of project workers throughout project life cycle</p> <p>Identify, assess and manage risks to the health and safety of project-affected people and communities</p> <p>Project workers and members of public to have access to a GRM</p>	<p><u>Law on construction and spatial planning</u></p> <p>This law regulates the system of spatial planning and spatial planning, preparation, preparation and adoption of spatial planning documents, location conditions, construction land management, issuance of building permits, types and content of technical documentation, construction of facilities and mutual relations between participants in construction, use and removal of buildings, legalization of</p>

		<p>decommissioning of projects and establish preventive measures and plans to address them in a manner commensurate with the identified risks and impacts. A significant concern with major projects is SEAH and the spread of communicable diseases from workforces to the surrounding communities.</p> <ul style="list-style-type: none"> • Avoid or minimize the potential for community exposure to health risks and diseases that could result from or be exacerbated by project activities. • Infrastructure design and safety to be in accordance with national legal requirements, good international practices, and any international obligations and standards. • For construction activities, ensure appropriate control of site access, use of appropriate personal protective equipment, safely designed work platforms, appropriate engineering and administrative controls, and safety barriers. Construction personnel will have appropriate qualifications and training. • Apply concept of universal access in the design and 	<p>Identify, assess and minimize the potential health and safety risks caused by natural hazards or extreme weather events</p> <p>Projects shall comply with the applicable national legislation and Standard 9 which reflects the core principles and essential procedural elements laid down by EU legislation.</p> <p>Provide workers with a safe workplace, including provision of PPE</p> <p>Take necessary measures to avoid, mitigate and manage risks and potential adverse</p>	<p>buildings, supervision over the application of this law, competence and work of the Chamber of Engineers, and other issues of importance for landscaping, construction land and construction of buildings.</p> <p><u>Law on environment protection 2008</u></p> <p>This Law regulates the competencies of bodies that perform nature protection activities, general measures nature conservation, assessment of the acceptability of interventions in nature, habitat types and ecologically significant areas, species and subspecies, protection of wild birds, protection and conservation of biodiversity, forest ecosystems, karst ecosystems, water and wetlands, protection of marine and coastal natural values, establishment of the European ecological network of specially protected areas - Natura 2000, protection measures species and subspecies, transboundary movement of protected wild species and subspecies, protection measures minerals and fossils, protected natural values, compensation, incentives, giving proposals for concessions on protected natural values and protected natural objects, planning and organization, inventory and monitoring, access to information and public participation, nature protection,</p>
--	--	---	---	--

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

		<p>construction of facilities and services</p> <ul style="list-style-type: none"> • Avoid, or where avoidance is not possible, minimize potential community exposure to hazardous materials and substances that may be utilized in or released by project activities • Be prepared for emergencies eg plans, training, equipment and resources. • Avoid, mitigate and manage the risks and potential adverse impacts on health and safety of communities arising from the influx of project-related workers • avoid, or where avoidance is not possible, minimize such adverse impacts and implement appropriate mitigation measures that aim to maintain the value and functionality of ecosystem services of relevance to local communities. 		<p>promotion of education in nature protection, recognition and awards for achievements in nature protection, financing of nature protection, inspection supervision, penal provisions, transitional and final provisions.</p>
Standard 4. Cultural Heritage	Yes	<ul style="list-style-type: none"> • Protection of Cultural Heritage from damage, inappropriate alteration, disruption, removal or misuse • Chance Finds procedures • Consultation with stakeholders regarding Cultural Heritage 	<p>Standard 10 – Cultural Heritage</p> <p>Protection of cultural heritage from potential adverse impacts of project activities</p> <p>Chance Finds procedures</p> <p>Meaningful consultation with stakeholders</p>	<p><u>Law on Cultural Heritage</u></p> <p>This law regulates the types of cultural goods, the activity of protection and use of cultural goods and goods that enjoy prior protection, and other issues of importance for the activity of protection of cultural goods.</p>

Standard 5. Displacement and Resettlement	Y e s	<p>To anticipate and avoid, or, when avoidance is not possible, minimize adverse social and economic impacts from land or resource acquisition or restrictions on land or resource use</p> <p>Where displacement is unavoidable, management plan required</p>	<p>Standard 6 – Involuntary Resettlement</p> <p>To avoid or, when unavoidable, minimize involuntary resettlement by exploring alternative projects, project designs and locations</p> <p>To improve displaced persons' livelihoods and/or living standards, or at least restore them to pre-project levels</p> <p>To mitigate social and economic impacts from unavoidable involuntary resettlement</p> <p>Where project leads to involuntary resettlement, planning documents shall be prepared.</p>	<p>Law on Proprietary Rights</p> <p>The Law on Proprietary Rights regulates the general issues of acquiring, using, disposing of, protecting and terminating ownership rights and other proprietary rights and possession rights, including the issues of restricting such rights, the right of servitude, co-ownership and joint ownership rights, the procedure for acquiring property rights over land and/or structures erected on someone else's land</p> <p>Law on Administrative Procedures of FBiH</p> <p>The Law on Administrative Procedures of FBiH regulates the procedures applied by administration bodies in deciding upon citizens' rights and obligations within the framework of administrative procedures.</p> <p>Law on Social Protection, Protection of Civilian War Casualties and Protection of Families with Children of FBiH</p> <p>This law regulates Social welfare, which in terms of this law is an organized activity in the Federation, aimed at ensuring the social security of its citizens and their families in need.</p> <p>Law on Expropriation of FBiH</p> <p>The Law on Expropriation of FBiH regulates the conditions and procedure</p>

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

				for expropriation of property for construction of facilities in public interest, compensation eligibility and amounts, handling of grievances and disputes handling and other issues pertaining to the expropriation process.
Standard 6. Indigenous Peoples	No			
Standard 7. Labor and Working Conditions	Yes	<ul style="list-style-type: none"> • Terms and conditions of employment – written labor management procedures. Workers to be advised of conditions of their employment. • Non-discrimination and equal opportunity. Labour management procedures shall set out measures to prevent and address SEAH. • Workers organizations – freedom of association and recognition of the right to collective bargaining • No forced or child labor • Occupational health and safety - protect and promote the safety and health of workers 	<p>Standard 8. Labor Rights</p> <p>Ensures fair, non-discrimination and equal treatment and opportunity of workers</p> <p>Zero tolerance for use of forced labor and child labor</p> <p>Respecting principles of freedom of association and collective bargaining</p> <p>Protecting and promoting safety and health at work</p> <p>Promoting a sound worker-management relationship</p> <p>Ensuring that accessible and effective means to raise and address workplace concerns are available to workers.</p> <p>The Standard aligns with and supports UNDP requirements relevant to this project.</p>	<p>Labor Law 2015 Official gazette No. 26/16 and 89/18:</p> <p>This law regulates the conclusion employment contracts, working hours, salaries, termination employment contract, exercise of rights and obligations under employment relationship, concluding collective contracts, peaceful resolution of collective labor disputes and other employment issues, if by other law or international agreement not otherwise specified.</p> <p>In accordance with Labor Law (FBiH: https://advokat-prnjavorac.com/legislation/Labour-Law-FBiH-2015.pdf RS: https://advokat-prnjavorac.com/legislation/Labour-Law-of-RS.pdf , all rights of workers are defined and protected. Union formation is allowed in accordance with article 14. In addition, there are</p>

				labor inspections that shall prohibit unpaid overtime, child labor ...).
Standard 8. Pollution Prevention and Resource Efficiency	Yes	<ul style="list-style-type: none"> • Pollution prevention: avoid release of pollutants, where not avoidable, minimize and/or control intensity and mass flow of their release. • Ambient considerations: adverse impacts on existing ambient conditions requires consideration of finite assimilative capacity of the environment, existing and planned land use, existing ambient conditions, the project's proximity to ecologically sensitive or protected areas, the potential for cumulative impacts with uncertain and irreversible consequences, and strategies for avoiding and minimizing the release of pollutants. • Wastes: seek to avoid generation of waste, where not possible adopt waste management hierarchy (reduce, reuse, recycle) • Hazardous materials: avoid or minimize and control release and exposure to hazardous materials. • Resource efficiency: design and implement project in manner that promotes efficient use and consumption of resources. 	<p>Standard 3. Resource Efficiency and Pollution Prevention</p> <p>Aims to ensure an integrated approach to resource efficiency, pollution prevention and control of emissions to air, water and land, noise pollution, radiation, prevention of accidents, as well as waste management and the safe use of hazardous substances and pesticides, avoiding the shift of pollution from one environmental medium to another, ensuring consistency with the "Do Not Significant Harm" principle.</p> <p>The Standard aligns with and supports UNDP requirements relevant to this project.</p>	<p><u>Law on water (official gazette no. 70/06</u> https://www.voda.ba/uploads/docs/47hrv.pdf</p> <p><i>The purpose of this law is to ensure water management with the aim of:</i></p> <ol style="list-style-type: none"> 1. reduction of water pollution, achieving good water status and prevention of water degradation, 2. achieving sustainable water use, 3. ensuring fair access to water, 4. encouraging social and economic development, 5. protection of ecosystems, 6. reducing the risk of floods and other negative impacts of water, 7. ensuring public participation in decision-making related to water, 8. prevention and resolution of conflicts regarding water protection and use, 9. fulfillment of obligations from international agreements that are binding for Bosnia and Herzegovina. <p><u>Water permit (article 107, Law on water)</u></p> <p><i>Any construction works in rivers must obtain water permit</i></p>

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

				<p>(https://www.voda.ba/uploads/docs/Zahtjev_za_izdavanje_VODNE_DOZVOL_E.pdf – bullet 9) , issued by entity water agency. Water permit clearly states, construction company must provide elaborate documentation of qualitative and quantitative testing of water and sediment during construction, thus minimizing contamination of river and soil. In addition, all measures for minimizing of soil contamination, water inspector (appointed by water agency) must inspect site for such irregularities.</p> <p><u>Law on waste management (official gazette no 33/03 -</u> https://mkipgo.ks.gov.ba/sites/mkipgo.ks.gov.ba/files/2021-02/MPZ_Zakon_upravljenje_otpadom_33-03_0_0.pdf</p> <p><i>This law regulates:</i></p> <ul style="list-style-type: none"> - all categories of waste, except for the waste specified in paragraph 3 of this Article; - all types of waste management activities, operations and facilities. <p><i>The provisions of this Law shall also apply to:</i></p> <ul style="list-style-type: none"> -waste generated by resource exploration, extraction, treatment and exploitation mineral resources and quarrying.
--	--	--	--	--

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

				<p><i>-liquid waste;</i></p> <p><i>-animal waste and other non-hazardous materials of natural origin that can be used for agricultural purposes,</i></p> <p><i>-deferred explosives, unless regulated by a special regulation.</i></p> <p>Act of 10 July 2012 on Fisheries</p>
--	--	--	--	---

DESCRIPTION OF EXISTING ENVIRONMENT

1.8 CLIMATE

The climate is characterised by hot summers and cold winters. Areas of high elevation have a moderate continental climate with short, cool summers and long, severe winters. The southern tip has a Mediterranean climate with coastal area characterised by mild, rainy winters.

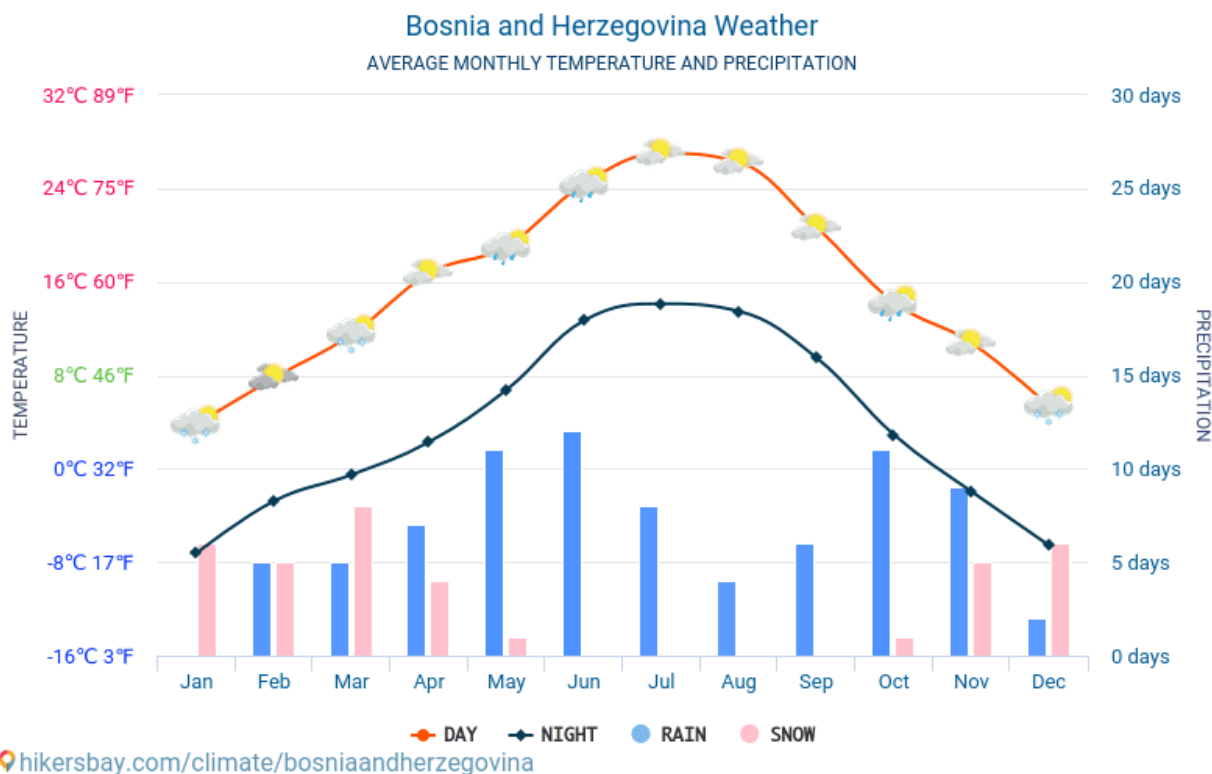


Figure 2 Average weather conditions in Bosnia Herzegovina

1.9 GEOLOGY, TOPOGRAPHY AND SOILS

1.9.1 Geology

The geological composition of the Dinaric chain of mountains in Bosnia consists primarily of limestone (including Mesozoic limestone), with deposits of iron, coal, zinc, manganese, bauxite, lead, and salt present in some areas, especially in central and northern Bosnia. Herzegovina has a dominant karst topography.

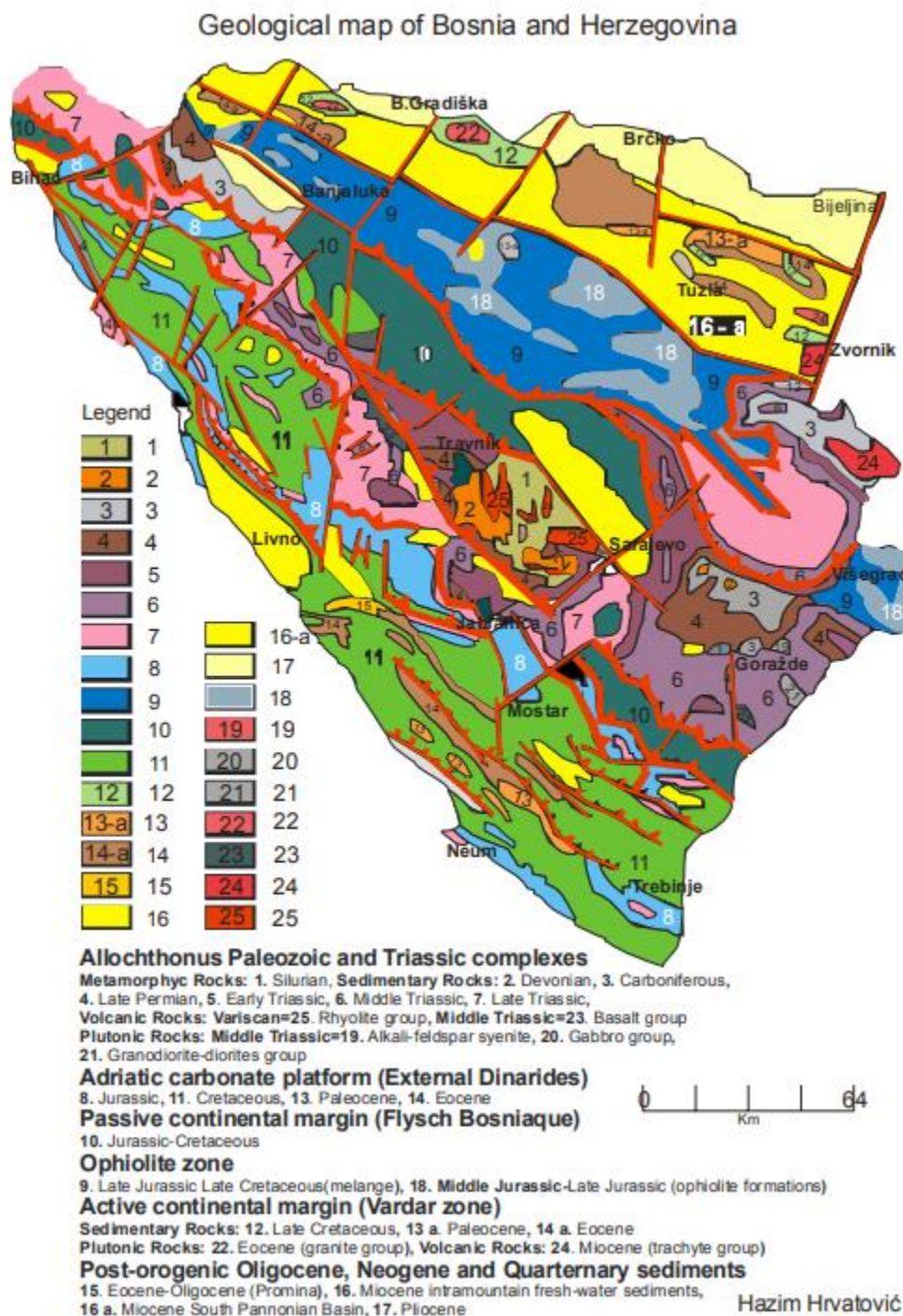


Figure 3 Geological map of Bosnia and Herzegovina. (Hrvatovic 2006)

The oldest sediments in Bosnia and Herzegovina originate from the early Palaeozoic era i.e. the Silurian era represented in the 'Bosnian Schist Mountains'.² These layers are represented by schist

² https://www.visitmycountry.net/bosnia_herzegovina/en/index.php/geography/27-vmc/geografija/225-geological-structure-of-bosnia-and-herzegovina

sediments, marbles, dolomites, limestone and classic rock, which were impregnated with various igneous rocks. These deposits are also very tectonically fractured and collected. Subsequent layers of early and late Palaeozoic era were deposited i.e. layers from the Devonian and carbon.

Palaeozoic sediments can mainly be found in the Una-Sana area, Central Bosnian Schist Mountains, eastern and south-eastern Bosnia and Posara and Motajica. The Central Bosnian Palaeozoic complex stretches from Ivan saddle in the southeast to the northwest of Jajce, and between the Sarajevo-Zenica basins in the northeast to the Gornji Vrbas-Uskoplje basin in the southwest.

The Palaeozoic in the southeast Bosnian area is called praćanski Palaeozoic which extends to the east and northeast of the mountain Jahorina to the river Drina. In the praćanski Palaeozoic chalk cliffs from the Devonian era are mainly represented. Besides the Devonian deposits, carbon sediments can also be found.

Northeast of the praćanski Palaeozoic is the Drina Palaeozoic which extends from Srebrenica to Zvornik in the Adriatic gulf and the lower stream of Drinjača.

In the Una-Sana Palaeozoic in Bosanski Novi and Ljubija deposits from the Devonian era are represented. Carbon constitutes out of different clastics, which include both igneous rocks and a little dolomite and limestone.

The next era of crustal development in the Bosnia and Herzegovina region was the Mesozoic orogenic cycle, which was developed in three divisions: the Triassic, Jurassic and Cretaceous.

Sedimentation, tectonic and magmatic changing of the Mesozoic deposits lasted in a range of 220 million to 70 million years prior to today's geology. Mesozoic sediments are widespread in the interior, central and outer layers of the Dinarides. Mesozoic sediments in the outer Dinarides are classic carbonate sediments, while the central and inner Dinarides have volcano-sedimentary and flysch sediments.

The Triassic sediments spread over the Vrnograč and Bosanski Novi band over western Bosnia, north and northeast Herzegovina and southeast Bosnia. The second broader band goes from Vareš over Olovo, Glasnica and Romanija to Višegrad.

The Jurassic period sediments occupy the largest part of the outer Dinaric zone, where it is mostly developed in the limestone-dolomite facies. It is located on the area of Bihać to Gacko and Trebinje. The Jurassic age volcano sediment formations are also found in the central zone from Kozara through central Bosnia to Drina.

The Cretaceous deposits are widespread in the wider or narrower bands from the border with Montenegro to Bosnian Grahovo, Bihać and Bosanska Krupa in the northwest, and in the interior between Jajce, Banja Luka and mountains Ranča and Vlašić.

The beginning of the sedimentation of this epoch started 70 million years ago and continues to this day. Quaternary is present in the geological structure of the Dinarides in the territory of Bosnia and Herzegovina.

Deposits are developed on the peripheral north-eastern and northern parts, and on the southern and south-western parts of the country. Igneous rocks are represented in these sedimentations, especially coal deposits. In addition, beside Neocene limestone and classic deposits, freshwater sediments are present, of which the largest one is the Sarajevo-Zenica coal basin. The youngest Pliocene and Quaternary deposits are widespread, in almost all basins and valleys. Special are the Holocene deposits represented by pebbles, sand, loam and clay, and limestone and cave deposits.

1.9.1.1 *Geotectonic regions*

Three geotectonic belts can be distinguished in Bosnia and Herzegovina, they coincide with the division of the Dinarides – the inner, central and outer.

The northern tectonic belt is bordered in the north by the Sava trench, in the south with the Sprečko-Kozara dislocation. In this zone three tectonic shapes were formed: Horst, basins and Quaternary depressions. Horsts are: Motajica, Prosara, Majevisa, Kozara, Vučjak and Trebava. Basins are: Prijedor-Omar-Dubica, Prnjavor, Srednjobosanski and Tuzla basin. Quaternary depression: Ivanjsko-Omarska, Bosansko-Podrinjska, Srednje-posavska, Semberija and Spreča.

The central tectonic belt is bordered to the north with the Sprečko-Kozarska dislocation and from the south with a zone of high Karst. In this zone several tectonic units are distinguished: Central ophiolitic zone, Anticline of the Drina Paleozoic, the zone of Jurassic and Cretaceous flysch, Central Bosnian Schist Mountains, the Una-Sana Paleozoic, and a number of freshwater Neocene basins.

The south tectonic belt extends southwest from the Bosnian Schist Mountains all the way to the Adriatic Sea. It is composed out of thick layers of limestone and dolomite, and from Paleocene flysch sediments near the Adriatic basin.

1.9.1.2 Seismic Activity

Bosnia's seismotectonic seems to follow the Mediterranean marine regime. Earthquakes occur mostly in the outer Dinaric Alps (southern Bosnia), while the strongest earthquakes occur within the Sarajevo Fault system in southern and north western Bosnia. In addition to active tectonics being strong, crustal earthquakes occur often as well. Due to Bosnia's rich hydrogeology, crustal loading such as by snow and rain, or reservoir inundation, represents the most important secondary seismogenic source in the region.³

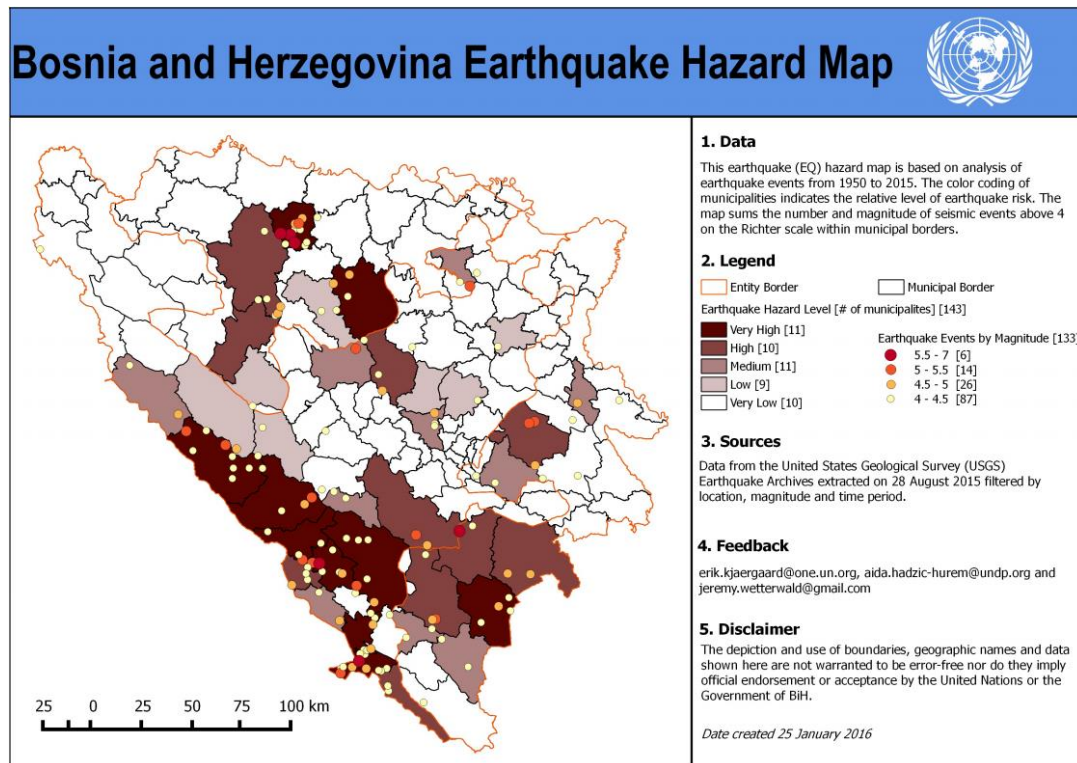


Figure 4 Bosnia and Herzegovina Earthquake Hazard Map (UNDP 2016)

³ Onerbashich, M. and Sijaric, G (2006). Seismotectonics of Bosnia – Overview. Acta Geodyn. Geomaer., Vol 3, No.2, 17-29

Taken as a whole, the earthquake hazard for Bosnia and Herzegovina is rated as medium.⁴ However, it can be seen from Figure 4 that the hazard is not evenly spread across the country.

1.9.2 Topography

The country is mostly mountainous, encompassing the central Dinaric Alps. The northeaster parts reach into the Pannonian Plain, while in the south it borders the Adriatic. The Dinaric Alps generally run in a southeast-northwest direction and get higher towards the south. The highest point of the country is the peak of Maglić at 2,386 metres (7,828.1 feet), on the Montenegrin border. Major mountains include Kozara, Grmeč, Vlašić, Čvrsnica, Prenj, Romanija, Jahorina, Bjelašnica and Treskavica. In the central and eastern interior of the country the geography is mountainous, in the northwest it is moderately hilly, and the northeast is predominantly flatland.



Figure 5 Topography of Bosnia and Herzegovina⁵

1.9.3 Soils

There is a variety of soil types in Bosnia and Herzegovina. Soil type generally reflects the underlying geology and is influenced by topography. Figure 6 provides a map of soil types across Bosnia and Herzegovina.

The following summarises the topographic areas and their soils:

- Flat or low-lands zone - Flat or low-lands zone is found in the northern part of BIH and represents the most valuable land resource. There, the degree of development of primary and processing food

⁴ <http://thinkhazard.org/en/report/34-bosnia-herzegovina/EQ>

⁵ https://en.wikipedia.org/wiki/Geography_of_Bosnia_and_Herzegovina#/media/File:Bosnia_and_Herzegovina_topographic_map.svg

production is much higher than in the hilly-mountainous areas. The most common types of soil are: Cambisols, Albeluvisols, Luvisols, Fluvisols and Gleysols.

- **Hilly zone** - The hilly zone is more heterogenous in terms of soil. Considerable part of this zone is sloped above 13% and the processes of erosion are very marked. The erosion processes are further enhanced by excessive and inappropriate way of soil farming, lack of water and soil conservation measures and preference being given to row crops (corn and potato) on such terrains. The most common types of soil are: Cambisols, Luvisols, Vertisols and Regosols.
- **Mountain zone** - The erosion processes are present here too, although these lands are mostly covered by forests and grasslands. As for sowing crops, rye, barley, oats and potato dominate. The most common types of soil are: Cambisols, Leptosols, Regosol and Acrisols.
- **Mediterranean zone** - In view of the warmer climatic conditions this area has a possibility of growing a wide array of crops and of developing intensive farming, so that apart from land farming crops, the vegetable crops of early vegetables are also being cultivated for the market. Fruit-growing and vine-growing are also developed here, so that this region is also called the region of southern crops. The most common types of soil are: Cambisols, Regosol, Fluvisols, Luvisols and Histosols

Inventory of Post-War Situation
of Land Resources
in Bosnia and Herzegovina



Dominant soils

ferric acrisols	dystric leptosols
humic acrisols	eutric leptosols
calcaric cambisols	rendzic leptosols
chromic cambisols	mollic leptosols
dystric cambisols	lithic leptosols
eutric cambisols	umbric leptosols
gleyic cambisols	ferric luvisols
ferralic cambisols	haplic luvisols
humic cambisols	stagnic luvisols
vertic cambisols	vertic luvisols
calcaric fluvisols	chromic luvisols
eutric fluvisols	stagnic podzoluvisols
eutric gleysols	eutric vertisols
calcic gleysols	calcic vertisols
mollic gleysols	lake
umbric gleysols	

Classification: FAO 1997

20 0 20 40 Kilometers

March 2002

Source: FAO (GCP/BIH/002/ITA)

Figure 6 Soils in Bosnia and Herzegovina⁶

1.10 SURFACE WATER

There are two main river basin systems in B&H – the Sava Basin (Vrba, Una-Sana and Bosna and Drina) and the Adriatic Sea Basin (Neretva and Trebisnjica rivers). Sava river basin is at highest risk of flooding, while Adriatic Sea Basin faces a lower risk of flooding largely due to its karstic

⁶ http://www.apipnm.org/swlwpnr/reports/y_te/z_ba_old/ba.htm#soils

geology and heavily modified hydrology from HPP dams. The main flooding sources in BiH are fluvial, pluvial, torrents and groundwater.

There are seven major rivers of Bosnia and Herzegovina:

The Sava is the largest river of the country and forms its northern natural border with Croatia. It drains 76% of the country's territory into the Danube and then the Black Sea. The Una, Sana and Vrbas are right tributaries of Sava River.

The Una in the northwest part of Bosnia flows along the northern and western border of Bosnia and Croatia and through the Bosnian city of Bihać. It is popular for rafting and adventure sports. The Una River has a watershed of 9640 km² and a mean discharge of 290 m³/sec.

The Sana flows through the city of Sanski Most and Prijedor and is a tributary of the river Una in the north.

The Vrbas flows through the cities of Gornji Vakuf – Uskoplje, Bugojno, Jajce, Banja Luka, Srbac and reaches the river Sava in the north. The Vrbas flows through the central part of Bosnia and flows outwards to the North. The Vrbas River has a watershed of 6386 km² and has a mean discharge of 100 m³/sec.

The Bosna is the longest river in Bosnia and is fully contained within the country as it stretches from its source near Sarajevo to the river Sava in the north. It gave its name to the country. The Bosna River has a watershed of 10,460 km² and mean discharge of 170 m³/sec.

The Drina flows through the eastern part of Bosnia, at many places in the border between Bosnia and Serbia. The Drina flows through the cities of Foča, Goražde, Višegrad and Zvornik. It has a watershed of 19,570 km² and mean discharge of 370 m³/sec. A small part of the Drin watershed is in Albania.

The Neretva River is the most significant transboundary river basin in the Adriatic Sea watershed. The Neretva is the major river of Herzegovina and the only major river that flows south, into the Adriatic Sea. The Neretva originates in Bosnia and Herzegovina. Of its total length of 222 km only about 25 km lies within Croatia, but this area includes two thirds of the Neretva delta, which is known for its globally significant biodiversity. The middle and lower stretches of the Neretva, which flow through Bosnia and Herzegovina contribute heavy loads of pollution, which threaten the delta biodiversity. Operation of the five hydro power plants in the upper and middle courses of the Neretva result in significant drops in water levels in the Neretva in the summer, altering the natural habitat. The river is famous as it flows through the city of Mostar.

The project will be targeting locations in the basins of Vrbas, Una-Sana, Bosna and Drina Rivers in the Sava Basin and Neretva and Trebisnjica Rivers in the Adriatic Sea Basin.



Figure 7. River basins and rivers of Bosnia and Herzegovina

Bosnia and Herzegovina has considerable water resources that represent an important economic potential. The territory of Bosnia and Herzegovina receives annually some 1250 mm of precipitation. Freshwater river basins are the key water resources in Bosnia and Herzegovina. The territory of Bosnia and Herzegovina lies within two major basins - the Black Sea and the Adriatic Sea basins. The major stream of the Black Sea basin is the Sava River, whereas the Neretva, Trebišnjica and Cetina Rivers are the major rivers of the Adriatic Sea basin. There are seven river basins in Bosnia and Herzegovina, which are transboundary with cantons, entities, and other countries: Una-Sana, Vrbas, Bosna, Drin, Sava, Neretva, and Cetina.

The rivers of Bosnia and Herzegovina are characterized by high gradients and relatively high run-off (22 l/sec per km²). All the rivers flow through rough mountainous areas in upper parts, while in downstream sections, close to the river mouth or confluence, they flow through plains where they are liable to flooding⁷.

There are about 30 water reservoirs in Bosnia and Herzegovina, primarily on the Neretva and Trebišnjica basin, and the Drina. Most are designed for hydropower and all are important for flood control, drinking water supply and irrigation. The total volume of the reservoirs is about 3.9 BCM with about 90% belonging to the Adriatic Sea basin and the rest to the Black Sea.

⁷ <http://web.worldbank.org/archive/website00983A/WEB/OTHER/BEA9848F.HTM?Opendocument&Start=1&Count=5> accessed 3/11/19

Figure 8 illustrates the location of existing hydropower plants in BiH, also shown are the locations for proposed GCF and government measures. Note, with the exception of the most southern area of BiH, HPPs are not proximate to interventions.

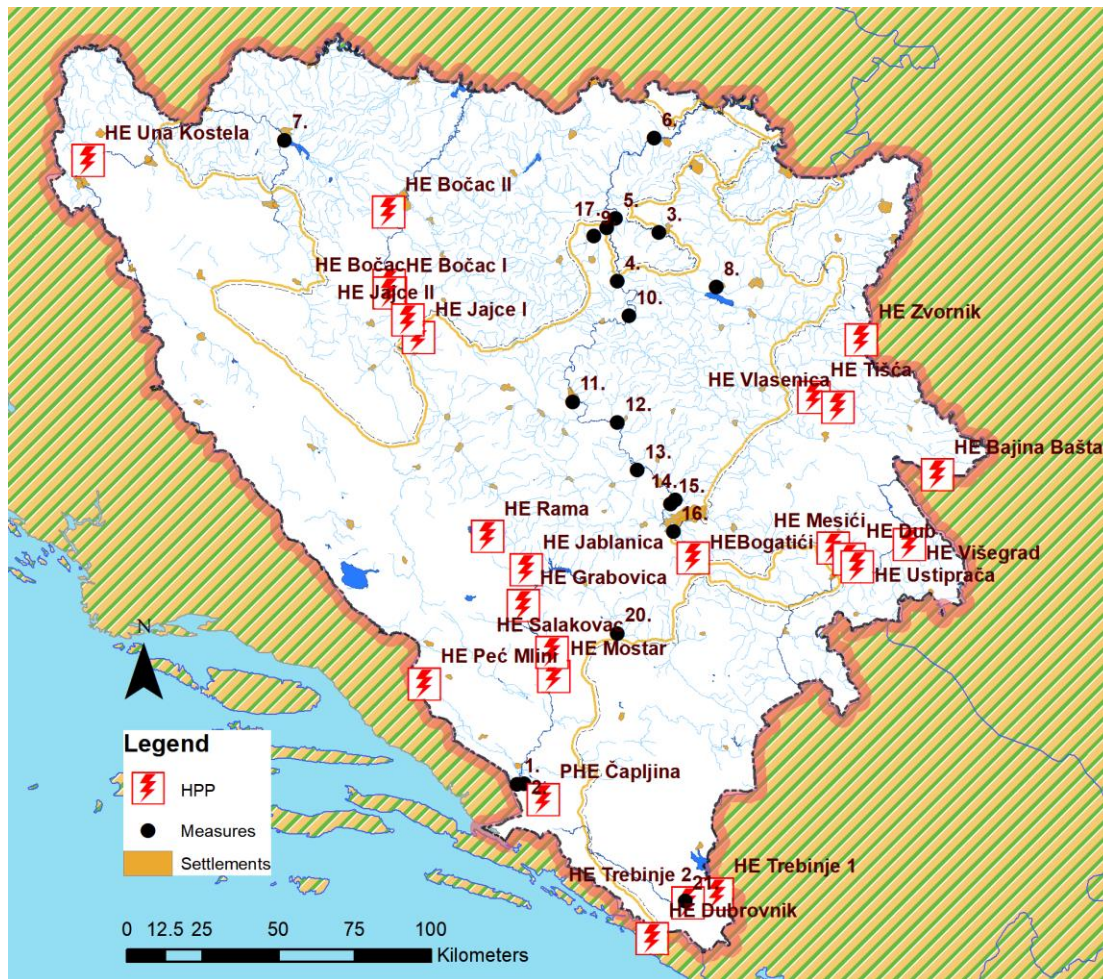


Figure 8 Location of hydropower plants in BiH

The Project's Feasibility Study provides details of the hydraulic characteristics, including information on the HPPs, in each of the basins that the project is working in.

1.10.1 Water Quality.

Before the war, Bosnia and Herzegovina was the industrial heartland of the pre-existing Federal Republic of Yugoslavia and most of the rivers were severely polluted by industrial wastewater discharges.⁸ Industrial production has plummeted and therefore surface water pollution has decreased. Water quality is, however, suspect and in some cases clearly unsatisfactory. The water quality monitoring system collapsed during the war and post-war data on water quality is limited. The system of monitoring stations is slowly being rehabilitated, largely with donor assistance.

Wastewater (sewage) treatment in Bosnia and Herzegovina is limited and most of the populations' wastewater continues to be discharged directly and without treatment into the closest water flows or bodies or into karstic holes, which are connected to groundwater. Primarily because of this pollution surface water quality, particularly immediately downstream of municipalities is generally

⁸ *ibid*

low. The most polluted rivers are Vrbas, Bosna and the lower part of the Sava. Only the most upstream sections of the Una, Drin, and Neretva maintain high water quality.

Uncontrolled deforestation and erosion of soil and mountains streams have resulted in eutrophication of surface waters as well creation of alluvia and sludge that increase the risk of flooding and water pollution. There is no information on non-point source pollution.

Water resources are also polluted by direct disposal of solid waste into rivers.

There are at present 134 active hydrological stations, of which 119 are automatic gauging stations.⁹ Water monitoring in Bosnia and Herzegovina includes information and data on water abstraction and flow (including hydraulic geometry), microbiological quality, biochemical oxygen demand (BOD5), calcium carbonate (CaCO₃), calcium (Ca), magnesium (Mg), iron (Fe), copper (Cu), chrome (Cr), nickel (Ni) and cadmium (Cd) in rivers, as well as microbiological quality and nutrients in fresh water (e.g. nitrate (NO₃), nitrogen (N), phosphorus (P)). Physical properties of water quality (e.g., temperature, pH, conductivity, dissolved oxygen) are collected for both rivers and fresh water.

1.10.2 Flooding

Changes in annual rainfall distribution and increasing rainfall extremes have been driving increased frequency and intensity of floods, that is, the pluviometric regime has been greatly altered. Flooding occurs almost every year, however, in the last two decades, Bosnia and Herzegovina has been seen several extreme floods (2004, 2010, 2014).

Flash floods generally derive from high intensity and short duration rainfall, which may be caused by heavy rain associated with a severe thunderstorm, hurricane, tropical storm, or meltwater from ice or snow flowing over ice sheets or snowfields. Such rains cause torrents in a short time that destroy everything that is in their way. The hydrological regime of torrential watercourses is specific; they have a large range of flux and a characteristic shape of hydrograph of a large flood wave with a short time base (typically hours).

Table 3 shows the numbers of significant flood events and fatalities from 1925 to the present.

⁹ United Nations Economic Commission for Europe (2018) Bosnia and Herzegovina Environmental Performance Reviews, Third Review

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Table 3 Historical Flooding Events and Fatalities in Bosnia and Herzegovina

Date/Year	Location/River	Number of deaths	Age and Gender	Setting of fatality	Type of flood events
10/11/1925	Mostar/Neretva	1	M	Organized action - catching floating logs	Fluvial flood/extensive rainfall
14-15/11/1925	Bugojno/Vrbas	7	-	-	Fluvial flood/extensive rainfall
15/11/1934	Osijek village/Bosna	1	M	-	Fluvial flood/extensive rainfall
1965	Sarajevo/Miljacka	1	M	-	Fluvial flood/extensive rainfall
13&17/07/1975	Tuzla/Jala	2	-	-	Flash flood
23/07&14/08/1976	Tešanj/ Tešanjka	9	-	-	Flash flood/Landslide
22/06/2010	Šamac/Bosna	1	-	-	Sudden snow melt/extensive rainfall
22/06/2010	Čelinac, Štrbe village/Jošavka	1	-	-	Fluvial flood/extensive rainfall
May, August 2014.	Šamac/Bosna	2	M (76), M	-	Fluvial flood/extensive rainfall
	Doboj/Bosna	11	M(63), M (90), F(88), F (91), F(82), M(53), M(73), M(90), F(76), 2NN	-	Fluvial flood/extensive rainfall
	Vukosavlje/Bosna	1	-	-	Fluvial flood/extensive rainfall
	Modriča/Bosna	2	M (82), F (80)	-	Fluvial flood/extensive rainfall
	Dvorovi/Drina	1	M	-	Landslide caused directly by flood
	Vlasenica/Drina	1	F (70)	-	Landslide caused directly by flood
	Donji Žabar/Sava	1	-	-	Fluvial flood/extensive rainfall
	Domaljevac/Bosna	2	-	-	Fluvial flood/extensive rainfall
	Srbac/Vrbas	1	M (65)	Fell off the boat while trying to rescue	Fluvial flood/extensive rainfall
	Banja Luka/Vrbas	1	M (30)	Victim was swept away from vehicle	Flash flood
	Čelinac, Barakovac village/Crni potok, Jošavka (VRB)	3	M (37) F (42)	(1,2)Attempted to cross the stream by vehicle	Flash flood

			M (65)	(3) Attempted to help a women with the kids to cross Jošavka river	
Total		49			

1.11 GROUNDWATER

Groundwater in Bosnia and Herzegovina is found in three geographically separate areas with special characteristics. In the northern part of the country, the ground water reserves are within alluvial connected sediments along the Sava River and its tributaries at a depth of about 50 m. Artesian water is found at 100-200 m. In the central part of the country, groundwater accumulates in caves and cavities of limestone massifs and emerges on the surface as lime wells in the river basins of Una, Sava, Bosna, Drin and Neretva Rivers. In the Adriatic Sea catchments area in the southern part of the country, where the geology is primarily karst, groundwater is mostly found in wells of the basins of the Cetina, Neretva, and Trebisnjica Rivers.¹⁰

Karst aquifers are very fragile in terms of pollution impacts. Their vulnerability depends on several features within the strong hydrology–hydrogeology interplay, with shallow soils and scarce vegetation. The karstic nature of the geology contributes to ground water pollution, as well as the pollution of surface waters. Polluted surface water infiltrates into the ground and the uncontrolled dumping of solid waste, which mixes with rainwater, also contributes to ground water pollution.

Monitoring of groundwater quality in Bosnia and Herzegovina is limited. The quality of groundwater is monitored only in areas where water is abstracted for public water supply. This means that the quality of groundwater resources is also only assessed based on the data on groundwater quality used for public water supply¹¹.

1.12 FLORA AND FAUNA

Due to its specific geographical position, Bosnia and Herzegovina is one of the richest countries in Europe in terms of biodiversity. It is located at the crossroads of several biogeographical regions and therefore has specific environmental, climatic and geomorphological conditions. The entire country hosts 252 ecosystems and unique biotopes that are important from both a European and global conservation perspective.¹²

1.12.1 Terrestrial

Land use is comprised of agricultural land (42.2%), arable land (19.7%), permanent crops (2%), permanent pasture (20.5%), forest (42.8%) and other (15%) (2011 est.).

Bosnia and Herzegovina has the highest proportion of forests and the largest variety of forest species in the Western Balkans. Approximately 20% is privately owned and 80% is state-owned. Most forest areas are in the central, eastern and western parts of Bosnia. B&H forests can be subdivided into three ecoregions: the Pannonian mixed forests, Dinaric Mountains mixed forests and Illyrian deciduous forests. Of the 2,185,000 hectares of Bosnia and Herzegovina that is forested, 0.1% or

¹⁰ <http://web.worldbank.org/archive/website00983A/WEB/OTHER/BEA9848F.HTM?Opendocument&Start=1&Count=5> accessed 3/11/19

¹¹ United Nations Economic Commission for Europe (2018) Bosnia and Herzegovina Environmental Performance Reviews, Third Review

¹² ibid

roughly 2,000 hectares is classified as primary forest, the most biodiverse form of forest. Between 1990 and 2000, Bosnia and Herzegovina lost an average of 2,500 hectares of forest per year. This amounts to an average annual deforestation rate of 0.11%. Between 2000 and 2005, the rate of forest change decreased by 100.0% to 0.00% per annum. In total, between 1990 and 2005, Bosnia and Herzegovina lost 1.1% of its forest cover, or around 25,000 hectares. Measuring the total rate of habitat conversion (defined as change in forest area plus change in woodland area minus net plantation expansion) for the 1990-2005 interval, Bosnia and Herzegovina lost 4.4% of its forest and woodland habitat. Northern Bosnia (Posavina) contains very fertile agricultural land along the River Sava and the corresponding area is heavily farmed. This farmland is a part of the Pannonian Plain stretching into neighbouring Croatia and Serbia.

1.12.2 Aquatic

For freshwater biodiversity, the Balkan region is the most important hotspot for both molluscs and fishes in Europe¹³. For example, the Neretva basin and the Tara/Upper Drina system are considered

Bosnia and Herzegovina has a rich ichthyofauna. About 140 (sub) species of fish, from 14 orders and 26 families live on a permanent or occasional basis in its inland waters. Some of them are endemic species. A number of endangered fish potentially occur in the project rivers (Table 4).

Table 4 Endangered Species that potentially occur within the project river systems¹⁴

Species	River system known from
<i>Knipowitchia croatia</i>	Lower Neretva
<i>K. radovic</i>	One tributary (Norin River) of lower Neretva
<i>Gymnocephalus batoni</i>	Sava River
<i>G. schraetser</i>	Sava River
<i>Zingel streber</i>	Sava, Una and Kupa Rivers
<i>Z. zingel</i>	Sava, Una, Bosna and Drina Rivers
<i>Eudontomyzon vladkovi</i>	Sava and Una Rivers
<i>Hucho hutcho</i>	Una, Sana, Bosna, Drina and Vrbas Rivers
<i>Salmo marmoratus</i>	Neretva basin
<i>Salmo obtusirostris</i>	Neretva basin
<i>Umbra krameri</i>	Sava River
<i>Acipenser ruthenus</i>	Sava and Drina Rivers
<i>Anguilla anguilla</i>	Neretva River
<i>Cobitis elongata</i>	Kolpa, Una and Sava Rivers
<i>C. narentana</i>	Lower Neretva basin, Tresnica River, Hutova Blato wetlands
<i>Aspius aspius</i>	Sava River
<i>Chondrostoma knerii</i>	Lower reaches Neretva basin, Buna and Krupa Rivers and Hutova Blato wetlands

¹³ Wiss, 2 *et al.* (2018). Endangered Fish Species in Balkan Rivers: their distributions and threats from Hydropower Development. Riverwatch and EuroNatur, 162 pp.

¹⁴ *ibid*

<i>Delminchthys ghetaldii</i>	Popovo, Daba and Fatnica karst fields, Buna and Trebisnjica Rivers and Kasindolka stream
<i>Pelecus cultratus</i>	Sava River
<i>Rutilus virgo</i>	Sava, Sana, Ljubljana, Mirna, Krka, Kolpa, Savajna, Sotla, Una, Drina, Bosna and Vrbas Rivers
<i>Squalias svallize</i>	Neretva River

About 15 fish non-native species have established themselves in Bosnian waters from Eurasian and American waters including: *Ctenopharyngodon idella* (Valenciennes), *Oncorhynchus mykiss* (Walbaum) and *Salvelinus fontinalis* (Mitchill).¹⁵

1.12.3 Impacts of Hydropower Schemes

As indicated in Section 3.3, BiH has HPP schemes on many of its major rivers. HPPs can have a range of impacts on aquatic flora and fauna, depending upon the type of facility ie storage, run-of-river, diversion run-of river, or pump-storage. Some of the key potential impacts on fish biodiversity are summarised by Weiss et al 2018¹⁶:

- hydropeaking – release of water to meet peak demand, has pervasive impacts on downstream environments for distances of up to hundreds of kilometers
- hydro-filibration - short-term storage and varied release in run-of-river dams (like hydropeaking, but generally at a smaller scale).
- barriers to fish passage due to height of dam walls
- reduced or lack of flow below dams, which is insufficient as environmental flow
- diversion of water from river system (which may exceed required environmental flows)
- interruption of sediment transport (including flushing of reservoir or maintenance)
- altered groundwater levels
- promotion of invasive species
- physical changes to riverbed and banks.

1.12.4 Protected areas

Total size of protected area of Bosnia and Herzegovina covers approximately 2.07 percent of the national territory (

¹⁵ Muhamedagic, S. Gjoen, HM. and Vegra, M. Salmonids of the Neretva river basin - present state and suggested sustainable selection programme to protect and strengthen salmonid populations

¹⁶ Weiss S, Apostolou A, Đug S, Marčić Z, Mušović M, Oikonomou A, Shumka S, Škrijelj R, Simonović P, Vesnić A, Zabrc D. (2018). Endangered Fish Species in Balkan Rivers: their distributions and threats from hydropower development. Riverwatch & EuroNatur, 62 pp.

Table 5).



Table 5 Overview of the existing protected areas in Bosnia and Herzegovina, as at July 2017¹⁷

Entity	Location	Year	category	Category	Area (ha)
Federation of Bosnia and Herzegovina	Una	2008	II	National park	19 800.0
	Blidinje	1995	V	Protected landscape	35 800.0
	Protected Landscape Bentbaša	2017	V	Protected landscape	160.9
	Hutovo Blato	1995	V	Protected landscape – Ramsar Site	7 411.0
	Skakavac waterfall	2002	III	Natural monument	1 430.7
	Lake Prokoško	2005	III	Natural monument	2 225.0
	Vrelo Bosne – spring	2010	III	Natural monument	603.0
	Tajan Park	2009	III	Natural monument	3 510.0
	Bijambare	2003	V	Protected landscape	497.0
	Konjuh	2009	V	Protected landscape	8 016.6
	Trebević	2014	V	Protected landscape	400.2
	Vjetrenica cave*	1950	V*	Category not recognized in the new Law on Nature Protection	4 770.0
Republika Srpska	Lom Primeval Forest	2012	Ia	Strict nature reserve	297.8
	Janj Primeval Forest	1956	Ia	Strict nature reserve	295.0
	Sutjeska	1962	II	National park	16 052.3
	Kozara	1967	II	National park	3 907.5
	Ljubačevo cave	2008	III	Natural monument	45.5
	Žuta Bukva	2012	III	Natural monument	0.5
	Orlovača cave	n/a	III	Natural monument	27.0
	Rastuša cave	n/a	III	Natural monument	11.4
	Ledana pit	n/a	III	Natural monument	28.3
	Vagan cave	2013	III	Natural monument	12.0
	Area for resource management “University City”	2012	VI	Protected area with sustainable use of natural resources	27.4
	Pavlova cave	2013	III	Natural monument	13.4
	Đatlo Cave	2013	III	Natural monument	43.4
	Velika pećina (cave)	2015	III	Natural monument	820.9
	Slatina Forest Park	2016	VI	Protected area with sustainable use of natural resources	35.7
	Girska cave	2015	III	Natural monument	25.4
	Pećina pod lipom (cave)	2015	III	Natural monument	6.1
	Ledenjača cave	2015	III	Natural monument	7.4

1.12.4.1 Ramsar wetlands

Bosnia and Herzegovina currently has three sites designated as Wetlands of International Importance (Ramsar Sites) (Figure 9)., with a surface area of 56,779 hectares

¹⁷ https://www.unece.org/fileadmin/DAM/env/epr/epr_studies/ECE.CEP.184.Eng.pdf

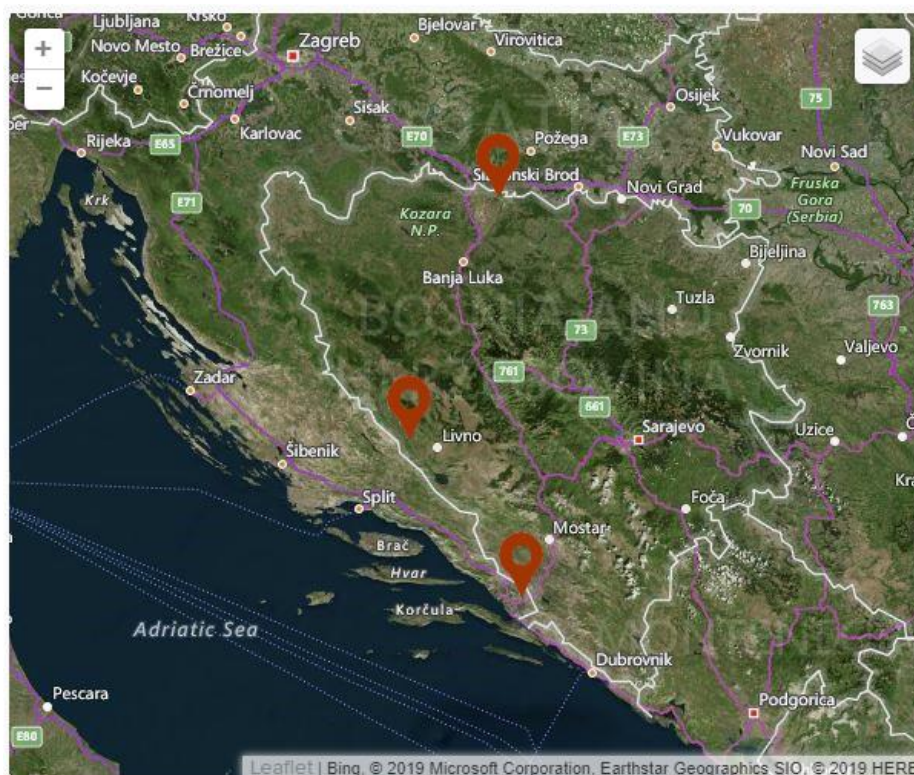


Figure 9 Location of Ramsar wetlands in BiH¹⁸

- Bardaca Wetland (Bardaca-mocvarni kompleks) Site number: 1,658. 02/02/07; Republic of Srpska Entity; 3,500 ha; 45°06'N 017°27'E. Important Bird Area. Situated in the floodplain of the Sava River near the border with Croatia, about half of the Ramsar site comprises fishponds constructed since the early 20th century and further enlarged in the 1960s for irrigation purposes. The ponds, floodplain forest, meadow and swamp areas support a range of endangered species and make an important nesting and stopover site for birds. There is a rich fish fauna (e.g., *Gymnocephalus schraetzer*, Zingel streber) and a range of amphibians such as *Salamandra salamandra*, *rana dalmatina*, and the pond tortoise *Emys orbicularis*. The hydrological regime has been interrupted by the construction of channels, pump stations, and damming of nearby streams, but presently pressure comes from permanent, intensive agricultural practices such as intensive pasturing and unwise use of fertilizers and pesticides. Aquaculture and fish production remain a primary economic pursuit. With assistance from the Ramsar Small Grants Fund, a management plan is currently under development. Ramsar site no. 1658. Most recent RIS information: 2007.
- Hutovo Blato Site number: 1,105 | Country: Bosnia and Herzegovina | Administrative region: Federation of Bosnia and Herzegovina Area: 7,824 ha | Coordinates: 43°03'06"N 17°47'12"E | Designation dates: 24-09-2001 Located near the lower reaches of the River Neretva, the Site comprises swamps, lakes, wet meadows and riverine forests. These provide favorable conditions for many wetland species, particularly of birds and fish, several of which are internationally threatened. Since 1988, the Site has been listed as an Important Bird Area, highlighting the importance of these habitats to migratory and resident species such as the European turtle dove and the common pochard. 63% of the fish species found on the site are indigenous, making it a very valuable hotspot for biological diversity. Human activities such as fishing and hunting, diversion of water to power plants, agricultural intensification, urbanization and growing tourism pose potential threats. Changes

¹⁸ <https://www.ramsar.org/wetland/bosnia-and-herzegovina> downloaded 27/9/19

in the local climate also threaten the stability of the ecosystem, having caused an increased rate of habitat alteration in recent years.

