



## ● GEF Portal


● Carline Jean-Louis

1. [Home](#)

0. [RoadMap](#)

0. CEO Endorsement Form

# Implementation of the SAP of the Dinaric Karst Aquifer System: Improving Groundwater Governance and Sustainability of Related Ecosystems







- Project Identification Form
  - GEF Secretariat Reviewer
    - PIF Clearance
- CEO Endorsement Request
  - GEF Review
  - CEO Endorsed

## CEO Endorsement (CEO) entry – Full Sized Project – GEF - 6



### Part I: Project Information

GEF ID



**9919**

**Project Type**

FSP

**Type of Trust Fund**

GET

**Project Title**

Implementation of the SAP of the Dinaric Karst Aquifer System: Improving Groundwater Governance and Sustainability of Related Ecosystems

**Countries**

Regional, Albania, Montenegro, Bosnia-Herzegovina, Croatia

**Agency(ies)**

UNDP

**Other Executing Partner(s):**

UNESCO International Hydrological Programme

**Executing Partner Type**

Multilateral

**GEF Focal Area**

International Waters

**Taxonomy**



Focal Areas, International Waters, Freshwater, Influencing models, Civil Society, Stakeholders, Communications, Gender results areas, Gender Equality, Gender Mainstreaming, Enabling Activities, Capacity, Knowledge and Research, River Basin, Aquifer, Demonstrate innovative approaches, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Non-Governmental Organization, Academia, Local Communities, Education, Awareness Raising, Beneficiaries, Gender-sensitive indicators, Participation and leadership, Capacity Development, Learning, Theory of change, Adaptive management, Indicators to measure change, Innovation

#### **Rio Markers**

##### **Climate Change Mitigation**

Climate Change Mitigation 0

##### **Climate Change Adaptation**

Climate Change Adaptation 1

##### **Duration**

60

In Months

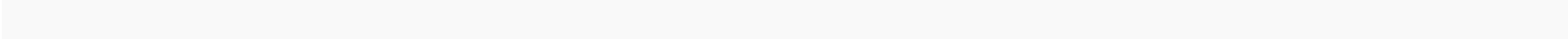
##### **Agency Fee(\$)**

488,775.00



A. Focal Area Strategy Framework and Program

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
IW-1_P1		GET	2,000,000.00	5,100,000.00
IW-2_P3		GET	2,400,000.00	8,000,000.00
IW-2_P4		GET	745,000.00	1,950,000.00
Total Project Cost(\$)				5,145,000.00
				15,050,000.00





## B. Project description summary

### Project 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.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 1: Facilitating Multi-country cooperation (SAP Action 3)	Technical Assistance	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	1.1. Joint multi-disciplinary thematic expert groups established by project countries.  1.2 Draft multilateral agreement on the establishment of Consultation and Information Exchange Body (CIE) and its Secretariat prepared for governments	GET	700,000.00	2,800,000.00



Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
		ecosystems.	approval.			
			1.3 Bilateral Agreements and Bodies: Options for the strengthening of existing ones, and establishment of new ones, to address the management of areas of transboundary influence (Transboundary Aquifers of the TDA) formulated for decision by governments.			
			1.4 Stakeholder involvement plan formulated and implemented, including special			



Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
			focus on gender issues and women empowerment.			
Component 2: Institutional strengthening for improved groundwater governance (SAP Actions 2 and 3)	Technical Assistance	<p>Outcome 2:</p> <p>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.</p>	<p>2.1 Groundwater governance diagnostics in all project countries, , including a stocktaking of the governance situation - actors, legacy framework, policies and plans, adherence to the EU WFD and GWD, available knowledge, enforcement capacity - and an assessment of gaps and opportunities.</p> <p>2.2 National policy, legal and institutional</p>	GET	1,000,000.00	4,000,000.00



Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
			<p>developments, harmonized across countries on laws and regulations regarding groundwater with focus in sanitary protection zones. Proposed policies and developments will be submitted to Governments for adoption.</p> <p>2.3 Training courses on: Hydro diplomacy; Conjunctive surface and groundwater management; Gender analysis and mainstreaming; Land use policy and practice in karst terrains; enforcement of sanitary protection</p>			



Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
			<p>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.</p>			
Component 3: Monitoring karst waters and dependent ecosystems (SAP Action 1)	Technical Assistance	<p>Outcome 3</p> <p>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</p>	<p>3.1 Design of DIKTAS-wide groundwater multi-purpose Monitoring network, including: purposes, variables, network design and optimization, data management,</p>	GET	1,300,000.00	3,100,000.00



Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
		dependent ecosystems.	<p>institutional arrangements harmonized across the countries.</p> <p>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.</p> <p>4.1 Joint data sharing mechanism: joint design and</p>			



Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
		Outcome 4. Agreement on real - Time harmonized Data sharing enables effective transboundary cooperation.	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 (SAP Action 2)	Technical Assistance	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	<p>5.1 Action Programmes for all 6 areas of transboundary influence identified in the TDA (Table 1) prepared and submitted for adoption at governmental level.</p> <p>5.2 The DIKTAS Rulebook and guidelines on DIKTAS proposal</p>	GET	1,400,000.00	3,100,000.00



Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
			for delineation of sanitary protection zones and measures for solid and liquid waste disposal.			
Component 5: Awareness Raising and Gender mainstreaming (SAP Action 3)	Technical Assistance	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.	<p>6.1 Awareness raising events, dissemination products and education.</p> <p>6.2 Gender analysis of the water sector in all project countries.</p> <p>6.3 IW LEARN activities: Sharing experiences within the GEF IW portfolio by producing 4 experience notes and securing participation in regional conferences,</p>	GET	500,000.00	1,200,000.00



Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
			twinning programs, and IWCs (1 % of the GEF grant).			

Sub Total (\$)
4,900,000.00
14,200,000.00

Project Management Cost (PMC)

	GET	245,000.00	850,000.00
--	-----	------------	------------

Sub Total(\$)
245,000.00
850,000.00

Total Project Cost(\$)
5,145,000.00
15,050,000.00



C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount(\$)	Evidence
GEF Agency	UNDP	In-kind	350,000.00	
Government	Prime Minister Office; Water Resources Management Agency - Albania	In-kind	2,500,000.00	
Government	Ministry of Agriculture and Rural Development - Montenegro	In-kind	2,500,000.00	
Government	Ministry of Environment and Energy - Croatia	In-kind	2,500,000.00	
Government	Ministry of Foreign Trade and Economic Relations - Bosnia and Herzegovina	In-kind	2,500,000.00	
Donor Agency	UNESCO	In-kind	4,000,000.00	
Others	Global Water Partnership - Mediterranean	In-kind	700,000.00	
Total Co-Financing(\$)			15,050,000.00	





D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	NGI	Amount(\$)	Fee(\$)
UNDP	GET	Regional	International Waters		No	5,145,000	488,775

Total Grant Resources(\$)  
5,145,000.00  
488,775.00

--



**E. Non Grant Instrument**

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments?

