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Ministry of Foreign Trade
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IMPLEMENTATION OF THE STRATEGIC ACTION PROGRAM (SAP) OF THE DINARIC KARST AQUIFER SYSTEM: IMPROVING GROUNDWATER GOVERNANCE AND SUSTAINABILITY OF RELATED ECOSYSTEMS.

DIKTAS II

UNDP Project Document

Governments of Albania, Bosnia - Herzegovina, Croatia, and Montenegro

United Nations Development Programme

UNESCO IHP

PIMS 5776

Project title: Implementation of the Strategic Action Program (SAP) of the Dinaric Karst Aquifer System: improving groundwater governance and sustainability of related ecosystems.		
Countries: Albania, Bosnia & Herzegovina, Croatia ¹ , Montenegro	Implementing Partner (GEF Executing Entity): UNESCO-IHP ²	Execution Modality: Agency Execution
Regional Programme Outcome: Outcome 1: Accelerating structural transformations through more effective governance systems		
Regional Programme: Output 1.6: Solutions and regulatory frameworks to address conservation, sustainable use and equitable benefit-sharing of natural resources, developed in line with international conventions and national legislation through regional and cross-regional initiatives		
UNDP Social and Environmental Screening Category: Medium		UNDP Gender Marker: GEN 1/2
Atlas Award ID: 00119184		Atlas Project/Output ID: 00115716
UNDP-GEF PIMS ID number: 5776		GEF Project ID number: 9919
LPAC meeting date: 29 November 2019		
Latest possible date to submit to GEF: 30 May 2019		
Latest possible CEO endorsement date: NA		
Project duration in months: 60		
Planned start date: 15 November 2022		Planned end date: 15 November 2027
Expected date of Mid-Term Review: 15 May 2025		Expected date of Terminal evaluation: 15 August 2027
Brief project description: The proposed project draws inspiration from the results of the GEF project “Groundwater Governance” and intends to implement the main steps recommended in the “Global Framework for Action” for setting the basis of sound groundwater governance in the Dinaric Karst region. This approach and vision perfectly adhere to the conclusions reached by the countries sharing the DIKTAS that are enshrined in the Strategic Action Program for the DIKTAS prepared by the countries and recently endorsed at ministerial level. The Project Objective is to catalyze effective multi-country cooperation for the sustainable management of the Dinaric Karst Aquifer System and its ecological resources by strengthening national and regional groundwater governance frameworks and institutional capacity.		

¹ Republic of Croatia as a full member state of the European Union is no longer GEF beneficiary country and UNDP programme country, but in DIKTAS II project will actively continue to participate as a partner country (Donor Government).

² In the document the “UNESCO Division of Water Sciences - Secretariat of the Intergovernmental Hydrological Programme”, acronym is UNESCO IHP

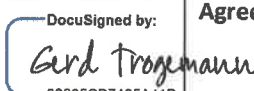
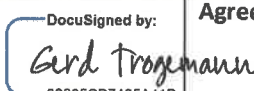
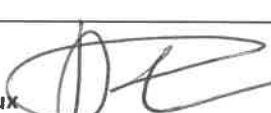
FINANCING PLAN		
GEF Trust Fund	USD 5,145,000	
(1) Total Budget administered by UNDP	USD 5,145,000	
CONFIRMED CO-FINANCING		
UNDP	USD 350,000 <i>in-kind</i>	
Recipient Government: Albania	USD 2,500,000 <i>in-kind</i>	
Recipient Government: Bosnia & Herzegovina	USD 2,500,000 <i>in-kind</i>	
Recipient Government: Montenegro	USD 2,500,000 <i>in-kind</i>	
Donor Agency: UNESCO-IHP	USD 4,000,000 <i>in-kind</i>	
Donor Government: Croatia	USD 2,500,000 <i>in-kind</i>	
Global Water Partnership – Mediterranean (GWP-Med)	USD 700,000 <i>in-kind</i>	
(2) Total confirmed co-financing	USD 15,050,000	
(3) Grand-Total Project Financing (1)+(2)	USD 20,195,000	
SIGNATURES		
Signature:  Gerd Trogemann Manager, UNDP Istanbul Regional Hub, Regional Bureau for Europe and the CIS	Agreed by IRH 	Day/Month/Year: 29-Nov-2022
Signature:  Jean-Yves Le Saux Director, Bureau of Strategic Planning UNESCO	Agreed by Implementing Partner	Day/Month/Year: 6 Jan. 2023

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List of Acronyms and abbreviations

AGS	Albanian Geological Survey
AP	Action Programs
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CIE	Consultation and Information Exchange Body
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CSO	Civil Society Organisation
CO	Country Office
DWPA	Drinking Water Protected Areas
DIKTAS	Dinaric Karst Transboundary Aquifer System
DPC	Direct Project Costs
DO	Dissolved Oxygen
EC	Electric Conductivity
ECOSOC	Economic and Social Council
EEA	European Environmental Agency
EG	Expert Group
EO	Environmental Objectives
ERC	Evaluation Resource Center
EU	European Union
FA	Focal Area
FAO	Food Agriculture Organization
FASRB	Framework Agreement on the Sava River Basin
FHMI	Federal hydro-meteorological Institute
FSP	Full Sized Project
HGWG	Hydrogeology Working Group
GDE	Groundwater Dependent Ecosystems
GEL	Gender Law
GEF	Global Environment Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GIS	Geographic Information System
GPA	Global Program of Action
GSM	Geological Survey of Montenegro
GWD	Groundwater Directive
HMI	Hydrometeorological Institute
ICPDR	International Commission for the Protection of the Danube River
IFI	International Financial Institution
IGSEWE	Institute of Geological Science Energy, Water and Environment
IHP	International Hydrological Programme (UNESCO)
IEO	Independent Evaluation Office
IPH	Institute of Public Health
IR	Inception Report
IRH	Istanbul Regional Hub
ISO	International System Organisation
ISRBC	International Sava River Basin Commission
IW	GEF International Waters Focal Area
IWRM	Integrated Water Resources Management
KM	Knowledge Management
M&E	Monitoring & Evaluation
MED EUWI	Mediterranean EU Water Initiative
MED MAP	Mediterranean Action Plan (UNEP)
MTR	Mid-term Review
MoFTER	Ministry of Foreign Trade and Economic Relations
MOU	Memorandum of Understanding
NANR	National Agency of Natural Resources

NEA	National Environmental Agency
NEU	National Execution Unit
NFP	National Focal Point
NGO	Non-Governmental Organization
NIC	National Inter-ministerial Committee
NIP	National Implementation Plan
NSGE	National Strategy and Action Plan on Gender Equality
NWC	National Water Council
OFP	Operational Focal Point
PA	Protected Area
PFD	Project Framework Document
PIF	Project Identification Form
PIR	Project Implementation Report
PMU	Project Management Unit
PPG	Project Preparation Grant
PS	Project Specialist
PSC	Project Steering Committee
SBAAs	Standard Basic Assistance Agreement
Q	Quarter
RBC	River Basin Council
RBMP	River Basin Management Plans
SAP	Strategic Action Program or Strategic Action Plan
SC	Steering Committee
SDG	Sustainable Development Goals
SEE	South Eastern Europe
SIPA	State Investigation and Protection Agency
TBAAs	Transboundary Analysis
TDA	Transboundary Diagnostic Analysis
TE	Terminal Evaluation
TOR	Terms of Reference
UN	United Nations
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNDP POPP	UNDP Programme and Operations Policies and Procedures
UNECE	United Nations Economic Commission for Europe
UNESCO	United Nations Educational, Scientific and Cultural Organization
WB	World Bank
WFD	Water Framework Directive
WRM	Water Resources Management

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1 DEVELOPMENT CHALLENGE

1.1 Regional baseline

Generalities on Karst:

Karst aquifers are one of the most utilized water sources in the world. Tapping of karst waters and their use for the supply of drinking water has a long history and has been vastly important for the historic and economic development of many regions in which karst is present. Recent studies found that different types of karstified rocks and aquifer systems cover around 15% of ice-free land, while the karst aquifers currently supply about 10% of global population with drinking water, and in some zones, they constitute the only available water resource.

In karst terrains, water is the main agent of landscape change and for the destruction and dissolution of rocks; the role of mechanical erosion processes is much less significant. No karst landscape or small karstic feature could be created without water, but in highly karstified terrains and in mountainous areas there is often a shortage of water on the land surface. Karst landscapes could be formed in areas with carbonate (limestone, dolomite) or evaporitic bedrock. Over time, the bedrock is subjected to slow dissolution processes caused by a particular combination of temperature, chemistry and soil acidity. This process typically results in the formation of visible surface and subsurface features, including sinkholes (dolines), caves, sinking (or disappearing) streams, caves, and karst springs. The hydrologic characteristics associated with the presence of karst also are distinctive and generally include: (1) internal drainage of surface runoff through sinkholes; (2) underground diversion or partial subsurface piracy of percolated water (that is sinking streams and losing streams); (3) temporary storage of groundwater within a shallow, perched epikarst zone; (4) rapid, turbulent flow through subsurface pipe-like or channel-like dissolution conduits; and (5) discharge of subsurface water from conduits by way of one or more large perennial or temporary springs (Figure 1).

A karst aquifer can be conceptualized as an open hydrologic system having a variety of surface and subsurface input and output flows, and boundaries defined by the catchment limits and geometry of conduits. The hydrogeologic characteristics of karst aquifers are largely controlled by the structure and organization of the conduits, the development of which generally acts to short-circuit surface drainage by providing alternative subsurface flow paths that have lower hydraulic gradients and resistance.

High vulnerability to pollution, direct hydraulic connection with sea water in the coastal areas and low springs' discharge during the recession periods are major constraints faced by karst aquifer managers. Along with anthropogenic impact, geological hazards often present in karstic catchments may additionally jeopardize efficient water use and protection from pollution.

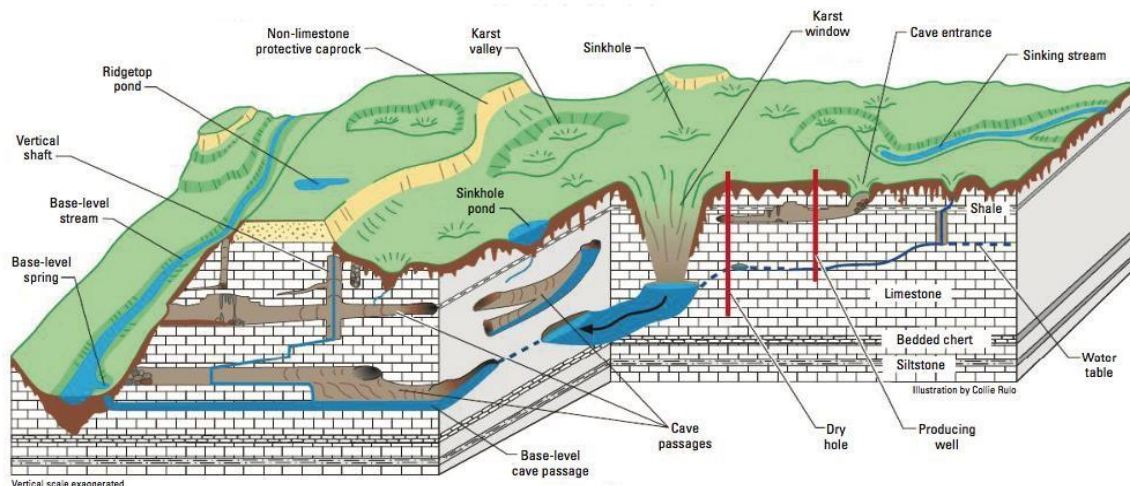


Figure 1: Physiographic and hydrologic features of karst terrains

The Dinaric Karst System

The Dinaric karst system represents a geologically heterogeneous, south European orogenic belt of the Alpine Mountain chain and is considered as the classic karst region worldwide. In fact, the term “karst” was born in the area, and this is where the foundation of karst hydrogeology was set by establishing that carbonate rock dissolution was the key karstic process that created most types of dolines, the diagnostic karst landforms. The term “karst” is now applied to modern and paleo dissolution phenomena worldwide. Some local terms were accepted, and are still used, in international karst terminology (e.g., ponor, doline, uvala, and polje).

The main orientation of the Dinaric system is NW-SE, parallel to the Adriatic Sea. It is a long mountainous structure with numerous intermountain depressions including large karst poljes and valleys created by perennial or sinking streams. Most authors agree that the Carso area around Trieste-Monfalcone in Italy is the western boundary of the Dinarides; the question remains which parts of the Pindos and Hellenides in Albania and Greece respectively, belong to the system. Although most professionals believe that only the Albanian Alps in the NW part of Albania belong to the Dinaric system, the members of the Hydrogeology Working Group (HWG) of the DIKTAS project have agreed to extend the project boundary to the Vjosa River in Albania as the southern limit of the study area.

The total surface area of the Dinaric system within the project countries is estimated at 110,500 km² as follows: 27,500 km² in Croatia, 45,400 km² in Bosnia and Herzegovina, 13,812 km² in Montenegro (the entire territory of the country belongs to the DIKTAS), and 24,250 km² in Albania. About 60% of the project area belongs to the Adriatic Sea basin, while 40% is in the Black Sea catchment (Figure 2).

The DIKTAS region, in particular Eastern Herzegovina and Western Montenegro, is an area characterized by rainfall among the highest in Europe. Since the region is one of the most karstified in the world, surface flows are very rare. The thickness of soluble carbonate sediments is more than 3000m, and the average depth of karstification ranges from 250 m to 350m, and locally, along faults, even deeper. The most active karst conduits are directly above the base of karstification. Average underground flow velocity varies within a wide range from 0.002 to 55.2 cm/s. Groundwater residence time is very short and fluctuations of the water table are very fast and with high amplitude: in some cases, the water table has risen 90m in only 10 hours.

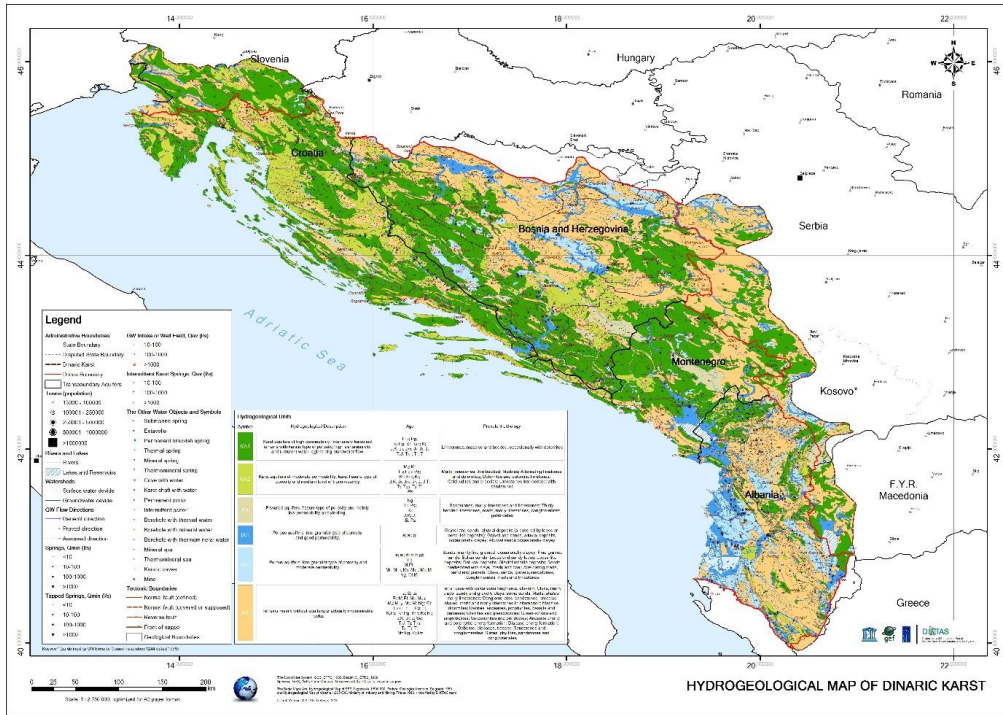


Figure 2: Hydrogeology map of the Dinaric karst (DIKTAS project- and adjacent area)

Three out of the four project countries (with the exception of Albania) together with Slovenia, Serbia and of North Macedonia were parts of the former Yugoslavia between 1918 and 1991. During this period many common activities in the water sector, water management and infrastructure construction projects took place in the country. Extensive and complex hydrogeological investigations throughout the Dinaric karst region in the former Yugoslavia were undertaken as part of large infrastructure projects including the construction of large and medium dams, development of well-fields for water supply, and control and regulation of karst aquifers with drainage galleries and other engineering works. Examples are the “Hydrosystem Trebišnjica” in Herzegovina, and Gornja Zeta in Montenegro, with plugging of underground flows, artificial drainage of poljes, and the intra-basin transfer of water. These modifications of water regime had various impacts. They include hydrogeological, hydrological, ecological and social changes. In some instances, the impact has been positive and predictable (flood reduction, irrigation, water supply improvement, power production, etc.). However, some impacts have been negative and sometimes unpredictable: important cultural/historical monuments, natural resort areas and arable land were inundated; the survival of endemic species is endangered; the regime and quality of some aquifers and springs’ water has been changed, etc. Therefore, keeping the balance between necessity for regional development and preservation of complex karst environment and resources is the key issue for the region.

The results of hydrogeological investigations, including those conducted within the context of the DIKTAS project, represent an important contribution to international hydrogeological science. Evidence of significant interest by the hydrogeology community in Dinaric karst is the book 'Hydrogeology of the Dinaric Karst' published by the International Association of Hydrogeologists as Volume 4 of the book series 'International Contribution to Hydrogeology'. Furthermore, as result of the international conference which had marked end of DIKTAS I project, the book "Karst without Boundaries" published by CRC Press / Taylor & Francis as vol. 23 of Selected papers edition of the International Association of Hydrogeologists. Due to its historical importance in the development of karst science, including its exemplary karst development with numerous geo-heritage sites, and abundant groundwater resources, an initiative has been taken to include the entire Dinaric region in UNESCO's list of World Heritage Sites.

1.1.1 Problems, root causes and barriers that need to be addressed

The Transboundary Diagnostic Analysis (TDA) showed that the state of groundwater in the DIKTAS project region is generally good in terms of both quantity and quality with a few exceptions, but with a number of serious potential threats. The main threat to the overall groundwater quality in the DIKTAS region is solid waste and wastewater disposal. There are hundreds of unregulated landfills and illegal dumping sites in the four project countries. The number of wastewater treatment plants is insufficient, with about half of the population not connected to this service. For the vulnerable karst environment of the Dinaric region, which has a very limited auto-purification capacity, this is the most serious current as well as potential future problem. To a lesser degree, karst groundwater resources in the region are also contaminated by agricultural and industrial activities.

Currently no common legal framework and no common criteria exist for a) the delineation of water source sanitary protection zones, b) setting cost-efficient measures for groundwater protection in the Dinaric Karst region, c) arrangements ensuring that each Country establish sanitary zones for water sources located and used in neighbouring country. This was identified as the main issue of concern in sections of the DIKTAS with centralized public water supply systems: Trebišnjica, Neretva, Cetina and Una. It is worth to mention that concrete actions have been done between BiH and Croatia in 2010. Actually, the Working Group for the elaboration of guidelines for defining water protection zones in karst areas, established by Sub-Commissions³ for Adriatic catchment area and Black Sea catchment, has elaborated the "Proposal for the protection system and investigation methods for protection of karst aquifers located in the bordering areas of BiH and Croatia" ("the Proposal"). This Proposal includes, amongst others, the part of a Rulebook (Agreement) on determination of sanitary protection zones of the water sources located in the bordering areas of Croatia and Bosnia & Herzegovina (BiH).

There is a significant concern of some stakeholders about hydropower production in the region, especially in Bosnia & Herzegovina, including the impacts of hydropower infrastructure in the transboundary areas of Trebišnjica and Bilećko Lake. With the disintegration of Yugoslavia, this issue has acquired transboundary dimensions and has become very prominent. The concern is not only environmental but also economic and political. The complexity of the karst environment, especially in terms of predictions, further complicates the resolution of the identified concerns. This also confirms that the definition of water resources development strategies in the Dinaric karst area based on sound governance principles is a key requirement for regional socio-economic development.

A major added value of the TDA can be seen in the collection and harmonization of a large amount of data and information relevant for the assessment and management of karst groundwater resources in the region. This gathered information was not always complete and, in some cases, there were still significant information gaps. Nevertheless, the DIKTAS TDA was the first thorough regional groundwater analysis that covered Albania, Montenegro, Bosnia and Herzegovina and Croatia. The analysis included hydrogeological characterization, as well as social, economic, legal and regulatory aspects of the groundwater resources management in the region. Outputs of the TDA, including GIS materials such as thematic maps (Figure 2) and databases and quantitative hydrogeologic analyses, form the basis for developing groundwater resources management models at both regional and local scales.

³ In the frame of Bilateral Agreement⁵ on improvement of water management between BiH and Croatia, the Commission for water management of BiH and Croatia was established, consisting of representatives from BiH and Croatia, including both BiH's entities (FB&H and RS), as well as the two Sub-Commissions for Adriatic catchment area and Black Sea catchment area, also consisting of representatives from BiH and Croatia.

While the TDA has produced a fair assessment of groundwater resources in the region it also revealed limitations of knowledge on their actual state and trends in terms of quality and quantity. The main obstacle for this was a lack of monitoring data at both regional and local scales, such as in the vicinity of solid waste and wastewater disposal (treatment) sites, mines, intensive agriculture areas, and industrial facilities handling and generating hazardous materials. Therefore, an urgent message from the TDA is a request for improvement of the groundwater monitoring network throughout the region and the need to intensify capacity building in the public sector.

The TDA's comprehensive regional analysis was followed by an analysis of the main issues of transboundary concern. The latter were found to be concentrated in several sections of the DIKTAS, which were defined as of "transboundary influence" (or "transboundary aquifers" part of the larger DIKTAS), that is areas located all along the shared borders of the project countries where transboundary impacts on water quantity / quality, and /or on dependent ecosystem health are being felt. These aquifer areas of transboundary influence most of them named after the related rivers are: Una, Cetina, Krka, Neretva, Trebišnjica, Bilećko Lake, Piva and Cemi/Cijevna.

1.1.2 Socio-economic and environmental aspects

Out of the four DIKTAS countries, Croatia has the largest population with 4.29 M inhabitants followed by Bosnia and Herzegovina (3.47 M), Albania (2.8 M) and Montenegro (0,62 M). The population density is the highest in Albania (98.5/km²) and lowest in Montenegro (44,89/km²). The population growth rate is low or negative for all four countries. Across the region, there is a trend of migration from remote, rural areas towards urban areas and industrialized zones. Small settlements are extremely dispersed, and a number of settlements in rural areas are already abandoned. This trend becomes visible in the TBA areas, most of which are rural. Due to tourism, population numbers may vary considerably across the year, with peaks in the summer season (especially along the Adriatic coast).

Hydropower plays a central role for energy production in all DIKTAS countries. Amounting to more than 90% of its energy production, Albania relies almost entirely on hydropower. With more than 2000 MW, Croatia has the highest hydro-power installed capacity among the countries, while its share of hydropower to total energy production is the lowest among the DIKTAS countries (31%). Bosnia and Herzegovina has installed hydropower capacity of 1850 MW, and average annual production of 5810 GWh. Its share in total energy production is similar like in Croatia. About 2/3 of electricity production (11410 GWh) comes from thermal plants. About 2/3 of total existing hydropower facilities are located in the DIKTAS karst area, therefore hydro power generation from DIKTAS karst system plays significant role in countries' economies. There has been a significant increase in the number of the smaller concessional hydropower plants that have been built or are planned in the region. At the Albanian Dinarides, since 2008 there were given 170 concession contracts in order to build 510 small hydropower plants; 104 are operational and 75 are under construction (Natural Resources Agency, 2017). Although small hydropower plants on small streams may result with negative impacts on dependent eco system, environmental impact studies are not everywhere obligations, or requests for ecological flow are not always respected in practice.

The GDP percentage of the agriculture sector in the participating countries varies from 8% to 18%. The percentage of countries' agricultural area ranges from 24 to 47%. In Albania, the percentage of agricultural area is lower than in other countries, yet the agricultural sector in Albania has the highest contribution to GDP (more than 18%) compared with the other DIKTAS countries. Agricultural activities and the economic importance of agriculture is decreasing at the regional level. Agricultural sector is directed mainly to production of corn, maize and wheat in the continental parts, and grape, vegetables and fruits in southern parts of the DIKTAS region.

Major industries are iron works, aluminum, mining, and pharmaceutical industries, shipyards and the food-processing industry. During the transitional period (post 1990), the majority of the industries

have rapidly decreased with limited success of recovering afterwards and with noticeable decrease in the role of heavy industry in the economies of all four countries. Heavy pollution in the form of PCBs, PAH, heavy metals, acids, fluoride, chlorine, lead, zinc, iron, copper and other metals have been registered from historical pollution hot spots. Nowadays, economy of the countries has shifted from industrial and agricultural towards services-oriented economies. Economic Indicators are showing constant improvement in the countries' economies that exert increasing pressures on the karst environment. For instance, in Albania as the main sources of pollution have been identified unplanned urbanization, industrial development, agriculture, energy production, the presence of hot spots, urban and rural wastewater discharge. The river waters are used mainly for industrial activities, irrigation, and energy production without considering the cumulative impact on water quality. Furthermore, the rivers and its tributaries are used as a channel for the municipalities and industries to discharge the wastewater without treatment.

Across the region, the tourism sector is expanding and provides an important source of income (revenues range between 250 and 9500M Euro per year and share 2-18% of countries' GDP). In all four countries trends show significant and continual development of touristic sector. In 2017 tourism income in Croatia was 9500 M Euro (18,5 M guest arrivals and 102 M overnights), which is 18% of national GDP (Croatian Bureau of Statistics, 2017). During 2017, the number of tourists visiting Albania was 5.1 million (Institute of Statistics of Albanian, 2017) and compared to the previous year the number increased by 8.1%. Revenues from tourism in 2017 were around 1300 M Euro. This is linked to the use of numerous natural resources and additional pressures on the environment. Tourist needs for freshwater cause: (i) higher water consumption due to tourist population, (ii) higher water demand due to the urbanization of tourist areas, (iii) higher water demand due to tourism supporting activities. In Croatia, Albania, Montenegro and Bosnia and Herzegovina tourism is seasonal (along the Adriatic coast) and the countries work towards diversification of touristic offer and activation of tourist destinations in mountains and rural countryside. Increased tourism development increases pressures on water utilization and protection.

The total estimated amount of generated solid communal waste is in: Albania is 400 000 t/year, BiH 1 014 000 t/year, Montenegro 280 000 t/year and in Croatia is 1 680 000 t/year with different stage of development of waste management systems (for example, there is no system for the safe management of hazardous waste in Albania and Montenegro). In Croatia in 2017 production of the communal waste per capita was 392 kg/inhabitant/annually (Croatian Agency for Environment and Nature, 2017), the same year in BiH 292 kg/inhabitant/annually, while in Albania, in the year 2016 the communal waste production was 373 kg/inhabitant/annually. In Albanian part of Dinaric system the rate of solid waste production per person has increased by 60% from 2005 to 2014.

Historic industrial sites are one of the main sources of pollution in the region. The main method of waste disposal is in unlined landfills which are present in an insufficient number, although it should be noted that new landfills are being constructed by EU standards. However, the increased amount of generated solid waste increases pressure on rivers and groundwater as long as the regions lack wastewater treatment plants and sanitary landfills. Sewage systems are not at the desirable level and service coverage rate is much lower in rural than in urban areas. Wastewater (in rural and some urban areas) is discharged in improvised permeable septic pits, smaller adjacent surface streams or depressions polluting these streams with organic content, leading to pollution of the whole hydrological system and endangering drinking water sources. Therefore, waste and wastewater pollution has been identified as major threats to the protection of the Dinaric Karst Aquifer System.

None of the countries in the DIKTAS project have complete and operational network for systematic monitoring of groundwater quality, although Croatia is implemented many of requirements of the Water Framework Directive (WFD) of EU. Consequently, a detailed assessment of the overall quality of the groundwater in the project region is not feasible. However, based on the available information,

the quality of karst groundwater in the region can be rated as generally good, and most of the time in line with the standards for drinking water quality without any pre-treatment needed. Problems concerning chemical parameters of karst groundwater are very rare, and the main problems are turbidity (typically caused by the rapid infiltration of precipitation) and microbial contamination. Contamination with pathogens is mostly related to human activities, including inappropriate disposal of wastes and wastewater. Another issue of concern is proper establishment and enforcement of the source protection zones around springs and wells utilized for public water supply. Although different in content and approach, all countries have necessary legislation in place but proper implementation is frequently missing which jeopardizes a generally good quality of groundwater at the source.

Monitoring network of surface water quality is developed on different scales in the DIKTAS region. Croatia has a systematic network of monitoring stations that measure surface water quality at more than 700 locations (226 locations are covered by surveillance monitoring and 496 locations by operational monitoring), BiH provided monitoring of surface water quality in more than 180 sites (about 50 sites in DIKTAS area), while Montenegro has a network with 36 monitoring stations on rivers, 16 on the sea, 11 on lakes and 6 on ground waters. Groundwater quality is monitored in Albanian Dinaric system in 48 stations: 40 wells and piezometers and 8 springs, with a sampling frequency twice a year. Although different national classification of water quality exists, the surface water quality in the Project region can generally be described as good to average (according to the EU WFD) in most cases. Similarly, groundwater quality is generally satisfactory, but in heavily populated or industrial areas some samples show deteriorated quality. For instance, results of water quality data monitored in Albania during period 2013-2017 (National Environmental Agency, 2017) show that 38% samples have at least one chemical parameter above the Albanian Standard Norm; ammonium is above the standard norm in 4.1% of monitored stations; nitrites in 2.1% of monitored stations, and chloride in 8.3%. Quality of surface waters deteriorates immediately downstream of larger settlements and industrial pollution sites where it does not meet EU standards. Major threats for the quality of surface (and ground) water are identified as very high percentage of untreated waste disposal and wastewater discharge (frequently directly to the recipient) as well as a large number of untreated/unsecured industrial pollution hotspots, mainly from the heavy industries (closed or partly in function) left from/after transition period to open economy principles in the 1990's. All DIKTAS countries are considered to have abundant groundwater resources at their disposal.

However, during the summer period water shortages may occur, particularly in tourist areas along the Adriatic coast due to increased demands and reduced springs' flow. Quantities of water use for different sectors correspond well with the level of economic development; still, most water in the region is used for drinking water supply. Main source for drinking water supply is groundwater basins, contributing as much as 90% to the water supply (in Montenegro and Bosnia and Herzegovina 90%, in Albania 70%). Large quantities of water are also used for production of electrical power. Most water supply systems in urban areas are regularly monitored for quality, while rural water supply systems may not be subject to any system of quality control. Percentage of total population connected to the public supply system varies from 48% and 60% (Entities: Republika Srpska and Federation of Bosnia and Herzegovina, respectively) to 80% (in Croatia), with significant discrepancies between rural and urban areas. Water quantities used for industry and irrigation are significant, but those numbers rapidly decreased since 1990s. Floods are frequent in the project region due to the natural conditions, operational regime of the dams, and shortage of funds for flood protection.

The region is abundant with pristine nature areas, which are often vulnerable and under threat. Yet, none of the countries recognized the vulnerability, complexity, and importance of integrated protection of karst environment through national policies. The percentage of protected surface to the total area of the Country varies from 3-12,4% but none of the protected areas (or categories) in any country is solely related to the Groundwater Dependent Ecosystems (GDEs). Croatia has reported 29 sites that may be potential GDE, while info for rest of the Countries is missing and GDEs in those countries need to be investigated and properly acknowledged. When it comes to sanitary protection

zones of the potable water sources, leader among the countries is again Croatia, which has in certain areas more than 30% of protected land surface, but in 3rd protection zone not all of proposed measures could be easily applied in local water practice and controlled by responsible agencies. Natural wetlands are dispersed over the region and are considered to be areas of high ecological value. Thirteen of them are Ramsar sites and are severely threatened by water use (such as for hydropower) and land-based sources of pollution and drainage. There are a number of caves in DIKTAS region, but most of them are not commercially utilized (show caves) or known to the wider public. Higher institutional attention (identification and management) of sensitive karst morphological features is strongly needed as they represent unique (eco) systems of geological (by means of geoparks and geotourism) and biological importance and valuable parts of groundwater depended on ecosystems (Figures 1 and 2).

In conclusion, the Dinaric karst is providing essential and extremely valuable ecosystem services and supports development of the countries' economies (drinking-water supply, tourism, hydro power production). At the same time, it is threatened by the ongoing activities including industrial pollution hot-spots, waste and wastewater disposal, and unsustainable water use and management.

Climate

The Balkan countries experience a range of climates out of proportion to the size of their geographic area. Albania has a Mediterranean climate with mild, wet winters and hot, dry summers, as does the southern part of Montenegro and the coastal and lowland areas of Bosnia and Herzegovina. The climate in the remaining areas of Bosnia and Herzegovina ranges from temperate continental to alpine. Most of Croatia has a moderately warm, rainy climate. The far north of Montenegro has a continental climate, and the central and northern parts have some characteristics of mountain climate, but with Mediterranean Sea influences on temperature and precipitation.

The Balkans are getting warmer and are projected to continue on this warming trend generally in proportion to the expected increase in global temperatures. Similarly, the region is receiving less precipitation and is projected to experience further decreases, although precipitation patterns will continue to vary according to terrain, elevation and proximity to the sea. The effect of warmer temperatures on evaporation, together with the decline in precipitation is attributable to changes in the frequency of low intensity rain days and to a significant increase in the incidence of dry days. Precipitation in Bosnia & Herzegovina has increased in some areas and decreased in others. Montenegro has been experiencing more frequent extreme heats since 1998, but annual precipitation has remained fairly constant with some fluctuations around the norm, and some analysts detect a slight downward trend. However, the Orjen Mt. in Montenegro (close to borders with Croatian and Bosnia & Herzegovina) is still keeping the first place in Europe considering the rainfall rate. In average hydrological year, some 5000mm is an annual sum recorded at Crkvice meteorological station located above Boka Kotorska Bay.

Rising temperatures and disruptions in the precipitation regime are the most significant exposures for the region. All the countries in the West Balkans face more frequent and more intense droughts and floods, and the four countries with coastal areas – Albania, Bosnia and Herzegovina, Croatia and Montenegro – also face potential hazards associated with a globally rising sea level along with uncontrolled water pumping in certain areas. Exposure to these hazards will play out in public health and biodiversity and in key economic sectors – water resources, agriculture, forestry, energy and tourism.

Climate and agriculture

The vulnerability of the region to climate change effects on water resources is high. As the disruptions in water resources ripple through the West Balkans, the negative effects will multiply. In particular, agriculture may see diminished production and periodic catastrophic losses, and hydropower may

become less reliable. The socio-economic consequences are likely to be profound, and the countries are highly vulnerable to climate change. Agriculture has a significant role in the West Balkans' sensitivity to climate change. Almost half of the land in the region is used for agriculture – 19 per cent in pastures and 29 per cent in arable land and permanent crops. Estimates of agricultural employment vary, as do survey definitions, but between 18 per cent and 58 per cent of the working population is engaged in agriculture, and the sector is an important employer in the region. Agriculture, on average, contributes 17 per cent to West Balkans' GDP. Croatia's 6.0 per cent agricultural share of GDP, the lowest in the region, is still significantly higher than the EU average of 1.6 per cent.

In Albania in recent years, the agriculture sector has been shifting from a family-based system to an intensive agriculture system. This has led indeed to an increase of pesticides, herbicides and nutrients use in agriculture. In fact, in 2015, Albania has imported 67% more chemical fertilizers compared to the 2013 and 71% more pesticides (General Customs Directory, 2015).

Forest fires

Higher temperatures combined with more frequent and intense droughts increase the risk of forest fires, and the West Balkans are already experiencing more fires over larger areas – more than 38,000 fires that burned more than 450,000 hectares between 1988 and 2004 in Albania, Croatia, North Macedonia, Montenegro and Serbia. No reliable data are available to estimate the economic losses, but the environmental damage includes loss of habitat, soil erosion and greenhouse gas emissions.

Floods and landslides

The region's exposure to more frequent and intense floods has implications for the economies of the countries and for the environment, to say nothing of the human suffering. Flooding in 2010 in Albania, Bosnia and Herzegovina, Croatia and Montenegro forced 20,000 people from their homes, and caused US\$ 450 million in damage. More larger floods hit Croatia and Bosnia and Herzegovina in May of 2014 and only in Croatia caused damage of 330M US \$. The damage and losses caused by these floods and landslides which hit Bosnia and Herzegovina caused damage of 2.3 billion US\$. More than 3000 landslides were triggered in less than 5 days and destroy more than 2000 households. The most recent flooding in early 2018 in Skadar basin was not even prevented by constructed dams and reservoirs in the upper catchments. Management of large water reservoirs utilized for hydro-energy production, along with prevention of water losses from reservoirs built in karst terrains are permanent tasks of the employed engineers and local water managers.

Mine tailings

The mining legacy in the West Balkans raises the specter of a flood resulting in an environmental catastrophe, possibly one with international implications. Mine tailings – the waste material remaining after metal and mineral extraction – contain complex compounds and residual chemicals used in the extraction process and are held indefinitely in tailings management facilities. The volume and contamination level of waste in these facilities can be high and maintaining reliable storage and management of the tailings is a challenge under any circumstances.

In Albania, mining activity has been the main sector of economy in the second half of the 20 centuries. In addition to the economic benefits of this sector for the population, mining has also impacted water quality of this region mostly through acid water drainage and waste. As such, the copper mines continuously discharge acidic wastewater in surface waters. Mining activity still continues to be a significant economic sector. There are 635 mining licenses in Albania (Natural Resources Agency, 2017). Mining activity is focused mainly on chromium, copper, iron nickel mines, and limestone, dolomite, basalt, clays and bituminous sandstones quarries. In BiH there are numerous queries in limestone and dolomites as potential threats to groundwater quality.

Unfortunately, many tailings management facilities in the West Balkans are abandoned, neglected or orphaned. Without routine monitoring and maintenance these facilities deteriorate and become vulnerable to failure and the consequent release of toxic contamination. The main exposure pathways for such releases are rivers, and the combination of river flooding and tailings management facility failure poses a major threat in the region. Such an event within a country would be bad enough, but when the river crosses international borders and the event involves more than one country, dealing with the event becomes more complicated.

Transboundary implications

Although all of the West Balkan countries have fresh water resources sufficient to meet the needs of sustainable development, climate change is expected to further disrupt already highly variable water regimes. As the requirements for drinking water grow especially during summer months, and the demands for hydropower production and irrigation generally increase, the water resources of the region may come under pressure from users with conflicting interests. The international boundaries add yet another element of complexity.

Twenty years ago, the Balkans had six international river basins. Now, as a result of the new international borders, they have thirteen, as well as four transboundary lake basins. In terms of exposure and sensitivity, water resources in the Balkans are particularly vulnerable to climate change, and what happens in the water sector will influence what happens in agriculture and energy, two other highly vulnerable sectors.