The proposed Krupa River site is adjacent to the Hutovo Blato Ramsar wetland on its downstream margin (Figure 10). The proposed works would be undertaken on the outside of the existing levee in the area that is clearly visible as farmland (Figure 11 – the blue line shows the approximate extent of works).



Figure 10 Location of project site relative to Hutovo Blato wetland

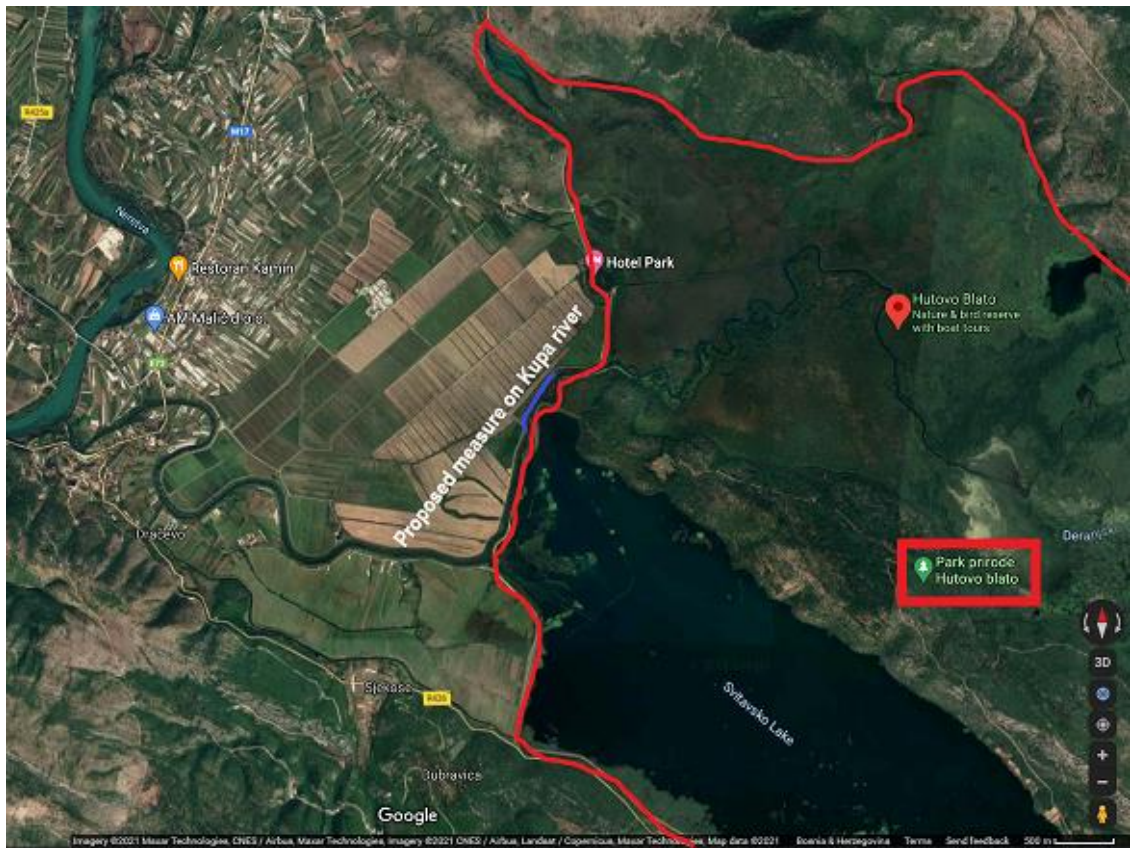


Figure 11 Relationship between Hutovo Blato wetland boundary and proposed Krupa River site

- Livanjsko Polje Site number: 1,786 | Country: Bosnia and Herzegovina | Administrative region: Hercegbosanska Zupanija Area: 45,868 ha | Coordinates: 43°51'53"N 16°49'30"E | Designation dates: 11-04-2008 Livanjsko Polje (Livno karst field). 11/04/08; Hercegbosanska canton; 45,868 ha; 43°53'N 016°47'E. The largest karst depression in the Dinaric karst and perhaps the largest periodically flooded karst field in the world. The site comprises seasonally flooded agricultural land and alluvial forest, seasonal marshes and pools, permanent streams, karst springs and sinkholes, and the largest peatland in the Balkans. Together with the Sava wetlands, it is the most important wintering, migration, and breeding site for waterbirds and raptors in the country and a key site of the Central European Flyway. The polje is important for the identity of the local community of Livno, well-known for its traditional cheeses, and for a wide range of recreational pursuits. Threats include water extraction for energy production, a planned coal-fired thermoelectric plant, and unsustainable peat excavation. Ramsar site no. 1786. Most recent RIS information: 2008.

1.12.4.2 Invasive Species:

The International Union for Conservation of Nature, (IUCN) describes an Introduced/ Alien and Invasive alien species as follows:

An Introduced/ Alien species means a species, subspecies, or lower taxon occurring outside of its natural range (past or present) and dispersal potential (i.e. outside the range it occupies naturally or could not occupy without direct or indirect introduction or care by humans) and includes any part, gametes or propagule of such species that might survive and subsequently reproduce.

An Invasive alien species means an alien species which becomes established in natural or semi-natural ecosystems or habitat, is an agent of change, and threatens native biological diversity.

The Global Register of Introduced and Invasive Species (GRIIS)¹⁹ lists 312 records. Among species which got out of human control, in BIH the most common are²⁰:

- *Asclepias siriaca*
- *Helianthus tuberosus*
- *Solidago gigantea*
- *Tagetes minuta*
- *Amorpha fruticosa*
- *Robinia pseudacacia*,
- *Phytolaca americana*,
- *Impatiens glandulifera*.

Within most invasive are:

- *Ambrosia artemisiifolia*
- *Bidens bipinnata*
- *B. frondosus*
- *B. subulatus*
- *Echinocystis lobata* (invade habitats of moist and flooded woods, then rural and urban type).

Alien animal species of aquatic ecosystems are the most frequently fish species that came into free water from fish farms or occurred spontaneously from adjacent rivers and lakes. Gudgeon *Gobio gobio* is one of the most invasive fish species in the country.

The proposed activities are unlikely to result in introduction of invasive species as materials will generally be sourced locally and it is expected that contractors are also likely to be local and so machinery is unlikely to be brought from other areas. None the less, the ESMF outlines some precautions to minimise the risk of invasive species.

1.12.5 Economic Contribution of Ecosystems

Overall GDP in BIH in 2020 was 34 255 000 000 BAM (approximately USD18.5 billion) where the contribution from agriculture, forestry, and fishing totalled up to 2,084,238 000 BAM or 6%. Whilst electricity production and supply generated up to 1,348,603,000.00 or 3.94% of GDP.

These key economic activities will benefit through the enhancement of land, infrastructure and ecological protection that the project will provide.

Of the overall GDP approx. 65% can be attributed to the of catchments for Bosna, Una and Sana, Neretva and Trebisnjica rivers.

1.13 AIR QUALITY

In Bosnia and Herzegovina, a network of stations for air quality monitoring is operated on the entity level, on the cantonal level, by public health institutes and by companies. The air monitoring system has been improved since 2010 but is not sufficient for a well-functioning countrywide air monitoring regime. The network covers mainly urban areas and rural air quality is hardly measured. In general, measurements are performed according to EU standards.²¹

¹⁹ <https://www.gbif.org/dataset/e8508e67-3e63-4a77-94b1-47c3fb1d07b7#description>

²⁰ Bosnia and Herzegovina Fourth Report to the UN Convention on Biological 2010 Biodiversity Targets National Assessments. <https://www.cbd.int/doc/world/ba/ba-nr-04-en.pdf>

²¹ United Nations Economic Commission for Europe (2018) Bosnia and Herzegovina Environmental Performance Reviews, Third Review

The website <http://www.hidrometeo.ba> provides online data for a number of monitoring stations and substances throughout Bosnia and Herzegovina. The website <http://monitoringzrakatki.info> provides data for stations in Tuzla Canton.

There is a historical problem with ambient air quality in several urban areas of Bosnia and Herzegovina²².

Industrial air emissions, combined with the air emissions from the growing number of vehicles and from domestic heating using firewood and lignite, create severe air pollution in industrial and urban areas, which causes serious nuisance and health problems. During less favourable meteorological conditions, which often occur during winter, high concentrations of substances such as SO₂ and particulate matter are reached in some urban areas that are situated in valleys, such as Tuzla, Zenica and Sarajevo.

Transboundary air pollution also occurs with the high emissions of SO₂ from Thermal Power Plants and the oil refinery at the Bosnian/Croatian border. Advanced abatement techniques are not installed that would attain better and healthier air quality on a sustainable basis. Measures to prevent air emissions from industry are sometimes included in environmental permits, but in many cases, they are not (yet) implemented.

Due to the high industrial emissions, combined with traffic exhaust and, during the winter months, domestic heating with coal and wood, high concentrations of air-polluting substances are measured that often exceed the WHO Air Quality Guidelines and the less-stringent EU Air Quality Standards, especially when stagnant meteorological conditions occur during colder periods.

Sarajevo is prone to heavy fog in winter that converts into smog when mixed with high pollution levels. Combined with weak wind or a stable anticyclone, pollutants persist in the city's air for a prolonged period, causing peaks in the particulate matter (PM) concentrations, posing significant health risks to the residents. Major sources of pollutants' emissions in Sarajevo are residential heating, traffic and some point sources such as industrial plants.

In the industrial city of Tuzla the values of the PM₁₀ are regularly above the Federation of Bosnia and Herzegovina legislation limits, with peaks at over 300 µg/m³. According to the WHO's database of annual air pollution readings (2017), Tuzla was the second most polluted city in Europe after Tetovo.

The two largest polluters (Kakanj's thermal power plant and ArcelorMittal steel plant) in the Zenica area emit an annual 90,000 tons of SO₂, which accounts for over 20% of the total SO₂ emissions in Bosnia and Herzegovina. The emission sources in the Zenica - Dobojski Canton participate with 72% into the total emission of PM particles from the Federation of Bosnia and Herzegovina.

In Republic Srpska, according to official statistics, number of daily exceedances in 2015 of the PM₁₀ limit value registered in Brod are 142, Ugljevik 26, Gacko 61 and Banja Luka - Center 67.

In rural areas, air pollution is mostly below dangerous levels, with the exception of areas in the vicinity of cities such as Zenica, Tuzla, Kakanj, Lukavac, Ugljevik and Brod.

1.14 AMBIENT NOISE

No data on ambient noise are available in Bosnia and Herzegovina, since monitoring of noise is not carried out.²³

Proposed project sites are a mix of rural and urban areas and the noise environment reflects the surrounding land uses.

²² : <https://www.unicef.org/bih/en/reports/air-quality-bosnia-and-herzegovina>

²³ United Nations Economic Commission for Europe (2018) Bosnia and Herzegovina Environmental Performance Reviews, Third Review

1.15 SOCIO-ECONOMIC

1.15.1 Land Use

Total land area can be divided into three different types of land use: *agricultural land*, *forest*, and *other*. *Agricultural land* is further divided into *arable land*- land cultivated for crops are replanted after each harvest, *permanent crops* - land cultivated for crops that are not replanted after each harvest, and includes land under flowering shrubs, fruit trees, nut trees, and vines, and *permanent pastures* and meadows ie land used for at least five years or more to grow herbaceous forage, either cultivated or growing naturally; *forest* area is land spanning more than 0.5 hectare with trees higher than five meters and a canopy cover of more than 10% to include windbreaks, shelterbelts, and corridors of trees greater than 0.5 hectare and at least 20 m wide; land classified as *other* includes built-up areas, roads and other transportation features, barren land, or wasteland²⁴.

- agricultural land: 42.2% (2011 est.)
- arable land: 19.7% (2011 est.) / permanent crops: 2% (2011 est.) / permanent pasture: 20.5% (2011 est.)
- forest: 42.8% (2011 est.)
- other: 15% (2011 est.)

1.15.2 Land Tenure

Historically, the country had two different registries for the same piece of land – a cadastre registry describing the parcel of land, and a land registry detailing the rights of that parcel. The entities are now using updated geospatial information for evidence-based decision-making around land tenure governance. The IT systems also generate gender disaggregated reports, providing information on how many women are landowners to raise awareness of the benefits of improving gender equality in property ownership and control. Additional funding has been granted to scale up this work in the country's rural areas, which will facilitate the process of land consolidation.

In addition to ownership rights, there are also:

- construction rights
- leases
- charges securing financial obligations
- mining rights
- easements, and
- concessions.

It should be noted that in the Federation of Bosnia and Herzegovina the rights to use and to dispose of real estate exist as a result of the previous regime, when state ownership prevented individuals or legal entities from owning the real estate that they occupied and used. Under current regulations, these rights to use and dispose of real estate can be converted into ownership, but this can be a slow process.

The transfer of property is generally governed by the Rights in Rem Act in the Federation of Bosnia and Herzegovina (Official Gazette of F BiH no 66/13 and 100/13) and Rights in Rem Act in the Republic Srpska (Official Gazette of RS 124/08 and 58/09).

Sites for physical interventions have been selected only where land tenure rests with the government, i.e. where the land is public land.

²⁴ https://www.indexmundi.com/bosnia_and_herzegovina/land_use.html

1.15.3 Population

The total population is 3.5 million, with 47.9% of the population living in urban areas. Life expectancy is 77.1 years. Bosnia and Herzegovina's HDI value for 2017 is 0.768— which puts it in the high human development category—positioning it at 77 out of 189 countries and territories.

The percentage of the population living below the poverty line is 16.9% (2015 est.).

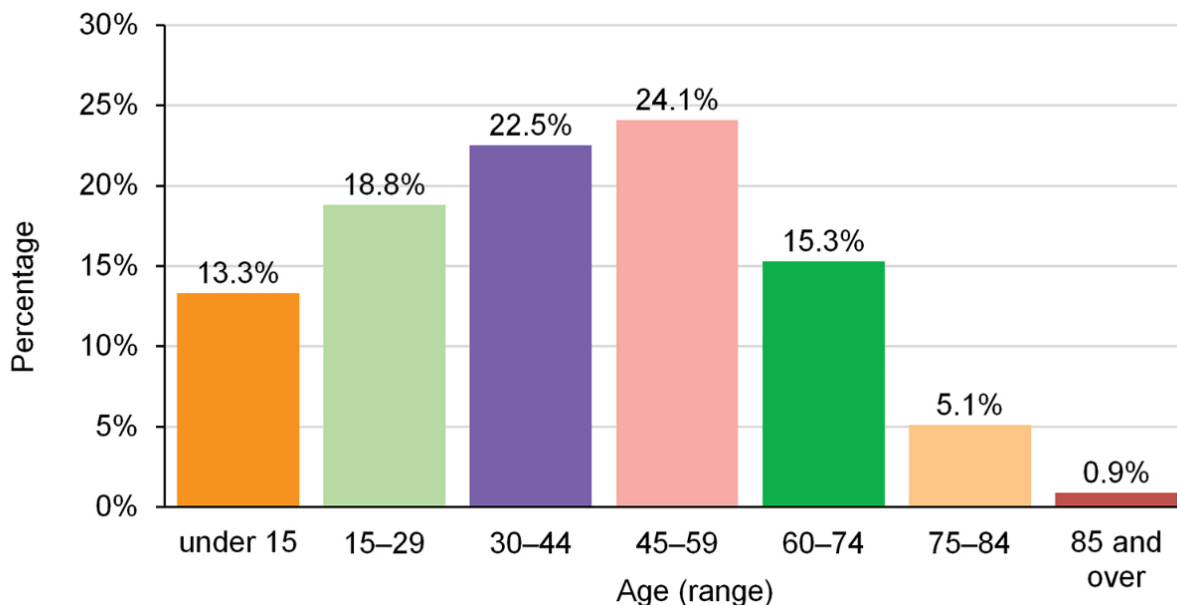


Table 6 Bosnia and Herzegovina age breakdown (2017)²⁵

1.15.4 Internally Displaced Persons

As a result of the war, BiH still has some internally displaced persons (IDPs). Rehousing of many IDPs has occurred, while others still remain in 'collective centres'. There are no collective centres near any of the sites.

According to UNHCR's report from 2019, there are 96,421 IDPs, 47,000 returnees and 1,354 refugees, which makes total of 144,775 people. There is no official data on IDPs in municipalities, but based on figures above, total BiH population and number of people living in flood affected areas, it can be estimated that at least 38,000 IDPs, refugees or returnees are populated in flood affected areas. These people are usually situated on the cheapest, lowest quality/value land, very often in near vicinity of rivers and exposed to floods, landslides and other natural disasters.

There are no indigenous peoples, ethnic groups and/or internally displaced peoples known to inhabit the specific locations of the interventions/works, i.e., there will be no relocation required. However, a rehoused IDP community (ie IDPs that have been resettled) does occur near at least one of the proposed interventions and will be direct beneficiaries of the project.

1.15.5 Political / Governance

The internationally brokered Dayton Accords — the peace agreement negotiated in Dayton, Ohio, U.S., in November 1995 — established Bosnia and Herzegovina as a state composed of two highly autonomous entities, the Republic Srpska (Bosnian Serb Republic) and the Federation of Bosnia and Herzegovina. The latter is a decentralized federation of Croats and Bosniaks. Each entity has

²⁵ <https://www.britannica.com/place/Bosnia-and-Herzegovina/People#/media/1/700826/209756>

its own legislature and president. The central institutions of Bosnia and Herzegovina include a directly elected tripartite presidency, which rotates every eight months between one Bosniak, one Serb, and one Croat member. The presidency, as the head of state, appoints a multi-ethnic Council of Ministers. The chairman of the council, who is appointed by the presidency and approved by the national House of Representatives, serves as the head of government. The parliament is bicameral. Members are directly elected to the 42-seat lower house (House of Representatives), in which 28 seats are reserved for the Federation and 14 for the Republic Srpska. Members of the upper house (the House of Peoples, with five members from each ethnic group) are chosen by the entity legislatures.

1.15.6 Employment, Labor and Working Conditions

High unemployment remains the most serious macroeconomic problem 20.5%² (2017 est.) and 25.4% (2016 est.). Agriculture employs 19.1% of the workforce, while industry employs 32.2% and services 48.7% (2017 est.).

The country has one of the lowest female employment rates in the Balkans (around 30%). The share of informal employment in total employment is relatively high (30%).²⁶

Labour rights in Bosnia and Herzegovina are regulated by laws at the level of the entities and the Brčko District. However, several studies have identified numerous problems with the application of labour laws. The most widespread violations of labour rights include: non-payment or delayed payment of salaries, non-payment of taxes and contributions, non-payment of salary compensation for maternity and pregnancy benefits, failure to register workers for mandatory health and pension insurance, not providing annual leave for workers, working hours that exceed those stipulated by law and in employment contracts, overtime work and undeclared work.²⁷

1.15.7 Gender

According to the UNDP Gender Inequality Index, measuring inequality in reproductive health, empowerment and labour market, in 2018 Bosnia and Herzegovina has a GII of 0.166 (HDR 2018) and ranks 37 out of 189 countries assessed. The GDI value (2018) 0.924 is with a ranking of Group 4.²⁸

In Bosnia and Herzegovina, 19.3 percent of parliamentary seats are held by women, and 71.7 percent of adult women have reached at least a secondary level of education compared to 88.7 percent of their male counterparts. For every 100,000 live births, 11 women die from pregnancy related causes; and the adolescent birth rate is 10.0 births per 1,000 women of ages 15-19. Female participation in the labour market is 35.2 percent compared to 58.7 for men.

Women and men have equal legal rights to property ownership, management, and use, as well as equal legal status in relation to access to financing and services²⁹. However, local traditions and customs persist in giving preference to men. Nationally, men account for over 70 percent of landownership and own 74 percent of dwellings. Women own 15 percent of all homes in 76 percent of female-headed households. Ten percent of dwellings has joint ownership³⁰. Women hold joint ownership in 11 percent of male-headed households but only five percent of men have joint ownership in female-headed households.

The level of financial inclusion in BiH is similar to the Europe and Eurasia (E&E) average but lags considerably behind upper-middle income countries.

²⁶ https://www.ilo.org/budapest/countries-covered/bosnia-herzegovina/WCMS_471903/lang--en/index.htm

²⁷ https://www.wfd.org/wp-content/uploads/2019/09/Study_The-rights-of-women-employed-in-retail-commerce-in-BiH.pdf

²⁸ http://hdr.undp.org/sites/default/files/2018_human_development_statistical_update.pdf

²⁹ WB, Women, Business and the Law, 2016: p. 94

³⁰ WB 2015: p. 79

In many communities, NGOs were the first to assist in the protection and implementation of women's human rights and today are active in communities in empowering women at the local level. Their activities include providing free legal assistance in case of violation of women's rights, provide protection to victims of domestic violence and human trafficking, support women through programs of credit and economic literacy, employment and self-employment, as well as activities aimed at empowering rural women, Roma women's organizations etc.

The Gender Analysis and Gender Action Plan prepared for the project contains further details on gender related issues relevant to the project.

1.15.7.1 GBV and SEAH

There is a very high incidence of gender-based violence in BiH. According to a 2013 survey of 3,300 BiH families (conducted by the BiH Gender Equality Agency), every second woman had experienced some form of gender-based violence during her adult life (after the age of 15).³¹

The lesbian, gay, bisexual, transgender and intersex (LGBTI) community in BiH is for the most part absent from the public sphere due to pervading hostile attitudes among the majority of the population, fear for physical safety, and discrimination by family, friends, and co-workers.

BiH ratified the Council of Europe Convention against Violence against Women and Domestic Violence in 2013 and the entities have their own strategic documents. In the RS, acts of domestic violence can be prosecuted as a misdemeanour or felony, and domestic violence is recognized in the Misdemeanour Code, and in the Criminal Code of the RS. The RS established an entity council for fighting domestic violence. In the FBiH, the acts are processed in accordance with the Criminal Code of FBiH. In this criminal code, each canton has a referral mechanism for responding to domestic violence.

Bosnia and Herzegovina has yet to implement coordination and cooperation between government institutions at all levels in the context of preventing and combating violence against women, as well as to harmonize laws and entity public policies in this area, which leads directly to the inability to ensure the equal status and protection of rights of women who survived violence and their access to justice. Safe houses run by NGOs have neither the same legal status in both entities, nor a secured system support, which directly threatens the existing limited services to help women in the period of acute violence.

1.15.8 Archaeology and Cultural Heritage

Bosnia and Herzegovina has rich cultural heritage, influenced by its significant ethno-religious diversity. However, massive destruction of cultural and religious heritage, particularly the Ottoman and Islamic inheritance, during the 1992-1995 Bosnian War was widespread in the country.

There are three World Heritage sites in Bosnia and Herzegovina (

Table 7) and a further nine on the tentative list.

Table 7 World heritage sites in Bosnia and Herzegovina

World Site	Heritage	Location	Date listed	Commentary
Old Bridge Area of the Old City of Mostar		Mostar	2005	This site encompasses the Old Bridge and the surrounding area. The Ottoman bridge, which crosses the Neretva river, was commissioned by Suleiman the Magnificent and completed in 1566/67. In 1993, during

³¹ <https://www.usaid.gov/bosnia/fact-sheets/fact-sheet-combating-gender-based-violence-bosnia-and-herzegovina>

			the Bosnian War, it was deliberately shelled and destroyed by the Croatian Defense Council. After the war, the bridge was rebuilt using traditional construction methods and local materials, and reopened in 2004
Mehmed Paša Sokolović Bridge	Višegrad	2007	The Mehmed Paša Sokolović Bridge, which crosses the Drina river, was completed in 1577 by the Ottoman court architect Mimar Sinan on the orders of the Grand Vizier Mehmed Paša Sokolović
Stećci Medieval Tombstones Graveyards*	20 sites	2016	Stećci (sing. stećak) are the monolith medieval tombstones found in modern-day Bosnia and Herzegovina, as well as parts of Croatia, Serbia, and Montenegro. They first appeared in the 12th century and reached their peak in the 14th and 15th centuries. There are 20 sites in Bosnia and Herzegovina, mostly in the southeastern part of the country. The largest cluster is located in Radimlja, in the Stolac municipality.

There are no known heritage values at any of the sites.

1.15.9 Unexploded Ordinance

Bosnia and Herzegovina (BIH) is one of the most mine-contaminated countries in the world and remains the most mine-affected country in Europe. The presence of mines and unexploded ordnance (UXO), even though reduced each year, remains a major problem for personal security of residents, hinders socio-economic development and prevents steady and continuous post-conflict reconstruction.

By 2020, the mine suspected area in BIH amounts to 965 square kilometres, representing over 1.97 % of the country's territory. According to the most current Bosnia and Herzegovina Mine Action Centre (BHMIC) estimations, there are still around 79,000 mines and explosive remnants of war (unexploded ordnance, cluster munitions) remaining in the ground throughout Bosnia and Herzegovina and over 500,000 residents living in approximately 1,400 mine/ERW affected communities. Since 1996, mine and UXO accidents severed the lives of 1,766 local residents, turning them into mine/ERW victims (617 persons were fatally injured-died).³²

³² <https://www.ift.si/activities/southeast-europe/bosnia-and-herzegovina#>



Figure 12 Landmine situation in Bosnia and Herzegovina in 2016

ENVIRONMENTAL AND SOCIAL RISK ASSESSMENT

1.16 UNDP SOCIAL AND ENVIRONMENTAL SCREENING

As this project is supported by UNDP in its role as a GCF Accredited Entity, the project has been screened against UNDP's Social and Environmental Standards. The Social and Environmental Screening Template was used to screen the project (Appendix 1). Based on the risks and their pre-mitigation risk level identified in the screening exercise, the project has been deemed to be of moderate risk (Category B).

1.17 IMPACT RISK ASSESSMENT METHODOLOGY

An impact risk assessment was undertaken using the UNDP risk matrix to assess the likelihood of a risk occurring (expected, very likely, moderately likely, low likelihood, not likely) and the impact of the risk (extreme, extensive, intermediate, minor, negligible). From this, a significance value was attributed to the potential impact (low, moderate, substantial and high).

Screening of the project using the UNDP screening template provides high level, whole-of-project assessment of risks. As per the UNDP SES, risk rating is done on pre-mitigation state. Overall project risk is dictated by the highest level of risk determined when assessing activity pre-mitigation risk levels. The screening, contained in SESP, indicated that there are moderate risks and therefore the project must be categorised as of Moderate risk overall.

The project has also been screened for Sexual Exploitation, Abuse and Harassment (SEAH). SEAH risks have been included in the SESP (Appendix 1). The project was deemed to have an overall medium level of SEAH risk.

Table 11 provides a risk assessment by activity to provide more detail than the SESP to assist project personnel in anticipating and mitigating risks when implementing the project. Note, similar risks can occur during multiple activities. To provide an indication as to the extent to which a risk might be managed, post-mitigation risk assessment has also been undertaken. The results of the pre- and post-mitigation assessments are presented in Table 11.

When undertaking the risk assessment, all activities were assessed, including, hard/soft infrastructure and livelihood interventions. Specific measures for each matter e.g., water, erosion, noise etc are discussed along mitigation measures later in this ESAR.

As discussed in Section 1, the ESAR has been prepared using publicly available information (legislation, reports, papers, maps, images, internet searches etc), project reference documents (e.g. Concept Note, Feasibility Study, Gender Analysis and Action Plan etc), consultation with stakeholders such as government, NGOs and project development team members, and field-visits by a safeguards specialist to representative sites. The risk assessment and proposed mitigation measures draws on the available information and the experience of team members with similar projects.

Score	Rating
5	Expected
4	Very Likely
3	Moderately likely
2	Low Likelihood
1	Not likely

Table 8 Rating of Likelihood of Risk

Score	Rating	Definition
5	Extreme	Significant adverse impacts on human populations and/or environment. Adverse impacts high in magnitude and/or spatial extent (e.g. large geographic area, large number of people, transboundary impacts, cumulative impacts) and duration (e.g. long-term, permanent and/or irreversible); areas impacted include areas of high value and sensitivity (e.g. valuable ecosystems, critical habitats); adverse impacts to rights, lands, resources and territories of indigenous peoples; involve significant displacement or resettlement; generates significant quantities of greenhouse gas emissions; impacts may give rise to significant social conflict
4	Extensive	Adverse impacts on people and/or environment of medium to large magnitude, spatial extent and duration more limited than extreme (e.g. predictable, mostly temporary, reversible). The potential risk impacts of projects that may affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples are to be considered at a minimum potentially extensive.
3	Intermediate	Impacts of medium magnitude, limited in scale (site-specific) and duration (temporary), can be avoided, managed and/or mitigated with relatively uncomplicated accepted measures
2	Minor	Very limited impacts in terms of magnitude (e.g. small affected area, very low number of people affected) and duration (short), may be easily avoided, managed, mitigated
1	Negligible	Negligible or no adverse impacts on communities, individuals, and/or environment

Table 9 Rating of Impact of Risk

Impact	5	moderate	substantial	substantial	high	high
	4	low	moderate	substantial	substantial	high
	3	low	moderate	moderate	moderate	substantial
	2	low	low	low	moderate	moderate
	1	low	low	low	low	low
		1	2	3	4	5
	Likelihood					

Table 10 UNDP Risk matrix

Table 11 Risk Assessment

Project element with potential for impacts	Unmitigated Risks	Probability of Impact and Impact	Avoidance and Mitigation Measures	Probability of Impact and Impact post-mitigation
OUTPUT 1: CLIMATE-INFORMED FFEWS AND AN INCREASED GENERATION AND USE OF CLIMATE DATA REDUCE VULNERABILITY TO FLOOD RELATED DISASTERS				
Activity 1.1: Upgrade and expand the coverage of the hydrometric network for enhanced monitoring of climate variables in Category I catchments and torrential streams				
Construction	Minor construction work impacts	Likelihood: 3 Impact: 2 Risk Level: Low	Construction impacts can be readily managed through implementation of ESMF.	Likelihood: 3 Impact: 1 Risk Level: low
Security of equipment	Potential for theft or vandalism of infrastructure	Likelihood: 1 Impact: 4 Risk Level: Low	Fencing and other security precautions designed into project Community engagement to help communities understand the value to infrastructure to them to reduce vandalism and theft	Likelihood: 1 Impact: 3 Risk Level: Low
Involvement of HPPs	Perception that project is promoting HPP	Likelihood: 4 Impact: 3 Risk Level: Moderate	Project Board/PMU to ensure application of UNDP SES to all activities. Engagement of all stakeholders to demonstrate value gained through involvement of HPPs Implement SEP, ESMF and other safeguard plans	Likelihood: 2 Impact: 3 Risk Level: Moderate

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Project element with potential for impacts	Unmitigated Risks	Probability of Impact and Impact	Avoidance and Mitigation Measures	Probability of Impact and Impact post-mitigation
Activity 1.2: Enhance climate-induced flood hazard, risk and vulnerability information for strategic management and sound decision making for climate induced flood management.				
Modelling and risk mapping and integration of data.	<p>Direct impacts associated with activity are likely to be low, however some risks/impacts that could occur if poorly managed include:</p> <p>Lack of technical capability/capacity within agencies for modelling</p> <p>Poor stakeholder engagement may result in users not understanding/using information</p> <p>Lack of capacity and capability</p>	<p>Likelihood: 2</p> <p>Impact: 3</p> <p>Risk Level: Moderate</p>	<p>Capacity building will be undertaken. EUFD methodology has been adopted by BiH. Models (including software), data collection approaches and scales, are specified in the methodologies accepted by both entities (and embedded in their laws). The project to build on the 'minimum' EUFD approach and enhance the scale, level of detail and the processes that will be modelled and mapped (adding HPPs, torrents and groundwater)</p> <p>Engagement with end users during design and then testing/assessment of products with end users</p> <p>Project includes significant capacity building activities to embed long-term capacity in modelling and data management. Train the trainer to assist in knowledge transfer.</p>	<p>Likelihood: 1</p> <p>Impact: 2</p> <p>Risk Level: Low</p>
Inclusion of HPPs in flood models	Perception that project is promoting/endorsing HPPs	<p>Likelihood: 4</p> <p>Impact: 3</p> <p>Risk Level: Moderate</p>	<p>HPPs are part of the existing system and can have a significant influence on flood impacts.</p> <p>Engagement to ensure understanding that HPPs need to be integrated into</p>	<p>Likelihood: 3</p> <p>Impact: 3</p> <p>Risk Level: Moderate</p>

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Project element with potential for impacts	Unmitigated Risks	Probability of Impact and Impact	Avoidance and Mitigation Measures	Probability of Impact and Impact post-mitigation
			<p>flood models for effective forecasting and management.</p> <p>Develop operating rules for HPPs based on integrated modelling.</p> <p>Communicate role of HPPs in improving flood forecasting (data collection) and management.</p>	
Activity 1.3: Develop an integrated centralized and community-based flood forecasting and early warning system (FFEWS).				
Inter entity/agency cooperation	Risk of system failure if there is not appropriate cooperation between the agencies/entities.	<p>Likelihood: 3</p> <p>Impact: 3</p> <p>Risk Level: Moderate</p>	<p>Capacity building of various departments</p> <p>Engage both entities equally and where possible on common projects</p> <p>SOPs will assist in creating commonality</p>	<p>Likelihood: 2</p> <p>Impact: 3</p> <p>Risk Level: Moderate</p>
Community engagement	<p>Risk that messages may be misunderstood</p> <p>Community trust of system can be lost if there are confusing messages or false alarms.</p>	<p>Likelihood: 2</p> <p>Impact: 3</p> <p>Risk Level: Moderate</p>	<p>Community-specific engagement programs.</p> <p>Advisories need to be clearly understood by recipients. Wording of messaging and modes of delivery to be relevant to community and adopt multi-level approach.</p> <p>Engagement with end users during design and then testing/assessment of products with end users prior to finalizing will reduce risk of user needs</p>	<p>Likelihood: 1</p> <p>Impact: 3</p> <p>Risk Level: Low</p>

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Project element with potential for impacts	Unmitigated Risks	Probability of Impact and Impact	Avoidance and Mitigation Measures	Probability of Impact and Impact post-mitigation
			<p>not being met. A feedback mechanism that is being built in will ensure usability of information disseminated.</p> <p>Using GIS, develop warning and evacuation maps showing evacuation routes, shelters, the locations of vulnerable people/groups, critical infrastructure, NGO/CBO offices, health facilities, and other operationally useful information, with hazards extents linked to gauge information</p> <p>Place markers and signs on buildings and other structures linked to warning threshold (alert) levels.</p> <p>Warning thresholds to be appropriate for each community.</p> <p>Ensure that system is trailed and that false alarms are minimized to ensure trust in system is maintained.</p>	
Activity 1.4: Develop and implement national protocols and SOPs on data generation, data management and communication for effective FFEWS and flood risk management.				
Activity is focused on data management, verification,	No significant impacts are anticipated to be associated with this activity. Risks include:			

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Project element with potential for impacts	Unmitigated Risks	Probability of Impact and Impact	Avoidance and Mitigation Measures	Probability of Impact and Impact post-mitigation
forecasting and hazard communication	Suitability of models, calibration, and selection of appropriate triggers (level of technical capability)	Likelihood: 2 Impact:3 Risk Level: Moderate	International practices will be employed. Suitability of models, calibration, and selection of appropriate triggers.	Likelihood: 1 Impact:3 Risk Level: Low
	Protocols once developed must be followed to be effective.	Likelihood: 3 Impact: 3 Risk Level: Moderate	Standardized protocols etc. will assist in harmonizing departments.	Probability: 2 Impact: 3 Risk Level: Moderate
	Lack of co-operation / coordination between government departments		Lessons learned from previous project that is being scaled up will be applied.	
	Failure to involve private sector or get buy in e.g., from HPPs		Early engagement of private sector, particularly power generation sector	
	Messaging inappropriate and/or vulnerable groups do not receive information	Likelihood: 2 Impact:3 Risk Level: Moderate	Implement Gender Action Plan Multi-pronged approach to dissemination via multiple media types	Likelihood: 1 Impact: 2 Risk Level: Low

OUTPUT 2: SCALED-UP ECOSYSTEM-BASED AND NON-STRUCTURAL CLIMATE RESILIENT FLOOD RISK REDUCTION.

Activity 2.1: Mainstream climate induced flood risk reduction into sectoral planning (agriculture, hydropower, critical infrastructure) and spatial planning.

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Project element with potential for impacts	Unmitigated Risks	Probability of Impact and Impact	Avoidance and Mitigation Measures	Probability of Impact and Impact post-mitigation
Activity is primarily about planning, legislation, and policies, building standards and capacity building	Adverse physical impacts are not expected. Potential risks are associated with lack of acceptance of policies and planning outcomes, failure to widely disseminate information and build suitable capacity.	Likelihood: 2 Impact: 3 Risk Level: Moderate	Engagement with end users during design and then testing/assessment of products with end users prior to finalizing will reduce risk of user needs not being met. A feedback mechanism that is being built in will ensure usability of information disseminated Undertake SESA to assess potential adverse impacts of planning and policy changes.	Likelihood: 1 Impact: 2 Risk Level: Low
Activity 2.2: Implement and mainstream new ecosystem-based flood risk reduction and climate change adaptation methods.				
Construction	Construction impacts such as noise, dust, erosion, spill risks etc. Risk of UXO disturbance by earthworks Increased risk of SEAH associated with construction workers, training etc.	Likelihood: 4 Impact: 3 Risk Level: Moderate	These and other impacts listed for the activity 2.2 will be addressed through preliminary EIA that will consider their scale and significance, and will prescribe proper management and monitoring measures. These measures will be integrated in water permit issued for each site by Water Agency and construction permit issued by Relevant government Ministry. ESMF Implement UXO protocols prior to earthworks Implement SEAH Action Plan	Likelihood: 3 Impact: 2 Risk Level: Moderate

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Project element with potential for impacts	Unmitigated Risks	Probability of Impact and Impact	Avoidance and Mitigation Measures	Probability of Impact and Impact post-mitigation
Reforestation / agroforestry	Potential erosion and sediment movement. See also additional information in UNDP's NTF on this topic in May 2023..	Likelihood: 3 Impact: 3 Risk Level: Moderate	Implementation of Guidelines for nature-friendly stabilization of the riverbed and riparian areas and riparian areas ESMF	Likelihood: 2 Impact: 2 Risk Level: Low
	Potential that areas reforested are utilized for timber in future.		Planning and policy changes to incentivize maintenance of vegetation for flood management.	
In-stream and riverbank vegetation management	Loss of habitat through instream vegetation removal and riverbank armoring	Likelihood: 4 Impact:3 Risk Level: Moderate	Vegetation to be removed is generally weeds. Where trees require removal, then extent will be minimized where possible. Protection of riverbanks will seek to adopt a soft infrastructure or EbA approach e.g., uncemented stone will be favored over engineered surfaces, stabilizing vegetation will be established etc. ESMF	Likelihood: 3 Impact:2 Risk Level: Low

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Project element with potential for impacts	Unmitigated Risks	Probability of Impact and Impact	Avoidance and Mitigation Measures	Probability of Impact and Impact post-mitigation
Changes to floodplain use	Reconnection of floodplains could result in altered use regimes for landholders giving rise to grievances	Likelihood: 4 Impact:3 Risk Level: Moderate	Community engagement to ensure understanding of need for improved use and benefits to broader community Undertake a Strategic Environmental and Social Assessment (SESA) to assess plan/policy changes	Likelihood: 4 Impact: 2 Risk Level: Moderate
Activity 2.3: Codify and mainstream EbA solutions into policies and regulations and promote non-structural measures among decision makers and communities.				
Mainstreaming / application of products	No physical impacts expected. Documents need to be appropriate for intended audience.	Likelihood: 3 Impact:3 Risk Level: Moderate	Documents written with target audiences in mind i.e., language and technical levels appropriate for end use. Engagement with users to obtain feedback on appropriateness and usability of documents.	Likelihood: 2 Impact: 2 Risk Level: Low

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Project element with potential for impacts	Unmitigated Risks	Probability of Impact and Impact	Avoidance and Mitigation Measures	Probability of Impact and Impact post-mitigation
	<p>Lack of understanding or capacity to implement various policies, regulations, and concepts</p> <p>Possible unintended impacts associated with changes in plans and policies.</p>		<p>Capacity building of various departments.</p> <p>Undertake a Strategic Environmental and Social Assessment (SESA) to assess plan/policy changes.</p>	
Activity 2.4: Review and strengthen institutional capacity and develop long-term institutional capacity development plans for climate resilient FRM.				
Training	<p>Lack of capacity / selection of candidates</p> <p>Increased risk of SEAH associated with training situations</p>	<p>Likelihood: 3</p> <p>Impact: 3</p> <p>Risk Level: Moderate</p>	<p>Develop capacity both vertically and horizontally within organizations to provide a depth of knowledge and staff resources</p> <p>Apply Gender and SEAH Action Plans</p>	<p>Likelihood: 2</p> <p>Impact: 2</p> <p>Risk Level: Low</p>
	<p>Staff turnover and consequent loss of skills</p>	<p>Likelihood: 3</p> <p>Impact: 3</p> <p>Risk Level: Moderate</p>	<p>Train the Trainer, development and establishment of training curricula, and rosters of trainers, and development of mechanisms for delivering long-term capacity development to help capacity to be passed along and increase corporate capacity thus assisting in sustainability.</p>	<p>Likelihood: 3</p> <p>Impact: 2</p> <p>Risk Level: Low</p>

OUTPUT 3: CLIMATE-PROOF FLOOD PROTECTION INVESTMENTS STRENGTHEN ADAPTIVE CAPACITY AND REDUCE EXPOSURE TO CLIMATE-INDUCED FLOODS

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Project element with potential for impacts	Unmitigated Risks	Probability of Impact and Impact	Avoidance and Mitigation Measures	Probability of Impact and Impact post-mitigation
Activity 3.1: Develop a country-wide investment framework for climate induced floods risk reduction and management including provisions for private sector engagement in climate risk financing and for risk transfer mechanisms.				
Engagement	Failure to engage community or public sector – poor take up of initiatives	Likelihood: 2 Impact: 3 Risk Level: Moderate	Early and ongoing engagement – implement SEP	Likelihood: 1 Impact: 2 Risk Level: Low
Activity 3.2: Formulated multi-year climate resilient municipal investment plan and gender sensitive community preparedness plan implemented in selected municipalities (10-12) in Vrbas, Una-Sana and Bosna basins.				
Community engagement	Community resistance or apathy	Likelihood: 3 Impact: 3 Risk Level: Moderate	Early engagement and involvement of community	Likelihood: 2 Impact: 2 Risk Level: Low
Gender	Existing gender inequalities in BiH	Likelihood: 3 Impact: 3 Risk Level: Moderate	Implement Gender Action Plan	Likelihood: 1 Impact: 2 Risk Level: Low
	Existing level of gender-based violence (GBV), risk to exacerbate GBV, including sexual exploitation, abuse, and harassment (SEAH).	Likelihood: 2 Impact: 4 Risk Level: Moderate	Implement Gender Action Plan. Implement UNDP policies for protection against Harassment, Sexual Harassment, Discrimination and abuse of Authority, as well as special measures for protection from sexual exploitation and sexual abuse eg SEAH Action Plan	Likelihood: 1 Impact: 3 Risk Level: Moderate

Project element with potential for impacts	Unmitigated Risks	Probability of Impact and Impact	Avoidance and Mitigation Measures	Probability of Impact and Impact post-mitigation
Activity 3.3: Implement climate-proof structural flood risk reduction and anti-erosion interventions in Vrbas, Una-Sana and Bosna River basins (co-financed).				
All cofinanced activities to meet UNDP SES	Failure to adhere to UNDP SES	Likelihood: 4 Impact: 3 Risk Level: Moderate	Project Board and PMU to ensure application of UNDP SES to all activities. Implement various safeguard documents e.g., ESMF, GAP, SEP/GRM to all activities	Likelihood: 2 Impact: 3 Risk Level: Moderate
Construction impacts	Unacceptable impacts associated with construction activities e.g., noise, dust, safety, sediment and erosion	Likelihood: 3 Impact: 3 Risk Level: Moderate	Implement ESMF	Likelihood: 2 Impact: 2 Risk Level: Low
	Risk of encountering Uxo during earthworks	Likelihood: 2 Impact: 4 Risk Level: Moderate	Implement ESMF, in particular UXO surveys of any areas to be excavated	Likelihood: 1 Impact: 4 Risk Level: Low
Flora and fauna	Loss of vegetation, unacceptable impacts to wildlife	Likelihood: 3 Impact: 3 Risk Level: Moderate	Implement ESMF	Likelihood: 3 Impact: 2 Risk Level: Low
Flooding during works	Works sites flooded during implementation and no preparations made	Likelihood: 2 Impact: 4 Risk Level: Moderate	Timing of works, monitoring of upstream rainfall / river levels Implement ESMFs	Likelihood: 2 Impact: 2 Risk Level: Low

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Project element with potential for impacts	Unmitigated Risks	Probability of Impact and Impact	Avoidance and Mitigation Measures	Probability of Impact and Impact post-mitigation
Earthquake	Potential for earthquakes to damage infrastructure	Likelihood: 1 Impact:4 Risk Level: Low	Design to withstand earthquakes. SOPs to also include earthquakes. Insure for natural disasters	Likelihood: 1 Impact:3 Risk Level: Low
Operation and Maintenance	Failure to properly operate and maintain	Likelihood: 3 Impact:3 Risk Level: Moderate	Development and implementation of an O&M plan. Identification and allocation of annual O&M budget and clear authority on who is responsible.	Likelihood: 2 Impact:2 Risk Level: Low

1.18 DIRECT IMPACTS

The activities will be undertaken in locations that are disturbed, both naturally (e.g., via flood erosion) and anthropogenic (e.g., canals). The environmental and social impacts envisaged for the project are predominantly temporary in nature and are associated with construction activities for the river works, and access to land for both river works and forestry activities. It is currently proposed that all early warning system components will be constructed on Government land.

The most significant environmental and social impacts are likely to be attributed to the implementation of the priority risk reduction interventions at the sites proposed under Activity 3.3 (Table 11).

There are a range of potential impacts associated with the works including, but not limited to, the potential erosion and sediment movement during rainfall events and as a result of dust, all of which could have impacts on water quality, noise impacts from the use of trucks and excavators, the potential leakage of chemicals and oils, and other potential impacts. The construction activities could also result in changes to people's ability to move within the locale. There is also the potential for the construction activities to generate sediment that may increase silt load through overland flow to other environments.

The vast majority of construction works involve the building of the river infrastructure. It is anticipated that most materials, particularly rock, will come from quarries near the sites. Other materials will be minimal. The proper handling of this material, and where possible, recycling and reuse of any local materials should be considered.

The proposed river works are unlikely to impact on important ecosystems and/or habitats. The rivers have been significantly impacted by both anthropogenic activities and climate induced events in the past. Some riparian vegetation will be lost at some of the sites; however, revegetation is planned as part of the works.

All construction and operation activities have the potential to cause noise nuisance. Vibration disturbance to nearby residents and sensitive habitats is likely to be caused through the use of vibrating equipment. Blasting is not required to be undertaken as part of this project. The use of machinery or introduction of noise generating facilities could have an adverse effect on the environment and residents if not appropriately managed. The detail, typical equipment sound power levels, provides advice on project supervision and gives guidance noise reduction. Potential noise sources during construction may include:

- heavy construction machinery.
- power tools and compressors.
- delivery vehicles.

Heavy machinery and haul trucks can generate high noise levels within and along the project areas and routes. All machinery and vehicles used will be restricted to 7am to 5pm.

Air quality is unlikely to be affected due to the limited exhaust emissions from construction vehicles and machinery such as plant for excavating foundations, concrete mixers, water tankers, small cranes, dumpers, forklift for the block work and fugitive emissions from aggregates, dust from exposed soils and stockpiles. Any impacts on air quality will be very localised and of short duration.

The project is very unlikely to result in any significant risk to water pollution from oil, grease and fuel spills, and other materials from vehicles working on site. Construction vehicles could affect water quality by accidents from vehicles (e.g., oils and fuel). While it is unlikely that there will be an impact as a result of a chemical, fuel and oil spill, these lubricants need to be handled with caution and importantly, where possible, should not be brought on site. In the case of a spill, every effort must be made that it does enter the riverine environment.

The project has the potential to generate quantities of waste, although the quantities are unlikely to cause an environmental impact as they will generally be small.

With respect to the installation of equipment, the main impacts associated with this activity are the installation of equipment to collect data and then the dissemination of that information in real time as needed. As such, the activity is unlikely to have any significant impact although there is the potential, albeit small to impact the environment or land during the installation of loggers.

The project will not create temporary and/or permanent habitats for mosquito breeding and/or any other pests.

1.19 INDIRECT IMPACTS

There are unlikely to be any real indirect impacts associated with the project if general care and maintenance are considered. Primarily, the project will require the importation of materials and equipment to the intervention sites. Special attention should be considered in the movement of this material including the organisation of the deliveries to reduce the number of transportation movements required and moreover to reduce material remaining on site for extended periods. All material should be moved away from the rivers as soon as possible to remove the potential impacts should a storm or disaster event occur.

There are unlikely to be any adverse impacts on hydropower projects as a result of the projects. By contrast, it is likely that the interventions will have beneficial impacts by reducing the amount of sediment that would impact on any reservoirs.

1.20 CUMULATIVE IMPACTS

The proposed river interventions will be undertaken in four basins. There is limited potential for cumulative impacts, these being impacts on sediment movement during the construction activities. These impacts will be limited temporally. Conversely, the activities will significantly reduce on-going cumulative impacts by reducing the loss of sediment and bank erosion during large flooding events.

1.21 TRANSBOUNDARY IMPACTS

Given the locations of the interventions, there is unlikely to be any direct transboundary impacts. However, the proposed interventions are likely to have indirect transboundary benefits, such as reduced sedimentation.

1.22 POTENTIAL BENEFITS

This project will directly benefit the most vulnerable parts of the population and will have significant benefits to gender equity. Flooding and disasters in general, impact women disproportionately. In B&H there are significant gender inequalities, fuelled by traditional gender roles. The project will ensure that women are primary stakeholders and will therefore need to be involved in decisions on the types of solutions that are implemented. The project will therefore safeguard local communities and their assets from climate disasters with particular attention to women, and other vulnerable groups.

The project is addressing climate-induced flood risks by introducing FRM and CCA measures. In general, the project is providing key environmental protection benefits through the introduction of disaster risk reduction, climate change adaptation and protection of people, property and the environment from major hazards. In the long-run the project will bring about significant environmental benefits by increasing the country's resilience to climate-induced flood disasters and thus, enabling its population to better protect national assets, including environmental assets (land, forest and land resources).

Environmental co-benefits mainly relate to EbA strategies such as riparian plantings and agro-forestry which will provide water retention functions; regulation of hydrological flows (buffer runoff, soil infiltration, groundwater recharge, maintenance of base flows); natural hazard mitigation (e.g., flood prevention, peak flow reduction, soil erosion and landslide control); increased streambed stabilization resulting in decreased erosion, habitat preservation, and reforestation.

AVOIDANCE AND MITIGATION MEASURES

There are a range of options to avoid and/or mitigate the environmental and social impacts associated with the proposed interventions. The ESMF contained in Chapter Nine of the ESAR sets out appropriate and comprehensive mitigation measures for the potential impacts of the activities, in particular in the channels of the rivers and forestry activities. With compliance with the ESMF, the project is unlikely to have any significant impacts/risks.

The most appropriate mitigation measure is to ensure project activities to do not occur during periods of rainfall which could significantly increase sediment discharges and erosion. All works should comply with the Guidelines for nature-friendly stabilization of the riverbed and riparian areas. All areas should be revegetated as soon as possible to reduce erosion and sediment loss.

