DRIN CORDA

Enabling Transboundary Cooperation & Integrated Water Resources Management in the extended DRIN RIVER BASIN

gef

Terms of reference:

Surveillance Monitoring Programme for the Ohrid Lake Watershed

In the framework of the:

GEF Project "Enabling Transboundary Cooperation and Integrated Water Resources Management in the Extended Drin River Basin"

July 2018

The Coordinated Action for the implementation of the Memorandum of Understanding for the management of the Drin basin (Drin CORDA) is supported by the GEF Drin Project. The latter is implemented by the United Nations Development Programme (UNDP) and executed by the Global Water Partnership (GWP) through GWP-Mediterranean (GWP-Med), in cooperation with the United Nations Economic Commission for Europe (UNECE). GWP-Med serves as the Secretariat of the Drin Core Group, the multilateral body responsible for the implementation of the Memorandum of Understanding.

For more information, please contact

Global Water Partnership Mediterranean

Web: www.gwpmed.org

Headquarters:
12, Kyrristou str., 10556
Athens, Greece
T: +30210-3247490, -3247267, F: +30210-3317127
E-mail: secretariat@gwpmed.org

Introduction - Background

The Drin Memorandum of Understanding

Coordinated action at the Drin Basin level has been absent until the development of the Shared Vision for the sustainable management of the Drin Basin and the signing of a related Memorandum of Understanding (Tirana, 25 November 2011) by the Ministers of the water and environment management competent ministries of the Drin Riparians i.e. Albania, The Former Yugoslav Republic of Macedonia, Greece, Kosovo* and Montenegro. This was the outcome of the Drin Dialogue coordinated by the Global Water Partnership Mediterranean (GWP-Med) and UNECE.

The main objective of the Drin MoU is the attainment of the Shared Vision: "*Promote joint action for the coordinated integrated management of the shared water resources in the Drin Basin, as a means to safeguard and restore, to the extent possible, the ecosystems and the services they provide, and to promote sustainable development across the Drin Basin*".

The **ultimate goal** of the work in the Drin Basin is to reach a point in the future where the scale of management lifts from single water bodies to the hydrological interconnected system of the Drin Basin, eventually leading from the sharing of waters among Riparians and conflicting uses, to the sharing of benefits among stakeholders.

The Drin Coordinated Action

A process called the "Drin CORDA", Drin Coordinated Action for the implementation of the Drin MoU, was put in place after the signing of the latter.

Following the provisions of the Drin MoU an institutional structure was established. It includes:

- The **Meeting of the Parties**.
- The **Drin Core Group** (DCG). This body is given the mandate to coordinate actions for the implementation of the MoU.
- Three **Expert Working Groups** (EWG) to assist the DCG in its work:
  - Water Framework Directive implementation EWG.
  - Monitoring and Information exchange EWG.
  - Biodiversity and Ecosystem EWG.

The **DCG Secretariat** provides technical and administrative support to the DCG; Global Water Partnership – Mediterranean (GWP-Med) serves by appointment of the Parties through the MoU as the Secretariat.

An Action Plan was prepared to operationalize the Drin CORDA. This has been subject to updates and amendments in accordance with the decisions of the Meeting of the Parties to the Drin MoU and the DCG. The DCG guides the implementation of the action plan while its implementation is currently being supported by the Global Environment Facility[1] (GEF); see below.

The GEF Drin Project

The GEF supported Project "Enabling transboundary cooperation and integrated water resources management in the extended Drin River Basin" (GEF Drin Project) is aligned in content, aims and objectives with the Action Plan and the activities under the Drin CORDA.

[1] www.thegef.org

The objective of the project is to *promote joint management of the shared water resources of the transboundary Drin River Basin, including coordination mechanisms among the various sub-basin joint commissions and committees*. Albania, The Former Yugoslav Republic of Macedonia, Kosovo and Montenegro are the Project beneficiaries.