The implications for the development of adaptation strategies are enormous. The water resources problem is more regional than national in scale, and effective adaptation in the region cannot occur on a strict country-by-country basis. This means that the Balkan countries must work together on regional adaptive strategies, and that their capacity to cooperate on mutual problems is a major element in their overall adaptive capacity.

Legal and Institutional Frameworks

In all four countries (Croatia, Bosnia and Herzegovina, Montenegro, and Albania) water issues are covered by different ministries and institutions at the different administrative levels. However, coordination and clear division of responsibilities among the institutions at different levels have not been clearly defined and the level of law enforcement is not sufficient in all countries. Although all four countries have designated responsible institutions for implementation of EU water acquis there is a need for capacity building and education of personnel in those institutions, on issues like characterization of water bodies, water resources assessment, delineation of river and groundwater bodies' catchment, definition of sanitary protection zones of drinking water sources, establishment of reference conditions, analysis of human impacts, application of the 'public awareness' principle and development of river basin management plans and programs and measures.

Regarding the legal aspects, current regulations have many gaps and ambiguities linked to groundwater monitoring, due to unclear criteria related to the use of appropriate indicators/parameters of groundwater status, choice of measurement points and the frequency of monitoring. There is a lack of consideration of groundwater dependent ecosystems and the areas (water bodies) intended for the abstraction of drinking water (drinking water protected areas, DWPA) are not properly defined in national legislation. No clearly defined relationship exists between groundwater bodies, which are intended for the abstraction of drinking water, and sanitary protection zones which are defined to ensure protection measures within drinking water protected areas.

The concept of management including water protection in respective countries is determined by the national strategic documents. All four countries have prepared and adopted Water Management

Strategies. Albanian Water Strategy dates from 2004, and a new Strategy for Integrated Water Resources Management has been adopted on February 2018. In Montenegro Water Management strategy has been adopted 2015, and country contributed in preparation the River Basin Management Plans for the Danube and Adriatic river basin with the Program of measures in line with the Water Framework Directive. In Bosnia and Herzegovina entity strategies were adopted by entity parliaments. In Federation of BiH the strategy has been adopted in 2011 for the period 2010-2022, and in 2016 in the Republika Srpska for the period up to 2024.

In order to respond to requirements of the Stabilization and Association Agreement Council of Minister of BiH have adopted countrywide Environmental Approximation Strategy for BiH in May 2017.

Based on WFD requirements, River Basin Management Plans (RBMP) covering the whole BiH territory as following:

- RBMP for Watershed area of Sava river basin in FB&H territory
- RBMP for watershed area of the Adriatic Sea in FB&H territory
- RBMP for Watershed area of Sava river in RS territory and
- RBMP for watershed area of river Trebišnjica in RS territory - (Adriatic basin)

RBMP contain Program of Measures and were adopted by by RS Government in February 2018, and by Federal Government in May 2018.

All River basin management Plans include characterization of surface and ground waters, monitoring of surface and groundwater, protected areas, analysis of anthropogenic pressures, status and risk assessment of surface and groundwater bodies, economic analysis, etc.

Although all these documents set out the vision, mission, goals and tasks of state policies in water management, including groundwater management, they differ in the level of harmonization with the requirements set in the WFD and the GWD. Besides, these water policy documents are only partly harmonized with other sectoral strategies. It is evident that sectoral policy documents, such as e.g. energy development strategies, the strategies of industrial development, territorial development strategies, etc. imply the existence and consumption of water as a resource. On the one hand, these sectoral strategies are not harmonized with each other, and on the other hand they rarely estimate real demand for water and water pollution potential of sectoral activities, which may threaten the implementation of the water protection measures both on the national and on regional (transboundary) levels.

In all three beneficiary countries⁴, there are on-going efforts for transposition of the fundamental principles, objectives and measures from the EU Water Framework Directive, WFD (2000/60/EC) and the Groundwater Directive, GWD (2006/118/EC) in national legislations. Although the "polluter pays" principle and the principle of "recovery of the costs" are promoted in national legislative documents, the principle of cost recovery is not fully transposed either in national regulations or in water management practices, with regards to implementation of the environmental and resource costs in water pricing policies. There is no legal or policy document in any of these countries which adequately defines and prescribes the integration of environmental and resource costs into development of pricing policies. It should be noted that the main shortcoming of the legislative framework in all countries is an underdeveloped system of by-laws or insufficient implementation of present legislation due to lack of human resources and financial means for fulfilling legal and policy requirements. Except for some pilot areas Albania and Montenegro are not yet completed delineation of groundwater bodies on their territories, which is the main prerequisite for assessment of pressures on groundwater quantity and quality and preparation of programme of mitigation measures to be included in River Basin Management Plans. Due to the lack of clear development strategies, programs and plans on

⁴ Croatia, is an EU member state, fully adheres to the WFD.

water management issues, the Dinaric Karst region cannot be considered as an example of successful implementation of the “user pays”, “polluter pays” and “cost recovery” principles. National financial resources are not sufficiently developed to cope with the accumulated problems and due to its small budget, local communities, in principle, have to rely upon the assistance of the state and international donors.

All four countries have a wide experience in international cooperation for the protection and sustainable use of transboundary waters. The countries are part of multilateral framework conventions and have bilateral and multilateral agreements at the ministerial level among themselves, covering transboundary water issues. Albania, Bosnia & Herzegovina, Croatia and Montenegro are parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UN Economic Commission for Europe, 1992) and to the Protocol on Water and Health (1999), adopted under this Convention. Countries are signatories to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) adopted in 1976. As regards multilateral agreements, Bosnia and Herzegovina, Croatia and Montenegro are parties to the Convention on Co-operation for the Protection and Sustainable Use of the River Danube (Danube River Protection Convention) (1994). Furthermore, Bosnia and Herzegovina and Croatia are also parties to the Framework agreement on the Sava River Basin (signed in 2002, in force in 2004), which was the basis for establishment of the International Sava River Basin Commission (ISRBC) in 2005, aiming to transboundary cooperation for sustainable development of the region. The International Sava River Basin Commission and Montenegro signed a Memorandum of Understanding in Belgrade in December 2013. Project countries have bilateral agreements on water management issues, related to transboundary water bodies, such as the agreement between Albania and Montenegro (signed on 14 December 2010), which covers the Basin of Shkodra Lake, Drini and Buna rivers, and related to the water streams at the border, such as agreement between Croatia and Bosnia and Herzegovina.⁵ All four countries have also some bilateral agreements with their neighboring countries. As such, Albania has signed an agreement with Republic of North Macedonia on the “Protection and sustainable development of Ohrid Lake and its watershed”. In November 2011 a Memorandum of Understanding was signed between Drin Basin countries.

A key challenge of the water governance in the region is adaptation to climate change impacts and mitigation of changes in land use on transboundary groundwater resources. Assessment of possible impacts and adaptation and mitigation mechanisms along with establishment of adequate supervision system(s) under these processes should be reflected in national legislations and transboundary agreements. The goal is to reduce the uncertainty in predictions of groundwater quality and quantity status determination and to enhance the conceptual understanding of the (karst) aquifer system and its interactions with receptors, terrestrial and aquatic ecosystems.

Stakeholder Analysis

The analysis of stakeholders carried out during the TDA process identified different actors that could influence/affect or be influenced/affected by the Project, as well as the management of the karst aquifers in the Dinaric karst region. Representatives of a wide spectrum of stakeholder groups participated in the activities which led to the stakeholder analysis, including water management-related ministries, regional authorities and research institutions, groups associated with tourism, NGOs working with nature and ecosystems, and the private sector, industries and hydropower. In general, there has been a good representation of stakeholder groups except the ones in the tourist

⁵ *Bilateral Agreement has been signed in 1996, on improvement of water management between BiH and Croatia, including activities on the boundary watercourses as well as on the groundwater bodies and watercourses crossed by the states' border -Two additional agreements between BiH and Croatia have been signed and they regulate: joint financing, operation and maintenance of the regional waste water system Neum-Komarn-Mljetski kanal; rights and obligations related to the usage of water supply systems crossed by the states' border.*

sector and in agriculture and animal husbandry, the latter being under-represented and consequently not identified in the analysis. The water management-related institutions - perceived by the stakeholders as the most influential actors in the field of karst aquifers management - were those best represented. The industrial sector has been identified as one of the main sectors in terms of pressures exerted on the resource and along with the private sector. Hydropower in particular is regarded as one of the most important economic activities in the region and depending on the country in the DIKTAS region, hydropower is the first or the second most important user in terms of exerting pressure on groundwater. It is perceived to cause significant impacts on the quantity and quality of the resource. Sustainable tourism is regarded as the foremost proposed development option for the area with the agriculture development coming second; the identified groups in the above sectors have been less engaged in karst aquifer-related actions so far.

Some of the perceived transboundary issues, such as pollution, are common in all four project countries. Unsustainable and insufficient wastewater and solid waste management –especially inadequate or uncontrolled landfills – are recognized as the most important pressure in this regard. Pollution from industry and agriculture is also indicated as significant. It was clearly shown that there is a need for more information and education in water resources management as well as more research and scientific knowledge exchange among stakeholders. Lack of cooperation among stakeholders, institutions and initiatives at all levels is noted. Inadequate implementation and enforcement of legislation is believed to be an issue. The harmonization of national legislations among neighboring countries and the completion of the transposition of the EU Directives are thought to be of importance.

Major issues of transboundary concern

Major issues of concerns were identified for the most significant areas of aquifer transboundary influence shared by the DIKTAS project countries, named after the related rivers/surface water bodies: Una, Cetina, Neretva, Trebišnjica, Bilečko Lake and Cemi/Cijevna and Piva.

The analysis has shown that transboundary aquifers have some unique major issues of concern and some that are shared. Specifically, TBAs Una, Trebišnjica, and Bilečko Lake share the issues of absence of a comprehensive groundwater monitoring program, including a necessary bilateral agreement and lack of a database on point and non-point sources of surface water and groundwater contamination (landfills, septic tanks, quarries, wastewater discharges and others). The lack of defined sanitary zones and uncontrolled collection and treatment of sewage water that is usually discharged into the ground are mainly issues for the TBAs Cemi/Cijevna and Cetina. The absence of harmonized criteria for delineation of the sanitary protection zones by applying one common rulebook affects the Una, Trebišnjica, Neretva and Cetina TBAs, as well as the absence of adequate legal mechanism for establishment and law enforcement in sanitary protection zones. The important issues for the Una, Trebišnjica, Neretva and Cetina aquifers are to prepare and put in practice the legal framework which will enable that relevant planning documents which include protection zones for "cross-border sources" with clearly defined principles for defining mutual rights and obligations of bordering States as well as preparation of harmonized criteria for delineation of the sanitary protection zones by applying one common rulebook. Some actions have already been undertaken, as described in the above Chapter 2.1.1. Tourism initiated by the existence of national parks can trigger significant economic development and additional water abstraction that needs to be planned for; this is a major issue for both the Una and Trebišnjica TBAs. Specific major issues of transboundary concern are provided in Table 1.

Table 1: Major issues of transboundary concern

Major issue of concern	Basin
Possible microbiological contamination of karst springs in the Bihać region (BiH) due to lack of wastewater treatment (mostly from Croatia); Possible contamination of karst springs in the Bihać region (BiH) by spills of PCBs from destroyed military installations including Željava Airport in the very state border area and Udbina which is located in Croatia; Absence of reliable data on groundwater consumption in rural areas without a centralized water supply; Existence of big cities close to TBA can project pressures on the TBAs environmentally due to extensive economic demands.	Una
Lack of water users' analysis; Sanitary outflow from rural settlements is mostly unregulated (usually septic tanks that allow discharge in the ground); Construction of a hydro-power plant in the upper part of the Trebišnjica catchment is considered as an issue of concern by some stakeholders because of the possible change of water regime Downstream (Neretva River basin).	Trebišnjica
Possible contamination of the Prud spring utilized for water supply of several Croatian islands by nitrates, pesticides and phosphates as a result of agriculture activities in the Ljubuško Polje (BiH); Possible of contamination of the Prud spring due to the inadequate wastewater collection and treatment system of the town of Ljubuški; Possible contamination of the Neretva delta area due to the extensive use (or use of illegal types) of pesticides and fertilizers.	Neretva
Poor implementation of protection measures of drinking water in BiH; good implementation in Croatia; Possible water pollution at the springs in Croatia due to inadequate wastewater collection and treatment systems of settlements in BiH; Probable negative consequences on water quality due to the plans for developing large open pit coal mines in Duvanjsko and Livanjsko Poljes; Unregulated and/or unplanned economic activities based on the absence or abundance of water in the area.	Cetina
A concern from Montenegro is that although a part of Bilećko Lake's catchment area is in Montenegrin territory, Montenegro doesn't share benefits from the hydropower generated by using water from Bilećko Lake. Water from Bilećko Lake is used for water supply of the Herceg Novi municipality. The concern of Montenegro is that Montenegro pays a high price to the communal company of Konavle in Croatia for transfer of water to Herceg Novi. Connection of city to the Regional waterworks for Montenegrin Coast which will solve this late problem is underway.	Bilećko Lake
Lack of a sewage system in almost all the settlements in the TDA zone; A high degree of vulnerability of the karst aquifers because of the lack of vegetative cover and forests; Water exploitation and discharge without permits or control by the authorities; Lack of an appropriate drinking water system (water pipelines are local and amortized).	Cemi/Cijevna

The Strategic Action Program

Based on the outcomes of the TDA and other DIKTAS project activities, a Strategic Action Program was discussed and agreed upon by the National-inter-ministerial Committees (NICs) of the project countries and by the project Steering Committee, and finally endorsed by the countries. The SAP was

based on the agreed upon regional Vision “to achieve joint sustainable and equitable use and protection of Dinaric karst aquifer system”. To assist in attaining the vision for the Dinaric karst aquifer system, five (water resources and environmental) long-term objectives were defined: 1) Provide sufficient groundwater quantities in dry periods, particularly for the drinking water supply and maintenance of environmental flow; 2) Maintain and improve (where needed) the quality of groundwater in the Dinaric region; 3) Ensure protection of groundwater-dependent ecosystems, their specific characteristics and ecosystem services for the future; 4) Support equitable allocation of groundwater resources; 5) Raise awareness and build capacities related to karst water and their dependent ecosystems.

The discussion among the countries resulted in a decision to produce a short document focused on key actions needed to enable the coordinated and cooperative actions by the countries aiming at achieving the above long-term objectives. The SAP hence focuses on three Strategic Actions, to be implemented within a limited time span of 5 years. The proposed Strategic Actions (described below) are considered to be of highest contribution to the long-term objectives and to the Water Framework Directive (WFD) requirements, taking into account specifics of the Dinaric karst. The strategic Action 1 (on groundwater quantity and quality monitoring) consider as a major climate adaptation measure, dealing concretely with issue of water shortage in dry periods and sustainable environmental flow. Accordingly, this action includes testing/implementation to encourage future replication in the region and elsewhere.

Table 2. SAP Priority Actions

Priority Action		Expected Results
1	Joint design and testing of a regional groundwater quantity and quality monitoring network and associated data exchange and analysis protocols	A common methodology to establish groundwater quantity and quality monitoring network in the entire Dinaric karst region will be adopted and a monitoring programme will be prepared for all the identified transboundary aquifers, including the optimal/minimal monitoring density and frequency, and an estimate of costs and time required for the program implementation
2	Harmonization of criteria for (content and extend) of sanitary protection zones.	Bilateral / multilateral agreements on the preparation of the joint Rulebook and guidelines for its implementation agreed and signed. The DIKTAS-level Rulebook prepared, agreed and adopted.
3	Application and promotion of joint principles of sustainable management and equitable use of transboundary Dinaric karst aquifers.	A multilateral agreement on the establishment and functioning of the Consultation and Information Exchange Body (CIE) and its Secretariat prepared. Coordinated measures to protect karst GWDEs prepared. Awareness of the public, local population and target groups raised.

1.2 Country baseline: legal and institutional arrangements, priorities and monitoring

1.2.1 Albania

(i) Legislation and institutional framework relating to groundwater protection and use

Albania has undertaken on-going efforts for transposing the fundamental principles, objectives and measures from the EU Framework Directives in order to fully integrate the EU *acquis* into the national legislation in the area of water resource management. Legislation and regulations on water management are divided into three major sections: primary legislation, secondary legislation and inter-sector legislation.

The water sector in Albania is regulated since 15.11.2012 by Law No. 111 “on Integrated Management of Water Resources” amended by Law No. 6/2018 on some amendments and additions to Law No. 111/2012 “on the Integrated Water Resources Management”. This law aims at:

(i) Protection and improvement of the aquatic environment, surface waters, either temporary or permanent, sea water, territorial waters, exclusive economic zones, continental shelf, groundwater, and their status; (ii) safety, protection, development and sustainable use of water resources, necessary for life and for the social and economic development of the country; (iii) Equitable distribution of water resources, as intended by their effective management; (iv) protection of water resources from pollution, overuse and promotion of consumption contingent on actual needs; (v) establishment of the institutional framework, at national and local level, required for the implementation of a national policy for the administration and management of water resources to the benefit of communities and according to the country’s social and economic interests.

Law No. 111/2012 amended by Law No. 6/2018 on some amendments and additions to Law No. 111/2012 “on the Integrated Water Resources Management” integrates various laws into a single package aimed at improving the status of surface waters, ground waters, protected areas and in particular of curative waters, mineral and geothermal.

This Law transposes:

- Directive 2000/60/EC of the European Parliament and Council establishing a framework for Community action in the field of water policy, as amended by Decision 2455/2001/EC, Directive 2008/32/EC and Directive 2008/105/EC;
- Directive 2006/118/EC of the European Parliament and Council, date 12 December 2006 on the protection of groundwater against pollution and deterioration;
- Directive 2007/60/EC on the assessment and management of flood risks.

In addition, the spirit of the law is based on the precautionary principle; preventive actions should be taken, environmental damage should be addressed with priority at its source and the polluter must pay.

Chapter 1 provides definitions within the context given by this Law. As such the law defines the concept of River Basin Districts and other basic principles of integrated management of water resources:

- Respecting the integrity of the watershed based on social and economic demands for water resources, protecting and maintaining the quality of these resources and environmental quality for future generations;
- Coordination of public control over water resources through territory planning and projects for socio-economic development, at national and local level;
- Rational use of water resources and emissions control;

- Respect the cost recovery principle of water services, including environmental costs, in accordance with the “user pays” principle;
- The environmental protection principles;
- Ensuring a sufficient supply of surface and groundwater of good quality for sustainable, balanced and equitable water use;
- Undertaking preventive actions to avoid damaging the water resources, as a priority.

In Chapter 2 of Law No. 111/2012 the national administration and management bodies of water resources have been defined, along with their relevant mandates and responsibilities. Chapter 1.4.5 below presents the institutional aspects related to the management of water resources.

All other Chapters of Law No. 111/2012 amended by Law No. 6/2018 on some amendments and additions to Law No. 111/2012 “on the Integrated Water Resources Management” provide the necessary clarifications with regard to water resources management, division of territory to this end, the planning documents and specifications for the IWRM Strategy. Specific provisions on pollution control, protected areas, protection of areas prone to pollution as well as measures for protection of water resources correlates the law with the EU Water Framework Directive and other national legislation that regulate the above. Subsequent chapters of Law No. 111/2012 amended by Law No. 6/2018 on some amendments and additions to Law No. 111/2012 “on the Integrated Water Resources Management”, detail the following aspects on IWRM:

- Chapter 5 addresses the use of water resources by authorizations, permits and concession contracts. It also sets the priorities, purpose and circumstances for use of water resources. The protection of natural resources, curative waters, mineral and geothermal waters are now addressed and regulated by defining the rules and principles for the right of ownership and economic use in accordance with sustainable environmental development of these limited resources;
- Chapter 7 details the authorization, permitting and concession process for using water resources in compliance with Law No. 10081, dated 23.02.2009 "on licenses, authorizations and permits in the Republic of Albania" and by-laws, as amended. Subject of the aforementioned law are protected areas. The law defines areas of sanitary protection, their importance and the method for determining their boundaries, which shall be approved by the Council of Ministers upon the proposal of the Prime Minister, the Minister responsible for tourism, the Minister responsible for health issues and the Minister responsible for water supply and sewerage infrastructure issues);
- Chapter 10 envisages the administration and management bodies for water resources, aiming to ensure people, livestock and property safety by taking appropriate measures in flood affected areas.
- Chapter 11 stipulates that construction activities for use of water resources or for prevention of adverse effects of water, carried out as public services, are subject to authorization, permitting or concession contracts;
- Chapter 12 provides the conditions for discharges into water bodies, soil, underground and wastewater systems, which shall be carried out after obtaining a permit or authorization issued by the respective water resources management and/or administration institutions;
- Chapter 15 provides details on maintaining the status of marine waters, surface waters, underground waters and protected areas.

Law No. 111/2012 amended by Law No. 6/2018 on some amendments and additions to Law No. 111/2012 “on the Integrated Water Resources Management”, also stipulates and defines the content of water policy documents, including: the objective of planning and development of water management actions according to economic, demographic, social, environmental, cultural and historic

development; implementation measures, operational plans and the establishment of necessary budget for implementation.

Law No. 10431, date 9.6.2011 "For environmental protection". This Law sets out principles, requirements, responsibilities, rules and procedures to ensure a higher level of environmental protection. Also, includes dispositions for environmental impact assessment as a tool for environmental protection, aiming to identify and define the possible direct and indirect effects on the environment.

The monitoring the state of the environment is the observation and recording of environmental quality and changes in the state of its components. Specifically, it includes: (i) the quality of surface water and (ii) the quality of groundwater.

Secondary legislation

Law No. 6/2018 on some amendments and additions to Law No. 111/2012 "on the Integrated Water Resources Management" needs to be completed with several remaining secondary acts. Current secondary legislation on water management (by-laws) includes:

- DCM No. 590, dated 18.10.2017 "on establishment and functioning of the National Water Council"
- Parliamentary Decision No. 34/2016 "on the approval of the structure, organisation and classification of job positions within the Water Regulatory Authority"
- DCM No. 268 dated 6.04.2016 "on the approval of the regulation on functioning of the National Water Council"
- DCM No. 342 dated 4.05.2016 "on the approval of the territorial and hydrographic river basin borders in the Republic of Albania, the head office location and composition of the council for each of them"
- DCM no. 379, dated 25.05.2016 for approval of regulation "Quality of Drinkable Water", repealing the DCM no. 145, dated 26.02.1998 for approval of Hygienic – health regulation on control of drinking water quality, design, construction and supervision of supply drinking water system"
- DCM No. 416, dated 13.05.2015 "on the approval of general and special conditions, accompanying documentation, period of validity, application forms for authorizations and permitting, procedures for decision making and types of authorization and permits for use of water resources"
- DCM No. 230, dated 23.4.2014 "for the composition, organization and functioning of the Technical Secretariat of the National Council Water"
- DCM No. 246, dated 30.04.2014 "on the determination of environmental quality standats for surface water"
- DCM No. 1080 dated 18.12.2013, "on the establishment and composition of the National Water Council"

Other laws and decision of council of ministers for water sector:

- DCM No. 63 dated 27.01.2016 "on the reorganization of operators providing water supply, wastewater collection and treatment services";
- DCM No. 504 dated 6.07.2016 "on the establishment of the National Water Supply and Sewerage Agency";
- Decision No. 40 dated 9.12.2015 "on the approval of supporting documentation for the approval of tariffs related to water supply, sewerage and sewage treatment";
- DCM No. 797 dated 29.09.2010 "on the approval of hygiene and sanitary regulation for water quality management";

- DCM No. 1189, dated 18.11.2009: “the rules and procedures for the drafting and implementation of the National Environmental Monitoring Program”;
- DCM No.177, dated 31.03.2005 “on the permitted norms of liquid discharge and zoning criteria for receiving water environments”

Inter-sectorial legislation

- Law No. 8905, dated 06.06.2002, on “Protection of Marine Environment from Pollution and Damage”
- Law No. 9115, dated 24.07.2003, “On Environmental Treatment of Polluted Waters”
- Law No. 9103, dated 10.07.2003, “On the Protection of Transboundary Lakes”
- Law no. 10 431, date 09.06.2011 “On Environmental protection”
- Law no. 10 440 dated 07.07. 2011 “On Environmental Impact Assessment”
- Law no. 10 448 dated 14.7.2011 “On Environmental permit”
- Law no. 10 433, dated 16.6.2011 “On inspection in the Republic of Albania”

(ii) Institutional framework

Administration and management structures for water management are provided at national and local level. At the national level, the National Water Council (NWC) is the central executive body. The country is divided into six river basins, each one having a River Basin Council (RBC) and a Administration Office of Basin Water.

National level institutions

Council of Ministers

The Council of Ministers approves the composition and regulation of the functioning of the National Water Council as well as that of the Water Resources Management Agency. The functions of the Council of Ministers related to water management include, but are not limited to:

- approving the National Water Resource Management Strategy and appoints a special committee for the management of transboundary waters
- establishing the territorial boundaries of each water basin of the Republic of Albania
- approving hydrographic boundaries of water basins and the management plans of water basins
- determining the areas, distances and the width of water resources shores

The National Water Council

The National Water Council is the central decision-making body responsible for managing water resources which main competences are:

- the approval of interregional and national plans and projects in the field of agriculture, urban planning, industrial and territorial development, when related to water conservation and management
- the taking of appropriate measures for the implementation of any international agreement or convention on water resources, in which the Republic of Albania is part;
- the issuing of permits and authorizations for water use and discharges when the activity is performed outside the boundary of a single basin

Water Resources Management Agency

Functions of the Water Resources Management Agency include, but are not limited to:

- developing and implementing policies, strategies, plans, programs and projects aimed at the integrated management of water resources, quantitative and qualitative conservation, and their further consolidation
- implementing the provisions of international agreements and conventions on water resources and cross-border ones, part of which is the Republic of Albania
- proposing to the National Water Council the concession of water resources
- developing a national inventory of water resources, including quantity and quality information;
- planning and monitoring water basin management plans implementation and transboundary water management plans implementation
- promoting water users' participation in water resources management
- promoting studies and research to develop technical innovation related to the use, identification, storage, processing, protection, management and efficient use of water resources;
- coordinating and supervising the work of RBCs and Administration Office of Basin Water

Integrated water resource management at basin level

Integrated water resource management at basin level is done through (i) Water Basin Councils and (ii) Administration Office of Basin Water.

Water Basin Councils

Article 12 of Law No. 111/2012 and also Law No. 6/2018 "on some amendments and additions of Law No. 111/2012 on the Integrated Water Resource Management" emphasizes that each Water Basin Councils should ensure:

- a rational protection, development, and operation of water resources within its own basin boundaries
- fair distribution within its own basin boundaries, according to the purpose of use and effective water administration
- protection of water resources against pollution, misuse, and overuse

Administration Office of Water Basin

The Water Resources Management Agency:

- prepares the water resource plan for the relevant basin and submits it for approval to the Water Basin Council
- prepares the qualitative and quantitative inventory of water resources and periodically updates it
- promotes the participation of water users in the management of water resources
- prepare reports and give feedback on water resources and submit them for further follow-up to the Water Basin Council

National Institutes involved in water monitoring and assessment

- National Environmental Agency (NEA), under the Ministry of Tourism and Environment, is responsible for quality and quantity monitoring of water resources. It supervises the work of

relevant institutes on monitoring activities and is the main beneficiary of data provided by the following institutions

- IGSEWE (Institute of Geological Science Energy, Water and Environment under the supervision of Polytechnic University of Tirana), conducts the monitoring of rainfall, temperature and other hydrometeorological parameters
- IPH (Institute of Public Health under the responsibility of the Ministry responsible for health issues) is responsible for monitoring drinking water quality
- AGS (Albanian Geological Survey) monitors the quality of groundwater
- NANR (National Agency of Natural Resources, which is under the ministry responsible for energy issues) has a focus on monitoring of hydropower plants
- The State Authority for Geospatial Information

ii) *Policies and laws related to the protection of groundwater dependent ecosystems*

The “National strategy for integrated water resources management”, has been adopted by council ministers by decision no. 73 dated 7.2.2018. The strategic objective of the policies regarding the preservation of water quality is: ensuring the quality of all water resources, achieving "good status" by 2027, applying the EU directives”.

This strategic objective is in accordance with the Water Framework Directive Article 1, which states that the “purpose of this Directive is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater which:

- prevents further deterioration and protects and enhances the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems;
- promotes sustainable water use based on a long-term protection of available water resources;
- aims at enhanced protection and improvement of the aquatic environment, inter alia, through specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or phasing-out of discharges, emissions and losses of the priority hazardous substances;
- ensures the progressive reduction of pollution of groundwater and prevents its further pollution,
- contributes to mitigating the effects of floods and droughts.”

Water monitoring systems implementation

Another main objective is the implementation and development of an adequate monitoring system, which collects and analyses data so that planning and management of water systems can be carried out efficiently, thus requiring a comprehensive inventory of water resources. National groundwater monitoring system must be developed in order to:

- provide a reliable quantitative status assessment for groundwater bodies or groups of bodies;
- estimate the direction and rate of flow in groundwater bodies that cross state boundaries;
- supplement and validate the impact assessment procedure;
- be used in the assessment of long-term trends both as a result of changes in natural conditions and through anthropogenic activity;
- establish the chemical status of groundwater bodies or groups of bodies determined to be at risk;
- monitor the chemical status of groundwater bodies or groups of bodies;

- establish the presence of significant and sustained upwards trends in pollutant concentrations.

Law No. 10431, dated 09.06.2011 "On Environmental Protection"

Water protection includes measures for the protection and improvement of surface water quality, groundwater, transitional water, coastal and sea waters, in order to avoid or reduce harmful effects on aquatic ecosystems, the environment as a whole, human health and quality of life.

Law Nr. 12/2015 "On amendments to Law no. 10440, dated 07 July 2011, On Environmental Impact Assessment".

The object of this Law is to define the requirements, responsibilities, rules and procedures for assessing the significant negative impacts on the environment of proposed, private or public projects. Provisions for transboundary impacts are also part of this Law.

Law No. 10463, dated 22.09.2011 "On Integrated Waste Management."

This law provides classification of wastes, waste management procedures including monitoring and control measures. It also describes the conditions that shall be included in environmental permits.

(iv) Government present priorities and plans related to water resources and environmental protection, and transboundary water cooperation

The current Government priorities has been developed based directly on the Environmental Objectives (EO) reflecting the seven distinct categories of the EOs, each of which is inclusive of 'basic' and 'supplementary' measures:

- To promote the sustainable use of water resources, their fair distribution among users, maximizing economic benefits in respect of environmental conditions and sustainable management principles;
- Preservation and achievement of minimal "good" ecological and chemical status for surface water bodies that have "less than good", "poor" or "very poor" status. (rivers, lakes, transitional/transitional waters, coastal, artificial and highly modified water bodies);
- Prevention of pollution in order to avoid a deterioration of groundwater quality and to attain a good chemical status;
- Preservation and achievement of minimal "good" quality for bathing water (internal, coastal and transitional).

At local level Water Resources Management is organized within six administrative river basins (Drini-Buna, Mati, Ishmi-Erzeni, Shkumbini, Semani and Vjosa). The Management Development Plan of Mati River Basin has been already completed since 2010, by the Ministry of Environment. Meanwhile, concerning the Drini-Buna and Semani rivers basins, the Management Development Plant are in final stage.

Since about 50% of Albania's territory is within international river basins, transboundary water issues are of particular concern to Albania. In 1994, Albania ratified the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes, and in 2002, the Protocol on Water and Health.

Article 8, Paragraph 2 of Law No. 111/2012 dated 15.11.2012 amended by Law No. 6/2018 on some amendments and additions to Law No. 111/2012 "on the Integrated Water Resources Management", states the necessity to establish a Special Commission for transboundary fresh and marine water management. This commission would be tasked with addressing the issues only in the context of water resources management.

The Council of Ministers decided to approve a framework agreement, between the government of Albania and that of Montenegro, for mutual relations in transboundary water resources management. The new bilateral agreement “On the approval of the framework agreement between the Council of Ministers of the Republic of Albania and the Government of Montenegro on mutual relations in the management of trans-boundary water resources” , has been in force since on 27.12.2018 in Albania.

The ratification of the Convention on “Protection and Use of the Transboundary water courses and international lakes” from Albania happened in 21 January 1993. The aim of this important step was to strengthen the measures on protection and management of surface Transboundary waters and groundwater from a quantitative and qualitative side.

The Albanian territory is divided into six main river basins with all the rivers ending up at the Adriatic Sea. The most important river basin is Drin – Buna, which is shared with four neighbor countries and territories: Montenegro, Republic of North Macedonia, Greece and Kosovo^{6*}.

Albania has three Transboundary lakes: Lake Shkodra shared with Montenegro, Lake Ohrid shared with Republic of North Macedonia and Lake Prespa shared with North Macedonia and Greece.

In 2003 it was achieved the agreement with Montenegro, which represents the best practice of a fruitful bilateral cooperation regarding the shared water resources. Periodic meetings took place between Parties for water-related issues, resulting on a common well understanding.

From 2008 till 2012 the project “Lake Shkodra: Integrated Ecosystem Management” financed by GEF and the Albanian Government, was realized. In 2010 it was signed the Memorandum of Understanding on “taking measures to regulate the water regime in the Shkodra Lake, Buna river and Drini river basin” between Albania and Montenegro.

In 2003 it was achieved the agreement with Greece, however the bilateral cooperation did not provide the expected outcomes. Only one meeting was held on 2008. Nevertheless, the parties very often are in contact. Albania shares with Greece Drini and Vjosa river basin.

Regarding the agreement between Albania and North Macedonia, there have been attempts to achieve it however not yet producing the desired outcome. Both countries have expressed the goodwill to conclude on an agreement.

Between Albania and North Macedonia was signed the agreement for the Ohrid lake on “Protection and sustainable development of Ohrid lake and its watershed”.

In 2011 it was signed the Memorandum of Understanding for “Drin river: A strategic shared vision” between Albania, North Macedonia, Greece, Kosovo* and Montenegro. This represents one of the most positive collaborations which started few years ago, and on the same time a success story not only for Albania but for all the signatory countries.

In 2012 has been realized the project on “Protection and Sustainable Use of Biodiversity” on the three lakes Shkodra, Ohrid and Prespa, financed by German Government through GiZ.

In the future, the role of the Convention will continue to be very crucial. Having regard to the fact that every Party will complete its duties under the implementation of the Convention, Albania aims with the goodwill to continue forward decided towards the Institutionalization and strengthening the cooperation between countries, sharing the water resources. The cooperation at Transboundary level, should be widely interpreted as a cooperation not only among those countries who share Transboundary waters, but also as a cooperation with other Parties to the Convention, who have a long experience in Transboundary water management to work together.

⁶ * As defined by UN Security Council Resolution 1244, dated 1999.

(v) *Present state of groundwater monitoring, including description of responsible institutions, instrumentation, data transmission, sampling protocols, network station sites, data processing and dissemination of results.*

In Albania, the groundwater monitoring started in 1967 and continued, with some interruptions, up to the beginning of the 1990s. During this period, the Tirana Hydrogeological Public Enterprise has carried out groundwater monitoring in a limited number of stations. During 2005-2009, qualitative monitoring was performed 2-4 times/year. The observation of the groundwater's levels (exploitation level) was made only in the Mati and Vjosa porous aquifers and with a frequency of 3 times/month. In the last two decades, the monitoring of groundwater was carried out by the Albanian Geological Survey.

Responsible institutions for surface and groundwater monitoring

Currently in Albania there are two institutions responsible for water monitoring: the National Environment Agency (NEA) and the Albanian Geological Survey (AGS).

The NEA, under the supervision of the Ministry of Tourism and Environment, is responsible for the quality and quantity monitoring of water resources. It supervises the work of relevant institutes on monitoring activities and is the main beneficiary of data provided by these relevant institutions. NEA also performs surface waters monitoring.

The AGS is subordinated to the Ministry for Infrastructure and Energy. According to Article III.5 to DCM No. 1189, dated 18.11.2009: "on rules and procedures for the drafting and implementation of the national environmental monitoring program", Albanian Geological Survey has been charged to perform the routine national groundwater monitoring.

Groundwater monitoring network

National groundwater monitoring network in Albania consists of 59 monitoring stations, of which 48 wells/piezometres installed into unconfined and confined porous aquifers and 11 springs located in karst aquifers. Porous aquifers, such as Tirana aquifer, Fushe Kuqe aquifer, Lezha aquifer, Elbasani aquifer, Shkodra aquifer, intensively are used for public water supply of the cities and surrounding villages, are included into the monitoring programme. Wells are used for groundwater sampling and water level measurements (hydrochemical and hydrodynamical monitoring) and springs are only sampled for quality analyses. Water levels are not measured on a routine basis; they are occasionally measured in selected production wells. These stations are approved and financed by the National Environmental Agency and are considered priority groundwater monitoring points in Albania. Monitoring network distribution by river basins is the following:

Table 3: The groundwater monitoring stations, type of aquifers and their code

River basin	Monitoring network	
	wells	springs
Buna –Drini River Basin	4 wells	4 springs
Mati river basin	9 wells	1 spring
Erzen-Ishmi River Basin	9 wells	
Shkumbini River Basin	6 wells	
Semani River Basin	10 wells	3 springs
Vjosa River Basin	10 wells	3 springs
Total	48	11

Groundwater chemical monitoring

The groundwater chemical parameters that are monitored are:

1. Descriptive parameters: temperature, pH, dissolved oxygen (DO), electrical conductivity (EC). These parameters are measured in the field at wells/springs during the surveillance monitoring programme;
2. Major ions - Na, K, Ca, Mg, Fe^{tot}, NH₄, HCO₃, Cl, SO₄, NO₃, NO₂;
3. TOC, ionic balance;
4. Trace elements, such as: Arsenic, Cadmium, Lead and Mercury.

Monitoring frequency

Sampling frequency and groundwater levels monitoring depends on budget availability. In the last years monitoring frequency is performed twice a year during periods of low and high water levels in April-May and September-October. Groundwater monitoring frequency in Albania is indicated in the following table:

Table 4. Groundwater monitoring parameters and frequency

Parameters and indices	Monitoring frequency	Responsible institution
Main anions and cations (Na, K, Ca, Mg, Fe ^{tot} , NH ₄ , HCO ₃ , Cl, SO ₄ , NO ₃ , NO ₂)	2 times/year	AGS
Physical properties (pH, specific conductivity, permanganate index, or TOC)	2 times/year	AGS
Trace elements (Fe, As, Hg, Cd, Pb, Zn, Cu, Cr, etc.)	2 times/year (In eleven monitoring stations)	AGS
Groundwater levels in monitoring wells, boreholes	2 times/year (Automatic monitoring well – every hour, at one monitoring station)	AGS

Instrumentation

The measurement of the groundwater level is done with the water level meter. Automatic monitoring is done every hour only at one monitoring station.

Data transmission

The results of groundwater monitoring are published by the National Environmental Agency at their annual bulletin, as part of the environmental report. These results are also archived at the Albanian Geological Fund.