Prior to any activity being carried out, the project should ensure equitable participation of men and women in all project activities. Further, the project should ensure it undertakes an assessment of sex-disaggregated data and the gender analysis as well as investigating any vulnerable groups.

Any access requirements to any land should be undertaken in full compliance with a voluntary land access agreement that should be signed before any activities on private land are undertaken.

STAKEHOLDER ENGAGEMENT AND PUBLIC PARTICIPATION

1.23 PUBLIC CONSULTATION AND ENVIRONMENTAL AND SOCIAL DISCLOSURE

The project has been discussed with a wide range of stakeholders including relevant government departments, industry groups, NGOs, and individual community members and approved by the Governments of Bosnia and Herzegovina. On-ground consultation has been undertaken during the design of the project (as well as during the earlier projects that this project is aiming too upscale). A summary of stakeholder consultation is contained in Annex 7 of the Funding Proposal. Consultation will continue throughout the project and a Stakeholder Engagement Plan has been prepared (refer Annex VII of the Full Proposal).

The UNDP, and the Water Agencies will develop and release updates on the project on a regular basis to provide interested stakeholders with information on project status. Updates may be via a range of media e.g., print, radio, social media or formal reports. A publicised telephone number will be maintained throughout the project to serve as a point of contact for enquiries, concern, complaints and/or grievances. All enquiries, concern, complaints and/or grievances will be recorded on a register and the appropriate manager will be informed. All material must be published in English and BiH languages as appropriate.

Where there is a community issue raised, the following information will be recorded:

- time, date and nature of enquiry, concern, complaints and/or grievances;
- type of communication (e.g., telephone, letter, personal contact);
- name, contact address and contact number;
- response and investigation undertaken as a result of the enquiry, concern, complaints and/or grievances; and

- actions taken and name of the person taking action.

Some enquiries, concern, complaints and/or grievances may require an extended period to address. The complainant(s) will be kept informed of progress towards rectifying the concern. All enquiries, concerns, complaints and/or grievances will be investigated, and a response given to the complainant in a timely manner. A grievance redress mechanism has been included in the ESAR and ESMF to address any complaints that may not be able to be resolved quickly.

The nominated PMU/contractor staff will be responsible for undertaking a review of all enquiries, concern, complaints and/or grievances and ensuring progress toward resolution of each matter.

1.24 SAFEGUARD INSTRUMENTS APPLICABLE TO PROJECT

As noted above and in the SESP (Appendix 1), potential impacts of the project will be managed through the preparation and implementation of the various safeguards instruments. All safeguards instruments prepared during project implementation will be guided by this ESAR/ESMF and will meet UNDP's SES requirements as well as BiH Law. The following safeguards instruments are applicable:

- Strategic Environmental and Social Assessment will assess impacts of land use planning or policy changes.
- Guidelines for nature-friendly stabilization of the riverbed and riparian areas will be developed to guide the specific riverwork project.
- Preliminary Environmental Assessments (site-specific) –will be conducted for all riverwoks as required by BiH law. These site-specific assessments will stipulate mitigation measures that will be codified in site-specific environmental permits that will be later integrated into the applicable site-specific construction permit issued by the Relevant government Ministry and water permit issued for each site by Water Agency.
- Moreover, the preliminary EIA on the Krupa River site will incorporate applicable elements of Biodiversity Action Plan as per the UNDP SES 1 to ensure there are no measurable adverse impacts on the criteria or biodiversity values of Hutovo Blato Ramsar site, and on the ecological processes supporting those biodiversity values this will be done even if the potential impacts of the project on this site were ranked Low and Moderate).
- Contractors will be required to provide work method statements as part of permit applications. Water permits will specify any additional contractor requirements (over those required by the plans listed above).
- Strategic Environmental and Social Assessment – where required by law to assess impacts of land use planning or policy changes.
- Stakeholder Engagement Plan (refer Annexure VII of Full Funding Proposal)
- Grievance Redress Mechanism (refer Annexure VII of Full Funding Proposal)
- Gender Action Plan
- SEAH Action plan (Appendix 2)

ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT

This section identifies the key environmental and social indicators identified for the project and outlines respective management objectives, potential impacts, control activities and the environmental performance criteria against which these indicators will be judged (i.e., audited).

This section further addresses the need for monitoring and reporting of environmental performance with the aim of communicating the success and failures of control procedures, distinguish issues that require rectification and identify measures that will allow continuous improvement in the processes by which the projects are managed.

1.25 PURPOSE AND OBJECTIVES OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

An ESMF is a management tool used to assist in minimising the impact to the environment and socially; and establish a set of environmental and social objectives. To ensure the environmental and social objectives of the projects are met, this ESMF will be used by the project implementers to structure and control the environmental and social management safeguards that are required to avoid or mitigate adverse effects on the environment and communities.

The environmental and social objectives of the projects are to:

- provide an early warning system that ensures adequate measures are undertaken prior to any event.
- reduce flooding impacts.
- encourage good management practices through planning, commitment and continuous improvement of environmental practices.
- minimize or prevent the pollution of land, air and water pollution.
- protect native flora, fauna and important ecosystems.
- comply with applicable laws, regulations and standards for the protection of the environment.
- ensure gender equality and inclusion across all facets of the project
- apply zero tolerance to sexual exploitation, abuse and harassment
- adopt the best practicable means available to prevent or minimize environmental impact.
- describe monitoring procedures required to identify impacts on the environment; and
- provide an overview of the obligations of GoBiH and UNDP staff and contractors in regard to environmental obligations.

The ESMF will be updated from time to time by the implementing Project Management Unit (PMU)/contractor in consultation with the UNDP staff and GoBiH to incorporate changes in the detailed design phase of the projects.

1.26 OVERVIEW OF INSTITUTIONAL ARRANGEMENTS FOR THE ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

The ESMF will be assessed for each sub-project by the relevant Water Agency and UNDP prior to any works being undertaken. The ESMF identifies potential risks to the environment and social matters from the projects and outlines strategies for managing those risks and minimising undesirable environmental and social impacts. Further, the ESMF provides a Grievance Redress Mechanism for those that may be impacted by the projects that do not consider their views have been heard.

The BiH will be responsible for the supervision of the ESMF. The UNDP will gain the endorsement of the BiH and will ensure the ESMF is adequate and followed. The PMU will ensure timely remedial actions are taken by the contractor where necessary.

1.26.1 Administration

The UNDP will be responsible for the revision or updates of this document during the course of work. It is the responsibility of the person to whom the document is issued to ensure it is updated.

The site supervisor will be responsible for daily environmental inspections of the construction site. The UNDP will cross check these inspections by undertaking monthly audits.

The contractor will maintain and keep all administrative and environmental records which would include a log of complaints together with records of any measures taken to mitigate the cause of the complaints.

The contractor will be responsible for the day-to-day compliance of the ESMF.

The UNDP will be the implementing agency and will be responsible for the implementation and compliance with the ESMF via the collaborating partners and contractors. The ESMF will be part of any tender documentation.

The Supervising Engineer/Project Manager will supervise the contractor, while the UDNP will be responsible for environment and social issues.

1.27 IMPLEMENTATION AND OPERATION

1.27.1 General Management Structure and Responsibilities

All project activities (GCF interventions and co-financed activities) will be managed using the project management structure shown in Figure 13. The use of a common project management structure will result in improved application of common systems and approaches, as well as enabling adherence to the UNDP SES. The key roles are discussed below.

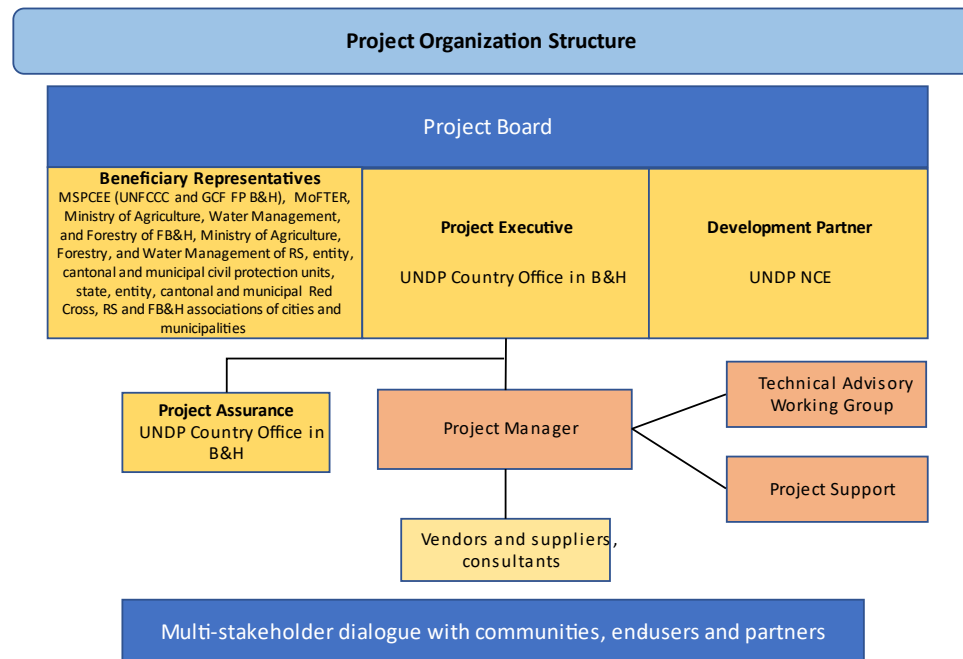


Figure 13 Project organization structure

1.27.1.1 Project Board

The Project Board (PB) is comprised of the following organizations: The Ministry for Spatial Planning, Civil Engineering and Ecology, Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, Ministry of Agriculture, Water Management, and Forestry of Federation of B&H, Ministry of Agriculture, Forestry, and Water Resources of Republic Srpska and UNDP. The PB will be responsible for ensuring the application of the UNDP SES to all activities.

1.27.1.2 Project Management Unit

The Project Management Unit, under supervision of the UNDP and B&H GCF focal point, will run the project on a day-to-day basis within the constraints laid down by the Project Board. The PMU, like the PB, will be responsible for ensuring that all activities undertaken by the project meet the UNDP SES (refer Section 1.7). The PMU will include the key roles identified in the organisation chart, in particular the Project Manager.

The Project Manager will run the project on a day-to-day basis. The Project Manager's function will end when the final project terminal evaluation report and other documentation required by the GCF and UNDP, has been completed and submitted to UNDP. The Project Manager is responsible for day-to-day management and decision-making for the project. The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost.

1.27.2 Safeguard Officer and Field Officers

The Safeguards Officer will be a member of the Project Management team. The Safeguards Officer is responsible for ensuring that safeguards on the project are implemented as per the approved plans, in line with UNDP SES. The Safeguard Officer will act as a focal point for all safeguard related issues, including GRM. The Safeguard Officer will work closely with the Field Officers to ensure that the required safeguards are being implemented and monitored at a site level (ie the Safeguard Officer will monitor performance of Field Officers and provide advise where required). Site audits will be undertaken by the Safeguards Officer as a way of monitoring performance.

Field officers will be responsible for the day to day inspection and monitoring of sites. The Field Officers (also known as Water Inspectors) will be employees from the Water Authorities who are experienced with field operations and infrastructure delivery, inspection of sites, ensuring implementation of laws and regulations

1.27.3 UNDPs Role and Responsibilities

UNDP is accountable to the GCF for the implementation of this project. This includes oversight of project execution to ensure that the project is being carried out in accordance with agreed standards and provisions. UNDP is responsible for delivering GCF project cycle management services comprising project approval and start-up, project supervision and oversight, and project completion and evaluation. UNDP is also responsible for the Project Assurance role of the Project Steering Committee. UNDP's role includes the following:

- Provide oversight on all matters related to safeguards
- Inform all the stakeholders and right-holders involved in, or potentially impacted, positively or negatively, by the GCF-financed projects, about the UNDP's corporate Accountability Mechanism
- Ensure that the Compliance Review and the Stakeholder Response Mechanisms are operational during the lifetime of the project
- Ensure that the Compliance Review and the Stakeholder Response Mechanisms are operational during the lifetime of the project
- Ensure that the Compliance Review and the Stakeholder Response Mechanisms are operational during the lifetime of the project
- Provide technical guidance on implementation of the ESMF and administrative assistance in recruiting and contracting expert safeguards services (as required) and monitor adherence of the project to the ESMF and UNDP policies and procedures"

1.28 PROJECT DELIVERY AND ADMINISTRATION

1.28.1 Project Delivery

The project will be delivered on the ground via the relevant State Entity through their Water Agencies. In addition, collaboration with atoll councils, existing NGOs and local communities is expected UNDP.

1.28.2 Administration of Environmental and Social Management Framework

As the implementing agency, UNDP will be responsible for responsible for the implementation with the ESMF via the delivery organisations.

The ESMF will be part of any tender documentation. The UNDP will be responsibility of the person to whom the document is issued to ensure it is the most up to date version.

The UNDP are accountable for the provision of specialist advice on environmental and social issues to the delivery organisations (e.g., contractors and/or NGOs) and for environmental and social monitoring and reporting. The UNDP or its delegate will assess the environmental and social

performance of the delivery organisations (e.g., contractors) in charge of delivering each component throughout the project and ensure compliance with the ESMF. During operations the delivery organisations will be accountable for implementation of the ESMF. Personnel working on the projects have accountability for preventing or minimising environmental and social impacts.

The Field Officer will be responsible for daily environmental inspections of the project/construction site. The UNDP or its delegate will cross check these inspections by undertaking monthly audits.

The delivery organisation e.g., contractor will maintain and keep all administrative and environmental records, which would include a log of complaints together with records of any measures taken to mitigate the cause of the complaints.

The delivery organisation will be responsible for the day-to-day compliance of the ESMF

1.28.3 Environmental procedures, site and activity-specific work plans/instructions

Environmental procedures provide a written method describing how the management objectives for a particular environmental element are to be obtained. They contain the necessary detail to be site or activity-specific and are required to be followed for all construction works. Site and activity-specific work plans and instructions are to be issued and will follow the previously successful work undertaking similar projects by the UNDP.

1.28.4 Environmental incident reporting

Any incidents, including non-conformances to the procedures of the ESMF are to be recorded using an Incident Record and the details entered into a register. For any incident that causes or has the potential to cause material or serious environmental harm, the Field Officer shall notify the Project Manager as soon as possible. The delivery organisation/contractor must cease work until remediation has been completed as per the approval of UNDP.

1.28.5 Daily and weekly environmental inspection checklists

A daily environmental checklist is to be completed at each work site by the relevant Field Officer and maintained within a register. A weekly environmental checklist is to be completed and will include reference to any issues identified in the daily checklists completed by the field officers. The completed checklist is to be forwarded to Water Agency and UNDP for review and follow-up if any issues are identified.

1.28.6 Corrective Actions

Any non-conformances to the ESMF are to be noted in weekly environmental inspections and logged into the register. Depending on the severity of the non-conformance, the Field Officer may specify a corrective action on the weekly site inspection report. The progress of all corrective actions will be tracked using the register. Any non-conformances and the issue of corrective actions are to be advised to UNDP.

1.28.7 Review and auditing

The ESMF and its procedures are to be reviewed at least every two months by UNDP staff and the relevant Water Agency. The objective of the review is to update the document to reflect knowledge gained during the course of project delivery/construction and to reflect new knowledge and changed community standards (values).

The ESMF will be reviewed, and amendments made if:

- There are relevant changes to environmental conditions or generally accepted environmental practices; or
- New or previously unidentified environmental risks are identified; or
- Information from the project monitoring and surveillance methods indicate that current control measures require amendment to be effective; or

- There are changes to environmental legislation that are relevant to the project; or
- There is a request made by a relevant regulatory authority; or
- Any changes are to be developed and implemented in consultation with UNDP Staff and the relevant Water Agency. When an update is made, all site personnel are to be made aware of the revision as soon as possible e.g., through a toolbox meeting or written notification.

1.29 TRAINING

Delivery organisations have the responsibility for ensuring systems are in place so that relevant employees, contractors and other workers are aware of the environmental and social requirements for construction, including the ESMF.

All project personnel will attend an induction that covers health, safety, environment and cultural requirements.

All workers engaged in any activity with the potential to cause serious environmental harm (e.g., handling of hazardous materials) will receive task specific environmental training.

COMMUNICATION

1.30 PUBLIC CONSULTATION AND ENVIRONMENTAL AND SOCIAL DISCLOSURE

The ESMF includes public consultation as part of the stakeholder engagement plan. The project was discussed with a wide range of stakeholders including relevant government departments, industry groups, NGOs, and individual community members and approved by Government. Extensive on-ground consultation has been undertaken during the design of the project (as well as during the earlier projects that this project is aiming to upscale) and it is expected that consultation with any affected communities will continue. It is anticipated that based on the communities' needs, the projects will be fully accepted.

The UNDP and the relevant Water Agencies will develop and release updates on the project on a regular basis to provide interested stakeholders with information on project status. Updates may be via a range of media e.g., print, radio, social media or formal reports. In addition to project updates, outputs from the project will also include knowledge management and learning tools such as the establishment of an online knowledge bank, knowledge cafes and building upon the GeoPortal that was developed under the Vrbas project. These provide the public with greater access for participatory flood risk management and therefore better understanding of the project.

A publicized telephone number will be maintained throughout the project to serve as a point of contact for enquiries, concern, complaints and/or grievances. All enquiries, concern, complaints and/or grievances will be recorded on a register and the appropriate manager will be informed. All material must be published in English and BiH languages as appropriate.

Where there is a community issue raised, the following information will be recorded:

- a. time, date and nature of enquiry, concern, complaints and/or grievances;
- b. type of communication (e.g. telephone, letter, personal contact);
- c. name, contact address and contact number;
- d. response and investigation undertaken as a result of the enquiry, concern, complaints and/or grievances; and
- e. actions taken and name of the person taking action.

Some enquiries, concern, complaints and/or grievances may require an extended period to address. The complainant(s) will be kept informed of progress towards rectifying the concern. All enquiries, concerns, complaints and/or grievances will be investigated, and a response given to the complainant in a timely manner. A grievance redress mechanism has been included in the ESMF to address any complaints that may not be able to be resolved quickly.

Nominated PMU/contractor staff will be responsible for undertaking a review of all enquiries, concern, complaints and/or grievances and ensuring progress toward resolution of each matter.

1.31 COMPLAINTS REGISTER AND GRIEVANCE REDRESS MECHANISM

During the construction and implementation phases of any project, a person or group of people can be adversely affected, directly or indirectly due to the project activities. The grievances that may arise can be related to social issues such as eligibility criteria and entitlements, disruption of services, temporary or permanent loss of livelihoods and other social and cultural issues. Grievances may also be related to environmental issues such as excessive dust generation, damages to infrastructure due to construction related vibrations or transportation of raw material, noise, traffic congestions, decrease in quality or quantity of private/ public surface/ ground water resources during irrigation rehabilitation, damage to home gardens and agricultural lands etc.

Should such a situation arise, there must be a mechanism through which affected parties can resolve such issues in a cordial manner with the project personnel in an efficient, unbiased, transparent, timely and cost-effective manner. To achieve this objective, a grievance redress mechanism has been included in ESMF for this project.

The project allows those that have a complaint or that feel aggrieved by the project to be able to communicate their concern, complaints and/or grievances through an appropriate process. The Complaints Register and Grievance Redress Mechanism set out in this ESMF are to be used as part of the project and will provide an accessible, rapid, fair and effective response to concerned stakeholders, especially any vulnerable group who often lack access to formal legal regimes.

While recognising that many complaints may be resolved immediately, the Complaints Register and Grievance Redress Mechanism set out in this ESMF encourages mutually acceptable resolution of issues as they arise. The Complaints Register and Grievance Redress Mechanism set out in this ESMF has been designed to:

- a. be a legitimate process that allows for trust to be built between stakeholder groups and assures stakeholders that their concerns will be assessed in a fair and transparent manner;
- b. allow simple and streamlined access to the Complaints Register and Grievance Redress Mechanism for all stakeholders and provide adequate assistance for those that may have faced barriers in the past to be able to raise their concerns;
- c. provide clear and known procedures for each stage of the Grievance Redress Mechanism process, and provides clarity on the types of outcomes available to individuals and groups;
- d. ensure equitable treatment to all concerned and aggrieved individuals and groups through a consistent, formal approach that, is fair, informed and respectful to a concern, complaints and/or grievances;
- e. to provide a transparent approach, by keeping any aggrieved individual/group informed of the progress of their complaint, the information that was used when assessing their complaint and information about the mechanisms that will be used to address it; and
- f. enable continuous learning and improvements to the Grievance Redress Mechanism. Through continued assessment, the learnings may reduce potential complaints and grievances.

Eligibility criteria for the Grievance Redress Mechanism include:

- a. Perceived negative economic, social or environmental impact on an individual and/or group, or concern about the potential to cause an impact;

- b. clearly specified kind of impact that has occurred or has the potential to occur; and explanation of how the project caused or may cause such impact; and
- c. individual and/or group filing of a complaint and/or grievance is impacted, or at risk of being impacted; or the individual and/or group filing a complaint and/or grievance demonstrates that it has authority from an individual and/or group that have been or may potentially be impacted on to represent their interest.

Local communities and other interested stakeholders may raise a grievance/complaint at all times to the UNDP and/or Water Agency. Affected local communities should be informed about the ESMF provisions, including its grievance mechanism and how to make a complaint.

1.31.1 Complaints Register

Where there is a community issue raised, the following information will be recorded:

A complaints register will be established as part of the project to record any concerns raised by the community during construction. Any complaint will be advised to the UNDP within 24 hours of receiving the complaint. The complaint will be screened. Following the screening, complaints regarding corrupt practices will be referred to the UNDP for commentary and/or advice.

Wherever possible, the project team will seek to resolve the complaint as soon as possible, and thus avoid escalation of issues. However, where a complaint cannot be readily resolved, then it must be escalated.

A summary list of complaints received and their disposition must be published in a report produced every six months.

1.31.2 Grievance Redress Mechanism

The Grievance Redress Mechanism has been designed to be problem-solving mechanism with voluntary good-faith efforts. The Grievance Redress Mechanism is not a substitute for the legal process. The Grievance Redress Mechanism will as far as practicable, try to resolve complaints and/or grievances on terms that are mutually acceptable to all parties. When making a complaint and/or grievance, all parties must always act, in good faith and should not attempt to delay and or hinder any mutually acceptable resolution.

In order to ensure smooth implementation of the Project and timely and effectively addressing of problems that may be encountered during implementation, a robust Grievance Redress Mechanism, which will enable to the Project Authorities to address the grievances of the stakeholders of the Project has been established.

All complaints and/or grievances regarding social and environmental issues can be received either orally (to the field staff), by phone, in complaints box or in writing to the UNDP, relevant Water Agency or the Construction Contractor. A key part of the grievance redress mechanism is the requirement for the UNDP/PMU and construction contractor to maintain a register of complaints and/or grievances received at the respective project site offices. All complainants shall be treated respectfully, politely and with sensitivity. Every possible effort should be made by the UNDP/Water Agency/PMU and construction contractor to resolve the issues referred to in the complaint and/or grievance within their purview. However, there may be certain problems that are more complex and cannot be solved through project-level mechanisms. Such grievances will be referred to the Grievance Redress Committee. It would be responsibility of the Water Agencies to solve these issues through a sound / robust process.

The Grievance Redress Mechanism has been designed to ensure that an individual and/or group are not financially impacted by the process of making a complaint and/or grievance. The Grievance Redress Mechanism will cover any reasonable costs in engaging a suitably qualified person to assist in the preparation of a legitimate complaint and/or grievance. Where a complaint and/or grievance is seen to be ineligible, the Grievance Redress Mechanism will not cover these costs.

Communities affected or likely to be affected by the project are to be informed about the project Grievance Redress Mechanism, as well as the independent mechanisms provided by UNDP and GCF (refer below) at the earliest opportunity of stakeholder engagement. Information about the Grievance Redress Mechanism and how to make a complaint and/or grievance must be provided in an understandable format and languages. Key grievance redress information, such as how to make a complaint, should be placed at prominent places for the information of the key stakeholders.

The Safeguards officer in the PMU will be designated as the key officer in charge of the Grievance Redress Mechanism. The Terms of Reference for these positions (as amended from time to time) will have the following key responsibilities:

- coordinate formation of Grievance Redress Committees before the commencement of constructions to resolve issues;
- act as the focal point at the PMU on Grievance Redress issues and facilitate the resolution of issues within the PMU;
- create awareness of the Grievance Redress Mechanism amongst all the stakeholders through public awareness campaigns;
- assist in redress of all grievances by coordinating with the concerned parties;
- maintain information on grievances and redress;
- monitor the activities of the Water Agencies on grievances issues; and
- prepare the progress for monthly/quarterly reports.

A multi-tiered Grievance Redress Mechanism structure has been developed to address all complaints and/or grievances in the project (Figure 14).

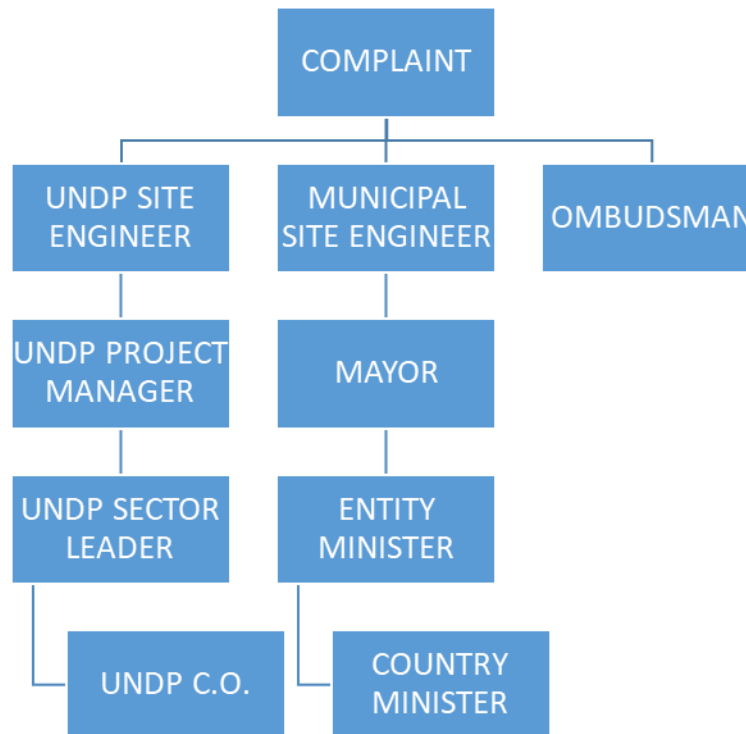


Figure 14 Multi-tiered GRM

The first tier redress mechanism involves the receipt of a complaint and/or grievance at the project site and/or Mayoral level. The stakeholders are informed of various points of making a complaint and/or

grievance (if any) and the PMU collect the complaints and/or grievances from these points on a regular basis and record them. This is followed by coordinating with the concerned people to redress the grievances. The designated Safeguards Officer of the PMU will coordinate the activities at the respective District level to address the grievances and would act as the focal point in this regard. The Authorised Community Officer of the Local Authority or in the absence of the Community Development Officer, any officer given the responsibility of this would coordinate with the Safeguards and Gender Manager of the PMU and the relevant Water Agency in redressing the grievances. The designated officer of the Local Authorities is provided with sufficient training in the procedure of redress to continue such systems in future.

The grievance can be made orally (to the field staff), by phone, in complaints box or in writing to the UNDP, Water Agency or the Construction Contractor. Complainants may specifically contact the Safeguards Officer and request confidentiality if they have concerns about retaliation. In cases where confidentiality is requested (i.e. not revealing the complainant's identity to UNDP, Water Agency and/or the Construction Contractor). In these cases, the Safeguards Officer will review the complaint and/or grievance, discuss it with the complainant, and determine how best to engage project executing entities while preserving confidentiality for the complainant.

As soon as a complaint and/or grievance is received, the Safeguards Officer would issue an acknowledgement. The Community Development Officer receiving the complaint and/or grievance should try to obtain relevant basic information regarding the grievance and the complainant and will immediately inform the Safeguards Officer in the PMU.

The PMU will maintain a Complaint / Grievance Redress register at the local government level. Keeping records collected from relevant bodies is the responsibility of PMU.

After registering the complaint and/or grievance, the Safeguards Officer will study the complaint and/or grievance made in detail and forward the complaint and/or grievance to the concerned officer with specific dates for replying and redressing the same. In the event that the complaint is about GBV/SEAH, then the Safeguards Officer will advise a nominated SEAH focal point who will then assist the survivor to access GBV service providers. Nominated focal point for SEAH within the GRM will be the UNDP BiH Gender Advisor who is a fulltime permanent employee who currently oversees all gender aspects of UNDP BiH projects. For other complaints, the Safeguards Officer will hold meetings with the affected persons / complainant and then attempt to find a solution to the complaint and/or grievance received. If necessary, meetings will be held with the concerned affected persons / complainant and the concerned officer to find a solution to the problem and develop plans to redress the grievance. The deliberations of the meetings and decisions taken are recorded. All meetings in connection with the Grievance Redress Mechanism, including the meetings of the Grievance Redress Committee, must be recorded. The Safeguards Officer for the Grievances Redress Mechanism will be actively involved in all activities.

The resolution at the first tier will normally be completed within 15 working days and the complaint and/or grievance will be notified of the proposed response through a disclosure form. The resolution process should comply with the requirements of the Grievance Redress Mechanism in that it should, as far as practicable, be informal with all parties acting in good faith. Further, the Grievance Redress Mechanism should, as far as practicable, achieve mutually acceptable outcomes for all parties.

Should the grievance be not resolved within this period to the satisfaction of the complainant, the grievance will be referred to the next level of Grievance Redress Mechanism. If the social safeguard and gender officer feels that adequate solutions can be established within the next five working days, the officer can decide on retaining the issue at the first level by informing the complainant accordingly. However, if the complainant requests for an immediate transfer to the next level, the matter must be referred to the next tier. In any case, where the issue is not addressed within 20 working days, the matter is referred to the next level.

Any grievance related to corruption, or any unethical practice should be referred immediately to the Office of the Attorney General of Bosnia and Herzegovina and the Office of Audit and Investigation within the UNDP in New York.

The Grievance Redress Committee formed at each entity level would address the grievance in the second tier.

The Safeguard Officer from the PMU will coordinate with the respective Entity Government in getting these Committees constituted for each Province and get the necessary circulars issued in this regard so that they can be convened whenever required.

The Terms of Reference for the Grievance Redress Committee are:

- a. providing support to the affected persons in solving their problems;
- b. prioritize grievances and resolve them at the earliest;
- c. provide information to the PMU and UNDP on serious cases at the earliest opportunity;
- d. Coordinate with the aggrieved person/group and obtain proper and timely information on the solution worked out for his/her grievance; and
- e. study the normally occurring grievances and advise PMU, National and District Steering Committee on remedial actions to avoid further occurrences.

The Grievance Redress Committee will hold the necessary meetings with the aggrieved party/complainant and the concerned officer and attempt to find a solution acceptable at all levels. The Grievance Redress Committee would record the minutes of the meeting.

Grievance Redress Committee will communicate proposed responses to the complainant formally. If the proposed response satisfies the complainant, the response will be implemented and the complaint and/or grievance closed. In cases where a proposed response is unsatisfactory to the complainant, the Grievance Redress Committee may choose to revise the proposed response to meet the complainant's remaining concerns, or to indicate to the complainant that no other response appears feasible to the Grievance Redress Committee. The complainant may decide to take a legal or any other recourse if s/he is not satisfied with the resolutions due to the deliberations of the three tiers of the grievance redress mechanism.

In addition to the project-level and national grievance redress mechanisms, complainants have the option to access UNDP's Accountability Mechanism, with both compliance and grievance functions. The Social and Environmental Compliance Unit investigates allegations that UNDP's Standards, screening procedure or other UNDP social and environmental commitments are not being implemented adequately, and that harm may result to people or the environment. The Social and Environmental Compliance Unit is housed in the Office of Audit and Investigations, and is managed by a Lead Compliance Officer. A compliance review is available to any community or individual with concerns about the impacts of a UNDP programme or project. The Social and Environmental Compliance Unit is mandated to independently and impartially investigate valid requests from locally impacted people, and to report its findings and recommendations publicly.

The Stakeholder Response Mechanism offers locally affected people an opportunity to work with other stakeholders to resolve concerns, complaints and/or grievances about the social and environmental impacts of a UNDP project. Stakeholder Response Mechanism is intended to supplement the proactive stakeholder engagement that is required of UNDP and its Implementing Partners throughout the project cycle. Communities and individuals may request a Stakeholder Response Mechanism process when they have used standard channels for project management and quality assurance and are not satisfied with the response (in this case the project level grievance redress mechanism). When a valid Stakeholder Response Mechanism request is submitted, UNDP focal points at country, regional and headquarters levels will work with concerned stakeholders and Implementing Partners to address and resolve the concerns. Visit www.undp.org/secu-srm for more details. The relevant form is attached at the end of the ESMF.

GCF also have their own Independent Redress Mechanism (IRM) which addresses complaints by people who believe they are negatively affected or may be affected by projects or programmes funded by the GCF. In the case of grievances in relation to affected indigenous peoples, the GCF Indigenous Peoples Specialist is also available. Further information and links to submit complaints can be found at: <https://irm.greenclimate.fund/>

KEY ENVIRONMENTAL AND SOCIAL INDICATORS

This section identifies the key environmental and social indicators identified for the project and outlines respective management objectives, potential impacts, control activities and the environmental performance criteria against which these indicators will be judged (i.e. audited).

This section further addresses the need for monitoring and reporting of environmental performance with the aim of communicating the success and failures of control procedures, distinguish issues that require rectification and identify measures that will allow continuous improvement in the processes by which the projects are managed.

1.32 SURFACE WATER

1.32.1 Performance Criteria

The following performance criteria are set for the construction of the projects:

- no significant decrease in water quality as a result of construction and operational activities;
- water quality shall conform to any approval conditions stipulated by UNDP, Water Agency and/or other government departments, or in the absence of such conditions follow a 'no worsening' methodology; and
- effective implementation of Guidelines for nature-friendly stabilization of the riverbed and riparian areas.

1.32.2 Monitoring

Having water of a quality that is fit for purpose is important. Water quality can affect plant growth, livestock health, soil quality, farm equipment and domestic use. The quality of a water source is also variable depending upon weather and external inputs.

Evaporation increases the concentrations of salts while a flush of water dilutes salts but may increase sediment and fertilisers, and manure or nutrient runoff. Monitoring should be done regularly and more frequently in summer or in periods of prolonged moisture stress.

Table 12 outlines the monitoring required.

1.32.3 Reporting

All water quality monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The Water Agency must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to water quality is exceeded.

Table 12 Water Quality Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring reporting &
W1: Elevated suspended solids and other contaminants in surface water systems.	W1.1: Develop and implement Guidelines for nature-friendly stabilization of the riverbed and riparian areas that will, amongst other things be inspired by the best-in-class approaches proposed in the EC Guidelines and good practices for integrated sediment management in the context of the Water Framework Directive and other additional good-practice materials such as the Swiss channel stabilization techniques that involve reshaping the channel, installing boulders or rock structures to deflect the flow, or creating step pools to dissipate energy and reduce erosion.	Pre Earthworks	Field Officer	Initial set up and then as required with reporting to GOBIH and UNDP
	W1.2: Designated areas for storage of fuels, oils, chemicals or other hazardous liquids should have compacted impermeable bases and be surrounded by a bund to contain any spillage. Refueling to be undertaken in areas away from water systems.	Entire construction and operation phase	All Personnel	Weekly with reporting to Water Agency and UNDP
	W1.4: Schedule works in stages to ensure that disturbed areas are revegetated and stabilized progressively and as soon as practicable after completion of works.	Avoid undertaking bulk earthworks during wet season	Field Officer and Water Agency	Maintain records
	W1.5: Construction materials will not be stockpiled in proximity to aquatic environment that may allow for release into the environment. Construction equipment will be removed from in proximity to the aquatic environment at the end of each working day or if heavy rainfall is predicted	Entire construction and operation phase	Field Officer	Maintain daily records
	W1.6: Water quality in surface waters upstream and downstream of work sites to be monitored.	During construction	Water Agency	Maintain records

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

W2: Works within a watercourse.	W2.1: All works must be approved by the relevant Ministry and Water Agency.	Pre-construction	Water Agency	Maintain records
---------------------------------	---	------------------	--------------	------------------

1.33 EROSION, DRAINAGE AND SEDIMENT CONTROL

1.33.1 Background

Soil erosion depends on several parameters such as type of soil, slope, vegetation, the nature of topography and rainfall intensity. The loss of soil stability and soil erosion can take place due to the removal of vegetation cover, and numerous construction activities. It can cause the loss of soil fertility and induce slope instability. Land preparation for the project could result in blockage or alteration of natural flow paths causing changes in the drainage patterns in the area. Effective and efficient mitigation measures can not only reduce but could improve the conditions over the existing conditions.

Rainfall can have a significant impact on the ability to manage environmental impacts, particularly in terms of managing drainage, erosion and sedimentation. Therefore, activities which involve significant disturbance of soil or operating with drainage lines and waterways should be planned to be undertaken during the driest months. It is also important to ensure that all required erosion and sediment control mechanisms are in place before the onset of the wet season.

Activities that have the potential to cause erosion should be undertaken with the likely weather conditions in mind.

1.33.2 Performance Criteria

The following performance criteria are set for the projects:

- a) no build-up of sediment in the aquatic environments and/or surface and/or groundwater as a result of construction and operation activities;
- b) no degradation of water quality on or off site of all projects;
- c) all water exiting the project site and/or into groundwater systems is to have passed through best practice erosion, drainage and sediment controls; and
- d) effective implementation of Guidelines for nature-friendly stabilization of the riverbed and riparian areas.

By following the management measures set out in the ESMF, construction and operation activities of the projects will not have a significant impact as a result of sedimentation across the broader area.

1.33.3 Monitoring

A standardised sediment control monitoring program has been developed for the projects (Table 13). The program is subject to review and update at least every two months from the date of issue. The Field Officer will be required to:

- a. conduct site inspections on a weekly basis or after rainfall events exceeding 20mm in a 24-hour period;
- b. develop a site-specific checklist to document non-conformances to this ESMF or applicable Guidelines for nature-friendly stabilization of the riverbed and riparian areas; and
- c. communicate the results of inspections and/or water quality testing and ensure that any issues associated with control failures are rapidly rectified and processes are put in place to ensure that similar failures are not repeated.

1.33.4 Reporting

All sediment and erosion control monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The UNDP must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to erosion and sediment control is exceeded.

Table 13 Erosion, Drainage and Sediment Control Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
E1: Loss of soil material and sedimentation to the surface and/or groundwater systems from site due to earthwork activities	E1.1: Develop and implement Guidelines for nature-friendly stabilization of the riverbed and riparian areas for any surface works, embankments and excavation work, water crossings and stormwater pathways.	Prior to construction phase	All Personnel	Maintain records
	E1.2: Ensure that erosion and sediment control devices are installed, inspected and maintained as required.	Construction phase	All Personnel	Maintain records
	E1.3: Schedule/stage works to minimize cleared areas and exposed soils at all times.	Pre and during construction	Field Officer	Maintain records
	E1.4: Incorporate the design and location of temporary and permanent EDSC measures for all exposed areas and drainage lines. These shall be implemented prior to pre-construction activities and shall remain onsite during work	Pre and during construction	Field Officer	Maintain records
	E1.5: Schedule/stage proposed works to ensure that major vegetation disturbance and earthworks are carried out during periods of lower rainfall and wind speeds.	Pre and during construction	Field Officer	Maintain records
	E1.6: Strip and stockpile topsoil for use during revegetation and/or place removed soils back on to agricultural lands.	Pre and during construction	Field Officer	Maintain records
	E1.7: Schedule/stage works to minimize the duration of stockpiling topsoil material. Vegetate stockpiles if storage required for long periods.	During construction	All Personnel	Maintain records
	E1.8: Locate stockpile areas away from drainage pathways, waterways and sensitive locations.	Pre and during construction	Field Officer	Maintain records

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
E1: Loss of soil material and sedimentation to the surface and/or groundwater systems from site due to earthwork activities	E1.9: Design stormwater management measures to reduce flow velocities and avoid concentrating runoff.	Pre and during construction	Field Officer	Maintain records
	E1.10: Include check dams in drainage lines where necessary to reduce flow velocities and provide some filtration of sediment. Regularly inspect and maintain check dams.	Pre and during construction	Field Officer	Maintain records
	E1.11: Mulching shall be used as a form of erosion and sediment control and where used on any slopes (dependent on-site selection), include extra sediment fencing during high rainfall.	During construction	All Personnel	Maintain records
	E1.12: Bunding shall be used either within watercourses or around sensitive/dangerous goods as necessary.	During construction	All Personnel	Maintain records
	E1.13: Grassed buffer strips shall be incorporated where necessary during construction to reduce water velocity.	During construction	Field Officer	Maintain records
	E1.14: Silt fences or similar structures to be installed to protect from increased sediment loads.	During construction	Contractors	Maintain records
	E1.15: Excess sediment in all erosion and sediment control structures (e.g., sediment basins, check dams) shall be removed when necessary to allow for adequate holding capacity.	During construction	Contractors	Maintain records

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
E2: Soil Contamination	E2.1: If contamination is uncovered or suspected (outside of the project footprints), undertake a Stage 1 preliminary site contamination investigation. The contractor should cease work if previously unidentified contamination is encountered and activate management procedures and obtain advice/permits/approval (as required).	Construction phase	All Personnel	Daily and maintain records
	E2.2: Adherence to best practice for the removal and disposal of contaminated soil/ material from site (if required), including contaminated soil within the project footprints.	Construction phase	All Personnel	Daily and maintain records
	E2.3: Drainage control measures to ensure runoff does not contact contaminated areas (including contaminated material within the project footprints) and is directed/diverted to stable areas for release.	Construction phase	All Personnel	Daily and maintain records
	E2.4: Avoid importing fill that may result in site contamination and lacks accompanying certification/documentation. Where fill is not available through on-site cut, it must be tested in accordance with geotechnical specifications.	Construction phase	All Personnel	Daily and maintain records
E3: Disposal of excess soil/silt	E3.4: Silt removed from canals during rehabilitation / maintenance is to be disposed of in accordance with permits from Water Agencies.	Construction and operation phases	Water Agency	Maintain records

1.34 ECOLOGY

1.34.1 Performance Criteria

The following performance criteria are set for the construction of the projects:

- a. no large dams or significant permanent diversion of rivers
- b. no clearance of vegetation outside of the designated clearing boundaries;
- c. no death to native fauna as a result of clearing activities;
- d. no deleterious impacts on aquatic environments and terrestrial habitats;
- e. no introduction of new weed species as a result of construction activities; and
- f. no increase in existing weed proliferation within or outside of any project footprint as a result of construction activities.

1.34.2 Monitoring

A flora and fauna monitoring program will be implemented (Table 14).

Weed monitoring will be undertaken and appropriate action taken in the event of alien or noxious species being identified.

The delivery organisation will when be undertaking works, compile a weekly report to UNDP outlining:

- a. any non-conformances to this ESMF;
- b. the areas that have been rehabilitated during the preceding week; and
- c. details of the corrective action undertaken.

1.34.3 Reporting

All flora and fauna monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The UNDP must be notified in the event of any suspected instances of death to native fauna and where vegetation is detrimentally impacted.

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Table 14 Flora and Fauna Management Measures

Issue	Control Activity (and Source)	Action Timing	Responsibility	Monitoring and Reporting
FF1. Habitat loss and disturbance of fauna	FF1.1 Limit vegetation clearing and minimize habitat disturbance through adequate protection and management of retained vegetation.	During construction	Field Officer	Daily and maintain records
	FF1.2: Minimize noise levels and lighting intrusion throughout construction and operation in the vicinity of any sensitive locations.	During construction	Field Officer	Daily and maintain records
	FF1.3: Ensure that all site personnel are made aware of sensitive fauna/habitat areas and the requirements for the protection of these areas.	During construction	Contractor	Daily and maintain records
	FF1.4 Minimize disturbance to on-site fauna and recover and rescue any injured or orphaned fauna during construction and operation.	During construction	Contractor	Daily and maintain records, report
	FF1.5: Protection of aquatic fauna – in-stream works not to be undertaken in spawning season. Temporary diversion channels (within riverbed) may be required to maintain flow and fish passage. Turbidity to be minimized and water quality to be monitored	During construction	Contractor / Water Agency	Daily, maintain records
	FF1.6: Implement ESCP	During construction	Contractor	Maintain records
FF2. Introduced flora and weed species	FF2.1: Implement an ESCP to reduce the spread of weeds through erosion and sediment entering any waterways and therefore spreading.	Pre and during construction	Contractor	Maintain records
	FF2.2: Revegetate disturbed areas using native and locally endemic species that have high habitat value.	During construction	Field Officer	As required and maintain records
	FF2.3: Minimize disturbance to mature remnant vegetation, particularly canopy trees.	During construction	Field Officer	Daily and maintain records

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Issue	Control Activity (and Source)	Action Timing	Responsibility	Monitoring and Reporting
FF2. Introduced flora and weed species	FF2.4: Seed is to be weed free	Operation	Field Officer	Maintain records
	FF2.5: Environmental weeds and noxious weeds within the project footprints shall be controlled.	During and post construction	Field Officer	Weekly and maintain records
FF3. Protection of aquatic habitats	FF3.1: In-stream works to be minimized.	Construction	Contractor	Maintain records
	FF3.2: Works to be scheduled to take advantage of low flow and low flood risk periods. Spawning periods to be avoided.	Construction	Contractor	Maintain records
	FF3.3: Local interest groups, such as Fisher Clubs and organizations, to be engaged to gain local knowledge of aquatic species and important habitats.	Pre-and during construction	Water Agency/Contractor	Maintain records
	FF3.4: ESDCPs to be prepared and implemented	Construction	Contractor	Maintain records
	FF3.5: Environmental flows to be maintained	Construction	Contractor	Maintain records
	FF3.6: Prepare Biodiversity Action Plan for Krupa River site (Hutovo Blato wetland) if impacts to wetland likely.	Pre-construction	Water Agencies	Maintain records

1.35 AIR QUALITY

1.35.1 Background

All construction activities have the potential to cause air quality nuisance.

The project areas are predominantly village or rural in character. Existing air quality reflects those environments, with dust, vehicle emissions and smoke from fires being the main air quality nuisance.

Workers involved in construction and operation activities should be familiar with methods minimising the impacts of deleterious air quality and alternative construction procedures as contained in legislation of Bosnia and Herzegovina or good international industry practice.

1.35.2 Performance Criteria

The following performance criteria are set for the construction of the projects:

- a. release of dust/particle matter must not cause an environmental nuisance;
- b. undertake measures at all times to assist in minimizing the air quality impacts associated with construction and operation activities; and
- c. corrective action to respond to complaints and/or grievances is to occur within 48 hours.

1.35.3 Monitoring

A standardised air monitoring program has been developed for the projects (Table 15). The program is subject to review and update at least every two months from the date of issue. Importantly:

- a. the requirement for dust suppression will be visually observed by site personnel daily and by GOBIH and UNDP staff when undertaking routine site inspections; and
- b. Vehicles and machinery emissions – visual monitoring and measured when deemed excessive.

1.35.4 Reporting

All air quality monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The UNDP must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to air quality is exceeded.

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Table 15 Air Quality Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
A.1 Increase in dust levels at sensitive receptors	A1.1: Implement effective dust management measures in all areas during construction and operation.	During construction and operation	All Personnel	Daily and maintain records
	A1.2: Restrict speeds on roads and access tracks.	During construction	Field Officer	Daily and maintain records
	A1.3: Manage dust/particulate matter generating activities to ensure that emissions do not cause an environmental nuisance at any sensitive locations	During construction	Field Officer	Daily and maintain records
	A1.4: Construction activities should minimize risks associated with climatic events (check forecasts).	During construction	Field Officer	Daily and maintain records
	A1.5: Implement scheduling/staging of proposed works to ensure major vegetation disturbance and earthworks are minimized.	Entire construction	Contractor	Daily and maintain records
	A1.6: Locate material stockpile areas as far as practicable from sensitive receptors. Cover if appropriate.	During construction	Field Officer	Daily and maintain records
	A1.7: Source sufficient water of a suitable quality for dust suppression activities complying with any water restrictions.	During construction	Field Officer	Daily and maintain records
	A1.8: Schedule revegetation activities to ensure optimum survival of vegetation species.	During construction	Field Officer	Maintain records
	A1.9: Rubbish receptacles should be covered and located as far as practicable from sensitive locations	During construction	Field Officer	Maintain records

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
A2. Increase in vehicle / machinery emissions	A2.1 Ensure vehicles/machines are switched off when not in use.	During construction	Field Officer	Daily and maintain records
	A2.2 Ensure only vehicles required to undertake works are operated onsite.	During construction	Field Officer	Daily and maintain records
	A2.3 Ensure all construction vehicles, plant and machinery are maintained and operated in accordance with design standards and specifications.	During construction	Field Officer	Daily and maintain records
	A2.4 Develop and implement an induction program for all site personnel, which includes as a minimum an outline of the minimum requirements for environmental management relating to the site.	Pre and during construction	Contractor	Daily and maintain records
	A2.5 Locate construction vehicle/plant/equipment storage areas as far as practicable from sensitive locations.	During construction	Field Officer	Daily and maintain records
	A2.6 Direct exhaust emissions of mobile plant away from the ground.	During construction	Field Officer	Daily and maintain records
		During construction	Field Officer	Daily and maintain records

1.36 NOISE AND VIBRATION

1.36.1 Background

All construction and operation activities have the potential to cause noise nuisance. Vibration disturbance to nearby residents and sensitive habitats is likely to be caused through the use of vibrating equipment. Blasting is not required to be undertaken as part of this project.

The use of machinery or introduction of noise generating facilities could have an adverse effect on the environment and residents if not appropriately managed.

Contractors involved in construction activities should be familiar with methods of controlling noisy machines and alternative construction procedures as contained within specific national or local legislation or in its absence, good international industry practice may be used if the legislation has not been enacted.

Potential noise sources during construction may include:

- a. heavy construction machinery;
- b. power tools and compressors;
- c. delivery vehicles;
- d. workforce.

1.36.2 Performance Criteria

The following performance criteria are set for the construction of the projects:

- a. noise from construction and operational activities must not cause an environmental nuisance at any noise sensitive place;
- b. undertake measures at all times to assist in minimizing the noise associated with construction activities;
- c. no damage to off-site property caused by vibration from construction and operation activities; and
- d. corrective action to respond to complaints and/or grievances is to occur within 48 hours.

1.36.3 Monitoring

Monitoring to be undertaken where indicated as required by mitigation table or as deemed appropriate.

Importantly, the site supervisor will:

- a. ensure equipment and machinery is regularly maintained and appropriately operated; and
- b. carry out potentially noisy construction activities during 'daytime' hours only.

1.36.4 Reporting

All noise monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The UNDP must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to noise is exceeded.

Table 16 Noise and Vibration Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
N1: Increased noise levels	N1.1: Select plant and equipment and specific design work practices to ensure that noise emissions are minimized during construction and operation including all pumping equipment.	All phases	Contractor	Maintain records
	N1.2: Specific noise reduction devices such as silencers and mufflers shall be installed as appropriate to site plant and equipment.	Pre and during construction	Contractor	Maintain records
	N1.3 Minimize the need for and limit the emissions as far as practicable if noise generating construction works are to be carried out outside of the hours: 7am-5.30pm	Construction phase	All Personnel	Daily and maintain records
	N1.4: Consultation with nearby residents in advance of construction activities particularly if noise generating construction activities are to be carried out outside of 'daytime' hours: 7am-5.30pm.	Construction phase	All Personnel	Daily and maintain records
	N1.5 The use of substitution control strategies shall be implemented, whereby excessive noise generating equipment items onsite are replaced with other alternatives.	Construction phase	All Personnel	Daily and maintain records
	N1.6 All incidents' complaints and non-compliances related to noise shall be reported in accordance with the site incident reporting procedures and summarized in the register.	Construction phase	Field Officer	Maintain records
	N1.7 The contractor should conduct employee and operator training to improve awareness of the need to minimize excessive noise in work practices through implementation of measures.	Pre and during construction	Contractor	Maintain records

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
N2. Vibration due to construction	N2.1: Identify properties, structures and habitat locations that will be sensitive to vibration impacts resulting from construction and operation of the project.	Pre and during construction	Contractor	Maintain records
	N2.2: Design to give due regard to temporary and permanent mitigation measures for noise and vibration from construction and operational vibration impacts.	Pre-construction	Contractor	Maintain records
	N2.3: All incidents, complaints and non-compliances related to vibration shall be reported in accordance with the site incident reporting procedures and summarized in the register.	Construction phase	Field Officer	Maintain records
	N2.4: During construction, standard measure shall be taken to locate and protect underground services from construction and operational vibration impacts.	Construction phase	Field Officer	Maintain records

1.37 WASTE MANAGEMENT

1.37.1 Background

As the implementing agency, the GOBIH advocate good waste management practice. The preferred waste management hierarchy and principles for achieving good waste management is as follows:

- a. waste avoidance (avoid using unnecessary material on the projects).
- b. waste re-use (re-use material and reduce disposing).
- c. waste recycling (recycle material such as cans, bottles, etc.); and
- d. waste disposal (all putrescible and/or contaminated waste to be dumped at approved landfills).

The key waste streams generated during construction are likely to include residual sediment and construction wastes such as:

- a. the excavation wastes unsuitable for reuse during earthworks;
- b. wastes from construction equipment maintenance. Various heavy vehicles and construction equipment will be utilized for the duration of the construction phase. Liquid hazardous wastes from cleaning, repairing and maintenance of this equipment may be generated, however as contractors are expected to be located in nearby towns and villages it is not anticipated that any scheduled maintenance would be undertaken on site. Any leakage or spillage of fuels/oils within the site needs to be managed and disposed of appropriately;
- c. non-hazardous liquid wastes may be generated through the use of workers' facilities such as toilets; and
- d. general wastes including scrap materials and biodegradable wastes.

Workers involved in construction and operational activities should be familiar with methods minimising the impacts of clearing vegetation to minimise the footprint to that essential for the works and rehabilitate disturbed areas. By doing these activities, the projects should minimise the impact of waste generated by the project.

1.37.2 Performance Criteria

The following performance criteria are set for the construction of the projects:

- a. waste generation is minimized through the implementation of the waste hierarchy (avoidance, reduce, reuse, recycle);
- b. no litter will be observed within the project area or surrounds as a result of activities by site personnel;
- c. no complaints received regarding waste generation and management;
- d. any waste from on-site portable sanitary facilities will be sent off site for disposal by a waste licensed contractor; and
- e. waste oils will be collected and disposed or recycled off-site, local oil companies or shipped for recycling.