**No**

Includes reflow to GEF?

**No**



F. Project Preparation Grant (PPG)

PPG Required

☐

PPG Amount (\$)

150,000

PPG Agency Fee (\$)

14,250

Agency	Trust Fund	Country	Focal Area	Programming of Funds	NGI	Amount(\$)	Fee(\$)
UNDP	GET	Regional	International Waters		No	150,000	14,250
Total Project Costs(\$)						150,000.00	14,250.00

CEO Endorsement (CEO)

Core Indicators ☐



To calculate the core indicators, please refer to [Results Guidance](#)

**Indicator 1 Terrestrial protected areas created or under improved management for conservation and sustainable use**

**Indicator 2 Marine protected areas created or under improved management for conservation and sustainable use**

**Indicator 3 Area of land restored**

**Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)**

**Indicator 5 Area of marine habitat under improved practices to benefit biodiversity (excluding protected areas)**

**Indicator 6 Greenhouse Gas Emissions Mitigated**

**Indicator 7 Number of shared water ecosystems (fresh or marine) under new or improved cooperative management**

[View](#)

**Indicator 8 Globally over-exploited fisheries moved to more sustainable levels**

**Indicator 9 Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products (metric tons of toxic chemicals reduced)**

**Indicator 10 Reduction, avoidance of emissions of POPs to air from point and non-point sources (grams of toxic equivalent gTEQ)**

**Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment**

[View](#)

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided







## **PART II: Project JUSTIFICATION**

### **1. Project Description**

- a. The global environmental and/or adaptation problems, root causes and barriers that need to be addressed;**
- b. The baseline scenario or any associated baseline projects;**
- c. The proposed alternative scenario, GEF focal area strategies, with a brief description of expected outcomes and components of the project;**
- d. Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, CBIT and co-financing;**
- e. Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF);**
- f. Innovation, sustainability and potential for scaling up.**

#### **1) The global environmental and/or adaptation 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-Commissions<sup>[1]</sup> 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.

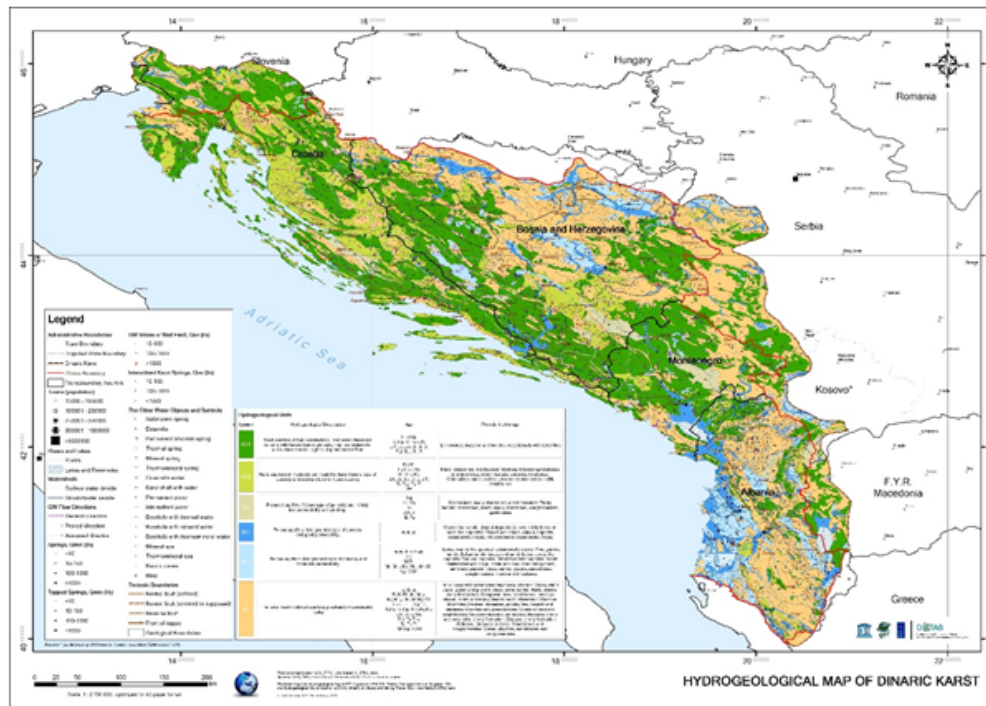


While the TDA has produced a fair assessment of groundwater resources in the region it also revealed limitations of knowledge on their actual state and trends in terms of quality and quantity. The main obstacle for this was a lack of monitoring data at both regional and local scales, such as in the vicinity 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.



Figure 1: Hydrogeology map of the Dinaric Karst ( DIKTAS Project – and adjacent area)



## 2) The baseline scenario or any associated baseline projects

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/km<sup>2</sup>) and lowest in Montenegro (44,89/km<sup>2</sup>). 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 that 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 ecosystems (Figure 1).

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 century. 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 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 countries<sup>[2]</sup>, 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 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.<sup>[3]</sup> 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 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, Bilećko 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 Bilećko 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 (see attached letters of endorsement). 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) is considered 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.
---	--	--

#### Associated baseline projects

The project, based on the more comprehensive and shared understanding of the groundwater 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 mentioning:

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.

UNEP/EBRD “Mediterranean Sea Programme (**MedProgramme**): Enhancing Environmental Security”. Council approved, child projects in preparation.



## **Country baseline: legal and institutional arrangements, priorities and monitoring**

### **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

### *iii) 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, and
- 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 No. 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<sup>[4]</sup><sup>4\*</sup>.

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.



On 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. On 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” [5]<sup>5</sup> between Albania and Montenegro.

On 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”.

On 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.

On 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.



***(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,  $Fe_{tot}$ ,  $NH_4$ ,  $HCO_3$ , Cl,  $SO_4$ ,  $NO_3$ ,  $NO_2$ ;
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, $\text{Fe}_{\text{tot}}$ , $\text{NH}_4$ , $\text{HCO}_3$ , Cl, $\text{SO}_4$ , $\text{NO}_3$ , $\text{NO}_2$ )	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.