Sampling protocols

The national sampling procedures is based on ISO 5667-11:1993 which provides the groundwater sampling principles (equipment, procedures, safety precautions, etc.), and also on ISO 5667-2 that provides general information on the choice of material for sampling equipment. Sample handling and preservation techniques depend on the parameters to be analysed. Groundwater samples that are to be analyzed for metals and other trace elements are preserved with pure nitric acid. All field data is

recorded in a field book or on the field sample sheet. Samples are labelled in order to be easily identified at any time. Sample containers are marked in such a way that they can be clearly recognised and distinguished by other samples in the laboratory.

(vi) National stakeholders' relevant to the various components and steps of project implementation.

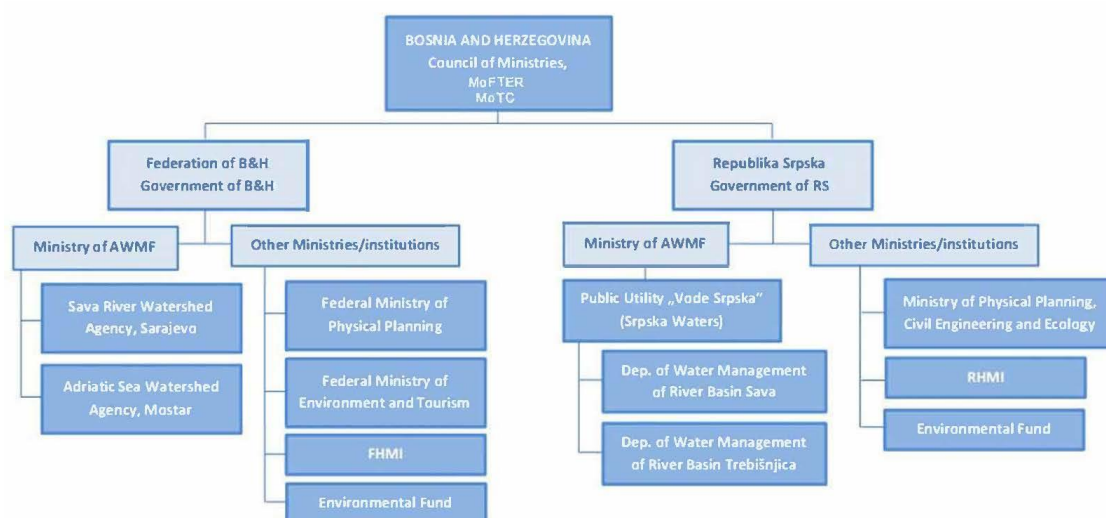
- Ministry of Tourism and Environment: in charge of regulation for the environmental protection, sustainable use of natural resources, promotion of renewable resources, protection of nature and biodiversity, sustainable development and management of forestry and pastures, and monitoring of waters quality.
- Ministry of Infrastructure and Energy: responsible for national climate policy and international cooperation on climate change, as well as energy issues, metrology and national geological surveys, electricity, water, wastewater services and industry in Albania.
- Ministry of Health and Social Protection: is charged with the responsibility to oversee the running of Albania's health system, including supporting universal and affordable access to medical, pharmaceutical and hospital services, while helping people to stay healthy through health promotion.
- Ministry of Agriculture and Rural Development: in charge of regulation of the economic activity in the agricultural sector of the country with a purpose of increasing the sector's production capacity.
- Water Resource Management Agency: It develops and implements policies, strategies, plans, programs and projects aimed at the integrated management of water resources, the quantitative and qualitative preservation, and their further consolidation.
- National Environmental Agency: is dedicated to improving, conserving and promoting the country's environment and striving for environmentally sustainable development with sound, efficient resource management. Its main duties and responsibilities are related to monitoring the state of environment throughout the country based on the main environmental indicators and components in: air, waters, soil, forests and biodiversity.
- Public Health Institute: Its mission is to prevent and control disease, injury, disability, and health damaging environmental factors in Albania.
- Albanian Geological Survey: is a government organization, which perform its activity in field of geosciences, according to law 111/2015, that define the role of AGS, as scientific and technical adviser of Albanian Government in this field and expertise.
- Albanian Regulatory Authority of the Water Supply and Waste Water Disposal and Treatment Sector: is a public independent institution that regulates the water supply and sewerage sector in order to ensure protection of the public interest and to create a transparent regulatory framework.

1.2.2 Bosnia and Herzegovina

(i) Institutional framework

Relevant Institutions at the State (BiH) level dealing with groundwater protection and use

The Constitution of Bosnia and Herzegovina (BiH) is an integral part of the Dayton Peace agreement, which has created a State of BiH comprising of two Entities, the Federation of Bosnia and Herzegovina (FB&H) and the Republika Srpska (RS) and third entity - Brcko District (BD). The State of BiH is the central authority, but has only limited and specific powers, whereas the two Entities and the Brcko District are politically, administratively and legally largely autonomous. Accordingly, environment and water sector are under responsibility of both BiH entities, and of Brčko District, and only some responsibilities belong to state of BiH.



Institutional set –up in BiH relevant for water and environment

Law on Council of Ministries BiH prescribes conditions for establishment of the administration at the state level, in accordance with the BiH Constitution. Several relevant Ministries for water issues were established. Among them the most relevant as far as DIKTAS is concerned is the:

- State Ministry of Foreign Trade and Economic Relations (MoFTER) which has certain powers for water management at the state level.

Beside other duties, the Ministry is also responsible for carrying out tasks within the competence of BiH that relate to defining policy, basic principles, coordinating activities and harmonizing plans of the Entities' authorities and institutions at the international level in the areas of: agriculture; energy; environmental protection, development and use of natural resources; tourism.

Ministry contains various Sectors: Sector for Foreign Affairs and Foreign Investments, Sector for International Trade Relations, Sector for customs policy and tariffs, Sector for Economic Development and Trade, Sector for Water Resources, tourism and environmental protection, Sector for Energy, Sector for Legal and General Affairs, Sector for Agriculture, Food, Forestry and Rural Development, Inspectorate.

Sector for Water Resources, tourism and environmental protection composes of three departments: 1. Department of Water Resources; 2. Department of Tourism and 3. Department of Environmental Protection.

Some of the most important duties of water Department are: making expert analysis, information and proposals regarding the situation in the area of water; proposing measures to improve the situation; collection, monitoring and analysis of data on water resources; monitoring and implementation of international and domestic initiatives, conventions, projects and programs in these areas; reporting institutions in the country and abroad on the state of water and cooperation with similar institutions abroad and in the country in various forms if they are in the interest of BiH; cooperation with relevant institutions at the state and entity level in order to improve the water sector in the country and abroad; all other activities in the framework of national and international cooperation⁷.

Relevant Institutions in entity FB&H dealing with groundwater protection and use

At the level of the entity, the primary responsibility for water resources belongs to Federal Ministry for Water, Agriculture and Forestry. Federal Ministry for Environment and Tourism is responsible for different environmental issues, including water protection issues mainly through EIA procedures, issuing of integral water permits etc.

River Basin management Institutions

Pursuant to the F B&H Water Law, the water management is carried out at the river basin level. Agencies for Watershed Areas of Sava river basin and Adriatic Sea are responsible for organizing development of River Basin management Plans. Water Management Plans and programs of measures are adopted by the Entity Government.

Institutions at Cantonal level

The main functions and tasks related to water assigned to the Cantons include licensing and allocation of water resources under their competence (drainage, irrigation, water supply, waterways for navigation, hydropower, and water protection).

Cantons, either independently or in coordination with federal bodies, are competent for identifying the policy of environment protection and utilization of natural resources. Each canton adopted its own relevant Laws. (Law on Cantonal Government; Law on Cantonal Administration; Law on Cantonal Ministries and Other Administrative Bodies; Law on Local Self-governance; Water Law; Law on Environment; Law on Air; Law on Nature Protection; Law on Waste Management; Law on Spatial Planning; Law on Concessions; Law on Agricultural Land; Law on Forests).

Institutions at Municipal⁸ level: Water Supply Companies

According to the Law on public companies ("Official Gazette of FB&H", No. 8/05) Water Supply Companies perform certain activities in water management sector at local level, such as:

- production and distribution of water
- waste water treatment and drainage
- sanitary-technical activities and drinking water quality control
- management of public water supply and sewage

(ii) Legal framework

Relevant Legislation at State level dealing with groundwater protection and use

There are no water, environment or nature legislation at state level in BiH, but only at entity levels.

Regarding the nature, the Council of Ministers of BiH has adopted in 2017 the Decision on conditions and manner of implementation of the Convention on International Trade in Endangered Species of

⁷ Floods in BiH-Natural disasters and/or institutional inefficiency, Analysis from Centers for Civic Initiatives, Tuzla, 2014

⁸ All Public water Supply Companies in FB&H are managed at Municipal level, except Public water supply Company Sarajevo which is managed by Cantonal Government.

Wild Fauna and Flora (CITES). The implementation of the decision is pending publishing in Official Gazette of BiH.

Relevant Legislation in entity FB&H dealing with groundwater protection and use

- Water Law («Official Gazette of FB&H», No. 70/06) (20.11. 2006)
- Relevant water by-laws – decisions and regulations
- Law on mining («Official Gazette of BiH», No. 26/10)
- Law on geological research in FB&H
- Law on unique method for determining, recording and collecting of data on mineral reserves and mineral rows and groundwater and on their balance

Legal base and existing practice of groundwater protection in the karstic areas

While groundwater is in principle covered by Water Legislation, in the karstic areas is not specifically treated, except in the context of sanitary zones protection.

In FB&H, the Rulebook on determination of the conditions for definition of the sanitary protection zones and protective measures for drinking water sources used for public water supply (“Official Gazette of FBH”, No. 88/12)., defines the protection of groundwater sources in karstic areas. This regulation was adopted on the basis of the Water Law of FB&H from 2006. This regulation prescribes very strict measures for protection of groundwater sources in the karstic areas.

Methodology of delineation of sanitary protection zones is described in the above regulation. Generally, methodology of delineation of sanitary protection zones for both intergranular and karst aquifers is typically based on groundwater velocity and time of travel of flow to particular source. Regulation prescribes that the sanitary protection zones are determined depending on the type of aquifer, separately for aquifers with inter-granular porosity and separately for karst aquifers. For aquifers with inter-granular porosity four zones of sanitary protection were prescribed: I, II III and IV: zone of highest protection regime, zone of strict protection regime, zone of limited protection regime and zone of preventive measures and limitations, respectively.

For the karst aquifers, the four above mentioned zones were prescribed as well.

However, the existing system of protection of the well fields and springs is not satisfactory. For majority of water sources Decision on water source protection has not yet been adopted, and only for some of them protection measures are in place.

Relevant Legislation in entity RS dealing with groundwater protection and use

- Water Law («Official Gazette of RS», No. 50 /06 and 92/09, - adopted on 11.05. 2006)
- Relevant water by-laws – decisions and regulations
- Law on mining («Official Gazette RS», No. 59/12)
- Law on geological research in RS («Official Gazette RS», No.51/04 and 75/10)

Legal base and existing practice of groundwater protection in the karstic areas

Groundwater is treated by Water Legislation, but groundwater in the karstic areas is not specifically treated in the legislation, except in the context of sanitary zones protection.

Protection of groundwater sources in karstic areas is prescribed by Regulation on protection measures and method for determining the sanitary protection zones as well as on areas where water sources, water management facilities and water for human utilization exist («Official Gazette RS», No. 7/03).

Methodology of delineation of sanitary protection zones is described in the above regulation. The sanitary protection zones are determined based on the the same criterias for both, intergranular and kars aquifers.

However, the existing system of protection of the well fields and springs is not satisfactory. For majority of water sources Decision on water source protection has not yet been adopted, and only for some of them protection measures are in place.

(iii) Policies and laws related to groundwater dependent ecosystems in BiH Entities (FB&H and RS)

Laws on Nature Protection of Federation of BiH and Republika Srpska.

The principal legal enactments related to nature protection are defined in the Law on Nature Protection of Federation of BiH and Republika Srpska. There are discrepancies in legislation between Federation of BiH and Republika Srpska, as well as between federal and cantonal levels, causing problems for effective planning and management of protected areas in BiH. Transposition of the Habitats Directive and the Wild Birds Directive remains stagnant.

Law on Nature Protection in FBiH has advanced the transposition of the Wild Birds Directive and the Habitats Directive. Transposition of the requirements from the Directive Annexes is pending adoption of the relevant secondary legislation. Law on nature protection in RS has ensured only partial transposition of those two directives.

According to entity legislation on nature protection, the system of protection of natural areas foresees the introduction of national PAs (in line with IUCN categorization) and Natura 2000 sites. IBA and Ramsar sites are not integrated into the national PA system, as they are not recognized in the legislation on nature protection in FB&H and RS.

According to the current laws on nature protection in the entities, entities are obliged to establish information systems for nature protection. However, these information systems are not in place. Only Republika Srpska has introduced a register of protected areas. Republika Srpska also plans to adopt the bylaw on management of information system, issues of monitoring, collecting, recording and analysing data, facts and other relevant information about the state and use of nature in 2016. Data collected on protected areas (PAs) are submitted to the Institute for Protection of Cultural, Historical and Natural Heritage of RS, responsible for updating the register of PAs.

Inventories of flora, fauna, Habitat types, Monitoring of Biodiversity and Ecosystems diversity, Protected areas

Bosnia and Herzegovina still do not have developed adequate inventories of flora, fauna and fungi species. The identification of habitat types and level of their diversity, as well as their adequate categorisation in line with Habitat Directive, flora and fauna of Europe, EURO-MED database etc is still not carried out.

A step forward in assessing the trends in species was conducted by adopting entity red lists⁹. The red list of FBH does not contain marine species.

Two entity red lists have not been harmonized and there is no single/harmonized Red Data Book of threatened species at the state level.

⁹ The Red List of the Federation of Bosnia and Herzegovina, Official Gazette of FBiH No. 7/14; The Red List of Republika, Official Gazette of RS No. 124/12.

Some improvements have been observed concerning genetic diversity including: initiation of the first steps for accession to the *Nagoya Protocol* (Feasibility Study for accession to the Nagoya Protocol has been developed), integration of issues of protection of genetic diversity into entity agriculture strategies, and establishment of gene banks and botanical gardens.

The research of genetic diversity of forests, ichthyofauna and agricultural variety of fruits and grains has also been carried out, but the results are not publicly available. A particular progress in terms of protection of genetic diversity is seen in Republika Srpska through development of programs for conservation and sustainable use of plant genetic resources.

Monitoring on biodiversity is still on an *ad hoc* basis and related to projects. Eight documents developed after 2011 include data about the status of biodiversity using 15 relevant indicators. BiH Agency for Statistics included 3 indicators for biodiversity in their statistical report from 2013. The new areas of special importance to biodiversity and new unique aspects of biodiversity have not been identified since 2011.

Status of landscapes and ecosystems diversity is unknown due to the lack of a monitoring system status. The best situation in terms of monitoring the status of ecosystems is in the forestry sector. The Development of Forest Management Baseline Documents and establishment of pilot sites in certificated forest areas provided significant data on status of forest ecosystems.

The current territory under protection is 2.7%, excluding IBA and Ramsar sites. Total number of protected areas is 25 as of April 2017, of that 4 are national parks. Funding for the national parks services is received from entity budgets. This represent significant financial burden to the entity budgets and actions toward increasing financial sustainability of national parks is needed.

Although entities laws on nature protection leave the possibility to proclaim Natura 2000 areas, currently no areas have been identified and officially proclaimed. One hundred and twenty-two areas (about 19% of the territory of BiH), including 200 species and 60 habitats, are proposed for future protection and formation of ecological network in BiH.¹⁰

There are 3 Ramsar and 4 IBA sites in BiH. No management planning has taken place (management plans are not developed) and very little or no conservation action has been undertaken for these sites.

The transposition of Directive on protection of animals used for scientific purposes (Directive 2010/63/EU) has not started yet.

(iv) Groundwater monitoring

The following Institutions are responsible for water resource monitoring in BiH: In the Republika Srpska:

- Hydrometeorological Institute (HMI) of RS Banja Luka and
- Public Institution "Vode Srpske" Bijeljina, for both, Black sea and Adriatic Sea basin.

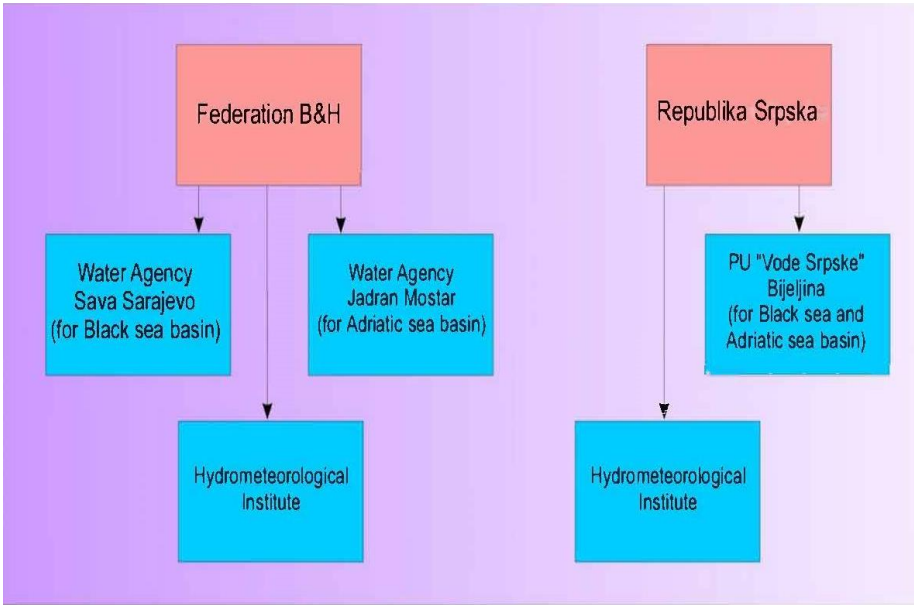
In Federation of Bosnia and Herzegovina:

- Black sea basin - responsible institution is Agency Sava, Sarajevo;
- Adriatic Sea basin - responsible institution is Agency for the Adriatic sea basin, Mostar.
- Hydrometeorological Institute of FB&H Sarajevo (whole territory of FB&H)

¹⁰As available at: <http://www.fmoit.gov.ba/userfiles/file/Natura%202000%20-%20Interpretation%20Manual%20LL.pdf> (last accessed on April 29, 2018).

Groundwater monitoring system, as well as surface monitoring, in BiH is performed by responsible Water Agencies and in accordance with its complex territorial country organization.

Table 5: Organization of monitoring of surface water and groundwater in Bosnia and Herzegovina



Status of existing groundwater monitoring in RS

Generally, it can be concluded that in the territory of Republika Srpska there is no systematically established groundwater monitoring. This means that existing observations cannot be considered representative for a reliable assessment of the quantitative and qualitative status of water bodies of groundwater in accordance with the requirements of the Directive.

Qualitative monitoring is performed to some degree through sanitary water protection zones, while quantitative monitoring is generally absent. In the karst area, quantitative monitoring is carried out only by measurement of flow at large sources or on directly associated downstream watercourses. Monitoring of groundwater quantities is carried out only on water bodies at risk of degradation.

Currently, monitoring of groundwater quantities is performed only in the area of the hydro - power system Trebišnjica, where for the needs of system development and observation, extensive work was done on the preparation of large numbers of measuring boreholes (piezometers). The River basin management plan for Trebišnjica basin proposed 9 location at Trebišnjica and 5 at Neretva river basin for monitoring of the water level of ground water bodies.

“VodeSrpske” is responsible for monitoring of groundwater quality and quantity. Since the population in the Republika Srpska is supplied in almost 90% of cases with groundwater for drinking, water companies need to provide a legally required qualitative monitoring of groundwater.

The dynamics of sampling at the water supply sources in the Republika Srpska is prescribed by the Rule on the health safety of drinking water according to the number of inhabitants. Most commonly performed types of analyses provide data on the parameters required by WFD.

Status of existing groundwater monitoring in FB&H

Generally, it can be concluded that at the territory of FB&H, groundwater monitoring (quality and quantity) is not in compliance to WFD requirements.

■ **Quantitative monitoring**

Groundwater monitoring on the territory of the Sava River basin in FB&H did not have a continual character in the past. The longest observation period had the largest karst springs in the area of the outer Dinarides (three years), while the sources in the inner Dinaric zone, which mainly refer to the Sava River Basin in the FBH, were observed for two years.

Until the adoption of the FBH Water Law (2006), the monitoring of the **quality of groundwater** is exclusively performed by water utilities, as well as other companies whose activities are related to possible impacts on groundwater (mines, hydro-energy companies, etc.). After the Law was enacted, Water Agencies are responsible for monitoring of quality and quantity of groundwater.

In the karst area, which is the largest part of the Adriatic Sea basin in FBH, quantitative monitoring is carried out only by measuring the flow on large sources or directly associated downstream watercourses.

Quantitative monitoring is important for water bodies used for water supply, as it is possible to continuously monitor whether the water body status is good. On certain sources regular monitoring of the quantitative state is performed by reading the water bar and calculation of quantities through the Q / H curve, which should be continued and extended.

According to River basin management Plan for the Adriatic Sea, the same method of monitoring should be established at all karst springs used for water supply, preferably with daily readings of limnigraph and notification of data through the mobile telecommunication network in the Mostar Agency.

Locations and frequency of quantitative monitoring for 17 water bodies in FB&H (for the purpose of water abstraction) is provided in the River Basin Management Plan for Adriatic Sea in Federation BiH.

Quantitative monitoring is also carried out on water bodies at risk of non-existence of good condition.

Existing monitoring of the amount of water at the springs at the lowest parts of karstic underground water bodies is carried out occasionally, as a part of hydrogeological research and these data are shown per groundwater bodies as estimated maximum, medium and minimal yields of the source.

One of the recommendations within River Basin management Plan for Sava river in FBH, is that as long as the qualitative monitoring is respected to a some extent (though documents related to water source protection), the data of quantitative monitoring are generally not provided. Therefore, one of the important activities in the coming period is related precisely for the establishment of quantitative monitoring of groundwater.

■ **Qualitative monitoring of groundwater**

The important fact is that majority of population in FB&H is supplied with groundwater and therefore water companies need to provide a legally required qualitative monitoring of groundwater. The dynamics of sampling at the water supply sources in FB&H is prescribed by regulation. Most commonly types of analyzes are not fully in line with the prescribed number and type provided, but mainly provide data on the parameters required by WFD.

Water sampling in the Sava river basin was done in periods of hydrological minimum and in the periods of medium and high water levels from the water bodies on which it was established observation and measurement of flows, as well as from major water facilities involved in the exploitation system.

Monitoring of the quality of groundwater is regularly done annually at 33 springs/groundwater sources in the Adriatic Basin.

1.2.3 Montenegro

(i) ***Legislation and institutional framework related to groundwater protection and use***

Water management is one of the most important segments of the environment under the responsibility of the Ministry of Agriculture and Rural Development, which defines the policy and prepares laws through its internal organizational unit, laws that are implemented and enforced by the Directorate for Water. Water sector is governed by an extensive legal framework. The key legislation is the 2007 Law on Water, amended in 2015 for transposition of Directive 2000/60/EC (WFD) and other water directives. Transposition was monitored by a table of concordance of national with EU legislation. Amended Water Law needs some new modifications in order to be fully compliant with EU Water Directives.

The Ministry of Agriculture and Rural Development is responsible for administrative affairs related to: water management development policy; system solutions for ensuring and using of water, water-bearing soil and water springs for irrigation purposes, protection of water from pollution, regulation of water and water courses and protection from harmful effects of water; system and other incentives for improvements in this field.

The Directorate for Water is responsible for affairs related to: ensuring and implementing measures and works relating to regulation of water and water courses, protection from harmful effects of water and protection of water from pollution; ensuring exploitation of water, material from water courses, water bearing soil and water structures owned by the state, through concessions, lease, etc., and drafting of related documents; management of water structures for protection from harmful effects of water; management of investors' affairs, professional supervision and control of the quality of performed works; technical inspection and acceptance of performed works; issuing of water-related documents; calculation of fees payable in this field and ensuring dedicated and rational use of funds collected on these grounds in compliance with the Government's programme; establishment and management of the water information system, water inventory, register of waters important for Montenegro and monitoring natural and other phenomena in order to collect data needed for protection from harmful effects of water; preparation of professional background for drafting of regulations, plans and programmes adopted by the Government or the Ministry responsible for water-related affairs; defining borders of water resources and defining the status of public water resources; protection of waters and water-bearing soil from usurpation and illegal exploitation, professional development (consultations, courses, etc.), cooperation with appropriate international organizations and institutions within its competences.

The Ministry of Sustainable Development and Tourism is responsible for administrative affairs related to: waste and waste water management; the system of public utilities; coordination of regional water-supply systems. This Ministry monitors the work of public utilities companies in all municipalities, and the work of regional enterprises "PE Regional Water Supply System for Montenegrin Coast" and "Vodacom" Ltd., whose work contributes to improvement of the situation in the field of waste waters and water-supply. This Ministry supervises the work the Hydrological and Meteorological Service of Montenegro as well.

The Ministry of Health is responsible for health protection in relation to waters, drinking water in particular.

The Ministry of Economy is responsible for administrative affairs related to: geology exploration of minerals, including, inter alia, ground waters, and administrative affairs related to the system of concessions and allocation of concessions in this field.

The Institute of Hydrometeorology and Seismology of Montenegro is responsible for affairs related to: observing and measuring hydrological parameters, preparing studies, elaborates, analyses and information on surface and ground waters and the coastal sea; establishing and maintaining of hydrological stations for monitoring the status of waters; preparing and managing inventory of

springs, fountains and water structures; examining sediments in water courses; control and assessment of the quality of surface and ground waters; providing data, information and studies needed for water management; implementation of international commitments related to hydrology and the control of the quality of water.

The Geological Survey of Montenegro (GSM) is an independent state institution and represents the most prominent entity in the field of geology in Montenegro for the past seventy years. GSM is organized in four departments (Regional geology and Mineral Resource, Hydrogeology and Engineering geology, Mining Works and research drilling, and General, Legal and Financial works) whose activities include performance of geological research in the area of fundamental and applied research.

The Local Self Governments, as defined by the Law on Public Utilities (Official Journal of RMNE 12/95) and the Law on Waters, have an important role in water and water bearing soil management of local importance; they organize and ensure public water supply in their respective territories; provide for treatment of waste waters. It is important to note that due to the lack of funds and institutional capacities, the regional system of water-supply and treatment of waste waters in compliance with the EU standards is provided for by the Government through the Ministry of Sustainable Development and Tourism.

In addition to the above institutions, the sector of waters includes the Public Enterprises for managing marine resources, Budva, Public Institution "Centre for Ecological and Toxicological Research of Montenegro", Podgorica and the Institute of Public Health, Podgorica.

(ii) Policies and laws related to the protection of groundwater dependent ecosystems

Law on water

Water is a natural resource and an asset of national interest for every state, and, consequently, for Montenegro as well. Several laws and secondary legislation regulate the issues relating to water protection and use of water resources. The basic law for water related issues, *lex specialis*, is the Law on Waters from 2007 ("Official Gazette of MNE", No. 27/07, 73/10, 32/11, 47/11, 48/15).

The overview of the basic provisions of this Law, as well as of other laws which regulate some water related issues are set out below.

The Law on Water shall regulate the legal status and the method of integrated management of waters, aquatic and coastal land and water facilities, conditions and method of performing the water related activities and other issues of importance to the management of waters and water resources (Article 1). This law shall apply to:

- surface and ground waters and saline waters of mouths of rivers flowing into the sea; mineral and thermal waters
- coastal zone
- sources of drinking water in the territorial sea
- coastal seawater, as regards pollution from land-based sources.

Water related activity, which is of public interest to the Republic of Montenegro, under the provision of Article 4 of the Law, consists of water management, water supply and use, along with long-term protection of the quality of water and water source, protection of water against pollution, regulation of waters and watercourses and protection from adverse effects of water, while, pursuant to provisions of Article 6, the water, being a natural resource and an asset of common interest, is the state property. The Ministry of Agriculture and Rural Development is competent for water related activities.

Protection of waters

Law on Waters defines that the protection of waters against pollution shall be realized by: organizing the control of water quality and pollution sources; banning and restricting any entry of hazardous and noxious substances-matter into the waters; prohibition of marketing any substances that are dangerous to waters which can be substituted by environment-friendly products, etc.; economic measures by charging a fee for water pollution, which is not lower than the cost of its treatment; wastewater treatment at the point of origin, by applying both technical and technological measures and introducing modern technologies in the production; water measures to improve the regime and quality of low waters by dedicated discharging pure water from reservoirs, and in particular to eliminate the effects of outfall pollution (article 74).

It is stipulated under Article 77 of the Law on Waters that the protection of waters against pollution shall be carried out in accordance with the Plan for the protection of waters against pollution adopted by the Government on the proposal of the Ministry responsible for water management for a period of six years, which, inter alia, includes measures to prevent or limit any introduction of hazardous and noxious substances matter into water, measures for the prevention and disposal of waste materials, and other areas which may affect the deterioration of water quality, measures for the treatment of polluted waters, measures to prevent the influence of bulk pollutants, measures to protect aquatic ecosystems and other ecosystems that directly depend on the aquatic ecosystem, the method of implementation of intervention measures in specific cases of pollution, authorities, companies, other legal entities, institutions and enterprises which are obliged to implement certain measures and works, the deadlines for reducing water pollution, and both responsibilities and powers in relation to implementation of water protection, a plan for the construction of water treatment facilities with supporting facilities, measures to control the quality of polluted water applying a combined approach for point and diffuse sources of pollution and other measures necessary for protecting and improving water quality.

The Plan for the protection of waters against pollution, inter alia, shall include measures for water pollution quality control applying a combined approach for point and diffuse sources of pollution.

(iii) Government present priorities and plans related to water resources and environmental protection and transboundary water cooperation

Following the adoption of remaining subordinate legal regulations by the end of 2018, Montenegrin legislation will be fully harmonized with the Water Framework Directive and other EU Water Directives.

Government priorities at present are:

- Improvement of inter-sector cooperation
- Promoting and achieving good water status

The first step in achieving a good inter-sector cooperation as far as full harmonization of national legislation with EU legal regulations is concerned, is to have a more intense work in working groups made of members from sectors in charge of relevant EU regulations.

Ministry of Agriculture and Rural Development will be the responsible focus point and it will coordinate with all activities for EU Water Directives transposition, with full support of all competent institutions, on first place of MSTD, which are in charge or dealing with some parts of EU Water Directives. Organisational structure of coordination will be done two months after adoption of Strategy.

In order to achieve good water status, emphasizing groundwater, Montenegro will establish national monitoring of groundwater. Montenegro is an active member of the International Commission for the Protection of the Danube River (ICPDR) and has the status of observer in the International Commission for the Sava River Catchment Area. Relations of Montenegro with its neighbouring countries Croatia

and Albania are regulated by respective Inter-state Agreements¹¹. All activities in a part of water management which have cross border impact will be done in close cooperation and consultation with neighbouring countries.

(iv) Present state of groundwater monitoring

The systematic monitoring of quantitative and qualitative parameters of groundwater is still not performed in Montenegro. Control of water quality is taking place in waterworks, which provide potable water supply, but not all of sources have continual monitoring.

It is not easy to explain why groundwater observations and control have been neglected for years. In addition, the fact that most of aquifers are rich in groundwater and have sufficient discharge even during summer and autumn months, probably results with low interest for their continual observation. The measurements of groundwater have thus never been on the priority list of decision-makers dealing with the national budget allocations.

Currently, some measurements are performed by the IHMS. The sampling of groundwater for physical, chemical and microbiological analyses is carried out four times per year from six shallow wells located in the Zeta Valley and two springs (Crnojevića Spring and Vidrovan Spring). The IHMS also performs the hydrological measurements on two stations that are in the source part of the rivers, so the measured data actually represent the discharge of aquifers. These stations are HS "Brodska Njiva" on the Crnojevića River (since 1987) and HS "Gornja Bijela" on the Bijela (since 2006).

Besides the IHMS monitoring network, each water supply system should perform their own measurements of abstracted water and water quality according to the existing rulebooks¹². However, this data are often impracticable for the assessment of the quantitative and qualitative characteristics of aquifers. There are measurements of the total abstracted water on the sources, but the overflow (water which continues to flow naturally) is regularly not measured. Also, the samples for the analyses of water quality are most often taken from taps, after the chlorination, so they cannot represent the real microbiological status of groundwater. The analyses of water quality from the water supply systems are performed by the Institute for Public Health.

In the past, short-term and periodical measurements were made for the purposes of building facilities (dams, hydro-power plants, water intakes, abstraction wells, irrigation systems, etc.).

Given that the measurements of qualitative and quantitative status of groundwater bodies are necessary for the sustainable water use and adequate water protection, the establishing of a valid monitoring network should be one of the priority tasks. Currently, continuous groundwater level measurements (piezometers) are about to be implemented for a limited period in Montenegro.

The daily measurements of water level are performed on just two locations (Crnojevića River and Gornja Bijela). For these stations the correlation between water level and discharge (discharge curve) is established, so the daily water levels can be converted to daily values of discharge. The water level is measured by a water level logger, which is connected to GPRS modem, so the data are available in real time on the website of IHMS (<http://www.meteo.co.me>). Some other software is also used for transfer of collected data to main database. The data processing is mostly done in Microsoft Excel.

IHMS possess good quality equipment for the measuring of springs and rivers flow (current meters, dopplers). It is important to somehow ensure standardization of the equipment and software which should be further procured for the new monitoring network. This would facilitate daily operation and data management.

¹¹ Regarding to shared water management, Montenegro has signed Water Management Agreements with Albania (signed 03.July. 2018), agreement with Croatia (signed September 4, 2007 in Zagreb).

¹² The Rulebook on procedure of measuring of water quantity on the intake point (Official Gazette of Montenegro, No. 24/10, 30 April 2010) and Rulebook on procedure and scope of water quality analyses (Official Gazette of Montenegro, No. 68/15, 8 December 2015; and No. 17/16, 11 March 2015)

2 STRATEGY

This project addresses both GEF 6 IW Objective 1: 'Catalyze sustainable management of transboundary water systems by supporting multi-state co-operation through foundational capacity building, target research and portfolio learning' and IW Objective 2: 'Catalyze investments to balance competing water-uses in the management of transboundary surface and groundwater and enhancing multi-state co-operation'. In undertaking this planned project to initiate the implementation of the agreed SAP, contributions will be made to four outcomes associated with these Objectives, including:

- Outcome 1.2 (On the ground demonstration actions implemented, such as in water quality, quantity, conjunctive management of groundwater and surface water, fisheries, coastal habitats);
- Outcome 3.1 (Improved governance of shared water bodies, including conjunctive management of surface and groundwater through regional institutions and frameworks for co-operation lead to increased environmental and social benefits);
- Outcome 3.2 (Increased management capacity of regional and national institutions to incorporate climate variability and change, including improved capacity for management of floods and droughts); and,
- Outcome 4.1 (Increased water/food/energy/ecosystem security and sharing of benefits on basin/sub-basin scale underpinned by adequate regional legal/institutional frameworks for co-operation).

The proposed project draws inspiration from the results of the GEF project "Groundwater Governance" and intends to implement the main steps recommended in the "Global Framework for Action" for setting the basis of sound groundwater governance. This approach and vision perfectly adhere to the conclusions reached by the countries sharing the DIKTAS that are enshrined in the Strategic Action Program for the DIKTAS prepared by the countries and recently endorsed at ministerial level.

The project is also in line with the Regional Programme for Europe and the CIS 2018-2021, and it is regional programme output 1.6. Solutions and regulatory frameworks to address conservation, sustainable use and equitable benefit-sharing of natural resources, developed in line with international conventions and national legislation through regional and cross-regional initiatives. Under Outcome 1 of the Regional Programme (Accelerating structural transformations through more governance systems) it aims:... (b) In partnership with the Global Environmental Facility (GEF) and the Montreal Protocol, support efforts to (i) strengthen multi-country platforms for the co-management of shared resources;¹³ (ii) implement and manage synergies between ecosystems-related conventions, policy instruments and programmes;¹⁴ (iii) integrate environmental sustainability into sectoral and cross-cutting policies reflecting the transboundary dimensions of natural resources in the region; and (iv) effectively apply and de-risk land use planning to help resolve transboundary water, land and forest rights issues; improve food and water security; and support sustainable livelihoods.

¹³ Lakes and river basins commission, transboundary world heritage sites and biosphere reserves

¹⁴ These include the Convention of Long-range Transboundary Air Pollution, the Convention on Environmental Impact Assessment in a Transboundary Context, the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, the Convention on Transboundary Effects of Industrial Accidents, and the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters. <http://www.unep.org/env/treaties/welcome.html>

2.1 Incremental cost reasoning

The incremental reasoning at the basis of this project is quite simple. In fact, the project aims at adding the multi- country, regional dimension needed to reform and harmonize present national policies and physical plans and address the transboundary implications of the shared nature of the resource. This regional dimension will involve and bring about the shared recognition of the system boundaries (in line with the ecosystem approach), the establishment of multi-country mechanisms for cooperation, and the enhancement of regional awareness and stakeholder involvement, all of which is incremental with respect to the “baseline” represented by the fragmented, single-country approach to groundwater exploitation presently adopted by the countries sharing the Dinaric Karst Aquifer System. Without the facilitation of the GEF, the countries would continue to implement fragmented and poorly coordinated management, monitoring and exploitation policies that would not take into systematic consideration the challenges existing in areas of transboundary influence, thereby exacerbating conflicts among users, threatening water security and the integrity of groundwater dependent ecosystems and coastal environments.

2.2 Theory of change

The design of the project assumes that by launching a package of interventions identified in the SAP and addressing priority concerns and transboundary hot spots, this will facilitate the systematic implementation of sustainable groundwater governance and protection measures throughout the Dinaric Karst region. In order to have a significant impact in reversing degradation trends and enhance resilience to climatic impacts, the Project was designed following a theory of change that would address key issues across the complex set of drivers of environmental degradation and barriers for the sustainable use of groundwater resources. The Project’s Theory of Change focuses on four main objectives:

- Institutionalize consultation and information exchange mechanisms among countries sharing the DIKTAS groundwater resources;
- Introduce sound groundwater governance principles;
- Harmonize and modernize DIKTAS wide monitoring networks and protocols;
- Build awareness, disseminate good practices, and promote gender equality in water resources management.

The Theory builds on the notion that if cooperation among countries in the management of the shared resources is facilitated; if sound groundwater governance principles are consistently adopted by all DIKTAS countries; if specific Action Programs are defined and adopted in areas of transboundary influence; if transboundary cooperation will ensure harmonization of policies and of monitoring procedures, the populations of the Dinaric region will benefit from improved water security, more stable livelihoods, and enhanced resilience to climatic change and variability.