1.37.3 Monitoring

A waste management monitoring program has been developed for the projects (Table 17). The program is subject to review and update at least every two months from the date of issue.

1.37.4 Reporting

The UNDP as implementing agency must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to waste is exceeded.

Table 17 Waste Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
WT1: Production of wastes and excessive use of resources	WT1.1: Preference shall be given to materials that can be used to construct the project that would reduce the direct and indirect waste generated.	Pre and during construction	Contractor	Maintain records
	WT1.2: The use of construction materials shall be optimized and where possible a recycling policy adopted.	During construction	Field Officer	Weekly and maintain records
	WT1.3: Separate waste streams shall always be maintained i.e. general domestic waste, construction and contaminated waste. Specific areas on site shall be designated for the temporary management of the various waste streams.	During construction	Field Officer	Weekly and maintain records
	WT1.4: Any contaminated waste shall be disposed of at an approved facility.	During construction	Field Officer	Weekly and maintain records
	WT1.5: Recyclable waste (including oil and some construction waste) shall be collected separately and disposed of correctly.	During construction	Field Officer	Weekly and maintain records
	WT1.6: Waste sites shall be sufficiently covered to ensure that wildlife does not have access.	During construction	Field Officer	Daily
	WT1.7: Disposal of waste shall be carried out in accordance with the local legal requirements.	During construction	Field Officer	Weekly and maintain records
	WT1.8: Fuel and lubricant leakages from vehicles and plant shall be immediately rectified.	During construction	Field Officer	Daily and maintain records

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
WT1: Production of wastes and excessive use of resources	WT1.10: Major maintenance and repairs shall be carried out off-site whenever practicable.	During construction	Field Officer	Weekly and maintain records
	WT1.11: Where possible, fuel and chemical storage and handling shall be undertaken at central fuel and chemical storage facilities, such as petrol stations.	During Construction	Field Officer	Daily and maintain records
	WT1.12: On-site storage of fuel and chemicals shall be kept to a minimum.	During Construction	Contractor	Daily, maintain records and report any incidents
	WT1.13: Any waste oils and lubricants are to be collected and transported to recyclers or designated disposal sites as soon as possible.	During Construction	Field Officer	Daily and maintain records
	WT1.14: Any dangerous goods stored on site shall be stored in accordance with BiH regulations.	During Construction	Contractor	Daily and maintain records

1.38 SOCIAL MANAGEMENT

1.38.1 Background

The project has been designed with the assistance of stakeholders and aims to provide benefits to the broader community. Notwithstanding, as with any project that involves construction, some dissatisfaction can occur, and conflicts may arise. It is important that potential areas of tension are recognised early, and appropriate actions taken to avoid or minimise conflict.

A Grievance Redress Mechanism has been developed to provide avenues for complainants to be heard.

The project and its sub-projects do not require involuntary resettlement or acquisition of land although they may impact on land during construction activities which will be temporary in nature.

Workforce is expected to be drawn from local communities.

A Gender Action Plan has been prepared to address potential gender issues and a SEAH Action Plan for reducing and managing SEAH risk.

1.38.2 Performance Criteria

The following performance criteria are set for the project:

- a. the community has been consulted and project elements have been designed with their informed consultation and participation throughout the project;
- b. all stakeholders are appropriately represented;
- c. avoid adverse impacts to local community during construction and operations and where not possible, minimize, restore or compensate for these impacts;
- d. cultural heritage is not adversely impacted;
- e. community health and safety is protected and overall well-being benefits derived from the project;
- f. complaint and grievance mechanisms are put in place and proactively managed; and
- g. long-term social benefits are achieved.

Local stakeholders and community members have a key role to play in the implementation and monitoring of the project.

Consultation with stakeholders will continue. This will help ensure that stakeholders continue to be aware of the project, its progress and any changes in the project. It will also assist in identifying any issues as they arise.

UNDP and Water Agencies will be responsible for advisory support and extensions services to local beneficiaries along with being responsible for distributing material inputs and providing technical training and backstopping in the implementation of programme activities.

1.38.3 Reporting

Records of all consultations are to be kept and reported on monthly basis.

The UNDP must be notified in the event of any individual or community complaint or dissatisfaction and ensure the Grievance Redress Mechanism is complied with.

Table 18: Social Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
SM1: Changes in land use resisted by community	SM 1.1: Carry out community consultation on the purpose and benefits of making changes to land use	Pre-construction	Water Agencies	Maintain records
	SM 1.2: Get community buy-in on any change of land use	Pre-construction	Water Agencies	Maintain records
	SM 1.3: Ensure compliance with the Grievance Redress Mechanism process	Entire construction and operation phase	Water Agencies	Maintain records
SM2: Public nuisance caused by construction/operation activities (e.g., noise, dust etc.)	SM 2.1: Carry out community consultation prior to undertaking activities	Pre-construction	Water Agencies	Maintain records
	SM 2.2: Implement appropriate management plans (refer to Noise, Air, ESCP, and Waste sections of the ESMF)	Construction and operation	Site Supervisor and UNDP	Daily and maintain records
	SM 2.3: Ensure compliance with the Grievance Redress Mechanism process	All phases	UNDP	Maintain records
SM3: Gender and SEAH issues	SM 3.1: Implement Gender Action Plan to assist the empowerment of women and children and improve equity across the project	All phases	All participants	Maintain records
	SM3.2: Implement SEAH Action Plan (Appendix 2) to reduce SEAH risks	All phases	As per Plan	Maintain records
SM4: Labor and working conditions	SM4.1: All contracts and working conditions are to be inline with relevant legislation eg Labor Law and in compliance with UNDP SES Standard 7	Pre and during construction Construction	Water Agencies	Maintain records

Annex VI (b) – Environmental and Social Assessment Report

Green Climate Fund Funding Proposal

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
SM4: Labour and working conditions	SM4.2: Terms and conditions of employment – written labour management procedures. Workers to be advised of conditions of their employment.	Construction	Contractor / Water Agencies	Maintain records
	SM4.3: Employment to be based on non-discrimination and equal opportunity	Construction	Contractor / Water Agencies	Maintain records
	SM4.4: Workers to be allowed the freedom of association and recognition of the right to collective bargaining	Construction	Contractor / Water Agencies	Maintain records
	SM4.5: No forced or child labor	Construction	Contractor / Water Agencies	Maintain records
	SM4.6: The safety and health of workers to be promoted. Appropriate PPE and training to be provided.	Construction	Contractor / Water Agencies	Maintain records
SM5: Community Safety	SM5.1: Safety and health of community to be protected during construction e.g. traffic management, use of barricades, noise protection etc.	Construction	Contractor	Maintain records
	SM5.2: Waste management procedures to be implemented to protect community and environment	Construction	Contractor	Maintain records
	SM5.3: Hazardous goods movement, storage and disposal to ensure community safety and compliance with law	Construction	Contractor	Maintain records

1.39 ARCHAEOLOGICAL AND CULTURAL HERITAGE

1.39.1 Performance Criteria

The following performance criteria are set for cultural heritage issues related to the project:

- a. There will be no impact on any important Archaeological, Indigenous and/or Cultural Heritage sites;
- b. Manage any specific sites of important Archaeological, Indigenous and/or Cultural significance (significant sites);
- c. Work with the village communities to identify any potential areas of cultural significance (uses and physical form) during the construction phase of the project.
- d. Monitoring

Local stakeholders and community members have a key role to play in the implementation and monitoring of the project.

Consultation with stakeholders will continue. This will help ensure that stakeholders continue to be aware of the project, its progress and any changes in the project. It will also assist in identifying any issues as they arise.

UNDP will be responsible for advisory support and extensions services to local beneficiaries along with being responsible for distributing material inputs and providing technical training and backstopping in the implementation of programme activities.

1.39.2 Reporting

Records of all consultations are to be kept and reported on monthly basis.

Table 19: Archaeological and Cultural Heritage

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
CH1: Damage or disturbance to known Archaeological, or Cultural Heritage	<p>CH1.1: Confirm presence/absence of any cultural heritage in or near the construction areas.</p> <p>CH1.2: If cultural heritage found to be present, a cultural heritage management plan may need to be prepared to ensure that area is avoided/that cultural heritage is protected.</p>	Pre construction	Contractor	Maintain records
CH2: Chance Find during the earthwork disturbances and land clearing activities	CH2.1: Should there be a Chance Find, immediately cease work within the area that the site has been observed and implement the Chance Finds Procedure (Appendix 3).	During construction	Contractor	Daily, maintain records and immediately notify UNDP and Water Agencies of any find

1.40 UNEXPLODED ORDINANCE

1.40.1 Performance Criteria

1. The following performance criteria are set for unexploded ordinance issues related to the project:
 - a. No works will be undertaken without the area being assessed for potential UXO;
 - b. No workers or community members will be put at risk as a result of UXO;
 - c. Authorities will be immediately notified and take charge of the management of any UXO discovered.
2. Stakeholders, particularly local communities, will be advised of proposed works, testing and any UXO discovered so that they are appropriately prepared to take actions as advised.

1.40.2 Reporting

3. Records of all surveys and discoveries related to UXO are to be kept and reported on monthly basis.

Table 20 Unexploded Ordinance Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
UXO1: Presence of unexploded ordinance	UXO1.1: Updated magnetometry survey to confirm presence/absence of UXO	Prior to commencement of finalized dredge planning	Contractor	Survey report
	WT1.2: The Contractor's work method will detail the way in which they will safely handle and dispose of UXO if any UXO are encountered during construction.	Pre-construction	Contractor	Maintain records

1.41 EMERGENCY MANAGEMENT MEASURES

In the event of actions occurring, which may result in serious health, safety and environmental (catastrophic) damage, emergency response or contingency actions will be implemented as soon as possible to limit the extent of environmental damage.

The delivery organisation will need to incorporate emergency responses into the project complying with the requirements under the Occupational, Health and Safety Policy of the delivery organisation and the relevant legislation.

1.41.1 Performance Criteria

The following performance criteria are set for the construction of the projects:

- a. no incident of fire outbreak;
- b. no failure of water retaining structures;
- c. no major chemical or fuel spills;
- d. no preventable industrial or work related accidents;
- e. provide an immediate and effective response to incidents that represent a risk to public health, safety or the environment; and
- f. minimize environmental harm due to unforeseen incidents.

1.41.2 Monitoring

An emergency response monitoring program has been developed for the projects (Table 21). The program is subject to review and update at least every two months from the date of issue. Importantly, visual inspections will be conducted by Field Officer daily with reporting to Water Agencies and UNDP staff on a weekly basis (minimum) noting any non-conformances to this ESMF.

1.41.3 Reporting

The Water Agency and UNDP staff must be notified immediately in the event of any emergency, including fire or health related matter including those that have resulted in serious environmental harm.

Table 21 Emergency Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
E1. Fire and Emergency management and prevention strategies implemented	E1.1: Flammable and combustible liquids bunding/storage areas to be designed in accordance with appropriate international standards	Pre and during construction	Contractor	Daily and maintain records
	E1.2: Fire extinguishers are to be available on site	During construction	Contractor	Daily and maintain records
	E1.3: No open fires are permitted within the project area	During construction	Field Officer	Daily and maintain records
	E1.4: Communication equipment and emergency protocols to be established prior to commencement of construction activities.	Pre-Construction and Construction	Contractor	Maintain records
	E1.5: Train all staff in emergency preparedness and response (cover health and safety at the work site). Coordinate with NDMO.	During construction	Field Officer	Daily and maintain records
	E1.6: Check and replenish First Aid Kits	During construction	Field Officer	Daily and maintain records
	E1.7: Use of Personal Protection Equipment	During construction	All Personnel	Daily and maintain records

BUDGET FOR ESMF IMPLEMENTATION

The budget for the project includes an estimate of \$558,280 for implementation of the ESMF and associated safeguards. Table 22 presents a high-level breakdown of the anticipated costs.

Table 22 Budget estimate for ESMF implementation

Item	Cost covered by GCF	Costs covered by Water Agencies ^[1]
ESMF Updating and Auditing	\$10,000	
Guidelines for nature-friendly stabilization of the riverbed and riparian areas and riparian areas	\$20,000	
Strategic Environmental Assessment to assess cumulative and synergistic impacts of proposed planning and policy changes on river-basin management in Bosnia and Herzegovina	\$40,000	
Site specific assessments (based on the applicable regulatory requirements in the BiH and UNDP SES Policy)	\$100,000	\$60,000
General ESMF Expenses	\$20,000	
Monitoring of nature-based solutions	\$15,000	
Water Quality Monitoring (5 x handheld water probes)		\$60,000
Sediment Sample Field Testing (monitoring to be undertaken over five years)		\$90,000
Erosion, Drainage and Sediment Control		\$40,000
Rehabilitation / revegetation		
Stakeholder Engagement Plan implementation	\$82,640	
Grievance Redress Mechanism	\$10,000	
Implementation of Gender Action Plan and SEAH	\$10,640	
Total	\$ 308,280	\$250,000

^[1] These are part of the normal responsibilities of the Water Agencies that can only be undertaken by the Water Agencies.



APPENDIX 1

PROJECT SCREENING USING UNDP SESP TEMPLATE

(Submitted in a separate File)



APPENDIX 2

SEAH ACTION PLAN

Action to address SEAH risk	Timeline	Responsible Body	Monitoring	Remarks
As part of the project's stakeholder consultations, properly inform those affected by the project of SEAH risks and project activities to get their feedback on project design and safeguard issues. Consultations need to engage with a variety of stakeholders (political, cultural or religious leaders, health teams, local councils, social workers, women's organizations and groups working with children) and should occur at the start and throughout the implementation of the project.	Consultations need to be throughout the project cycle, not just during preparation.	IA	<ul style="list-style-type: none"> Monitoring of implementation of SEP. Ongoing consultations, particularly when ESMF is updated. 	
Disseminate information, in collaboration with GBV partners, on GBV referral pathway and the importance of timely seeking services	During implementation	IA	<ul style="list-style-type: none"> Ongoing reporting 	
Make certain of the availability of an effective GRM with multiple channels to initiate a complaint - Include specific procedures for SEAH (e.g. confidential reporting with safe and ethical documenting of SEAH cases).	Prior to contractor mobilizing.	IA	<ul style="list-style-type: none"> Ongoing monitoring and reporting on GRM to verify it is working as intended. 	
Map out SEAH prevention and response actors in project adjoining communities.	During preparation and Implementation	IA	<ul style="list-style-type: none"> Update mapping as appropriate 	UNDP to provide technical support as appropriate
Clearly define the SEAH requirements and expectations in the bid documents.	Procurement.	IA.		
Define the requirements to be included in the bidding documents for a CoC which addresses SEAH.	Procurement.	IA		

Evaluate the contractor's SEA/SH Accountability and Response Framework and confirm prior to finalizing the contract the contractor's ability to meet the project's SEAH prevention and response requirements.	Procurement.	IA	<ul style="list-style-type: none"> Review by UNDP 	
Review contractor requirements/responses to verify that appropriate mitigation actions are included	Implementation	IA	<ul style="list-style-type: none"> Review by UNDP Review by GCF 	
Review that the GRM receives and processes complaints in a timely manner referring to an established mechanism to review and address GBV complaints.	During project implementation		<ul style="list-style-type: none"> Ongoing reporting Monitoring of complaints and their resolution 	
Codes of Conduct signed and understood <ul style="list-style-type: none"> Ensure requirements in CoCs are clearly understood by those signing. Have CoCs signed by all those with a physical presence at the project site. Train project staff on the behavior obligations under the CoCs. Disseminate CoCs (including visual illustrations) and discuss with employees and local communities. Create an appropriate Accountability and Response Framework. 	Initiated prior to contractor mobilization and continued during implementation.	Contractor, Consultant, IA.	<ul style="list-style-type: none"> Review of SEA/SH risks during project supervision (e.g., Mid-term Review) to assess any changes in risk. Supervising Engineer reporting that CoCs are signed and that workers have been trained and understand their obligations. Monitoring of GM for SEA/SH complaints. Discussion at public consultations. 	
Develop Training Materials/key messages for project workers sensitization, community awareness	At the start of the project		Training and communication materials developed, and strategies developed	Training materials should include at least the following topics:

and for sensitization targeting Project management and Contractor management				<ul style="list-style-type: none"> • Definition of GBV, SEAH and how the project can exacerbate/contain GBV • Roles and responsibilities of project stakeholders. • Project staff Code of Conduct (CoC) • Case reporting mechanism, accountability structures, and referral procedures within agencies and for community members to report cases related to project staff; and • Services available for survivors of GBV.
Have project workers and local community undergo training on SEA/SH.	Implementation	IA, Contractors, Consultants	Ongoing reporting	
Undertake regular M&E of progress on SEA/SH prevention and response activities, including reassessment of risks as appropriate.	Implementation	IA, Contractors, Consultants	Monitoring of GRM Ongoing reporting	
Implement appropriate project-level activities to reduce SEAH risks prior to civil works commencing such as: <ul style="list-style-type: none"> • Have separate, safe and easily accessible facilities for women and men working on the site. Locker rooms and/or latrines should be in separate areas, well-lit and include the ability to be locked from the inside. 	Prior to works commencing	Contractor (implementation) Supervising engineer (supervising/enforcing contract)	Ongoing reporting. o Reviews during implementation support missions.	

<ul style="list-style-type: none"> • Visibly display signs around the project site (if applicable) that signal to workers and the community that the project site is an area where SEA/SH is prohibited. • As appropriate, ensure public spaces around the project grounds are well-lit. 				
--	--	--	--	--

APPENDIX 3

CULTURAL HERITAGE CHANCE FINDS PROCEDURE

CHANCE FINDS PROCEDURE

INTRODUCTION

Cultural property includes monuments, structures, works of art, or sites of significance points of view, and are defined as sites and structures having archaeological, historical, architectural, or religious significance, and natural sites with cultural values. This includes cemeteries, graveyards and graves.

Screening for the project indicated that Cultural Physical Resources were unlikely to be at risk as a result of the projects. Nonetheless, there is the possibility that unexpected cultural heritage items could be discovered during works – ‘Chance Finds’.

CHANCE FINDS PROCEDURE

This procedure is to be followed in the event of a Chance Find:

- Stop the construction activities in the area of the chance find
- Delineate the discovered site or area;
- Secure the site to prevent any damage or loss of removable objects.
- Notify the supervisory Engineer who in turn will notify the responsible local authorities;

Responsible local authorities would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures.

Decisions on how to handle the finding shall be taken by the responsible authorities. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage.

Implementation for the authority decision concerning the management of the finding shall be communicated in writing by the appropriate authority.

Construction work could resume only after permission is given from the responsible local authorities and the Ministry concerning safeguard of the heritage.

These procedures must be referred to as standard provisions in construction contracts.

REPORTING

During project supervision, the Site Supervisor shall monitor the above regulations relating to the treatment of any chance find encountered are observed. Relevant findings will be recorded in project progress reports and will assess the overall effectiveness of the project’s cultural property mitigation, management, and activities, as appropriate.



APPENDIX 4

STAKEHOLDER ENGAGEMENT PLAN AND STAKEHOLDER CONSULTATION

Stakeholder Engagement Plan

INTRODUCTION

1.42 OVERVIEW OF THE PROJECT

The project will reduce vulnerability to floods across B&H (pluvial, fluvial and torrential flooding) through improved climate information and establishment of flood forecasting and early warning systems. Improved generation and use of climate information will enable sound decision making and investment into climate resilient flood risk reduction measures.

To achieve this the project will pursue the following outputs:

- Output 1: Fully integrated impact-based Flood Forecasting and EWS facilitates timely preparation and response.
- Output 2: Non-structural flood risk reduction measures and nature-based solutions mainstreamed in sectoral policies and plans and effectively contribute to protection of people and livelihoods from climate-induced flood risk.
- Output 3: Climate-proof flood protection measures scaled-up through new and improved national and local investment frameworks increasing resilience of the most vulnerable groups to climate induced flooding.

The project is expected to benefit an estimated 924,453 direct beneficiaries.

1.42.1 Purpose of this Document

The purpose of Stakeholder Engagement Plan (SEP) is the long-term sustainability of the project achievements, based on transparency and the effective participation of the key stakeholders. The stakeholder management plan is used for: planning the engagement of stakeholders, developing strategies to reduce or eliminate resistance, valuing local knowledge and experience and creating strategies to increase sharing, support and buy-in. Because planning for stakeholder management generates activities, this plan becomes an input to other subsidiary plans.

The approach is based on the principles of fairness and transparency in selection of stakeholders, ensuring consultation, engagement and empowerment of relevant stakeholders comprehensively for better coordination between them from planning to monitoring and assessment of project interventions; access of information and results to relevant persons; accountability of stakeholders; implementing grievances redress mechanism and ensuring sustainability of project interventions after its completion.

REGULATIONS AND REQUIREMENTS

1.43 UNDP REQUIREMENTS

UNDP is committed to meaningful, effective, and informed stakeholder engagement in the design and implementation of all UNDP projects. UNDP's commitment to stakeholder engagement arises from internal policies, procedures, and strategy documents as well as key international human rights instruments, principles, and numerous decisions of international bodies, particularly as they relate to the protection of citizens' rights related to freedom of expression and participation. UNDP also follows the UN Statement of Common Understanding on Human Rights-Based Approaches to Development Cooperation which provides for "*Participation and Inclusion: Every person and all peoples are entitled to active, free and meaningful participation in, contribution to, and enjoyment of civil, economic, social, cultural and political development in which human rights and fundamental freedoms can be realized.*"³³

In summary, the key UNDP Social and Environmental Standards (SES) stakeholder engagement requirements are³⁴:

- Ensure meaningful, effective, informed participation of stakeholders in the formulation and implementation of UNDP Programmes and Projects, providing stakeholders opportunities to express their views at all points in the Project decision-making process on matters that affect them. (SES, Part C, paras. 18, 20).
- Conduct stakeholder analysis and engagement in a gender-responsive, culturally sensitive, non-discriminatory and inclusive manner, identifying potentially affected vulnerable and marginalized groups and providing them opportunities to participate (SES, Part C, para. 18).
- Develop appropriately scaled Stakeholder Engagement Plans, with level and frequency of engagement reflecting the nature of the activity, magnitude of potential risks and adverse impacts, and concerns raised by affected communities (SES, Part C, para. 21).
- Meaningful, effective, and informed consultation processes need to be free of charge and meet specified criteria, including free of intimidation and external manipulation; initiated early and iterative; inclusive; gender and age responsive; culturally appropriate and tailored to language preferences; and based on timely disclosure of relevant, accessible information regarding the project and its social and environmental risks and impacts (SES, Part C, para. 20).
- Include differentiated measures to allow effective participation of disadvantaged or vulnerable groups, including persons with disabilities (SES, Part C, para. 20).
- Undertake measures to ensure effective stakeholder engagement occurs where conditions for inclusive participation are unfavourable (SES, Part C, para. 18).
- Document consultations and report them in accessible form to participants and the public (SES, Part C, paras. 20, 28).
- Ensure early and iterative meaningful stakeholder engagement throughout the assessment and management of potential social and environmental risks and impacts (SES, Part C, para. 16).
- Ensure that stakeholders who may be adversely affected by the project can communicate concerns and grievances through various entry points, including when necessary, an effective project-level grievance mechanism, and also UNDP's Stakeholder Response Mechanism and Social and Environmental Compliance Unit (SES, Part C, paras. 23-26, 37).

³³ Available at <http://hrbaportal.org/the-human-rights-based-approach-to-development-cooperation-towards-a-common-understanding-among-un-agencies>.

³⁴ UNDP (2020), Guidance Note – UNDP Social and Environmental Standards – Stakeholder Engagement

- For projects that affect rights, lands, territories, resources, and traditional livelihoods of indigenous peoples, ensure meaningful consultations and free, prior informed consent (FPIC) (SES, Part C, para. 22; SES, Standard 6, para. 10).
- For projects that may involve physical or economic displacement, ensure activities are planned and implemented collaboratively with meaningful and informed participation of those affected (SES, Standard 5).
- Provide ongoing reporting to affected communities and individuals for projects with significant adverse social and environmental impacts (SES, Part C, para. 34).
- Seek to identify, reduce and address the risk of retaliation and reprisals against people who may seek information on and participation in project activities, express concerns and/or access project-level grievance redress processes/mechanisms or UNDP's Stakeholder Response Mechanism or Social and Environmental Compliance Unit (SES, Part C, para. 27).
- Ensure that stakeholder analysis and engagement are conducted in a gender-responsive, culturally sensitive, non-discriminatory and inclusive manner, identifying potentially affected vulnerable and marginalized groups and providing them opportunities to participate. (SES, Part C, para. 18).

1.44 GCF REQUIREMENTS

GCF seeks to ensure the greatest degree of transparency in all its activities through the effective dissemination of information to stakeholders and the public at large. Recognising the need to ensure public access and stakeholder participation, GCF sets out the Information Disclosure Policy (IDP) which outlines the information that is made available to the public either as a routine matter or upon request. The IDP requires GCF to presume the disclosure of information relating to GCF and its funding activities.

1.44.1 Information Disclosure

The GCF Information Disclosure Policy operationalizes its commitment by ensuring transparency, public access to information and stakeholder participation in all its activities. The Information Disclosure Policy requires that relevant information, including with respect to environmental and social issues, is made available to the affected and potentially affected communities and external stakeholders.

GCF require that all additional environmental and social safeguards documents be disclosed. These documents may include a suite of assessment and management instruments, such as resettlement action plans and policy frameworks, indigenous peoples' plans, and planning frameworks, gender assessments and gender action plans, and environmental and social due diligence and audit reports. These documents will complement the environmental and social reports or core safeguards instruments – and should be disclosed in the same manner and timeframe as the core instruments.

GCF require accredited entities, including intermediaries, to ensure the effective engagement of communities and individuals, including transboundary, vulnerable and marginalised groups and individuals that affected or potentially affected by the activities proposed for GCF financing. The disclosure of information, meaningful consultation, and informed participation is to be designed and undertaken in a manner that takes into consideration the risks and impacts, including where appropriate transboundary impacts as well as opportunities to enhance environmental and social outcomes of the proposed Environmental and Social Policy activities, starting from the design and development of activities and will continue throughout the lifecycle of the activities.

1.44.2 Stakeholder Engagement

GCF requires that culturally appropriate, meaningful consultation/discussions are undertaken throughout the life cycle of activities, with information provided and disclosed in a timely manner, in an understandable format, in appropriate local languages, gender inclusive and responsive, free

from coercion, and incorporates the views of stakeholders in the decision-making process. The processes should pay particular attention to vulnerable groups and to conducting consultations / sharing sessions in a manner that does not put vulnerable individuals and groups at risk.

1.44.3 Grievance Redress Mechanisms (GRM)

GCF requires that accredited entities inform the communities affected, or likely to be affected, by the GCF-financed activities about the grievance and redress mechanisms at all three levels, at the earliest opportunity of the stakeholder engagement process and in an understandable format and in all relevant languages.

At the GCF level, the independent Redress Mechanism will address the grievances and complaints filed by persons, groups of persons or communities or on their behalf by governments or a representative, duly authorised to act in such a capacity, who may be or have been affected by the adverse impacts including transboundary impacts of the projects, in connection to the GCF-financed activities. In the event of a complaint being filed with the independent Redress Mechanism, the accredited entities will cooperate with the independent Redress Mechanism and GCF.

1.45 GOBiH REQUIREMENTS FOR CONSTRUCTION

Local stakeholders' engagement is required by Law on Construction in both entities as well as cantons. As per Law on Construction³⁵, all types of physical planning documentation (including water management objects), must be publicly displayed for period of at least 30 days (Article 47, Law on Construction RS). As demonstrated by the following extract:

(1) The holder of the preparation of the physical planning documents shall determine the draft physical planning document and the place, time and manner of exposing the physical planning document to public inspection.

(2) The duration of public insight shall be determined by the decision referred to in Article 40 of this Law and shall last at least 30 days for all spatial planning documents, which shall be taken into account by the holder of preparation, depending on the importance and specifics of physical planning documents.

(3) The public and owners of real estate in the area for which the implementing spatial planning document is issued shall be informed about the place, time and manner of presenting the draft spatial planning document to the public by an announcement published in at least two media at least twice. the first notice shall be published eight days before the beginning of the public inspection, and the second 15 days from the beginning of the presentation of the draft spatial planning document for public inspection.

(4) The announcement referred to in paragraph 3 of this Article shall contain:

- a) place, date, beginning and duration of public insight into the spatial planning document,*
- b) place and date of one or more public presentations,*
- c) place and time of providing explanations of the proposed planning solutions to the interested persons by the representatives of the developer and the holder of the preparation of the spatial planning document,*
- g) deadline by which proposals, remarks and opinions on the draft spatial planning document can be sent.*

(5) The draft spatial planning document shall be presented:

- a) in the premises of the holder of the preparation of the spatial planning document and on its website,*

³⁵ <https://www.paragraf.ba/propisi/republika-srpska/zakon-o-uredjenju-prostora-i-gradjenju.html>

b) in the premises of the holder of the spatial planning document,

c) in the premises where expert discussions are held or in other premises (cultural centers, lobbies of public institutions, etc.) and

d) in the premises of local communities, in the case when the draft implementing documents of spatial planning are presented to the public.

(6) The holder of the spatial planning document shall be obliged to inform the public at each place where the draft spatial planning document is displayed that more detailed information, explanations and assistance in formulating remarks can be obtained from the holder of the preparation and the holder of the drafting document.

(7) Remarks, proposals and opinions on the draft document shall be entered in a notebook with numbered pages, located in the room where the draft is presented or submitted in written or electronic form to the holder of the spatial planning document who is obliged to forward them to the holder. spatial planning documents.

(8) The holder of the preparation of documents referred to in Article 26, item a) of this Law shall be obliged to organize public presentations of draft documents by areas.

(9) The draft document referred to in paragraph 8 of this Article shall be made public at the seat of local self-government units and comments, proposals and suggestions of interested persons shall be collected there, on the basis of which an opinion on the draft document shall be prepared and sent to the holder.

(10) If the local self-government units do not submit the opinion referred to in paragraph 9 of this Article within eight days from the day of closing the public inspection, it shall be considered that there are no objections to the offered planning solutions.

After that period, a public hearing must be organized in local community within period of 30 days upon closure of public display (article 48, Law on Construction RS):

1) The developer is obliged to consider all remarks, proposals and opinions submitted during the public insight and before determining the proposal of the spatial planning document, to take a position on them, and to submit a reasoned position in writing to the holder of preparation and persons who submitted their proposals. remarks and opinions.

(2) The proposal of the spatial planning document shall be determined on the basis of the draft that has been published and shall be based on the remarks, proposals and opinions on that draft.

(3) Decisions from the draft document may not be changed in the proposal of the spatial planning document, except for those on which a grounded remark, proposal or opinion has been made.

(4) The attitude of the developer towards remarks, proposals and opinions shall be considered at a public hearing, to which representatives of the developer, developer and bodies and legal entities referred to in Article 42, paragraph 3 of this Law, and members of the plan council shall be invited.

(5) The public hearing referred to in paragraph 4 of this Article must be organized within 30 days from the day of closing the public inspection.

*(6) The holder of the preparation shall publish a public invitation for a **public hearing** in at least one daily newspaper available on the territory of the entire Republic three days before and on the day of the hearing, which may be attended by all interested persons.*

(7) If the public hearing referred to in paragraph 4 of this Article is not attended by authorized expert representatives of bodies and legal entities referred to in Article 42, paragraph 3 of this Law, they shall be deemed to have accepted the proposed document.

SUMMARY OF PREVIOUS STAKEHOLDER ENGAGEMENT ACTIVITIES

During the development of the project, there was considerable consultation with key stakeholders. This consultation was summarized and is presented in (Appendix One).

Ongoing mechanisms for engagement have been:

- Workshops
- Meetings
- Project development documents – Idea Note, Concept Note, Funding Proposal
- Media coverage
- Site visits

At state and entity level, ministries responsible for water management, water agencies, hydro meteorological institutes, climate change focal point in BiH (Ministry of Spatial Planning, Construction, and Ecology of Republika Srpska) and other environment related ministries, as well as civil protection and insurance companies and associations, were invited to participate in project preparation. At entity level, political, operational and executive jurisdictions for water sector rest with line Ministries in charge of water. Civil protection organizations and representatives from municipal government actively participated in the project preparation. All consulted organisations provided data and information requested during interviews, workshops and phone/email consultations.

PROJECT STAKEHOLDERS

The SEP has been prepared to promote the implementation of a structured approach in strengthening knowledge, awareness and understanding among and between stakeholders from the grassroots village and commune level to the national line ministries and policy makers as well as the global community.

1.46 STAKEHOLDER ANALYSIS

The SEP was prepared through the identification of the stakeholders that would be involved as partners in the project. Stakeholders at cantonal, municipal, and local levels including relevant agencies, CSOs and local communities and others would be partners in project implementation.

Table 23 lists key government agencies, research institutions, non-government organizations (NGOs) and civil society organizations, and provides a general description of their roles, responsibilities, and sought involvement in the project.

Table 23 Key Stakeholders, their Roles, Responsibilities, and Project Involvement

Stakeholder	Role in the project
-------------	---------------------

B&H Ministry of Foreign Trade and Economic Relations	<ul style="list-style-type: none"> ○ GCF and UNFCCC focal point for B&H ○ State level ○ Responsible for coordinating policies and measures in the field of the environment, including water management ○ Coordination, advocating ○ Member of Project Board
RS Ministry of Spatial Planning, Construction, and Ecology	<ul style="list-style-type: none"> ○ Responsible for environmental policies and measures in RS, including environmental measures that may mitigate CC. Responsible for integrative planning and spatial planning in RS. ○ Member of Project Board
Federal Ministry of Agriculture, Water-Management, and Forestry	<ul style="list-style-type: none"> ○ Entity level ○ Responsible for coordinating policies and measures in agriculture, water-management and forestry ○ Member of Project Board
RS Ministry of Agriculture, Forestry, and Water Resources	<ul style="list-style-type: none"> ○ Entity level ○ Responsible for coordinating policies and measures in land use, forestry, and water resources ○ Member of Project Board
Federal Ministry of Environment and Tourism	<ul style="list-style-type: none"> ○ Responsible for coordinating entity-level policies and measures in the environmental area (environmental conservation, preparation of environmental policies and strategies, monitoring of environmental factors)
Ministry of Security of B&H	<ul style="list-style-type: none"> ○ State level ○ Responsible for implementation of international obligations and cooperation in matters relating to civil protection, coordination of activities of entity services for civil protection in BiH, and harmonization of their plans for cases of natural or other disasters striking BiH territories, as well as issuance of agenda for protection and rescue
Water Agency for Sava River Basin	<ul style="list-style-type: none"> ○ Management of Sava River basin (within FB&H), ○ Responsible for data collection and distribution, water monitoring (hydrology and quality), preparation of Water management plans and plans for prevention and reduction of harmful impacts (flood, drought, erosion), preparation of legislation and policies and their implementation, projects implementation, implementation of flood risk management measures
Public Institution Waters of Srpska	<ul style="list-style-type: none"> ○ Management of water resources within RS Entity (both Sava and Adriatic River basins) ○ Responsible for data collection and distribution, water monitoring (hydrology and quality), preparation of Water management plans and plans for prevention and reduction of harmful impacts (flood, drought, erosion), preparation of legislation and policies and their implementation, projects implementation, implementation of flood risk management measures
Water Agency for Adriatic River Basin	<ul style="list-style-type: none"> ○ Management of Adriatic River basin (within FB&H), ○ Responsible for data collection and distribution, water monitoring (hydrology and quality), preparation of Water management plans and plans for prevention and reduction of

	harmful impacts (flood, drought, erosion), preparation of legislation and policies and their implementation, projects implementation, implementation of flood risk management measures
Hydro-meteorological Institute of RS	<ul style="list-style-type: none"> Entity body Collects climatic meteorological and hydrological data necessary for studying climate variability, for trend analysis, and for long-run modelling. Conducts modelling and participates in WMO research programs.
Hydro-meteorological Institute of F BiH	<ul style="list-style-type: none"> Entity body Collects climatic meteorological and hydrological data necessary for studying climate variability, for trend analysis, and for long-run modelling. Conducts modelling and participates in WMO research programs.
RS Civil Protection	<ul style="list-style-type: none"> Entity body -RS Coordinate and manage work of civil protection units Develop of the programme of protection and rescue for natural and other disasters Organise and coordinate implementation of protection and rescue measures, related to natural and other disasters Monitoring, reporting and alert on emergency situations Vulnerability assessment Trainings and capacity building on civil protection
Federal Civil Protection	<ul style="list-style-type: none"> Entity body- FBiH Coordinate and manage work of civil protection units in RS Develop of the programme of protection and rescue for natural and other disasters Organise and coordinate implementation of protection and rescue measures, related to natural and other disasters Monitoring, reporting and alert on emergency situations Vulnerability assessment Trainings and capacity building on civil protection
Agency for Insurance (state level)	<ul style="list-style-type: none"> State level agency Assures unified implementation of insurance regulations between entities
Insurance agencies (Insurance Agency of RS, Insurance Agency FB&H)	<ul style="list-style-type: none"> Entity level agencies Approves insurance products Develops insurance related regulations Monitors disbursements of insurance companies' funds
HPP	<ul style="list-style-type: none"> Private and state-owned companies for el. power production Alteration of hydrological regime to support FRM HM monitoring-integration in national network With technical support HPP sector enable more climate resilient operations
Associations of Insurance Companies of (one for RS, one for FB&H)	<ul style="list-style-type: none"> NGO Strengthens insurance market Provides professional services to insurance companies Promotes and harmonize cooperation between insurance companies

Local Governments	<ul style="list-style-type: none"> ○ Municipal bodies ○ Management of public functions/ activities within local communities ○ Preparation of development plans and programmes ○ Organization and management of local civil protection ○ Spatial planning ○ Local economic development ○ Implementation of local FRM measures ○ Implement loss/damage assessment at local level ○ Provide local information and knowledge ○ Ensure local participation
Association of Cities and Municipalities of RS	<ul style="list-style-type: none"> ○ NGO- RS ○ Advocacy and firm representation of the municipal interests ○ Coordinate work of municipalities and cities in RS ○ Promote local development and enable implementation of projects/investments ○ Support in the consultative legislative processes, ○ Promote protection of common interests and cooperation with national and international associations, organizations and institutions of government.
Association of Cities and Municipalities of FB&H	<ul style="list-style-type: none"> ○ NGO- RS ○ Advocacy and firm representation of the municipal interests ○ Coordinate work of municipalities and cities in RS ○ Promote local development and enable implementation of projects/investments ○ Support in the consultative legislative processes, ○ Promote protection of common interests and cooperation with national and international associations, organizations and institutions of government.
NGOs (environmental, social inclusion and protection organizations-for returnees and displaced persons, vulnerable groups, minorities, etc.)	<ul style="list-style-type: none"> ○ NGOs ○ Provide information, training, and awareness-raising ○ Ensure local participation and involvement of vulnerable groups
Smallholder farmers, returnees, and displaced persons	<ul style="list-style-type: none"> ○ Innovators, Responsible Parties
Private sector / Micro agricultural businesses	<ul style="list-style-type: none"> ○ Financial services provider, ○ Implementation of adaptation measures ○ Beneficiaries
Faculties of Natural Sciences/Agriculture (Banja Luka and Sarajevo)	<ul style="list-style-type: none"> ○ Universities, research institutions ○ Trainings, expert support ○ Data and technical service provider

1.46.1 Project Stakeholder Register

A Stakeholder Register will be created to form a database of stakeholders and their interest in the project– the register will be a “living document” that will be regularly updated throughout the life of the project as new stakeholders are identified.

The UNDP SES requirements on access to information is being met by maintaining and disclosing a public record of stakeholder engagement throughout the project cycle. Note, where it may be necessary to safeguard the identities of stakeholders, statistical information will be recorded and disclosed.

STAKEHOLDER ENGAGEMENT PROGRAMME

The stakeholder engagement programme has been developed to provide schedule of engagement activities and who is responsible for their delivery.

The purpose of the stakeholder engagement programme is to:

- Develop partnerships with stakeholders
- Provide stakeholders with updates on the project
- Create an avenue for stakeholder feedback
- Fulfil the requirements of GCF, UNDP and GoBiH
- Help build knowledge and capacity within the stakeholder groups to assist with future projects
- Provide a timeline of engagement activities and identify who will be responsible for their delivery.

The following consultation and consent processes are to be adopted as part of the project stakeholder engagement programme:

- Identification of parties to the negotiation and decision-makers
- Elaboration of the decision-making processes of the respective parties
- The role if any of outside counsel and expertise, including e.g. a third party mediator/negotiator
- Agreement on relevant time periods
- Applicable community protocols that must be respected
- Steps to guarantee an environment without coercion or duress
- The format for benefit sharing discussions and arrangements
- Sharing of information in meaningful, accessible, and culturally appropriate manner
- Identification of other project activities or circumstances that will trigger additional consent processes
- The format for documenting the agreement, conditions that attach, and/or other conclusions of the process.

Making use of the variety of knowledge management and communication tools, the project will serve to provide targeted support to strengthening knowledge, understanding and support at various levels to facilitate mainstreaming of biodiversity conservation issues at the local and landscape levels. Successful implementation of this component in the pilot BRs will create an enabling framework for replication and scaling up throughout the BR network in the country, supported by targeted project activities under Output 1.4.

The Project Board is recognized as a central point for project coordination and implementation. It will be comprised of key FRM state and entity level institutions and UNDP. As a representation body of government, private sector, academia and civil society it will provide guidance and timely technical advice to ensure project implementation at efficient and effective level . The Project Board represents main institutional mechanism for engagement of stakeholders. Institutions, members of PB will ensure timely and verifiable attainment of the project objective and outcomes.

Local stakeholders and community members will be mobilized to support implementation and maintenance of measures, socio economic assessment, development of policies, plans and mechanisms through participatory approach. Their involvement will be ensured through mobilization of local and community consultative/work groups. The key role of local stakeholders and community members is implementation and monitoring of the project activities.

Key stakeholders, local and international expert(s) engaged in support and/or collaboration of the project implementation, will also be involved in extensive consultations during inception phase and preparation of inception report, that will include detailed and adjusted work plans for each subcomponent (output) of the project at the specific activity level and elaboration of the required resources and stakeholders to be involved for reaching the stated targets. Inception phase will be utilized for broad consultations with all stakeholders: government, institutions, private sector, NGOs, to communicate and inform stakeholders on their roles, expected contributions, communication channels and conflict resolution mechanisms to ensure understanding of roles, and responsibilities. Also, stakeholders will be involved in official project evaluations to support progress assessment and enable adaptive project management to address local needs and priorities to optimal level.

Education and awareness campaigns will target diverse stakeholders, from general public, specific expert groups, government representatives, selected local communities NGOs and vulnerable groups.

Table 24 summarises the key engagement activities and their target audiences, along with the mechanisms that will be used as part of the engagement to support the project Outcomes.

Table 24 Stakeholder engagement activities to support Outcomes

Project output	Activities	Stakeholder	Stakeholder Role	Means of Participation
1: Fully integrated impact-based Flood Forecasting and EWS facilitates timely preparation and response	1.1: Upgrade and expand the coverage of the hydrometric network for enhanced monitoring of climate variables.	a. Ministry of Agriculture, Water-Management and Forestry of Federation of B&H b. Ministry of Agriculture, Forestry and Water Resources of Republika Srpska, c. Water agency for Sava River Basin, d. Water Agency for Adriatic basin e. PI "Vode Srpske" f. RS HMI g. Federal HMI h. HPP	Key stakeholders for design and installation of hydrometric network, development of O&M plan and sector-specific climate risk information products for hydropower sectors Data providers, technical inputs	Participation at consultative meetings, and trainings Data provision, Project Board members
	1.2: Enhance climate-induced flood hazard, risk and vulnerability information for strategic risk management and sound decision making for climate induced flood management.	a. Ministry of Agriculture, Water-Management and Forestry of Federation of B&H b. Ministry of Agriculture, Forestry and Water Resources of Republika Srpska, c. Water agency for Sava River Basin, d. Water Agency for Adriatic basin e. PI "Vode Srpske" f. HPPs	Key stakeholders for developing hydrological modelling, torrents hazard modelling, HPPs and groundwater modelling in flood hazard, risk and vulnerability modelling and mapping Data providers, technical inputs	Participation at consultative meetings, and trainings Data provision Project Board members
	1.3: Develop an integrated impact-based centralized and community-based	a. Ministry of Agriculture, Water-Management and Forestry of Federation of B&H b. Ministry of Agriculture, Forestry and Water Resources of Republika Srpska,	Actively support and participate in development (planning and implementation) of community-based flood forecasting and early warning system and sector-specific FFEWS products	Participation at consultative meetings, and trainings

	flood forecasting and early warning system.	c. Water agency for Sava River Basin, d. Water Agency for Adriatic basin e. PI "Vode Srpske" f. HPP g. RS Civil Protection h. Federal Civil Protection	for the agricultural and hydro power sectors. Involvement in capacity building planning. Data providers.	Data provision and active involvement in field implementation Project Board members
	1.4: Develop and implement protocols and SoPs on data generation, data management and communication for effective impact based FFEWS and flood risk management.	a. Ministry of Agriculture, Water-Management and Forestry of Federation of B&H b. Ministry of Agriculture, Forestry and Water Resources of Republika Srpska, c. Water agency for Sava River Basin d. Water Agency for Adriatic basin e. PI "Waters of Srpska" f. RS HMI g. Federal HMI h. HPP i. RS Civil Protection j. Federal Civil Protection	Key stakeholder for development of Communication Protocols, Codes of Conduct for FFEWS and centralised information system and knowledge sharing platform. Provide inputs and suggestions based on experience related to existing tools.	Participation at consultative meetings, and trainings Data provision Project Board members
2: Non-structural flood risk reduction measures and nature-based solutions mainstreamed in sectoral policies and plans and effectively contribute to protection of people and livelihoods from	2.1: Mainstream climate induced flood risk reduction into sectoral planning (agriculture, hydropower, critical infrastructure) and spatial planning.	a. Ministry of Foreign Trade and Economic Relations of B&H b. Ministry of Spatial Planning Civil Engineering of RS c. Federal Ministry of Environment and Tourism d. Ministry of Agriculture, Water-Management and Forestry of Federation of B&H	Collaboration and support to enhance the existing legislative and regulatory FRM framework by mainstreaming climate-responsive flood risk management into sectoral planning for agriculture, forestry, environment, hydropower, critical infrastructure and spatial planning	Participation and facilitation of work groups, support assessment, data provision Project Board members

climate-induced flood risk		e. Ministry of Agriculture, Forestry and Water Resources of Republika Srpska		
	2.2: Implement and mainstream new ecosystem-based flood risk reduction and climate change adaptation methods.	a. Water agency for Sava River Basin, b. Water Agency for Adriatic basin c. PI "Vode Srpske" d. HPP e. Target municipalities and Communities f. Local environmental monitoring companies/labs, NGOs	Collaboration in development of community based EbA to reduce the impact of torrential floods and collaborate in implementation of measures Target municipalities and communities as beneficiaries will provide data and opinions/feedback for detailed design (through CBOs or community representatives and through community surveys) Environmental monitoring of construction activities	Participate on trainings and consultative meetings and active involvement in measures implementation including field presence
	2.3: Codify and mainstream EbA solutions into policies and regulations and promote non-structural measures.	a. Ministry of Foreign Trade and Economic Relations of B&H b. Ministry of Spatial Planning Civil Engineering of RS c. Federal Ministry of Environment and Tourism d. Ministry of Agriculture, Water-Management and Forestry of Federation of B&H e. Ministry of Agriculture, Forestry and Water Resources of Republika Srpska	Support development of country-wide best-practice guidelines, technical specification, standards and protocols for the application of EbA non-structural measures to be mainstreamed into policy, collaborate in capacity development in the identification, prioritisation, assessment appraisal, design and implementation of such solutions	Participate on trainings, consultative meetings and working groups Project Board members
	2.4: Review and strengthen institutional capacity and develop long-term institutional capacity development	a. Ministry of Foreign Trade and Economic Relations of B&H b. Ministry of Agriculture, Water-Management and Forestry of Federation of B&H	Active involvement in development of country-wide training programmes and curricula in the technical and practical areas of flood risk management for practitioners, decision-makers, communities,	Participate on trainings, consultative meetings and working groups and raise awareness campaigns Project Board members

	plans for climate resilient FRM.	c. Ministry of Agriculture, Forestry and Water Resources of Republika Srpska d. Water Agency for Adriatic basin e. PI "Waters of Srpska" f. RS HMI g. Federal HMI h. HPP i. RS Civil Protection j. Federal Civil Protection	emergency responders and ensure their participation.	
3: Climate-proof flood protection measures scaled-up through new and improved national and local investment frameworks increasing resilience of the most vulnerable groups to climate induced flooding	3.1: Develop investment framework for climate induced flood risk reduction and management.	a. Insurance agencies (Insurance Agency of RS, Insurance Agency FB&H) b. Agency for Insurance B&H c. Association of Insurance Companies of RS and Association of Insurance Companies for FB&H)	Provide inputs for development of Investment framework for climate induced floods risk reduction and management, engagement in development of risk transfer mechanisms and insurance models, implement climate risk financing	Participate at consultative meetings and work sessions, trainings
	3.2: Formulate multi-year climate resilient municipal investment plans and gender responsive community preparedness plans in selected municipalities (10-12) and in one canton.	a. Local governments b. RS Civil Protection c. Federal Civil Protection d. Association of Cities and Municipalities of RS e. Association of Cities and Municipalities of FB&H	Key partners and collaborators in development and implementation of municipal investment plans for climate resilient FRM in local communities as well as community preparedness plans	Appoint and manage local work groups, participate at work meetings and trainings
	3.3: Implement climate-proof structural flood risk reduction and anti-erosion interventions in Vrbas, Una-Sana,	a. Ministry of Agriculture, Forestry and Water Resources of Republika Srpska b. PI "Waters of Srpska" c. Target municipalities and Communities	Key partner in implementation of priority structural flood risk reduction interventions, secure loan resources for implementation of structural measures, support development of climate proofed designs	Implementing activities, participate in stakeholder consultations/workshops, trainings and monitoring of construction activities, etc.

	Bosna and Drina River basins.	d. Local environmental monitoring companies/labs, NGOs	<p>based on new climate risk information and design methods</p> <p>Implementation of 10 structural measures</p> <p>Target municipalities and communities as beneficiaries will provide data and opinions/feedback for detailed design (through CBOs or community representatives and through community surveys)</p> <p>Environmental monitoring of construction activities</p>	
--	-------------------------------	--	--	--

RESOURCES AND RESPONSIBILITIES

The PB will monitor the impacts of stakeholder engagement activities. Stakeholder engagement will form a regular agenda item at PMU meetings. Issues and risks identified will be recorded in the project Risk Register for ongoing monitoring and/or actioning as appropriate.

A summary of all stakeholder engagement activities will be collated and made available to the public e.g., in Annual Performance Report. The summary will contain the following information as a minimum:

- Stakeholder engagement activities implemented
- Dates and venues of engagement activities
- Information shared with stakeholders
- Outputs including issues addressed.

Outcomes of sharing sessions, consultations or responses to issues raised will be reported back to communities as per the Communications Strategy e.g., via the project website, newsletters, radio program, visits, meetings, etc.

This Stakeholder Engagement Plan will be reviewed and updated as necessary, at least annually.

Stakeholder Consultation

1. OVERVIEW

The project proposal “Scaling up Climate Resilient Flood Risk Management in Bosnia and Herzegovina” was developed in close cooperation with the National Designated Authority and based on consultations with stakeholders as detailed below:

- Initial consultations 11 – 16 March 2018 which included the following stakeholders:
- Ministry of Spatial Planning, Civil Engineering and Ecology, RS, GCF NDA for B&H
- Ministry of Foreign Trade and Economic Relation, B&H
- Ministry of Security, B&H
- Ministry of Agriculture, Forestry and Water Management, RS
- Federal Ministry of Agriculture, Water Management and Forestry
- Public Institutions “Waters of Srpska”
- Water Agency for Adriatic River Basin
- Hydro-meteorological institute
- Hydro Power Plants
- Detailed discussion on project development - 24 Jul 2018
- National workshop on Idea Note – 27 Sept 2018
- Validation workshop - Concept note – 05 Feb 2019
- High level consultations following Concept Note validation workshop – 06 Feb 2019
- Validation workshop – Full proposal – 16 Oct 2019
- High level consultations following Full proposal validation workshop – 06 Dec 2019
- Opinions and comments of representatives of BiH municipalities/local communities, 2019

To initiate development of the Idea Note and funding proposal, a UNDP-GEF technical mission was undertaken in March 2018. During the mission consultations with the key national and regional authorities and a meeting with B&H GCF NDA have been conducted. The NDA, as well as other relevant institutions in charge of environment and water/flood management expressed an interest in developing a new GCF project proposal with UNDP on flood risk management based on the outcomes of the existing Vrbas River project. On 18 June 2018, the NDA issued a No-objection Letter confirming that: a) the governments of B&H have no-objection to the project as included in the Idea Note; b) the project as included in the Idea Note is in conformity with B&H’s national priorities, strategies and plans; and c) in accordance with the GCF’s environmental and social safeguards, the project as included in the Idea Note is in conformity with relevant national laws and regulations. The NDA also confirmed that B&H national process for ascertaining no-objection to the project as included in the funding proposal had been duly followed.

Further consultations were conducted with all key stakeholders in July and September when the Idea Note was presented and finalized at joint workshops. The Project idea was also presented in detail to the Project Boards of Vrbas and NAP projects consisting of GCF NDA and representatives of the ministries in charge of water management and environment. The development of the Concept Note has been further informed by discussions with relevant institutions (NDA, ministries in charge of water management, water agencies and hydro-meteorological institutes).