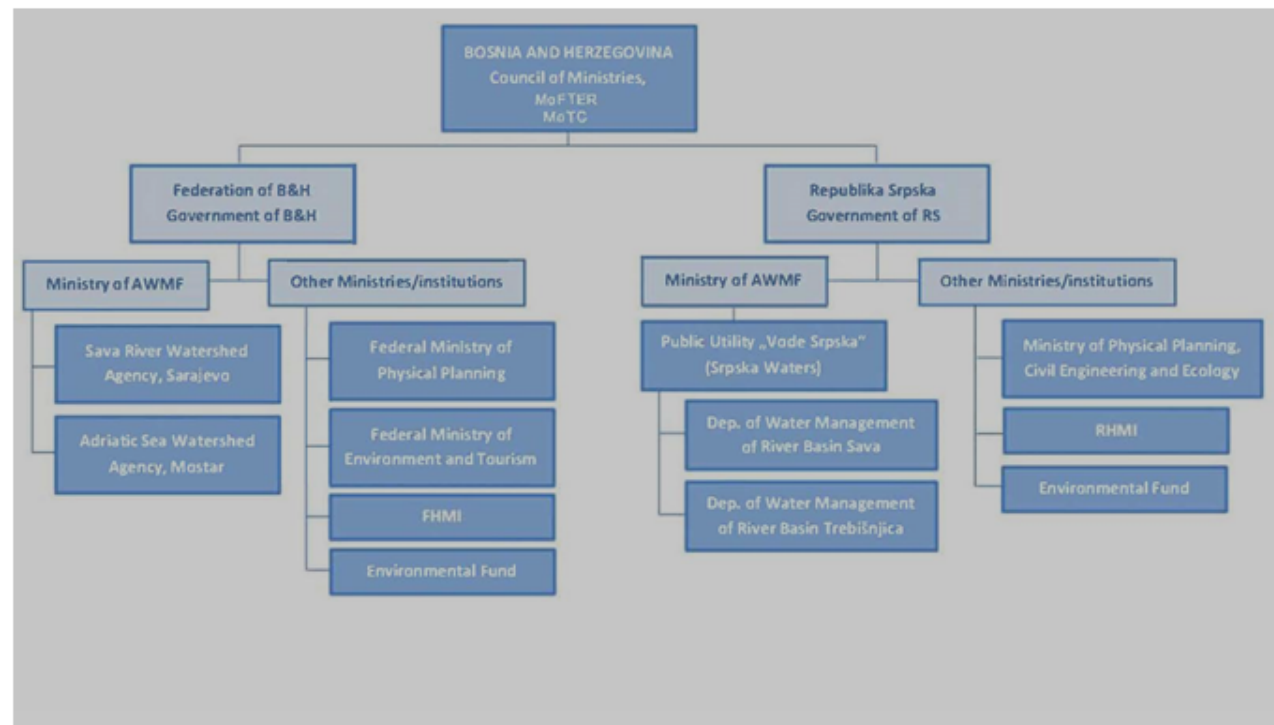
## **Bosnia and Herzegovina**

### ***(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 - Brčko District (BD). The State of BiH is the central authority, but has only limited and specific powers, whereas the two Entities and the Brčko 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



#### 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 cooperation<sup>[6]</sup>.

#### 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 Municipal [7]<sup>7</sup> 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 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 same criterias for both, intergranular and karst 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 does 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 data base etc is still not carried out.

A step forward in assessing the trends in species was conducted by adopting entity red lists<sup>[8]</sup>. 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.



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.[\[9\]](#)<sup>9</sup>

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.

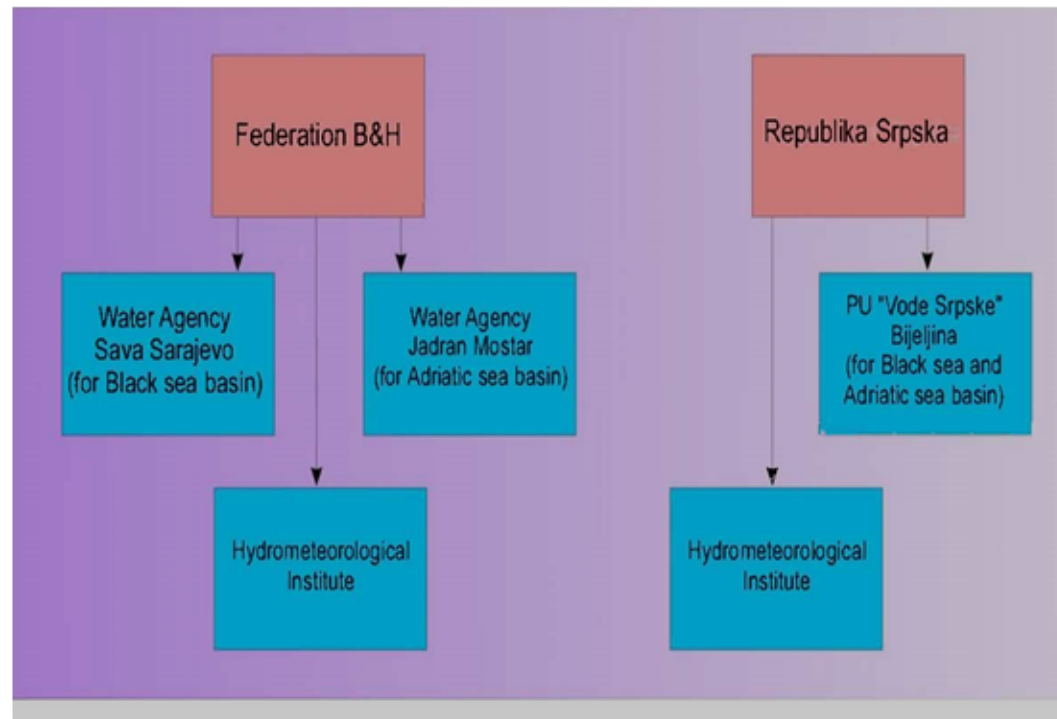
In Federation of Bosnia and Herzegovina:

- 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)

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 recommendation 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 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.

## **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 Agreements<sup>[10]</sup><sup>10</sup>. 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 (Crnojevica 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 rulebooks[11]<sup>11</sup>. 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.