Table 6: Project – From Outcomes to Impacts

DIKTAS II Project – From Outcomes to Impacts				
Objective: to catalyze effective multi-country cooperation for the sustainable management of the Dinaric Karst Aquifer System and its ecological resources by strengthening national and regional groundwater governance frameworks and institutional capacity.				
Outcomes	Assumptions and Drivers	Intermediate state	Impacts	
			Reduced environmental threats	Environmental benefits
<p>1. Institutionalization of periodic multi-country expert consultations and information exchanges (SAP action 3)</p> <p>2. Adoption of sound groundwater governance principles and framework (SAP actions 2,3)</p> <p>3. Modern multi-purpose monitoring of karst groundwater enables effective management of the shared karstic waters and dependent ecosystems. (SAP action 1)</p> <p>4. Agreement on real-time harmonized data sharing enables effective transboundary cooperation.</p> <p>5. Definition of national and/or binational action programmes, and of DIKTAS wide guidelines for reversing degradation trends in highly vulnerable areas accelerates remedial actions (SAP actions 1,2 and 3)</p> <p>6. Increased awareness among stakeholders, dissemination of project's achievements and lessons learned, and strengthened gender equality and women empowerment facilitate adoption of good practices and policies. (SAP action 3)</p>	<p><i>Assumption:</i> The countries sharing the Dinaric karst Aquifer System remain fully committed to the SAP vision and strategic objectives.</p> <p><i>Drivers:</i> 1. Shared recognition of need to manage and protect the groundwater resources of the region.</p> <p>2. Regional cooperation and EU processes providing incentives and support structure.</p>	<p>Replication of sound groundwater governance practices piloted by the project.</p> <p>Monitoring data produced by countries show positive trends fostering full SAP implementation</p> <p>The CIE or equivalent body takes up responsibility for SAP implementation</p>	<p>Mitigation of stress on karst waters.</p> <p>Full SAP implementation reverses degradation trends and enhances sustainability of key karst ecosystems.</p> <p>Dinaric countries better prepared to face threats from global changes and climatic variability and change.</p>	<p>Sound management and protection of regionally significant transboundary groundwater resources of the Balkan Peninsula foster sustainable development.</p>

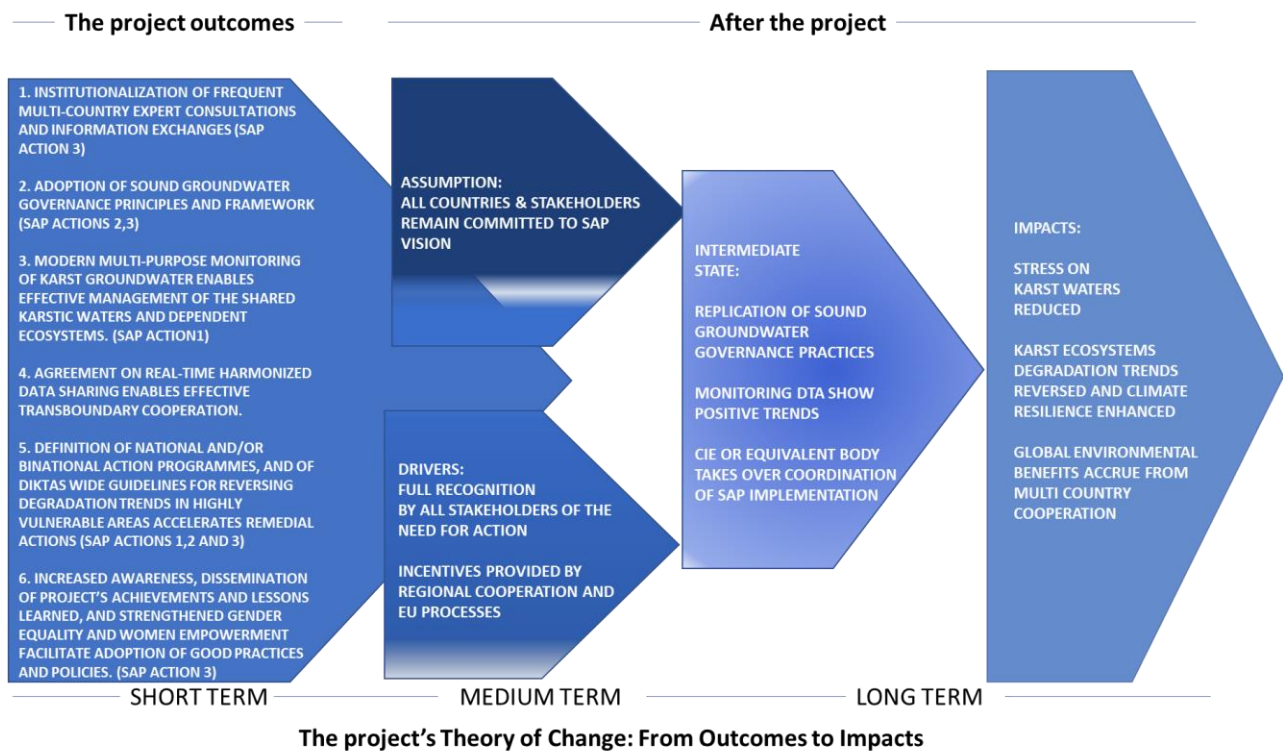


Figure 3: The project's Theory of Change: From Outcomes to Impacts

A summary description of the proposed project Objective, Components, Outcomes, Outputs and a preliminary assessment of the possible activities will be presentend in the following chapter.

3 RESULTS AND PARTNERSHIPS

3.1 Expected Results

Project Objective: Catalyze effective multi-country cooperation for the sustainable management of the Dinaric Karst Aquifer System and its ecological resources by strengthening national and regional groundwater governance frameworks and institutional capacity.

3.1.1 COMPONENT 1. FACILITATING MULTI-COUNTRY COOPERATION

OUTCOME 1: INSTITUTIONALIZATION OF PERIODIC MULTI-COUNTRY EXPERT CONSULTATIONS AND INFORMATION EXCHANGES, AND CREATION AND STRENGTHENING OF BILATERAL/MULTILATERAL CONFLICT RESOLUTION MECHANISMS PROVIDE THE TRANSBOUNDARY COOPERATION FRAMEWORK CRUCIAL FOR THE SUSTAINABLE UTILIZATION OF SHARED KARST WATERS, AND FOR THE PROTECTION OF THE DINARIC KARST ECOSYSTEMS. (SAP ACTION 3)

Three Joint Expert Groups will lead project activities on issues related to groundwater governance and monitoring, conjunctive management of surface and groundwater, land use, agricultural practices, waste management, climate resilience, energy production, and protection of karst ecosystems services. They will participate and/or provide advice to all project activities, in particular to the harmonization of national sectorial strategies (Output 2.2). The thematic expert groups will be in charge of gathering experience about joint management models from other international commissions, identification of tasks for which a future DIKTAS Consultation and Information Exchange Body (CIE) would be responsible, definition of rules for the CIE operation and identification of the most cost-effective form for the CIE Secretariat. Based on the above elements, a Multilateral Agreement will be prepared in close cooperation with the National Inter-Ministerial Committees (NICs) in each country, which will then be submitted to and discussed for eventual adoption at a high level in all project participating countries. National Interministerial Committees were active during the foundational phase (TDA-SAP) and were instrumental to the definition of the SAP. These bodies will be re-established in countries with the participation of high-ranking members across the ministries (agriculture, mining, energy, finance, planning and water, but also other ministries as relevant and if they have a mandate within wastewater/solid waste pollution issues), and together with the Joint Thematic Expert Groups will participate to the establishment of the CIE and its Secretariat, and to the definition of their tasks and regulations.

Through the joint work for the conduct of the transboundary diagnostic analysis and the formulation of the strategic action program, the four participating countries have reached a level of mutual trust and shared understanding of the DIKTAS and of the sections of the aquifer system more prone to transboundary impacts sufficient to enable them to commit to a multi-country cooperation mechanism for the improved management of the shared groundwater resource. Any such mechanism at the level of the whole aquifer is lacking at present in the region, while bilateral agreements of limited scope involve transboundary sections of the DIKTAS. A Consultative and Information Exchange (CIE) body/mechanism of the four countries would consolidate the countries' systematic commitment to cooperative management, and provide a concrete response to the call of the science community of the region that identified as key priority "... to gain a better mutual understanding of the peculiar properties and functions of the Dinaric Karst Aquifer System, and to adopt policies for its joint management, based on a regional consultative and management mechanism". The project will also evaluate the possibility of establishing and supporting a Regional Mechanism to host the CIE, which will strengthen the capacity in the Dinaric Karst region and strengthen the sustainability of the DIKTAS

outcomes. The CIE shall be open to other Dinaric countries including but not limited to Serbia, Republic of North Macedonia, Italy and Slovenia, sharing the Karst aquifer system, upon their request and approval from the CIE Secretariat. Dialogue with the countries will be initiated during the project inception meeting to which they will be invited to participate.

Cooperation is required by the provisions of the EU Water Framework Directive (WFD), which Albania, Bosnia- Herzegovina and Montenegro countries are in the process of implementing in their national legislations, by the UN ECE Water Convention (1992) which the DIKTAS countries have ratified, and by the UN General Assembly Resolution A/RES/63/124, which represents the only international text related specifically to transboundary aquifers.

It is now becoming apparent that the social and economic impacts of the present health emergency situation due to the COVID-19 pandemic will have negative effects on jobs and livelihoods in many sectors, including those related to freshwater resources. The current and potential future impacts will be considered during the TDAs compilation by The project, by facilitating transboundary cooperation and behavioral changes in the conservation of the integrity of freshwater ecosystems, and fostering environmentally sustainable water resources management the two basins, will produce ancillary benefits that will help alleviate and mitigate COVID-19 long-term impacts on people's health and welfare, and open the way for new job opportunities in the water and environmental sectors (e.g.: surface and groundwater management, inland fisheries, biodiversity protection, tourism).

Short-term constraints on travel and group gatherings are being considered and on-line or remote learning and communication options will be used where necessary, adjusting some of the equipment related costs to ensure equal opportunity to all beneficiaries.

Output 1.1:

Joint multi-disciplinary thematic expert groups established by project countries and the support of Project agencies.

Three groups dealing with: 1. GW Resources and Eco-Systems Management; 2. Governance and Legislation; 3. Capacity Building, Dissemination and Public Participation, will be established with the following composition:

- Group 1 will include two representatives from each project country (one local hydrogeologist and one local biologist) plus international consultants.
- Group 2 will include two representatives from each project country (preferably one local lawyer and one local sociologist) plus international consultants.
- Group 3 will include one local media expert from each country plus international consultants.

Output 1.2:

Draft multilateral agreement on the establishment of Consultation and Information Exchange Body (CIE) and its Secretariat prepared for governments approval.

Output 1.3:

Bilateral Agreements and Bodies. Options for the creation of bilateral agreements and management bodies to address the issues of concern in areas/basins of transboundary influence (Transboundary Aquifers of the TDA, see Table 1), and/or the strengthening of existing ones, will be formulated for decision by governments.

Output 1.4:

Stakeholder involvement plan formulated and implemented, including special focus on gender issues and women empowerment.

3.1.2 COMPONENT 2. INSTITUTIONAL STRENGTHENING FOR IMPROVED GROUNDWATER GOVERNANCE (SAP ACTIONS 2 AND 3)

OUTCOME 2: ADOPTION OF SOUND GROUNDWATER GOVERNANCE PRINCIPLES AND FRAMEWORKS, INCLUDING EMPHASIS ON SANITARY PROTECTION ZONES, HARMONIZED ACROSS THE DINARIC KARST AQUIFER SYSTEM, FACILITATED THROUGH THE APPLICATION OF THE METHODOLOGY DEVELOPED BY THE GROUNDWATER GOVERNANCE GEF PROJECT.

Groundwater Governance Diagnostics will include: Stocktaking of the governance situation — actors, legal framework, policies and plans, adherence to the EU WFD and GWD, available knowledge, enforcement capacity — and an assessment of gaps and opportunities; Overview of the methodologies of groundwater protection in countries with karst aquifers; Assessment of the level of harmonization of existing criteria for delineation sanitary protection zones related measures; Options for the most applicable existing methods for groundwater vulnerability, risk and hazard mapping; Hydrogeological assessment of the possibilities of improving the protection methodology; Assessment of socio-economic impacts of identified national policy, legal and institutional reforms; Proposal of an optimal common methodology of protection of transboundary aquifers.

Legal framework will target societal goals of sustainable and efficient development and use and equitable sharing of benefits, the full compliance with the WFD, and the harmonization with other relevant sectors. It will be based on four basic provisions: Groundwater brought into the public domain; Licensing of water-well construction and groundwater extraction; Control of ‘point-source’ pollution of groundwater; Requirement for transparency and sharing of data collected by all groundwater users, private and public.

Capacity building of national government officials and technical staff will be an important part of this Component. It will be developed through a number of formal joint international and national training courses and enhanced through the creation of National Execution Units that will carry out project activities at the national level under the oversight of the Implementing Partner and in collaboration with the Joint Thematic Expert Groups. These Units will be funded by the participating countries as part of their counterpart co-financing to the project.

Activities will include amongst others:

- Harmonize protection measures in sanitary protection zones required by the current legislation of individual countries.
- Analyze the possibility to apply new protection methodologies used in the other karst areas beyond this region, for the purpose of reducing the surface area of protection zones and applying more efficient protection measures.
- Analyze required amendments to the existing legislation in each country concerning each of the possible approaches to groundwater protection in karst.
- Develop the methodology whose implementation will ensure full transposition of Water Framework Directive (WFD) into national legislation in the field of drinking water protection in karst areas.

In all areas where an assessment of the current situation is required by the experts responsible for performing the necessary analysis, the current and potential future impacts of the COVID-19 global pandemic on communities in the participating countries and differentiated effects by gender, age, and other characteristics will be considered.

Furthermore, in cases where data collection for field campaigns is not possible due to the limitation in movement as a result of temporary measures due to the COVID-19 pandemic, or the closure of offices of technical institutions, etc.), initial bibliographical and existing data that UNESCO along with

numerous other International Organizations have amassed within the framework of already implemented work will be utilized. Furthermore, ways of operating remotely to adjust operations to more of an online format will be used and a number of activities will be converted to the appropriate modality according to the existing conditions.

Output 2.1:

Groundwater governance diagnostic analysis in all project countries, including a stocktaking of the governance situation — actors, legal framework, policies and plans, adherence to the EU WFD and GWD, available knowledge, enforcement capacity — and an assessment of gaps and opportunities.

Output 2.2:

National policy, legal and institutional developments defined and harmonized across countries on laws and regulations regarding groundwater with focus on sanitary protection zones. Proposed policies and developments will be submitted to Governments for adoption.

Output 2.3:

Training courses among others on: hydro diplomacy; international water law, legal instruments and soft laws; groundwater governance (based on the guidelines produced by the GEF/FAO Groundwater Governance project); gender analysis and sex disaggregated data collection; land use policy and practice in karst terrains; enforcement of sanitary protection zones around springs and other karst features and ecosystems; Maintaining seasonal variations of karst waters and ensuring stable water supply; Study tour for water administrators and decision makers will be organized.

3.1.3 COMPONENT 3. MONITORING KARST WATERS AND DEPENDENT ECOSYSTEMS (SAP ACTION 1)

OUTCOME 3: MODERN MULTI-PURPOSE MONITORING OF KARST GROUNDWATER ENABLES RESPONSIBLE ENTITIES AT THE LOCAL AND AT THE REGIONAL LEVEL TO EFFECTIVELY MANAGE THE SHARED KARSTIC WATERS AND DEPENDENT ECOSYSTEMS.

Since none of the three beneficiary countries has a complete and operational network for systematic monitoring of groundwater quality/quantity the SAP calls for the improvement of the groundwater monitoring networks throughout the region. The project will facilitate this investment by the countries by producing an agreed upon design of the network and its protocols, implementing on the ground demonstration networks and a joint data sharing mechanism across the countries.

Monitoring protocols will be designed considering optimum spatial and temporal sampling/monitoring points distribution and will be based on (i) updated reconstructions of the regional and local hydrogeology, (ii) the identification of groundwater dependent freshwater ecosystems and waterbodies, and of coastal ecosystems, (iii) the mapping of water uses for domestic, agricultural, industrial (including energy production) purposes, and (iv) an inventory of groundwater wells, discharge points of wastewater and pollution hot spots; (v) known areas of diffuse contamination.

Monitoring will be related to quantity and quality in line with recommended standards of the EU Water Framework Directive. The network will provide (i) periodic information on the regional background, and (ii) greater detail in space and time in vulnerable areas of concern and of transboundary influence indicated in the TDA. The design of the monitoring network will also consider a Stakeholders' involvement analysis in order to ensure equipment safety, data assimilation and long-term operational success of the network.

To achieve the outcome, (i) criteria for assessing the representativeness of the monitoring sites in the karst, groundwater quality standard according to the requirements for public water supply and aquatic and terrestrial ecosystems; and the design of monitoring station will be developed; (ii) The optimal number of monitoring sites for all transboundary aquifers will be defined; (iii) Measurement frequency

for quantitative and water quality monitoring will be determined; (iv) the methodology for ecological flow in karst and the options for the utilization of groundwater during seasonal low flow for mitigation impacts of climate changes will be developed.

In order to get information of background long term water budget trends, which will help analysis future effects of climatic variations in the region, one ad hoc monitoring station will be installed in selected sites in each project country.

Full scale demonstration networks, including sensors and transmission equipment will be installed in two selected areas of transboundary influence, and/or protection zones, tentatively in the transboundary areas of Cetina (BiH – Croatia) and Cijevna-Cemi (Montenegro-Albania) as set in the SAP and based on an assessment of the water supply potential in the two karst basins. Training on the implementation of the networks, maintenance, data collection and processing will be provided to relevant national agencies.

The Consultation Mechanism will continue to support the project countries and will continue to serve the project Countries after the completion of the Project for the effective management of the shared karstic waters and the dependent ecosystems. The long-term sustainability of the monitoring network is a commitment of the countries as clearly indicated in the Strategic Action Program. The Consultation mechanism will facilitate the sharing of the monitoring information.

In the case where field campaign is required and direct technical assistance of international experts is required but it is not possible due to the limitation in movement as a result of temporary measures due to the COVID-19 pandemic, a combination of remote guidance by the international experts and utilization of national experts will be used to ensure the implementation of the activities.

Output 3.1:

Design of DIKTAS-wide groundwater multi-purpose Monitoring network, including: purpose, variables, network design and optimization, data management, institutional arrangements, harmonized across the countries.

Output 3.2:

Monitoring network design tested on the ground and two full-scale demonstration monitoring networks, and related infrastructure, implemented in two selected areas of transboundary and environmental concern.

OUTCOME 4: AGREEMENT ON REAL-TIME HARMONIZED DATA SHARING ENABLES EFFECTIVE TRANSBOUNDARY COOPERATION.

If possible, the sharing mechanism will use a GIS-based and real-time online database. The sharing of agreed upon monitoring data will feed periodically into the Consultation and Information Exchange body under the responsibility of its Secretariat and be reflected into the relevant Multilateral Agreement dealing amongst others with the long-term sustainability of the data sharing mechanism, including financing, updating and maintenance. If possible, Serbia and North Macedonia will also be invited to join the monitoring network.

Activities will include amongst others:

- Definition of criteria and objectives for the design and establishment of a monitoring network.
- Identification of most suitable and effective locations for the emplacement of groundwater monitoring stations, using whenever possible existing wells and considering long term monitoring equipment safety and maintenance.
- Definition of monitoring parameters, and selection of automatic equipment for sampling and data transmission; methodologies for manual monitoring (sampling methodologies, methodologies for needed laboratory analyses, frequency of sampling); parameters for which

information will be exchanged between countries sharing the aquifer (including frequency, units to be used etc.) etc.

- Training of entities that will be involved and responsible for monitoring involving stakeholders, in the data gathering and stations maintenance.
- Design of groundwater quality and quantity indicators, intended to facilitate data assimilation by authorities and long-term evolution of overall aquifer status.
- Develop and test the methodology for use of collected monitoring data for groundwater budgeting as a base for sustainable management of transboundary groundwater resources.

As mentioned in similar nature activities, trainings when not possible in person, will be organized virtually to ensure that any COVID-19 related limitations will be dealt with in a timely manner.

Output 4.1:

Joint data sharing mechanism: joint design and implementation of a real-time data sharing mechanism and harmonization of different national classification standards of water quality, following EU guidelines.

3.1.4 COMPONENT 4. FOCUS ON AREAS OF TRANSBOUNDARY INFLUENCE AND OF SPECIAL CONCERN (SAP ACTION 2)

OUTCOME 5: DEFINITION OF NATIONAL AND/OR BINATIONAL ACTION PROGRAMMES, AND OF DIKTAS WIDE GUIDELINES FOR REVERSING DEGRADATION TRENDS IN HIGHLY VULNERABLE AREAS ACCELERATES REMEDIAL ACTIONS (SAP ACTIONS 1,2 AND 3)

The Joint Action Programs will address the:

- Establishment of a common groundwater monitoring program.
- Adoption of harmonized criteria for the delineation of sanitary protection zones and setbacks (springs, sinkholes and other karstic features, wells).
- Definition and adoption of harmonized policies and practices for storm-water and wastewater management, and for domestic and solid waste disposal.
- Establishment of special protected areas for most valuable karstic features and related biodiversity.
- Identification of pollution sources for each TBA and development of a methodology for prioritization of the remedial measures.

The Action Programs will be submitted for adoption at governmental level. Serbia and North Macedonia will also be invited to join.

Output 5.1:

Joint Action Programmes for all 6 areas of transboundary influence identified in the TDA, including previously prepared such as the:

1. methodology for GWR assessment on TBA level
2. concept for Water Master Plans for 6 TBAs
3. tested methodology in 2 pilot TB areas

It is foreseen that successful pilot testing, will strengthen the countries' ability to build institutional capacity and make a better (science-based) 'case' for investments and reforms that would not have been viable beforehand. In addition, proposed pilot projects must address and/or accommodate risks and impacts of the COVID-19 global pandemic, particularly in areas related to livelihoods.

Output 5.2:

The DIKTAS Rulebook and guidelines on DIKTAS proposal for delineation of sanitary protection zones and measures for solid and liquid waste disposal.

3.1.5 COMPONENT 5. AWARENESS RAISING AND GENDER MAINSTREAMING (SAP ACTION 3)

OUTCOME 6: INCREASED AWARENESS AMONG STAKEHOLDERS, DISSEMINATION OF PROJECT'S ACHIEVEMENTS AND LESSONS LEARNED, AND STRENGTHENED GENDER EQUALITY AND WOMEN EMPOWERMENT FACILITATE ADOPTION OF GOOD PRACTICES AND POLICIES. (SAP ACTION 3)

Awareness raising and knowledge management are important aspects of the project, directly incorporated into several of the project outputs. The knowledge enhancement process will ultimately produce a number of knowledge tools and communication / dissemination materials which include consideration of the ongoing activities being implemented by each country and relevant to the objective of the present project. These materials produced will be widely shared in the region, including through the opportunities for dissemination provided by each country's activities and website. The project, will establish its website, following IW LEARN standards, and populate it with progress reports, documents, webinars and other project products. In particular, at least 1% of total project budget will be set aside for knowledge management and information exchange activities organized by IW LEARN (e.g., IWC participation, information dissemination through IW LEARN platforms and networks, twinning exercises). Knowledge exchange will include the participation in relevant regional and international workshops and conferences (such as GEF International Waters Conferences, World Water Forum, World Water Week). Serbia and North Macedonia will also be invited to join these activities.

These products will aim at:

- Raising public awareness at all levels about the importance of karst water and their dependent ecosystems by promoting the importance of karst systems, the need for their protection, as well as project results and public presentations and discussions.
- Raising the awareness of the local population and increasing their responsibility for sustainable management and protection of water resources.
- Improving specific knowledge among students and exchange of new information among scientists.
- Disseminating experience and lessons learned notes at various educational levels, from academia to primary and secondary schools.

The Gender Analysis will offer information to understand women's and men's access to and control over water resources that can be used to address disparities, challenge systemic inequalities (most often faced by women) and build efficient and equitable solutions.

Activities and knowledge exchanges will adhere to UNDP guidance on travel and precautions related to the COVID-19 global pandemic, and the project will develop virtual or on-line activities to support these exchanges where possible.

Output 6.1:

Awareness raising events, dissemination products and education.

Output 6.2:

Gender analysis conducted in project countries water sector.

Output 6.3:

Participation in IW LEARN activities.

3.2 Global Environmental Benefits

The benefits that the project aims to produce fall into two categories:

- (i) Enhanced cooperation in the management of the transboundary groundwater resources.
- (ii) Improved sustainable use of the services provided by the DIKTAS also in view of climate variability and change.

The project will also represent a globally relevant demonstration of the important role of groundwater in coping with increased climate variability and change, balancing water uses, and improving overall sustainability and cooperation in complex transboundary contexts.

In order to maximize the ability of the project to produce global benefits, its design includes specific elements that will emphasize the national benefits that integration of groundwater in water management policies and practices and increased transboundary cooperation in water management will bring about. In particular:

Outcome 2, the adoption of sound national groundwater governance principles and the establishment of new national policies, harmonized across the region, on sanitary setbacks and zoning and of other measures for the protection of karst waters and ecosystem;

Outcome 3, leading to the multi-country agreement on regionally harmonized, modern, multi-purpose national monitoring networks of karst waters.

3.3 Country Ownership

The Strategic Action Program for the DIKTAS aquifer is in line with the national priority objectives, strategies and plans of the project countries related to the protection (quality, quantity), monitoring and sustainable use of water resources and especially groundwater. It also reflects the guidance of the EU Water Framework Directive and of the Groundwater Directive. The proposed SAP implementation project adheres to the EU guidance and national priorities and represents a step forward in their implementation.

3.3.1 Freshwater related Global Treaties and Action Programs

The project by dealing with the DIKTAS waterbody in a holistic manner, ensures a collective response to relevant agreements, whether bilateral, multilateral, regional or truly global. In particular it supports compliance with, and implementation of the provisions of all major global treaties and soft laws related to freshwater and dependent ecosystems, and the coastal environment:

- 1992 UNECE Water Convention
- 1997 UN Convention on the non-navigational uses of international watercourses
- UNGA Resolution on the Law of Transboundary Aquifers
- GPA – Global Program of Action on land-based sources of marine pollution
- Ramsar Convention on Wetlands
- Barcelona convention Sustainable Development Goals

3.3.2 The Sustainable Development Goals 2030

The SDGs and related Targets, recently approved by the UN General Assembly in September 2015, represent an overarching framework providing guidance and common objectives to all, from individuals to countries and international organizations. The proposed project will provide major support to the achievement in the project countries of a number of targets, related Goals 6 on freshwater, 13 on climate change adaptation, 12 on sustainable consumption and production patterns, and 5 on gender equality.

Table 7: Sustainable Development Goals / Project's components

Sustainable Development Goals	Project's Components			
	1. Facilitating Multi-country cooperation	2. Institutional strengthening for improved groundwater governance	3. Focus on areas of transboundary influence and of special concern	4. Awareness Raising and Gender mainstreaming
	Targets			
5. Achieve gender equality and empower all women and girls			-	5.5
6. Ensure availability and sustainable management of water and sanitation for all	6.5	6.3, 6.4, 6.6	6.5	
12. Ensure sustainable consumption and production patterns		12.2	12.2	
13. Take urgent action to combat climate change and its impacts	13.3	13.1	13.1	13.1
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss				15.1

Target 5.5: ensure women's full and effective participation and equal opportunities for leadership at all levels of decision- making in political, economic, and public life

Target 6.3: by 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and increasing recycling and safe reuse by x% globally.

Target 6.4: by 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity, and substantially reduce the number of people suffering from water scarcity

Target 6.5: by 2030 implement integrated water resources management at all levels, including through transboundary cooperation as appropriate

Target 6.6: by 2020 protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes

Target 6.a: by 2030, expand international cooperation and capacity-building support to developing countries in water and sanitation related activities and programs, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies

Target 12.2: by 2030 achieve sustainable management and efficient use of natural resources

Target 13.1: strengthen resilience and adaptive capacity to climate related hazards and natural disasters in all countries

Target 13.2: integrate climate change measures into national policies, strategies, and planning

Target 13.3: improve education, awareness raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning

Target 15.1: by 2020 ensure conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wet- lands, mountains and drylands, in line with obligations under international agreements.

3.4 Stakeholder Engagement

Stakeholder participation is an inherent part of the structure of the DIKTAS SAP implementation project. Success of the project will in fact largely depend on the level of involvement of both governmental and non-governmental stakeholders that will be achieved as part of the SAP effort to promote harmonized policies and monitoring protocols across project countries.

The activities of the Project have been developed based on priorities of all participating countries, and all activities have been designed to involve all key stakeholders on a number of levels, from implementation, knowledge transfer, dissemination and replication. In summary, the key stakeholders on a national level include:

- Public Sector: ministries/entities responsible for water resources; environment; spatial and development planning; transport; tourism; fisheries; industry; maritime affairs; health; community development; education; culture; local government authorities.
- Private Sector: national and regional organizations representing farmers; fisherfolk; manufacturers/industrialists; tourism sector; banks; insurances.
- Non-governmental Organizations (NGOs): national trusts; conservation associations; women's organizations; community-based organizations (CBOs);
- Scientific community: researchers; sociologists; environmental managers; engineers (water, civil, environmental); environmental economists; biologists; climatologists, geographers; teachers;
- General public such as the entire coastal population of the Mediterranean Basin (in particular those living in identified hotspots and sensitive areas) and the 176 million tourists visiting the Mediterranean annually.

As noted in the baseline section, stakeholders from the tourism, agriculture and animal husbandry sectors were less represented during the TDA. Since then, countries have identified these sectors as important ones in future development scenarios. Special attention will hence be given to their involvement during project execution starting with their participation to the project Inception meeting.

ANNEX F contains a general list of national stakeholders, including mostly governmental bodies, which was agreed upon with the countries. At project inception, a more strategic and targeted stakeholders'

involvement plan will be presented, which will inform the design of stakeholder participation activities needed for the production of each project output.

A Stakeholders Involvement Plan will be prepared and submitted for adoption at the first Steering Committee Meeting of the project. During the meeting, a specific agenda item will be dedicated to considerations related to the mobility and stakeholder engagement under a constrained COVID-19 scenario.

3.5 Mainstreaming Gender

Gender mainstreaming has been the primary methodology for integrating a gender approach into environment and development efforts. It is defined by the UN Economic and Social Council (ECOSOC) as: "...the process of assessing the implications for women and men of any planned action, including legislation, policies or programs, in any area and at all levels. It is a strategy for making the concerns and experiences of women as well as of men an integral part of the design, implementation, monitoring and evaluation of policies and programs in all political, economic and societal spheres, so that women and men benefit equally, and inequality is not perpetuated. The ultimate goal of mainstreaming is to achieve gender equality."

UNDP is committed to supporting capacity development of its national partners to adopt approaches that advance women's rights and take account of the full range of their contributions to development, as a foundation for SDG achievement. The commitment of UNDP on gender issues is covered in its gender equality strategy of 2008- 2011. Under this strategy, the GEF is identified as a key partner in the development and harmonization of supportive policy and legislative frameworks and institutional capacity building which is at the heart of the GEF's international waters portfolio approach for the improved management of transboundary waters. Involving both women and men in integrated water resources initiatives is likely to increase project effectiveness and efficiency. Participation by both women and men improves project performance and improves the likelihood of sustainability. In other words, a project is more likely to achieve what planners hope it will achieve if women and men (both rich and poor and representing different sectors) are active participants and decision makers.

In the project area, in a changing environment towards EU accession the role of women is being enhanced. There is a tradition of active participation of women in the economy as a result of the existence of socialist regimes in the project countries till the early 90's.

On gender issues, the project will adopt a two-pronged approach:

1) Mainstreaming gender in project execution - Balanced gender participation in project execution activities will be ensured, including in working groups, the project management unit, text drafting teams etc. Gender consideration will be mainstreamed in all documents produced by the project, and particular attention will be paid to gender in monitoring and reporting activities. The project will work to ensure a balanced participation among men and women in the overall stakeholder involvement strategy and in consultation workshops, and will support both women's and men's contributions individually, rather than assuming that both groups will benefit equally from gender-neutral development interventions.

2) Integration of the gender perspective into water policies - The development and harmonization of supportive policy and legislative frameworks and institutional capacity building aimed at ensuring that the gender perspective is successfully incorporated into national and international water governance, policy, and activities, will be a major objective of the project. This will be promoted by conducting Gender Analysis of the water sector in project countries, including:

- Identifying gaps in equality and developing strategies and policies to close those gaps.
- Considering gender issues in the mapping and analysis of water resource use.
- Promoting women's participation in awareness raising training activities.
- Supporting for educational activities, on topics such as the environment, energy, and decision-making in general.
- Involving women's organizations: while the responsibility for implementing a gender approach does not rest solely with women's organizations, they are natural vehicles for promoting gender equality at the local as well as the national level.

The Gender Mainstreaming Strategy for the project including the above activities will be drafted together with the Stakeholders Involvement Plan and submitted for adoption at the first Steering Committee Meeting.

3.6 Coordination with other relevant GEF-financed and other initiatives

The project, based on the more comprehensive and shared understanding of the freshwater resources of the whole Dinaric Karst region, will jump start the implementation of the priority actions agreed as part of the SAP, essentially related to the introduction of sound groundwater governance and management tools at the domestic level, and harmonized regionally. This in turn is expected to link with and enhance the effectiveness of a number of complementary ongoing and planned initiatives (GEF and non-GEF) by providing the so far lacking overall policy and governance frameworks and tools.

Among the major related ongoing activities, it is worth mention:

1. GEF/UNDP project *"Enabling Transboundary Cooperation and Integrated Water Resources Management in the Extended Drin River Basin"* (Albania, Kosovo*, North Macedonia, Montenegro) aimed at harmonizing the so far fragmented approach to the management of this highly transboundary basin, which includes large karstic water resources.
2. GEF/WB project *"West Balkans Drina River Basin Management"* (Bosnia & Herzegovina, Montenegro, Serbia). The main objective is the preparation of the basin management plans for Drina and Seman transboundary rivers, and of the National Water Strategies and the national water cadaster.
3. GIZ, *"Climate change adaptation in the Western Balkans"*. Regional project (Albania, North Macedonia, Serbia, Kosovo*, Montenegro). Project is focused on climate change and water issues.
4. WB, *"Study of the establishment of the protection zones of the Klokot source interrupted by the interstate border"* (Bosnia & Herzegovina, Croatia). In preparation.
5. UNEP/EBRD *"Mediterranean Sea Programme (MedProgramme): Enhancing Environmental Security"*. Council approved, child projects in preparation.
6. GCF/EIB *"Scaling up Climate Resilient Flood Risk Management in Bosnia and Herzegovina"*. Concept note approved, full project proposal with feasibility study in preparation. One of the project focuses is on enhanced monitoring and modelling of underground and surface waters in karst areas

4 FEASIBILITY

4.1 Cost efficiency and effectiveness

The project will strengthen the governance and management of water resources at the local, national and regional (DIKTAS) levels, through enhanced stakeholder capacity to monitor, plan and managed water resources and associated ecosystems whilst encouraging sustainable livelihood development.

The project will strengthen the capacity of national organizations to enable the implementation of the SAP. The endorsement of the SAP, by ministers from the four countries, demonstrates the countries' commitment to the long-term environmental and socio-economic objectives within the SAP. Implementing regional and national policies and institutional reforms agreed under the SAP and strengthening the knowledge base on the DIKTAS will facilitate the governance of the aquifer. Through the implementation of the project (and the SAP) and the creation of the CIE as a regional institution, countries will be enabled to address the increasing pressures that will be placed on the resources of the DIKTAS from increasing population and potential climate changes.

Close co-operation with the partners' on-going activities addressing groundwater issues in the region and more widely, will enable the project to gain additional knowledge on good practices to manage use demand of the DIKTAS. Through twinning exercises promoted by the GEF IW:LEARN project there will be opportunities to visit other transboundary water management organizations, etc. The foundational work undertaken by the UNDP, GEF and UNESCO to develop the SAP has resulted in a significant baseline of knowledge on the threats impacting the DIKTAS. UNESCO-IHP and partners will be central to assisting the countries address some remaining uncertainties and to guide the initial SAP implementation stages.

4.2 Risk

One of the major risks identified to prevent the full success of the project is the lack of sustained political support for this cooperative effort in the countries and states sharing the Dinaric Karst Aquifer system. The project proponents, fully aware of this challenge, have enhanced domestic benefits to be derived from the project, and focused specific project activities to the strengthening of this commitment through improved awareness, exchanges and consultations, and strengthening of capacity. It is also expected that Croatia, the non GEF recipient country participating to the project and EU member, will exercise leadership and help improve conditions for cooperation. Finally, the EU admission political objective of some of the countries will also help in moving the project successfully forward.

Given the nature of the project, oriented at setting the basis and the tools for harmonized governance of karst waters and ecosystems, Climate Change will not have any impact on the project likelihood of success. Climate change and increased climatic fluctuations will have on the other hand to be taken into full consideration as part of the technical components of the project, from the design of the monitoring networks, and the governance diagnostic analysis.

The second and equally important risk the project will face within at least its first year of implementation relates to the COVID-19 global pandemic and to the restrictions in mobility, capacities that this translates to. For example, short-term constraints on travel and group gatherings will be considered in project planning, and on-line or remote learning and communication options will be used where necessary. The potential of purchasing telecommunications equipment, where and when necessary, to ensure that all beneficiaries have equal opportunities in accessing trainings and participating to meetings.

Delays in data collection (limitation for field campaigns, closed offices of technical institutions, etc.), will be handled at a first stage using the amassed data that UNESCO along with numerous other International Organizations have already compiled while implementing various projects in the region. Operations will move to an online format.

Potential changes in project implementation timelines and/or changes in capacity of executing entities will be frequently discussed during the regular PSC meetings. Furthermore, the situation will be continuously assessed using the capacities of UNESCO's Regional and Local offices, who are in continuous contact with Governmental Authorities in the implementation of other Programmes and projects. The close monitoring of the situation and the bilateral discussions will be used to raise "red flags" related to potential obstacles in implementation. The latter will be discussed in the PSC to agree for a commonly agreed action. When the challenges require a purely managerial response, UNESCO will move ahead immediately, informing the concern parties with the details of its actions to all beneficiaries.

Furthermore, the COVID-19 longer-term economic impacts will be analyzed where relevant and factored into efforts to finance the continued implementation of the SAP, and monitoring activities following the conclusion of the project.

Overall, the risks associated with the project are detailed in the Annex E – SESP and in Annex H – Risk Log. Reference source not found.. As per standard UNDP requirements, any risk will be monitored quarterly by the Project Manager. The Project Manager will report on the status of the risks to the UNDP Country Office, which will record progress in the UNDP ATLAS risk log. Risks will be reported as critical when the impact and probability are high (i.e. 5). Management responses to critical risks will also be reported to the GEF in the annual PIR.