2. INITIAL CONSULTATION WITH KEY NATIONAL STAKEHOLDERS, GCF PROJECT DEVELOPMENT MISSION – BiH 11TH – 16TH MARCH 2018

The overall aims of the consultations were as following:

- To gain an understanding of the current status of the institutional frameworks and capacities for FRM
- To determine requirements to strengthen FRM and identify national priorities

- To gain an understanding of previous and ongoing projects/programmes/initiatives on FRM and identify areas for cooperation and synergy in line with the proposed project outcomes, to ensure synergy and avoid duplication/overlap of effort
- To identify necessary data for the development of the project proposal
- To identify potential co-financing

Meeting with Bosko Kenjic - Head of Water Resources Department, Ministry of Foreign Trade and Economic relations, B&H

The meeting with WRD discussed several ongoing projects and their contribution to FRM in B&H and included:

- Mainly soft technical assistance projects:
- Sava project - Improvement of Hydrometric network and structural measures (EIB 55 Million Euros to be increased to 74 Million)
- Spreca project –implementing project on river banks in two different entities
- Drina – 24 Million USD. Dyke in Drina
- WBIF project FRM Mapping - LiDAR surveys to start in the Spring, completion of mapping expected by 2019
- EPA 2016 - Flood management Plans – expected to be completed by 2021; Project document to be developed for flood protection with EC; Financing to be provided by loans and/or grants to be obtained from WBIF or other
- Adriatic Sea - No significant projects there;
 - Hydrometric network to be done jointly with hydropower – biggest HP potential is in the Adriatic Sea basin, plans to strengthen the hydrometric network
 - Modelling capacity for karstic geology linked to the hydropower is limited and there is limited understanding of the groundwater systems in the basin. In Adriatic Sea basin, CC impacts not yet analysed. Modelling is needed for this.
 - Link to agriculture – with WM
 - Several karstic fields
 - Most important is delta of Neretva River
 - Link to flood protection and water supply
 - Agriculture strategy envisages extensive extension of the irrigation network
 - Need legal framework improvements – likely to be pushed from EU
- WB preparing a GCF proposal for Sava Basin for Rehabilitation of Sava navigation, which may include flood protection and rehabilitation of wetlands
- Assessment of cost for implementation of all water related EU directives
 - An estimated 700 Million is needed for EUFD
 - 2.2 Billion for urban waste water treatment directive
- 900 Million for Drinking water directive
- National Hydrometric Network – Note that Hydropower companies have extensive networks that are sometimes shared with entity Hydromet (particularly in Adriatic Sea basin). There is a need to harmonise the HPP network and national hydrometric networks, and ensure the legal and technical frameworks are in place for the sharing of hydrometric data.
- Mr Kenjic highlighted the following benefits of the Vrbas project - Institutions are all onboard, project meets the needs of the institutions, work is well received, actions from Vrbas are being replicated in Una-Sana and other basins.

Meeting with Almir Beridan, Ministry of Security and Aida Hadzic Hurem, UNDP DRR project manager

- Discussed the existing institutional arrangements and limitations with regard to disaster risk management. Systematic risk reduction measures are lacking as is the laws with enforcement and enabling environment. There is a lack of training centres for emergency response

- The recovery needs assessment following the 2014 floods refers to the needs of the country to undertake risk assessment studies (hydrological and geological studies, exposure assessment), hazard maps, event documentation, torrent and landslide databases
- Damage and loss recording: Disinventar database is being implemented through IPA project on Disaster Risk and Preparedness Mapping³⁶ and there is an additional need for a common methodology for damage and loss data collection. In Bosnia and Herzegovina there are specific maps created and used by different institutions (e.g. the Water Agency) but there is no national mapping combining different hazards or atlas in electronic form available in the country. The Ministry of Security recognizes the need for developing a national risk atlas which would not only help the civil protection activities during disaster response but would help as well the drafting of legislation in the field of protection and rescue in Bosnia and Herzegovina".
- The objectives of priority axis 5 "Environmental risks" of the EU Danube Strategy are mainly related to developing a flood management plan for the whole river basin, climate change related impacts on risks, further strengthening of the early warning tools, strengthening operational cooperation among civil protection authorities in the Danube countries, etc. The Strategy aims at aligning existing funding to its objectives and has no additional dedicated funding mechanisms created for its implementation.
- SEERISK project "Joint Disaster Management risk assessment and preparedness in the Danube macro-region" which is co-funded by the EU and a consortium of 20 project partners representing 9 countries³⁷. The consortium is coordinated by the National Directorate General for Disaster Management (NDGDM) from Hungary. One of the main aims of SEERISK is developing and testing a Common Risk Assessment Methodology for the region of which the most tangible outcomes are risk assessments and maps for 6 pilot areas.
- The International Sava River Basin Commission (ISRBC) aims at establishing sustainable water management. Both the SEERISK and ISRBC are in process or have already produced local flood risk assessments and maps which should be integrated in the work of the current Action Programme.
- Disaster risk assessment methodologies for different hazards are being developed for B&H. Vrbas project is also introducing disaster response.
- Disinventar Sendai regional project – Swedish Civil Protection customised for each country - 3years and 2.5 Million
- Global Risk Assessment (GRAS) tool is currently used for B&H. Risk methodology for floods is prescribed by entities, but is largely based on previous floods, but where detailed flood hazard and risk modelling and mapping has been done (Vrbas) these maps are used in the GRAS system. The tool is customised and includes 3 modules (hazards, objects at risk and vulnerability category).
- Priorities (Currently MoS role in DRR is only that of a coordination mechanism from the national level. Responsibilities include acceptance of in-kind goods for DRR and working with international community with respect to response
 - DRMP needs to be developed for institutions for different types of disasters
 - Training centres for protection and rescue need to be put in place and will require an inclusion in the law for their establishment. This will improve training for CP response
 - Risk assessment for all hazards need to be completed.

Meeting with Damir Mrdjen, Head of Water Agency, Adriatic basin and Ivan Metkovic

- Sequence of HPPs built up to the 1980s with HP generation and flood protection as their main function
- Licences related to operation of the HPs include definition of low- and high-water levels

³⁶ https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/pdf/financial_assistance/ipa/2015/multi-country/ipa_ii_2015_038-052.08_mc_disaster_risk.pdf

³⁷ Austria, Slovakia, Hungary, Croatia, Serbia, Romania, Bulgaria, Slovenia and Bosnia and Herzegovina

- In 2010, there was a flood event, which was not as severe as the 2014 flooding. 500-year flood event occurred
- Cooperation with the HPPs allows them to decrease the peak and reduce flooding d/s of Mostar
- Cooperation with HPPs represents conflict of interest but the WA finds ways to enforce licence for multi-use of the reservoirs
- Historical data on flooding - Prepared PFRA in accordance with EU. Need to continue to flood hazard and risk mapping; activities are slow and no hazard or risk mapping done as yet (WBIF and EPA 16 projects delayed to 2019 for flood hazard and risk maps and 2021 for FRMP completion).
- Urgent requirements include:
 - Enable daily flood management through model (FFEWS) and decision support. As part of Sava project, finalising FFEWS platform. HMS models are connected to the FFEWS
 - 2012-2013 project to develop hydrological and hydraulic model and DSS based on freeware – HecRAS and HecHMS was done. Would like to upgrade to Mike modelling (like rest of country)
 - Technical capacity barriers – Staff shortage, staff retention, lack of user-friendly modelling and management tools (want identical systems in both entities).
- Climate change
 - Significant variation in power generation from 2 Billion KWH 2010 to 4.5 Million KWH in 2013. The basin is predicted to have more frequent drought (Drought in 2007). Higher drought conditions will be accompanied by higher variability and higher peaks in floods
- HPP minimum levels
 - In 50s to 80s for Nevreta, minimum discharge was derived. After last HPP built 50 m3/s – higher than minimum biological discharge for WQ was defined.
- Gauging stations
 - WA's receive real time data from HPP stations which is used in hydrological model - Data from last 2 days. Croatian data provides prognostic model runs based on Aladin Met Model, checked in 1D hydrodynamic model
- Additional hydrometric stations needed?
 - Trebisnjica tributary needs to be integrated into model
 - Groundwater monitoring and modelling is needed
- Karst
 - Partly monitored through springs but no detailed monitoring or research in 50 years. Need to do joint programmes with RS and FB&H
 - Need groundwater monitoring but can't say without analysis of the area. Potential for additional monitoring
- Infrastructure/structural measures
 - Urgent requirement after floods of 2014 after which 'no regret' measures were considered. Including 1) Sava protection; 2) Hydro protection measures; 3) Non-structural measures (space for rivers). Structures built in d/s in the 1950s and 60's need to be rehabilitated and maintained. Suggests non-structural measures like floodplain policy/flood risk zones and cleaning of river beds.
- Cooperation with HPP's
 - Adriatic Basin WA signed a protocol with HPP for data provision from certain stations
 - As an agency they ensure water operating permits which are periodically reviewed are only reissued if obligations for flood protection (and other obligations) have been met
- Regulation of flood alleviation obligations of HPP - Operating curves (which shows the monthly maximum water levels to be attained), were defined only once 30 years ago and have not been renewed since. They have been trying to get the HPPs to update these operating rules.

Meeting with Branko Colic, Head of Water Agency Department for Trebisnjica and Vedran Furtula, Hydro power company Trebisnjica

- River Basin Management

- Cooperation with Neretva Basin via Mostar
- Project 2006-2018
 - Component 1 – Development of hydrological model for Neretva and Trebisnjica and training of HPP system for floods
 - Model is project output
 - Would like a model for reservoir management for Neretva and Trebisnjica reservoirs to include operating rules for reservoirs
- Joint project for management for guidelines on how to create water permits for reservoirs – covers instruction for all flow conditions
- Instructions for droughts, normal and flood conditions to be provided to HPPs to operate, and Adriatic Sea commission and WA's to manage and monitor compliance.
- Operating licences are issued every 5 years and are related to all aspects of operation
- Want a project to develop new guidelines and new rules for operating dams
- Need to further develop model to help improve the surface water model
- Trebisnjica is the only perennial river (for 60km)
- Karst hydrology applies for the rest of the basin. Water drains into fields and emerge downstream. 10km is natural, 46 Km is concreted and becomes channel into HPP. Need to understand groundwater regime in the basin.
- Priorities for Neretva
 - Monitoring of GW required
 - Monitoring of SW will be developed
 - Need to update hydrological models to include GW. Models currently based on SW data from the 60's to present.
 - Had 260 days of flooding in Popovo field in the past. New HPP has reduced this type and duration of flooding.
 - Need to monitor fields in d/s
 - GEF project was supposed to set up GW monitoring, but the project only produced recommendations for GW monitoring, but no monitoring system as set up.
 - Second phase of the GEF project – EKARST project.
- Needs
 - 2nd phase of Dubrovnik HPP should be built. To include inlet building, feeding (?) station and machine room (already installed). Will improve FRM d/s
 - No investment plans are in place for this, but technical design reports based on 1968 designs available! Cost will be 150 Million Euros
- Non-structural measures:
 - 1,200 m³/s is the overflow capacity of last overflow dam above the city. There are 8km of natural river through the city
 - Without flooding the channel capacity was 500m³/s through the city centre with no damages, Floodplain encroachment resulted in channel capacity being reduced to 390 m³/s. The 100-year peak discharge is 1,500 m³/s. Trebisnjica flooding is mainly from surface water or pluvial flooding
- Reservoirs are operated to flood Popovo fields and protect coastal city – Metkovic
- Update of reservoir operating model which sets the rules for operation is needed.
- Possible Activities:
 - GW monitoring and Modelling
 - Torrents cadastre
 - Update model
 - Inclusion of WQ monitoring at Hydrological gauging stations

Meeting with Ms. Hazima Hadzovic, Assistant Minister for water management, Ministry for Agriculture, Water Management and Forestry, Federation of B&H

- Needs
 - 2nd Category water courses
 - EWS for Adriatic sea in line with Sava River Basin system

- Information from agencies
 - 2nd category water courses responsibility of cantons and municipalities
 - They have a list of 2nd categories needing help – 40 Million BKM
 - Detailed review of figures required because some have been addressed
 - EWS priority - for torrential watercourses
- Action Plan for floods Protection after 2014 provides the following recommendations:
 - Reconstruction of current flood protection structures – already secured by WBIF and ERB and already working on Sava and Drina (also in Tuzla).
- FP plan for B&H needs to include urban flood risk assessment methodology. Cities do not currently have adequate assessments. Data for urban flood risk assessment does not exist
- MoAWMF, FB&H would like to first do FRMP (2021) then see what the measures would be implemented
- Flood protection, reduction of flooding to agricultural land
 - Would like measures to reduce flooding and pollution or improve methods to rehabilitate agricultural land after floods are needed
 - Wastewater treatment is also needed as it relates to pollution of agricultural land (this is outside the scope of the proposed GCF project)
- Hydrometeorological Institute in Slovenia developed hydrological model of Bosna and based on that has suggested EWS equipment and system for Bosna. To be financed by EC – 0.9 Million Euros
- Hydrometric Equipment Maintenance
 - Funded through law on water in B&H. Money for maintenance is given to HMIs
 - Based on list of equipment to be acquired, they can provide funding that will be required for 20 years once equipment ownership is decided (HMI's or WA's)
 - Equipment should be owned by the HMIs and should be financed, operated and maintained by them
- Structural measures
 - Wants to do works that fit into the Flood Risk Management Plan
- Damages and losses recording
 - D&L databases held by WA's and reports sent to Ministry.
 - Municipalities CP will likely have LoL and D&L data on floods
 - Reparation activities for consequences of floods
 - Damages for floods 2015 WMP 2010-2014 – Some protection mentioned
 - Programme of Approximation EU – Adopted B&H Activities
 - PDNA – Single document for B&H. Provides economics damages figures
- The Ministry only has 6 staff in WM and capacity is severely limited.
- Eco-system based approaches
 - Deforestation leading to increased landslides, soil erosion and flooding
 - Poor agricultural practices are exacerbating the problem of soil erosion
 - Need to include EbA as part of the solution
- Also suggested that there is a need to work with communities where flooding is frequent but not significant, hence damages are frequent (annual). There is a risk that they might be neglected.

Meeting with prof. Radislav Tomic, local expert on flash flood and torrents, Faculty of Natural Sciences

- Torrents historically have not been studied, so no cadastre or mapping of torrents exists
- Problematic streams are managed by small scale structures but there needs to be rehabilitation and maintenance
- Floods of 2014 revealed the danger of torrents
- Interventions currently applied – cleaning of riverbeds and reduction of risk on main river courses (which the torrents feeds). This is not enough
- Need to identify torrent streams
- Until the 1990's, measures have been put in place in riverbeds, many are in disrepair

- When people migrated due to war, sediments were not used during that period (no aggregate mining) for local road construction etc. Hence vegetation and sediment built up and these are mobilised in heavy floods
- In Bosnia local streams normally cause flooding first
- Under the Vrbas project, Prof Tomic developed a methodology to identify torrential watercourses and prepared susceptibility model
 - Indicators are used to identify where torrential floods may occur and where to focus risk reduction works.
 - Prepared soil erosion maps – developed with DEM, landuse, geology
 - Then register of torrent maps (based on physical criteria of slope, length of flow, time to peak of catchment etc.)
 - Methodology for registering of torrential streams finalised
 - 8 categories of torrential streams have been developed based on geology, geomorphology etc.
 - Categorised streams
 - If undermining, work needs to be done in riverbed
 - If overtopping interventions are structural
 - Each stream was ground-truthed and the register includes photos of each
 - Consequence of torrents in the deposition of sediments on agricultural land
- What next for methodology
 - FB&H has no erosion maps
 - RS has an erosion map but apart from Vrbas it doesn't have a torrents cadastre
 - Initiated a meeting with Institutions and gave a presentation of the project achievements
 - The methodology was accepted by all and they would like to adopt in both entities
- Needs
 - Monitoring of torrential floods to understand the amount of precipitation that would initiate torrential floods. Therefore, need denser meteorological network
 - Prioritisation of interventions with respect to risks to infrastructure, people, agricultural losses etc.
 - Need to analyse the damages and losses from torrential floods. Municipalities may have information on damages from flash floods from torrents. Once torrential flood hazard mapping can be developed a more comprehensive study of the damages and losses that can occur, would be done
 - Awareness raising. In 2014, if a map of torrents was available, evacuation on the basis of risks from torrents could have been provided. There needs to be awareness raising of communities who might not know that they are living in a torrential flood risk area.

Meeting with Darko Borojevic, Head of Hydrology department, Hydro-meteo institute, Republika Srpska

- Key points for discussion:
 - Feedback on Vrbas project
 - Maintenance of stations
 - Information exchange with other users/stakeholders/beneficiaries
- In RS a commission is formed by HMI and WA with the intention that HMI will run the hydrological forecast models.
- Climate advisories for agriculture
 - Regular bulletins for farms 7-15-30 days forecast provided
 - Forecasts for plant disease provided to department of agrometeorology
 - Seasonal forecast done through a single system with SEECOP and METCOF by big centres in Belgrade
 - ECMWF – B&H to become a member by end of this year
 - HMIs should focus on data sharing and exchange on behalf of B&H. HMIs is focal point for Meteoalarm
 - Services provided by RS hydromet costs 25,000 Euros annually

- Hydropower sector
 - Only information from Trebisnjica system (precipitation forecast) is used
- HMI – RS signed data exchange management policy
 - Sava platform established a HIS (server in Sava commission)
 - Data exchange is in real time from all HMIs from all stations in the Sava basin and data is visible to all
 - Una-Sana hydrological forecasting is done. Model is run in Croatia
 - Establishing monitoring network for Bosna river
- EFAS – B&H is new member. Provides single warning email per event. HMI obliged to follow up
- WMO Membership
 - B&H is a member but there is a problem with the permanent representative (retried)
 - Trying to find new PR but presidency is postponing the decision
 - Any support from WMO?
 - Only EUMETSAT – supposed to get programme for receiving satellite maps. Only Federation HMI participated
- Projects
 - WMO multi-hazard EWS for SEE with WB seed money. UNDP participated in last meeting.
 - Implementation will be 2020-2022 operational by 2025
- Data and quality of data
 - Carpathi EU programme
 - Carpathian countries only. RS HMI participates
 - Goal was validation of met data and linking missing data
 - The project output is gridded data on 10x10m grids. Climatological data – spatial data
 - Important for mission data as can fill in.
 - MISH and MASH Uni of Hungary
 - Data used includes data from Serbia and other countries
 - Spatial data was likely created using geostatistical analysis from stations to produce the gridded data
- What's needed for the rest of B&H
 - Hydrometric network is complete within their capacity to manage!
 - No need for additional equipment

Meeting with Cedomir Stojanovic, Assistant Minister for Water Management - Ministry for Agriculture, Forestry and Water Management RS (current EIB loan disbursement)

- Investment in flood defence
 - No Infrastructure in 30 years, then lots of funding following the 2014 floods
 - By 2022 - 100 million would have been invested from loans
 - EIB – 55 million
 - WB – 13.8 million
 - WB – 3.X Million
 - Solidarity fund (RS) – 28 million
 - Waters of RS – 10 million BKM for maintenance
 - WBIF – Drina, Bosna. Need funding for Sava (canal network).
 - Funds needed for flood protection
 - Huge portion of Bosna (Modrigca and River mouth)
 - Spreca River also un-regulated
 - Small torrential streams (flash floods)
 - HPP – led by min of industry
- IWM principle
 - Nexus of water and water energy, food production, land management, irrigation and WQ protection
 - Of interest – Navigable part of the Sava. Requires transboundary cooperation
- Priorities
 - Bosna, Una-Sana, Direct Sava

- Neretva, Trebisnjica
- Need to apply IWM principles to management of these
- Irrigation is important
- Plans for multi-purpose reservoirs in Vrbas
- Defined strategic documents (WS< FM, Irrigation)
- Irrigation, FP, and erosion protection plans in WA
- Technical documentation is in place for canals etc, 20 Million BKM cost. Canal is partly piped.

Meeting with Boris Pasalic, Ministry for Agriculture, Forestry and Water Management RS, Assistant minister, focus on agriculture

- Emphasis in WM but agric. component
- Since 2015 only 2016 was normal from agriculture perspective (2013 and 2015 drought). 2014 flood was a huge problem for RS, resulting in significant agricultural losses.
- In 2017 losses of Million Euros Agric. – 50 Million Euros, while agriculture budget is 39 Million Euros
- Farmers expect compensation so avoidance of such damages from flood and drought events would be preferable
- Activity led by Ministry related to reporting forecasting services
 - Farmers using pesticides without need (based on calendar or phase of plant development). They want them to use pesticides only when there is a risk of infestation
 - RS and UNDP developed system of - 50 Met stations in RS with forecasts given for when infestation will occur; software developed and launched in March 2019 (Carpo), will reduce pesticides use and costs and will improve soils
- Agric Infrastructure with potential FP and drainage benefits or at risk from flooding
 - Activities funded by WB (MoA)
 - Finalising preparation of Drina levee
 - Irrigation system - Potkozarje Region – Gradiska Municipality, 125 hectares to be irrigated by mini hydropower plant (multi use) system, 1 million -1.5 million m3/s of water to provide elec for production
 - So far preliminary designs have been completed for Lubina reservoir
 - 3 more to be built (IDP project) but won't have money for all 4 reservoirs already designed, there is a funding requirement of 12 million BKM and remaining 3 (outline cost). Limitation is that they can only build 15m high dams so opting for 15m or less. In Lubina could build 30m high dam but d/s settlement would not accept
 - Project by Min in design phase – Borna-Osorna Canal – designed in region of Lijevece field. Huge areas of fertile soil. Channel will give irrigation for 8,000 ha funding
 - Design completion showed high costs
- Other activities
 - 4.5 million Euros project in Bratunac municipality
 - Trebisnjica and Lubina Irrigation
 - In RS only 7% of land is irrigated. Project will result in 14-15% irrigated
 - Vrbas/Sava basin - Canal in Vrbas
 - Fishing Master Plan - RS is obliged to map rivers and streams for biological basis – biodiversity; Needs funds (public call for 250-350K)
 - Agricultural extension services - 7 department branch units; 70 people (ministry employees volunteering time) working with farmers providing assistance and incentive measures; Additional training needed – CPD for staff would be useful
 - Hydrometric network - 50 stations; funds available for maintenance, always need to increase network; need pest traps with gauging stations. Pests stick to gauging station and can be counted. Forecasts based on this.
 - Drought analysis - Implementation of EPA project; support to HMI – monitoring drought – have equipment but not people on the ground

- Agro-forestry - Forest sector with public RS company do use agro-forestry for erosion prevention, relevant only to Herzegovina; well established wind breakers; UN Combat of deforestation; GEF project; regular budgetary funds
- Agric. Extension service - Focused on development of irrigation systems in high production areas. Not done in drought areas without high production. Drought forecasts are based on 3-day forecast. Between December and March – (low period) workshops covering flood management topics are held. Includes providing estimates of possible flood risk and warnings to farmers. Need response after floods for clean-up and monitoring of pollution from floods. Some post event monitoring is done and production is halted. Average number of farmers at training sessions – 4,000. Flood hazard and risk maps, and specific products will be useful to enhance these activities. Lots of private (an unregulated) agriculture extension companies would benefit.
- Ministry of Agriculture will prepare a law on regulation of AES
- There is a 0.5 Billion export to import imbalance is due to underutilised agriculture land, which require activities that can focus on pre-conditions for agriculture to happen

Meeting with GCF focal point, minister Golic, Assistant minister for projects coordination Milos Jokic and Assistant minister for ecology Svjetlana Radusin

- GCF FP highly commended the partnership with UNDP in B&H and praised results of the UNDP assistance. She underlined the relevance and importance of the recently approved UNDP/GCF project on energy efficiency/building retrofits. She stressed the negative impacts of CC in B&H with the emphasis on the devastating floods. She expressed an interest in developing a new GCF project proposal with UNDP on flood risk management based on the outcomes of the existing Vrbas River project.
- Preliminary ideas for the GCF proposal have been discussed, including potential partnership with an accredited financial institution for outreaching a combination of a GCF loan and grant.
- GCF FP expressed her support to the project development and highlighted the need to conduct additional consultations with the line ministries of both RS and FB&H, in particular with regard to the priority structural flood protection measures and the potential to borrow from GCF.
- The parties agreed that the mission will result in a formulation of a brief GCF project idea to be shared and discussed with the GCF FP Office and other national and sub-national stakeholders.

3. PRESENTATION OF THE IDEA NOTE - 24 JUL 2018

Following the discussion with the GCF NDA who further supported the project activities, it was agreed that the Project Idea be presented to the water sector in Bosnia and Herzegovina.

The meeting was opened by the Assistant Minister for Water Management, Environment and Tourism at the Ministry of Foreign Trade and Economic Relations, Ms. Brankica Pandurevic and attended by representatives of all institutions responsible for water management: Ministry of Foreign Trade and Economic Relations, two entity ministers in charge of water management, three water agencies and two hydro-meteorological institutes.

Project idea was presented in detail and draft Idea note was given to all participants.

The meeting agreed that the Idea note reflects conclusions of consultations which were held in Mar 2019. Comments to the Idea note were submitted by the end of Aug 2018 and re-discussed in Sept 2018.

4. IDEA NOTE ACCEPTANCE MEETING - 27 SEPT 2018

The meeting was attended by representatives of the relevant institutions from the water management and environment sectors.

Dr. Margaretta Ayoung, Chief Technical Advisor, presented in detail the project idea Scaling up climate resilient flood risk management in B&H, which was updated with stakeholders' input submitted after the meeting held on 24 Jul 2018.

The project will seek to address the climate risk and vulnerabilities by removing the barriers described above through the three project Outputs. GCF technical assistance funds will be invested in enhanced public goods and will be blended with non-grant IFIs' and private investments into structural flood protection measures.

The project outputs and activities are as follows:

Output 1: Fully integrated impact-based Flood Forecasting and EWS facilitates timely preparation and response

- 1.1. Upgrade and expand the coverage of the hydrometric network for enhanced monitoring of climate variables.
- 1.2. Enhance climate-induced flood hazard, risk and vulnerability information for strategic risk management and sound decision making for climate induced flood management.
- 1.3. Develop an integrated impact-based centralized and community-based flood forecasting and early warning system.
- 1.4. Develop and implement protocols and SoPs on data generation, data management and communication for effective impact based FFEWS and flood risk management.

Output 2: Non-structural flood risk reduction measures and nature-based solutions mainstreamed in sectoral policies and plans and effectively contribute to protection of people and livelihoods from climate-induced flood risk.

- 2.1. Mainstream climate induced flood risk reduction into sectoral planning (agriculture, hydropower, critical infrastructure) and spatial planning.
- 2.2. Implement and mainstream new ecosystem-based flood risk reduction and climate change adaptation methods.
- 2.3. Codify and mainstream EbA solutions into policies and regulations and promote non-structural measures.
- 2.4. Review and strengthen institutional capacity and develop long-term institutional capacity development plans for climate resilient FRM.

Output 3: Climate-proof flood protection measures scaled-up through new and improved national and local investment frameworks increasing resilience of the most vulnerable groups to climate induced flooding

- 3.1. Develop investment framework for climate induced flood risk reduction and management.
- 3.2. Formulate multi-year climate resilient municipal investment plans and gender responsive community preparedness plans in selected municipalities (10-12) and in one canton.
- 3.3. Implement climate-proof structural flood risk reduction and anti-erosion interventions in Vrbas, Una-Sana, Bosna and Drina River basins.

The Idea note was assessed as a very good one with activities which are necessary for the country and realistic results. The approach to scale up the successful results of the Vrbas project was also praised.

The meeting representatives pointed out the following:

- Project activities have to be in line with countries existing strategic documents: Flood Action Plan, Climate Change Adaptation and Low Emission Development Strategy, Approximation Strategy, Third National communications etc.
- Project activities have to be aligned with other flood risk management initiatives in the country.
- Institutions have to be involved all the time during project development phase.

Next step is development of the Concept note, which will be submitted to the stakeholders for review before the validation workshop, which is planned for the end of Jan 2019. Anticipated project value is USD 14 mil, with co-financing 1:4.

5. CONCEPT NOTE VALIDATION WORKSHOP – 05 FEB 2019

To have quality and substantial discussion at the validation workshop, a draft Concept note, together with pre-feasibility study was sent to all relevant institution via e-mail on 17 Jan 2019.

The workshop was attended by representatives of the relevant institutions (ministries in charge of water management, agriculture and forestry, environment, ministry of security, civil protection units, three water agencies and hydro-meteo institutes) and was chaired by the representatives of the UNFCCC and GCF focal point (assistant minister Svjetlana Radusin) and Ministry of Foreign Trade and Economic Relations (head of water resources department Bosko Kenjic).

Mr. Sanjin Avdic, EE sector leader in his opening remarks, explained next steps in project development and emphasised political and technical support B&H GCF focal point and UNDP will need for the project to be developed.

Dr. Margaretta Ayoung, Chief Technical Advisor, presented in detail the project idea “Scaling up climate resilient flood risk management in B&H”, which was updated with stakeholders' input submitted after the meeting held on 24 Jul 2018. Project outputs, activities and expected results were discussed.

In a discussion which followed, it was noted that water sector had been heavily criticised about their handling of floods. Although Flood Action plan provides the guidelines to improve the water sector, criticism has been received about Action plan delay. Participants agreed that Action plan has been delayed due to lack of resources, but also due to lack of data, capacities, policies and also delay in development of the technical documentation such as flood hazard and risk maps for the rest of the country, apart from Vrbas River basin.

Mr. Almir Prljaca, from Sava River Basin agency welcomed the project and said that planned activities are in line with main issues water agencies are facing in flood risk management. The main points are: not sufficient number of HM stations; some stations are collecting data only on daily basis which is not enough for flood forecasting and early warning system; lack of quality models; there is currently inadequate analysis of peak floods used in the calibration and validation of hydrological and hydraulic models used in flood forecasting; no data for torrents cadastre; no understanding for “living with floods” approach and EbA; lack of resources for maintenance of the equipment; lack of educated personnel; lack of coordination with other sectors e.g. unplanned afforestation, spatial planning documentation which does not include flooded areas, HPPs are not included in flood risk management, no insurance for floods; poor cooperation between entities; poor public awareness etc.

Mr. Brkovic, Head of Department at the Ministry of Security commented that lack of coordination and data sharing protocol is a big issue. Duplication of efforts and activities between sectors is not uncommon.

Mr. Damir Mrdjen, Head of water agency for Adriatic river basin in FB&H, emphasised a need for cooperation with spatial planning sector and inclusion of flood lines into spatial plans, as it is crucial for flood risk management and does not exist now. He also pointed out a need for EbA measures and

integrated approach to flood risk management as dykes itself are not providing sufficient flood protection. He added that situation would worsen in the future as it is impossible to only keep making dykes higher, as “1000-year waters are now 100-year waters”.

Mr. Ljuboja, deputy Head of Republika Srpska civil protection commended Vrbas project for its close links with local communities and would appreciate if the new project maintains the same level of cooperation.

Mr. Branko Colic, Head of water agency for Adriatic river basin in RS reiterated lack of investment in karst area which is prevailing in Adriatic river basin, starting with monitoring, modelling and ending with anti-flood measures. He is happy to see that the project proposal would also include karst.

Mr. Marinko Vranic and Mr. Suad Skejovic representatives of the entity ministries for water management complemented the proposed activities and gave their support. Mr. Skejovic further added that he hoped this project would function as Vrbas project.

Mr. Bosko Kenjic, Head of water resources department at the Ministry of Foreign Trade and Economic Relations concluded that with this validation workshop support to the Concept note is given. Relevant institutions gave the green light to go ahead with the development of the full proposal whose final draft is expected in the 3rd quarter of 2019.

Ms. Svjetlana Radusin, Assistant minister for ecology at the Ministry of Spatial Planning, Civil Engineering and Ecology said that her ministry, as a GCF focal point, would provide full support for further project development.

Interest of B&H authorities and public for the development of the new project is also seen via impressive media coverage which followed the validation workshop. Please see some links below:

<https://www.hayat.ba/vijest.php?id=153228>

<http://zenicainfo.ba/2019/02/06/u-pripremi-novi-undp-projekt-u-oblasti-smanjenja-poplavnog-rizika-u-bosni-i-hercegovini/>

<https://rtvbk.ba/u-pripremi-novi-undp-projekt-iz-oblasti-smanjenja-poplavnog-rizika-u-bih/>

<https://startbih.ba/clanak/u-pripremi-novi-undp-projekt-iz-oblasti-smanjenja-poplavnog-rizika-u-bih/104576>

<https://opcija.net/undp-i-domace-institucije-prijedlog-projekta-povecanje-ulaganja-u-smanjenje-poplavnog-rizika-u-bih/>

<https://www.atvbl.com/vijesti/bih/smanjenje-poplavnog-rizika-u-bih-6-2-2019>

<https://ba.ekapija.com/news/2396446/undp-radi-na-novom-projektu-razvoja-sistema-prognostiranja-i-ranog-upozoravanja-od>

<http://www.fena.ba/article/1066774/u-pripremi-novi-undp-projekt-iz-oblasti-smanjenja-poplavnog-rizika-u-bih>

<https://media.klippingmap.com/html/view?filePath=2019/02/07/48ec504b-fa0b-4a94-b07e-9541b85fd78b&language=bs&topicGroupId=8b11b255-0b19-3d6f-9f0d-0955536d7416&showHighlights=true&purpose=2>

<https://balkan.eu.com/undp-helps-to-reduce-flood-risk-in-bih/>

<http://www.magic.ba/info/34-info/3623-u-pripremi-novi-undp-projekt-u-oblasti-smanjenja-poplavnog-rizika-u-bosni-i-hercegovini.html>

6. MEETING WITH GCF FOCAL POINT MINISTER SREBRENKA GOLIC – 06 FEB 2019

Following the validation workshop, Mr. Sukhrob Khoshmukhamedov, UNDP DRR had a meeting with Minister Golic, GCF focal point for B&H and Her Excellency again reiterated her support for further development of the full GCF proposal for “Scaling up climate resilient flood risk management in B&H” project.

7. FULL PROPOSAL VALIDATION WORKSHOP – 16 OCT 2019

The workshop was attended by representatives of the relevant institutions (ministries in charge of water management, agriculture and forestry, environment, ministry of security, civil protection units, three water agencies and hydro-meteorological institutes). It was chaired by the Head of Water Resources Department at the Ministry of Foreign Trade and Economic relations Mr. Bosko Kenjic.

Mr. Sanjin Avdic, UNDP EE sector leader thanked all participants for their support and active involvement in development of the project proposal and explained next steps which need to be taken to have the proposal approved.

Ms. Raduska Cupac, CC Adaptation Project Manager, reiterated that a Concept Note was submitted to GCF on 31 May 2019 and a response was received on 24 Jun 2019. She went through details of GCF review, which recommends minor changes to proceed to the next stage.

Ms. Cupac explained project management and monitoring, as well as anticipated budgetary allocations per activities, including co-financing from government and private sector. Participants welcomed the fact that water agencies are project beneficiaries.

Dr. Margaretta Ayoung, Chief Technical Advisor, presented in detail the project activities included in the full proposal *Scaling up climate resilient flood risk management in B&H*, which followed GCF recommendations, but also inputs from continuous discussions held with stakeholders in the meantime. Project outputs, activities and expected results were discussed.

The participants welcomed the project and noted that anticipated activities are in the line with needs of all BiH sectors involved in flood risk management. The presented document reflects suggestions from consultations and from previous workshop. During discussion the following was pointed out:

- Support of implementation of Existing Flood Action Plans is necessary. This need is recognized by GCF Project Proposal in many aspects: necessary resources for implementation of non-structural/structural measures, improvement of data management, building capacities of key FRM institutions, risk mapping for entire BiH
- Representatives of water agencies confirmed that anticipated project activities are aligned with main issues and challenges of FRM in BiH: need for additional HM stations providing real time data necessary for FFEWS, improvement hydrological and hydraulic models, development of torrents cadastre, introduction of “room for river” and EbA concepts, improvement of the coordination, integrated FRM approach including forest management and flood risk informed spatial planning, development of flood/natural disasters insurance scheme, enhance involvement of HPPs in FRM. Also, it is important that project anticipated work in karst areas, since monitoring, modelling and implementation flood risk reduction measures are highly needed.
- Representatives of security and civil protection sectors stressed that the proposed activities consider improvement of coordination and systems of data sharing as one of main issues related to DRR BiH. Also, they expect high level of cooperation with local communities.
- CONCLUSION: Having in mind complexity of the document itself, in order to ensure full familiarization with all details of the project proposal, it was agreed that the FP would be sent to all relevant institutions, which will be given three weeks for their comments.

Interest of B&H authorities for the development of the new project is also seen via great media coverage which followed the validation workshop. Please see some links below:

<https://ba.ekapija.com/news/2665244/u-zavrsnoj-fazi-projekat-undp-a-u-oblasti-smanjenja-poplavnog-rizika-u>

https://www.ba.undp.org/content/bosnia_and_herzegovina/bs/home/presscenter/vijesti/2019/UNDPNoviPprojekt.html

<https://www.dnevni-list.ba/novi-projekt-prijedlog-undp-a-u-oblasti-smanjenja-poplavnog-rizika-u-bih/>

<https://vijesti.ba/clanak/464966/novi-projekt-prijedlog-undp-a-u-oblasti-smanjenja-poplavnog-rizika-u-bih>

<https://brcko.tv/2019/?p=10485>

<http://www.fena.ba/article/1113038/novi-projekt-prijedlog-undp-a-u-oblasti-smanjenja-poplavnog-rizika-u-bih>

<http://bosnia.shafaqna.com/BA/AL/994055>

In addition to Validation workshop separate meetings were held with representatives of hydro-energy, agriculture and forestry sector to further reiterate their role in the project and links with activities related to water management sector.

Meeting with Gordana Rokvic, Advisor to the Minister and Svjetlana Lazic, senior expert for land management – Ministry for Agriculture, Forestry and Water Management of Republika Srpska

The meeting was held to further reiterate importance of agricultural sector in project implementation. Key points:

- Ministry is fully aware of increased flood occurrence; it happens every year.
- Extreme events of short tenure are also increasing.
- Agricultural workers are not prepared nor educated to deal with that;
- Ministry is encouraging farmers to go into insurance system but take-up is very low.
- Agricultural strategy for 2020-2025 for Republika Srpska is prepared.
- Full support to the project is given especially because it directly links floods and water management with agricultural sector.

Meeting with Gordan Miseljic – Director General, and Aleksandar Vujic, Dy Director for System Management, Hydro Power Plant, Trebisnjica

The meeting with HPP discussed their contribution to Project and FRM in B&H in general:

- HPP management reiterated a need for flood forecasting as it directly impacts its operations
- Precipitation regime has been changed to the extent that previous experience and approach in forecasting accumulation level, based on staff knowledge, is not working any more. Introduction of new technologies is absolutely necessary.
- Hydro-meteorological network must be enhanced. They are ready to contribute in purchase and maintenance of the equipment.
- Approach to river basin management has to be holistic.

Meeting with Danica Cigelj, Assistant Minister for Forestry, Ministry for Agriculture, Water Management and Forestry, Federation of B&H

The meeting was held to further reiterate importance of forestry sector in flood management and project implementation. Key points:

- Forestry and water management sectors in Bosnia and Herzegovina are not working closely enough in flood risk management
- There is a Study on Harmonisation of Forest and Water Management in Federation of B&H developed in 2011. The Study recognizes a need to harmonise planning documents in forestry and water management, reiterates a role of forest in flood management, a need for awareness raising in climate changes etc.
- A role of the forestry sector is seen especially within anti-erosion measures, but they do not have concrete project proposals.

8. CONSULTATION WITH REPRESENTATIVES OF BiH MUNICIPALITIES/LOCAL COMMUNITIES, 2019

During 2019, bilateral consultations were held with municipality representatives and local communities where the project will be implemented. This section summarises the outcome of those consultations.

a. Doboj Municipality

Miroslav Milosevic, Head of the Civil Protection Department:

- The City of Doboj adopted a comprehensive Flood Protection Plan a year after 2014 flood
- The plan envisages all activities to prevent water entering the city
- The construction of an embankment on Bosna river is also planned, as soon as 6 mill. KM is ensured for land expropriation.

Savo Vukovic, Head of Local Community Bare

- 5 years after 2014 floods, only 80% of the temporary embankment has been completed,
- completion is needed to permanently protect the houses in this settlement.
- Much less is invested in prevention, interventions are implemented later when damage already occurred

Dragan Vasilić, Advisor of Mayor

- To make the city safer, approx. 23 mill. KM is needed to regulate the Bosnia river bed from the confluence of Usora river to the settlement Pločnik.
- Reaction of citizens is also necessary in accordance to the Law

b. Doboj South Municipality

Mirnes Tukic, Mayor

- almost every second year city suffers from floods, no defence embankment on the Usora River
- construction of this embankment was announced after the 2014 floods, but it was not completed after five years. Riverbed also is not cleaned

c. Modrica Municipality

Dusko Pejic, Head of local community Dobor

- In May, the water was very high and overtopped embankment and flooded the entire settlement
- Existing embankment height should be raised
- Bosnia riverbed has not been cleaned, which is necessary

d. Bijeljina Municipality

Mico Micic, Mayor

- The city is threatened by floods due the risks from Sava and Drina rivers,
- City government committed to continue work on preparedness and prevention, especially in terms of institutional capacity building.
- Flood risk reduction is of the highest importance, have already implemented many projects to protect against floods
- Necessary to finish the Drina embankment, and banks enforcement
- Regulation of river bed of the River Janja will be carried out in the length of 1.8 kilometers
- Created a risk reduction center with several units that can contribute to risk and damage reduction

Radisa Ilic, Bijeljina local community Balatun:

- The dike must be completed. Very little is realized in recent years.

e. Prijedor Municipality

Milenko Djakovic Mayor,

- Sana is flooding regularly, several settlements endangered: Gomjenica, Raškovac Tukovi, Brezičani, especially urban area of Prijedor.
- In floods 2019, 1,350 households were flooded, 400 houses, six landslides were created, bridge over Sana damaged.
- To reduce or prevent future flooding several measures need to be implemented on rivers Sana, Gomjenica, Miloševica and other smaller watercourses, as well as the construction of embankments and discharge canals,
- Implementation requires significant financial means.
- Measures implemented on flood protection earlier have good results, activities must be continued to further improve such protection.

Sead Karagic, head of local community Rizvanovici,

- Sana river threatens the village of Rizvanovici and settlements downstream to Raskovac, Brezičani.
- the entire left and right banks of the Sana River are under risk, including the settlements Svodna and Blagaj on the route to Novi Grad
- Possible solution is to deepen the Sana riverbed and make embankments on both the left and right banks of Sana.

Dusan Vranjes, Head of CP, Prijedor:

- Previously implemented measures reduced the effects of the flood significantly.
- Hope that water management institutions in the RS will implement more water regulation projects in the Prijedor Municipality.

f. Gradiska Municipality

Zoran Adzic, Mayor:

- Project for regulation of storm water in the agro-industry zone Nova Topola implemented with the support of UNDP Vrbas project, very important for this zone, enabled further economic growth

- About 1,260,000 KM invested in the construction of the storm water collection system
- Construction of the embankment on Sava River is necessary to reduce risk for properties and agriculture.

Toni Barisic, farmer,

- Water from flooded canals destroys one third of the crop each year.
- The channel network has not been operational for years.

g. Srbac, Municipality

Mladjen Dragosavljevic, Mayor

- The Sava and the Vrbas embankment in Srbac have been severely damaged in recent years, requiring reconstruction.
- Through the UNDP BiH project "Integrating Climate Change to Reduce Flood Risk in the Vrbas River Basin", 6 km of canal network was regulated, stone embankment placed, 800 poplar trees were planted to consolidate riverbanks and protect agricultural land.
- Positive effects of implemented measures are already visible.

Ninko Guzvic, Expert / advisor for agriculture:

- Agriculture is very sensitive to flooding. Canal network in the agriculture area needs to be improved
- Within the project " Vrbas " regulated water streams Povelic, Ina and Kosolinac, solved flooding in the urban area of Srbac. These activities should continue to protect agricultural households and production.

h. Laktasi Municipality

Ranko Karapetrovic, Mayor,

- Trn settlement, the one of flood-prone areas, needs detailed analysis of river channels and culverts to plan flood risk reduction.

Dragan Kelecevic, Officer from Laktasi municipality

- In Laktasi municipality 80% of the population lives in the flood zone.
- Through the UNDP Vrbas project implemented measures to reduce flood risk

Goran Vujakovic, Local Development Advisor:

- After floods, citizens make pressure on the municipality for damage compensation.
- Currently, there is no appropriate natural disaster insurance package for agriculture.

i. Banja Luka City

Mladen Cucun, Head of CP Banja Luka City

- The floods in 2019 would certainly have caused more damage in the Banja Luka area, but also of neighbouring municipalities downstream (Laktaši and Srbac), if there had not been coordination between Civil Protection, City Administration and HPP Bocac.
- Since HPP "Bocac", greatly influences the water level of Vrbas, the cooperation and coordination with HPP is the most important for Banja Luka, since this HPP regulates the flow of water to the city to a large extent.

- Civil protection continues cleaning of small streams in the wider City area to reduce flood risk.
- The flood hazard map, developed as part of the project "Integrating Climate Change into Flood Risk Reduction in the Vrbas River Basin", accurately shows all critical areas, dividing them into high, medium and low flood hazard locations. This map is of great importance.

Božana Šljivar, Head of Finance Department

- A systematic approach to disasters risk, experienced in some countries, should be created as a model of mandatory flood/other natural disaster insurance.
- The adequate insurance model/product will provide adequate compensation for damage to citizens and protect budgets at all levels of government against unexpected expenditures in the event of catastrophic events

j. Ravno Municipality, Herzegovina

Andrija Simunovic, Mayor,

- Flood has caused tens of millions KM of damage in Popovo field so far.
- 60,000 fruit trees destroyed due to the floods.
- **Full coordination of competent ministries, HPPs and agencies is required.**

Boris Tolimir, Director, Exclusive Lingerie Company, Banja Luka

- Flood damage in 2014 was 0.5 mill. KM, the company was not insured
- Insurance is one of the ways companies can secure against natural disasters.

Slavko Stevanovic, Secretary of the Association for Agriculture, Fishery, Chamber of Commerce RS.

- Carp production has significantly decreased in the past few years due to climate issues, floods and draughts.
- In Sanicani fishpond (the largest one in BiH) the flood caused enormous damage in May 2014

9. MEETING WITH GCF FOCAL POINT MINISTER SREBRENKA GOLIC – 06 DEC 2019

Following the validation workshop and comments received for the full proposal, Mr. Sukhrob Khoshmukhamedov, UNDP DRR and Mr. Sanjin Avdic, EE Sector Leader, had a meeting with Minister Golic, GCF focal point for B&H. Her Excellency expressed satisfaction with outcomes of the validation workshop and specially with the good feedback received for the full proposal. Minister Golic provided a No-Objection-Letter and again reiterated increasing damages from floods and need for this project to be implemented.

10. MEETINGS WITH GCF FOCAL POINT MINISTER SREBRENKA GOLIC – 2022

Following the comments received from GCF CIC2 on 04 Mar 2022 and a request that a new Full Proposal template be used, Ms. Raduska Cupac, Energy and Environment Sector Leader had a meeting with the GCF focal point for Bosnia and Herzegovina Minister Srebrenka Golic who assigned her team lead by assistant minister Milos Jokic to be actively involved and participate in FP finalisation. Update Full Proposal was agreed upon by GCF focal point and on 11 Apr distributed to all relevant stakeholders for further consultations. As a result of successful consultations, an updated No-Objection-Letter dated 20 June 2022 was issued.

11. MEETINGS WITH AGENCY FOR GENDER EQUALITY AND GENDER CENTRES

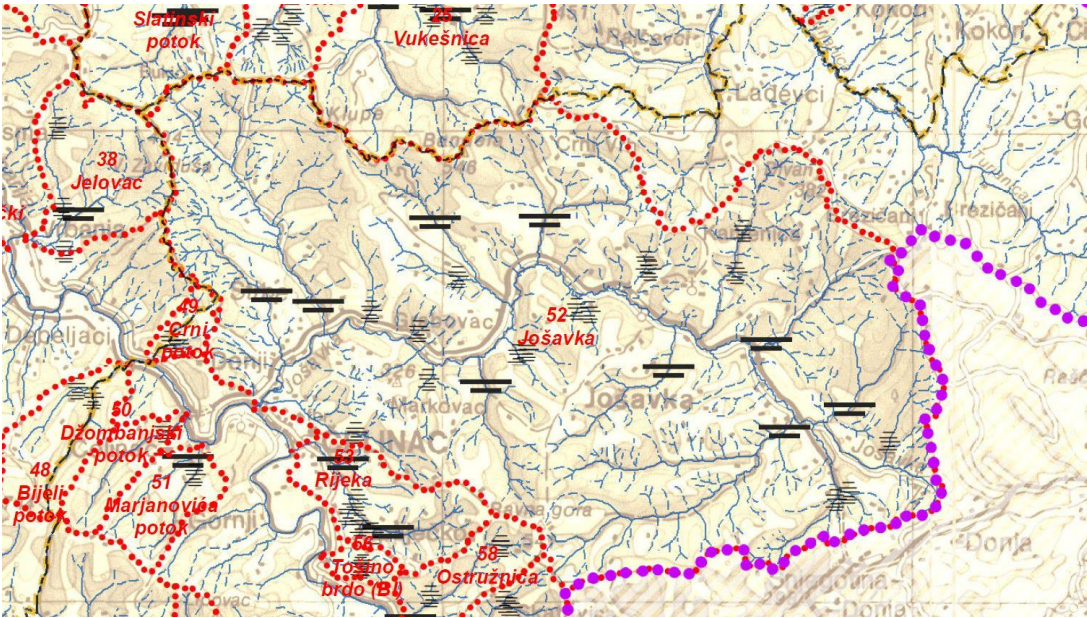
Consultative meetings were held during the period September-October 2022 with Agency for Gender Equality and entity gender centres of Federation of Bosnia and Herzegovina and Republika Srpska, including a dedicated meeting with UNFCCC gender focal point for B&H Ms. Spomenka Kronic. Project activities, along with Gender Action Plan, were presented in detail. A series of meetings with local stakeholders, led by Ms. Kika Babic Svetlin, a senior adviser to the Director of the Agency, were held to discuss how to improve gender component in the Project, including GCF comments. Consultations also included 11 NGO's whose work is relevant for empowering a role of women in natural hazards and environment. These meetings resulted in the concrete input to the Gender Action Plan.

In addition, in partnership with the Agency for Gender Equality of B&H, UNDP launched Feminist Coalition for Climate Justice in Bosnia and Herzegovina on 03 Oct 2022. The purpose of this initiative is to support the establishment of a B&H owned Feminist Action for Climate Justice Coalition, which will mobilize relevant actors from among government institutions, academia and civil society to designate concrete policy actions and advocate for them. Furthermore, it will also conduct a gap analysis concerning climate mitigation, adaptation and DRR statistics to establish what data is available and what might be necessary to inform policy making in these fields, through the prism of gender. It will be also timely to connect data indicators or gap analysis results with the preparation of the 2024 Voluntary National Report on 2030 Agenda.

APPENDIX 5

INFORMATION ON DIKES AND EMBANKMENTS ON NERETVA, BOSNA, AND SANA RIVERS AND FLOOD DEPOSIT TORRENTIAL BARRIERS ON JOŠAVKA BASIN

Information on flood deposit torrential barriers on Jošavka basin



Flood deposit torrential barriers on Jošavka basin




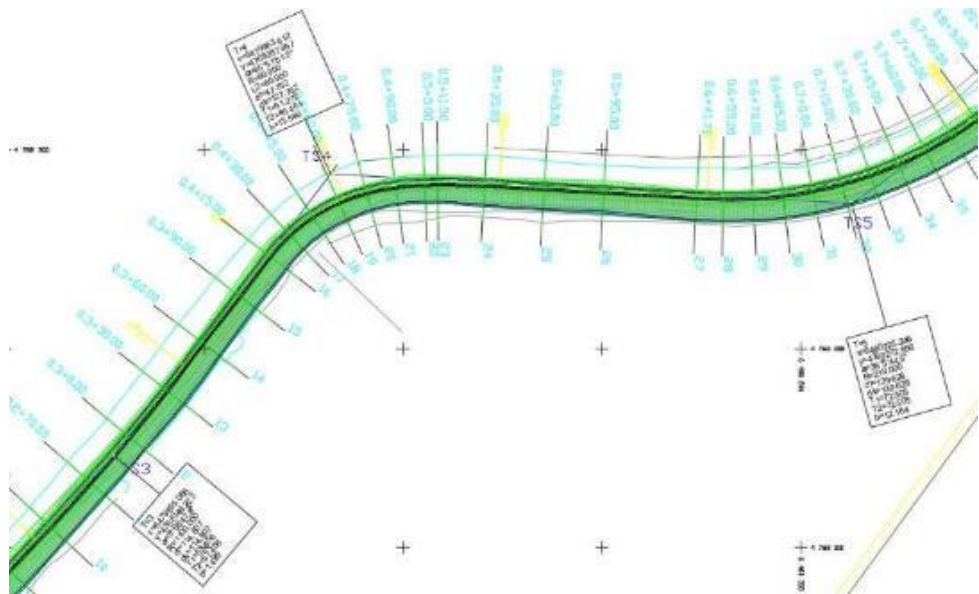
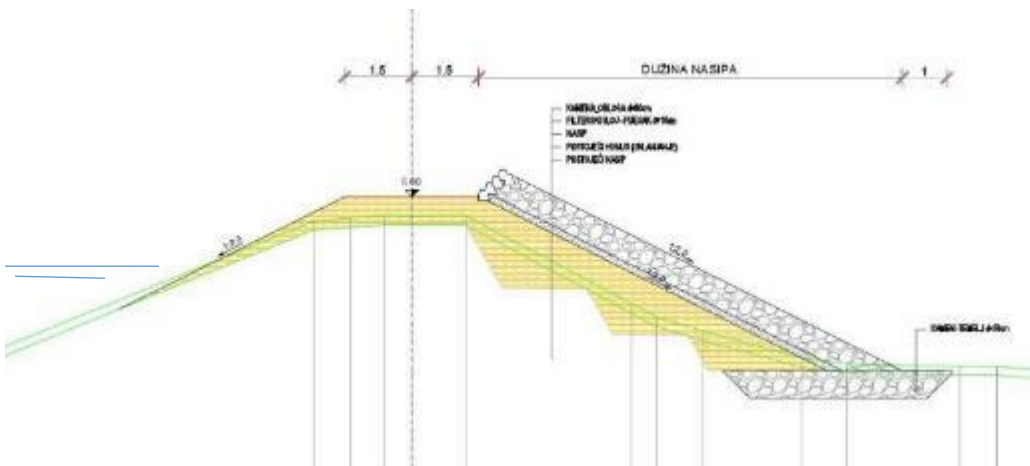

Barriers have multiple roles:

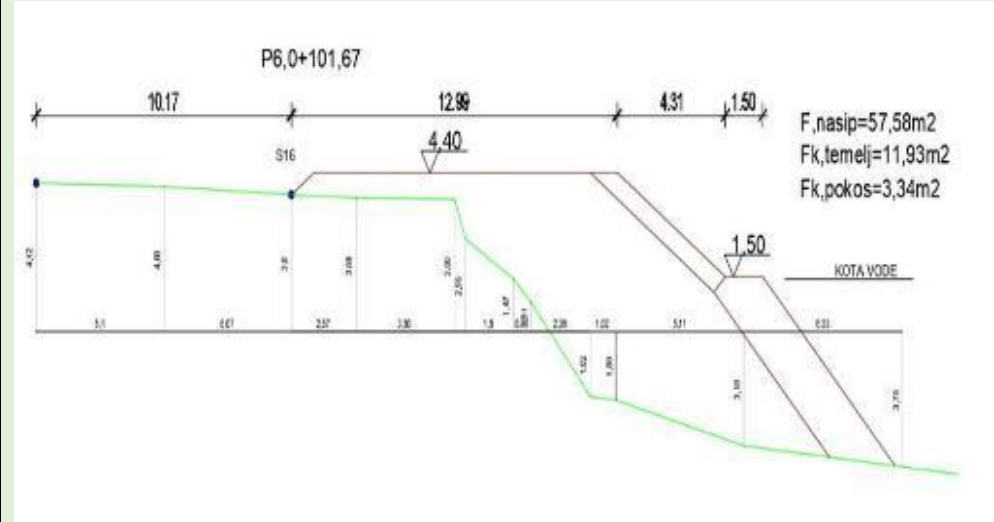
- ensure the transverse profiles of the torrent bed from the further effect of the deep erosion process,
- retain sediment (mainly dragged) in the river until the barriers are completely filled,
- represent an obstacle to the further lowering of the bottom of the bed, due to the persistence of a series of stable points, which form a new (artificial) erosion base in the flood bed,
- due to the reduction of the longitudinal fall of the bed of the torrential flow, as is known, the speed of water movement decreases, and the pushing force of water also decreases, and thus its transport ability to transport sediment.