### **3) The proposed alternative scenario, GEF focal area strategies, with a brief description of expected outcomes and components of the project.**

#### **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.

### **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

<b>DIKTAS 2 Project – From Outcomes to Impacts</b>
<i>Objective:</i>

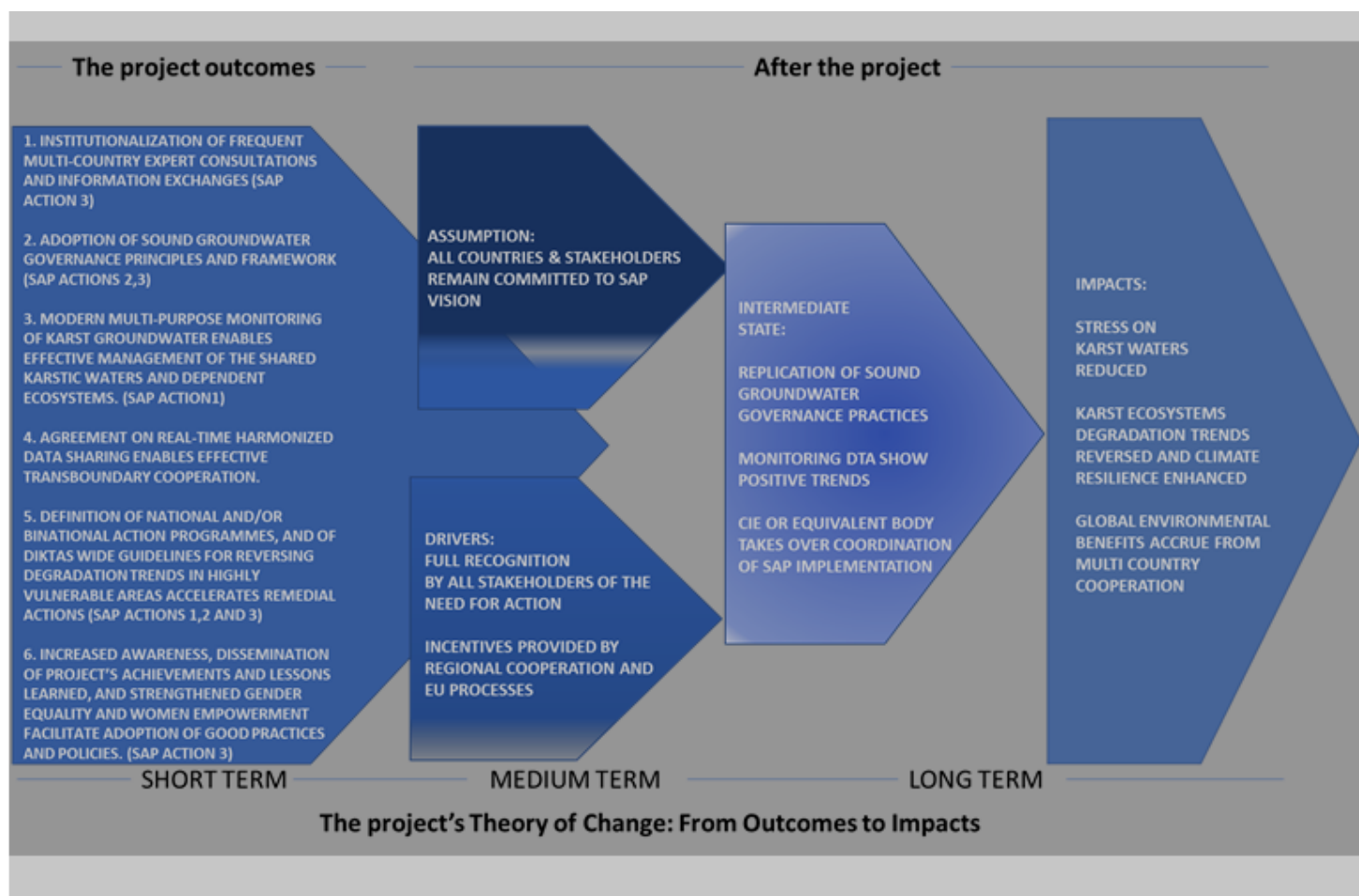


Outcomes	Assumptions and Drivers	Intermediate state	Impacts	
			Reduced environmental threats	Environmental benefits
<p>1. Institutionalization of periodic multi-country expert consultations and information exchanges (SAP action 3)</p> <p>2. Adoption of sound groundwater governance principles and framework (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</p>	<p><i>Assumption:</i></p> <p>The countries sharing the Dinaric karst Aquifer System remain fully committed to the SAP vision and strategic objectives.</p> <p><i>Drivers:</i></p> <p>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>



<p>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>				





**FIGURE 1: 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.



## **RESULTS AND PARTNERSHIPS**

### **EXPECTED RESULTS**

#### **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 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.*

**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 Executing Agency 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 assessments 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.*

**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 will facilitate the sharing of the monitoring information.

In the case where field campaign are 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.*

**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 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

All project parties discussed and adopted the above.

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.*



## **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 is an important aspect 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 on going 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 be aimed 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.



Sharing experiences within the GEF IW portfolio by producing 4 experience notes and securing participation in regional conferences, twinning programs, and IWCs. 1 % of the GEF grant will be devoted LEARN activities.

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.* Serbia and North Macedonia will also be invited to join.

**4) Incremental cost reasoning and expected contributions from the baseline, the GEFTE, and co-financing.**

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.

## **5) Global environmental benefits**

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

1. Enhanced cooperation in the management of the transboundary groundwater resources.
2. 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.

## **6) Innovativeness, sustainability and potential for scaling 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:

1. 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.



2. 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.
3. The project design adopts a blend of mutually reinforcing national and regional actions that will enhance sustainability and the likelihood of scaling up.

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).

---

[1] *In the frame of Bilateral Agreement<sup>9</sup> 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.*

[2] *Croatia, is an EU member state, fully adheres to the WFD.*

[3] *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.*

[4] \* As defined by UN Security Council Resolution 1244, dated 1999.



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

[7] *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.*

[8] *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.*

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

[10] *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).*

[11] *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)*

## **A.2. Child Project?**

**If this is a child project under a program, describe how the components contribute to the overall program impact.**

This is not a Child project under a program.

## **A.3. Stakeholders**

**Please provide the Stakeholder Engagement Plan or equivalent assessment.**

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 (see also the section on Stakeholders Analysis at page 17):

- 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.

Below ANNEX G 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.



## Documents

Title

Submitted

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement.

Select what role civil society will play in the project:

Consulted only; Yes

Member of Advisory Body; Contractor;

Co-financier;

Member of project steering committee or equivalent decision-making body;

Executor or co-executor; Yes

Other (Please explain)

## A.4. Gender Equality and Women's Empowerment

Please briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).



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.
- To nominate gender focal point in each country.
- 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 will be realised according to "United Nations World Water Assessment Programme (WWAP). 2015. The WWAP Water & Gender Toolkit for Sex-disaggregated Water Assessment, Monitoring and Reporting. Gender & Water Series. Paris, UNESCO''. The above activities will be drafted together with the Stakeholders Involvement Plan and submitted for adoption at the first Steering Committee Meeting.

A Gender Analysis in every project country has been done and can be seen in ANNEX G of the Project Document.