4.3 Sustainability and potential scale - up

The project being proposed presents several innovative features and design approaches which are expected to ensure sustainability beyond the project, and the replication at both national and regional levels:

- i) It is the first time, not just for the region, but also at the global level, that countries sharing a major karst aquifer system cooperate in the adoption of common groundwater governance principles and agree on the harmonization of monitoring protocols.
- ii) The project will foster a Multilateral Agreement on the establishment of a Consultation and Information Exchange body, including technical support from the "multi-disciplinary thematic expert groups" established by the project, and the long-term sustainability of the information exchange mechanism.
- iii) The project design adopts a blend of mutually reinforcing national and regional actions that will enhance sustainability and the likelihood of scaling up.
- iv) The involvement in all project activities of the Thematic Expert Groups, formed by national experts, will ensure country ownership and overall reinforced capacity in the countries. This project represents the first attempt to implement on the ground the recommendations emerging from the recently completed project: "Groundwater Governance: A Framework for Action" (GEF /FAO / UNESCO / IAH / WB).

5 PROJECT RESULTS FRAMEWORK

This project will contribute to the following Sustainable Development Goal (s): 5, 6, 12, 13, 15
This project will contribute to the following regional programme outcome included in the Regional Programme Document for Europe and the CIS 2018-2021: OUTCOME 1: Accelerating structural transformations through more effective governance systems
This project will be linked to the following output of the UNDP Strategic Plan: <i>Output 1.6: Solutions and regulatory frameworks to address conservation, sustainable use and equitable benefit-sharing of natural resources, developed in line with international conventions and national legislation through regional and cross-regional initiatives</i>

Component/Outcome	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Risks/Assumptions
Component 1: Facilitating Multi- country cooperation (SAP Action 3) Outcome 1: Institutionalization of periodic multi-country expert consultations and information exchanges, and creation and strengthening of bilateral/multilateral conflict resolution mechanisms, provide the transboundary cooperation framework crucial for the sustainable utilization of shared karst waters, and for the protection of the Dinaric Karst ecosystems.	1.1. Joint multi-disciplinary thematic expert group established by the project countries sharing the Dinaric karst Transboundary Aquifer.	Incomplete information on selected six TBA basins' boundaries, groundwater distribution, discharge mechanism and regime, as well as water reserves as prerequisite for sustainable management.	Three joint multi-disciplinary thematic expert groups (EG) established and functioning for the SAP priority actions: 1. Groundwater Resources and Eco-Systems Management Group (for SAP 1,2); 2. Governance and Legislation Group (SAP 2,3); and 3. Capacity Building and Dissemination Group (SAP 3).	Joint expert groups with expanded scope institutionalized as technical arms of CIE.	R: The countries provide limited information on GW in TBA concerning aquifers' distribution, regime, water quality and availability. A: The countries have sufficient technical capacities for expertise required for EGs; EGs are strengthened by experienced international staff.
	1.2. Draft Multilateral agreement for the establishment of Consultation and Information Exchange Body (CIE) and its Secretariat prepared for approval by Governments.	Institutionalized mechanism for information and experiences exchange, consultations and resolution of conflicts are lacking.	TORs of the CIE will be drafted in close cooperation with National Inter-ministerial Committees (NICS) and will be submitted for government approval.	CIE, established and operational.	R: The countries lack experience to discuss concrete technical aspects on how to assess GW quantity and quality, pressures on TBAs and how to establish criteria for karst waters sustainable use, equitable share and protection from pollution. A: Common work on establishment of monitoring networks, harmonization of criteria for sanitary protection
	1.3. Options for the strengthening of existing Bilateral Agreements or establishment of new	Bilateral agreements in place are too general and do not consider all technical aspects and	Options identified and formulated.	Revised or newly proposed Bilateral Agreements submitted for	

Component/Outcome	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Risks/Assumptions
	ones prepared for decision by governments.	specificities of karst terrains and their groundwater.		Government approval.	will strength bi- and multilateral communication and create platform for CIE. A: Promote water security
Component 2: Institutional strengthening for improved groundwater governance (SAP Actions 2 and 3) Outcome 2: Adoption of sound groundwater governance principles and frameworks, including emphasis on sanitary protection zones, harmonized across the Dinaric Karst Aquifer System, facilitated through the application of the methodology developed by the Groundwater Governance GEF project.	2.1. National Groundwater governance diagnostic with an assessment of gaps and opportunities completed for all countries.	Insufficient capacities of the national governmental bodies to deal with problems of water in karst terrains, adaptation of EU Water Framework Directive principles and experiences in national water practice, lack of harmonized methodology for sanitary protection zones delineation, and inspecting actual functioning of water and waste management.	First draft of Groundwater governance national diagnostics, completed for all countries.	National Groundwater Governance Diagnostics submitted for governments consideration.	R: Lack of knowledge and capacities in national governmental bodies to introduce principles and methodology developed by GW Governance GEF project and other positive experiences in dealing with waters in karst. A: Good will of the countries to cooperate, exchange experiences, strength their national technical capacities, adapt water practice towards more sustainable water use and protection from pollution. A: Introducing conjunctive surface and groundwater management practices to generate resilience to climate change
	2.2. National policy, legal and institutional developments, harmonized across countries, defined and submitted to countries for adoption.		Needed reforms identified and draft proposals prepared.	All countries consider adoption of national policy, legal and institutional developments for the protection of karst aquifers.	
	2.3. # of training courses, among others : Hydro diplomacy; Gender analysis and mainstreaming; Land use policy and practice in karst terrains; Maintaining seasonal variations of karst waters and ensuring stable water supply; Study tour for water administrators and decision makers will be organized.		3 courses per country and 3 international courses completed.	5 courses per country and 5 international courses completed.	
Component 3: Monitoring karst waters and dependent ecosystems (SAP Action 1)	3.1 Design of DIKTAS-wide groundwater multi-purpose monitoring network harmonized	There is a lack of well-equipped monitoring stations and systematic observations of GW quality	Multi-purpose demonstration Monitoring Network tested in two areas of transboundary concern.	The design of the regional groundwater monitoring network	A. Countries cognizant of the need for modern monitoring infrastructure for karst waters are committed to invest in the

Component/Outcome	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Risks/Assumptions
Outcome 3 Modern multi-purpose monitoring of karst groundwater enables responsible entities at the local and at the regional level to effectively manage the shared karstic waters and dependent ecosystems.	across all four countries, completed.	and quantity at the country level in BiH, MNE and ALB as well as in all six TBAs of major concerns, shared between all four project countries. There is a lack of national GW databases and mechanism of information exchange.		submitted for consideration by countries.	implementation on the ground of the network, and to share monitoring data.
Outcome 4 Agreement on real-time harmonized data sharing enables effective transboundary cooperation.	4.1 Joint real-time data sharing mechanism and harmonization of different national classification standards prepared for approval.		Quantitative and water quality monitoring data which will be exchanged between countries selected; Protocol for exchange data developed.	Qualitative and quantitative data exchange protocols and storage systems agreed upon by countries.	
Component 4: Focus on areas of transboundary influence and of special concern (SAP Action 2) Outcome 5: Definition of national and/or binational Action Programmes and of DIKTAS wide guidelines for reversing degradation trends in highly vulnerable areas accelerates remedial actions	5.1. Number of Action Programmes for areas of transboundary influence identified in the TDA prepared and submitted for adoption at governmental level.	Although 6 areas of transboundary influence of major concerns have been identified in the TDA, no remedial action nor program have been as yet undertaken at bilateral or national level.	3 Action Programs prepared and ready for submission.	6 Actions Programs prepared and submitted for adoption at government level.	A. Countries are posed to act to ease potential water use conflicts in areas of transboundary influence and concern. A: Support implementation of IWRM practices to ensure universal access to clean water
	5.2. Rulebook of DIKTAS proposal for delineation of sanitary protection zones and measures for solid and liquid waste disposal.	The need for harmonized guidelines has been clearly identified as an SAP priority.	Draft Guidelines/ Rulebook ready for region-wide circulation. Examples of best practice in SPZ maintenance evaluated and reported.	Guidelines submitted for Governments approval.	A. All stakeholders in agreement on the need for a common approach to SPZs. A: Enhancement of sustainable management of transboundary freshwater ecosystems.
Component 5: Awareness Raising and Gender mainstreaming (SAP Action 3)	6.1. Number of disseminations, awareness raising events and education, 50% female and 50% men will	Stakeholders not fully aware of the need for harmonized management of DIKTAS, nor of the	2 annual stocktaking meetings.	4 annual stocktaking meetings.	A. Countries convinced of the need for broad dissemination of project results, stakeholders' participation,

Component/Outcome	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Risks/Assumptions
Outcome 6: Increased awareness at all levels, dissemination of project's achievements and lessons learned, and strengthened gender equality and women empowerment, facilitate replication of good practices and policies.	be involved actively in the preparation of the dissemination activities.	present situation of gender roles and equality.			public participation, and promotion of gender equality.
	6.2. Number of National Water Sector Gender Analysis completed		Water sector gender analyses completed in the four countries.	Gender related policy and institutional developments submitted for approval by governments.	
	6.3. Number of experience notes prepared for posting in IW LEARN website. Participation in IW LEARN activities. 50% female and 50% men will be involved actively in the preparation of the experienced notes	Lack of experience in the GEF IW portfolio on karst waters.	2 experience notes prepared. Participation in regional and international conferences conducted.	4 experience notes prepared and presented at scientific conferences.	

6 MONITORING AND EVALUATION (M&E) PLAN

The project results, corresponding indicators and mid-term and end-of-project targets, in the project results framework will be monitored annually and evaluated periodically during project implementation to ensure the project effectively achieves these results. If baseline data for some of the results indicators is not yet available, it will be collected during the first year of project implementation. The Monitoring Plan below details the roles, responsibilities, and frequency of monitoring project results.

Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the [UNDP POPP](#) and [UNDP Evaluation Policy](#). The UNDP IRH at the Lead Office is responsible for ensuring full compliance with all UNDP M&E requirements, including project monitoring, UNDP quality assurance, quarterly risk management, and evaluation requirements.

Additional mandatory GEF-specific M&E requirements (as outlined below) will be undertaken in accordance with the [GEF Monitoring Policy](#) and the [GEF Evaluation Policy](#) and other [relevant GEF policies](#)¹⁵. The costed M&E plan included below, will guide the GEF-specific M&E activities to be undertaken by this project.

In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report. These activities may include UNDP guidance regarding adopting remote monitoring approaches and for M&E procedures as a whole during the COVID-19 global pandemic. The pandemic might pose risks during project execution to project staff and beneficiary stakeholders. The project design has taken steps to minimize these risks such as travel to or from areas where COVID-19 is prevalent, and training on pandemic-related guidance for project staff and stakeholders during the inception phase, and the expansion of the standard tasks of the Safeguards Specialist to monitor project operations and ensure that they are in conformity with UNDP agency policies regarding travel, risk reduction, and other areas regarding the COVID-19 pandemic. The Safeguards Specialist will report to the Project Manager, who will report on compliance to the Project Board and take any necessary steps to protect the health of staff, consultants/contractors, and beneficiaries required by the situation.

6.1 Additional GEF monitoring and reporting requirements

Inception Workshop and Report: A project inception workshop will be held within 60 days of project CEO endorsement, with the aim to:

- a. Familiarize key stakeholders with the detailed project strategy and discuss any changes that may have taken place in the overall context since the project idea was initially conceptualized that may influence its strategy and implementation.
- b. Discuss the roles and responsibilities of the project team, including reporting lines, stakeholder engagement strategies and conflict resolution mechanisms.
- c. Review the results framework and monitoring plan.
- d. Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E budget; identify national/regional institutes to be involved in project-level M&E; discuss the role of the GEF OFP and other stakeholders in project-level M&E.
- e. Update and review responsibilities for monitoring project strategies, including the risk log; SESP report, Social and Environmental Management Framework and other safeguard

¹⁵ See https://www.thegef.org/gef/policies_guidelines

requirements; project grievance mechanisms; gender strategy; knowledge management strategy, and other relevant management strategies.

- f. Review financial reporting procedures and budget monitoring and other mandatory requirements and agree on the arrangements for the annual audit.
- g. Plan and schedule Project Board meetings and finalize the first-year annual work plan.
- h. Formally launch the Project.

GEF Project Implementation Report (PIR):

The annual GEF PIR covering the reporting period July (previous year) to June (current year) will be completed for each year of project implementation. Any environmental and social risks and related management plans will be monitored regularly, and progress will be reported in the PIR. UNDP will undertake quality assurance of the PIR before submission to the GEF. The PIR submitted to the GEF will be shared with the Project Board. The quality rating of the previous year's PIR will be used to inform the preparation of the subsequent PIR.

Lessons learned and knowledge generation:

Results from the project will be disseminated within and beyond the project intervention area through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to the project. The project will identify, analyse and share lessons learned that might be beneficial to the design and implementation of similar projects and disseminate these lessons widely. There will be continuous information exchange between this project and other projects of similar focus in the same country, region and globally.

GEF Core Indicators:

The GEF Core indicators included as Annex will be used to monitor global environmental benefits and will be updated for reporting to the GEF prior to MTR and TE. Note that the project team is responsible for updating the indicator status. The updated monitoring data should be shared with MTR/TE consultants prior to required evaluation missions, so these can be used for subsequent groundtruthing. The methodologies to be used in data collection have been defined by the GEF and are available on the GEF [website](#).

Independent Mid-term Review (MTR): 15 May 2025

The terms of reference, the review process and the final MTR report will follow the standard templates and guidance for GEF-financed projects available on the [UNDP Evaluation Resource Center \(ERC\)](#).

The evaluation will be 'independent, impartial and rigorous'. The evaluators that will be hired by UNESCO to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Equally, the evaluators should not be in a position where there may be the possibility of future contracts regarding the project under review.

The GEF Operational Focal Point and other stakeholders will be actively involved and consulted during the evaluation process. Additional quality assurance support is available from the BPPS/NCE-VF Directorate.

The final MTR report and MTR TOR will be publicly available in English and will be posted on the UNDP ERC by **15 May 2025**. A management response to MTR recommendations will be posted in the ERC within six weeks of the MTR report's completion.

Terminal Evaluation (TE):

An independent terminal evaluation (TE) will take place upon completion of all major project outputs and activities. The terms of reference, the evaluation process and the final TE report will follow the

standard templates and guidance for GEF-financed projects available on the [UNDP Evaluation Resource Center](#). The TE should be completed 3 months before the estimated operational closure date, set from the signature of the ProDoc and according to the duration of the project. Provisions should be taken to complete the TE in due time to avoid delay in project closure. Therefore, TE must start no later than 6 months to the expected date of completion of the TE (or 9 months prior to the estimated operational closure date).

The evaluation will be 'independent, impartial and rigorous'. The evaluators that will be hired by UNESCO to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Equally, the evaluators should not be in a position where there may be the possibility of future contracts regarding the project being evaluated.

The GEF Operational Focal Point and other stakeholders will be actively involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the BPPS/NCE-VF Directorate.

The final TE report and TE TOR will be publicly available in English and posted on the UNDP ERC by **15 August 2027**. A management response to the TE recommendations will be posted to the ERC within six weeks of the TE report's completion.

Final Report:

The project's terminal GEF PIR along with the terminal evaluation (TE) report and corresponding management response will serve as the final project report package. The final project report package shall be discussed with the Project Board during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

Agreement on intellectual property rights and use of logo on the project's deliverables and disclosure of information: To accord proper acknowledgement to the GEF for providing grant funding, the GEF logo will appear together with the UNDP logo on all promotional materials, other written materials like publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord proper acknowledgement to the GEF. Information will be disclosed in accordance with relevant policies notably the UNDP Disclosure Policy¹⁶ and the GEF policy on public involvement¹⁷.

¹⁶ See http://www.undp.org/content/undp/en/home/operations/transparency/information_disclosurepolicy/

¹⁷ See https://www.thegef.org/gef/policies_guidelines

Monitoring and Evaluation Plan and Budget

Table 8 : GEF M&E requirements and M&E budget

GEF M&E requirements to be undertaken by Project Management Unit (PMU)	Indicative costs (US\$)	Time frame
Inception Workshop and Report	30,000	Inception Workshop within two months of the First Disbursement
Preparation of the annual GEF Project Implementation Report (PIR)	<i>None</i>	Annually typically between June-August
Monitoring of indicators in project results framework and as per project safeguard management framework and action plans	None	Annually and as needed
Supervision and learning missions	None	As needed
Independent Mid-term Review (MTR)	25,000	15 May 2025
Independent Terminal Evaluation (TE)	35,000	15 August 2027
TOTAL indicative COST	USD 90,000	

7 GOVERNANCE AND MANAGEMENT ARRANGEMENTS

7.1 Roles and responsibilities of the project's governance mechanism

The **Implementing Partner (Executing agency)** for this project is **UNESCO-IHP**. The Implementing Partner is responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, providing technical assistance on groundwater resources management and governance, national and institutional developments, enhancing the Joint Authority's efficiency and communication, develop training schemes and pilot studies coordination.

The Implementing Partner is the entity to which the UNDP Administrator has entrusted the implementation of UNDP assistance specified in this signed project document along with the assumption of full responsibility and accountability for the effective use of UNDP resources and the delivery of outputs, as set forth in this document.

The Implementing Partner is responsible for executing this project. Specific tasks include:

- Project planning, coordination, management, monitoring, evaluation and reporting. This includes providing all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary. The Implementing Partner will strive to ensure project-level M&E is undertaken by national institutes and is aligned with national systems so that the data used and generated by the project supports national systems. The Implementing Partner will set annual targets, ensures they are on track and report them on regular basis in line with the M&E requirements for the project. The UNESCO-IHP, as the Implementing Partner will regularly provide and retain all M&E records for this project for up to seven years after project operational closure in order to support ex-post evaluations undertaken by the UNDP Independent Evaluation Office (IEO) and/or the GEF IEO.
- Risk management as outlined in this Project Document;
- Procurement of goods and services, including human resources in accordance with its rules and regulations;
- Financial management, including overseeing financial expenditures against project budgets;
- Approving and signing the multiyear workplan;
- Approving and signing the combined delivery report at the end of the year; and,
- Signing the financial report or the funding authorization and certificate of expenditures.

UNESCO-IHP will supervise activities with the aim of achieving project outcomes and for the effective use of UNDP resources. UNESCO will have the responsibility to secure the establishment and supervision of the Project Management Unit (PMU). The national focal agencies will closely coordinate with UNESCO-IHP acting as co-executing partners. The UNESCO Water Family entities, such as IGRAC, based in the region will contribute actively to the project.

Global Water Partnership – Mediterranean (GWP-Med) will be providing technical assistance and advice on issues of expertise; these will be detailed in an agreement that will be established with UNESCO.

Matrix on management responsibilities agreed between UNDP GEF, UNDP IRH and UNESCO will be developed at the inception meeting.

Project stakeholders and target groups:

UNDP: UNDP is accountable to the GEF for the implementation of this project. This includes overseeing project execution undertaken by the Implementing Partner to ensure that the project is being carried

out in accordance with UNDP and GEF policies and procedures and the standards and provisions outlined in the Delegation of Authority (DOA) letter for this project. **The UNDP GEF Executive Coordinator, in consultation with UNDP Bureaus and the Implementing Partner, retains the right to revoke the project DOA, suspend or cancel this GEF project.** UNDP is responsible for the Project Assurance function in the project governance structure and presents to the Project Board and attends Project Board meetings as a non-voting member.

A firewall will be maintained between the delivery of project oversight and quality assurance performed by UNDP and charged to the GEF Fee and any support to project execution performed by UNDP (as requested by and agreed to by both the Implementing Partner and GEF) and may be charged to the GEF project management costs (only if approved by GEF). The segregation of functions and firewall provisions for UNDP in this case is described in the next section.

UNDP Istanbul Regional Hub is the lead office for the project.

7.2 Project organisation structure

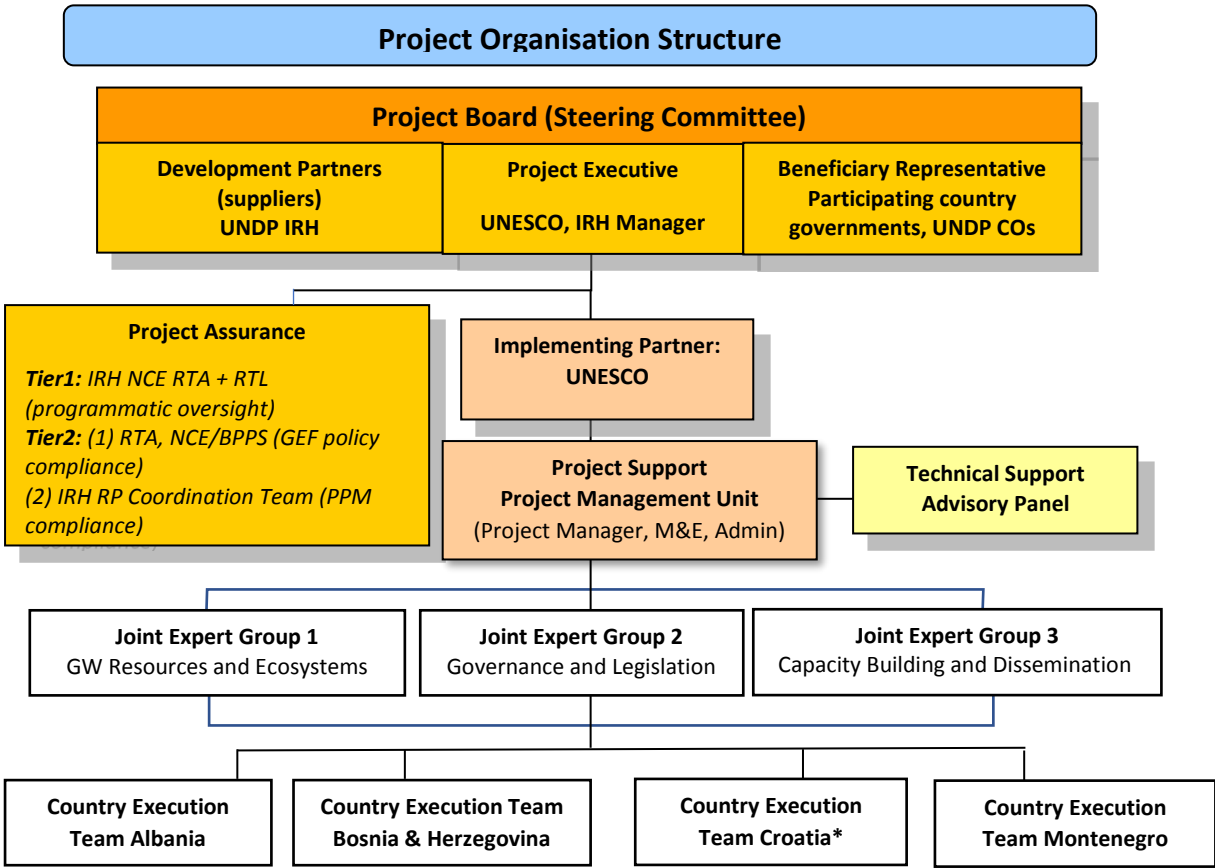


Figure 4: Organogramme of the project implementation (* Croatia is a non GEF beneficiary project country)

UNDP Istanbul Regional Hub (IRH) assumes full responsibility and accountability for oversight and quality assurance of this Project and ensures its timely implementation in compliance with the GEF-specific requirements and UNDP’s Programme and Operations Policies and Procedures (POPP), its Financial Regulations and Rules and Internal Control Framework. A UNDP IRH representative will assume the assurance role and will present assurance findings to the Project Board, and therefore attends Project Board meetings as a non-voting member.

IRH will provide oversight to the Project and ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality. The IRH is responsible for complying with all UNDP project-level M&E requirements as outlined in the UNDP POPP. This includes ensuring the UNDP Quality Assurance Assessment is undertaken in line with the Monitoring Policy of UNDP; that annual targets at the output level are developed and monitored and reported using UNDP corporate systems; the regular updating of the ATLAS risk log (in line with the risk management policy); and the updating of the UNDP gender marker on an annual basis based on gender mainstreaming progress reported in the GEF PIR and the UNDP ROAR. Any quality concerns flagged during these M&E activities (e.g., annual GEF PIR quality assessment ratings) must be addressed by the IRH and the Project Manager. The IRH will retain all M&E records received from UNESCO for this project for up to seven years after project financial closure in order to support ex-post evaluations undertaken by the UNDP Independent Evaluation Office (IEO) and/or the GEF IEO.

UNDP-GEF Unit: Additional M&E and implementation quality assurance and troubleshooting support will be provided by the UNDP-GEF Regional Technical Advisor.

7.3 Segregation of duties and firewalls vis-à-vis UNDP representation on the project board

As noted in the [Minimum Fiduciary Standards for GEF Partner Agencies](#), in cases where a GEF Partner Agency (i.e. UNDP) carries out both implementation oversight and execution of a project, the GEF Partner Agency (i.e. UNDP) must separate its project implementation oversight and execution duties, and describe in the relevant project document a: 1) Satisfactory institutional arrangement for the separation of implementation oversight and executing functions in different departments of the GEF Partner Agency; and 2) Clear lines of responsibility, reporting and accountability within the GEF Partner Agency between the project implementation oversight and execution functions.

In this case, UNDP is only performing an implementation oversight role in the project vis-à-vis our role in the project board and in the project assurance function and therefore a full separation of project implementation oversight and execution duties has been assured.

7.4 Roles and Responsibilities of the Project Organization Structure

a) Project Board:

All UNDP projects must be governed by a multi-stakeholder board or committee established to review performance based on monitoring and evaluation, and implementation issues to ensure quality delivery of results. The Project Board (also called the Project Steering Committee) is the most senior, dedicated oversight body for a project.

The two main (mandatory) roles of the project board are as follows:

- 1) **High-level oversight of the execution of the project by the Implementing Partner** (as explained in the [“Provide Oversight”](#) section of the POPP). This is the primary function of the project board and includes annual (and as-needed) assessments of any major risks to the project, and decisions/agreements on any management actions or remedial measures to address them effectively. The Project Board reviews evidence of project performance based on monitoring, evaluation and reporting, including progress reports, evaluations, risk logs and the combined delivery report. The Project Board is responsible for taking corrective action as needed to ensure the project achieves the desired results.

- 2) **Approval of strategic project execution decisions of the Implementing Partner** with a view to assess and manage risks, monitor and ensure the overall achievement of projected results and impacts and ensure long term sustainability of project execution decisions of the Implementing Partner (as explained in the [“Manage Change”](#) section of the POPP).

Requirements to serve on the Project Board:

- ✓ Agree to the Terms of Reference of the Board and the rules on protocols, quorum and minuting.
- ✓ Meet annually; at least once.
- ✓ Disclose any conflict of interest in performing the functions of a Project Board member and take all measures to avoid any real or perceived conflicts of interest. This disclosure must be documented and kept on record by UNDP.
- ✓ Discharge the functions of the Project Board in accordance with UNDP policies and procedures.
- ✓ Ensure highest levels of transparency and ensure Project Board meeting minutes are recorded and shared with project stakeholders.

Responsibilities of the Project Board:

- ✓ Consensus decision making:
 - The project board provides overall overall guidance and direction to the project, ensuring it remains within any specified constraints, and providing overall oversight of the project implementation.
 - Review project performance based on monitoring, evaluation and reporting, including progress reports, risk logs and the combined delivery report;
 - The project board is responsible for making management decisions by consensus.
 - In order to ensure UNDP’s ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition.
 - In case consensus cannot be reached within the Board, the UNDP representative on the board will mediate to find consensus and, if this cannot be found, will take the final decision to ensure project implementation is not unduly delayed.
- ✓ Oversee project execution:
 - Agree on project manager’s tolerances as required, within the parameters outlined in the project document, and provide direction and advice for exceptional situations when the project manager’s tolerances are exceeded.
 - Appraise annual work plans prepared by the Implementing Partner for the Project; review combined delivery reports prior to certification by the implementing partner.
 - Address any high-level project issues as raised by the project manager and project assurance;
 - Advise on major and minor amendments to the project within the parameters set by UNDP and the donor and refer such proposed major and minor amendments to the UNDP BPPS Nature, Climate and Energy Executive Coordinator (and the GEF, as required by GEF policies);
 - Provide high-level direction and recommendations to the project management unit to ensure that the agreed deliverables are produced satisfactorily and according to plans.
 - Track and monitor co-financed activities and realisation of co-financing amounts of this project.

- Approve the Inception Report, GEF annual project implementation reports, mid-term review and terminal evaluation reports.
- Ensure commitment of human resources to support project implementation, arbitrating any issues within the project.
- ✓ Risk Management:
 - Provide guidance on evolving or materialized project risks and agree on possible mitigation and management actions to address specific risks.
 - Review and update the project risk register and associated management plans based on the information prepared by the Implementing Partner. This includes risks related that can be directly managed by this project, as well as contextual risks that may affect project delivery or continued UNDP compliance and reputation but are outside of the control of the project. For example, social and environmental risks associated with co-financed activities or activities taking place in the project's area of influence that have implications for the project.
 - Address project-level grievances.
- ✓ Coordination:
 - Ensure coordination between various donor and government-funded projects and programmes.
 - Ensure coordination with various government agencies and their participation in project activities.

The composition of the Project Board must include individuals assigned to the following roles:

1. **Project Executive:** Is an individual who represents ownership of the project and chairs the Project Board. UNESCO Representative will be the Project Executive for this Project. The UNDP IRH Manager or his/her designated officials will co-chair the Project Board.
2. **Beneficiary Representative(s):** Individuals or groups representing the interests of those who will ultimately benefit from the project. Their primary function within the board is to ensure the realization of project results from the perspective of project beneficiaries. Often representatives from civil society, industry associations, or other government entities benefiting from the project can fulfil this role. There can be multiple beneficiary representatives in a Project Board. The Beneficiary representative (s) will be identified during the inception of the project.
3. **Development Partner(s):** Individuals or groups representing the interests of the parties concerned that provide funding and/or technical expertise to the project. The Development Partner(s) is/are: UNDP IRH.

b) Project Assurance:

Project assurance is the responsibility of each project board member; however, UNDP has a distinct assurance role for all UNDP projects in carrying out objective and independent project oversight and monitoring functions. UNDP performs quality assurance and supports the Project Board (and Project Management Unit) by carrying out objective and independent project oversight and monitoring functions, including compliance with the risk management and social and environmental standards of UNDP. The Project Board cannot delegate any of its quality assurance responsibilities to the Project Manager. Project assurance is totally independent of project execution.

A designated representative of UNDP playing the project assurance role is expected to attend all board meetings and support board processes as a non-voting representative. It should be noted that while in certain cases UNDP's project assurance role across the project may encompass activities happening at several levels (e.g. global, regional), at least one UNDP representative playing that function must, as part of their duties, specifically attend board meeting and provide board members with the required documentation required to perform their duties.

The Project assurance will be covered by UNDP, which will have 2 Tiers:

- Tier 1 - substantive/programmatic oversight by IRH NCE RTL+RTA
- Tier 2 will have 2 components: i) Oversight of project compliance with the GEF policy - NCE/BPPS (not IRH RTA /RTL); ii) Compliance with the UNDP PPM – IRH Regional Programme Coordination Team

National Governments' representatives on the PSC are responsible for making by consensus, management decisions when guidance is required to the project, including recommendation for UNDP/ UNESCO-IHP (Implementing Partner) approval of project plans, revisions and budget. The Chair of the PSC will be agreed on a meeting-to-meeting basis and will rotate between the four DIKTAS countries. A face – to – face meetings of the PSC will be held annually if possible.

c) Project Management – Execution of the Project:

The Project Manager (PM) (also called project coordinator) is the senior most representative of the Project Management Unit (PMU) and is responsible for the overall day-to-day management of the project on behalf of the Implementing Partner (UNESCO-IHP), including the mobilization of all project inputs, supervision over project staff, responsible parties, consultants and sub-contractors. The project manager typically presents key deliverables and documents to the board for their review and approval, including progress reports, annual work plans, adjustments to tolerance levels and risk registers.

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. Project Manager is responsible for regular monitoring of project results and risks, including social and environmental risks and of the staff and the team of the project. The Project Manager will ensure that all project staff maintain a high level of transparency, responsibility and accountability in M&E and reporting of project results. The Project Manager will inform the Project Steering Committee and the UNDP-GEF RTA of any delays or difficulties as they arise during implementation so that appropriate support and corrective measures can be adopted.

The Project Manager will develop annual work plans based on the multi-year work plan included in Annex A, including annual output targets to support the efficient implementation of the project. The Project Manager will ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality. This includes, but is not limited to, ensuring the results framework indicators are monitored annually in time for evidence-based reporting in the GEF PIR, and that the monitoring of risks and the various plans/strategies developed to support project implementation (e.g., gender strategy, knowledge management strategy etc.) occur on a regular basis.

The Project Manager will secure to establish a close coordination with the national authorities' offices and national and regional consultants for the implementation of the project activities. The Project Manager function will end when the final project terminal evaluation report and corresponding management response, and other documentation required by the GEF and UNDP, has been completed and submitted to UNDP (including operational closure of the project). The Project Manager will be located at the Project Management Unit (PMU). The the Project Manager will be internationally recruited by the Implementing Partner jointly with UNDP/GEF.

Project Management Unit (PMU): an Operative Inception meeting/first meeting of the Steering Committee (SC) will be organized at the beginning of the project implementation phase. During the PPG validation meeting the UNDP set criteria for establishing the PMU were sent to the 3 beneficiary countries together with an official letter requesting proposals for the location of the PMU. The first meeting of the SC of the project will review received proposals and decide on the location of the PMU.

The PMU should be hosted within one of the three Beneficiary countries and facilities available should assure the functioning of the Unit. At the inception meeting/ first meeting of the SC, the countries and all project partners will discuss and contribute to the preparation of the detailed workplan of the activities of the project. It is foreseen that an international recruitment will be launched by UNESCO to identify the most suitable expert to work as Project Manager at the PMU location. The Project Manager will operate under the supervision of UNESCO at the PMU and will coordinate with national institutions, national and regional consultants and taking care of the project activities on a day-by-day basis.

The PSC will take corrective action as needed to ensure the project achieves the desired results. The PSC will hold project reviews to assess the performance of the project and appraise the Annual Work Plan for the following year. In the project's final year, the PSC will hold an end-of-project review to capture lessons learned and discuss opportunities for scaling up and to highlight project results and lessons learned with relevant audiences. This final review meeting will also discuss the findings outlined in the project terminal evaluation report and the management response. The PSC is likely to comprise countries representatives, UNDP, and UNESCO-IHP. The details of the membership of the PSC and roles/responsibilities on members and observers will be defined during the inception phase.

A designated representative of the PMU is expected to attend all board meetings and support board processes as a non-voting representative.

Thematic Expert Groups : namely 1. GW Resources and Eco-Systems Management; 2. Governance and Legislation; 3. Capacity Building, Dissemination and Public Participation, will lead project activities on issues related to groundwater governance and monitoring, conjunctive management of surface and groundwater, land use, agricultural practices, waste management, climate resilience, energy production, and protection of karst ecosystems services. All three TGs will work under the direct guidance of the Project Manager, while their results and achievements will be evaluated by the project's Steering Committee and the UNESCO-IHP as the overall responsible Implementing Partner for the project.

Technical Advisory Group: Will be responsible for providing guidance to the Project PMU and PSC and should include international and regional experts from the DIKTAS countries.

Project Management Team: will include the Project Management Unit, the Technical Advisory Group and the Thematic Expert Groups.

Country Execution Teams: Would include national staff and will be responsible for coordinating national activities throughout all components.

Project stakeholders and target groups: Key project stakeholders will be invited to participate in the technical advisory group. National pilot activities will be undertaken through local management arrangements involving local communities and government representatives. Where they exist and when it is needed, private sector representatives will be also invited to participate.

8 FINANCIAL PLANNING AND MANAGEMENT

The total cost of the project is USD **20,195,000**. This is financed through a GEF grant of USD **5,145,000** administered by UNDP, and USD **15,050,000** in parallel co-financing. UNDP, as the GEF Implementing Agency, is responsible for the oversight of the GEF resources and the cash co-financing (if any) transferred to UNDP bank account only.

Confirmed co-financing: The actual realization of project co-financing will be monitored during the mid-term review and terminal evaluation process and will be reported to the GEF. Reporting on co-financing will be also part of the annual PIR exercise, as well as presented during the annual project board meetings. The planned parallel co-financing will be used as follows:

Table 9 : Co- financing sources

Co-financing source	Co-financing type	Co-financing amount	Planned Activities/Outputs	Risks	Risk Mitigation Measures
UNDP	In-kind	350,000	Shared information	Low	GEF Implementing Agency
UNESCO-IHP	In-kind	4,000,000	Technical oversight of activities, technical assistance and training in karst groundwater governance and management, national and international institutional developments and updates, pilot coordination, training materials	Low	Implementing Partner
Government of Albania	In-kind	2,500,000	Staff time, data, communications	Medium – Maintaining government interest on project	Ensuring project stays aligned with approved SAP
Government of Bosnia - Herzegovina	In-kind	2,500,000	Staff time, data, communications	Medium – Maintaining government interest on project	Ensuring project stays aligned with approved SAP
Government of Croatia	In-kind	2,500,000	Staff time, data, communications	Medium – Maintaining government interest on project	Ensuring project stays aligned with approved SAP
Government of Montenegro	In-kind	2,500,000	Staff time, data, communications	Medium – Maintaining government interest on project	Ensuring project stays aligned with approved SAP
GWP-Med	In-kind	700,000	Groundwater governance diagnostic analysis, Stakeholder plan, Awareness raising activities	Low	Partner

Budget Revision and Tolerance: As per UNDP POPP, the project board may agree with the project manager on a tolerance level for each detailed plan under the overall multi-year workplan. The agreed tolerance should be written in the project document or approved project board meeting minutes. It should normally not exceed 10 percent of the agreed annual budget at the activity level, but within the overall approved multi-year workplan at the activity level. Within the agreed tolerances, the

project manager can operate without intervention from the project board. Restrictions apply as follows:

Should the following deviations occur, the Project Manager/IP and UNDP Lead Office will seek the approval of the BPPS/NCE-VF team to ensure accurate reporting to the GEF. It is **strongly encouraged** to maintain the expenditures within the approved budget at the budgetary account and at the component level:

- a. Budget reallocations must prove that the suggested changes in the budget will not lead to material changes in the results to be achieved by the project. A strong justification is required and will be approved on an exceptional basis. Budget re-allocations among the components (including PMC) of the approved Total Budget and Work Plans (TBWP) that represent a value greater than 10% of the total GEF grant.
- b. Introduction of new outputs/activities (i.e. budget items) that were not part of the agreed project document and TBWP that represent a value greater than 5% of the total GEF grant. The new budget items must be eligible as per the GEF and UNDP policies.
- c. Project management cost (PMC): budget under PMC component is capped and cannot be increased.

Any over expenditure incurred beyond the available GEF grant amount will be absorbed by non-GEF resources (e.g., UNDP TRAC or cash co-financing).

Project extensions: The UNDP Regional Technical Advisor and the UNDP-GEF Executive Coordinator must approve all project extension requests. Note that all extensions incur costs and the GEF project budget cannot be increased. A single extension may be granted on an exceptional basis and subject to the conditions and maximum durations set out in the UNDP POPP; the project management costs during the extension period must remain within the originally approved amount, and any increase in PMC costs will be covered by non-GEF resources; the additional UNDP oversight costs during the extension period must be covered by non-GEF resources, in accordance with UNDP's guidance set out in UNDP POPP.