According to the specific conditions on the ground, the main projects will deal with the type of thresholds and partitions. The selection of profile, in the bed of torrential flow, for the construction of partitions and thresholds is made in such a way as to satisfy the following conditions:

- favorable geomorphological conditions (stable bottom and banks, rocky substrate is best),
- a narrow and deep river valley that widens upstream from the construction profile,
- the position of the profile downstream in relation to the main sources of sediment (in order to stop as large amounts of sediment as possible),
- the selection of the profile downstream from the mouth of the tributary of the torrential stream (in this case, the barrier acts on both streams),
- to create partitions with as little height as possible, to protect against undermining as long as possible of the bed of torrential flow
- accessibility of the location for the execution of works and the application of construction machinery.

Information on dikes and embankment on Neretva, Bosna, and Sava Rivers

Measure No.	River basin	Google image/Design Layout/Photo from location	Name of the measure	Brief description of measure
1.	Neretva	 	<p>Rehabilitation of the right defensive embankment on the Krupa River in Višići settlement. L=4,000m</p>  	<p>Works consist of upgrading of existing protective dyke on the right bank of Krupa river. Existing dyke cannot withstand induced flood levels for 1/100 water.</p> <p>Upgrade of existing dyke will be conducted on dry side of the dyke, on the opposite side from river as shown in picture.</p> <p>The proposed works at the Krupa River site are outside the Hutovo Blato wetland, in the area currently impacted by farming.</p>
2	Neretva		Flood deposit distribution and rehabilitation of damaged banks of the Neretva River at the Struge-Capljina section.	Removing of excessive flood deposit from the riverbed and protecting river banks - left river bank with natural stone lining, to prevent further erosion.

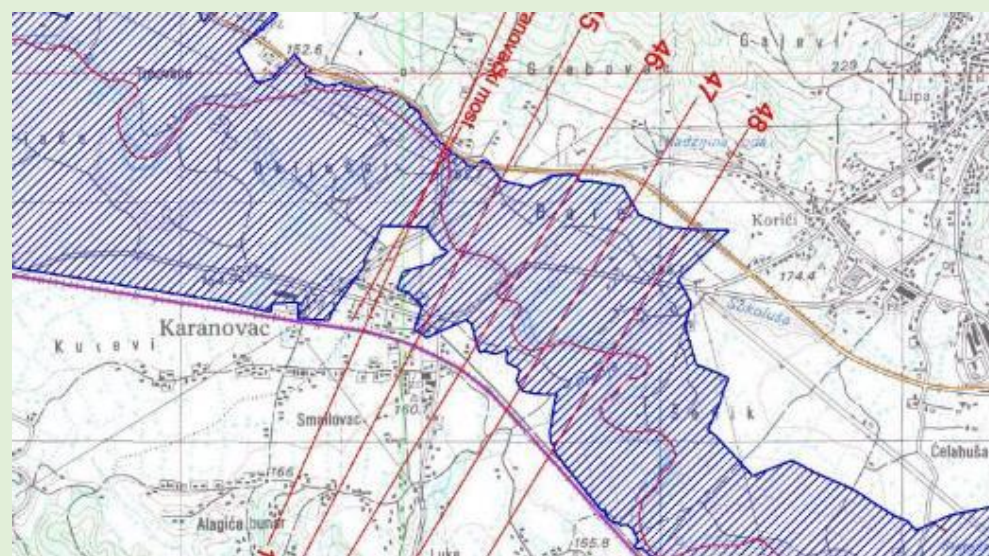


No additional excavation is necessary from the river bed. On critical parts, excavated flood deposit from riverbed will be used for backfilling of eroded bank. No additional excavation of eroded banks is required.

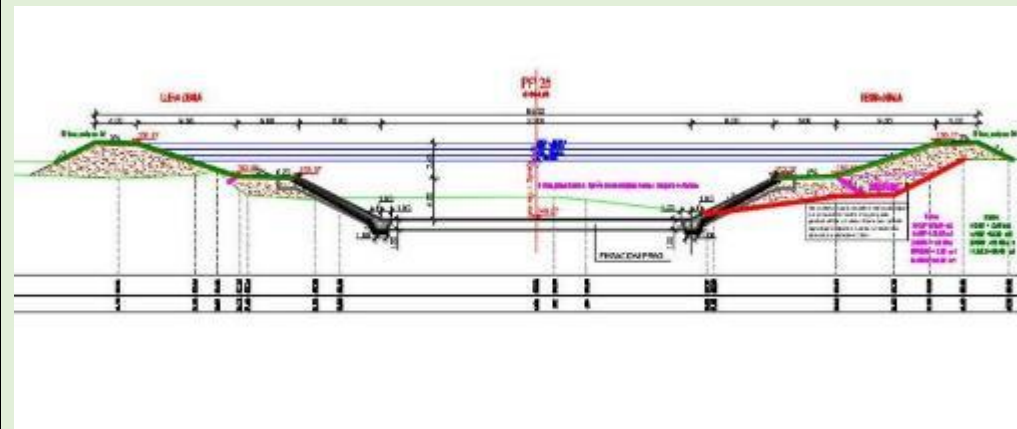
Number of households protected: 245
Population: 806

No hydraulic calculation

3. Bosna



Completion of flood protection line in urban areas (Bosna River Basin) - Gračanica
River Spreča - cross entity river.



Right river bank is in FB&H and left in RS. Total length of rehabilitation: 2500.00m. Removing flood deposit, protecting the banks with natural stone and erecting small dykes in order to keep 1/100 water within riverbed.

All material is provided from local quarries.

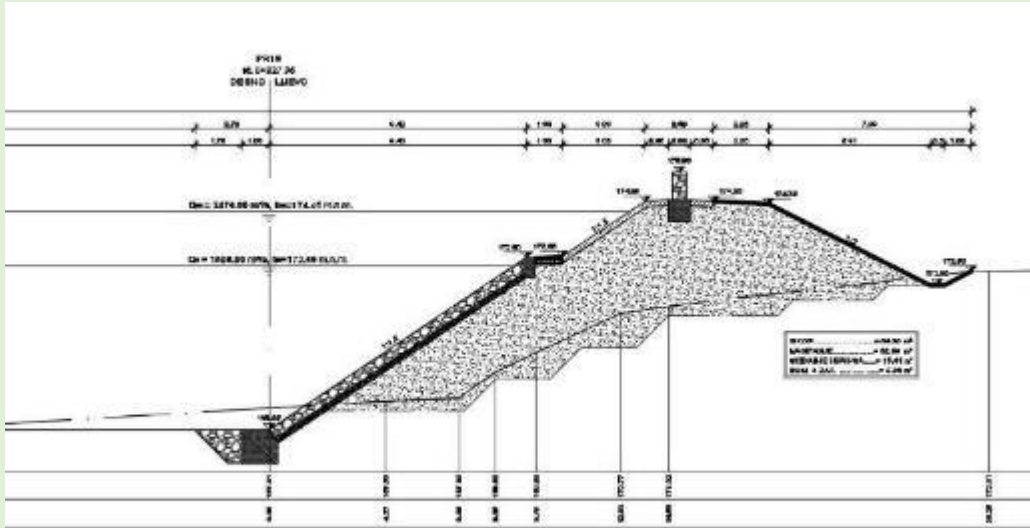
Q1/100 prior to implementation $V=3.04\text{ m/s}$
Q1/100 after measure is implemented $V=2.49\text{ m/s}$

4.

Bosna



Completion of flood protection line in urban areas (Bosna River Basin)—Maglaj



Measure consists of profiling of right river bank of Bosna river, removing flood deposit, protecting the banks with natural stone in cement mortar and erecting small dykes in order to keep 1/100 water within riverbed. Stone embankment is elevated to hight of 1/20 year water level, while rest of the embankment is constructed from soil and clay. In order to maintain "life with river" policy, Water Agency requested construction of staircases from top to bottom of embankment on every 100m of river banks. Also, pedestrian walking trail is designed on top of dyke.

Stone material is provided from local quarries.

Total length is 1,3km.

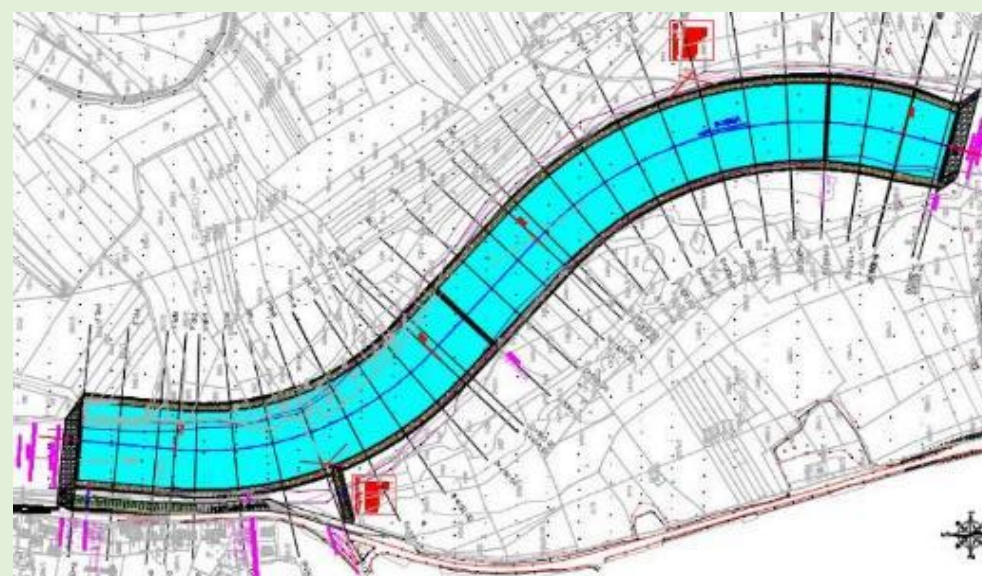
Total household: 581

Total population: 1,749

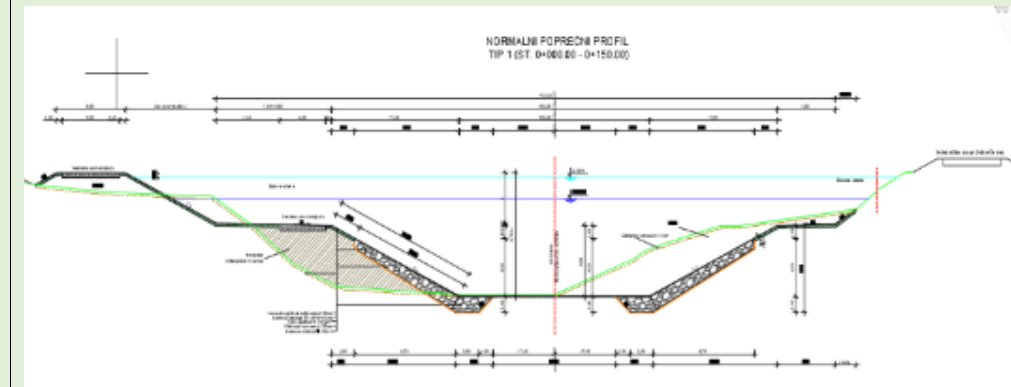
Q1/100 after measure is implemented
: $V=2.98\text{ m/s}$

Q1/100 for current state without measure for $v=3.48\text{ m/s}$

5. Bosna



Construction of a bank revetment on the left bank starting from the New-Japanese Bridge in Doboj towards downstream at a length of approximately 1,0km.



Removing flood deposit, protecting the banks with natural stone and erecting dykes in order to keep 1/100 water within riverbed. All material is provided from local quarries.

Total households: 388

Total population: 1103

Q1/100 after measure is implemented:

max velocity= 4.11 m/s

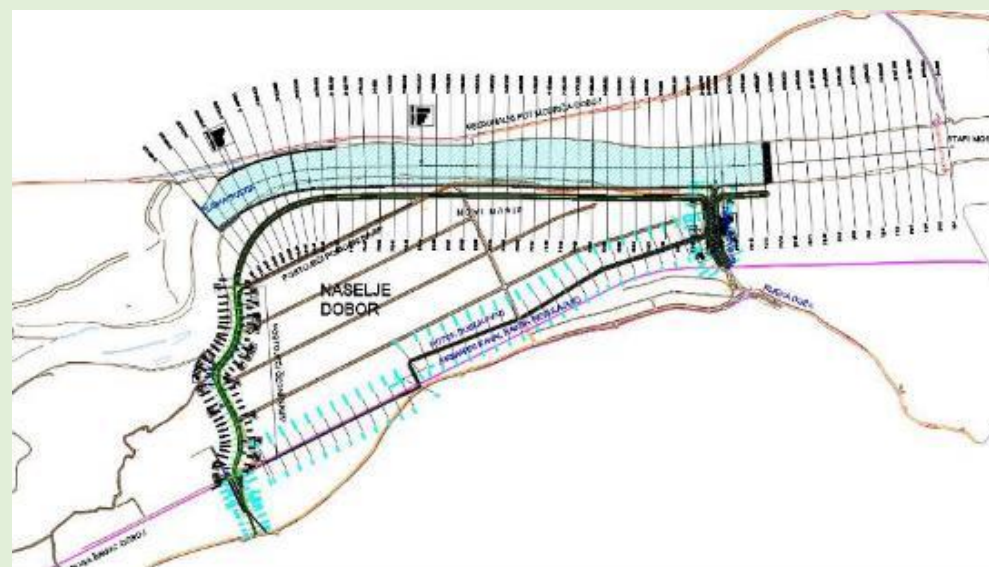
Max tangential force= 54,76 N/m²

Q1/100 prior to implementation:

max velocity= 4,67 m/s

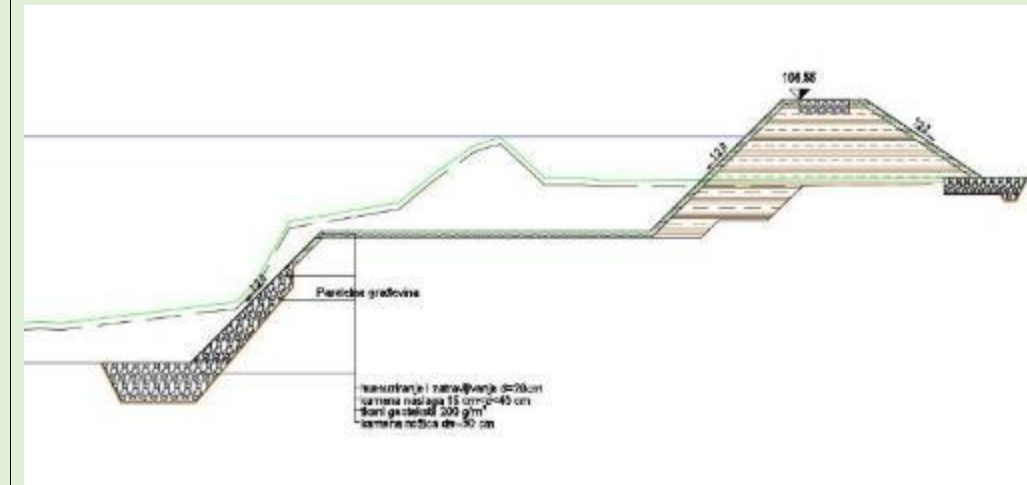
Max tangential force 167,11 N/m²

6. Bosna



Construction of protective structures in Dobor settlement:

- Regulation of the main riverbed of the Bosna River at a length of 2,000 m
- Construction of a protective embankment along the Bosna River at a length of 2,000 m
- Construction of an embankment along the Dusa River with a length of 250m and the structure on the mouth of the Dubokovac canal.



Removing flood deposit, protecting the banks with natural stone and erecting dykes in order to keep 1/100 water within riverbed. All material is provided from local quarries.

Total households: 392

Total population: 1109

Current state Q/100 for Bosna river in Dobor settlement:

Velocities:

- The maximum speed in the basic (minor) riverbed is 3.50–4.00m/s

Max tangential force = 82.56, N/m²,


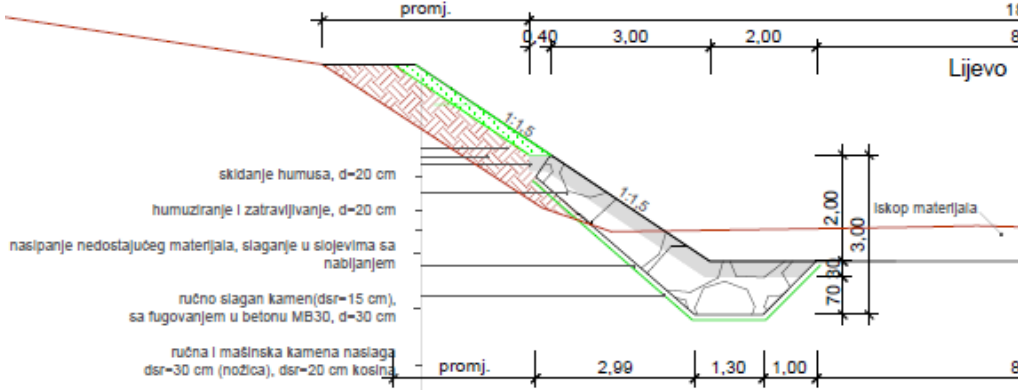


Calculated state after stone embankment for Bosna river Q/100:

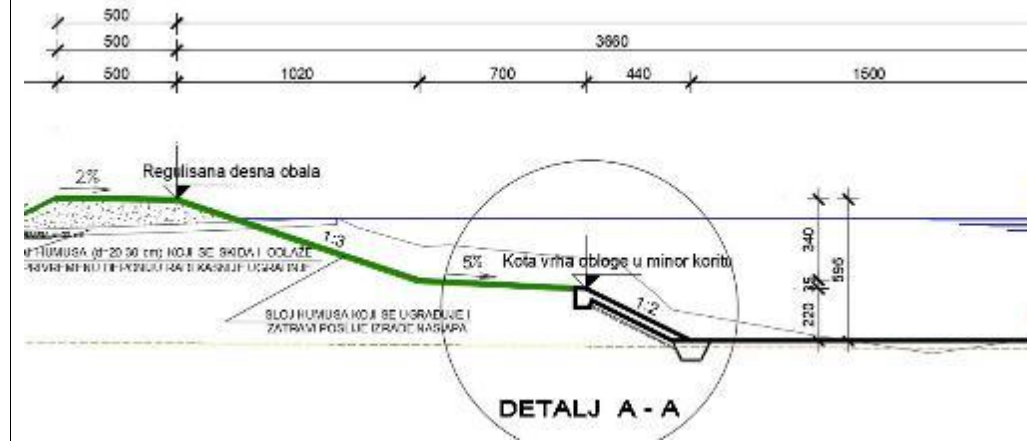
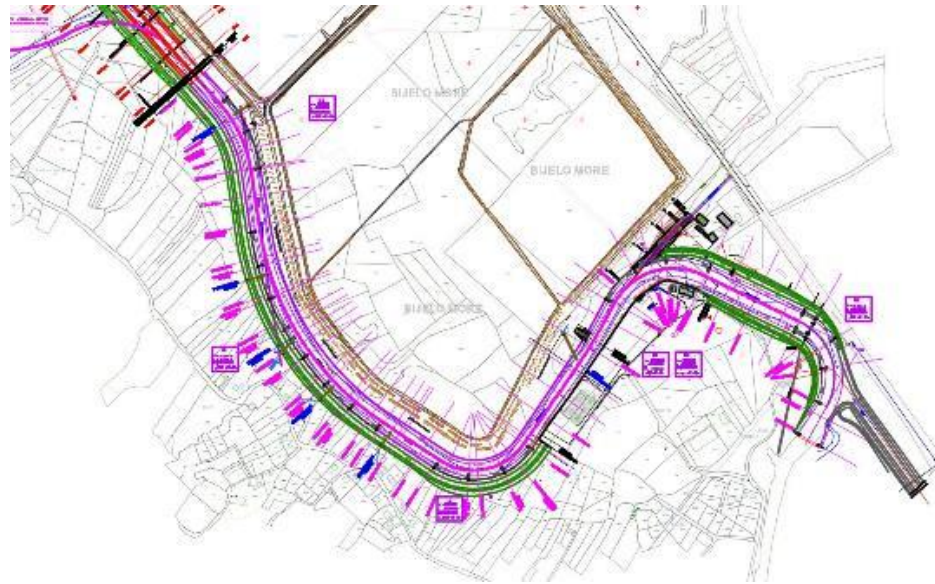
Velocities:

- The maximum speed in the basic riverbed is 2.60–2.80m/s

Max tangential force= 79.42 N/m²

Main reason for slower velocity is roughness of the stone and widening of river channel, which reduces tangential forces in the riverbed and embankment.

7.	Uha Sana	  	<p>Regulation of the canal of the Gomjenica River in the area of the City of Prijedor from the confluence with the Sana River and upstream at a length of approximately 4 km.</p> <p>Slashing and trimming of existing vegetation within inundation area, removing flood deposit, protecting the banks with natural stone and erecting dykes in order to keep 1/100 water within riverbed.</p> <p>Total length of proposed works is from mouth of river Gomjenica upstream for 3,0 km.</p> <p>Stone for critical parts of embankment will be provided from local quarry.</p> <p>Total households protected: 1142 Total population protected: 3289</p> <p>No data from hydraulic calculation.</p>
8.	Bosna		<p>Completion of flood protection line in urban areas (Spreča river) – Lukavac L=1200m</p> <p>Removing flood deposit, protecting the banks with natural stone and erecting dykes in order to keep 1/100 water within riverbed. All material is provided from local quarries.</p> <p>Removing Slashing vegetation from banks and within riverbed,</p> <p>The top of the dyke is above 1/100 high with additional overhang of 0.80m.</p> <p>Total households protected: 150 Total population protected: 500</p> <p>Current state Q/100 for Bosna river in Lukavac settlement</p>



Velocities:
 - The maximum speed in the basic (minor) riverbed
 $v_{1/100} = 3,02 \text{ m/s}$

Calculated state after stone embankment for Bosna river Q_{100} :
 Velocities:
 - The maximum speed in the basic riverbed is $v_{1/100} = 2,96 \text{ m/s}$

Main reason for slower velocity is roughness of the stone and widening of river channel, which reduces tangential forces in the riverbed and embankment.

APPENDIX 6

DETAILED SCREENING OF NON-STRUCTURAL MEASURES UNDER SUB-ACTIVITY 2.2.2

Sub projects	Locations
1. Rehabilitation of the right defensive embankment on the Krupa River in Višići settlement	Neretva river basin (Višići Settlement)
2. Flood deposit distribution and rehabilitation of damaged banks of the Neretva River at the Struge-Čapljina section.	Neretva river basin (Čapljina municipality)
3. Completion of flood protection line in urban areas (Bosna River Basin) – Gračanica (River Spreča - cross entity river)	Bosna River Basin (Gračanica municipality)
4. Completion of flood protection line in urban areas (Bosna River Basin) – Maglaj	Bosna River Basin (City of Maglaj)
5. Construction of a bank revetment on the left bank starting from the New-Japanese Bridge in Doboj towards downstream at a length of approximately 1,0 km.	Bosna River Basin (City of Doboj)
6. Construction of protective structures in Dobor settlement: <ul style="list-style-type: none"> • Regulation of the main riverbed of the Bosna River at a length of 2,000 m • Construction of a protective embankment along the Bosna River at a length of 2,000 m • Construction of an embankment along the Dusa River with a length of 250 m and the structure on the mouth of the Dubokovac canal. 	Bosna River Basin (City of Modriča)
7. Regulation of the canal of the Gomjenica River in the area of the City of Prijedor from the confluence with the Sana River and upstream at a length of approximately 4 km.	Sana river basin (City of Prijedor)
8. Completion of flood protection line in urban areas (Spreča river) – Lukavac	Bosna River Basin (Lukavac municipality)

Annex 1 questions – project-level standards	1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---	---

Standard 1: Biodiversity Conservation and Sustainable Natural Resource Management								
<i>Would the project potentially involve or lead to:</i>								
1.1	adverse impacts to habitats (e.g. modified, natural, and critical habitats) and/or ecosystems and ecosystem services?	M	M	M	M	M	M	M
1.2	, including (but not limited to) legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	M	No	No	No	No	No	No
1.3	changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods? (Note: if restrictions and/or limitations of access to lands would apply, refer to Standard 5)	No	No	No	No	No	No	No
1.4	risks to endangered species (e.g. reduction, encroachment on habitat)?	No	No	No	No	No	No	No
1.5	exacerbation of illegal wildlife trade?	No	No	No	No	No	No	No
1.6	introduction of invasive alien species?	No	No	No	No	No	No	No
1.7	adverse impacts on soils?	M	M	M	M	M	M	M
1.8	harvesting of natural forests, plantation development, or reforestation?	M	M	M	M	M	M	M
1.9	significant agricultural production?	No	No	No	No	No	No	No
1.10	animal husbandry or harvesting of fish populations or other aquatic species?	No	No	No	No	No	No	No
1.11	significant extraction, diversion or containment of surface or ground water? <i>For example, construction of dams, reservoirs, river basin developments, groundwater extraction</i>	M	M	M	M	M	M	M
1.12	handling or utilization of genetically modified organisms/living modified organisms?	No	No	No	No	No	No	No
1.13	utilization of genetic resources? (e.g., collection and/or harvesting, commercial development)	No	No	No	No	No	No	No

1.14	adverse transboundary or global environmental concerns?	No	No	No	No	No	No	No	No
Standard 2: Climate Change and Disaster Risks									
<i>Would the project potentially involve or lead to:</i>									
2.1	areas subject to hazards such as earthquakes, floods, landslides, severe winds, storm surges, tsunamis, or volcanic eruptions?	M	M	M	M	M	M	M	M
2.2	outputs and outcomes sensitive or vulnerable to potential impacts of climate change or disasters? <i>For example, through increased precipitation, drought, temperature, salinity, extreme events, earthquakes</i>	M	M	M	M	M	M	M	M
2.3	increases in vulnerability to climate change impacts or disaster risks now or in the future (also known as maladaptive or negative coping practices)?	M	M	M	M	M	M	M	M
2.4	increases of greenhouse gas emissions, black carbon emissions or other drivers of climate change?	No	No	No	No	No	No	No	No
Standard 3: Community Health, Safety and Security									
<i>Would the project potentially involve or lead to:</i>									
3.1	construction and/or infrastructure development (e.g., roads, buildings, dams)? (Note: the GEF does not finance projects that would involve the construction or rehabilitation of large or complex dams)	M	M	M	M	M	M	M	M
3.2	air pollution, noise, vibration, traffic, injuries, physical hazards, poor surface water quality due to runoff, erosion, sanitation?	M	M	M	M	M	M	M	M
3.3	harm or losses due to failure of structural elements of the project (e.g. collapse of buildings or infrastructure)?	No	No	No	No	No	No	No	No
3.4	risks of water-borne or other vector-borne diseases (e.g. temporary breeding habitats), communicable and noncommunicable diseases, nutritional disorders, mental health?	M	M	M	M	M	M	M	M

3.5	transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g. explosives, fuel and other chemicals during construction and operation)?	No	No	No	No	No	No	No	No
3.6	adverse impacts on ecosystems and ecosystem services relevant to communities' health (e.g. food, surface water purification, natural buffers from flooding)?	No	No	No	No	No	No	No	No
3.7	influx of project workers to project areas?	M	M	M	M	M	M	M	M
3.8	engagement of security personnel to protect facilities and property or to support project activities?	No	No	No	No	No	No	No	No
Standard 4: Cultural Heritage									
<i>Would the project potentially involve or lead to:</i>									
4.1	activities adjacent to or within a Cultural Heritage site?	No	No	No	No	No	No	No	No
4.2	significant excavations, demolitions, movement of earth, flooding or other environmental changes?	M	M	M	M	M	M	M	M
4.3	adverse impacts to sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)? (Note: projects intended to protect and conserve Cultural Heritage may also have inadvertent adverse impacts)	No	No	No	No	No	No	No	No
4.4	alterations to landscapes and natural features with cultural significance?	No	No	No	No	No	No	No	No
4.5	utilization of tangible and/or intangible forms (e.g. practices, traditional knowledge) of Cultural Heritage for commercial or other purposes?	No	No	No	No	No	No	No	No
Standard 5: Displacement and Resettlement									
<i>Would the project potentially involve or lead to:</i>									
5.1	temporary or permanent and full or partial physical displacement (including people without legally recognizable claims to land)?	No	No	No	No	No	No	No	No

5.2	economic displacement (e.g. loss of assets or access to resources due to land acquisition or access restrictions – even in the absence of physical relocation)?	No	No	No	No	No	No	No	No
5.3	risk of forced evictions? ³⁸	No	No	No	No	No	No	No	No
5.4	impacts on or changes to land tenure arrangements and/or community-based property rights/customary rights to land, territories and/or resources?	M	M	M	M	M	M	M	M
Standard 6: Indigenous Peoples									
<i>Would the project potentially involve or lead to:</i>									
6.1	areas where indigenous peoples are present (including project area of influence)?	No	No	No	No	No	No	No	No
6.2	activities located on lands and territories claimed by indigenous peoples?	No	No	No	No	No	No	No	No
6.3	impacts (positive or negative) to the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples (regardless of whether indigenous peoples possess the legal titles to such areas, whether the project is located within or outside of the lands and territories inhabited by the affected peoples, or whether the indigenous peoples are recognized as indigenous peoples by the country in question)? <i>If the answer to screening question 6.3 is “yes”, then the potential risk impacts are considered significant and the project would be categorized as either Substantial Risk or High Risk</i>	No	No	No	No	No	No	No	No
6.4	the absence of culturally appropriate consultations carried out with the objective of achieving FPIC on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	No	No	No	No	No	No	No	No
6.5	the utilization and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?	No	No	No	No	No	No	No	No

³⁸ Forced eviction is defined here as the permanent or temporary removal against their will of individuals, families or communities from the homes and/or land which they occupy, without the provision of, and access to, appropriate forms of legal or other protection. Forced evictions constitute gross violations of a range of internationally recognized human rights.

6.6	forced eviction or the whole or partial physical or economic displacement of indigenous peoples, including through access restrictions to lands, territories, and resources? <i>Consider, and where appropriate ensure, consistency with the answers under Standard 5 above</i>	No	No	No	No	No	No	No	No
6.7	adverse impacts on the development priorities of indigenous peoples as defined by them?	No	No	No	No	No	No	No	No
6.8	risks to the physical and cultural survival of indigenous peoples?	No	No	No	No	No	No	No	No
6.9	impacts on the Cultural Heritage of indigenous peoples, including through the commercialization or use of their traditional knowledge and practices? <i>Consider, and where appropriate ensure, consistency with the answers under Standard 4 above.</i>	No	No	No	No	No	No	No	No
Standard 7: Labour and Working Conditions									
<i>Would the project potentially involve or lead to: (note: applies to project and contractor workers)</i>									
7.1	working conditions that do not meet national labour laws and international commitments?	No	No	No	No	No	No	No	No
7.2	working conditions that may deny freedom of association and collective bargaining?	No	No	No	No	No	No	No	No
7.3	use of child labour?	No	No	No	No	No	No	No	No
7.4	use of forced labour?	No	No	No	No	No	No	No	No
7.5	discriminatory working conditions and/or lack of equal opportunity?	No	No	No	No	No	No	No	No
7.6	occupational health and safety risks due to physical, chemical, biological and psychosocial hazards (including violence and harassment) throughout the project life-cycle?	M	M	M	M	M	M	M	M
Standard 8: Pollution Prevention and Resource Efficiency									
<i>Would the project potentially involve or lead to:</i>									

8.1	the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts ?	M	M	M	M	M	M	M	M
8.2	the generation of waste (both hazardous and non-hazardous)?	L	L	L	L	L	L	L	L
8.3	the manufacture, trade, release, and/or use of hazardous materials and/or chemicals?	No	No	No	No	No	No	No	No
8.4	the use of chemicals or materials subject to international bans or phase-outs?	No	No	No	No	No	No	No	No
8.5	the application of pesticides that may have a negative effect on the environment or human health?	No	No	No	No	No	No	No	No
8.6	significant consumption of raw materials, energy, and/or water?	No	No	No	No	No	No	No	No

APPENDIX 7

OUTLINE OF SITE-SPECIFIC ASSESSMENTS AND PLANS

Introduction

Environmental protection in BiH is regulated through entity-level legislative arrangements. In accordance with entity-level Environmental Protection Laws ³⁹ and subsequent regulations, the project construction works will require site-specific assessments in the form of preliminary EIAs that will be conducted concurrently with the detailed design of the proposed measures and used to optimize the project's designs.

The preliminary EIA will contain:

- Description of the project with information on the location, purpose and size of the works
- Data needed to identify and assess basic environmental impacts (Appendix III – see below)
- Description of the measures envisaged to prevent, reduce or, if possible, remediate significant adverse consequences
- Description of alternative solutions and the chosen alternative
- Non-technical summary

The preliminary EIAs will consider the scale and significance or potential adverse impacts and will prescribe proper management and monitoring measures. These measures will be integrated in the applicable site-specific construction permit and water permits.

Applicable requirements in both entities

Main legislation related to construction projects in Republic Srpska⁴⁰

Regulatory and institutional framework

The EIA process is managed by the FBiH Ministry of Tourism and Environment and the cantonal ministries in charge of the environment. The competent authorities for water permits are Sava River Basin Agency; and the Adriatic Sea Basin Agency that operate under the FBiH Ministry of Agriculture, Water and Forestry. Cantonal or municipal organs also take part in the issuance of water permits.

The entire process is governed by:

- Law on Environmental Protection (LEP)
- Law on Protection of Nature (OG FBiH 66/13)
- Rulebook on facilities that may be operated only if an environmental permit has been issued (OG FBiH 19/04)
- Ordinance on Nature 2000 program – protected areas in Europe (OG FBiH 41/11)
- Law on Waters of FBiH (OG FBiH 70/06) (available at http://www.voda.ba/zakoni/4_7hrv.pdf)
- Rulebook on content, shape, and conditions for issuance and preservation of water acts. (OG FBiH 31/15, 55/19, 41/20)

³⁹ See <https://www.paragraf.ba/propisi/fbih/zakon-o-zastiti-okolisa.html> and https://advokat-prnjavorac.com/zakoni/zakon_o_zastiti_zivotne_sredine_rs.pdf

⁴⁰ According to Art. 68, p.13 of the Constitution of the Republic of Srpska - The Republic shall regulate and ensure environmental protection. See also Art.35, 52, 59, 64, 102 of the Constitution.

The EIA procedure in FBiH is the precondition for the environmental permit and without the permit no facilities may not be built. The EIA review itself is a part of the environmental permit procedure and all environmental procedures except for the issuance of the water permits are integrated with the EIA procedure.

Key assessment obligations related to the GCF project

Application for issuance of the environmental permit must contain a preliminary assessment of the environmental impact. Based on the review of this documentation, the FBiH MoTE will decide whether an EIA is needed (screening) and in what scope (scoping). Aside from the review of the documentation, the MoTE will determine whether or not the facility in question is on the list of facilities that may not operate unless an environmental permit has been issued. If the facility is on this list (see footnote iv), this makes the EIA review necessary.

The preliminary assessment for the issuance of the environmental permit must contain the impact assessment concerning nature and biodiversity. A specific ordinance/rulebook for the assessment of biodiversity is envisaged by the Law on Protection of Nature in Art. 26 (6);. In Art. 26 (2) it is explicitly regulated that the assessment of impacts on biodiversity is part of the EIA procedure.

Transparency and stakeholder consultation

The preliminary EIAs will be made publicly accessible for 30 days for public comments on the UNDP and the Ministry of Environment webpages, and also available for display and public inspection at the Ministry of Environment, at the investor's office, and at the nearest municipality. In addition, the Ministry of Environment will, together with the investor draw up a list of interested parties and deliver the preliminary EIA documentation to them by mail. In addition, a public hearing will be organized at the location closest to the project after its advertisement in the daily press for at least 15 days before the public hearing date.

Main legislation related to construction projects in Republic Srpska⁴¹

Regulatory and institutional framework

The EIA process is managed by the Ministry for Spatial Planning, Civil Engineering and Ecology (MSPCEE). The biodiversity assessment is fully integrated into the EIA process and is supervised by the Institute for Cultural–Historical and Natural Heritage (herein: Institute). The competent authority for water permits is “Waters of Srpska”.

The entire process is governed by:

- Law on Environmental Protection (LEP)
- Law on Protection of Nature (2014, herein LPN)
- Rulebook on projects for which EIA is required and Criteria for deciding on the need to conduct an EIA and scope thereof (OG RS 28/13)
- Instruction on the Content of EIA Report (OG RS 108/13)
- Law on Waters of RS (OG RS 50/06, 92/09, 121/12, herein: LoW)

Key assessment obligations related to the GCF project

⁴¹ According to Art. 68, p.13 of the Constitution of the Republic of Srpska - The Republic shall regulate and ensure environmental protection. See also Art.35, 52, 59, 64, 102 of the Constitution.

The preliminary impact assessment needs to be conducted by a consultant certified for the elaboration of EIAs. The preliminary EIA is used to decide on the obligation to conduct a full-fledged EIA. If the MSPCEE on the basis of this information concludes that further assessment is needed, it defines the scope of a full-fledged EIA. If it concludes that no further assessment is needed, the MSPCEE uses the preliminary EIA to define the conditions for a formal environmental permit for the proposed activity.

The preliminary assessment must contain a description of flora and fauna, natural areas of special value (protected) rare and endangered plant and animal species and their habitats and vegetation and the assessment of impacts on biodiversity can be concluded only after an Expert Opinion from the Institute for Cultural – Historical and Natural Heritage.

The preliminary EIA may not be completed without opinion of a separate body (Waters of Srpska) that addresses any modification of the physical characteristics of a surface water body or changes in the level of groundwater bodies.

Transparency and stakeholder consultation

Under the Law, there is an obligation to publish all preliminary EIA reports and related decisions. Upon submitting the study to the Ministry, the preliminary EIA (and any related ecological permits) are stored electronically and made available for public comment. The archive of ecological permits and EIA reports are published by the MSPCEE. MSPCEE also submits the preliminary impact assessment to interested parties and holds a public hearing.

Content of the site-specific assessments

The site-specific assessments will be conducted through preliminary EIAs which are formally prescribed by the entity-level regulations. It will contain the following information:

A. Project characteristics

A1. Basic information

A1.1. Project name

A1.2. Description of the project including information on its purpose and size

A1.3. The number of the extract from the spatial-planning act and the competent issuing authority (An extract from the spatial planning document should be attached to the request)

A1.4. Type of request

- New project
- Significant modification of the existing and/or approved project
- Termination of activity

A1.5. If it is a significant change to the existing and/or approved project, describe the planned changes

A1.6. Does the project have a cumulative impact with already existing and/or approved projects?

If YES, describe in what way.

A1.7. Ownership of the land and/or building on which the existing and/or planned project is located

A1.8. Is the land and/or building on which the existing and/or planned project is located subject to a lease agreement?

If so, please state the number of the contract, and information about the contracting parties.

A1.9. Name and surname of the responsible person

A1.10. Contact details of the responsible person (address, phone number, e-mail)

A2. The impact of the project on the environment

A2.1. Describe in detail the environment in the area affected by the project

A2.2. The type and quantity of basic and auxiliary raw materials, additional materials and other substances that will be used in each of the phases of the project

- Preparatory phase of the project
- Project construction phase
- The phase of work or exploitation of the project
- The shutdown phase

A2.3. Use of natural resources (especially soil, land, water and biological diversity) during the preparation, construction, operation or termination of the project Specify which natural resource is involved and the amount and method of its use

A2.4. Type and amount of emissions caused by the preparation, construction, operation or termination of the project

- Waste production (hazardous/non-hazardous)
- Air emissions (all emissions)
- Emissions to water (underground/surface)
- Emissions into sewers
- Emissions to soil
- Noise
- Vibrations
- Non-ionizing radiation

A2.5. Describe and give a brief overview of alternative solutions with regard to environmental impacts

- Waste production (hazardous/non-hazardous)
- Air emissions (all emissions)
- Emissions to water (underground/surface)
- Emissions into sewers
- Emissions to soil
- Noise
- Vibrations
- Non-ionizing radiation

A2.6. Does the project bear the risk of major accidents and/or disasters relevant to the project, including those caused by climate change, in accordance with scientific knowledge?

If YES, state the risks.

A2.7. Does the project pose risks to human health (for example due to water or air pollution)?

If YES, state the risks.

A2.8. Will the project cause light pollution?

If YES, state the risks.

B. Project location and environmental sensitivity of geographic areas likely to be significantly affected by projects

B1.1. List the existing and approved land use

B1.2. Describe the relative availability, quality and regenerative capacity of the natural resources (including soil, land, water and biodiversity) of the area and its subsurface

B1.3. Describe the absorption capacity of the natural environment, paying special attention to the following areas:

- a) wetlands, coastal areas of rivers and river estuaries
- b) coastal areas and marine environment
- c) mountain, forest and karst areas
- d) protected natural values declared in accordance with the Law on Nature Protection of the Federation of Bosnia and Herzegovina (national parks, strict nature reserves, natural monuments, protected landscapes, nature parks, etc.)
- e) individual natural values
- f) areas of rare and endangered plant and animal species
- g) areas where environmental quality standards that are relevant to the project have not been met since before or in relation to which it is considered that they have not been met
- h) densely populated areas

- i) landscapes and areas of historical, cultural or archaeological importance.

C. Characteristics of potential impact on the environment

- C1.1. State the size and spatial coverage of the geographic area that the project could affect (enter the exact coordinates of the specified geographical area)
- C1.2. Indicate the number of inhabitants who could be affected by the project
- C1.3. Describe the project's impact on the environment
- C1.4. Does the project directly or indirectly affect the environment?
- C1.5. Mark which factors the project has an impact on:
- a) people, flora and fauna and fungi
 - b) soil, water, air, climate and landscape
 - c) material goods and cultural heritage
 - d) interaction of factors from a) to c)
- C1.6. Does the project have a cross-border and/or cross-entity type of impact?
- If YES, indicate which countries/entities/BD BiH.
- C1.5. Describe the intensity and complexity of the project's impact on the environment
- C1.6. Describe the likelihood of environmental impact
- C1.7. Describe the expected occurrence, duration, frequency and reversibility of the impact (in time intervals)
- C1.8. Is it possible to effectively reduce the impact?
- If YES, state the planned activities of effective reduction of the impact.

D. Additional Information

Mark the answers to the following questions:

- D1.1. The project will significantly use a natural resource or will use a natural resource in a way that prevents the use or potential use of that resource for other purposes
- D1.2. Potential lasting environmental impacts are most likely to be minor, minor and simply mitigated
- D1.3. The type of project, its impact on the environment and measures to manage those impacts are well known
- D1.4. There is a reliable way to ensure that impact management measures can be, and will be, adequately planned and implemented
- D1.5. The project will displace a significant number of people, families and living communities
- D1.6. The project is located and will affect environmentally sensitive areas
- D1.7. The project will lead to changes:
- in ownership and land use, and/or
 - use of water through irrigation, improvement of drainage or changes in water flow by building dams, and up to changes in fishing practices
- D1.8. The project will lead to:
- unfavorable socio-economic influences;
 - destruction of land;
 - water pollution;
 - air pollution;
 - endangering plant and animal life and their habitats;
 - the creation of by-products, material remains and waste that require handling and disposal in a manner that is not regulated by law.
- D1.9. The project will have an impact on the public due to potential negative environmental impacts
- D1.10. After construction, the project will require additional development activities that may have a negative impact on the environment

E. Climate change issues

The issues and impacts relevant to the preliminary environmental impact assessment will depend on the particular circumstances and context of each individual project. This chapter will be based on four main requirements:

- early identification of key issues, using the help of competent authorities and interested subjects;
- determining whether the project will significantly change GHG emissions and defining the scope for the purposes of a preliminary GHG assessment (climate change mitigation issue);
- awareness of the used climate change scenarios used in the preliminary environmental impact assessment procedure and identification of key climate change adaptation issues and how they interact with other issues assessed in the preliminary environmental impact assessment procedure;
- identifying key biodiversity issues and how they interact with other issues assessed in the preliminary environmental impact assessment.

Direct GHG emissions

- Will the proposed project emit carbon dioxide (CO₂), nitrous oxide (N₂O) or methane (CH₄) or any other greenhouse gas that is part of the UNFCCC?
- Does the proposed project contain land use, land use change and forestry activities (eg deforestation) that may lead to increased emissions?
- Indirect GHG emissions due to increased energy demand
- Will the proposed project significantly affect energy demand?
- Is it possible to use renewable energy sources?
- Indirect GHGs caused by accompanying activities or infrastructures that are directly related to the implementation of the proposed project
- Will the proposed project significantly increase or decrease personal travel?
- Will the proposed project significantly increase or decrease freight traffic?

Heat waves

- Will the proposed project restrict air circulation or reduce open spaces?
- Will it emit volatile organic compounds (VOCs) and nitrogen oxides (NO_x) and contribute to the formation of ozone in the troposphere during sunny and warm days?
- Will it be affected by heat waves?
- Will energy and cooling water requirements increase?
- Will it absorb or generate heat?
- Can the materials used during construction withstand high temperatures (or will there be, for example, material fatigue or surface degradation)?

Droughts due to long-term changes in rainfall (also consider possible synergistic effects with flood management activities that increase the volume of water retained in the catchment)

- Will it negatively affect watercourses?
- Is the proposed project sensitive to low river flows or higher water temperatures?
- Will it worsen water pollution – especially during periods of drought with reduced dilution rates, increased temperatures and turbidity?
- Will the proposed project increase the demand for water?
- Will it change the vulnerability of landscapes or forests to wildfires?
- Can the materials used during construction withstand high temperatures? Extreme rains, river floods and torrents
- Will the proposed project be at risk because it is located in a river flood zone?
- Will it change the capacity of existing floodplains for natural flood management?
- Will the water holding capacity of the basin change?
- Are the levees stable enough to withstand floods?

Storms and winds

- Will the proposed project be at risk from storms and high winds?
- Can the project and its activities be affected by falling objects (eg trees) that are in the immediate vicinity of its location?

- Is the project's connection to energy, water, transportation and communication networks secured during major storms?

Landslides

- Is the project located in an area that could be affected by heavy rainfall or landslides? Sea level rise?
- Is the proposed project located in areas that may be affected by sea level rise?
- Can sea surges caused by storms affect the project?
- Is the proposed project located in an area at risk of coastal erosion? Will it reduce or increase the risk of coastal erosion?
- Is it located in areas that may be affected by salt water intrusion?
- Can seawater intrusions lead to leakage of polluting substances (eg from waste)?

Cold and snow

- Could the proposed project be affected by short periods of unusually cold weather, blizzards or frost?
- Can the materials used during construction withstand low temperatures?
- Can ice affect the functioning/action of the project? Is the connection of the project with energy, water, transport and communication networks ensured during cold periods?
- Can heavy snow create loads that affect the stability of the building?
- Freeze and thaw damage
- Is the proposed project at risk of freeze-thaw damage (eg, key infrastructure projects)?
- Could the project be affected by melting permafrost?

Required attachments:

1. Draft project (preliminary design)
2. Extract from the spatial planning act
3. Proof of ownership of the land and/or building
4. Lease agreement for property and/or facility, if any
5. If it is a cumulation with an already existing and/or approved project, of the same investor in the same location, and attach the permits
6. Non-technical summary of information from points A., B. and C. of this attachment.
7. Information about possible difficulties encountered by the applicant during data collection,
8. Reference list listing the sources used for the descriptions and assessments included in the request for a preliminary environmental impact assessment.
9. Statement on the truthfulness, accuracy and completeness of the data contained in the request (Annex V.)

Consideration of the applicable UNDP SES and GCF ESS requirements

Besides the above requirements in the respective BiH systems, the preliminary EIAs will also consider the following UNDP social and environmental standards (that transpose the GCF ESS requirements) that are relevant for the proposed non-structural measures:

<p>UNDP Standard 1: Biodiversity Conservation and Sustainable Natural Resource Management</p>	<p>The site-specific biodiversity concerns will be addressed in the preliminary EIA sections B 1.2, 1.3 and C 1.3-1.8.</p> <p>These assessments will also duly consider and adhere to the applicable UNDP SES 1 obligations and ensure that the supported interventions:</p> <ul style="list-style-type: none"> ▪ do not harm the good status or the good ecological potential of surface water and groundwater bodies, ▪ does not adversely impact sensitive ecosystems endemic or restricted-range species or migratory species,
---	--

	<ul style="list-style-type: none"> ▪ habitats do not have any measurable adverse impacts on critical habitats and are not detrimental to the conservation status of protected areas or candidate protected sites (e.g. Hutovo Blato Ramsar wetland, Emerald network sites). ▪ fully follow the guidelines for nature-friendly stabilization of the riverbed and riparian areas that will be developed to guide these projects.
Standard 2: Climate Change and Disaster Risks	<p>The site-specific climate change adaptation concerns will be addressed in the preliminary EIA section E.</p> <p>These assessments will also adhere to the applicable UNDP SES 2 obligations and consider the impacts and resilience attributes of the proposed non-structural measures for the expected future flood and drought risk variables under the SSP3-7.0 / SSP5-8.5 scenarios. It will also consider and ensure that the proposed interventions do not adversely affect the wider adaptation efforts or the resilience of the river ecosystem.</p>
Standard 3: Community Health, Safety and Security	<p>The site-specific community health and safety concerns will be addressed in the preliminary EIA sections A2.4-2.7.</p> <p>These assessments will also adhere to the applicable UNDP SES 3 obligations and ensure that the non-structural measures are designed by suitably qualified and experienced professionals and comply with the applicable country norms/standards and international best practices in the respective fields.</p>
Standard 4: Cultural Heritage	<p>The site-specific cultural heritage concerns will be addressed in the preliminary EIA section C1.5.</p> <p>These assessments will also adhere to the applicable UNDP SES 4 obligations and ensure that non-structural measures do not lead to significant damage or removal of cultural heritage.</p>
Standard 5: Displacement and Resettlement	<p>The site-specific displacement concerns will be addressed in the preliminary EIA sections D1.7 and D1.8.</p> <p>These assessments will also adhere to the applicable UNDP SES 5 obligations and ensure that the non-structural measures will not have any potentially significant adverse impacts on or changes to land tenure arrangements and/or community-based property rights.</p>
Standard 8: Pollution Prevention and Resource Efficiency	<p>The site-specific pollution prevention concerns will be addressed in the preliminary EIA sections A2.4-2.7.</p> <p>These assessments will also adhere to the applicable UNDP SES 8 obligations and ensure that non-structural measures will not – even temporarily - increase the emissions of pollutants into water or land beyond the pollution levels permitted in the national water quality standards</p>

Additional disclosure and public consultation arrangements as per the UNDP SES requirements

Since the UNDP's SES require that project stakeholders have access to relevant information, the UNDP will also ensure that the preliminary EIAs and any subsequent assessments (if required) and environmental permits for the proposed projects so that all potentially affected project stakeholders understand potential project-related opportunities and risks.

Disclosure of the above documentation will be done both centrally and at the local level on the basis of the above-mentioned legal requirements in BiH. The preliminary EIAs will be available for at least 30 days of public input and will be subject to public hearings in the closest settlements to the project sites. They will also be disclosed in English and local languages on the UNDP Country Office website.

Last, stakeholders will also have access to Grievance Resolution Mechanism (GRM) as well as to the UNDP Stakeholder Response Mechanism, and the Social and Environmental Compliance Unit (SECU) which they may use if they have raised concerns through standard channels for stakeholder consultation and engagement and have not been satisfied with the proposed projects.

APPENDIX 8

CONFLICT SENSITIVITY ANALYSIS

CONTENTS

1	Introduction	77
1.1	Background to the project	77
1.2	Project localities	77
1.3	Conflict Sensitivity	77
2	Methodology	80
2.1	Historic Context	80
2.2	Mapping the actors	80
2.3	Analysis of the drivers of conflict and insecurity	80
2.4	Understanding conflict dynamics	80
3	Conflict Data	81
3.1	Historic conflict	81
3.2	Actors And Actor Dynamics	83
3.2.1	Distribution of Major Ethnic Groups	84
3.2.2	The Actors Associated with the Project	85
3.3	Drivers of Conflict and Insecurity	88
3.3.1	Political Causes of Conflict	88
3.3.2	Economic Sources of Conflict	90
3.4	Recent Conflict and Tensions	93
3.4.1	Conflicts events between 2009 and 2021	93
3.4.2	Conflicts Events October 2021-September 2022	103
3.4.3	Conflict Dynamics	106
4	Assessment of Project Elements	106
4.1	Summary of Project Activities	106
4.2	Assessment of Project Activities Potential to Cause Conflict	108
5	Conclusions	115
6	Recommendations	115
6.1	Recommended Conflict Mitigation Measures	115
6.1.1	Stakeholder Engagement	116
6.1.2	Grievance Redress Mechanism	116
6.2	Monitoring	118

INTRODUCTION

1.47 BACKGROUND TO THE PROJECT

Bosnia and Herzegovina is particularly vulnerable to extreme precipitation and river basin flooding and results in the highest damages of all natural hazards facing B&H. Increased intensity and variability of rainfall due to climate change have been causing more frequent and intensive floods on the territory of B&H. The main flooding sources in B&H are fluvial, pluvial, torrents and groundwater.