## **Documents**

**Title**

**Submitted**

**Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?**

Yes

**If yes, please upload document or equivalent here**

**If possible, indicate in which results area(s) the project is expected to contribute to gender equality:**

**Closing gender gaps in access to and control over natural resources; Yes**

**Improving women's participation and decision making Yes**

**Generating socio-economic benefits or services or women Yes**



**Will the project's results framework or logical framework include gender-sensitive indicators?**

Yes

## **A.5. Risks**

**Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.**

The only major risk that may 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.

Risk	Level	Mitigation
Lack of sustained political support	Low	The project design foresees activities that will strengthen country commitment through improved science and understanding, exchanges and consultations, awareness campaigns and capacity building



Overall, the risks associated with the project are detailed in the SESP in Annex E. 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.

## **A.6. Institutional Arrangement and Coordination**

**Describe the Institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.**

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, 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.

The project organisation structure is shown in Figure 4.



# PROJECT ORGANIZATION STRUCTURE

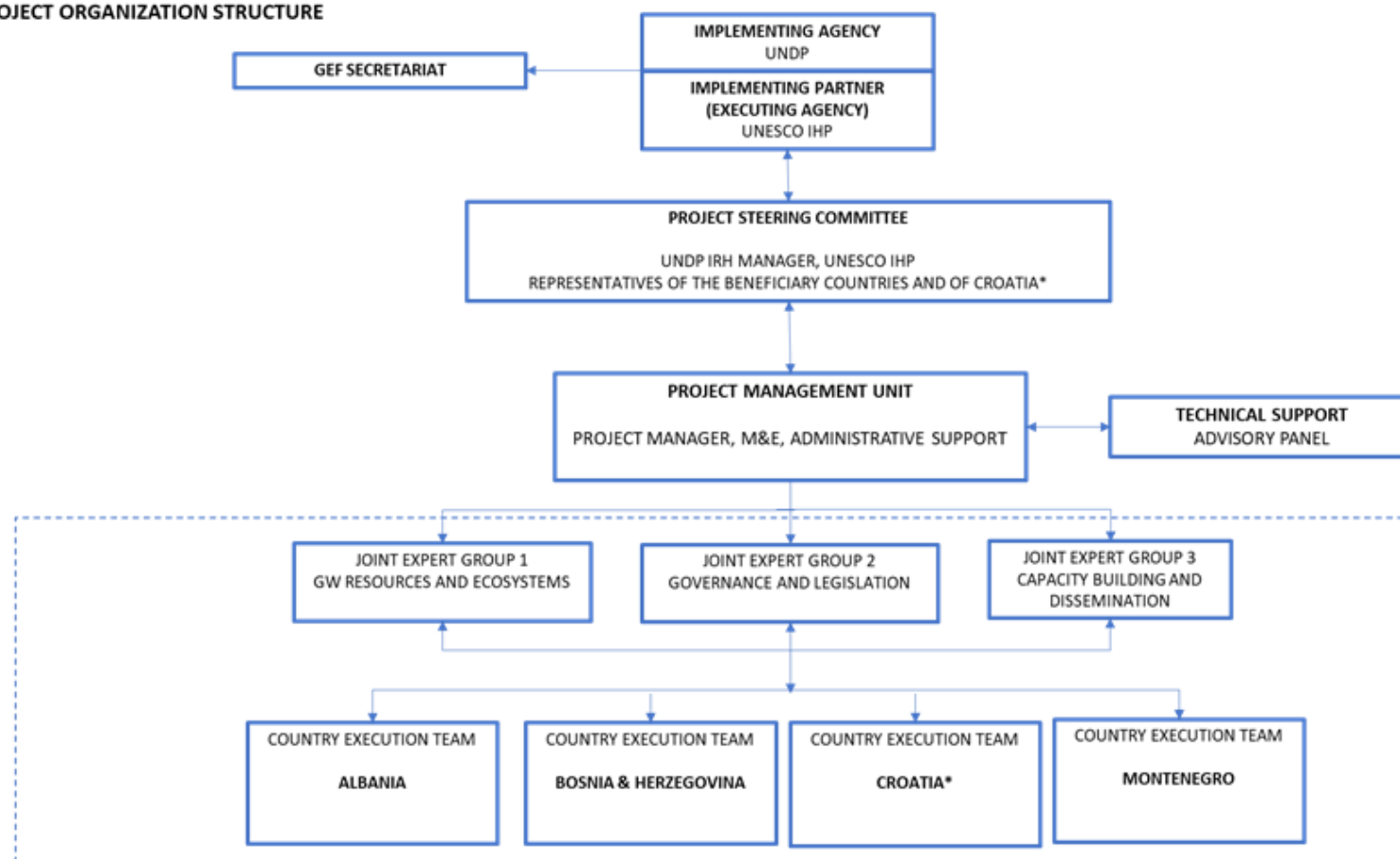


Figure 2: Organogramme of the project implementation (\* Croatia is a non GEF beneficiary project country )



The project is guided by the overall Steering Committee and decisions should comply with the UNDP corporate policies and procedures and any other requirements established by the IRH if needed, unless a separate Project Steering Committee Meeting is deemed necessary.

**The Project Steering Committee (PSC).**

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, UNDP will co-chair the meetings. A face – to – face meetings of the PSC will be held annually.

The PSC will be comprised of the following representatives:

- National Government
- UNDP/GEF
- UNESCO-IHP

More information about the PSC can be found in Annex D.

The **Project Manager** will operate under the supervision of the Implementing Partner (UNESCO-IHP) and will take care of the project activities in the region on a day-to-day basis. 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. The project manager will prepare the reports to be presented to the PSC. The Project Manager will ensure 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 Project Manager will be internationally recruited by the Implementing Partner jointly with UNDP/GEF.

The project assurance role will be provided by the IRH Senior Programme Coordinator. Additional quality assurance will be provided by the UNDP Regional Technical Advisor as needed.

Project Assurance: UNDP provides a three – tier supervision, oversight and quality assurance role – funded by the GEF agency fee – involving UNDP staff in Country Offices (CO) and at regional and headquarters levels. Project Assurance must be totally independent of the Project Management function. The quality assurance role supports the Project Board and Project Management Unit by carrying out objective and



independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. The Project Board cannot delegate any of its quality assurance responsibilities to the Project Manager. This project oversight and quality assurance role is covered by the GEF Agency.

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.

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.

Governance role for project 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.



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.

## **Additional Information not well elaborated at PIF Stage:**

### **A.7. Benefits**

**Describe the socioeconomic benefits to be delivered by the project at the national and local levels. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?**



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 the improvement of groundwater governance and the full integration surface-groundwater in water management policies and practices in the Dinaric Karst, and the increased transboundary cooperation in water management will bring about. In particular:

Outcomes 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.