Audit: The project will be audited as per UNDP Financial Regulations and Rules and applicable audit policies. Audit cycle and process must be discussed during the Inception workshop. If the Implementing Partner is an UN Agency, the project will be audited according to that Agencies applicable audit policies.

Project Closure: Project closure will be conducted as per UNDP requirements outlined in the UNDP POPP.¹⁸ All costs incurred to close the project must be included in the project closure budget and reported as final project commitments presented to the Project Board during the final project review. The only costs a project may incur following the final project review are those included in the project closure budget.

Operational completion: The project will be operationally completed when the last UNDP-financed inputs have been provided and the related activities have been completed. This includes the final clearance of the Terminal Evaluation Report (that will be available in English) and the corresponding management response, and the end-of-project review Project Board meeting. **Operational closure must happen at the end date calculated by the approved duration after the Project Document signature or at the revised operational closure date as approved in the project extension. Any expected activity after the operational date requires project extension approval.** The Implementing Partner through a Project Board decision will notify the UNDP Country Office and Istanbul Regional Hub when operational closure has been completed. At this time, the relevant parties will have already

¹⁸ see <https://info.undp.org/global/popp/ppm/Pages/Closing-a-Project.aspx>

agreed and confirmed in writing on the arrangements for the disposal of any equipment that is still the property of UNDP.

Transfer or disposal of assets: In consultation with the Implementing Partner and other parties of the project, UNDP programme manager (Istanbul Regional Hub Manager) is responsible for deciding on the transfer or other disposal of assets. Transfer or disposal of assets is recommended to be reviewed and endorsed by the project board following UNDP rules and regulations. Assets may be transferred to the government for project activities managed by a national institution at any time during the life of a project. In all cases of transfer, a transfer document must be prepared and kept on file¹⁹. The transfer should be done before Project Management Unit complete their assignments and the project is operationally closed.

Financial completion (closure): The project will be financially closed when the following conditions have been met: a) The project is operationally completed or has been cancelled; b) The Implementing Partner has reported all financial transactions to UNDP; c) UNDP has closed the accounts for the project if any; d) UNDP and the Implementing Partner have certified a final Combined Delivery Report (which serves as final budget revision).

The project will be financially completed **within 6 months of operational closure or after the date of cancellation**. If Operational Closure is delayed for any justified and approved reason, the Lead Office should do all efforts to Financially Close the project within 9 months after TE is completed. Between operational and financial closure, the implementing partner will identify and settle all financial obligations and prepare a final expenditure report. The UNDP Istanbul Regional Hub, as the lead office, will send the final signed closure documents including confirmation of final cumulative expenditure and unspent balance to the BPPS/NCE-VF Unit for confirmation before the project will be financially closed in Atlas by the UNDP Istanbul Regional Hub.

Refund to GEF: Should a refund of unspent funds to the GEF be necessary, this will be managed directly by BPPS/NCE-VF Directorate in New York. No action is required by the UNDP Country Office on the actual refund from UNDP project to the GEF Trustee.

¹⁹ See

https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PPM_Project%20Management_Closing.docx&action=default.

9 TOTAL BUDGET

Total Budget and Work Plan			
Atlas Proposal or Award ID:	00119184	Atlas Primary Output Project ID:	00115716
Atlas Proposal or Award Title:	Implementation of the SAP of the Dinaric Karst Aquifer System: improving groundwater governance and sustainability of related ecosystems.		
Atlas Business Unit	SVK10		
Atlas Primary Output Project Title	Implementation of the SAP of the Dinaric Karst Aquifer System: improving groundwater governance and sustainability of related ecosystems.		
UNDP-GEF PIMS No.	5776		
Implementing Partner	UNESCO-IHP		

GEF Outcome/ Atlas Activity	Responsible Party (Atlas Implementing Agent)	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	See Budget Note:
COMPONENT 1: FACILITATING MULTI-COUNTRY COOPERATION	UNESCO-IHP	62000	GEF	71200	International Consultants	50.000,00	50.000,00	40.000,00	25.000,00	10.000,00	175.000,00	A
				71300	Local Consultants	40.000,00	44.000,00	39.000,00	20.000,00	7.000,00	150.000,00	B
				72100	Contractual Services	30.000,00	30.000,00	29.000,00	20.000,00	10.000,00	119.000,00	C
				71600	Travel	20.000,00	20.000,00	17.000,00	10.000,00	3.000,00	70.000,00	D
				75700	Training / workshops	30.000,00	29.000,00	26.000,00	15.000,00	5.000,00	105.000,00	E
				72200	Equipment and Furniture	20.000,00	15.000,00	12.000,00	10.000,00	3.000,00	60.000,00	F
				72500	Office supplies	4.000,00	5.000,00	6.000,00	4.000,00	2.000,00	21.000,00	G
				Sub-total GEF		194.000,00	193.000,00	169.000,00	104.000,00	40.000,00	700.000,00	
COMPONENT 2: INSTITUTIONAL STRENGTHENING FOR IMPROVED GROUNDWATER GOVERNANCE (SAP ACTIONS 2 AND 3)	UNESCO-IHP	62000	GEF	71200	International Consultants	44.000,00	104.000,00	104.000,00	54.000,00	-	306.000,00	A
				71300	Local Consultants	10.000,00	58.000,00	58.000,00	18.000,00	-	144.000,00	B
				72100	Contractual Services	20.000,00	60.000,00	60.000,00	30.000,00	-	170.000,00	C
				71600	Travel	12.000,00	36.000,00	36.000,00	16.000,00	-	100.000,00	D
				75700	Trainings / workshops	18.000,00	54.000,00	54.000,00	24.000,00	-	150.000,00	E
				72200	Equipment and Furniture	12.000,00	36.000,00	36.000,00	16.000,00	-	100.000,00	F
				72500	Office supplies	6.000,00	10.000,00	10.000,00	4.000,00	-	30.000,00	G
				Sub-total GEF		122.000,00	358.000,00	358.000,00	162.000,00	-	1.000.000,00	

GEF Outcome/ Atlas Activity	Responsible Party (Atlas Implementing Agent)	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	See Budget Note:
COMPONENT 3: MONITORING KARST WATERS AND DEPENDENT ECOSYSTEMS (SAP ACTION 1)	UNESCO-IHP	62000	GEF	71200	International Consultants	42.000,00	93.000,00	132.000,00	93.000,00	27.000,00	387.000,00	A
				71300	Local Consultants	10.000,00	54.000,00	76.000,00	50.000,00	8.000,00	198.000,00	B
				72100	Contractual Services	21.000,00	60.000,00	70.000,00	60.000,00	10.000,00	221.000,00	C
				71600	Travel	12.000,00	35.000,00	47.000,00	32.000,00	4.000,00	130.000,00	D
				75700	Trainings / workshops	18.000,00	52.000,00	70.000,00	49.000,00	6.000,00	195.000,00	E
				72200	Equipment and Furniture	12.000,00	35.000,00	47.000,00	32.000,00	4.000,00	130.000,00	F
				72500	Office supplies	7.000,00	10.000,00	10.000,00	10.000,00	2.000,00	39.000,00	G
				Sub-total GEF		122.000,00	339.000,00	452.000,00	326.000,00	61.000,00	1.300.000,00	
COMPONENT 4: FOCUS ON AREAS OF TRANSBOUNDARY INFLUENCE AND OF SPECIAL CONCERN	UNESCO-IHP	62000	GEF	71200	International Consultants	-	146.000,00	146.000,00	76.000,00	46.000,00	414.000,00	A
				71300	Local Consultants	-	85.000,00	85.000,00	31.000,00	15.000,00	216.000,00	B
				72100	Contractual services	-	78.000,00	78.000,00	65.000,00	17.000,00	238.000,00	C
				71600	Travel	-	52.000,00	52.000,00	25.000,00	11.000,00	140.000,00	D
				75700	Trainings / workshops	-	77.000,00	77.000,00	39.000,00	17.000,00	210.000,00	E
				72200	Equipment and furniture	-	52.000,00	52.000,00	25.000,00	11.000,00	140.000,00	F
				72500	Office supplies	-	12.000,00	15.000,00	10.000,00	5.000,00	42.000,00	G
				Sub-total GEF		-	502.000,00	505.000,00	271.000,00	122.000,00	1.400.000,00	
COMPONENT 5: AWARENESS RAISING AND GENDER MAINSTREAMING (SAP ACTION 3)	UNESCO-IHP	62000	GEF	71200	International Consultants	-	25.000,00	25.000,00	60.000,00	15.000,00	125.000,00	A
				71300	Local Consultants	-	20.000,00	24.000,00	52.000,00	12.000,00	108.000,00	B
				72100	Contractual Services	-	15.000,00	25.000,00	36.000,00	9.000,00	85.000,00	C
				71600	Travel	-	10.000,00	10.000,00	24.000,00	6.000,00	50.000,00	D
				75700	Trainings / workshops	-	15.000,00	15.000,00	36.000,00	9.000,00	75.000,00	E
				72200	Equipment and furniture	-	10.000,00	6.000,00	20.000,00	6.000,00	42.000,00	F
				72500	Office supplies	-	5.000,00	5.000,00	5.000,00	-	15.000,00	G
				Sub-total GEF		-	100.000,00	110.000,00	233.000,00	57.000,00	500.000,00	
PROJECT MANAGEMENT	UNESCO-IHP	62000	GEF	71200	International Consultants	21.600,00	21.600,00	21.600,00	21.600,00	20.100,00	106.500,00	A
				71300	Local Consultants	19.000,00	18.000,00	17.750,00	16.000,00	15.000,00	85.750,00	B
				71600	Travel	10.000,00	9.750,00	7.000,00	5.000,00	5.000,00	36.750,00	D
				72200	Equipment and furniture	3.000,00	3.000,00	3.000,00	3.000,00	-	12.000,00	F
				72500	Office Supplies	1.000,00	1.000,00	1.000,00	500,00	500,00	4.000,00	G
				Sub-total		54.600,00	53.350,00	50.350,00	46.100,00	40.600,00	245.000,00	
PROJECT TOTAL						492.600,00	1.545.350,00	1.644.350,00	1.142.100,00	320.600,00	5.145.000,00	

Summary of Funds:

	Amount Year 1 USD (\$)	Amount Year 2 USD (\$)	Amount Year 3 USD (\$)	Amount Year 4 USD (\$)	Amount Year 5 USD (\$)	Total
GEF (Cash)	492,600	1,545,350	1,644,350	1,142,100	320,600	5,145,000
UNDP (in – kind)	70,000	70,000	70,000	70,000	70,000	350,000
Government of Albania (in - kind)	500,000	500,000	500,000	500,000	500,000	2,500,000
Government of Bosnia - Herzegovina (in – kind)	500,000	500,000	500,000	500,000	500,000	2,500,000
Government of Croatia (in – kind)	500,000	500,000	500,000	500,000	500,000	2,500,000
Government of Montenegro (in – kind)	500,000	500,000	500,000	500,000	500,000	2,500,000
UNESCO-IHP (in – kind)	800,000	800,000	800,000	800,000	800,000	4,000,000
GWP-Med (in – kind)	140,000	140,000	140,000	140,000	140,000	700,000
TOTAL	3,502,600	4,555,350	4,654,350	4,152,100	3,330,600	20,195,000

Budget notes:

A	<p><u>Component 1: agreements, stakeholder involvements, thematic groups:</u> Two international consultants (100 days, daily rate 400 USD) and five regional consultants (40 days, daily rate 200 USD each) to prepare draft multilateral and bilateral agreements and stakeholder involvement plan and take part to the thematic groups 1, 2 and 3. And pro rata allocation for cost of the project technical lead [55.000]</p> <p><u>[2*100*400+5*40*200+55000=175.000]</u></p>
	<p><u>Component 2: governance diagnostic, regulation for protections zones and training:</u> Two main international consultants (85 days, 400 USD) and two regional consultants (85 days, 200 USD) to prepare groundwater governance diagnostic and support development of regulations regarding protection zones and four additional international consultants to provide inputs to and teach during the training courses (55 days each, 400 USD/day). And pro rata allocation for cost of the project technical lead [76.000] and MTR/TE [40.000]</p> <p><u>[2*85*400+2*85*200+4*55*400+76.000+40.000= 306.000]</u></p>
	<p><u>Component 3: monitoring networks for two demonstration sites and data sharing:</u> One senior and one mid-level international consultants and one regional consultant to work on the establishment on monitoring networks for two demonstration sites (120 days, 500USD/day and 240 days 250 USD/day respectively for the internationals; 240 days at 200 USD for the regional) and one international and one regional consultant to develop data sharing protocols (90 days, 500USD/day for the international consultant;</p>

Budget notes:

	<p>90 days , 200 USD/d for the regional consultant). And pro rata allocation for cost of the project technical lead [113.000] and MTR/TE [43.000]</p> <p><u>[1*120*500+1*240*250+1*240*200+1*90*500+1*90*200+113.000+43.000= 387.000]</u></p> <p><u>Component 4: Water Master Plans:</u> Three international consultants and two regional consultants to prepare methodology and concept for the Water Master Plans of six TBAs (120 days, 500 USD per day and 180 days, 200 USD per day respectively) and one International consultant to prepare the Rulebook on sanitary protection zones (90 days, 400 USD per day). And pro rata allocation for cost of the project technical lead [106.000] and MTR/TE [20.000]</p> <p><u>[3*120*500+2*180*200+1*90*400+106.000+20.000= 414.000]</u></p> <p><u>Component 5: Gender and communication:</u> One international and one regional consultant to prepare the gender analysis guiding the national consultants and based on their inputs (90 days, 400 USD/day; and 100 days, 200 USD per day respectively). One international and one regional consultant for communication strategy activities and coordination with capacity-building and training events (60 days at 400 USD/day and 90 days at 200 USD respectively). And pro rata allocation for cost of the project technical lead [27.000]</p> <p><u>[1*90*400+1*100*200+60*400+1*90*200+27.000= 125.000]</u></p> <p><u>PMC:</u> Pro rata allocation for cost of the project technical lead i.e. Project Manager, and MTR/TE i.e. Project Monitoring and Evaluation expert CTA/PM (Project Appointment P-3) @ 30% time</p>
B	<p><u>Component 1: agreements, stakeholder involvements, thematic groups:</u> Fifteen national consultants (40 days, daily rate of 200 USD each) for the three thematic groups (see composition in Component 1 description) to provide national contributions to the thematic groups agenda and to the drafting of multilateral and bilateral agreements and stakeholder involvement plans (combined with other tasks in other components). And pro rata allocation for cost of the PMC [30.000]</p> <p><u>[15*40*200+30.000= 150.000]</u></p> <p><u>Component 2: governance diagnostic, regulation for protections zones and training:</u> Six national consultants (one for groundwater governance diagnostic and one for laws regarding harmonized sanitary protection zone per country; daily rate 200 USD for 100 days) and contribution to capacity-building when relevant, including coordination of study tour. And pro rata allocation for cost of the PMC [24.000]</p> <p><u>[6*100*200+24.000= 144.000]</u></p>

Budget notes:

	<p><u>Component 3: monitoring networks for two demonstration sites and data sharing:</u> National consultants to provide inputs and coordinate locally the work on the establishment on monitoring networks for two demonstration sites (three consultants, 200 days, 200 USD/day) and on data sharing protocols (three consultants, 60 days, 200 USD/day). And pro rata allocation for cost of the PMC [42.000]</p> <p><u>[3*200*200+3*60*200+42.000= 198.000]</u></p>
	<p><u>Component 4: Water Master Plans:</u> Six national consultants (2 per country) to prepare methodology and concept for the Water Master Plans of six TBAs (180 days, 200 USD per day). And pro rata allocation for cost of the PMC [36.000]</p> <p><u>[6*180*200+36.000= 216.000]</u></p>
	<p><u>Component 5: Gender and communication:</u> Three national consultants to work on national gender analysis (60 days, 200 USD/day) and two national and one regional consultants (e.g. media specialist) on dissemination activities (60 days, 200 USD/day). And pro rata allocation for cost of the PMC [36.000]</p> <p><u>[3*60*200+3*60*200+36.000= 108.000]</u></p>
	<u>PMC:</u> Pro rata allocation for cost of the project coordination i.e. Project/Programme Assistant (Project Appointment G-5)
C	Contractual services - organizations: Legal entities (national/international) implementing activities, e.g. training, capacity and field studies including equipment procurement and rent costs according to approved ToRs.
D	Travel: Travel by consultants, beneficiaries and PCU staff on component related activities. Travelling will take place from/to the location of the PCU to/from the Project Countries and to UNESCO HQs in Paris if needed.
E	Trainings/workshops: Training facilities required for workshops related to component activities *At least 4 PSC meetings; Inception meeting; Final meeting; pilot site visits; technical/data collection missions; capacity-building events.
F	Equipment and furniture: Specific groundwater analytical and monitoring (field and laboratory) equipment essential to the implementation of the pilot activities to be purchased under UN procurement rules
G	Office supplies: PCs, printers and consumables including laboratory consumables (e.g. software, scanners, GPS, data loggers) required to implement the project

Annex C provides a description of the minimum requirements and nature of work for the experts to be hired nationally/regionally and internationally as they are described in Budget Notes A and B.

Annex D provides the terms of reference for the Project Manager (international consultant), the Project Assistant (local consultant) and the Project Monitoring and Evaluation expert as they appear in the Budget notes A and B as pro rata allocation.

10 LEGAL CONTEXT

This project forms part of an overall programmatic framework under which several separate associated country level activities will be implemented. When assistance and support services are provided from this Project to the associated country level activities, this document shall be the “Project Document” instrument referred to in: (i) the respective signed SBAs for the specific countries; or (ii) in the [Supplemental Provisions to the Project Document](#) attached to the Project Document in cases where the recipient country has not signed an SBA with UNDP, attached hereto and forming an integral part hereof. All references in the SBA to “Executing Agency” shall be deemed to refer to “Implementing Partner.”

This project will be implemented by UNESCO-IHP (“Implementing Partner”) in accordance with its financial regulations, rules, practices and procedures only to the extent that they do not contravene the principles of the Financial Regulations and Rules of UNDP. Where the financial governance of an Implementing Partner does not provide the required guidance to ensure best value for money, fairness, integrity, transparency, and effective international competition, the financial governance of UNDP shall apply.

The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations or UNDP concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

11 RISK MANAGEMENT

UNESCO-IHP as the Implementing Partner will comply with the policies, procedures and practices of the United Nations Security Management System (UNSMS.)

In the implementation of the activities under this Project Document, UNESCO-IHP as the Implementing Partner will handle any sexual exploitation and abuse (“SEA”) and sexual harassment (“SH”) allegations in accordance with its regulations, rules, policies and procedures. Notwithstanding the foregoing, the UNESCO-IHP, as the Implementing Partner, will notify UNDP of any such allegations and investigations it may conduct further to such allegations.

UNESCO-IHP as the Implementing Partner will ensure that the following obligations are binding on each responsible party, subcontractor and sub-recipient that is not a UN entity:

- a. Consistent with the Article III of the SBA *[or the Supplemental Provisions to the Project Document]*, the responsibility for the safety and security of each responsible party, subcontractor and sub-recipient and its personnel and property, and of UNESCO-IHP’s property in such responsible party’s, subcontractor’s and sub-recipient’s custody, rests with such responsible party, subcontractor and sub-recipient. To this end, each responsible party, subcontractor and sub-recipient shall:
 - i. put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
 - ii. assume all risks and liabilities related to such responsible party’s, subcontractor’s and sub-recipient’s security, and the full implementation of the security plan.

- b. UNESCO-IHP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the responsible party's, subcontractor's and sub-recipient's obligations under this Project Document.
- c. In the performance of the activities under this Project, UNESCO-IHP as the Implementing Partner shall ensure, with respect to the activities of any of its responsible parties, sub-recipients and other entities engaged under the Project, either as contractors or subcontractors, their personnel and any individuals performing services for them, that those entities have in place adequate and proper procedures, processes and policies to prevent and/or handle SEA and SH.

UNESCO-IHP agrees to undertake all reasonable efforts to ensure that none of the [project funds]²⁰ [UNDP funds received pursuant to the Project Document]²¹ are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml.

Social and environmental sustainability will be enhanced through application of the UNDP Social and Environmental Standards (<http://www.undp.org/ses>) and related Accountability Mechanism (<http://www.undp.org/secu-srm>).

The Implementing Partner shall: (a) conduct project and programme-related activities in a manner consistent with the UNDP Social and Environmental Standards, (b) implement any management or mitigation plan prepared for the project or programme to comply with such standards, and (c) engage in a constructive and timely manner to address any concerns and complaints raised through the Accountability Mechanism. UNDP will seek to ensure that communities and other project stakeholders are informed of and have access to the Accountability Mechanism.

All signatories to the Project Document shall cooperate in good faith with any exercise to evaluate any programme or project-related commitments or compliance with the UNDP Social and Environmental Standards. This includes providing access to project sites, relevant personnel, information, and documentation.

The Implementing Partner will take appropriate steps to prevent misuse of funds, fraud or corruption, by its officials, consultants, responsible parties, subcontractors and sub-recipients in implementing the project or programme or using the UNDP funds. The Implementing Partner will ensure that its financial management, anti-corruption and anti-fraud policies are in place and enforced for all funding received from or through UNDP.

The Implementing Partner and UNDP will promptly inform one another in case of any incidence of inappropriate use of funds, or credible allegation of fraud or corruption with due confidentiality.

Where the Implementing Partner becomes aware that a UNDP project or activity, in whole or in part, is the focus of investigation for alleged fraud/corruption, the Implementing Partner will inform the UNDP Resident Representative/Head of Office, who will promptly inform UNDP's Office of Audit and Investigations (OAI). The Implementing Partner shall provide regular updates to the head of UNDP in the country and OAI of the status of, and actions relating to, such investigation.

²⁰ To be used where UNDP is the Implementing Partner

²¹ To be used where the UN, a UN fund/programme or a specialized agency is the Implementing Partner

UNDP shall be entitled to a refund from the Implementing Partner of any funds provided that have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of this Project Document. Such amount may be deducted by UNDP from any payment due to the Implementing Partner under this or any other agreement. Recovery of such amount by UNDP shall not diminish or curtail the Implementing Partner's obligations under this Project Document.

Where such funds have not been refunded to UNDP, the Implementing Partner agrees that donors to UNDP (including the Government) whose funding is the source, in whole or in part, of the funds for the activities under this Project Document, may seek recourse to the Implementing Partner for the recovery of any funds determined by UNDP to have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document.

Note: The term "Project Document" as used in this clause shall be deemed to include any relevant subsidiary agreement further to the Project Document, including those with responsible parties, subcontractors and sub-recipients.

Each contract issued by the Implementing Partner in connection with this Project Document shall include a provision representing that no fees, gratuities, rebates, gifts, commissions or other payments, other than those shown in the proposal, have been given, received, or promised in connection with the selection process or in contract execution, and that the recipient of funds from the Implementing Partner shall cooperate with any and all investigations and post-payment audits.

Should UNDP refer to the relevant national authorities for appropriate legal action any alleged wrongdoing relating to the project, the Government will ensure that the relevant national authorities shall actively investigate the same and take appropriate legal action against all individuals found to have participated in the wrongdoing, recover and return any recovered funds to UNDP.

The Implementing Partner shall ensure that all of its obligations set forth under this section entitled "Risk Management Standard Clauses" are passed on to each responsible party, subcontractor and sub-recipient and that all the clauses under this section entitled "Risk Management" are included, *mutatis mutandis*, in all sub-contracts or sub-agreements entered into further to this Project Document.

12 MANDATORY ANNEXES

ANNEX A. Multi – year workplan

Output	Indicator	Responsible Party	Year 1				Year 2				Year 3				Year 4				Year 5			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
COMPONENT 1. FACILITATING MULTI-COUNTRY COOPERATION																						
OUTCOME 1: INSTITUTIONALIZATION OF PERIODIC MULTI-COUNTRY EXPERT CONSULTATIONS AND INFORMATION EXCHANGES, AND CREATION AND STRENGTHENING OF BILATERAL/MULTILATERAL CONFLICT RESOLUTION MECHANISMS PROVIDE THE TRANSBOUNDARY COOPERATION FRAMEWORK CRUCIAL FOR THE SUSTAINABLE UTILIZATION OF SHARED KARST WATERS, AND FOR THE PROTECTION OF THE DINARIC KARST ECOSYSTEMS. (SAP ACTION 3)																						
Output 1.1. Joint multi- disciplinary thematic expert groups established by project countries and the support of Project agencies.																						
Output 1.2. Draft multilateral agreement on the establishment of Consultation and Information Exchange Body (CIE) and its Secretariat prepared for Governments’ approval.																						
Output 1.3. Bilateral Agreements and Bodies. Options for the strengthening of existing Bilateral Agreements or establishment of new ones prepared for decision by governments.																						
Output 1.4. Stakeholder involvement plan, formulated and implemented, including special focus on gender issues and women empowerment.																						

Output	Indicator	Responsible Party	Year 1				Year 2				Year 3				Year 4				Year 5			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
COMPONENT 2. INSTITUTIONAL STRENGTHENING FOR IMPROVED GROUNDWATER GOVERNANCE (SAP ACTIONS 2 AND 3)																						
OUTCOME 2: ADOPTION OF SOUND GROUNDWATER GOVERNANCE PRINCIPLES AND FRAMEWORKS, INCLUDING EMPHASIS ON SANITARY PROTECTION ZONES, HARMONIZED ACROSS THE DINARIC KARST AQUIFER SYSTEM, FACILITATED THROUGH THE APPLICATION OF THE METHODOLOGY DEVELOPED BY THE GROUNDWATER GOVERNANCE GEF PROJECT.																						
Output 2.1. Groundwater governance diagnostic analysis in all project countries, including a stocktaking of the governance situation — actors, legal framework, policies and plans, adherence to the EU WFD and GWD, available knowledge, enforcement capacity — and assessment of gaps and opportunities.																						
Output 2.2. National policy, legal and institutional developments defined and harmonized across countries on laws and regulations regarding groundwater with focus on sanitary protection zones. Proposed policies and developments will be submitted to Governments for adoption.																						
Output 2.3. Training courses among others on: hydro diplomacy; international water law, legal instruments and soft laws; groundwater governance (based on the guidelines produced by the GEF/FAO Groundwater Governance project); gender analysis and sex disaggregated data collection; land use policy and practice in karst terrains; enforcement of sanitary protection zones around springs and other karst features and ecosystems; Maintaing seasonal variations of karst waters and ensuring stable water supply.Study tour for water administrators and decision makers will be organized.																						

Output	Indicator	Responsible Party	Year 1				Year 2				Year 3				Year 4				Year 5			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
COMPONENT 3. MONITORING KARST WATERS AND DEPENDENT ECOSYSTEMS (SAP ACTION 1)																						
OUTCOME 3: MODERN MULTI-PURPOSE MONITORING OF KARST GROUNDWATER ENABLES RESPONSIBLE ENTITIES AT THE LOCAL AND AT THE REGIONAL LEVEL TO EFFECTIVELY MANAGE THE SHARED KARSTIC WATERS AND DEPENDENT ECOSYSTEMS.																						
Output 3.1. Design of DIKTAS-wide groundwater multi-purpose Monitoring network, including: purpose, variables, network design and optimazation, data management, institutional arrangements, harmonized across the countries.																						
Output 3.2. Monitoring network design tested on the ground and two full-scale demonstration monitoring networks, and related infrastructure, implemented in two selected areas of transboundary and environmental concern.																						
OUTCOME 4. AGREEMENT ON REAL-TIME HARMONIZED DATA SHARING ENABLES EFFECTIVE TRANSBOUNDARY COOPERATION.																						
Output 4.1. Joint data sharing mechanism: joint design and implementation of a real-time data sharing mechanism and harmonization of different national classification standards of water quality, following EU guidelines.																						
COMPONENT 4. FOCUS ON AREAS OF TRANSBOUNDARY INFLUENCE AND OF SPECIAL CONCERN																						
OUTCOME 5. DEFINITION OF NATIONAL AND/OR BINATIONAL ACTION PROGRAMMES, AND OF DIKTAS WIDE GUIDLEINES FOR RESERVING DEGRADATION TRENDS IN HIGHLY VULNERABLE AREAS ACCELERATES REMEDIAL ACTIONS (SAP ACTIONS 1,2 AND 3)																						
Output 5.1. Joint Action Programmes for all 6 areas of transboundary influence identified in the TDA.																						
Output 5.2. The DIKTAS Rulebook and guidelines on DIKTAS proposal for delineation of sanitary protection zones and measures for solid and liquid waste disposal.																						

Output	Indicator	Responsible Party	Year 1				Year 2				Year 3				Year 4				Year 5			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
COMPONENT 5. AWARENESS RAISING AND GENDER MAINSTREAMING (SAP ACTION 3)																						
OUTCOME 6. INCREASED AWARENESS AMONG STAKEHOLDERS, DISSEMINATION OF PROJECT’S ACHIEVEMENTS AND LESSONS LEARNED, AND STRENGTHENED GENDER EQUALITY AND WOMEN EMPOWERMENT FACILITATE ADOPTION OF GOOD PRACTICES AND POLICIES. (SAP ACTION 3)																						
Output 6.1. Awareness raising events, dissemination products and education.																						
Output 6.2. Gender analysis conducted in project countries water sector.																						
Output 6.3. IW LEARN activities																						
Project Management																						
Inception Meeting																						
Stakeholder Validation Meeting																						
Terminal Evaluation																						
Final Meeting																						

ANNEX B. GEF Core Indicators Template - provided separately

ANNEX C. Terms of Reference (National consultancies / subcontracts – Overview)

Component 1

International consultants:

Prepare draft stakeholder involvement plan and take part to the thematic groups 1, 2 and 3.

- Post-graduate specialization (PhD preferable) in Sociology with a focus on environmental issues / stakeholder mapping
- At least 7 years of experience in international development projects
- Excellent knowledge of stakeholders involved in water management
- Excellent understanding of the relevant social and political context
- Fully fluent in English

National / regional consultants: DRAFT MINIMUM

Hydrogeologist

Draft the annual Work Plan and budget for activities that fall under his/her responsibility and contribute to the preparation of the project's Annual Work Plan – In close coordination with the Implementing partner and the PMU.

Support reporting of project progress as needed; Support Monitoring & Evaluation reporting requirements

- Post-graduate specialization (PhD preferable) in Hydrogeology / engineering applied to hydrogeology/ good knowledge of the Karst Aquifer System
- At least 5 years of experience in the application of hydrogeology to international development projects
- Excellent knowledge of the hydrogeological conditions and context of the DIKTAS
- Excellent knowledge of the relevant social and political context
- Fully fluent in English; good knowledge of one of the local Languages is a plus

Biologist

Draft the annual Work Plan and budget for activities that fall under his/her responsibility and contribute to the preparation of the project's Annual Work Plan – In close coordination with the Implementing partner and the PMU.

Support reporting of project progress as needed; Support Monitoring & Evaluation reporting requirements

- Post-graduate specialization (PhD preferable) in Biology / Environmental sciences applied to/ good knowledge of the Karst Aquifer System biology
- Excellent knowledge of the biodiversity in the region covered by the project
- Excellent knowledge of the relevant social and political context
- Fully fluent in English; good knowledge of one of the local Languages is a plus

Lawyer

Draft the annual Work Plan and budget for activities that fall under his/her responsibility and contribute to the preparation of the project's Annual Work Plan – In close coordination with the Implementing partner and the PMU.

Support reporting of project progress as needed; Support Monitoring & Evaluation reporting requirements

- Law degree; a post-graduate specialization in Law applied to water/ environment is preferable
- At least 5 years of experience in the application of law to international development projects
- Excellent knowledge of environmental law situation in the context of the DIKTAS countries
- Excellent knowledge of the relevant social and political context
- Fully fluent in English; good knowledge of one of the local Languages is a plus

Sociologist

Draft the annual Work Plan and budget for activities that fall under his/her responsibility and contribute to the preparation of the project's Annual Work Plan – In close coordination with the Implementing partner and the PMU.

Support reporting of project progress as needed; Support Monitoring & Evaluation reporting requirements

- Post-graduate specialization (PhD preferable) in Sociology with a focus on environmental issues / stakeholder mapping
- At least 2 years of experience in international development projects
- Excellent knowledge of stakeholders involved in water management in the context of the DIKTAS countries
- Excellent knowledge of the relevant social and political context
- Fully fluent in English; good knowledge of one of the local Languages is a plus

Media expert

Draft the annual Work Plan and budget for activities that fall under his/her responsibility and contribute to the preparation of the project's Annual Work Plan – In close coordination with the Implementing partner and the PMU.

Support reporting of project progress as needed; Support Monitoring & Evaluation reporting requirements

- Specialization in communications / journalism with a focus on environmental issues / local stakeholder involvement
- At least 2 years of experience in international development projects
- Excellent knowledge of stakeholders involved in water management in the context of the DIKTAS countries
- Excellent knowledge of the relevant social and political context
- Fully fluent in English; good knowledge of one of the local Languages is a plus

Components 1&2**International experts in Law / Governance**

1. Component 1: Prepare draft multilateral and bilateral agreements

2. Component 2: Conduct an analysis of the current situation and prepare a groundwater governance diagnostic for the TBAs (expert #1) and support development of regulations regarding protection zones (expert #2) and teach during the training courses (both experts)

Qualifications:

Both Experts:

- Degree in International law
- Fully fluent in English

Expert #1

- At least 10 years of experience in:
 - the harmonization of national laws to international standard instruments
 - comparative and international water law
 - reviewing, analysing, and drafting principal and subsidiary water resources legislation,
 - Training in water law,
 - Advising on legal and institutional arrangements for transboundary freshwaters

Expert #2

- At least 10 years of experience in:
 - national and international law related to water management
 - the institutional aspect of water management (domestic and transboundary)
 - groundwater governance

National experts in Law (expert #1) / Governance (expert #2)

Collect data and information (related legal and institutional documentation) to support the analysis of the current situation in view of the preparation of the groundwater governance diagnosis for the TBAs (expert #1) and support development of regulations regarding protection zones (expert #2) and contribute to capacity-building activities, including the potential study tours (both experts)

Qualifications:

Both Experts:

- Degree in International law
- Fully fluent in English

Expert #1

- At least 5 years of experience in:
 - Knowledge of water related international instruments
 - reviewing, analysing, and drafting principal and subsidiary water resources legislation,
 - Training in water law
 - Advising on legal and institutional arrangements for transboundary freshwaters

Expert #2

- At least 5 years of experience in:
 - national and international law related to water management

- the institutional aspect of water management (domestic)
- groundwater governance

Components 3 & 4

International experts in hydrogeology / Water Management Plans

1. Prepare an aquifer hydrological conceptual model and after consulting with the interested Governments to understand their needs (purpose of monitoring) propose a groundwater monitoring plan and locations for drilling new monitoring wells.
2. Prepare aquifer vulnerability models and maps to be used in developing the conceptual model of the aquifer
3. Develop data sharing protocols after consulting with the beneficiary countries in an agreed purpose of the monitoring and the data/info required to be shared.
4. Prepare methodology and concept for the Water Master Plans

Qualifications:

- Post-graduate degree (PhD preferable) in Hydrogeology / engineering applied to hydrogeology/ good knowledge of the Karst Aquifer System
- At least 10 years (for the senior) or 5 years (for the mid-level) of experience in the application of hydrogeology to international development projects
- Excellent knowledge of the hydrogeological conditions and context of Karst aquifer systems
- Fully fluent in English;

National experts in hydrogeology / Water Management Plans

Component 3: collect baseline data and information related to the work on groundwater monitoring networks; provide inputs and coordinate locally the work on the establishment of the monitoring networks for the demonstration sites

Component 4: prepare methodology and concept for the Water Master Plans of six TBAs (

Qualifications:

- Degree in Hydrogeology / engineering applied to hydrogeology/ good knowledge of the Karst Aquifer System
- At least 5 years of experience in the application of hydrogeology to international development projects
- Excellent knowledge of the hydrogeological conditions and context of Karst aquifer systems
- Fully fluent in English;

Component 5

Gender

International experts

Perform an evaluation of the current situation and conduct an analysis in view of mainstreaming gender throughout the activities of the project. Coordinate the activities of the national experts and conduct capacity building activities as required.

Qualifications:

- Post-graduate degree in sociology / gender mainstreaming / anthropology / international development
- At least 5 years of experience in the implementation of water related international development projects
- Experience in capacity building activities
- Fully fluent in English;

National experts

Collect baseline data and information related to perform the required gender analysis; provide inputs to the analysis; support training activities

Qualifications:

- Degree in sociology / gender mainstreaming / anthropology / international development
- At least 2 years of experience in the implementation of water related international development projects
- Experience in capacity building activities
- Fully fluent in English;

Communication and information**International experts**

1. Design and implement a communications strategy for the project
2. Design, in cooperation with the relevant UNESCO and UNDP-GEF services, the visual identity for the activities implemented by the project;
3. Coordinate the development and maintenance of communication tools, including a periodic bulletin/newsletter, websites and social media (Twitter and Facebook);
4. Provide advice on communications and advocacy aspects;

Qualifications:

- Degree in communications, social science, economics, or related area. MA an asset.
- Minimum 5 years of professional experience in science-related communication, with at least 1 year at the international level.
- Experience of dealing with media;
- Experience in conceptualizing and managing the production of printed materials with appropriate cultural sensitivity;
- Experience with managing websites, preferably in the Drupal environment;
- Experience in supporting the implementation of communication and/or media outreach plans
- Experience in developing content that clearly communicates, to a culturally diverse audience, development ideas and experiences for media, web, print production, and audio-visual productions.
- Fully fluent in English;

National experts

1. Development and maintenance of communication tools, including a periodic bulletin/newsletter, websites and social media (Twitter and Facebook) at national level;
2. Provide advice on communications and advocacy aspects;

Qualifications:

- Degree in communications, social science, economics, or related area. MA an asset.
- Minimum 2 years of professional experience, preferably in science-related communication.
- Experience of dealing with media;
- Experience in conceptualizing and managing the production of printed materials;
- Experience in supporting the implementation of communication and/or media outreach plans
- Experience in developing content that clearly communicates, to a culturally diverse audience, development ideas and experiences for media, web, print production, and audio-visual productions.
- Fluent in English;

ANNEX D. Terms of Reference (Project Board, Project Manager and other positions as appropriate)

Implementing Partner:

The **Implementing Partner** for this project is **UNESCO-IHP**. The Implementing Partner is responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, providing technical assistance on groundwater resources management and governance, national and institutional developments, enhancing the Joint Authority's efficiency and communication, develop training schemes and pilot studies coordination. UNESCO-IHP will supervise activities with the aim of achieving project outcomes and for the effective use of UNDP resources. UNESCO will have the responsibility to secure the establishment and supervision of the Project Management Unit (PMU). The national focal agencies will closely coordinate with UNESCO-IHP acting as co-executing partners. The UNESCO Water Family entities based in the region will contribute actively to the project.