The NDA and Water Entities of Bosnia and Herzegovina with support from UNDP, is formulating a project on adaptation to climate change impacts associated with flooding for submission to the GCF. The project will seek to improve the resilience of vulnerable communities to climate change impacts by scaling up climate resilient flood risk management in Bosnia and Herzegovina.

The project will reduce vulnerability to floods across B&H (pluvial, fluvial and torrential flooding) through improved climate information and establishment of flood forecasting and early warning systems. Improved generation and use of climate information will enable sound decision making and investment into climate resilient flood risk reduction measures.

To achieve this the project will pursue the following outputs:

- Output 1: Climate-informed flash flood early warning systems (FFEWS) and an increased generation and use of climate data to reduce vulnerability to flood related disasters.
- Output 2: Scaled-up ecosystem-based and non-structural climate resilient flood risk reduction.
- Output 3: Climate-proof flood protection investments strengthen adaptive capacity and reduce exposure to climate induced floods.

The project is expected to benefit an estimated 924,453 direct beneficiaries.

1.48 PROJECT LOCALITIES

The project will reduce vulnerability to floods across Bosnia and Herzegovina through improved information, planning and monitoring systems that have national reach, as well as more localised physical interventions (Activities 2.2 and 3.3). The locations of the physical interventions to be undertaken in Activities 2.2 and 3.3 are shown in Figure 15.

1.49 CONFLICT AND CONFLICT SENSITIVITY

1.49.1 What is Conflict?

Conflict is a relationship between two or more parties (individuals or groups) who have, or think they have, incompatible goals, values, interests or claims to status, power or scarce resources. Conflicts are a fact of life, inevitable and often creative⁴². There are different types of conflict:

- A conflict can arise abruptly and be the result of simple misunderstandings that can be addressed through improved communication, i.e. surface conflict.
- An open conflict is very visible and is often deeply rooted in a society.
- A latent conflict is less visible and cannot be addressed while it is still under the surface.

There are many different causes of conflicts, and they have their own dynamics. They may change rapidly from one type to another. Conflicts can be interpersonal, inter-group, inter-community, intra-country, and inter-country.

Factors that can lead to conflict:

- A misunderstanding, stereotypes or a divergence of opinions about essential values: religion, education, culture, traditions, lifestyle or politics.

⁴² Embassy of Switzerland in B&H (2020). Conflict Sensitive Programme Management – A Practitioner's Guide for the Swiss Cooperation Programme in BiH

- A lack of information or knowledge that might generate incomprehension of the real interests and needs of one actor or a faulty interpretation of his/her interests.
- A change in the social or economic situation due to (non)-access to resources, abolishment of privileges or loss of power.
- Competing economic, political and/or social interests of different stakeholders.
- Asymmetric power relations.

1.49.2 Conflict Sensitivity

Conflict sensitivity refers to the practice of understanding how aid interacts with conflict in a particular context, to mitigate unintended negative effects, and to influence conflict positively wherever possible, through humanitarian, development and/or peacebuilding interventions.

Climate change interacts with other political, social, and economic stresses to compound existing tensions, which could escalate into violence or disrupt fragile peace processes. In turn, violent conflict and political instability will leave communities poorer, less resilient, and ill-equipped to cope with the consequences of climate change.

Vulnerability is the lack of power or capacity to reduce the risk of a disaster or violent conflict. Addressing climate and conflict risks requires empowering and enabling people to take actions that enhance their power and ability to bring about and facilitate transformational change. Conflict sensitivity is a critical component of the approach to ensure that the changes brought about do not inadvertently increase the risk of conflict.

Interventions that fail to consider the linkages between climate change, peace, and development can unwittingly exacerbate conflict dynamics. For example, if efforts to help communities prepare for or adapt to environmental or climate hazards are carried out without understanding the underlying factors that can contribute to conflict, they can unintentionally contribute to local tensions. Tensions can increase the risks of violence, and ultimately undermine the resilience of local people.

Therefore, it is important to determine whether the project could contribute to the prevention of tensions and conflicts, or aggravate existing tensions and conflicts, or even create new ones.

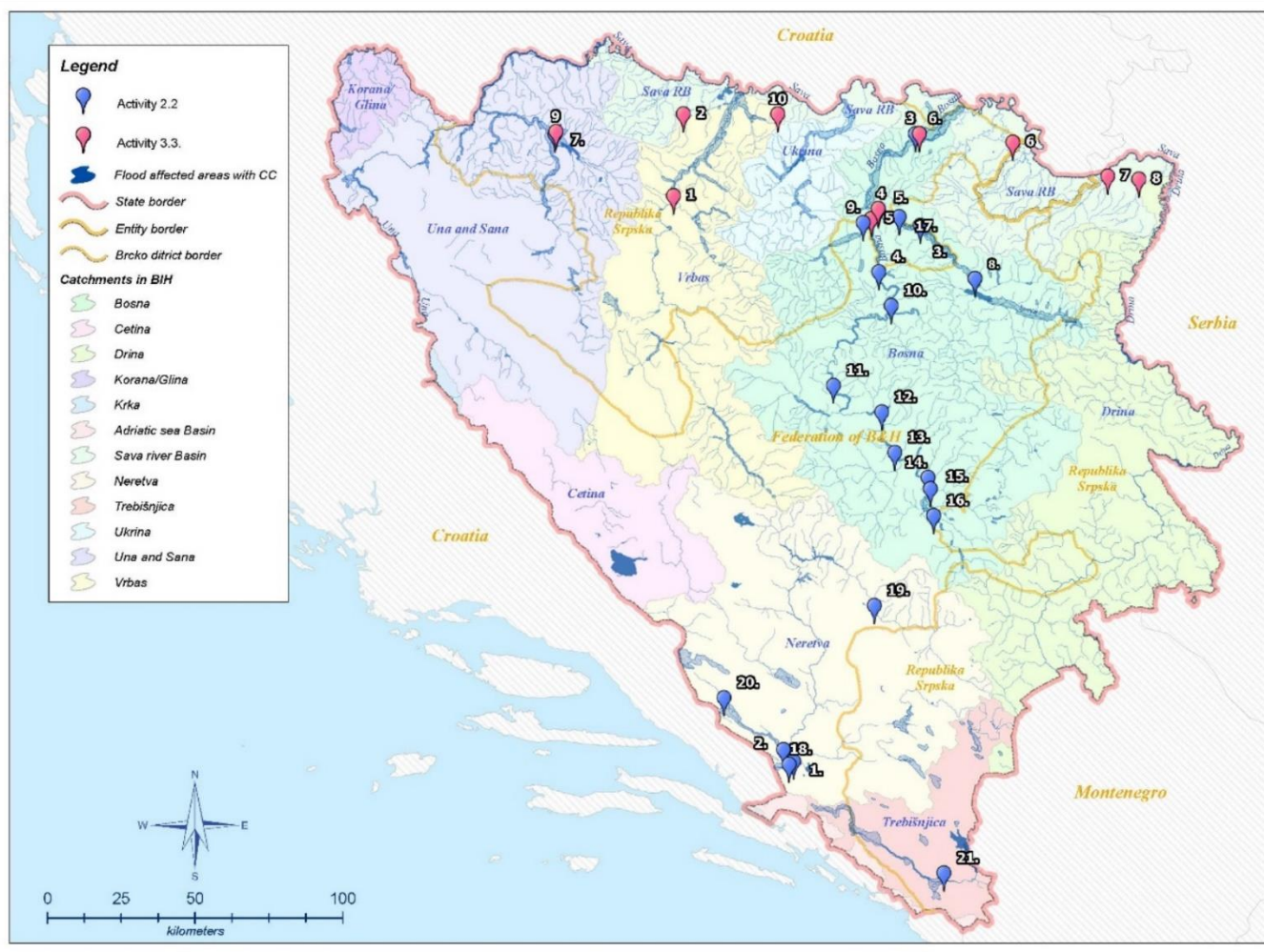


Figure 15 Locations for proposed physical interventions under the project

METHODOLOGY

The objective of the analysis is to gain a better understanding of the conflict dynamics which could confront the project and determine whether there is any significant risk.

The overarching questions the study is seeking to address are three-fold:

- what are the potential repercussions of conflict on project activities?
- Could the project exacerbate risks to security through escalation of conflict, crime and violence?
- what are the potential pathways to resolution of future conflict should they arise?

To address these questions, the analysis focused on the following:

1.50 HISTORIC CONTEXT

Historic conflict (>20years ago) in Bosnia and Herzegovina, in particular the war between 1992 and 1995 was considered to provide background and context. History also insight into potential sources of conflict today.

More recent conflict was documented and covered under conflict dynamics (refer Section 2.40).

1.51 MAPPING THE ACTORS

Mapping of most relevant actors, particularly the most affected groups, and understanding the dynamics between them is important. It is important to understand the power relationships between actors and the interests that drive their behaviors. The actor map pictorially describes how actors influence each other, and how conflict drivers and dynamics affect group interests and objectives.

1.52 ANALYSIS OF THE DRIVERS OF CONFLICT AND INSECURITY

Fragility and conflict are always the result of complex interactions between different social, political, economic, cultural, and environmental drivers. These drivers include sudden shocks to a system, such as a sharp rise in food prices or an extreme weather event; pressures from longer-term trends, such as population growth, population movements, or increases in economic inequality; and structural or contextual factors that underlie conflict and fragility, such as marginalization and grievances, inequitable access to natural resources, or illegitimate or ineffective governments.

Baseline information regarding drivers of tension and conflict is presented. This includes drivers such as politics, ethnicity, economics, and displacement.

1.53 UNDERSTANDING CONFLICT DYNAMICS

Conflict dynamics are often linked to a history of exclusion, marginalization, and inequality (real and perceived) between different groups. Understanding the political economy of a conflict, and the power relationships between different actors is key to understanding what drives and sustains it.

Available conflict-related databases for Bosnia-Herzegovina were consulted to provide information regarding recent conflicts. This provided information on the types of conflicts, their nature and potential causes of recent conflict.

Finally, an assessment of the project activities in terms of likelihood to cause or exacerbate conflict was undertaken using a risk-based approach.

CONFLICT DATA

1.54 HISTORIC CONFLICT

In order to understand some of the background to current tensions, it is important to consider the history of Bosnia-Herzegovina. The following has been taken from UCDP.⁴³

Before independence Bosnia-Herzegovina had been one of the six republics within the Socialist Federal Republic of Yugoslavia. As a consequence of the death of Tito, increased ethnic tension and nationalism, the federation started to dissolve in the early 1990s. Bosnia-Herzegovina declared independence from Yugoslavia in early 1992. Bosnia-Herzegovina's independence came soon after the secession from Yugoslavia by Slovenia and Croatia, where nationalist parties had seized power, which precipitated the complete division of the Federal Republic of Yugoslavia.

Bosnia's heterogeneous ethnic make-up of approximately 43% Bosniaks (who are Muslim), 31% Serbs and 17% Croats in 1991 placed the country in a difficult situation as nationalism grew in the republics that constituted Yugoslavia at the time. Both Slovenia and Croatia had become involved in intrastate conflicts with the central government as they proclaimed independence, and Serbs in Croatia had also proclaimed a state of their own. The politicians in Bosnia – both nationalist and more moderate ones – failed to assuage the fears and live up to the demands of Bosnia's constituent peoples and following independence a spate of intrastate conflicts broke out. Between 1992 and 1995, Bosnia and Herzegovina underwent large-scale armed conflict characterized by widespread and systematic human rights violations against civilian communities, often on the basis of ethnicity.

The war saw widespread physical destruction and the death of nearly 100,000 people (with an estimated 40% being civilians) and roughly 2.2 million people were forcibly displaced from their homes. Figure 16 demonstrate the widespread nature of the conflict throughout the country. It was also a war that witnessed grave breaches of the Geneva Conventions, large-scale atrocities and countless crimes against humanity. Of special relevance to the prospect of post-settlement violence, it was an identity-driven conflict defined and fought in the name of ethnicity and religion.⁴⁴

The 1995 Dayton Peace Agreement ended the war and established an interim constitutional framework composed of a complex system of institutionalized power-sharing arrangements initially overseen by an internationally operated high-representative. While this system successfully saw Bosnia and Herzegovina out of a period of intense conflict and the fracturing of multiple new states, it has also proven an extraordinarily challenging environment to develop effective rule of law institutions and more sustainable forms of governance in a region that remains riven by ethnic and historical divisions.

In particular, deeply different views across Bosniak, Serb and Croat communities on how to address the legacy of widespread human rights violations during the conflict have led to deep polarization and a rise of right-wing ultranationalist political leadership which plays a protectionist rather than inclusive role in Bosnian politics. Rather than help to advance cohesion and end perceptions of impunity, this atmosphere has been more conducive to further fragmentation, a loss of confidence in the state, and stagnant politics⁴⁵.

⁴³ <https://ucdp.uu.se/country/346>

⁴⁴ [https://openaccess.city.ac.uk/id/eprint/13851/3/Berdal%20Collantes%20Buzadzic%20-%20Final%20Accepted%20Version%20-%20CRO\(2\).pdf](https://openaccess.city.ac.uk/id/eprint/13851/3/Berdal%20Collantes%20Buzadzic%20-%20Final%20Accepted%20Version%20-%20CRO(2).pdf)

⁴⁵ UNDP (2022) Draft report: Rule of Law Support to Conflict Prevention and Sustaining Peace in Bosnia-Herzegovina (2015-2020)

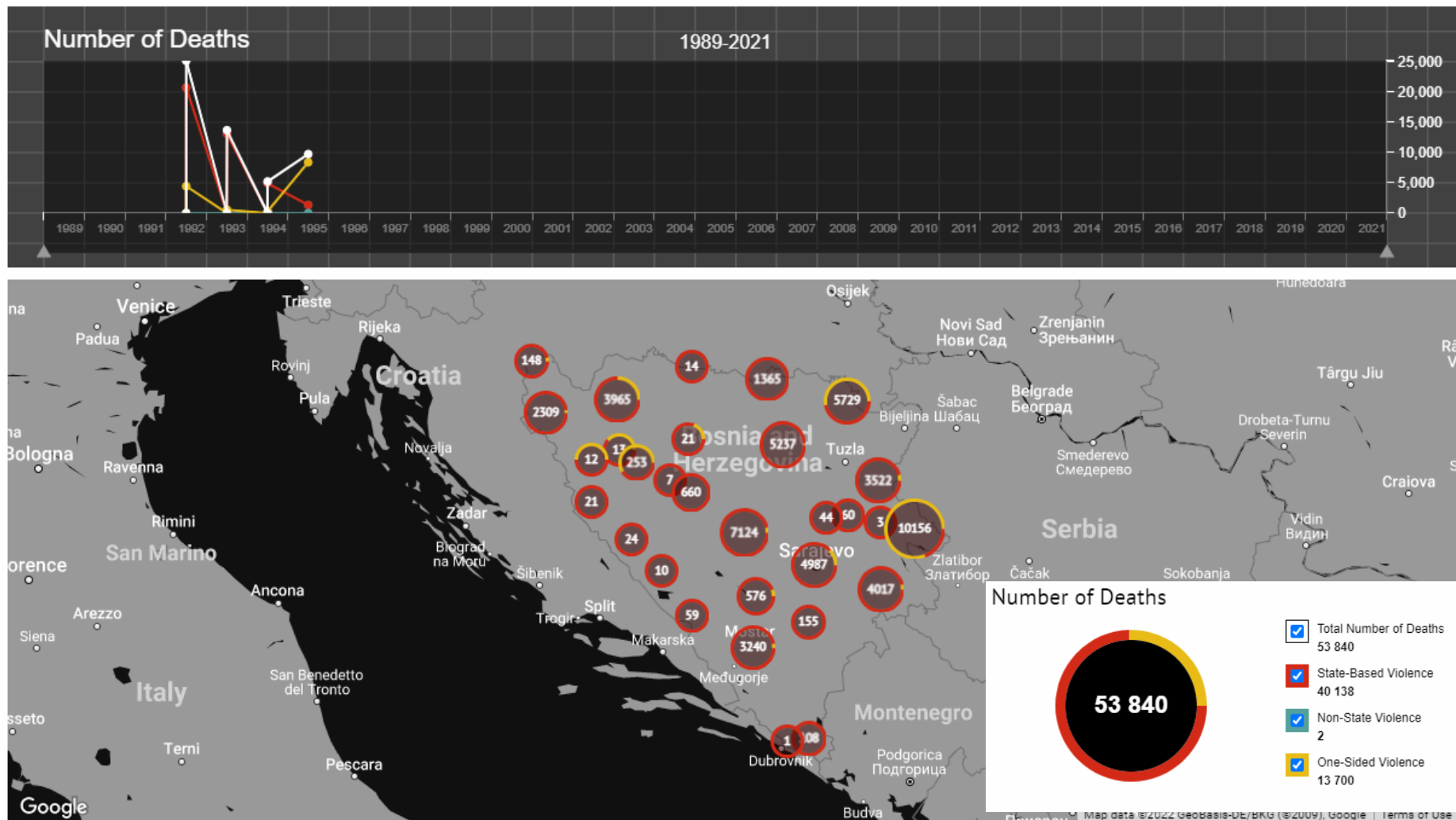


Figure 16 Conflict fatalities highlighting scale during the war (<https://ucdp.uu.se/country/346>)

1.55 ACTORS AND ACTOR DYNAMICS

Bosnia and Herzegovina is home to members of numerous ethnic groups. The three largest are the Bosniaks, the Serbs, and the Croats. The Dayton Accords established Bosnia and Herzegovina as a state composed of two highly autonomous entities; Republika Srpska and the Federation of Bosnia and Herzegovina. The nature of the Dayton Accords created tensions that still exist today.

Today, Bosnia and Herzegovina consists of two Entities and one district: The Federation of Bosnia and Herzegovina (FB&H) and the Republic of Srpska (RS) and Brčko District. The Federation of Bosnia and Herzegovina is sub-divided into 10 Cantons. Decision-making involves the Council of Ministers, the two Entities and Brčko District.

The international community maintains a strong presence in B&H and still plays a significant role in political life, mainly via the Office of the High Representative (OHR). The OHR was established after the war, with the mandate to implement the Dayton Peace Accords and endowed with a set of wide-ranging powers.

Figure 17 represents these major actors and illustrates the tensions between them.

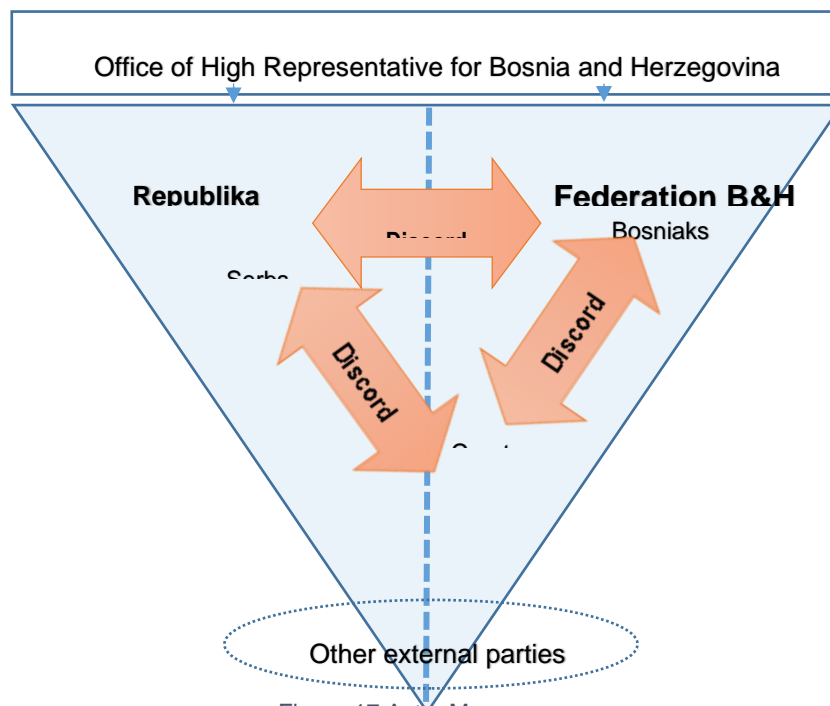


Figure 17 Actor Map

1.55.1 Basic conflict lines between actors

Among the population of Bosnia and Herzegovina there are differing opinions regarding the duration and the mandate of international engagement and how this should be understood in the context of local ownership and capacity development in the country. Nationalist regional loyalties also play an important role: While the EU supports inter-B&H cohesion, the ethnic groups look for support to their 'homelands' (Croatia, Serbia) or newly-found allies.

This leads to a second conflicting issue that regards the current constitutional set-up and the distribution of competencies. Generally, the Bosniak population supports the strengthening of the centralized structures over the entities, whereas particularly the Serb population wants to increase the influence and autonomous rights of the entities with a focus on the RS. Some Croats support this idea, stipulating that in addition, a separate Croatian entity should also be created, an idea vehemently opposed by the Bosniaks. Perceived past injustices play a significant role in the discourse.

1.55.2 Distribution of Major Ethnic Groups

Census data is collected every 10 years in Bosnia and Herzegovina, with the last census being in 2013. Figure 18 provides a graphic representation of the 2013 census data on ethnicity.

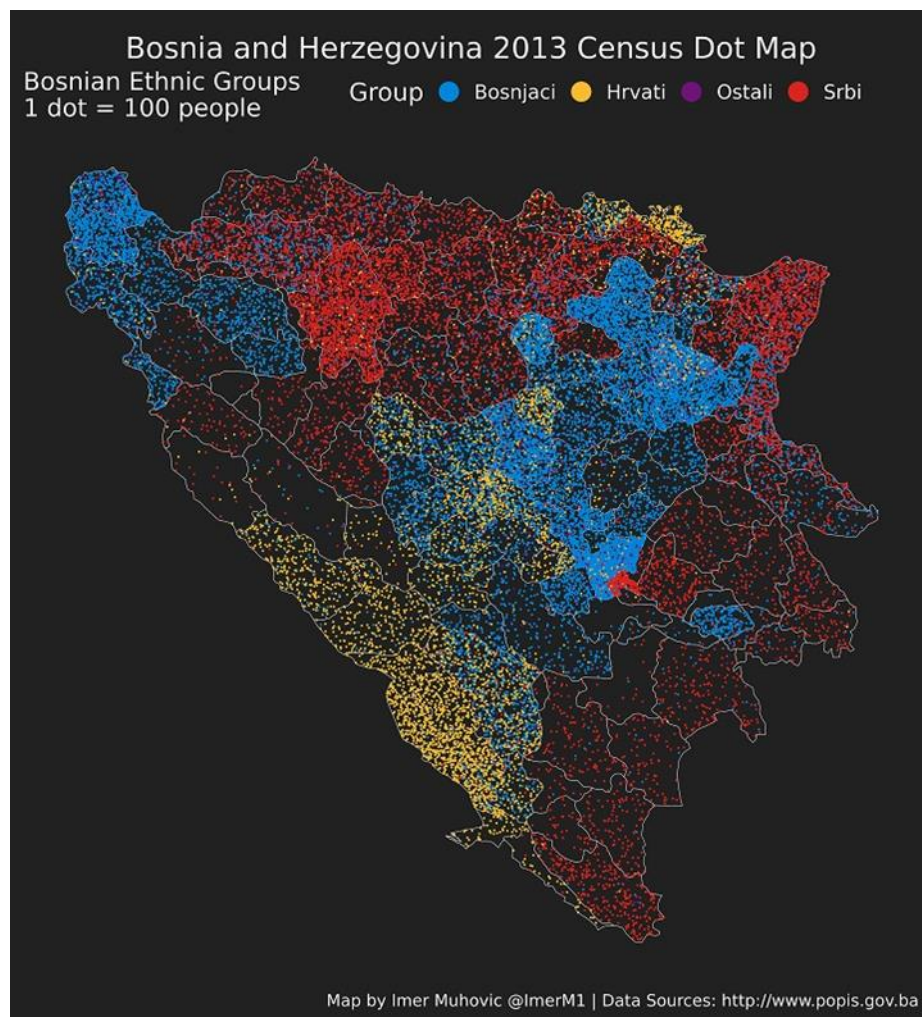
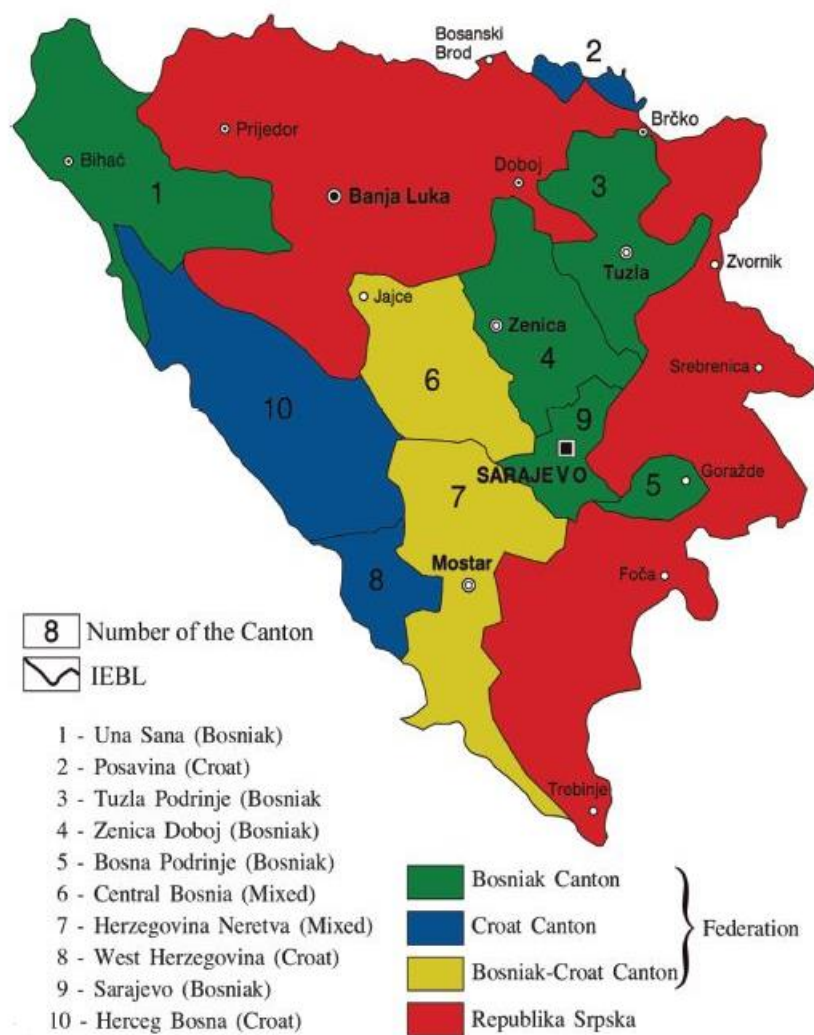


Figure 18 Broad distribution of ethnic groups in Bosnia and Herzegovina based on 2013 census



Source: <http://www.ohr.int>

Figure 19 Canton-ethnicity map

Figure 19 shows the dominant ethnicities of each canton.

1.55.3 Actors Associated with the Project

The project will involve actors from the State, Entity, Cantonal, Municipal and local levels, including relevant agencies, CSOs, and local communities. Table 1 lists key government agencies, research institutions, non-government organizations (NGOs) and civil society organizations, and provides a general description of their roles, responsibilities, and sought involvement in the project.

Table 25 Key Stakeholders, their Roles, Responsibilities, and Project Involvement

Stakeholder	Role in the project
B&H Ministry of Foreign Trade and Economic Relations	<ul style="list-style-type: none"> ○ GCF and UNFCCC focal point for B&H ○ State level ○ Responsible for coordinating policies and measures in the field of the environment, including water management ○ Coordination, advocating ○ Member of Project Board

RS Ministry of Spatial Planning, Construction, and Ecology	<ul style="list-style-type: none"> o Responsible for environmental policies and measures in RS, including environmental measures that may mitigate CC. Responsible for integrative planning and spatial planning in RS. o Member of Project Board
Federal Ministry of Agriculture, Water-Management, and Forestry	<ul style="list-style-type: none"> o Entity level o Responsible for coordinating policies and measures in agriculture, water-management and forestry o Member of Project Board
RS Ministry of Agriculture, Forestry, and Water Resources	<ul style="list-style-type: none"> o Entity level o Responsible for coordinating policies and measures in land use, forestry, and water resources o Member of Project Board
Federal Ministry of Environment and Tourism	<ul style="list-style-type: none"> o Responsible for coordinating entity-level policies and measures in the environmental area (environmental conservation, preparation of environmental policies and strategies, monitoring of environmental factors)
Ministry of Security of B&H	<ul style="list-style-type: none"> o State level o Responsible for implementation of international obligations and cooperation in matters relating to civil protection, coordination of activities of entity services for civil protection in Bosnia and Herzegovina, and harmonization of their plans for cases of natural or other disasters striking Bosnia and Herzegovina territories, as well as issuance of agenda for protection and rescue
Water Agency for Sava River Basin	<ul style="list-style-type: none"> o Management of Sava River basin (within FB&H), o Responsible for data collection and distribution, water monitoring (hydrology and quality), preparation of Water management plans and plans for prevention and reduction of harmful impacts (flood, drought, erosion), preparation of legislation and policies and their implementation, projects implementation, implementation of flood risk management measures
Public Institution Waters of Srpska	<ul style="list-style-type: none"> o Management of water resources within RS Entity (both Sava and Adriatic River basins) o Responsible for data collection and distribution, water monitoring (hydrology and quality), preparation of Water management plans and plans for prevention and reduction of harmful impacts (flood, drought, erosion), preparation of legislation and policies and their implementation, projects implementation, implementation of flood risk management measures
Water Agency for Adriatic River Basin	<ul style="list-style-type: none"> o Management of Adriatic River basin (within FB&H), o Responsible for data collection and distribution, water monitoring (hydrology and quality), preparation of Water management plans and plans for prevention and reduction of harmful impacts (flood, drought, erosion), preparation of legislation and policies and their implementation, projects implementation, implementation of flood risk management measures
Hydro-meteorological Institute of RS	<ul style="list-style-type: none"> o Entity body o Collects climatic meteorological and hydrological data necessary for studying climate variability, for trend analysis, and for long-run modelling. o Conducts modelling and participates in WMO research programs.
Hydro-meteorological Institute of F B&H	<ul style="list-style-type: none"> o Entity body o Collects climatic meteorological and hydrological data necessary for studying climate variability, for trend analysis, and for long-run modelling. o Conducts modelling and participates in WMO research programs.
RS Civil Protection	<ul style="list-style-type: none"> o Entity body -RS o Coordinate and manage work of civil protection units o Develop of the programme of protection and rescue for natural and other disasters o Organise and coordinate implementation of protection and rescue measures, related to natural and other disasters o Monitoring, reporting and alert on emergency situations o Vulnerability assessment

	<ul style="list-style-type: none"> ○ Trainings and capacity building on civil protection
Federal Civil Protection	<ul style="list-style-type: none"> ○ Entity body- FB&H ○ Coordinate and manage work of civil protection units in RS ○ Develop of the programme of protection and rescue for natural and other disasters ○ Organise and coordinate implementation of protection and rescue measures, related to natural and other disasters ○ Monitoring, reporting and alert on emergency situations ○ Vulnerability assessment ○ Trainings and capacity building on civil protection
Agency for Insurance (state level)	<ul style="list-style-type: none"> ○ State level agency ○ Assures unified implementation of insurance regulations between entities
Insurance agencies (Insurance Agency of RS, Insurance Agency FB&H)	<ul style="list-style-type: none"> ○ Entity level agencies ○ Approves insurance products ○ Develops insurance related regulations ○ Monitors disbursements of insurance companies' funds
HPP	<ul style="list-style-type: none"> ○ Private and state-owned companies for el. power production ○ Alteration of hydrological regime to support FRM ○ HM monitoring-integration in national network ○ With technical support HPP sector enable more climate resilient operations
Associations of Insurance Companies of (one for RS, one for FB&H)	<ul style="list-style-type: none"> ○ NGO ○ Strengthens insurance market ○ Provides professional services to insurance companies ○ Promotes and harmonize cooperation between insurance companies
Local Governments	<ul style="list-style-type: none"> ○ Municipal bodies ○ Management of public functions/ activities within local communities ○ Preparation of development plans and programmes ○ Organization and management of local civil protection ○ Spatial planning ○ Local economic development ○ Implementation of local FRM measures ○ Implement loss/damage assessment at local level ○ Provide local information and knowledge ○ Ensure local participation
Association of Cities and Municipalities of RS	<ul style="list-style-type: none"> ○ NGO- RS ○ Advocacy and firm representation of the municipal interests ○ Coordinate work of municipalities and cities in RS ○ Promote local development and enable implementation of projects/investments ○ Support in the consultative legislative processes, ○ Promote protection of common interests and cooperation with national and international associations, organizations and institutions of government.
Association of Cities and Municipalities of FB&H	<ul style="list-style-type: none"> ○ NGO- RS ○ Advocacy and firm representation of the municipal interests ○ Coordinate work of municipalities and cities in RS ○ Promote local development and enable implementation of projects/investments ○ Support in the consultative legislative processes, ○ Promote protection of common interests and cooperation with national and international associations, organizations and institutions of government.
NGOs (environmental, social inclusion and protection organizations-for returnees and displaced persons, vulnerable groups, minorities, etc.)	<ul style="list-style-type: none"> ○ NGOs ○ Provide information, training, and awareness-raising ○ Ensure local participation and involvement of vulnerable groups
Smallholder farmers, returnees, and displaced persons	<ul style="list-style-type: none"> ○ Innovators, Responsible Parties

Private sector / Micro agricultural businesses	<ul style="list-style-type: none"> ○ Financial services provider, ○ Implementation of adaptation measures ○ Beneficiaries
Faculties of Natural Sciences/Agriculture (Banja Luka and Sarajevo)	<ul style="list-style-type: none"> ○ Universities, research institutions ○ Trainings, expert support ○ Data and technical service provider

1.56 DRIVERS OF CONFLICT AND INSECURITY

The basic sources of conflict in Bosnia and Herzegovina can be divided into two primary clusters: political and economic.

1.56.1 Political Causes of Conflict

The first cluster of drivers of conflict to be discussed are political. Key types of political causes of conflict in Bosnia and Herzegovina are described below.

1.56.1.1 Constitutional disputes

The constitutional order of Bosnia and Herzegovina remains complicated and contested. The country is administered on four levels:

- the highest level – the State - can be considered as that of a confederation. This is the level of the nation-state, only that in Bosnia and Herzegovina the word 'nation' is normally reserved for ethnicities.
- Two entities exist on the second level of governance: Republika Srpska and the Federation of Bosnia and Herzegovina. The reason why the latter is called a Federation is because this entity is considered to represent two of the main ethnic groups (nationalities as they are called in the country): Bosniaks and Croats.
- The third level of governance applies to the provinces in the Federation. This level is locally called the canton level
- the fourth level in both entities is the level of municipalities, or local authorities.

Bosnia and Herzegovina is a state with an extreme model of federalism, where the country is almost equally divided between two entities: the Federation, which encompasses 51 percent of the state territory, and Republika Srpska with 49 percent.

A prime source of tension continues to be constitutional disagreement among ethnic groups over fundamental political principles regarding the form of the state that is, whether it should continue to be a *unitary state* with the borders as they are today, or whether the door to territorial *secession* of the entities and/or ethnic groups should be opened⁴⁶.

In February 2014, popular dissatisfaction with the government spilled over into widespread protests that resulted in the destruction of many government buildings and temporary momentum for national-level reform, but the demanded changes have still not taken place and institutional capacities have lagged far behind what is demanded by the EU.

1.56.1.2 Disagreements about the rights of individuals and groups

Dayton favors groups over individuals, as politics is often framed ethnically, that is most political rights in Bosnia and Herzegovina are derived from being a part of an ethnic group. There have been many reports of both perceived and factual dominance of one ethnic group over another (Kivimaki *et al* 2012) and this can present a major issue.

The Constitutional disagreement about the rights of individual groups and individuals can be divided into two parts:

- individuals demand rights that they should have regardless of what their ethnic origin is.

⁴⁶ Kivimaki, Kramer and Pasch (2012) The Dynamics of Conflict in the Multi-ethnic State of Bosnia and Herzegovina. Country Conflict-Analysis Study

- ethnic groups struggle for their collective rights outside the setting of the form of the state and the division of powers between political institutions.

1.56.1.3 Religious affiliations

Bosnia and Herzegovina has no official state religion and allows for religious freedom, however religious intolerance and discrimination exist against religious minorities. Just over half of the population practice Islam, Orthodox Christians make up 31% of the population and Catholicism is practiced by an additional 15%. No one religion has been the target of discrimination and it remains a problem in nearly all communities.⁴⁷

Religion, politics and ethnicity are closely intertwined in B&H. Given that religion is a big part of ethnic identity, and ethnic division is very much institutionalized, religion is not just a private matter. Bosniaks are generally associated with Islam, Bosnian Croats with the Roman Catholic Church, and Bosnian Serbs with the Serb Orthodox Church. Someone not identifying with one of these three 'main' religions can easily be marginalized, given that the system is defined around these ethnic/religious groups.⁴⁸

1.56.1.4 Potential antagonistic ethnic divisions

Antagonism between ethnic groups is partly related to the perceptions groups have of each other, and partly to incompatible worldviews. An extreme division seems to revolve around the ethno-nationalism of the three main ethnic groups.

In the past Bosnia and Herzegovina was a multi-ethnic and multi-denominational republic, but the war radicalised the nationalist movements and triggered exaggerated identification with ethnic groups. Further to be the affiliation to an ethnic group is often coupled with a religious affiliation.

Consequently, this is manipulated by politicians who, quoting the Dayton Agreement and its provisions for ethnic representation, insist on the link between affiliation to one ethnic group and denomination on the one hand, with nationalist political affiliation on the other. This creates tensions as it reinforces ethno-politics, which go against cooperation and therefore each of the three groups becomes a minority in one or other part of the territory of Bosnia and Herzegovina.

1.56.1.5 Potential antagonistic political divisions

In addition to the obvious divisions between the different political parties in Bosnia and Herzegovina, there are also political divisions across the camps: unitarianists versus secessionists.

Unitarianists are those in favor of Bosnia and Herzegovina remaining in its international borders as they are now and who support the power of institutions of the nation-state. Unitarianists may belong to any ethnic group. There are various sub-groups within unitarianists.

Successionists are those in favor of the dissolution of Bosnia and Herzegovina, they propagate ethno-nationalism and do not support the power of institutions of the nation-state. For many years, Republika Srpska has threatened to secede (despite this not being a realistic outcome due to legal constraints). Republika Srpska is pushing to cut most (and, eventually, all) ties with the central government, laying the groundwork for independence or union with neighboring Serbia. On 14 October 2021, the Serb member of the Bosnian state presidency, Milorad Dodik, threatened to withdraw the region from state institutions, including the national army, and reassemble a Serb force. Again, ahead of elections in October 2022, Dodik made similar threats, however violence did not mar the 2022 elections.

There are also differences between those in favor of the OHR and international presence in Bosnia and Herzegovina ('Internationalists') and those who are not ('localists').

The project design includes strengthening both national and entity institutions. The project does not impact international or internal borders and does not involve the OHR.

⁴⁷ <https://worldpopulationreview.com/countries/bosnia-and-herzegovina-population>

⁴⁸ Nansen Dialogue Centre Sarajevo and SAFERWORLD (2012). Leaving the past behind - The perceptions of youth in Bosnia and Herzegovina

1.56.2 Economic Sources of Conflict

The second cluster of motives for conflicts can be attributed to economic factors.

1.56.2.1 Economic situation

Interethnic warfare in Bosnia and Herzegovina caused production to plummet by 80% from 1992 to 1995 and unemployment to soar, but the post-war period of the late 90's saw rapid economic changes and growth as the country worked towards recovery (Figure 20). The global economic crisis in 2008 caused a downturn in the economy. Since 2013, Bosnia and Herzegovina has posted positive economic growth, though severe flooding hampered recovery in 2014.

Bosnia and Herzegovina has a transitional economy with limited market reforms. The economy relies heavily on the export of metals, energy, textiles, and furniture as well as on remittances and foreign aid. Poor coordination among various government levels hampers economic policy coordination and reform, while excessive bureaucracy and a segmented market discourage foreign investment. The economy is among the least competitive in the region.

Bosnia and Herzegovina has been a member of the Council of Europe since April 2002 and a founding member of the Mediterranean Union upon its establishment in July 2008. Bosnia and Herzegovina became a full member of the Central European Free Trade Agreement in September 2007 and is a potential candidate for membership to the European Union.

Climate change and climate-induced floods have a significant impact on the most important economic sectors such as agriculture, water management, hydropower, and limit country's already low adaptive capacity.

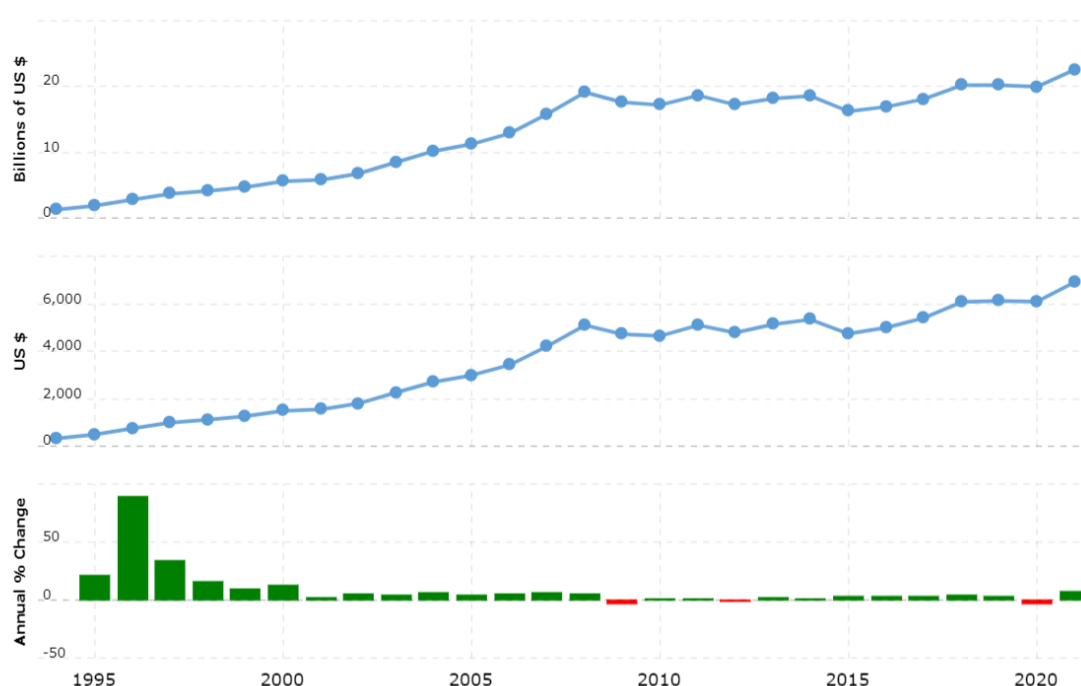


Figure 20 Bosnia economic growth 1995-2021 (www.macrotrends.net)

1.56.2.2 Unemployment

Unemployment can affect conflict potential by adding to sense of hopelessness, which tends to lower the threshold of violence.

Unemployment was particularly high in the initial post-war period. Over the past 20 years there has been an overall decline in the unemployment rate in Bosnia and Herzegovina (Figure 21). The

overall unemployment rate in Bosnia and Herzegovina for 2021 was 15.22%, a 0.05% decline from 2020.⁴⁹

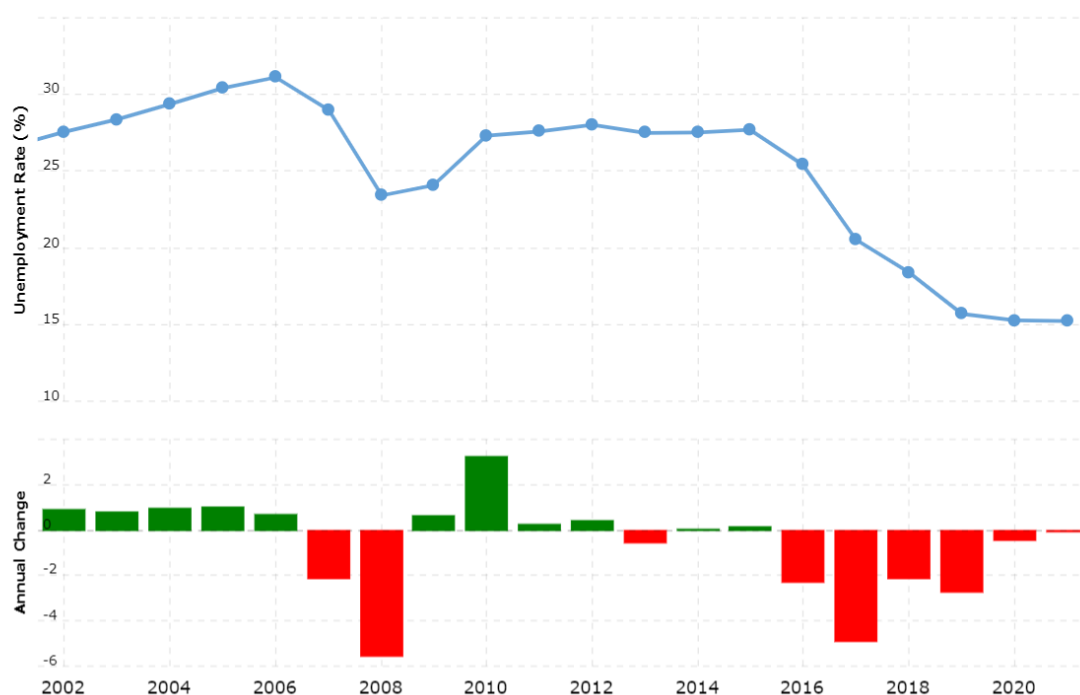


Figure 21 Unemployment rate in Bosnia and Herzegovina for period 2002-2021. (source: www.macrotrends.net)

Youth unemployment has historically been a major problem in Bosnia and Herzegovina. Especially acute is the issue of young men who are frustrated by the States inability to create jobs, since these impressionable youths often turn into angry and disillusioned men with radical ideas and demonstrative behavior that creates social realities that disregard the peace treaty (Kivimaki, Kramer and Pasch 2012).

However, over the past 20 years youth unemployment in Bosnia and Herzegovina has dropped from highs of around 60% to its current level of approximately 33%. (Figure 22)

⁴⁹

<https://www.macrotrends.net/countries/BIH/bosnia/unemployment-rate#:~:text=Bosnia%20unemployment%20rate%20for%202021,a%202.71%25%20decline%20from%202018.>

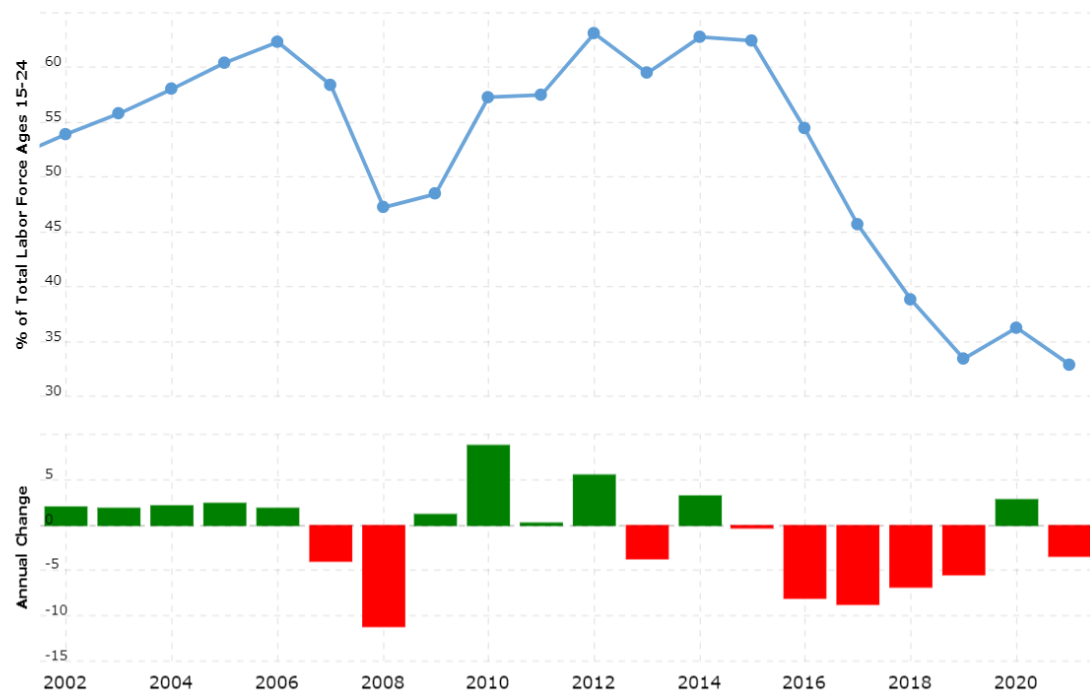


Figure 22 Youth unemployment rates in Bosnia and Herzegovina between 2002 - 2021. (source: www.macrotrends.net)

1.56.2.3 Crime and corruption

When institutions are not able to uphold the rule of law in a country it leads to mobilisation of criminals and increased corruption. Corruption inhibits economic growth and thus contributes to frustration violence.

Bosnia and Herzegovina's crime rate statistics show a general downward trend over the past 20 years.

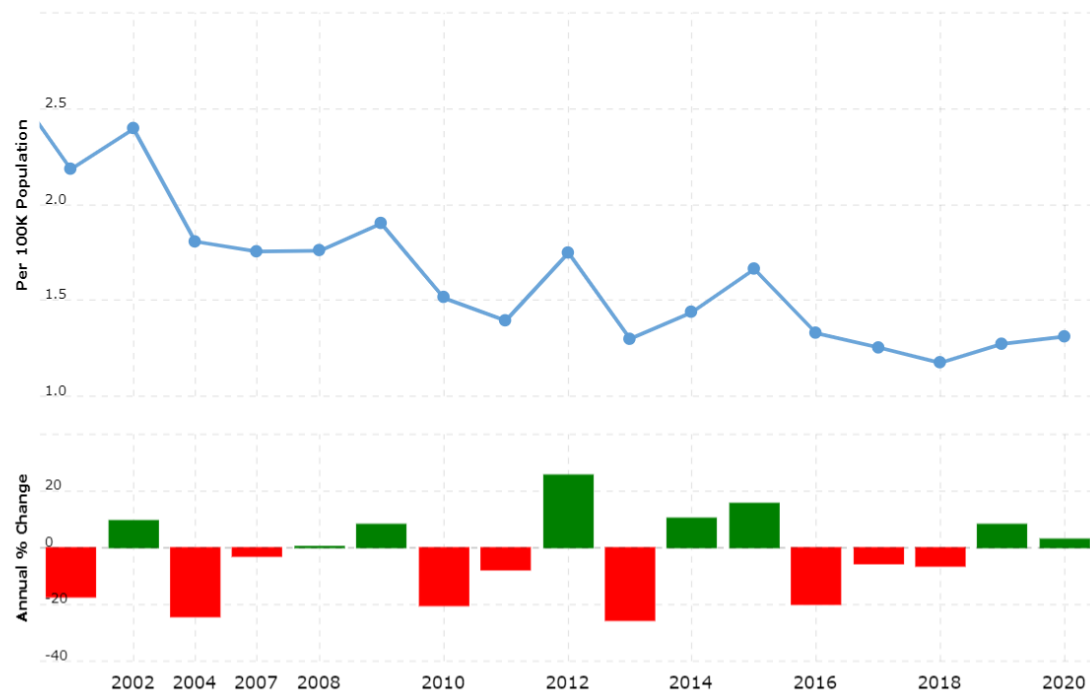


Figure 23 Bosnia crime rate and statistics 2001-2020 (<https://www.macrotrends.net/countries/BIH/bosnia/crime-rate-statistics>)

In 2020, the homicide rate in Bosnia and Herzegovina was 1.3 cases per 100,000⁵⁰, a similar rate was reported for Romania and France in the same year⁵¹.

1.56.2.4 Access to Resources

At the end of 2021, it was estimated that there were approximately 92,000 internally displaced persons (IDPs)⁵². More than half of the IDPs live in Republika Srpska, more than a third in the Federation of Bosnia and Herzegovina and a smaller number in the Brcko district⁵³. Some continue to struggle to repossess their property while others are unable, or do not wish, to repossess their property or return. Roma IDPs are especially marginalized as they often lack documentation to access services and assert housing and property rights.

While many displaced persons have returned since the end of the war, the political arrangement whereby territory was divided by ethnicity has only served to further entrench divisions and slow the resolution of displacement and related issues.

Floods and drought have affected over 489,000 people since 2000 (UNISDR, March 2013; GoB&H, July 2014). In 2014, the worst floods and landslides on record seriously impacted work addressing internal displacement as a result of the 1992-1995 conflict. Many IDPs and returnees were displaced again and lost what they had managed to rebuild⁵⁴.

1.57 RECENT CONFLICT AND TENSIONS

While the 1995 Dayton Peace Agreement successfully saw Bosnia and Herzegovina out of a period of intense conflict and the fracturing of multiple new states, its complex institutionalized power-sharing arrangements has also proven an extraordinarily challenging environment to develop effective rule of law institutions and sustainable forms of governance. Ethnic and political frictions have continued under Bosnia's complicated state system.

In February 2014, popular dissatisfaction with the government spilled over into widespread protests that resulted in the destruction of many government buildings and temporary momentum for national-level reform, but the demanded changes have still not taken place and institutional capacities have lagged far behind what is demanded by the EU. By 2020, Bosnia and Herzegovina was continuing its downward trajectory in global rule of law rankings, reflecting the stagnation and backsliding of rule of law institutions and processes within the country.⁵⁵

None the less, the level of conflict has significantly diminished from the years of the war and today, although there are isolated events, the risk of widespread conflict is relatively low.