These achievements at both the national and regional levels, together with the enhanced transboundary cooperation, will increase water security in the whole region, with consequent important socio-economic benefits at all levels.

## A.8. Knowledge Management ☐

**Elaborate on the Knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives (e.g. participate in trainings. conferences, stakeholder exchanges, virtual networks, project twinning) and plans for the project to assess and document in a user- friendly form (e.g. lessons learned briefs, engaging websites, guidebooks based on experience) and share these experiences and expertise (e.g. participate in community of practices, organize seminars, trainings and conferences) with relevant stakeholders.**



Awareness raising and knowledge management is an important aspect 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 on going 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 in these activities.

## **B. Description of the consistency of the project with:**□

### **B.1. Consistency with National Priorities**

**Describe the consistency of the project with nation strategies and plans or reports and assessments under relevant conventions such as NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.**

The Project is fully consistent with the national priorities in the water and environmental sector in the three beneficiary countries as shown below:



The Strategic Action Program for the DIKTAS aquifer is in line with the national priority objectives, strategies and plans of the project countries related 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.

#### *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.

The Sustainable Development Goals and 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.

- 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

## C. Describe The Budgeted M & E Plan: ☐

The Project results as outlined in the project results framework will be monitored annually and evaluated periodically during project implementation to ensure the project effectively achieves these results.

Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the [UNDP POPP](#) and [UNDP Evaluation Policy](#). While these UNDP requirements are not outlined in this project document, the UNDP will work with the relevant project stakeholders to ensure UNDP M&E requirements are met in a timely fashion and to high quality standards. Additional mandatory GEF-specific M&E requirements (as outlined below) will be undertaken in accordance with the [GEF M&E policy](#) and other relevant GEF policies [\[1\]](#).



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. This will include the exact role of project target groups and other stakeholders in project M&E activities including the GEF Operational Focal Point and national/regional institutes assigned to undertake project monitoring. The GEF Operational Focal Point will strive to ensure consistency in the approach taken to the GEF-specific M&E requirements (notably the GEF Core Indicator Tool) across all GEF-financed projects in the countries. **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.**

#### Oversight and monitoring responsibilities

Project Manager: The Project Manager is responsible for day-to-day project management and 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.

Project Board / Project Steering Committee (PSC): 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.



Project Implementing Partner (UNESCO-IHP): The Implementing Partner is responsible for providing all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary and appropriate. 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 by and generated by the project supports national systems.

UNDP Istanbul Regional Hub: The Istanbul Regional Hub (IRH) will support 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 during implementation is undertaken annually; 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; 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 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.

The Audit: The project will be audited as per UNDP Financial Regulations and Rules and applicable audit policies set out in the Programming and Finance manuals by the legally recognized auditor.

#### Additional GEF monitoring and reporting requirements

Inception Workshop and Report: A project inception workshop will be held within two months after the project document has been signed by all relevant parties to, amongst others:

- a) Re-orient project stakeholders to the project strategy and discuss any changes in the overall context that influence project strategy and implementation.
- b) Discuss the roles and responsibilities of the project team, including reporting and communication lines and conflict resolution mechanisms.



- c) Review the results framework and finalize the indicators, means of verification 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 in M&E.
- e) Update and review responsibilities for monitoring the various project plans and strategies, including the risk log; Environmental and Social Management Plan and other safeguard requirements; the gender strategy; the knowledge management strategy, and other relevant strategies.
- f) Review financial reporting procedures and mandatory requirements, and agree on the arrangements for the annual audit.
- g) Plan and schedule Project Steering Committee meetings and finalize the first year annual work plan.

The Project Manager will prepare the inception report no later than one month after the inception workshop. The inception report will be cleared by the Implementing Partner, the UNDP-GEF Regional Technical Adviser, and will be approved by the PSC.

GEF Project Implementation Report (PIR): The Project Manager, Implementing Partner and the UNDP-GEF Regional Technical Advisor will provide objective input to the annual GEF PIR covering the reporting period July (previous year) to June (current year) for each year of project implementation. The Project Manager will ensure that the indicators included in the project results framework are monitored annually in advance of the PIR submission deadline so that progress can be reported in the PIR. Any environmental and social risks and related management plans will be monitored regularly, and progress will be reported in the PIR. The PIR submitted to the GEF will be shared with the PSC. UNDP will coordinate the input of the GEF Operational Focal Point and other stakeholders to the PIR as appropriate. 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): An independent mid-term review process will begin after the second PIR has been submitted to the GEF, and the MTR report will be submitted to the GEF in the same year as the 3rd PIR. The MTR findings and responses outlined in the management response will be incorporated as recommendations for enhanced implementation during the final half of the project's duration. The terms of reference, the review process and the MTR report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the UNDP Evaluation Resource Center (ERC). As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the **BPPS** GEF Directorate. The final MTR report will be available in English and will be cleared by UNDP-GEF Regional Technical Adviser, and approved by the PSC **and will be posted on the UNDP ERC by 31 Dec 2022. 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 terminal evaluation process will begin three months before operational closure of the project allowing the evaluation mission to proceed while the project team is still in place, yet ensuring the project is close enough to completion for the evaluation team to reach conclusions on key aspects such as project sustainability. The Project Manager will remain on contract until the TE report and management response have been finalized. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the UNDP Evaluation Resource Center. As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the **BPPS** GEF Directorate. The final TE report will be cleared by the UNDP-GEF Regional Technical Adviser, Istanbul Regional Hub and will be approved by the PSC. The TE report **and the TE TOR** will be publicly available in English **and posted** on the UNDP ERC **by 31 dec 2024**. Once uploaded to the ERC, the UNDP IEO will undertake a quality assessment and validate the findings and ratings in the TE report and rate the quality of the TE report. The UNDP IEO assessment report will be sent to the GEF IEO along with the project terminal evaluation report. **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 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 PSC during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