The GEF Drin Project is structured around five components:

- Component 1: Consolidating a common knowledge base
- Component 2: Building the foundation for multi-country cooperation
- Component 3: Institutional strengthening for Integrated River Basin Management (IRBM)
- Component 4: Demonstration of technologies and practices for IWRM and ecosystem management
- Component 5: Stakeholder Involvement, Gender Mainstreaming and Communication Strategies

The Project is implemented by UNDP and executed by the Global Water Partnership (GWP) through GWP-Mediterranean (GWP-Med) in cooperation with the United Nations Economic Commission for Europe (UNECE); GWP-Med is responsible for the realization of the Project. The Drin Core Group is the Steering Committee (SC) of the Project.

A *Lake Ohrid Basin Management Plan* (hereinafter LOBMP) in accordance with the pertaining EU regulations -especially EU Water Framework Directive- and national laws is being developed as part of the Component 4 of the Drin Project. It is developed by a consortium hired in this regard by the Drin Project, led by RINA company.

The LOBMP will be developed within the period 2018-2019. Within its framework, the characterization of the water bodies will be done followed by the development of a Program of Measures. A surveillance monitoring will be performed to form the basis for the characterization of the water bodies.

The Lake Ohrid

With a mean and maximum water depth of 155 m and 293 m respectively, Lake Ohrid is a deep, calcium bicarbonate-dominated, oligotrophic lake. The lake is located at 693 masl. and covers a surface area of 358 km^2. The hydrological regime of the lake is dominated by inflow of water from the nearby Lake Prespa via karstic aquifers (sublacustrine and surface springs), while the outflow occurs through the Black Drin river in the town of Struga. The entire watershed of the two lakes covers approximately 3,921 km^2, of which 1,402 km^2 belong to the Lake Ohrid sub-watershed and 2,519 km^2 to the Prespa Lakes sub-watershed.

Lake Ohrid itself is formed over one graben structure with meridian orientation and horizontal pulling along the main tectonic, separator bend: Bilisht – Korçe – Diber. The general extent of the lake is limited by the horst of Suva Mountain (in the east) and Mokra Mountain (in the west). The form of the lake and its shoreline (simple and straight) were determined by neotectonic movements along faults that remain active today. Movement along these faults is experienced as earthquakes. The Lake Ohrid watershed belongs to the Western Macedonian geotectonic zone, which represents a segment of the interior Dinaric Alps. The bedrock structure of the watershed area includes rock masses of various types, composition and age, going all the way back to the Paleozoic, Mesozoic and Cenozoic Eras.

With an estimated age of 2–5 million years, it is the oldest lake in Europe. Although more work is needed to determine the hypothesis of the lake's origin and age it remains undisputed that the lake has persisted in its present form since at least the Pleistocene. Four hypotheses exist regarding the limnological origin of the lake, but two of them seem most accurate. The first one supports the theory of "de novo" formation of Lake Ohrid in a dry polje with a spring or river hydrography, and the second hypothesis presumes a paleogeographic connection of Lake Ohrid with the brackish waters on the Balkan Peninsula.

The climate of the Lake Ohrid watershed represents a long-term synthesis of the distribution of solar energy and the general circulation of the atmosphere. Because of its geographic position, the proximity of the Adriatic Sea and the surrounding mountains, the climate reflects both Mediterranean influences as well as continental ones.

The oligotrophic Lake Ohrid has an average total phosphorus concentration of 4.5 mg/m^3 and total nitrogen concentration of 171–512 mg/m^3. The lake's silica concentration is < 200 mg/m^3 in the trophogenic zone during summer, while the average water pH and conductivity are 8.48 and 208 µS/cm respectively. The average Secchi depth is roughly 14 m. Although the concentrations of phosphorus and the water transparency measured in the last few years still suggest an oligotrophic condition in Lake Ohrid, the living organisms show a different pattern. Both the phytoplankton and zooplankton communities are shifting to species composition more characteristic of a mesotrophic lake.