Project Steering Committee:

The **Project Steering Committee (PSC)** will serve as the **Project's Board**. It will meet according to necessity, at least once each year, to review project progress, approve project work plans and approve major project deliverables. The PSC is responsible for providing strategic guidance and oversight to project implementation in order to ensure that it meets the requirements of the approved Project Document and achieves the stated outcomes. The PSC's role will (inter alia):

- Provide strategic guidance to project implementation;
- Ensure coordination between the project and other ongoing projects and activities related to the GEF International Waters Focal Area;
- Ensure coordination among all relevant parties;
- Approve annual project Work Plans and budgets ;
- Approve any major changes in project plans or programmes, and oversee the implementation of corrective actions;
- Oversee monitoring, evaluation and reporting in line with GEF requirements;
- Ensure that UNDP Social and Environmental Safeguards Policy is applied throughout project implementation;

Requirements to serve on the Project Board:

- ✓ Agree to the Terms of Reference of the Board and the rules on protocols, quorum and minuting.
- ✓ Meet annually; at least once.
- ✓ Disclose any conflict of interest in performing the functions of a Project Board member and take all measures to avoid any real or perceived conflicts of interest. This disclosure must be documented and kept on record by UNDP.
- ✓ Discharge the functions of the Project Board in accordance with UNDP policies and procedures.
- ✓ Ensure highest levels of transparency and ensure Project Board meeting minutes are recorded and shared with project stakeholders.

Responsibilities of the Project Board:

- ✓ Consensus decision making:

- The project board provides overall overall guidance and direction to the project, ensuring it remains within any specified constraints, and providing overall oversight of the project implementation.
- Review project performance based on monitoring, evaluation and reporting, including progress reports, risk logs and the combined delivery report;
- The project board is responsible for making management decisions by consensus.
- In order to ensure UNDP's ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition.
- In case consensus cannot be reached within the Board, the UNDP representative on the board will mediate to find consensus and, if this cannot be found, will take the final decision to ensure project implementation is not unduly delayed.
- ✓ **Oversee project execution:**
 - Agree on project manager's tolerances as required, within the parameters outlined in the project document, and provide direction and advice for exceptional situations when the project manager's tolerances are exceeded.
 - Appraise annual work plans prepared by the Implementing Partner for the Project; review combined delivery reports prior to certification by the implementing partner.
 - Address any high-level project issues as raised by the project manager and project assurance;
 - Advise on major and minor amendments to the project within the parameters set by UNDP and the donor and refer such proposed major and minor amendments to the UNDP BPPS Nature, Climate and Energy Executive Coordinator (and the GEF, as required by GEF policies);
 - Provide high-level direction and recommendations to the project management unit to ensure that the agreed deliverables are produced satisfactorily and according to plans.
 - Track and monitor co-financed activities and realisation of co-financing amounts of this project.
 - Approve the Inception Report, GEF annual project implementation reports, mid-term review and terminal evaluation reports.
 - Ensure commitment of human resources to support project implementation, arbitrating any issues within the project.
- ✓ **Risk Management:**
 - Provide guidance on evolving or materialized project risks and agree on possible mitigation and management actions to address specific risks.
 - Review and update the project risk register and associated management plans based on the information prepared by the Implementing Partner. This includes risks related that can be directly managed by this project, as well as contextual risks that may affect project delivery or continued UNDP compliance and reputation but are outside of the control of the project. For example, social and environmental risks associated with co-financed activities or activities taking place in the project's area of influence that have implications for the project.
 - Address project-level grievances.
- ✓ **Coordination:**
 - Ensure coordination between various donor and government-funded projects and programmes.
 - Ensure coordination with various government agencies and their participation in project activities.

Project Manager:

Draft Terms of Reference: Project Manager, Chief Technical Advisor:

Background

The Project Manager/Chief Technical Advisor (PM/CTA), will be recruited following UNESCO procedure. The position will be appointed by the project executing agency and funded entirely from the Project. The PM/CTA will act under the supervision of the Executing Agency and will be responsible for the overall management of the Project, including the mobilisation of all project inputs, and coordination over project consultants and sub-contractors. The PM/CTA will provide substantive technical support and advise to all project partners, national and regional teams, consultants and contractors, prepare and review technical reports and publications. The PM/CTA will work in close coordination with UNESCO and report on a periodic basis to the PSC. The PM/CTA will also perform a liaison role with the relevant governments, UNECE, UNDP and other UN agencies, CSOs and project partners, and maintain close collaboration with other donor agencies providing co-financing.

Duties and Responsibilities (inter alia):

1. Project management (30% of time, charged to PMC budget):
 - Secure coordination with the Executing Agency about the Project activities implementation
 - Contribute to the preparation of the plan of the activities of the project and monitor progress against the approved work-plan.
 - Supervise and coordinate the production of project outputs, as per the project document in a timely and high quality fashion.
 - Supervise and coordinate the work of all project staff, consultants and sub-contractors ensuring timing and quality of outputs.
 - Prepare, revise and submit project work and financial plans, as required by Project Board and UNDP.
 - Monitor financial resources and accounting to ensure accuracy and reliability of financial reports, submitted on a quarterly basis in close coordination with the UNESCO administrative staff.
 - Manage and monitor the project risks initially identified and submit new risks to the project board for consideration and decision on possible actions if required; update the status of these risks by maintaining the project risks log.
 - Report progress of project to the steering committees, and ensure the fulfilment of PSC directives.
 - Encourage staff, partners and consultants such that strategic, intentional and demonstrable efforts are made to actively include women in the project, including activity design and planning, budgeting, staff and consultant hiring, subcontracting, purchasing, formal community governance and advocacy, outreach to social organizations, training, participation in meetings; and access to program benefits.
2. Technical Advice (70% of time, Comp 1, 5%; Comp 2, 10% Comp 3, 30%; Comp 4, 25%):
 - Provision of top-quality technical advice services, including facilitation of capacity and knowledge building, where the technical responsibilities include oversight of and ensuring linkages between all project components
 - Ensure consistency between the various project elements and related activities provided or funded by the non-beneficiary countries participating to the project and other donors;

- Coordinate with the Executing Agency about and provide support for the recruitment and selection of project personnel, consultants and sub-contracts, including drafting terms of reference and work specifications and overseeing all contractors' work.
- Provide technical oversight to subcontractors and training activities supported by the Project.
- Provide technical support and ensure timely submission of the Inception Report, Project Implementation Report, Technical reports, quarterly financial reports, and other reports as may be required by UNESCO, UNDP and GEF.
- Coordinate and oversee preparation of the substantive and operational reports.
- Facilitate the exchange and sharing of experiences and lessons learned with relevant community based integrated conservation and development projects nationally and internationally.

Required skills and expertise

- Post-graduate specialization (PhD preferable) in Hydrogeology / engineering applied to hydrogeology/ good knowledge of the Karst Aquifer System
- At least 5 years of experience in the application of hydrogeology to international development projects
- Experience in management of multinational interdisciplinary projects focused on integrated national and transboundary water resource management strategies.

Competencies

- Strong leadership, managerial and coordination skills, with a demonstrated ability to effectively coordinate the implementation of large multi-stakeholder projects, including financial and technical aspects.
- Ability to effectively manage technical and administrative teams, work with a wide range of stakeholders across various sectors and at all levels, to develop durable partnerships with collaborating agencies.
- Ability to administer budgets, train and work effectively with counterpart staff at all levels and with all groups involved in the project.
- Ability to coordinate and supervise multiple Project Implementation Units in their implementation of technical activities in partnership with a variety of subnational stakeholder groups, including community and government.
- Strong drafting, presentation and reporting skills.
- Demonstrated familiarity with or, ideally, work experience in GEF International Waters and specifically in the Balkan region;
- Demonstrated familiarity with transboundary waters issues and national priorities in the Balkan region;
- Demonstrated familiarity with priority issues in the Dinaric Karst system in the region, including water sector, environmental sector, national and regional institutional structures and future development plans;
- Demonstrated familiarity with modern integrated approaches to groundwater and related ecosystems, including application of EU WFD and its groundwater daughter directive to national priorities, as appropriate, familiarity with institutional, economic, technical, and social mechanisms for improving water resources management; capacity building and curriculum development approaches for multiple levels of stakeholders; mechanisms for incentive-based pollution abatement and enforcement; social marketing and stakeholder education approaches for specific stakeholder groups across sectors and countries, including gender mainstreaming; and

environmental monitoring approaches and information management for IWRM, based on proven experience in all of these areas;

- Excellent command of English and good knowledge of a local language are essential.

Description of PM/CTA technical support activities			
Position	Estimated Person/months	Provision of technical inputs	Related output
P3 Groundwater Specialist	4	In the establishment of joint multi- disciplinary thematic expert groups on 1. GW Resources and Eco-Systems Management; 2. Governance and Legislation; 3. Capacity Building, Dissemination and Public Participation And in supporting them technically throughout the project	1.1
	6	On drafting multilateral agreement on the establishment of Consultation and Information Exchange Body (CIE) and its Secretariat	1.2
	4	Stakeholder involvement plan, formulated and implemented, including special focus on gender issues and women empowerment	1.4
	2	On groundwater governance diagnostic analysis in all project countries	2.1
	5	Training courses on: groundwater governance; land use policy and practice in karst terrains; enforcement of sanitary protection zones around springs and other karst features and ecosystems; Maintaining seasonal variations of karst waters and ensuring stable water supply.	2.3
	3	The design and testing of DIKTAS-wide groundwater multi-purpose Monitoring network.	3.1 & 3.2
	4	The design and implementation of a real-time data sharing mechanism and harmonization of different national classification standards of water quality, following EU guidelines	4.1
	3	On the implementation of Joint Action Programmes for all 6 areas of transboundary influence identified in the TDA	5.1
	4	On the drafting of a Rulebook and guidelines for delineation of sanitary protection zones and measures for solid and liquid waste disposal.	5.2

Project Assistant:

The PA will:

1. Assist the programme management unit in the coordination and implementation of different components of the aforementioned extrabudgetary projects.
2. Provide support for the organization of meetings, missions, international/regional/national conferences, workshops and other events.
3. Provide budget monitoring support.

4. Prepare all the background documents for contracts and their follow-up including payment requests.
5. Prepare correspondence for administrative processes.
6. Provide any other support that may be required by the Project Manager and other members of the PMU, including travel and mission arrangements.

Qualification

- Completed secondary, technical and/or vocational school.
- A minimum of 3 (three) years of work experience in administrative, secretarial support or related field.
- Excellent interpersonal and communication skills, including ability to draft correspondence and correct documents.
- Excellent organizational and coordination skills.
- Ability to work as part of a team, to take initiatives and to provide quality and timely support and services.
- Excellent ICT skills with proficiency in the use of MS Office (Outlook, Word, Excel, PowerPoint, etc.).
- Excellent knowledge (spoken and written) of English.

Project Monitoring and Evaluation Officer

Under the overall supervision and guidance of the Project Manager, the M&E Officer will have the responsibility for project monitoring and evaluation. The M&E Officer will work closely on knowledge management aspects of the project. Specific responsibilities will include:

- Monitor project progress and participate in the production of progress reports ensuring that they meet the necessary reporting requirements and standards.
- Ensure project's M&E meets the requirements of the Government, the UNDP Country Office, and UNDP-GEF; develop project-specific M&E tools as necessary.
- Oversee and ensure the implementation of the project's M&E plan, including periodic appraisal of the Project's Theory of Change and Results Framework with reference to actual and potential project progress and results.
- Oversee/develop/coordinate the implementation of the stakeholder engagement plan.
- Oversee and guide the design of surveys/ assessments commissioned for monitoring and evaluating project results.
- Facilitate mid-term and terminal evaluations of the project; including management responses.
- Facilitate annual reviews of the project and produce analytical reports from these annual reviews, including learning and other knowledge management products.
- Support project site M&E and learning missions.
- Visit project sites as and when required to appraise project progress on the ground and validate written progress reports.

The Terms of References of other required **Positions**, such as but not limited to **Project Accountant**, will be agreed upon, after the initiation of the Project.

ANNEX E. UNDP Social and Environmental and Social Screening Template (SESP)

SOCIAL AND ENVIRONMENTAL SCREENING TEMPLATE (2021 SESP TEMPLATE, VERSION 1)

The completed template, which constitutes the Social and Environmental Screening Report, must be included as an annex to the Project Document at the design stage. Note: this template will be converted into an online tool. The online version will guide users through the process and will embed relevant guidance.

Project Information

Project Information	
1. Project Title	Implementation of the SAP of the Dinaric Karst Aquifer System: improving groundwater governance and sustainability of related ecosystems.
2. Project Number (i.e. Atlas project ID, PIMS+)	Project ID: 00119184 / Output ID: 00115716 / PIMS 5776 (GEF ID: 9919)
3. Location (Global/Region/Country)	Albania, Montenegro, Bosnia – Herzegovina, Croatia ²²
4. Project stage (Design or Implementation)	Design
5. Date	September 2022

Part A. Integrating Programming Principles to Strengthen Social and Environmental Sustainability

QUESTION 1: How Does the Project Integrate the Programming Principles in Order to Strengthen Social and Environmental Sustainability?

Briefly describe in the space below how the project mainstreams the human rights-based approach

The project is setting the basis of sound groundwater governance in the Dinaric Karst region. It catalyzes effective multi-country cooperation for the sustainable management of the Dinaric Karst Aquifer System and its ecological resources by strengthening national and regional groundwater governance frameworks and institutional capacity. “Build awareness, disseminate good practices, and promote gender equality in water resources management” is one of the key elements of the project, which supports women’s rights. A safe, clean, healthy and sustainable environment is integral to the full enjoyment of a wide range of human rights, including the rights to life, health, food, water and sanitation. As such the project mainstreams the human rights approach. No potential adverse impacts on the enjoyment of human rights were identified.

Briefly describe in the space below how the project is likely to improve gender equality and women’s empowerment

Gender mainstreaming has been the primary methodology for integrating a gender approach into environment and development efforts. The project will adopt a two-pronged approach:

²² Republic of Croatia as a full member state of the European Union is no longer GEF beneficiary country and UNDP programme country, but in DIKTAS II project will actively continue to participate as a partner country (Donor Government).

1) Mainstreaming gender in project execution - Balanced gender participation in project execution activities will be ensured, including in working groups, the project management unit, text drafting teams etc. Gender consideration will be mainstreamed in all documents produced by the project, and particular attention will be paid to gender in monitoring and reporting activities. The project will work to ensure a balanced participation among men and women in the overall stakeholder involvement strategy and in consultation workshops, and will support both women's and men's contributions individually, rather than assuming that both groups will benefit equally from gender-neutral development interventions.

2) Integration of the gender perspective into water policies - The development and harmonization of supportive policy and legislative frameworks and institutional capacity building aimed at ensuring that the gender perspective is successfully incorporated into national and international water governance, policy, and activities, will be a major objective of the project. This will be promoted by conducting Gender Analysis of the water sector in project countries, including:

- Identifying gaps in equality and developing strategies and policies to close those gaps; considering gender issues in the mapping and analysis of water resource use;
- Promoting women's participation in awareness raising training activities;
- Supporting for educational activities, on topics such as the environment, energy, and decision-making in general;
- Involving women's organizations: while the responsibility for implementing a gender approach does not rest solely with women's organizations, they are natural vehicles for promoting gender equality at the local as well as the national level.

The Gender Mainstreaming Strategy for the project including the above activities will be drafted and submitted for adoption at the first Steering Committee Meeting.

The project is currently rated with GEN1 (as per the GEF Policy for Gender Equality applicable for GEF-6 programming cycle), however necessary steps will be taken during the project implementation (inception phase) to improve gender mainstreaming considerations. This will include compliance with 4 key criteria: conducted a gender analysis, developed gender actions, included gender indicators and specified budget allocations for gender actions), which will allow to increase the gender marker to GEN2.

Briefly describe in the space below how the project mainstreams sustainability and resilience

The project will further strengthen the institutional and legal frameworks for transboundary cooperation achieving joint sustainable and equitable use and protection of Dinaric karst aquifer system and sustaining environmental quality throughout the extended Dinaric Karst Region. Through the project the countries will adopt sound national groundwater governance principles and will establish new national policies, harmonized across the region, on sanitary setbacks and zoning and of other measures for the protection of karst waters and ecosystem. Moreover, through outcome 3 the project will lead the multi-country agreement on regionally harmonized, modern, multi-purpose national monitoring networks of karst waters.

Briefly describe in the space below how the project strengthens accountability to stakeholders

Awareness raising and knowledge management are important aspects of the project, directly incorporated into several of the project outputs. The project component 5 "Awareness raising and gender mainstreaming (SAP ACTION 3)" will result in the Outcome 6: "Increased awareness among stakeholders, dissemination of project's achievements and lessons learned, and strengthened gender equality and women empowerment facilitate adoption of good practices and policies."

A general list of national stakeholders has been prepared, including mostly governmental bodies, which was agreed upon with the countries. At project inception, a more strategic and targeted stakeholders' involvement plan will be presented, which will inform the design of stakeholder participation activities needed for the production of each project output.

A Stakeholders Involvement Plan will be prepared and submitted for adoption at the first Steering Committee Meeting of the project.

Part B. Identifying and Managing Social and Environmental Risks

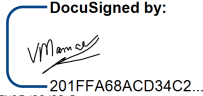


QUESTION 2: What are the Potential Social and Environmental Risks? <i>Note: Complete SESP Attachment 1 before responding to Question 2.</i>		QUESTION 3: What is the level of significance of the potential social and environmental risks? <i>Note: Respond to Questions 4 and 5 below before proceeding to Question 5</i>		QUESTION 6: Describe the assessment and management measures for each risk rated Moderate, Substantial or High
Risk Description (broken down by event, cause, impact)	Impact and Likelihood (1-5)	Significance (Low, Moderate Substantial, High)	Comments (optional)	Description of assessment and management measures for risks rated as Moderate, Substantial or High
Risk 1: Lack of specific expertise of project stakeholders (e.g. in field of IWRM - policies, hydrology, etc.) could mean that project activities are not implemented well or correctly, which could cause direct or indirect harm to people and/or the environment.	I = 3 L = 2	Moderate	Linked to Principle "Human Rights"	<p>A Stakeholder Engagement Plan was developed during the PPG phase, which will in part address gaps in capacity.</p> <p>In addition, during the project's inception phase and before any on-the-ground activities commence, an appropriately-detailed (likely simplified) Environmental and Social Management Framework (ESMF) will be developed to outline the necessary screening, assessment(s) and management plan(s) that will be required during the project's implementation for SES compliance. This will include site-level screening and exclusionary criteria to fully avoid Substantial and High environmental and social risks during implementation (though none are foreseen at this stage).</p>
Risk 2: Gender inequality - not balanced participation in project activities and water governance, i.e. the project could reinforce and/or exacerbate existing inequalities.	I = 3 L = 2	Moderate	linked to Principle "Gender equality and Women's empowerment"	<p>The project has been designed to mainstream a gender approach into environment and development efforts. The associated gender risk will be managed by conducting Gender Analysis of the water sector in project countries, including:</p> <ul style="list-style-type: none"> Identifying gaps in equality and developing strategies and policies to close those gaps; considering gender issues in the mapping and analysis of water resource use; Promoting women's participation in awareness raising training activities; Supporting for educational activities, on topics such as the environment, energy, and decision-making in general; Involving women's organizations: while the responsibility for implementing a gender approach does not rest solely with women's organizations, they are natural vehicles for promoting gender equality at the local as well as the national level. <p>The Gender Mainstreaming Strategy for the project including the above activities will be drafted and submitted for adoption at the first Steering Committee Meeting.</p>

Risk 3: Drillings of wells for monitoring equipment installation could damage the environment and/or cultural heritage, including on private lands.	I = 3 L = 3	Moderate	Linked to project Standards 1 and 4. Following the precautionary principle as required under the UNDP SES policy, at this stage (i.e. before the exact locations of the well sites are known) the significance of this risk must be assumed to be moderate.	As noted above, an appropriately-detailed ESMF will be developed to outline the necessary screening, assessment(s) and management plan(s) that will be required during the project's implementation for SES compliance. This will include site-level screening and exclusionary criteria to fully avoid Substantial and High environmental and social risks during implementation (though none are foreseen at this stage).
Risk 4: The project could cause or lead to unintended negative social and/or environmental impacts due to activities that are not yet fully designed (and sites not yet selected), including the potential establishment of protected areas (under Outcome 5).	I = 3 L = 3	Moderate	Linked to Standards 1, 4, 5 and perhaps others. Following the precautionary principle as required under the SES, this risk is presumed to be moderate.	During the project's inception phase, an appropriately-detailed ESMF will be developed to outline the necessary screening, assessment(s) and management plan(s) that will be required during the project's implementation for SES compliance. This will include site-level screening and exclusionary criteria to fully avoid Substantial and High environmental and social risks during implementation (though none are foreseen at this stage). Regarding the establishment of protected areas specifically, the potential need for a Process Framework will be considered during the preparation of the simplified ESMF; if that area of risk cannot be avoided or ruled out, then the need for a Process Framework will be reflected in the ESMF.
	QUESTION 4: What is the overall project risk categorization?			

QUESTION 5: Based on the identified risks and risk categorization, what requirements of the SES are triggered? (check all that apply)				
Question only required for Moderate, Substantial and High Risk projects				
<u>Is assessment required? (check if "yes")</u>	<input type="checkbox"/>			Status? (completed, planned)
<i>if yes, indicate overall type and status</i>		<input type="checkbox"/>	Targeted assessment(s)	To be determined during implementation
		<input type="checkbox"/>	ESIA (Environmental and Social Impact Assessment)	
		<input type="checkbox"/>	SESA (Strategic Environmental and Social Assessment)	
<u>Are management plans required? (check if "yes")</u>	X			
<i>If yes, indicate overall type</i>		<input type="checkbox"/>	Targeted management plans (e.g. Gender Action Plan, Emergency Response Plan, Waste Management Plan, others)	
		<input type="checkbox"/>	ESMP (Environmental and Social Management Plan which may include range of targeted plans)	To be determined during implementation
		X	ESMF (Environmental and Social Management Framework)	Planned (during inception phase)
<u>Based on identified risks, which Principles/Project-level Standards triggered?</u>		Comments (not required)		
<u>Programming principles</u>				
<u>Overarching Principle: Leave No One Behind</u>	<input type="checkbox"/>			
<u>Human Rights</u>	X			
<u>Gender Equality and Women's Empowerment</u>	X			
<u>Accountability</u>	<input type="checkbox"/>			

	Project level standards		
	1. Biodiversity Conservation and Sustainable Natural Resource Management	X	
	2. Climate Change and Disaster Risks	<input type="checkbox"/>	
	3. Community Health, Safety and Security	<input type="checkbox"/>	
	4. Cultural Heritage	X	
	5. Displacement and Resettlement	X	
	6. Indigenous Peoples	<input type="checkbox"/>	
	7. Labour and Working Conditions	<input type="checkbox"/>	
	8. Pollution Prevention and Resource Efficiency	<input type="checkbox"/>	

Final Sign Off

Signature	Date	Description
QA Assessor: Vladimir Mamaev Regional Technical Advisor Water & Ocean Governance Programme 	28-Nov-2022	UNDP staff member responsible for the Project, typically a UNDP Programme Officer. Final signature confirms they have "checked" to ensure that the SESP is adequately conducted.
QA Approver: Abusabeeb Elsadig, RBM and QA Specialist Regional Programme Coordination 	28-Nov-2022	UNDP senior manager, typically the UNDP Deputy Country Director (DCD), Country Director (CD), Deputy Resident Representative (DRR), or Resident Representative (RR). The QA Approver cannot also be the QA Assessor. Final signature confirms they have "cleared" the SESP prior to submittal to the PAC.
PAC Chair Gerd Trogemann, Manager Istanbul Regional Hub 	29-Nov-2022	UNDP chair of the PAC. In some cases, PAC Chair may also be the QA Approver. Final signature confirms that the SESP was considered as part of the project appraisal and considered in recommendations of the PAC.

SESP Attachment 1. Social and Environmental Risk Screening Checklist

Checklist Potential Social and Environmental Risks		
INSTRUCTIONS: The risk screening checklist will assist in answering Questions 2-6 of the Screening Template. Answers to the checklist questions help to (1) identify potential risks, (2) determine the overall risk categorization of the project, and (3) determine required level of assessment and management measures. Refer to the SES toolkit for further guidance on addressing screening questions.		
Overarching Principle: Leave No One Behind		Answer (Yes/No)
Human Rights		
P.1	Have local communities or individuals raised human rights concerns regarding the project (e.g. during the stakeholder engagement process, grievance processes, public statements)?	NO
P.2	Is there a risk that duty-bearers (e.g. government agencies) do not have the capacity to meet their obligations in the project?	YES
P.3	Is there a risk that rights-holders (e.g. project-affected persons) do not have the capacity to claim their rights?	NO
<i>Would the project potentially involve or lead to:</i>		
P.4	adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population and particularly of marginalized groups?	NO
P.5	inequitable or discriminatory impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups, including persons with disabilities? ²³	NO
P.6	restrictions in availability, quality of and/or access to resources or basic services, in particular to marginalized individuals or groups, including persons with disabilities?	NO
P.7	exacerbation of conflicts among and/or the risk of violence to project-affected communities and individuals?	NO
Gender Equality and Women's Empowerment		
P.8	Have women's groups/leaders raised gender equality concerns regarding the project, (e.g. during the stakeholder engagement process, grievance processes, public statements)?	NO
<i>Would the project potentially involve or lead to:</i>		
P.9	adverse impacts on gender equality and/or the situation of women and girls?	NO
P.10	reproducing discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	YES
P.11	limitations on women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services? <i>For example, activities that could lead to natural resources degradation or depletion in communities who depend on these resources for their livelihoods and well being</i>	NO
P.12	exacerbation of risks of gender-based violence? <i>For example, through the influx of workers to a community, changes in community and household power dynamics, increased exposure to unsafe public places and/or transport, etc.</i>	NO
Sustainability and Resilience: Screening questions regarding risks associated with sustainability and resilience are encompassed by the Standard-specific questions below		
Accountability		
<i>Would the project potentially involve or lead to:</i>		
P.13	exclusion of any potentially affected stakeholders, in particular marginalized groups and excluded individuals (including persons with disabilities), from fully participating in decisions that may affect them?	NO
P.14	grievances or objections from potentially affected stakeholders?	NO
P.15	risks of retaliation or reprisals against stakeholders who express concerns or grievances, or who seek to participate in or to obtain information on the project?	NO

²³ Prohibited grounds of discrimination include race, ethnicity, sex, age, language, disability, sexual orientation, gender identity, religion, political or other opinion, national or social or geographical origin, property, birth or other status including as an indigenous person or as a member of a minority. References to "women and men" or similar is understood to include women and men, boys and girls, and other groups discriminated against based on their gender identities, such as transgender and transsexual people.

Project-Level Standards	
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? <i>For example, through habitat loss, conversion or degradation, fragmentation, hydrological changes</i>	NO
1.2 activities within or adjacent to critical habitats and/or environmentally sensitive areas, 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?	YES
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
1.4 risks to endangered species (e.g. reduction, encroachment on habitat)?	NO
1.5 exacerbation of illegal wildlife trade?	NO
1.6 introduction of invasive alien species?	NO
1.7 adverse impacts on soils?	NO
1.8 harvesting of natural forests, plantation development, or reforestation?	NO
1.9 significant agricultural production?	NO
1.10 animal husbandry or harvesting of fish populations or other aquatic species?	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>	NO
1.12 handling or utilization of genetically modified organisms/living modified organisms? ²⁴	NO
1.13 utilization of genetic resources? (e.g. collection and/or harvesting, commercial development) ²⁵	NO
1.14 adverse transboundary or global environmental concerns?	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, tsunami or volcanic eruptions?	NO
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>	NO
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)? <i>For example, changes to land use planning may encourage further development of floodplains, potentially increasing the population's vulnerability to climate change, specifically flooding</i>	NO
2.4 increases of greenhouse gas emissions, black carbon emissions or other drivers of climate change?	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)	NO
3.2 air pollution, noise, vibration, traffic, injuries, physical hazards, poor surface water quality due to runoff, erosion, sanitation?	NO
3.3 harm or losses due to failure of structural elements of the project (e.g. collapse of buildings or infrastructure)?	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?	NO

²⁴ See the [Convention on Biological Diversity](#) and its [Cartagena Protocol on Biosafety](#).

²⁵ See the [Convention on Biological Diversity](#) and its [Nagoya Protocol](#) on access and benefit sharing from use of genetic resources.

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
3.6	adverse impacts on ecosystems and ecosystem services relevant to communities' health (e.g. food, surface water purification, natural buffers from flooding)?	NO
3.7	influx of project workers to project areas?	NO
3.8	engagement of security personnel to protect facilities and property or to support project activities?	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?	YES
4.2	significant excavations, demolitions, movement of earth, flooding or other environmental changes?	NO
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
4.4	alterations to landscapes and natural features with cultural significance?	NO
4.5	utilization of tangible and/or intangible forms (e.g. practices, traditional knowledge) of Cultural Heritage for commercial or other purposes?	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
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)?	YES
5.3	risk of forced evictions? ²⁶	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?	NO
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
6.2	activities located on lands and territories claimed by indigenous peoples?	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
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
6.5	the utilization and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?	NO
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
6.7	adverse impacts on the development priorities of indigenous peoples as defined by them?	NO
6.8	risks to the physical and cultural survival of indigenous peoples?	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

²⁶ 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.

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
7.2 working conditions that may deny freedom of association and collective bargaining?	NO
7.3 use of child labour?	NO
7.4 use of forced labour?	NO
7.5 discriminatory working conditions and/or lack of equal opportunity?	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?	NO
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?	NO
8.2 the generation of waste (both hazardous and non-hazardous)?	NO
8.3 the manufacture, trade, release, and/or use of hazardous materials and/or chemicals?	NO
8.4 the use of chemicals or materials subject to international bans or phase-outs? <i>For example, DDT, PCBs and other chemicals listed in international conventions such as the Montreal Protocol, Minamata Convention, Basel Convention, Rotterdam Convention, Stockholm Convention</i>	NO
8.5 the application of pesticides that may have a negative effect on the environment or human health?	NO
8.6 significant consumption of raw materials, energy, and/or water?	NO

ANNEX F: Stakeholder engagement plan

ALBANIA

Ministry of Tourism and Environment: in charge of regulation for the environmental protection, sustainable use of natural resources, promotion of renewable resources, protection of nature and biodiversity, sustainable development and management of forestry and pastures, and monitoring of waters quality.

Ministry of Infrastructure and Energy: responsible for national climate policy and international cooperation on climate change, as well as energy issues, metrology and national geological surveys, electricity, water, wastewater services and industry in Albania.

Ministry of Health and Social Protection: is charged with the responsibility to oversee the running of Albania's health system, including supporting universal and affordable access to medical, pharmaceutical and hospital services, while helping people to stay healthy through health promotion.

Ministry of Agriculture and Rural Development: in charge of regulation of the economic activity in the agricultural sector of the country with a purpose of increasing the sector's production capacity.

Water Resource Management Agency: It develops and implements policies, strategies, plans, programs and projects aimed at the integrated management of water resources, the quantitative and qualitative preservation, and their further consolidation.

National Environmental Agency: is dedicated to improving, conserving and promoting the country's environment and striving for environmentally sustainable development with sound, efficient resource management. Its main duties and responsibilities are related to monitoring the state of environment throughout the country based on the main environmental indicators and components in: air, waters, soil, forests and biodiversity.

Public Health Institute: Its mission is to prevent and control disease, injury, disability, and health damaging environmental factors in Albania.

Albanian Geological Survey: is a government organization, which perform its activity in field of geosciences, according to law 111/2015, that define the role of AGS, as scientific and technical adviser of Albanian Government in this field and expertise.

Albanian Regulatory Authority of the Water Supply and Waste Water Disposal and Treatment Sector: is a public independent institution that regulates the water supply and sewerage sector in order to ensure protection of the public interest and to create a transparent regulatory framework.

BOSNIA AND HERZEGOVINA

Federation of Bosnia and Herzegovina

Federal Ministry of Agriculture, Water Management and Forestry

In Federation of Bosnia and Herzegovina the principal role for the water sector is assigned to Federal Ministry of Agriculture, Water Management and Forestry, which is responsible for and water policy development, issuing agreements, setting of standards and regulations; and the maintaining of compliance with Laws and regulations through licensing and inspections.

Federal Ministry of Agriculture, Water Management and Forestry perform administrative and professional tasks related to:

- water management plans
- water abstraction and usage of water
- ensuring water for water supply needs of the population and industry
- inspection in the field of agriculture, water management and forestry and other tasks identified by the Law on Federal Ministries and other bodies of the federal government

Federal Ministry of Physical Planning

Federal Ministry of Physical Planning contains four Sectors: sector for physical planning (planning unit and data base unit), sector for land use (unit for construction permitting and unit for permitting of rehabilitation of national monuments), sector for projects implementation and legal, administrative, financial and joint affairs sectors.

The Federal Ministry of Physical Planning exists in its current organization since 2006, when the reorganization of the Federal Ministries was carried out by the Law on Federal Ministries and other bodies of the federal administration. Until then, within the Federal Ministry of Physical Planning, there was also the Environment sector. The Ministry carries out the administrative and expert tasks related to: physical planning policy of land utilization at the Federal level; coordination of preparation of the Physical Plan of the Federation BiH, verifies harmonization of the physical plans of the Cantons with the Physical Plan of the Federation BiH; establishment and maintenance of central information system, establishment and maintenance of spatial data register including cadaster, infrastructure, construction land, illegal construction, areas that are under the threat due to natural disasters, etc. The Ministry also carries out the administrative and expert tasks related to supervision of relevant institutions in this sector (Institutes for Planning), issuing construction permits for the structures which are located at the territory of two or more Cantons etc.

Federal Ministry of Energy, Mining and Industry

According to the Law on Federal Ministries and other bodies of Federal administration (Official Gazette of F BiH, No. 58/02, 19/03, 38/05, 2/06, 8/06, 61/06 and 48/11), Ministry of Energy Mining and industry performs administrative and professional tasks under jurisdiction of Federation and related to: energy, mining and industry, geological researches and hydro-geological investigations of groundwater, creation of energetic policy and geological researches, inspection monitoring over exploitation of mineral raw materials and other tasks determined by relevant Law.

Federal Ministry of Health

The main water-related functions and tasks of this ministry are:

- safeguarding of the quality of potable water by co-ordination of expertise for development of relevant legislation, regulations and standards
- organizing water quality monitoring

Federal Ministry of Environment and Tourism

According to the Law on Federal Ministries and other bodies of Federal administration (Official Gazette of F BiH, No. 58/02, 19/03, 38/05, 2/06, 8/06, 61/06 and 48/11), Federal Ministry of Environment and Tourism performs administrative, professional and other tasks from jurisdiction of F BiH, which relates to:

- ecological protection of the air, water and soil
- development of the environmental protection strategy and policy
- air, water and soil quality standards
- ecological monitoring and control of air, water and soil
- development of tourism policy and strategy
- follow up on touristic trends at domestic and foreign market
- mapping the long-term development of tourism in the framework of an integrated economic system and other tasks stipulated by law

Federal Ministry of Environment and Tourism has five sectors within its internal organization

- Environmental Sector
- Sector for environmental permitting, environmental impact assessment, register and clean technologies
- Sector for tourism and catering
- Sector for Waste Management, implementation of plans and strategic projects
- Sector for Legal and General Affairs, Human Resources, Budget and Finance

Agency for" Watershed Area of the Sava river Basin" and Agency for" Watershed Area of Adriatic Sea Basin"

Water Agency was established under the FBiH Law on Water («Official Gazette of FBiH», No. 70/06), adopted on 20. 11. 2006 year, in order to implement the water management tasks, which were put under their jurisdiction by this Law and regulations.

Water Agencies include different sectors such as: water management sector (unit for water protection and usage, unit for water protection and management with the public good and water information system and monitoring), sector for water permits, sector for planning, water quality laboratory sector, sector for realization of the investment projects and sector for economic relations (unit for water fees collection).

Main Agencies' responsibilities are as following:

- Collection, management and distribution of data on water resources.
- Organization of hydrology measurements and water quality monitoring; preparation of reports on status of water resources.
- Establishing register of water bodies that are used or planned to be used for water abstraction for human consumption.

- Organization of classification of ecological, chemical and quantitative water status.
- Water permits issuing.
- Preparation of river basin management plans and programs of measures.
- Preparation of plans for prevention and reduction of harmful effects caused by floods, draughts, erosions etc. - Federal Operational Plan for flood defense.
- Participation in the preparation of the water sector policy and legislation related to waters.
- Promotes the research work; in the water sector and sustainable water management.
- Organizes the awareness raising related to sustainable water usage water protection and protection of the water ecosystems, and other affairs prescribed by the Water Law of FB&H and acts of the Agency for "Watershed Area of the Sava river Basin".
- Maintaining and operation of hydrological gage stations.

Federal hydro-meteorological Institute (FHMI)

Federal hydro-meteorological Institute performs expert and other activities that are under the jurisdiction of Federation B&H, according to the Law on Ministries of F B&H and other bodies of Federal administration (Official Gazette of F B&H, 58/02, 19/03, 38/05, 2/06, 8/06, 61/06 and 48/11).

Basic programs' activities of the Institute are development and undertaking of meteorological, hydrological, seismic and environment quality monitoring; analyzing quality of the environment (air, water and soil) and seismic processes; collecting, processing and publishing data from the field that are of interest for Federation etc.

FHMI is responsible to establish a system for monitoring and prognosis of meteorological emergencies and deliver such prognosis regularly to water information system (WIS).

In order to provide active flood control measures FHMI is conducting the following activities:

- regular observation of hydrological and meteorological data
- preparation of reports on quantity, type and intensity of rainfalls in areas affected by rainfalls
- preparation of forecasts on intensity and quantity of rainfalls, weather, etc.
- regular submission of data to Water Agencies on river water levels collected from water level stations under its jurisdiction, and state of snow cover
- in time of active flood control measures: delivery of hydrological and meteorological data to relevant Water agencies every four hours, and even more often if necessary

Federal geological Institute

Federal geological Institute is established according to the Law on Ministries of FB&H and other bodies of Federal administration (Official Gazette of F B&H, No. 58/02, 19/03, 38/05, 2/06, 8/06, 61/06 and 48/11).

Basic programs' activities related to water are:

- participation in preparation of laws and bylaws from the field of hydro-geological research
- managing groundwater cadastre
- research of groundwater (drinking, mineral, thermo-mineral and thermal)
- participation in preparation of the proposals, for Federal Government, of hydro-geological maps for development of the water-supply
- performing of hydro-geological research in the field of drinking, thermal, thermo-mineral and mineral groundwater
- performing hydro-geological research in the field of geothermal energy, scientific-expert education of the employees in the sector

FB&H Environmental Fund

Law on Fund for Environmental Protection ("Official Gazette of FB&H", No. 33/03), establishes the Fund for Environmental protection of FB&H, defines organization, management and operation of the Fund, defines property and business functions of the Fund, defines purpose and usage of Funds' resources, and regulates other issues related to raising and management of the Funds' resources. In FB&H, Fund for Environmental Protection is now in full operation. According to the Law on Fund for Environmental Protection of FB&H, Fund performs the activities related to collection of financial assets, initiation and financing of the preparation, implementation and development of the programs, projects and similar activities in the field of conservation, sustainable use and protection and improvement of the state of environment and use of renewable energy sources.