GEF M & E Requirements and M & E Budget

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[1] (US\$)		Time frame
		GEF grant	Co-financing	
<b>Inception Workshop</b>	Project Manager Implementing Partner	30,000	20,000	Within two months of project document signature
<b>Inception Report</b>	Project Manager Implementing Partner	None	None	Within two weeks of inception workshop
<b>Standard UNDP monitoring and reporting</b>	PMU Implementing Partner UNDP RTA	None	None	Quarterly, annually
<b>Monitoring of indicators in project results framework</b>	PMU Implementing Partner	None	20,000	Annually
<b>GEF Project Implementation Report (PIR)</b>	Project Manager Implementing Partner UNDP-GEF team	None	None	Annually
<b>Lessons learned and knowledge generation</b>	Project Manager	20,000	10,000	Annually
<b>Project Steering Committee meetings</b>	Project Steering Committee Project Manager Implementing Partner	60,000	30,000	At minimum annually
<b>Mid-term GEF Core Indicators</b>	Project Manager	None	None	Before mid-term review mission takes place.
<b>Independent Mid-term Review (MTR) and management response</b>	Implementing Partner, PMU and UNDP-GEF team	25,000	10,000	Between 2 <sup>nd</sup> and 3 <sup>rd</sup> PIR.
<b>Terminal GEF Core Indicators</b>	Project Manager	None	None	Before terminal evaluation



GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget <sup>[1]</sup> (US\$)		Time frame
		GEF grant	Co-financing	
				mission takes place
<b>Independent Terminal Evaluation (TE)</b>	Implementing Partner, PMU and UNDP-GEF team	35,000	10,000	At least three months before operational closure
<b>TOTAL indicative COST</b> Excluding project team staff time, and UNDP staff and travel expenses		170,000	100,000	

---

<sup>[1]</sup> Excluding project team staff time and UNDP staff time and travel expenses.

---

<sup>[1]</sup> See [https://www.thegef.org/gef/policies\\_guidelines](https://www.thegef.org/gef/policies_guidelines)



## PART III: Certification by GEF partner agency(ies)

### A. GEF Agency(ies) certification

GEF Agency Coordinator	Date	Project Contact Person	Telephone	Email
Pradeep Kurukulasuriya, UNDP-GEF Executive Coordinator	5/23/2019	Mr. Vladimir Mamaev Regional Technical Advisor		vladimir.mamaev@undp.org



**ANNEX A: PROJECT RESULTS FRAMEWORK** (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).□

Project Results Framework

<b>This project will contribute to the following Sustainable Development Goal (s): 5, 6, 12, 13, 15</b>					
<b>This project will contribute to the following country outcome included in the UNDAF/Country Programme Document:</b>					
<p><b>This project will be linked to the following output of the UNDP Strategic Plan:</b></p> <p><i>Output 2.5: Legal and regulatory frameworks, policies and institutions enabled to ensure the conservation, sustainable use, and access and benefit sharing of natural resources, biodiversity and ecosystems, in line with international conventions and national legislation.</i></p>					
<b>Component/Outcome</b>	<b>Objective and Outcome Indicators</b>	<b>Baseline</b>	<b>Mid-term Target</b>	<b>End of Project Target</b>	<b>Risks/Assumptions</b>
<p>Component 1: Facilitating Multi- country cooperation (SAP Action 3)</p> <p>Outcome 1: Institutionalization of periodic multi-country expert consultations and information exchanges, and creation and strengthening of bilateral/multilateral conflict resolution mechanisms, provide the</p>	<p>1.1. Joint multi-disciplinary thematic expert group established by the project countries sharing the Dinaric karst Transboundary Aquifer.</p>	<p>Incomplete information on selected six TBA basins' boundaries, groundwater distribution, discharge mechanism and regime, as well as</p>	<p>Three joint multi-disciplinary thematic expert groups (EG) established and functioning for the SAP priority</p>	<p>Joint expert groups with expanded scope institutionalized as technical arms of CIE.</p>	<p>R: The countries provide limited information on GW in TBA concerning aquifers' distribution, regime, water quality and availability.</p> <p>A: The countries</p>



transboundary cooperation framework crucial for the sustainable utilization of shared karst waters, and for the protection of the Dinaric Karst ecosystems.		water reserves as prerequisite for sustainable management.	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).		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	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,



			approval.		equitable share and protection from pollution.
	1.3. Options for the strengthening of existing Bilateral Agreements or establishment of new ones prepared for decision by governments.	Bilateral agreements in place are too general and do not consider all technical aspects and specificities of karst terrains and their groundwater.	Options identified and formulated.	Revised or newly proposed Bilateral Agreements submitted for Government approval.	A. Common work on establishment of monitoring networks, harmonization of criteria for sanitary protection will strength bi- and multilateral communication and create platform for CIE.
<p>Component 2: Institutional strengthening for improved groundwater governance (SAP Actions 2 and 3)</p> <p>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</p>	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	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



the Groundwater Governance GEF project.		experiences in national water practice, lack of harmonized methodology for sanitary protection zones delineation, and inspecting actual functioning of water and waste management.			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.
	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		3 courses per country and 3 international courses completed.	5 courses per country and 5 international courses completed.	



	<p>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.</p>				
<p>Component 3: Monitoring karst waters and dependent ecosystems (SAP Action 1)</p> <p>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.</p>	<p>3.1 Design of DIKTAS-wide groundwater multi-purpose monitoring network harmonized across all four countries, completed.</p>	<p>There is a lack of well- equipped monitoring stations and systematic observations of GW quality 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.</p>	<p>Multi-purpose demonstration Monitoring Network tested in two areas of transboundary concern.</p>	<p>The design of the regional groundwater monitoring network submitted for consideration by countries.</p>	<p>A. Countries cognizant of the need for modern monitoring infrastructure for karst waters are committed to invest in the implementation on the ground of the network, and to share monitoring data.</p>



		There is a lack of national GW databases and mechanism of information exchange.			
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	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.



		undertaken at bilateral or national level.			
	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.	<p>Draft Guidelines/ Rulebook ready for region-wide circulation.</p> <p>Examples of best practice in SPZ maintenance evaluated and reported.</p>	Guidelines submitted for Governments approval.	A. All stakeholders in agreement on the need for a common approach to SPZs.



<p>Component 5: Awareness Raising and Gender mainstreaming (SAP Action 3)</p> <p>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.</p>	<p>6.1. Number of dissemination, awareness raising events and education 50% female and 50% men will be involved actively in the preparation of the dissemination activities.</p>	<p>Stakeholders not fully aware of the need for harmonized management of DIKTAS, nor of the present situation of gender roles and equality.</p>	<p>2 annual stocktaking meetings.</p>	<p>4 annual stocktaking meetings.</p>	<p>A. Countries convinced of the need for broad dissemination of project results, stakeholders participation, public participation, and promotion of gender equality.</p>
	<p>6.2. Number of National Water Sector Gender Analysis completed</p>		<p>Water sector gender analyses completed in the four countries.</p>	<p>Gender related policy and institutional developments submitted for approval by governments.</p>	
	<p>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</p>	<p>Lack of experience in the GEF IW portfolio on karst waters.</p>	<p>2 experience notes prepared.</p> <p>Participation in regional and international</p>	<p>4 experience notes prepared and presented at scientific conferences.</p>	



	in the preparation of the notes		conferences conducted.		
--	------------------------------------	--	---------------------------	--	--

**ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).**□

RESPONSES TO PROJECT REVIEWS	
<i>COMMENTS</i>	<i>Action taken</i>
Taking into account the subsequent political challenges, the full proposal should examine the possibility of integrating the two further non-EU Dinaric Karst-sharing countries Serbia and FYA Macedonia to enhance the scientific and technical exchange at a regional level.	Text added at Page 56 of the Project Document. <i>'The CIE shall be open to other Dinaric countries, including Serbia, Republic of North Macedonia, Italy and Slovenia, sharing the Karst aquifer system, upon their request and approval from the CIE Secretariat.'</i>
Please revise the section on stakeholder involvement with regard to adding their roles and responsibilities	It can be seen in Section A.3 'Stakeholder Engagement'
Furthermore, Germany suggest to reassess the risk level in the full proposal, as political support for cooperation and data sharing across four (or even more) countries can be very difficult to obtain. Lack of sustained political support is described as a “major risk” in the PIF, which should be reflected in at least a moderate risk level.	The full commitment of countries at both technical and political levels during the PPG phase confirm the low risk of losing “political support” during project execution.



STAP notes that the present project address most of the key lessons learned from the predecessor project (GEF ID 3690), which led to the DIKTAS TDA and supports the key objectives. These further develop the twin original objectives of: a) facilitating the equitable and sustainable utilization and management of the transboundary water resources of the Dinaric Karst Aquifer System; and b) protecting from natural and manmade hazards, including climate change. In the unique groundwater-dependent ecosystems that characterize the Dinaric Karst region of the Balkan Peninsula. STAP also notes with appreciation that the GEF/FAO project Groundwater Governance – Global Framework for Action findings, fully informs the project design.

This is reflected in Chapter 3 of the Project Document where the components and activities of the project are described.

While it is true that the transboundary aquifers already mapped concern directly the four project countries, the advice from the predecessor project's terminal evaluation (to invite Serbia and FYA Macedonia to observe or participate) is not explicit within the present proposal. At a regional level scientific and technical information exchange will be enhanced if the knowledge sharing/management components of the project reach out to both the additional non-EU Dinaric Karst-sharing countries. These are: Component 1.1 for the joint multi-disciplinary thematic expert groups; Component 3 – outcome 4 supporting actions; Component 5.2 regarding a DIKTAS rulebook; and Component 6.3 linking IW:LEARN activities with the cited projects. STAP acknowledges that the proponents have identified ongoing GEF projects which already involve both countries, nevertheless further attention to the suggested outreach to these adjacent countries is relevant.

It is reflected in the relevant Components, Outcomes and Outputs of the Project Document:  
Component 1.1  
Outcome 4  
Component 5  
Output 6.3



<p>One area that could be usefully strengthened within project design is the knowledge management (KM) side of Component 5. As currently written it is aimed primarily at stakeholder-oriented knowledge dissemination which is of course very important. However, given the GEF's increasing emphasis on KM, further development of the KM aspects would be desirable at CEO endorsement stage. This applies in particular to: learning captured during implementation, and its influence on adaptive project management; and the need to share more (uptake pathways/theory of change) about what succeeds (or fails) within the GEF and beyond. See for example, project-related recommendations to the GEF at: <a href="http://www.stapgef.org/knowledge-management-gef">http://www.stapgef.org/knowledge-management-gef</a>.</p>	<p>As part of Component 5 of the Project Document (Results Framework), annual stocktaking meetings have been introduced as a means to assess project progress to impacts, and share knowledge and lessons learned. A number of experience notes prepared for posting in IW LEARN website have been included in the project. Participation in IW LEARN activities</p>
<p>Identification of stakeholders and related awareness raising and capacity building forms a key part of project design. STAP appreciates the intention through Component 5, and output 6.1 to include educational outputs. Please consider the Ramsar Convention's outreach and support materials supporting wise use of wetlands, particularly on Communication, Education and Public Awareness (CEPA). For example, due to the well-developed caving sport sector, there are relevant materials developed for karst in Slovenia: 'A Five Year Karst CEPA Strategy' at <a href="http://www.ramsar.org/sites/default/files/documents/library/outreach_actionplan_slovenia_karst.pdf">http://www.ramsar.org/sites/default/files/documents/library/outreach_actionplan_slovenia_karst.pdf</a></p>	<p>The Project will focus on knowledge sharing through awareness raising and educational activities. This is reflected in Component 5, in all outputs of the Project Document.</p>

## ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS. □



A. Provide detailed funding amount of the PPG activities financing status in the table below: ☐

B. PPG Grant Approved at PIF: 150,000 USD			
<i>Project Preparation Activities Implemented</i>	<i>GEF/LDCF/SCCF Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>
<i>Component A: Preparatory Technical Studies &amp; Reviews</i>	45,500	33,602	-
<i>Component B: Formulation of the UNDP-GEF Project Document, CEO Endorsement Request and Mandatory Annexes</i>	45,500	33,602	-
<i>Component C: Validation workshops and validation workshop report</i>	22,200	33,458	-
<i>Delivery of final outputs</i>	36,800	-	49,338
<b>Total</b>	150,000	100,662	49,338

ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used) ☐

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/CBIT Trust Funds or to your Agency (and/or revolving fund that will be set up)

Annex G: List of Stakeholders in the project countries



## **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 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 metrological 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 researches
- 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 researches 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 Law[\[1\]](#), 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 hydro-melioration



- inspection/monitoring done in the agriculture and veterinary medicine domain

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 97<sup>th</sup> session on January 11<sup>th</sup> 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 Researches**

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 researches 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

---

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

## **ANNEX E: GEF 7 Core Indicator Worksheet**

Use this Worksheet to compute those indicator values as required in Part I, Table G to the extent applicable to your proposed project. Progress in programming against these targets for the program will be aggregated and reported at any time during the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.

## **ANNEX F: Project Taxonomy Worksheet**

Use this Worksheet to list down the taxonomic information required under Part1 by ticking the most relevant keywords/topics//themes that best describes the project

## **ANNEX G: Project Budget Table**

**Please attach a project budget table.**

☐ Back

[Validate](#) [Send back to Agency Preparer \(From GEFSEC\)](#) [Submit to GEFSEC](#) [Cancel](#)

\*Validated!!!Success!!!. Please click on submit.



- Contact Us
- Legal
- Council Members & Alternates
- Focal Points
- FAQ
- Help

© 2019 Global Environment Facility, All Rights Reserved.



Submitted to GEF Secretariat Review



[Go To Home](#)