Compared with other ancient lakes, Lake Ohrid is relatively small with a total surface area of 358 km^2 and a maximum depth of 293 m. Despite its size, the lake contains considerable aquatic species diversity and endemism. Of the 1,200 animal species reported, 212 are considered endemic. Ten of the seventeen identified fish species of the Lake Ohrid are endemic, as are many of the lake's snails, worms, and sponges. According to published data based on almost a decade of detailed taxonomic work on the lake, in total, 789 diatom taxa have been recorded, including 117 endemic species. Harboring more than 300 endemic species, Lake Ohrid has the highest index of endemism of all ancient lakes.

The reed belt along the coastline of the lake serves as a spawning site for many fish species and an important wintering site for birds. Tens of thousands of birds of more than twenty species populate the area. However, development has also changed the natural habitats along the shoreline, especially in the areas around Ohrid, Struga, Peshtani, St. Naum, Tushemisht, and Pogradec. In these areas the native reed zone has been drastically reduced, and nutrient enrichment has stimulated the growth of new aquatic plants. The changes in shoreline vegetation have also interrupted the connections between the lake and the shoreline channels and wetlands. Additionally, the commercially important fish species in Lake Ohrid, including its famous Lake Ohrid trout, have been harvested at unsustainable levels in recent years and the populations of trout are in immediate danger of collapse. Human activities along the shoreline also threaten the spawning and wintering grounds of the Ohrid trout and other fishes.

The lake itself is also used for drinking water supply for the City of Ohrid and surrounding settlements.

Scope of Work

The objective of this assignment is to provide comprehensive monitoring of hydrological, chemical and hydrobiological characteristics of the water bodies in the Ohrid Lake watershed and provide input to better understanding of the ecological status of the water bodies and the hydrological regimes, in line with the requirements of the EU Water Framework Directive. The monitoring to be performed will constitute the surveillance monitoring in the framework of the development of the Lake Ohrid Basin Management Plan.

Duties and Responsibilities

Under the supervision of the Project Coordinator and the responsible Project Officer, and in cooperation with all relevant stakeholders, the selected Contractor shall provide monitoring services for the surveillance monitoring in the framework of the LOBMP development.

Based on the requirements of this ToR, the selected Contractor will develop a comprehensive monitoring plan which will include: methods and plan for samples collection and analysis for the assessment/measurement of the quality and hydrological/hydromorphological elements and parameters listed in Appendix 2 and, data collection and management.

The monitoring/sampling sites, elements and parameters to be assessed/measured and the required sampling frequencies are defined in the ToR (Appendix 1 and Appendix 2).

Relevant Contractor personnel will take part in coordination meetings and trainings and workshops organized by the project after invitation by the Project Officer.

The tasks are as follows:

- Develop a detailed monitoring plan for the monitoring of elements and parameters in the Ohrid Lake watershed described in Appendix 2.
- Conduct the field work/samplings on the 20 indicated sampling sites (5 in rivers and 13 on lake, one in a Heavily Modified Water Body (HMWB) and one in an Artificial Water Body (AWB) (see Appendix 1).
- Conduct the necessary work and the laboratory analyses of samples for the assessment/measurement of the quality and hydrological/hydromorphological elements and parameters as described in Appendix 2.

- Prepare reports summarizing all monitoring results in a form agreed previously with the expert team hired by the Drin Project to prepare the LOBMP.
- The selected contractor will involve local/national organizations and institutions responsible for data collection and management in the littoral countries, and more specifically the National Environmental Agency (NEA) in Albania and the Hydrobiological Institute in the former Yugoslav Republic of Macedonia, in the collection and/or analysis of samples.