In accordance with Article 26 of the Law²⁷, the budget of Fund is used for financing environmental protection, especially for the:

- protection, preservation and improvement of the quality of air, soil, water and sea, and climate change mitigation and protection of the ozone layer
- remediation, encourage of avoidance and reduction of production of waste
- use of valuable properties, and waste treatment
- protection and conservation of biological and landscape diversity
- implementation of energy programs
- implementation of the program of demining
- improving and building infrastructure for environmental protection
- improvement, monitoring and evaluation of the environmental situation and the introduction of environmental management
- encouragement of the sustainable use of natural resources
- encouragement of sustainable economic activities, i.e. sustainable economic development
- encouragement of research, development studies, programs, projects and other activities, including demonstration activities

Republika Srpska

Ministry of Agriculture, Forestry and Water Management and Forestry RS

According to the RS Law on Ministries (Official Gazette RS No. 70/02, 33/04, 118/05 and 33/06), the Ministry conduct administrative and other professional work related to:

- protection and usage of agricultural land, protection of agricultural plants and products from diseases, pests and weeds
- seed protection and trading, trading of nursery plants, production and improvement of cattle breeding
- control of animal food and water
- integral management over ambient waters
- organizing water protection plans; protection against negative water impact
- providing conditions for issuing permissions for water intake and usage
- conducting and organizing water quality control
- taking measures for providing water for water supply needs of population and industry
- ensuring water supply for population and industry
- ensuring hydromelioration
- inspection/monitoring done in the agriculture and veterinary medicine domain

²⁷ Law on Environmental Protection Fund of FB&H ("Official Gazette FB&H, No. 33/03)

Ministry of Agriculture, Water Management and Forestry RS includes several administrative bodies such as: Republic Hydro-Meteorological Institute, Agency for agricultural payments, Unit for coordination of agriculture projects, etc.

Within the Ministry of Agriculture, Water Management and Forestry RS there are following sectors:

- Sector for agriculture, food industry and rural development
- Sector for veterinary
- Sector for forestry and hunting
- Sector for waters
- Sector for provision of the expert services in agriculture

The main tasks of the Water Sector are:

- study-analytical
- administrative
- supervisory
- the tasks of establishing and maintaining the water information system in GIS and other formats
- keeping registers
- preparation of strategies, programs, monitoring and coordination of the work of other water administration organizations in the field of water and other law determining activities

Ministry of Physical Planning, Civil Engineering and Ecology

This Ministry, according to the Law on Ministries (Official Gazette RS No. 70/02, 33/04, 118/05 and 33/06) conducts administrative and other professional activities related to:

- integral planning and spatial planning and management
- preparation and implementation of RS spatial plan; reviewing, administrative supervision and providing approval to: spatial plans for cities, municipalities, and special areas and the urban plans as well
- revision of spatial-planning documentation, developing programs and investment-technical documentation especially important for RS
- urban planning and construction
- overall protection of the quality of the environment and its improvement through research, planning management and protection measures
- protecting assets of general interest, natural resources, natural and cultural heritage
- inspection supervision in the field of urban planning, civil engineering, utilities and environment protection

The tasks from the scope of work of the Ministry established by the Law on Ministries are carried out in the following organizational Sectors:

- Sector for urbanism and spatial planning
- Sector for construction
- Sector for environmental protection
- Sector for project coordination and development

Ministry for Industry Energy and Mining

This Ministry within its activities directs all issues related to the field of energetic and mining industry, controls application of relevant Laws, rules and regulations. Ministry has competence for approval of

project documentation with environment protection measures and regulations, relevant for energetic and mining industry.

Ministry for Industry, Energy and Mining performs administrative and other professional activities in the field of activities of energy and mining, and some of them relate to:

- geological surveying of natural mineral raw materials – metals, non-metals, nuclear raw materials and underground waters (thermal, thermal-mineral and drinking water) and their exploitation
- collection and primary processing of industrial waste
- making annual energetic balances
- making annual and medium-term geological surveys programs
- verification of mineral resources and keeping their cadastre, keeping cadastre of survey and exploration rights and other concessions' cadastre

Ministry of Health and Social Protection

According to the Law on Ministries of RS (Official Gazette No. 70/02, 30/04, 118/05, 33/06), the Ministry of Health and Social Protection carries out administrative activities and other professional tasks related to:

- protection and improvement of citizens' health and monitoring of health conditions and health needs of citizens
- inspection supervision in sanitary field
- providing information through the media and other public means and performs other tasks in accordance with relevant Law and other regulations of the RS and BiH

The Government of Republika Srpska on its 97th session on January 11th 2013, has adopted decision on establishment of the Public institution "Vode Srpske". According to this decision, two former RS Water Agencies – one for Sava river Basin (located in Bijeljina town) and one for Adriatic sea Basin (located in Trebinje town) are now merged to Public institution "Vode Srpske". Public institution "Vode Srpske" includes among other, the departments for Water Management of River Basin Sava and for Water Management of the Trebišnjica River Basin.

Public institution "Waters of Srpska"

The Government of Republika Srpska has adopted decision on establishment of the Public institution "Waters of Srpska". According to this decision, two former RS Water Agencies – one for Sava river Basin (located in Bijeljina town) and one for Adriatic sea Basin (located in Trebinje town) were merged to Public institution "Vode Srpske". Public institution "Vode Srpske" includes among other, the departments for:

- Water Management of the Sava River Basin and
- Water Management of the Trebišnjica River Basin.

Waters of Srpska includes Branch Offices located: for Sava river basin (Prijedor, Banja Luka, Doboj and Trebinje).

Responsibilities of these Branch Offices are the following: supervision of the state of gage station in the respective sub-basin, data collection for cadaster and WIS, reception and distribution of requests for water permits to the unit for permitting in the Agency, participation in the elaboration of river basin management plans, participation in the site visiting in respective sub-basin during permitting process, preparation and implementation of projects financed by Agency and international institutions, etc.

Republic Hydro-meteorological Institute

According to the Article 30 of the Law on Ministries of RS (Official Gazette No. 70/02, 30/04, 118/05, 33/06), Republic Hydro-meteorological Institute performs professional and other tasks related to:

- development and undertaking of hydrological, meteorological and seismological activities;
- research of the atmosphere, water resources, air and water quality and seismological processes;
- collecting, processing and publishing hydro-meteorological and seismological data of interest for RS and performing other tasks in the field of hydrology, meteorology and seismology.

Hydro-meteorological Institute includes several sectors. It performs professional and other tasks related to:

- development and undertaking of hydrological, meteorological and seismological activities;
- research of the atmosphere, water resources, air and water quality and seismological processes;
- collecting, processing and publishing hydro-meteorological and seismological data of interest for RS and performing other tasks in the field of hydrology, meteorology and seismology.

In times of proclamation of regular and emergency flood control measures, Republic Hydro-Meteorological Institute Banja Luka is delivering data on water levels in the form of a newsletter three times a day and sometimes more often if necessary. Data are being delivered to the relevant institutions, as prescribed by Law, until the termination of flood control measures. On every gauge station Main operational Plan defined the water level when early warning system should start

Republic Institute for Geological Research

According to the Article 31 of the Law on Ministries of RS (Official Gazette No. 70/02, 30/04, 118/05, 33/06), Republic Institute for Geological research performs is proclaimed as institution under responsibility of RS Ministry of industry, energy and mining and their professional and other tasks related to:

- basic geological research based on long-term plan of geological research
- elaboration of long-term plan of geological research
- elaboration of geological, hydro-geological, engineering- geological and seismology maps
- elaboration of geological maps for physical planning, mining, construction and other activities
- preparation of data for GIS
- preparation of regulations, guidelines and standards for geological surveys

Environmental Protection and Energy Efficiency Fund

Law on Environmental Protection Fund and its financing (Official Gazette of RS, No. 117/11 and 90/16) determines establishment of an Environmental Protection Fund, sets up scope of work, organization, administering and managing the Fund, purposes and use of financial resources of the Fund.

Resources for financing the Fund, environmental protection, energy efficiency and renewable energy sources, in accordance with the Fund Law, are provided from the designated funds as follows:

- fees paid by polluters of the environment
- fees for the environment waste overloading
- Water protection fee paid by owners of transport vehicles that use oil or petroleum products in accordance with the Law on Waters ("Official Gazette of the RS" , No. 50/06, 92/09 and 121/12)
- funds generated from international programs, projects and other activities in the field of environmental protection, energy efficiency and renewable energy
- contributions, donations, gifts and grants

- other sources in accordance with the Law

The Funds' resources are used for financing environmental protection, energy efficiency and renewable energy sources, in particular for:

- protect, preserve and improve the quality of air, water, land and forests, as well as mitigating climate change and protecting the ozone layer
- remediation of landfills, encouraging the reduction of waste generation, reuse and recycling of waste
- encouraging the introduction of technological processes that reduce or eliminate negative environmental impacts
- protection and conservation of biodiversity and geo-diversity
- encouragement of the sustainable use of protected areas
- promoting sustainable development in rural areas
- promoting energy efficiency
- encouraging the implementation of energy efficiency and renewable energy in the public sector
- promoting the use and research of renewable energy sources and their use in order to increase energy efficiency
- encouraging cleaner transport
- encouragement of educational, research, and development of innovative studies, programs and projects in the field of environmental protection
- financing of programs of environmental education and raising public awareness on issues of environmental protection and sustainable development

The activities of the Fund include activities related to the collection of funds, as well as the financing of the preparation, implementation and development of programs, projects and similar activities in the area of conservation, sustainable use, protection and improvement of the environment, as well as in the field of energy efficiency and the use of renewable energy sources determined by the Law on Environmental Protection Fund and its financing.

MONTENEGRO

Many primary stakeholders / users of the resource are identified and included in the list of stakeholders, such as municipalities, public enterprises, the industry and numerous NGOs ("representing" the environment).

Agriculture and tourism are primary stakeholders at regional or local level. The respective Ministries are included and considered to have significant influence, whereas organizations such as the Montenegrin Farmers Association and National Tourism Organization are considered not to have significant influence. More effort in informing and engaging these sectors is required. Despite the existence of many environmental NGOs - most are estimated to have high interests- the majority are characterized as of low influence. The majority of the identified stakeholders are supportive towards DIKTAS and other similar initiatives.

Extra attention is required while approaching the private sector and more particular industries when aiming at their engagement, since they are believed to have a neutral or negative attitude towards the project aims and objectives. In addition, they have been criticized for their contribution to the environmental problems of the water bodies and groundwater in the area; related criticism has come also from the Albanian stakeholders. The project should inform and consult with them on matters of their interest, raise their awareness regarding the value of groundwater resources and keep them informed on the project developments. Once gaining their support, it would be advisable to involve them even further in the project.

Stakeholders that could influence/affect or be influenced/affected by the Project, as well as the management of the karst aquifers in the Dinaric area.

In this respect the Project identified:

1. Stakeholders from the Project countries at the following levels:

- Transboundary
- National
- Regional
- Local

With regard to the regional and local stakeholders, the efforts for their identification were focused on the specific transboundary areas, overlapping the transboundary aquifers:

a) Shared by Albania and Montenegro: Cijevna.

b) Shared by Bosnia and Herzegovina and Montenegro: Piva; Trebisnjica.

2. Stakeholders at the international levels.

Category 1 – High interest/ high influence - The category includes international institutions, central and local authorities related to water management, a number of municipalities, research institutes, private sector stakeholders, national parks and NGOs. The Hydropower sector is also represented here and it is thought to be supportive of the project aims and objectives.

- Ministry of Agriculture and Rural Development
- Water Administration
- Ministry of Sustainable Development and Tourism
- Ministry of Health
- Ministry of Internal Affairs (Directorate for Emergency Situations)
- Institut of Hydrometeorology and Seismology
- Ministry of Economy
- Local Authority
- Public Enterprise for Coastal Zone Management
- Ministry of Transport and Maritime Affairs (Maritime Safety Department and Port Management Administration)
- Administration for Inspection Affairs
- Institute for Public Health
- Geological Survey of Montenegro
- Biotechnical Faculty
- HYDROPOWER Enterprise of Montenegro, EPCG
- Niksic Municipality
- Montenegrin Academy of Arts and Sciences
- Civil Engineering Faculty
- Forestry Administration
- Natural Sciences Faculty (Biology Department)

Category 2– High interest/ low influence - Most of the NGOs are placed in this category and although they are attributed low influence in their majority, they are considered to be positive towards the project and its objectives. These stakeholders should be kept informed and engaged in networking for the promotion of the project objectives. Their high interest may be translated to motivation and they may be involved in general public activities such as awareness raising.

- NGO Green Home
- Montenegrin Fishermen Association
- NGO Ozon
- Montenegrin Farmers Association

Category 3 – Low interest/high influence - This gains special significance due to the high influence of the stakeholders; the project should try to inform its actions with their needs and concerns. The category includes a number of media, which should be perceived as neutral, and which can influence public opinion or can promote the project objectives and activities; therefore, communication efforts should include them.

- GIZ
- EU Delegation in Montenegro
- Marine Biology Institute
- Ministry of Finance
- Coalition of Municipalities
- Public Enterprise Morsko Dobro
- Chamber of Commerce
- Dnevna Novina daily
- Pobjeda daily
- Portal Analitika
- National TV- RTCG

Category 4 – Low interest/ low influence - These stakeholders need to be informed of the project developments through general information activities of the project. Four media stakeholders are included in this category, and they are perceived as neutral. Attention should be given into informing the ministries and other high-level organizations included in this category. One point of interest is the inclusion in this category of the National Tourism Organization given the importance of the tourism sector in the country.

- Public Health Institute
- Ministry of Health
- National Park Prokletije
- National Park Lovćen
- National Park Biogradska Gora
- National Park Durmitor
- Ministry of Culture
- Ministry of Internal Affairs
- National Tourism Organisation

ANNEX G: Gender analysis in project countries

ALBANIA

Country Specifics on Gender Aspects

Defined as equality between men and women in all walks of life, both in the public and private sphere, gender equality means equal access to and control of the resources and benefits, equal participation in political decision-making, and equality under the law for women and men.

The Government of Albania has placed the issue of gender equality at the heart of its priority agenda, considering the women rights as an integral part of human rights. In this framework are approved important laws and policies aimed at elimination on gender discrimination.

Legal framework on gender aspects

The principle of parity of women and men occupies an important place in the Constitution of the Republic of Albania and in the national legislation. The Constitution, article 18, point 2 formulates the principle of non- discrimination in this way "No one can be discriminated against for such reasons as gender, race, and religion...".

Gender Equality and woman rights in Albania are among the main national issues. Ratification of the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), as well as the adoption of laws on gender equality, anti-discrimination and anti-violence are an evidence to this will, along with the adoption of the national strategy on gender equality. The principles of equality and non-discrimination underlie also the Labour Code, Civil Code, Penal Code, Family Code and other parts of Albania Legislation.

Over the last two decades, many laws have been approved, which are also an important agent in changing the balance of gender equality in Albania:

- Law No. 7961 / 12.07.1995 specific amendment to "The Labour Code of the Republic of Albania"
- Law No. 7995 / 20.09.1995 "On promoting Employment"
- Law No. 8876 / 04.04.2002 "On reproductive rights"
- Law No. 9398 / 12.05.2005 "On Some Amendments and Amendments to the Law on People's Advocate."
- Law No. 9669 / 18.12.2006 'On Some Measures against Domestic Violence" - The First National Strategy on Gender Equality and the Elimination of Domestic Violence
- Law No. 9914 / 12.05.2008 "On some amendments to law no. 9669, data 19.02.2006 "On some measures against domestic violence"
- Law No. 9970 / 24.07.2008 "On gender equality in society" (GEL)
- Law No. 10039 / 22.12.2008 "On Legal Assessment"
- LawNo. 10221 / 04.02.2010"On protection against discrimination"

The Government of Albania has established a National Strategy and Action Plan on Gender Equality (NSGE) adopted by Decision of Council of Ministers, no.733, on 20.10.2016. This important document brings together many sectors and partners that will contribute to further development of these issues.

The main principles that lead the strategy are:

- Gender equality, a prerequisite for a fair and socio-economically developed society
- Sensibility towards and equal treatment towards women and girls with disabilities, Roma, Egyptian, elderly, immigrant women, single mothers, of special needs of both genders
- Recognition, evaluation and respect for diversity – among girls and women, boys and men, regarding age, skills, sexual orientation, gender identity, ethnical and social origin, religious practices and life choices
- Zero tolerance to violence against women and domestic violence – protection of life, human dignity and integrity is a prerequisite for the development of a country
- Inter-agency coordination and cooperation – stemming from the inter-agency characteristics and nature of issues constituting the pillars of this strategy, the state institutions, civil society organizations, as well as all interested stakeholders and partners should work together by coordinating their actions in order to most effectively address the gender-based inequalities and injustices to girls/women and boys/men.

Statistic data on gender representation

Women in Albania continue to face many challenges. Women's participation in political and economic decision-making remains limited but has progressed recently with improvements in electoral codes and processes. By January 2017, women make up 28% of members of parliament, 35% of local counsellors, 9 in 61 mayors and 7 in 15 cabinet ministers.

Following the application of gender quotas and other awareness raising measures the evolution of the situation in the general elections is according to the statistics:

- Parliamentary Elections 2005: the representation of women was only 9 out of 140 (6.43%). In the governmental cabinet, women were 2 ministers from 14 (14%) in total and 7 women deputy ministers from 21 in total. In a prefecture level, there was 1 woman nominated as a prefect in 12 districts.
- Parliamentary Elections 2009: as a result of the application of the provided quota set in the Electoral Code during the electoral campaign for the June 2009 parliamentary elections, women held 23 seats out of total 140 (16.4%). In the government cabinet, there was one position of a woman minister (7.1%) and deputy ministers were 8 out of 35 (23%). One woman was a prefect out of 12 districts.
- Parliamentary Elections 2013: there were 25 women of a total of 140 members of the parliament (17.86%). The government created after the 2013 general elections had a considerable increase in women representation, with 8 female ministers (42%) and 10 deputy ministers (4.4%).
- Parliamentary Elections 2017: women make up 39 members of the parliament (27.86%), and 7 in 15 members of the government cabinet are women.
- Local Elections 2007: 1 woman mayor from 65 municipalities (1.5%), 9 women were elected Heads of the Municipality Councils (16%). Women members of the Municipality Councils were 157 from 1178 in total (13.3 %).
- Local Elections 2011: From 65 Municipalities, 3 women were elected Mayors (7.7%); Members of the Municipality Councils 760 were women from a total of 6152 (12%).
- Local Elections 2015: 9 women were elected mayors from 61 municipalities (14.75%), and women members of the Municipality Councils were 555 from 1595 in total (34.80%).

Furthermore, in 2018 the positions of the Attorney General and Ombudsman are held by women, as some leading positions of other important central institutions, but there is only 1 woman nominated prefect, the prefect of Tirana, in 12 prefectures.

Based on statistics in the public administrations, although there is a high participation of women and girls in the expert level, men are prevailing in leading positions.

Little has been done to address the gender pay gap and improve women's access to entrepreneurship services and credit. Women's average salary is almost 18% lower than men's in urban areas and doubly lower in rural areas. Women are the majority of agriculture workers, but almost exclusively as unpaid family workers. Women's labor market participation is increased to 51% in 2014, but average salaries are 18% lower those of men.

Applying Gender in water resource management

The Integrated Water Resources Management Process for Albania has been designed in such a way as to provide a framework for the comprehensive management of water resources, in which all stakeholders, including the private sector, civil society and user communities, regardless of gender, would play an active role. The UN conventions and other related documents in regard to gender equality in all areas of life, also give a great importance to the issue of water management. It is mentioned the importance of the integrated gender perspective in the management of water resources in all life situations.

In Albania, year after year, efforts have been made to involve women in decision making and extended participation to all sectors, to respond to the growing demand for water and managing of resources. Engagement and consultation give importance on gender perspective and has intended to implement the gender equality on issues of water resources management, water projects, analysis and statistics.

In this context, women are involved in various institutions of the water management and conservation resources, such as the National Water Council, Water Resources Management Agency, Water Basin Councils, Administration Office of Basin Water and National Institutes involved in water monitoring and assessment. The participation of women in these institutions varies from 24% to 55%.

The Water Resources Management Agency is managed by a woman, as well as two from 6 Administration Office of Basin Water are also women in leading position.

BOSNIA - HERZEGOVINA

Institutional framework for Gender issues in BiH

The Law of Gender Equality in Bosnia and Herzegovina has established the Agency for Gender Equality of Bosnia and Herzegovina and the gender centres (Gender Centre of the Federation of Bosnia and Herzegovina and Gender Centre- Gender Equality Centre of the Government of Republika Srpska) which exist on the entity level. The Agency and the entity gender centres are public institutions i.e., governmental bodies.

According to the Law on Gender Equality in Bosnia and Herzegovina the Agency for Gender Equality of Bosnia and Herzegovina has a main coordination role in the area on gender equality.

Today institutional mechanism on gender equality forms a network which includes institutions on the municipal, cantonal, entity and state level both in the executive and the legislature. At the state level there is a Commission for Gender Equality of the Parliamentary Assembly of BaH, and at the entity level there are Commissions for Gender Equality of the House of Peoples and the House of Representatives of the Parliament of the Federation of BiH, and the Equal Opportunities Committee of the National Assembly of Republika Srpska. Cantonal Assemblies in the Federation of BaH have

established Committees for Gender Equality. At the local level there are committees within municipal assemblies in almost all municipalities across BiH.

Legislation on Gender issues in BiH

Parliamentary Assembly of Bosnia and Herzegovina passed the Gender Law (GEL) in 2003 (revised in 2010). The GEL forms the basis for the creation of a network of mechanisms and institutional structures for advancing gender equality at all levels of administration in the country. The GEL is the most important mechanism for progress towards gender equality in the Bosnia and Herezegovina. It is based on the Convention on the Elimination of All Forms of Discrimination against Women, advocating for gender equality in the private and public spheres, and prohibiting discrimination on the grounds of sex or sexual orientation. The Law contains of 33 articles that include the term of discrimination – what can be seen as discrimination on the basis of sex in the fields of education, work and employment, social and health protection, sport and culture, public life and media. Articles of the Law also regulate prohibition of violence, compensation of damage, obligations of authorities, monitoring and supervision over implementation of the law, penal provisions, as well as interim and final provisions. This Law regulates, promotes and protects substantive gender equality and guarantees equal opportunities to all citizens, in public as well as private life, and prevents direct and indirect gender-based discrimination.

Policies and Plans on Gender issues in BiH

Bosnia and Herzegovina adopted its Framework Strategy for the implementation of the Council of Europe Convention on Preventing and Combating Violence against Women and Domestic Violence(hereinafter referred to as: The Strategy). The purpose of the Strategy is to provide for a consistent, high-quality and effective implementation of the Council of Europe Convention on Preventing and Combating Violence against Women and Domestic Violence (hereinafter: the Convention) in the territory of Bosnia and Herzegovina (BiH).

The Convention was adopted on 11 May 2011 in Istanbul. Following a series of Council of Europe recommendations related to protection from violence and the prohibition of gender-based discrimination, aimed at setting common goals and determining minimum common standards for state parties which were not legally binding, the Convention is now the first legally binding document of the Council of Europe in the field of preventing and combating violence against women. By its nature, this document is not necessarily directly applicable in signatory countries, but it requires the signatories to conduct a specific harmonization of their legal and institutional framework for the purpose of a successful implementation of the Convention.

BiH ratified the Convention on 7 November 2013, thereby becoming the sixth member of the Council of Europe to ratify the Convention. By this, BiH committed itself to take legislative and other measures to provide for the legal, institutional and organizational framework for the prevention of violence against women, protection of victims of violence and sanctioning of perpetrators. The Strategy constitutes a comprehensive framework that defines the manner in which the Convention will be implemented in BiH and the way in which the legal and institutional framework will be harmonized with the Convention. Furthermore, it also defines the priorities in the field of preventing and combating violence against women and domestic violence, identifies responsible institutions, and introduces the framework of monitoring and reporting on the implementation of the Strategy and the Convention.

This Strategy defines the strategic measures and determines the commitment of BiH institutions to strategic actions with a view to preventing and combating violence against women and domestic violence.

Action plan for implementation of UNSCR 1325 in Bosnia and Herzegovina

First Action plan for implementation of UNSCR 1325 in Bosnia and Herzegovina, 2010 –2013 was adopted on July 27, 2010 by decision of Council of Ministers of BiH ('BiH official Gazette' 92/10). Action plan of Bosnia and Herzegovina is the first action plan for implementation of UNSCR 1325 in the region of Southeast Europe and has been an example to the other countries in the region in process of making national action plans for implementation of UNSCR 1325.

By the decision of BiH Council of Ministers at 154th session held on June 29 2011 Coordination board to monitor the implementation of the Action Plan was formed. Board consists of representatives from all the institutions from the sector of security in Bosnia and Herzegovina who also took part in making of Action plan: BiH Ministry of Security, State Investigation and Protection Agency (SIPA), BiH Border police, BiH Ministry of Defense, BiH Ministry of Foreign Affairs, BiH Ministry of Finance and Treasury, Gender center of Federation BiH, Gender center of Republika Srpska, Ministry of Interior of Federation BiH, Ministry of interior of Republika Srpska, BiH MAC and Association „United Women“ as representatives of non-government sector (NGO Women to Women was previous representative of NG sector). Members of Coordination board took active part and gave their contribution to implementation and promotion of Action plan, as in institutions where they come from, as well as to general and international public. BiH Council of Ministers adopted first annual Report on execution of Action plan for implementation of UNSCR 1325 „Women, peace and security“ in BiH on September 15 2011. Second annual Report was adopted by Council of Ministers on December 4, 2012. In third year, before the end of implementation of Action plan, there was independent evaluation of implementation of the Plan for the period 2010-2013. Results and recommendations of this evaluation and lessons learned have been a foundation for making new Action plan for the period 2014-2017.

This Action plan was made in full cooperation of Agency for Gender Equality and institutions represented in Coordination board for monitoring AP, and with consultations with NGOs.

Expert and technical support to making the Plan was provided by Institute for Inclusive Security within the 'Resolution to Act' program and UN Women in Bosnia and Herzegovina.

MONTENEGRO

The economic status of women has been very dynamic in the last decade. According to the ARS (2015), the total number of unemployed was made up of 48,8% women (16,855) and 51,2% men (17,659). Although the unemployment rate has been cut in half in the last 10 years, the unemployment rate remained twice as high as MDG goals. In 2014, only 11,3% of women were self-employed, which is twice as lower as men (21,3%). An overall lack of decent jobs impacts women's ability to earn pensions. Consequently, only 30,300 women utilize pensions whereas 49,569 men receive these benefits.

Furthermore, the gender pay gap for Montenegro is 13.9%, which means that women only earn 86.1% of the average salary paid to men for equal work. Causes for the pay gap include: 1) direct discrimination; 2) indirect discrimination; 3) undervaluing of women's work; 4) segregation in labour market; 5) tradition and stereotypes; and 6) increased need for women to balance work and private life, which is likely related to additional responsibilities they have as a care giver. As one of the consequences of gender gap, women, after earning less when employed, are lately paid with lower pension, which, in turn, increase their poverty risk.

Table 1: Persons in employment by sectors of activity and sex, Montenegro LFS 2015

Sectors of activity (In 1 000)	Total	Men	Women
Agriculture	17,1	8,9	8,2
Mining	1,7	1,5	0,2

Manufacturing	14,8	10,5	
Electricity, gas, steam and air conditioning	2,7	2,5	0,3
Water supply, wastewater management	4,9	3,9	
Construction	14,6	12,2	2,4
Wholesale, retail; certain repair	47,1	21,9	25,2
Transport, storage and communication	13,5	10,7	2,7
Accommodation and food services	17,5	9,7	7,8
Information and communications	5,0	2,8	2,2
Financial and insurance activities	4,2	1,6	2,6
Real estate, leasing and business activities	0,6	0,3	0,3
Professional. scientific and technical activities	9,9		5,4
Administrative and support service activities	8,1	4,5	3,5
Public administ. and defence	21,2	12,0	9,3
Education	13,5	3,7	9,7
Health and social work	11,7	3,5	8,1
Arts, entertainment and recreation	5,4	3,1	2,3
Other social and personal services	8,3	2,8	5,3
Total	221,7	120,8	100,9

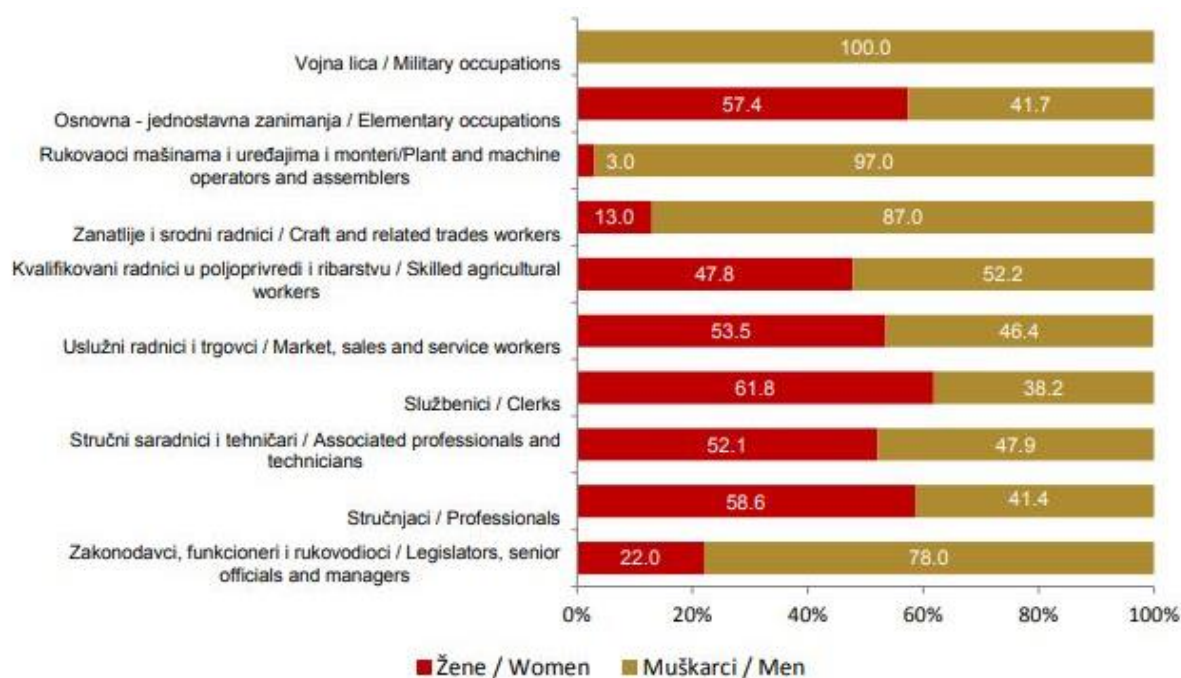


Figure 1: Employees by occupation and sex, LFS 2015

Out of the total employees, 27.0% of them work in companies that belong to the state or municipality. Most workers are employed in private enterprises, even 54.0%, of this number women were 47.4%.

Women are owners of only 4% of houses, 8% of land, and 14% of holiday houses in Montenegro. Without property, their chances for self-employment and economic empowerment are at a minimum due to the inability to provide guarantees for the repayment of the loan in the form of mortgages. Lack of ownership over property cause multiple deprivation against women: they remain dependent on others (mainly husbands), fall easily below the poverty line in case of internal or external shocks, and are discouraged to separate from partners in case of domestic violence (or for any other reason).

The unemployment rate among women in the north is seven times higher than in the south and three times higher than the central region. More than half of unemployed women in rural areas have never tried to find a job. About 1/3 of women are housewives and perform tasks related to household maintenance, 5,7% went to school or studied, 10,3% said that the chances of getting a job are very small, and 10 % was retired. Most rural women have no pension insurance, due to a lack of earnings or cash, or because they work on their own property. Some of these women have never worked and, as such, have no pension insurance. Upwards of 6% of women do not have health insurance as they do not have regular contracts (36,7%) or their status in the country is not regulated (63,2%).

Finally, women's entrepreneurship constitutes only 9,6% of the overall registered entrepreneurship companies. Having in mind that the overall state economic agenda relies on the development of the entrepreneurial potential in the country this comes as significant concern about usage of the human capital but also gender dimension of the development. Barriers that women face and some of the findings were: women miss most by far too successfully start their own business is money and more favorable financing model (crediting). Other barriers include no assistance with preparing a business plan, choosing and equipping premises, insufficient tax exemptions in the first years of doing business, poor business contacts and lack of information about enterprise registration process. Lack of business contacts and good working experience, unsatisfactory level of managing and performing skills, insufficient level of education and no additional training for starting one's own business, no knowledge of examples of good entrepreneurial practice are significant inhibiting factors for development of women entrepreneurship.

Women's participation in decision making and in politics with 18 % in the National Assembly is still lowest in the Western Balkan Region. As a result of established electoral quotas for the less represented gender, the representation of women on electoral lists after parliamentary elections in October 2012 has counted 30%, for the first time in Montenegro. Also, the introduction of this provision has led to increased participation of women in the Parliament of Montenegro, which has led to the best results in the last fifteen years reaching 17%. However, although this presented historically highest participation of women in Parliament ever, it still presents participation that is below minimum request for 30% as temporary measure for parity goal in future.

Gender Analysis on the water sector

According to MONSTAT 2016, 4900 employees are employed in the Sector of water supply and wastewater management. The number of men is 3900 (80%), which means they are in the majority.

Gender equality in the Montenegro is displayed in two key water management institutions in Montenegro:

- Ministry of Agriculture and Rural Development, Water Management Department- 2 men and 5 women.
- Directorate for water- 5 women and 3 men.

Data show that the number of employed women is the same or higher than men in both key institutions. In both cases, directors are men.

Existing gender related policies

The Constitution of Montenegro ("Official Gazette", No. 1/2007), in chapter "Human rights and freedoms", states that the state guarantees the equality of women and men and develops a policy of equal opportunities.

Ministry for Human and Minority Rights is responsible for the implementation of gender equality in Montenegro.

Laws regulating this field:

- Law on Gender Equality ("Official Gazette of the Republic of Montenegro", No. 46/07)
- Labor Law ("Official Gazette of Montenegro", No. 49/08, 59/2011)
- Law on the Prohibition of Discrimination ("Official Gazette of Montenegro", No. 46/10)
- Law on Protection against Domestic Violence ("Official Gazette of Montenegro", No. 46/10).

In the National context, nine National Strategies have been adopted:

- National Program for the Integration of Montenegro in the EU 2008-2012
- National Strategy for Sustainable Development, with the Action Plan for the period 2011-2012
- National Strategy for Employment and Human Resources Development 2012-2015
- The Strategy for the Protection against Domestic Violence 2011-2015
- Strategy for Combating Trafficking in Human Beings 2012-2018
- Strategy for Improving the Position of Roma and Egyptians in Montenegro with the Action Plan 2012-2016
- Strategy for Integration of Persons with Disabilities in Montenegro
- Strategy for the Conservation and Improvement of Reproductive Health
- Strategy for Water Management, 2017

The National Action Plan for Gender Equality focuses on the following strategic objectives: 1) improving human rights of women and gender equality; 2) gender-sensitive upbringing and education; 3) gender equality in economy; 4) gender-sensitive health care; 5) gender-based violence; 6) media

and culture; 7) equality in the decision-making process in political and public life; and 8) international politics and cooperation and institutional mechanisms for the implementation of gender equality policies. The unemployment rate among women in the north is seven times higher than in the south and three times higher than the central region. Women are severely underrepresented in entrepreneurship, Government, Parliament and most parliamentary committees, while there are more than 30% of women members only in the Committee for Gender Equality and the Committee for Education, Science, Culture and Sport. Key challenges include: 1) poor gender integration in policies, understaffed and under budgeted gender issues throughout institutions 2) need for further capacity development and assistance; and 3) lack of accountability as well as functional mechanisms for monitoring and evaluation on gender equality commitments.

So far, two institutional mechanisms for achieving gender equality have been established in Montenegro:

The Gender Equality Committee of the Parliament of the Republic of Montenegro was established on 11 July 2001 and, in accordance with its competencies, is considering draft laws, other regulations and general acts related to the implementation of the principle of gender equality; monitor the application of these rights through law enforcement and the promotion of gender equality principles, in particular in the field of child rights, family relations, employment, entrepreneurship, decision-making, education, health, social policy and information; participates in the preparation, drafting and harmonization of laws and other acts with the standards of European legislation and European Union programs relating to gender equality; affirms the signing of international documents dealing with this issue and monitors their implementation; cooperates with the appropriate working bodies of other parliaments and non-governmental organizations in this field.

The Government of Montenegro established the **Gender Equality Office**. By the Law on Gender Equality, the Ministry for Human and Minority Rights has been designated as responsible for the tasks related to the achievement of gender equality. In April 2009, the Department of Gender Equality became an integral part of the Ministry of Human and Minority Rights.

ANNEX H. UNDP Risk Log

#	Description	Date Identified	Type	Impact & Probability	Countermeasures / Mngt response	Owner	Submitted, updated by	Last Update	Status
1	Lack of sustained political support	Project design phase	Political will	P = 1 I = 3	International support for this regional project will provide some additional assistance to maintaining political stability within the region. The project design foresees activities that will strengthen country commitment through improved science and understanding, exchanges and consultations, awareness campaigns and capacity building	UNESCO – IHP UNDP			
2	Project delays, constraints, or capacity-related risks linked to the COVID-19 global pandemic	Project design phase	Health and Safety	P = 5 I = 3	Short-term constraints on travel and group gatherings will be considered in project planning, and on-line or remote learning and communication options will be used where necessary, adjusting some of the equipment related costs to ensure equal opportunity to all beneficiaries. Longer-term economic impacts will be analyzed where relevant and factored into efforts to finance the continued implementation of the SAP, and monitoring activities following the conclusion of the project.	UNESCO IHP, UNDP			
3	Delayed data collection (limitation for field campaigns, closed offices of technical institutions, etc.).	Project design phase	Health and Safety	P = 5 I = 3	UNESCO along with numerous other International Organizations have already implemented work in the area and have amassed data and ways of operating remotely to adjust their operations to more of an online format. Based on need, a number of activities will be converted to the appropriate modality	UNESCO IHP, UNDP			

#	Description	Date Identified	Type	Impact & Probability	Countermeasures / Mngt response	Owner	Submitted, updated by	Last Update	Status
4	Changes in the project implementation timeline	Project design phase	Health and Safety	P = 5 I = 3	Potential changes in project implementation timelines and/or changes in capacity of executing entities will be frequently discussed during the regular PSC meetings and the situation will be continuously assessed using the capacities of UNESCO's Regional and Local offices, who are in continuous contact with Governmental Authorities in the implementation of other Programmes and projects. The close monitoring of the situation and the bilateral discussions will be used to raise "red flags" related to potential obstacles in implementation. The latter will be discussed in the PSC to agree for a commonly agreed action. When the challenges require a purely managerial response, UNESCO will move ahead immediately, informing the concern parties with the details of its actions.	UNESCO IHP, UNDP, Governmental appropriate authorities			

ANNEX I. Co-financing Letters - provided separately