1.57.1 Conflicts events between 2009 and 2021

Figure 24 shows the location of conflict events between September 2009 and Table 26 summarizes information about the corresponding events.

⁵⁰ <https://knoema.com/atlas/Bosnia-and-Herzegovina/Homicide-rate>

⁵¹ <https://www.statista.com/statistics/1268504/homicide-rate-europe-country/>

⁵² <https://www.internal-displacement.org/sites/default/files/figures-analysis-2021-bih.pdf>

⁵³ <https://www.internal-displacement.org/sites/default/files/2020-04/GRID%202020%20-%20Conflict%20Figure%20Analysis%20-%20BOSNIA%20AND%20HERZEGOVINA.pdf>

⁵⁴ <https://www.internal-displacement.org/publications/bosnia-and-herzegovina-ethno-political-agendas-still-prolonging-displacement>

⁵⁵ https://ec.europa.eu/commission/presscorner/detail/en/COUNTRY_20_1793; In 2020, the World Justice Project reported that BiH had again dropped in global rule of law rankings, a finding that aligned with broader assessments of the stagnation and backsliding of rule of law institutions and processes within the country.

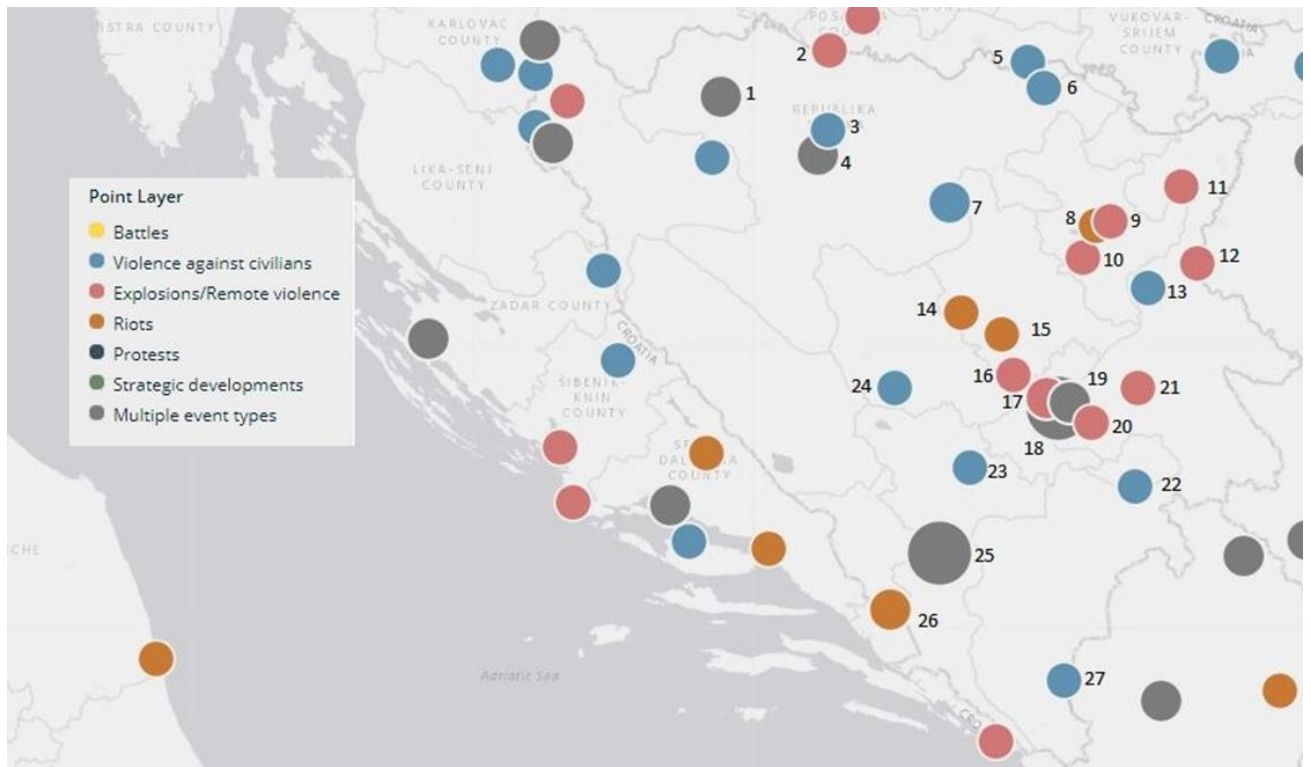


Figure 24 Locations of conflict events in Bosnia and Herzegovina - time period 30/9/09 - 31/8/21 (ACLED database)

Table 26 Records of conflict events from 30/9/09 - 31/8/21 (ACLED dashboard) – * refer Figure 24 for conflict locations

Site*	Date	Location	Category and Actors	Fatalities	
1	14/03/2019	Prijedor	Riots Mob violence	0	Two fractions of SDS political party got into a mass fight. There were no reports of injuries
	11/03/2019	Prijedor	Violence against civilians Attack	0	A Serbian man beat up and verbally threatened a Bosniak and damaged his vehicle because he had a coat of arms of Bosnia and Herzegovina on it. The perpetrator was arrested the next day
2	06/06/2018	Gradiska	Explosions/Remote violence Remote explosive/landmine/IED Unidentified Armed Group	0	A bomb exploded near the house of Darko Ilic, head of organized crime division of the Interior Ministry. Material damage was caused
3	22/04/2019	Glamocani	Violence against civilians Attack Unidentified Armed Group	1	A prominent businessman critical of the Republika Srpska government was shot and killed in Glamocani, Bosnia and Herzegovina by unknown perpetrators. The attack is alleged to be political.
4	19/09/2018	Banja Luka	Violence against civilians Attack Unidentified Armed Group	0	A man physically assaulted Davor Dragicevic, a father of David Dragicevic, a young man over whose death citizens were protesting for months.
	26/08/2018	Banja Luka	Violence against civilians Attack Unidentified Armed Group	0	A journalist of a regional television station BNTV, Vladimir Kovacevic, was beaten with metal rods by unknown perpetrators, after which he was hospitalized. Kovacevic was assaulted after having sent his report from civil protests organized by group 'Justice for David' who are protesting unresolved death of youngster David Dragicevic.

	20/06/2019	Banja Luka	Violence against civilians Attack Police Forces of Bosnia and Herzegovina	0	A citizen of Sweden was arrested with the use of force in Banja Luka, Bosnia and Herzegovina after talking to a 'Justice for David' activist since he did not have the necessary identification documents. He was hospitalized for light injuries and reportedly beaten by the police at the police station.
	24/10/2020	Banja Luka	Violence against civilians Attack Unidentified Armed Group	0	An activist of SNSD was physically assaulted by the father of the candidate of a rival party (PDP) in Banja Luka, Bosnia and Herzegovina, for allegedly destroying her campaign posters.
	24/05/2018	Banja Luka	Explosions/Remote violence Remote explosive/landmine/IED Unidentified Armed Group	0	An explosive device exploded under a car parked in front of a residential building, damaging five vehicles in total.
	31/03/2018	Banja Luka	Explosions/Remote violence Grenade Unidentified Armed Group	0	A M80 Zolja grenade was shot at the 'Euroherc' insurance company building by unknown perpetrators.
	09/07/2019	Banja Luka	Explosions/Remote violence Remote explosive/landmine/IED Unidentified Armed Group	0	An explosion and a fire took place in a lawyer's office in Banja Luka, Bosnia and Herzegovina. It is still unknown what device exactly caused the explosion. No injuries were reported.
5	30/08/2018	Gornji Svilaj	Violence against civilians Attack Unidentified Armed Group	0	Borislav Rakic, the Mayor of Vukosavlje municipality was attacked when an unknown perpetrator started shooting at him. In his statement for the police Rakic claimed to have recognized his attacker as Amir Mehic, an acquaintance of his.
6	12/10/2018	Odzak	Violence against civilians Attack	0	A prominent member of SDP Bosnia and Herzegovina political party was physically assaulted.

			Unidentified Armed Group		
7	17/04/2019	Teslic	Violence against civilians Attack Unidentified Armed Group	0	A representative in Parliamentary Assembly of Bosnia and Herzegovina and SNSD political party member was beaten up and sought medical assistance in Bosnian city of Teslic. The report suggests the attack was planned.
	02/07/2019	Teslic	Violence against civilians Attack Unidentified Armed Group	0	An activist of the oppositional SDS and head of Civil Defense in Teslic, was attacked and beaten by two masked men while out with his young son.
8	03/03/2018	Sicki Brod	Riots Violent demonstration Police Forces of Bosnia and Herzegovina	0	In Sicki Brod near Tuzla, the police forces dismantled a blockade set up by the demonstrators, injuring several of them in the process. The protests were organized by the former members of the Croatian Defence Council and the Army of the Republic of Bosnia and Herzegovina. This was a part of a series of demonstrations happening in several cities across the country organized by the former members of the Croatian Defence Council and the Army of the Republic of Bosnia and Herzegovina, demanding from the FB&H government allowances, a unified veterans' register, and the abolition of financing of veterans' association.
9	20/07/2019	Tuzla	Explosions/Remote violence Remote explosive/landmine/IED Unidentified Armed Group	0	A bomb was activated in front of a tenement building in Tuzla, Bosnia and Herzegovina. No one was injured.
10	17/02/2018	Banovici	Explosions/Remote violence Remote explosive/landmine/IED Unidentified Armed Group	0	An explosive device was detonated in nightclub 'QM', belonging to a prominent politician from the Bosnian SDA: Party of Democratic Action.
11	09/07/2019	Ugljevik	Explosions/Remote violence Grenade Unidentified Armed Group	0	An explosive device was thrown at the family of a police officer in Ugljevik, Bosnia and Herzegovina. The perpetrator or perpetrators are still unknown. No one was injured.
12	25/07/2019	Zvornik	Explosions/Remote violence	0	An explosive device was activated at a cafe near Zvornik, Bosnia and Herzegovina. No injuries were reported.

			Remote explosive/landmine/IED Unidentified Armed Group		
13	1/06/2019	Sekovici	Violence against civilians Attack Unidentified Armed Group	0	A whistle blower who pointed out mobbing in a private company owned by a businessman well-connected in political circles was beaten up in Sekovici, Bosnia and Herzegovina, by four unidentified perpetrators.
14	25/01/2018	Blatusa	Riots Violent demonstration Rioters	0	A group of workers of Zenica Steelworks has blocked the M-17 main road in Blatusa, Zenica, Bosnia and Herzegovina after a clash with the police which left 9 workers injured. Workers are demanding payment of salaries and contributions to the pension and disability fund. This was a part of a several-days long demonstration which included a hunger strike as well.
15	19/03/2018	Kakanj	Riots Violent demonstration Rioters	0	A group of citizens demonstrated in front of the headquarters of 'Kakanj Coal Mine'. Protesters expressed dissatisfaction with the selection of newly hired employees of the coal mine. During the demonstration, the demonstrators clashed with the police and security workers of the coal mine.
16	02/07/2018	Visoko	Explosions/Remote violence Grenade Unidentified Armed Group	0	An unknown perpetrator threw an explosive on the house of Visoko Mayor's assistant, causing material damage. Mayor Amra Babic said she and her co-workers have been under attack since their separation from the SDA political party.
17	11/06/2018	Vogosca	Explosions/Remote violence Remote explosive/landmine/IED	0	An explosive device exploded causing material damage on a residential building.
	03/12/2018	Vogosca	Explosions/Remote violence Grenade Unidentified Armed Group	0	An explosive device was thrown near an apartment building.
	20/10/2019	Vogosca	Explosions/Remote violence Remote explosive/landmine/IED	0	An explosive device was activated in Vogosca, Bosnia and Herzegovina. Though the area has both residential and business buildings, no one was injured.

			Unidentified Armed Group		
18	09/07/2021	Sarajevo	Riots Mob violence Rioters	0	Two men and an underage boy, all of them Bosniak, beat and injured an underage boy from a mixed marriage while cursing at his 'Serbian mother' in Sarajevo, Bosnia and Herzegovina. [size=3]
	04/12/2019	Sarajevo	Riots Violent demonstration Rioters	0	Fans of the football club 'Sarajevo' gathered in the capital of Bosnia and Herzegovina to revolt against the dismissal of the club's coach. Two journalists were physically attacked by the rioters. [size=no report]
	18/06/2020	Sarajevo	Explosions/Remote violence Remote explosive/landmine/IED Unidentified Armed Group	0	An explosive device was activated on a street in Sarajevo-Noví Grad. No one was injured but material damage was caused.
	17/04/2018	Sarajevo	Riots Violent demonstration Rioters	0	In front of the FB&H Parliament building, a gathering of war veterans which started as a peaceful protest turned into a riot when the veterans attempted to enter the building and clashed with the police in the process.
	12/12/2018	Sarajevo	Explosions/Remote violence Remote explosive/landmine/IED Unidentified Armed Group	0	In Kobilja Glava an explosive device went off in residential area, causing material damage on a nearby car repair shop.
	24/09/2018	Sarajevo	Explosions/Remote violence Grenade Unidentified Armed Group	0	Unknown perpetrators threw an explosive device at a cafe.
	07/10/2018	Sarajevo	Riots Mob violence	0	There was a brawl among the migrants currently residing at the main Sarajevo train station.

			Rioters		
19	20/10/2018	Sarajevo-Stari Grad	Riots Mob violence Rioters	0	In Old Town, there was a massive brawl between migrants currently residing in Sarajevo. One person suffered serious injuries.
	13/09/2018	Sarajevo-Stari Grad	Explosions/Remote violence Grenade Unidentified Armed Group	0	In Sarajevo settlement Sirokaca unknown perpetrators threw an explosive device which damaged a house and two vehicles.
	29/01/2018	Sarajevo-Stari Grad	Explosions/Remote violence Grenade Unidentified Armed Group	0	A hand grenade exploded in Old Town. According to the police records, the aim of the grenade was a private house.
20	24/07/2019	Pale	Explosions/Remote violence Remote explosive/landmine/IED Unidentified Armed Group	0	One person was injured when a bomb was activated under a car. According to reports, the person injured may have activated the bomb.
21	26/06/2018	Sokolac	Explosions/Remote violence Remote explosive/landmine/IED Unidentified Armed Group	0	An explosive device damaged a car wash, property of husband of a representative in the municipal council, member of SNSD political party. The motive is still unknown but there are indications that the attack, which has caused significant material damage has not been politically motivated.
22	29/04/2019	Ustikolina	Violence against civilians Attack Police Forces of Bosnia and Herzegovina	0	Policemen attacked an American citizen, reportedly for 'no reason'.

23	20/08/2018	Konjic	Violence against civilians Attack Unidentified Armed Group	0	A group of masked individuals attacked the journalists of public broadcaster BHRT who were in their van, injuring the driver and causing material damage on the van
24	10/05/2019	Gornji Vakuf-Uskoplje	Violence against civilians Attack Unidentified Armed Group (0	The mayor was attacked with a wooden weapon.
25	12/09/2018	Mostar	Violence against civilians Attack Unidentified Armed Group	1	A man died from wounds that were caused either by firearms or an explosive device, with a witness claiming she heard detonation. Police did not confirm these claims.
	15/02/2020	Mostar	Riots Mob violence Rioters	0	A group commemorating the partisans at the cemetery in Mostar was attacked by a mob that threw bottles and rocks at them. Graffiti with fascist symbols was also sprayed on the cemetery walls. [size=no report]
	19/10/2018	Mostar	Violence against civilians Attack Unidentified Armed Group	0	Three young men were attacked by three unknown perpetrators. Media claims unofficially that the attacked persons were court police cadets.
	03/09/2018	Mostar	Explosions/Remote violence Remote explosive/landmine/IED Unidentified Armed Group	0	A parked car exploded in front of a residential building.
	13/03/2019	Mostar	Violence against civilians Attack Unidentified Armed Group	0	Unknown perpetrators stoned a vehicle with fans of a soccer club 'Sarajevo', traditionally associated with Bosniaks.'Sarajevo' was playing soccer club 'Zrinjski', traditionally associated with Croats. The incident caused some damage of the vehicle, but no injuries were reported.
	18/07/2019	Mostar	Explosions/Remote violence	0	An explosive device was activated underneath a car in Mostar, Bosna and Herzegovina. No one was injured.

			Remote explosive/landmine/IED Unidentified Armed Group		
	11/07/2019	Mostar	Riots Violent demonstration Rioters	0	More than a thousand former workers of the 'Aluminij' company, mainly ethnic Croats, and their supporters demonstrated in front of the Croatian Democratic Union (HDZ) headquarters in Mostar, Bosnia and Herzegovina. Two people were arrested after an object was thrown at HDZ's president's car. [size=at least 1000]
26	07/08/2018	Bijaca	Riots Violent demonstration Rioters	0	At Bijaca border crossing war veterans clashed with the police during their demonstration.
	06/08/2018	Bijaca	Riots Violent demonstration Rioters	0	A group of war veterans staged a demonstration at the Bijaca border crossing, blocking the roads and demanding from the FB&H government allowances, a unified veterans' register, and the abolition of financing of veterans' association. The demonstrators clashed with the drivers, dissatisfied because of the road blocking.
27	19/06/2018	Bileca	Violence against civilians Attack Unidentified Armed Group	0	President of the Municipal Assembly of Bileca Srdjan Rogan was assaulted by two unknown perpetrators. A day before Rogan disclosed that he was switching from PDP political party to SNSD.

1.57.2 Conflicts Events October 2021-September 2022

Figure 25 shows the location of conflict events between end of September 2021 and end of September 2022. Table 27 provides the corresponding summaries.

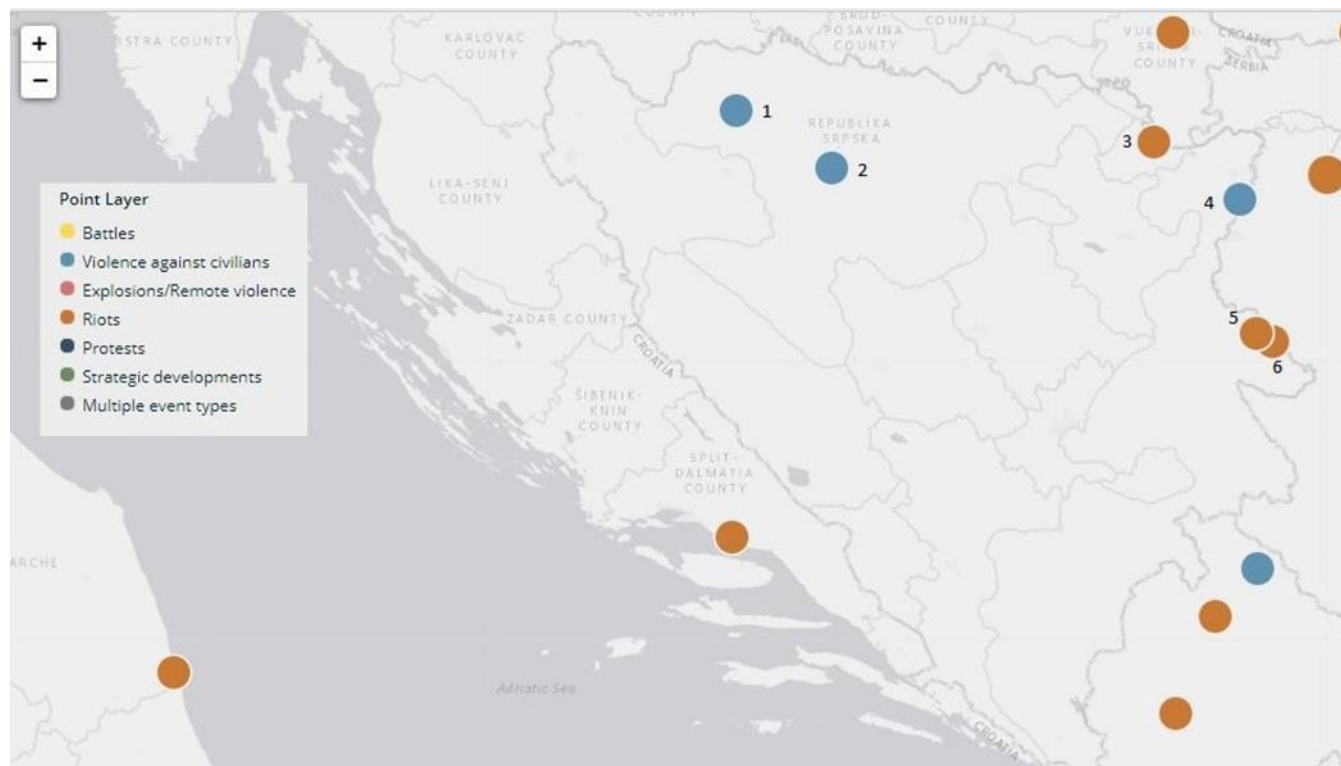


Figure 25 : Locations of conflict events in Bosnia and Herzegovina - time period 30/9/21 – 30/9/22 (ACLED database)

Table 27 Conflict events in Bosnia and Herzegovina - time period 30/9/21 – 30/9/22 (ACLED database) (* refer Figure 25 for locations of conflicts)

Site*	Date	Location	Category and Actors	Fatalities	NOTES
1	21/03/2022	Prijedor Republika Srpska	Violence against civilians - Attack Unidentified Armed Group	1	The head of the Prijedor municipality criminal police was killed by an unidentified group member in front of his residential building before work in Prijedor (Grad Prijedor). The perpetrator escaped the crime scene
2	16/09/2022	Banja Luka	Violence against civilians Attack SNSD	0	Members and activists physically assaulted a journalist from BN television in Banja Luka while he was filming an illegally parked vehicle bearing the SNSD emblem.
3	08/01/2022	Brcko	Riots Mob violence Rioters	0	Rioters gathered in Brcko ahead of a Bosnian Serb holiday that has been declared unconstitutional in Bosnia and Herzegovina, bearing flares, and chanting Serbian nationalist slogans, and incurred damage on local public property. [size=no report]
4	06/01/2022	Janja	Violence against civilians Attack Unidentified Armed Group	0	An unidentified shooter in a group of several cars shot at the mosque in Janja right around the time of the morning prayer. No one was injured or killed. Tensions are high in the country over attempts by the Bosnian-Serb majority Repulika Srpska entity to secede from the country.
5	07/11/2021	Bratunac	Riots Mob violence Rioters (B&H)	0	Three men physically attacked and injured the elected head of the municipality in Bratunac, Bosnia and Herzegovina. They were arrested for the assault and the victim believes it was politically motivated. [size=3]
6	22/02/2022	Bjelovac	Riots	0	A boat with 15 migrants tried to cross the border in Bjelovac (Bratunac) and injured one border policeman in this attempt by not stopping the boat when ordered. The migrants were subsequently arrested. [size=15]

			Mob violence Rioters		
--	--	--	-------------------------	--	--

1.57.3 Conflict Dynamics

As can be seen from the above information, there has been downward trends in unemployment, crime and overall conflict in the past ten years. None the less, conflict and violence does still occur and can generally be seen as political/ethnically based.

The project is not aligned specifically with any political party or ethnic group. There are activities that are national in their coverage as well as activities in each of the entities.

ASSESSMENT OF PROJECT ELEMENTS

1.58 SUMMARY OF PROJECT ACTIVITIES

The proposed project will have the following activities:

OUTPUT 1: CLIMATE-INFORMED FFEWS AND AN INCREASED GENERATION AND USE OF CLIMATE DATA
REDUCE VULNERABILITY TO FLOOD RELATED DISASTERS

Activity 1.1: Upgrade and expand the coverage of the hydrometric network for enhanced monitoring of climate variables in Category I catchments. Activity 1.1 will include the following sub-activities:

- 1.1.1: Develop optimized hydrometric network specification, develop ICT strategy and plan for hydrometric network
- 1.1.2: Procure and install equipment to increase density of the hydro-meteorological observation network and expand monitoring to include greater range of hydrometric variables that climate change is bringing, in particular:
 - Meteorological and hydrological network for improved monitoring of torrents
 - Integration of the HPPs hydrometric network into the national network
 - Groundwater monitoring network for Adriatic Sea basin (include development of groundwater monitoring methodologies and protocols)
 - Sediment monitoring
- 1.1.3: Set-up sustainable O&M for the network and,
- 1.1.4: Develop long-term financing mechanisms for the maintenance of the hydrometric network

Activity 1.2: Enhance climate-induced flood hazard, risk and vulnerability information for strategic management and sound decision making for climate induced flood management. Activity 1.2 will include the following sub-activities:

- 1.2.1: Develop hydrological modelling for all main basins (Category I rivers) to complement WBIF project's EUFD hazard and risk models
- 1.2.2: Develop full basin hydraulic models
- 1.2.3: Produce country-wide maps of torrents hazard, risk and vulnerability
- 1.2.4: HPP modelling for development of enhanced operating rules for Hydro Power Plants (HPPs). Incorporation of HPP operations into flood hazard and risk modelling

Activity 1.3: Develop an integrated centralized and community-based flood forecasting and early warning system (FFEWS). Activity 1.3 will include the following sub-activities:

- 1.3.1: Develop and implement impact based FFEWS system (centralized and Community-based)
- 1.3.2: Implement CBEWS for high priority communities for which CBEWS will be supported based on the following considerations: relatively high risk, short lead time of the extreme events, potential technical constraints for the central system to effectively service the community (e.g. due to remote location or connection problems)
- 1.3.3: Review, identify and develop sector specific FFEWS products (based on market research and WTP surveys). Review existing access to, and use of climate and flood risk information in specific sectors (agriculture, hydropower/energy)
- 1.3.4: Develop and implement a capacity development plan for embedding flood hazard and risk modelling approaches and FFEWS into appropriate institutions in Bosnia and Herzegovina (based on Institutional capacity report developed for Vrbas).

Activity 1.4: Developing and implementing national protocols and SOPs on data generation, data management and communication for effective FFEWS and flood risk management. Activity 1.4 will include the following sub-activities:

- 1.4.1: Implement SoPs for “last-mile” warning and dissemination and communication system. Based on Vrbas design, specify the last-mile system (including dissemination and warning technologies) will be implemented
- 1.4.2: Develop national protocols and SOPs on data generation, data management for FRM.
- 1.4.3: Develop data sharing protocols and platform for climate data, across all government institutions in both entities. Spatial Data Infrastructure to be developed/enhanced to ensure climate data flow/exchange

OUTPUT 2: SCALED-UP ECOSYSTEM-BASED AND NON-STRUCTURAL CLIMATE RESILIENT FLOOD RISK REDUCTION.

Activity 2.1: Mainstream climate induced flood risk reduction into sectoral planning (agriculture, hydropower, critical infrastructure, forestry) and spatial planning. Activity 2.1 will include the following sub-activities:

- 2.1.1: Mainstream climate induced flood risk reduction into sectoral strategies, plans and technical guidelines for agriculture, hydropower and critical infrastructure, forestry and environment.
- 2.1.2: Develop national floodplain zoning policy and legislation, based on hazard, risk and vulnerability mapping, flood resilient building codes and embedding of climate change considerations in the design and construction standards of critical infrastructure.
- 2.1.3: Update climate risk-informed methodologies and standards for infrastructure design, construction material, use and maintenance of critical infrastructure in B&H
- 2.1.4: Deliver training and technical advice on climate resilient infrastructure design, construction and O&M approaches

Activity 2.2: Implement and mainstream new ecosystem-based flood risk reduction and climate change adaptation methods. Activity 2.2 will include the following sub-activities:

- 2.2.1: Implement catchment management measures for reduced erosion
- Erosion reduction on torrential watercourses e.g., gabion walls, sediment barriers etc.
 - The stabilization of excessively eroding riverbanks with vegetation cover and its root network
 - Planting of forest stripes in agricultural land
 - Identify agriculture infrastructure that could address climate threats, such as irrigation systems and reservoirs and rainwater collection in each target basin. Assess and identify flood risks to agricultural infrastructure in target basins, as well as flood risk management opportunities associated with agricultural infrastructure under climate change and potential new infrastructure such as irrigation retention basins that could also serve as flood storage areas;
 - Design an agro-forestation scheme identified area of floodplain and develop an implementation plan for the scheme.

Activity 2.3: Codify and mainstream “ecosystem-based adaptation” (EbA) solutions into policies and regulations and build awareness about concepts of “making room for water” and/or “living with floods” among decision makers and communities. Activity 2.3 will include the following sub-activities:

- 2.3.1: Develop best-practice guidelines for non-structural measures:
 - Develop the methodology and guidance for undertaking river basin analysis of the local socio-economic, environmental, and institutional conditions that would underpin the selection and design of basin appropriate EbA solutions.
 - Develop the methodology for system evaluation to determine the pre-existing types of ecosystems and abiotic processes and identify opportunities and constraints for effective conservation and restoration of ecosystems
 - Develop methodology and guidance for undertaking risk assessment and appraisal of EbA measures, by adapting traditional risk assessment and appraisal methods for nature-based solutions, to incorporate the full range of benefits generated by nature-based projects
- 2.3.2: Develop technical specification, standards and protocols for design and implementation of non-structural measures
 - Review existing international technical specifications, standards and protocols for the design and implementation of nature-based structures and adapt and develop same for Bosnia and Herzegovina.
 - Develop a knowledge portal and common resource centre to collect, collate and share knowledge and fill these gaps to advance uptake of nature-based solutions. Developing and applying quantifiable engineering protocols for ecosystems will require close collaboration between

ecologists, or specialists with a strong understanding of the natural systems, and engineers. A knowledge portal of this nature allows to co-working and knowledge sharing

2.3.3: Review and implement of training required for new non-structural measures

Activity 2.4: Review and strengthening of institutional capacity and development of long-term institutional plans for climate resilient FRM. Activity 2.4 will include the following sub-activities:

2.4.1: Embed FRM training in existing government training programs for long-term FRM training in B&H.

2.4.2: Develop a costed and prioritized Institutional capacity development plan to address technical, functional and human capacity gaps identified through the completed institutional capacity assessment

2.4.3: Implement community-based training and awareness raising initiatives at community level.

OUTPUT 3: CLIMATE-PROOF FLOOD PROTECTION INVESTMENTS STRENGTHEN ADAPTIVE CAPACITY AND REDUCE EXPOSURE TO CLIMATE-INDUCED FLOODS

Activity 3.1: Development of a country-wide investment framework for climate induced flood risk reduction and management including provisions for private sector engagement in climate risk financing. Activity 3.1 will include the following sub-activities:

3.1.1: Develop investment framework for climate induced floods risk reduction and management including provisions for public and private/productive sector engagement in climate risk financing;

3.1.2: Develop risk financing and transfer mechanisms based on detailed socio-economic risk, damages and losses assessment;

3.1.3: Design natural disasters' insurance scheme and explore, and identify, other risk financing and transfer mechanisms products and tools.

3.1.4: Develop tool for appraisal-led design for structural and non-structural FRM measures, FRM investment planning, climate risk financing mechanisms and for appraisal-led FRM options design and decision-making, based on CBA approaches.

Activity 3.2: Formulate and implement multi-year climate resilient municipal investment plans and gender responsive community preparedness plans in selected municipalities and in one canton in Vrbas, Una-Sana, Bosna, Drina, Neretva and Trebišnjica basins. Activity 3.2 will include the following sub-activities:

3.2.1: Develop municipal investment plan for climate resilient FRM planning for 10-12 highest risk communities and 1 canton

3.2.2: Develop preparedness plans for 10-12 highest risk communities and 1 canton based on Vrbas methodology

Activity 3.3: Implement climate-proof structural flood risk reduction and anti-erosion interventions in Vrbas, Una-Sana and Bosna, Neretva and Trebisnjica river basins. Activity 3.3 will include the following sub-activities:

3.3.1: Finalize detailed design of climate resilient flood protection structural measures identified using CBA methods and appraisal-led optioneering to identify and prioritize critical flood protection structures.

3.3.2: Implement new flood defenses and the rehabilitation and upgrade of existing flood defenses with climate proofing.

1.59 ASSESSMENT OF PROJECT ACTIVITIES POTENTIAL TO CAUSE CONFLICT

Project-wide opportunities to bring different groups with diverging interests positively together

Both Republika Srpska and Federation BiH will through project activities work together on reducing flood risk in their respective entities, applying river basin management approach regardless cross-entity basins in BiH; Project will organize joint trainings and workshops on flood risk management with representatives of different nationalities from both entities, and will work with municipalities upstream and downstream with different view of the problem, on more holistic water management approach.

Specifically, the institutional components of the project – all Output 1 activities and activities 2.1, 2.3, 2.4, and activities 3.2 - bring together the key relevant authorities in charge of water management policies in both of Federation of Bosnia & Herzegovina and Republika Srpska, allowing them discuss their priority concerns, potential diverging interests and jointly develop win-win solutions or no/low-regret measures that enhance the wider resilience of the flood risk management in the country. In other words, the project is expected to enhance the social cohesion related to flood management matters in Bosnia and Herzegovina. However, to be absolutely sure that the project does not inadvertently create conflicts, UNDP will closely monitor these collaborative processes and will constructively intervene should it identify any (even remote) signals that legitimate concerns of potentially affected entities or ethnic groups that may later create conflicts are being overlooked or disregarded.

Groups that may likely benefit more than others from the various project activities and their impacts on scarce local resource constraints that may affect the local conflicts and dependencies

The key physical interventions implemented within the project that will benefit specific groups are the planned ecosystem-based flood risk reduction projects under activity 2.2 and the structural flood risk reduction and anti-erosion interventions under activity 3.3. When identifying these measures, comprehensive stakeholder consultations (documented in Appendix 4) confirmed that various stakeholders representing diverse ethnic groups in Bosnia and Herzegovina supported the project and did not raise any objections to its activities and these proposed projects. This indicates that the project will not create conflict or exacerbate existing sensitive situations.

The key resource protected by this project is water. When protecting it, the project interventions will not have any significant adverse impacts on the water use – they will not divert, contain or significantly affect the water bodies. Nevertheless, the site-specific assessments of projects implemented under activities 2.2 and 3.3 will consider their potential wider impacts, including those on upstream and downstream communities (e.g., on water flows and sediment transport) and will mitigate any potential impacts should they arise (which currently not expected). Moreover, a project-level Grievance Redress Mechanism that will be readily available to address any potential future questions on the potentially differentiated access to benefits between groups that our analyses may have omitted. The publicly and widely accessible GRM will be our key instrument for mitigating this risk that can act rapidly, and in all transparency, if ever any risks of this type would arise.

There are no additional scarce local resources and resources constraints in project locations that may lead to conflict among different groups.

Activity-specific potential risks

There are no risks posed to project operations and personnel owing to existing or potential conflicts. The local social settings that surround the project are currently well-aligned.

An assessment of the risk in creating or exacerbating conflict because of the project activities was made by considering common conflict flashpoints using a series of questions as shown in

Table 28 Checklist used to assess conflict sensitivity of project activities

Table 28.

Table 29 summarises the risk associated for each of the project activities to the common flashpoints listed in

Table 28.

Table 28 Checklist used to assess conflict sensitivity of project activities (after Goldwyn and Chigas 2013⁵⁶)

Common flashpoints	Questions
Targeting	Do targeting criteria coincide with lines of division of specific ethnic, economic, religious or political grouping? What tensions exist concerning targeting? Are targeting criteria being appropriately applied?
Location	Do the geographic boundaries of our project coincide with lines of division? Are there perceptions of bias in aid distribution?
Land ownership	Are there ways our programming has become enmeshed in conflict over land claims? Is land required to be acquired?
Decision making	Did those involved in decision making represent the communities? Has power been shared in decision making, or have certain actors dominated decision making?
Challenging cultural norms	What cultural norms are being challenged by the intervention? Who supports these changes and who opposes them?
Staff and partners	Who are our staff and partners? Do we/they represent any particular group in the conflict? What are the perceptions of our staff and partners?
Procurement	Who are we procuring from? Do they represent any particular group in the conflict? How is our procurement affecting the local economy? How is this affecting the conflict?

⁵⁶ Goldwyn, R. and Chigas, D. (2013) Monitoring and evaluating conflict sensitivity – Methodological challenges and practical solutions. Department for International Development

Table 29 Project activity conflict risk / sensitivity analysis

	Common Flashpoints						
	Targeting	Location	Land ownership	Decision making	Cultural norms	Staff & Partners	Procurement
OUTPUT 1: CLIMATE-INFORMED FFEWS AND AN INCREASED GENERATION AND USE OF CLIMATE DATA REDUCE VULNERABILITY TO FLOOD RELATED DISASTERS							
Activity 1.1: Upgrade and expand the coverage of the hydrometric network for enhanced monitoring of climate variables in Category I catchments	Low risk. Targeting based on gaps in current network to provide enhanced national coverage	Low risk. Locations based need to complete national coverage. Locations do not coincide with ethno-political boundaries.	Low risk No change in land ownership required. Equipment installation small footprint on government owned land	Low risk Water and hydromet authorities are autonomous in each entity.	Low risk No cultural norms being challenged. Activity is an extension of existing systems	Low risk Partners at multiple levels across State and Entity levels	Low risk Procurement specialist suppliers via UNDP procurement protocols.
Activity 1.2: Enhance climate-induced flood hazard, risk and vulnerability information for strategic management and sound decision making for climate induced flood management.	Low risk. Flood mapping based in river systems, not ethno-political boundaries	Low risk Flood risk management platform will be a country-wide mechanism	Low -medium risk No land required, however flood maps will clearly delineate flood risk land, which could have economic consequences as these maps will inform future investors on these lands about the potential losses and damages that may occur as a result of flood events. The flood maps will be presented and discussed with the local communities to make sure they can	Low risk Institutions contain community representation. Output will provide all decision makers with improved information to base flood related decisions on.	Low risk This activity does not challenge cultural norms	Low-medium risk Both public and private sector are partners / beneficiaries. Involvement of HPPs may be viewed negatively by some. To this end, the stakeholder consultations in this activity will promote the multi-purpose use of the HPPs and will ensure that power production objectives of these HPPs do not override or adversely affect their flood protection functions.	Low risk No major procurement activities

			benefit from this information.				
Activity 1.3: Develop an integrated centralized and community-based flood forecasting and early warning system	Low risk Selection Based on flood risk not etho-political	Low risk CBEWS will be implemented in local communities	Low risk No change in land ownership required	Low risk Municipal civil protection services are responsible for use and maintenance and have autonomy in their municipality Community based Civil protection service local branches, which includes volunteers	Low risk Communities endure floods, project will provide greater resilience	Low risk Municipal civil protection services is partner	Low risk No major procurement activities
Activity 1.4: Developing and implementing national protocols and SOPs on data generation, data management and communication for effective FFEWS and flood risk management.	Low risk National coverage Integrated sectoral approach	Low risk National coverage	Low No change of land ownership required	Low risk Ministries at entity level. Multi-sectorial approach with input from many	Low risk Project represents an improvement on current warning systems	Low risk Partners at entity ministries	Low risk – no major procurement activities
OUTPUT 2: SCALED-UP ECOSYSTEM-BASED AND NON-STRUCTURAL CLIMATE RESILIENT FLOOD RISK REDUCTION.							
Activity 2.1: Mainstream climate induced flood risk reduction into sectoral planning (agriculture, hydropower, critical infrastructure, forestry) and spatial planning	Low risk National Integrated sectoral approach	Low risk National	Low risk No land required	Medium risk Client organizations (e.g.HPP) operational plans may be adjusted to allow for climate change Stakeholder consultations in this activity will promote the multi-purpose use of	Low risk Cross-sectoral opportunities for collaboration	Low risk Partners at entity ministries	Low risk Procurement of consultancy services. UNDP procurement procedures to be applied

				the HPPs and will ensure that power production objectives of these HPPs do not override or adversely affect their flood protection functions			
Activity 2.2: Implement and mainstream new ecosystem-based flood risk reduction and climate change adaptation methods.	<u>Low-medium risk</u> Single basin selected (near Banja Luka) within one entity – confluence of river is a transborder river so benefits beyond single entity.	<u>Low-medium risk</u> Proposed measures are on watercourses that lie within municipal and entity boundaries	Low risk Public land to be used	Low risk Landowners, ie relevant government bodies, involved in decisions.	Low risk Water Authorities are looked to for solutions and management, therefore implantation of activity is seen as their mandate	Low risk Partners are Water Agencies and entity ministries of water management	Low risk - Local contractors via public tendering. UNDP procurement procedures to be applied
Activity 2.3: Codify and mainstream “ecosystem-based adaptation” (EbA) solutions into policies and regulations and build awareness about concepts of “making room for water” and/or “living with floods” among decision makers and communities	Low risk National (entity level) Integrated sectoral based approach	Low risk National coverage.	Low risk No land required	Low risk Any proposed policy/regulation changes subject to government/community consultation.	<u>Low - medium risk</u> “Making room for water / living with floods” may be new concept for some. The flood maps will be presented and discussed with the local communities to make sure they can benefit from this information.	Low risk Partners at entity ministries	Low risk Procurement of consultancy services. UNDP procurement procedures to be applied
Activity 2.4: Review and strengthening of institutional capacity and development of long-term institutional plans for climate resilient FRM	Low risk Sectoral based/multi-entity	Low risk National coverage	Low risk No land required	Low risk Decisions will be based on institutional capacity assessments and need.	Low risk Capacity building is a normal activity	Low risk Partners are entity ministries	Low risk Procurement of consultancy services.

	Training based on institutional capacity needs			Multi-sectoral assessment			UNDP procurement procedures to be applied
OUTPUT 3: CLIMATE-PROOF FLOOD PROTECTION INVESTMENTS STRENGTHEN ADAPTIVE CAPACITY AND REDUCE EXPOSURE TO CLIMATE-INDUCED FLOODS							
Activity 3.1: Development of a country-wide investment framework for climate induced flood risk reduction and management including provisions for private sector engagement in climate risk financing.	Low risk National Integrated sectoral based approach	Low risk National coverage	Low risk No land required	Low risk Broad consultation – national coverage. Changes to policy/regulations require consultation	Low risk Cultural norm is for communities to be consulted prior to changes in policies/legislation.	Low risk Partners are entity ministries	Low risk Procurement of consultancy services. UNDP procurement procedures to be applied
Activity 3.2: Formulate and implement multi-year climate resilient municipal investment plans and gender responsive community preparedness plans in selected municipalities and in one canton in Vrbas, Una-Sana, Bosna, Drina, Neretva and Trebišnjica basins	Low risk 10-12 municipalities selected based on risk, within basins where other project interventions will be undertaken.	Low risk Municipals within basins demonstrating holistic catchment management	Low risk No land required	Low risk Local representatives from candidate municipalities	Low risk	Low risk Partners are entity ministries	Low – no procurement associated with project.
Activity 3.3: Implement climate-proof structural flood risk reduction and anti-erosion interventions in Vrbas, Una-Sana and Bosna, Neretva and Trebisnjica river basins.	Low risk All major basins covered	Low-medium risk Proposed measures are on watercourses lying within municipal and entity borders. Assessments of site-specific projects under activities 2.2 and 3.3 will consider their impacts on land-use.	Low risk Public land utilized Both Water Authorities implementing.	Low risk Water Agencies based on flood risk assessment. Community consulted during intervention development.	Low risk Cultural norms not challenged	Low risk Partners are Water Agencies and entity ministries of water management	Low risk - Local contractors via public tendering. UNDP procurement procedures to be applied

CONCLUSIONS

Bosnia and Herzegovina (B&H) is still dealing with the legacy of the 1992-95 conflict. It is a country with a complex and multilayered political setup. After more than 25 years, ethnic cleavages persist, and conflicting interests of political parties sometimes prevail over the interests of the citizens.

Today Bosnia and Herzegovina poses a very low risk of return to the kind of large-scale deadly conflict of the early 1990s. However, while the country has not relapsed into conflict, it has remained deeply divided and has failed to progress towards greater trust between ethnic groups and between society and the state⁵⁷. Ethno-political conflict still occurs, albeit at a relatively low level.

Though the Bosnia and Herzegovina global peace index fluctuated substantially in recent years, it tended to increase through 2012 - 2021 period ending at 1.97 score, lowest = best in 2021.⁵⁸

The project has been designed to avoid perceptions of bias. Stakeholder engagement has been undertaken with all key stakeholders, who have been intimately involved in the design and development of the project.

The project objective is to address the increasing vulnerability of Bosnia and Herzegovina communities and livelihoods to intensified climate-induced hydro-meteorological flood-related disasters (pluvial, fluvial, groundwater and torrential). More frequent and intensive floods on the territory of Bosnia and Herzegovina (B&H), will result in significant impact on people, their property and critical infrastructure assets, with the most important economic sectors such as agriculture, water management, hydropower at risk. The impacts of floods, representing 'climate shock', pose a greater risk to triggering conflict than any of the activities posed by the project making the 'do nothing' option untenable.

The project focuses on resolving the physical impacts of natural hazardous events, events which impact all political, ethnic and religious groups within the country. Therefore, it is unlikely that the project will cause new or exacerbate existing tensions. The project involves activities within each entity, but also creates opportunities for shared solutions which can lead to greater cooperation between the main actors.

The project also includes a stakeholder engagement plan and a grievance redress mechanism (GRM) that provides a mechanism for grievances to be raised by stakeholders in an a-political environment (refer below). The GRM will assist in reducing the risk of reprisals against individuals and communities (e.g., human rights and environmental defenders, complainants) who may raise issues in relation to project activities.

The probability of any conflicts occurring or being exacerbated due to the project interventions is slight as the project will incorporate best practices and lessons learned from past adaptation interventions

RECOMMENDATIONS

1.60 RECOMMENDED CONFLICT MITIGATION MEASURES

Going forward, project management will support any macro-level conflict mitigation efforts undertaken at the state or federal level. These efforts typically revolve around the four major phases of peace-building, namely de-escalating conflict, building a vision, addressing grievances, and sustaining the peace.

The project team should be seen to be neutral in terms of political alliance and be prepared to offer/provide mediation support to help de-escalate tensions that could impact the project.

⁵⁷ UNDP (2022) Draft Report: Rule of Law Support to Conflict Prevention and Sustaining Peace in Bosnia-Herzegovina (2015-2020)

⁵⁸ <https://knoema.com/data/bosnia-and-herzegovina+global-peace-index>

1.60.1 Stakeholder Engagement

During the development of the project, there was considerable consultation with key stakeholders. Ongoing mechanisms for engagement have been:

- Workshops
- Meetings
- Project development documents – Idea Note, Concept Note, Funding Proposal
- Media coverage
- Site visits

At state and entity level, ministries responsible for water management, water agencies, hydro meteorological institutes, climate change focal point in Bosnia and Herzegovina (Ministry of Spatial Planning, Construction, and Ecology of Republika Srpska) and other environment related ministries, as well as civil protection and insurance companies and associations, were invited to participate in project preparation. At entity level, political, operational and executive jurisdictions for water sector rest with line Ministries in charge of water. Civil protection organizations and representatives from municipal government actively participated in the project preparation. All consulted organisations provided data and information requested during interviews, workshops and phone/email consultations.

A Stakeholder Engagement Plan has been prepared for the project to ensure good communication between project and all types of direct and indirect beneficiaries. The Stakeholder Engagement Plan will help ensure that all interested parties are kept informed equally and in a timely manner. The Stakeholder Engagement Plan provides a mechanism for the transparent dissemination of information, knowledge and feedback.

1.60.2 Grievance Redress Mechanism

There is growing awareness of the usefulness of grievance redress mechanisms in helping to address institution-community conflict. Strong and trusted grievance mechanisms can help address problems proactively as they arise, before they erode the local community's trust or become intractable.

The project includes a Grievance Redress Mechanism⁵⁹ in which affected parties can resolve conflict-related and other issues in a non-confrontational manner with the project personnel in an efficient, unbiased, transparent, timely and cost-effective manner. The Grievance Redress Mechanism is detailed in the Project Environmental and Social Assessment Report and is summarized below.

The Grievance Redress Mechanism has been designed to be problem-solving mechanism with voluntary good-faith efforts. The Grievance Redress Mechanism is not a substitute for the legal process. The Grievance Redress Mechanism will as far as practicable, try to resolve complaints and/or grievances on terms that are mutually acceptable to all parties.

A multi-tiered Grievance Redress Mechanism structure has been developed to address all complaints and/or grievances in the project (Figure 26). The first-tier redress mechanism involves the receipt of a complaint and/or grievance at the project site and/or Mayoral level. The designated Safeguards Officer of the PMU will coordinate the activities at the respective District level to address the grievances and would act as the focal point in this regard.

Should the grievance be not resolved within this period to the satisfaction of the complainant, the grievance will be referred to the next level of Grievance Redress Mechanism. A Grievance Redress Committee formed at each entity level would address the grievance in the second tier.

Any grievance related to corruption, or any unethical practice should be referred immediately to the Office of the Attorney General of Bosnia and Herzegovina and the Office of Audit and Investigation within the UNDP in New York.

All complaints and/or grievances regarding social and environmental issues can be received either orally (to the field staff), by phone, in complaints box or in writing to the UNDP, relevant Water Agency or the Construction Contractor. A key part of the grievance redress mechanism is the requirement for the UNDP/PMU and construction contractor to maintain a register of complaints

⁵⁹ UNDP (2022) B&H GCF Project. Stakeholder Engagement Plan & Grievance Redress Mechanism

and/or grievances received at the respective project site offices. All complainants shall be treated respectfully, politely and with sensitivity.

Complainants may specifically contact the Safeguards Officer and request confidentiality if they have concerns about retaliation. In cases where confidentiality is requested (i.e., not revealing the complainant's identity to UNDP, Water Agency and/or the Construction Contractor). In these cases, the Safeguards Officer (as focal point) will review the complaint and/or grievance, discuss it with the complainant, and determine how best to engage project executing entities while preserving confidentiality for the complainant.

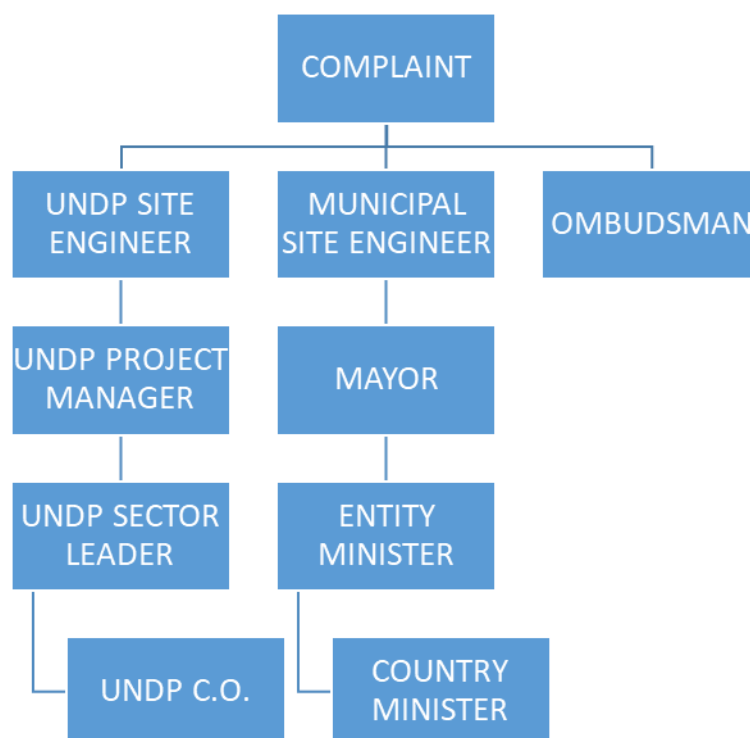


Figure 26 Multi-tiered GRM

To help prevent or de-escalate potential conflict, it is important that the Grievance Redress Mechanism is proactively implemented, including ensuring that there is good public knowledge of its existence, how to use it, and transparency of process and outcomes. Information about the Grievance Redress Mechanism and how to make a complaint and/or grievance is a key component of the Stakeholder Management Plan and such information will be placed at prominent places for the reference of the key stakeholders.

In addition to the project-level and national grievance redress mechanisms, complainants have the option to access UNDP's Accountability Mechanism, with both compliance and grievance functions. The Social and Environmental Compliance Unit is housed in the Office of Audit and Investigations. A compliance review is available to any community or individual with concerns about the impacts of a UNDP programme or project.

The UNDP Stakeholder Response Mechanism offers locally affected people an opportunity to work with other stakeholders to resolve concerns, complaints and/or grievances about the social and environmental impacts of a UNDP project. Stakeholder Response Mechanism is intended to supplement the proactive stakeholder engagement that is required of UNDP and its Implementing Partners throughout the project cycle. Communities and individuals may request a Stakeholder Response Mechanism process when they have used standard channels for project management and quality assurance and are not satisfied with the response (in this case the project level grievance redress mechanism). When a valid Stakeholder Response Mechanism request is submitted, UNDP focal points at country, regional and headquarters levels will work with concerned stakeholders and Implementing Partners to address and resolve the concerns. Visit www.undp.org/secu-srm for more details. The relevant form is attached at the end of the ESMF.

In addition to the external UNDP Stakeholder Redress Mechanism, complainants could also utilize the GCF Independent Redress Mechanism - <https://irm.greenclimate.fund>.

1.60.3 Collaborative Approach to Enhance Cooperation

Where possible, the project should look to encourage cooperation and collaboration on those activities that have the potential to involve multiple entities. Such collaboration needs to be done on the basis of equal footing and complete transparency. The outcomes should be widely communicated so as to make public the benefits of collaborative approaches.

1.60.4 Implementation of Safeguard Plans

A suite of safeguard documents have been prepared for the project, and additional safeguards will be developed during implementation. Safeguard management plans play an important role in reducing the impacts of the project, in particular seeking to ensure that elements like human rights, gender equity, environmental protection and community empowerment are enhanced through implementation. Through the implementation of various safeguard measures, the project will reduce any risk of conflict associated with the project.

Plans that have already been prepared include:

- Environmental and Social Assessment Report SAR
- Gender Assessment and Action plan
- Stakeholder Engagement Plan and Grievance Redress Mechanism

1.61 MONITORING

Monitoring and evaluating the interaction between the intervention and the conflict context is key to identifying possible conflict escalating activities early on and revising them to avoid contributing to violence and tensions.

Throughout the implementation of the project, the project team will monitor media and other sources of information to identify potential issues that could lead to conflict and impact the project. When there are reports of escalating conflict in or near the project areas, the project team will consider whether the reported events could alter the risk profiles identified in Table 29 using the checklist in Table 28. Where there is a change in risk profile, the PMU will escalate the matter to the Project Board, otherwise the PMU will keep a watching brief.

Where opportunities exist, the project team will advocate for mediation in an attempt to de-escalate any potential conflict.

It is recommended that evaluating for conflict sensitivity be included in the mid-term and final reviews to provide an objective assessment of the interaction of the design, implementation and overall results of the interventions with the conflict context.