Main Outputs/Deliverables

1. **Methodology and plan for monitoring programme** which should include description of work, sampling methods, methods of analysis of samples, plan for samples collection and analysis for the assessment/measurement of the quality and hydrological/hydromorphological elements and parameters listed in Appendix 2 and, data collection and management
2. **Monitoring reports** for each one of the Monitoring Expeditions that present all the results related to the collection and analysis of samples for the list of elements/parameters for each expedition as described in Appendix 2 (detailed field data depicting the conditions during the collection of samples; depending on the parameter, definition of the concentrations and/or the results of the analysis of samples, etc.) and one summary report that present ecological status/potential of all water bodies in the Ohrid Lake watershed.
3. **A comprehensive monitoring data base** at the end of the assignment.

Schedule of Activities and Milestones

Task	Deliverables	Deadlines
Task 1) Preparation of methodology and plan for monitoring programme	- Methodology/plan	Latest, two weeks after the signing of the contract
Task 2) First monitoring expedition – September to November 2018	- Monitoring report of First monitoring expedition	10 December 2018
Task 3) Second monitoring expedition – April 2019	- Monitoring report of second monitoring expedition	May 2019
Task 4) Summary report	- Report on ecological status/potential of all water bodies in the Ohrid Lake watershed	May 2019
Task 5) Development of the Monitoring Database	- Comprehensive monitoring database	May 2019

Contract Price

The maximum available budget for this contract is 50.000 USD, including VAT.

This amount includes all other costs, collection and analysis of samples, travel costs, income taxes and any other amount payable or cost that may be required for the completion of the work/service.

Duration of the Contract

The overall duration of the contract will be maximum 10 months.

Schedule of Payment

An advance payment of 30% of the offered price is planned upon contract signature with the selected bidder.

All other payments shall be upon reception and acceptance/verification of the deliverables, as laid out in the table below.

Deliverable	Verification	Payment	Scheduled
Contract signing		Tranche 1 - Advance payment (30%)	September 2018
Methodology/plan	Accepted by Project Coordination Unit (PCU) as per guidance by RINA/PointPro		Two weeks after the signing of the contract
Monitoring report of First monitoring expedition	Accepted by PCU as per guidance by RINA/PointPro	Tranche 2 (25%)	December 2018
Monitoring report of second monitoring expedition	Accepted by PCU as per guidance by RINA/PointPro	Tranche 3 (25%)	May 2019
Report of ecological status/potential of all water bodies in the Ohrid Lake watershed	Accepted by PCU as per guidance by RINA/PointPro		
Comprehensive monitoring database	Accepted by PCU as per guidance by RINA/PointPro	Final Payment (20%)	June 2019

Qualification Requirements and Criteria

(i) Failure to provide the following is considered a ground for disqualification.

- **The successful Consultant must be a Company/Institute/Institution or Consortium** with experience in environmental monitoring (collection and analysis of environmental samples). Offers from individual experts will not be accepted.
- **The successful Consultant** should have the necessary expertise in terms of technical equipment and laboratories accredited in the analysis of samples for the chemical parameters listed in Appendix 2. Alternatively, the successful Consultant should demonstrate/prove that technical equipment and laboratories accredited in the analysis of

samples for the chemical parameters listed in Appendix 2 will be used for the delivery of the tasks under this assignment.

- **Adequate communication skills to conduct the assignment:** The successful Consultant need to demonstrate fluency in English and the languages of two Lake Ohrid littoral countries; alternatively, the Consultant should indicate the mechanism that will be used to guarantee understanding (in terms of language) of national legislation, and communication with local institutions and authorities.

(ii) The qualified offers will be evaluated based on the following (higher values in / better quality of each of the following will receive higher score):

- **Methodology and Approach**: The offer should explain the planned methodology and approach to be followed for each of the Tasks, including what sampling and analysis methodology will be used (reference to the methodology for each parameter should be enough). The Approach Note should indicate (in a Tasks Table) the experts that will be used for each of the tasks listed above. The composition of the team and the qualifications and experience of the experts in relation to the requested services should be also briefly presented.

- **Number of projects implemented:** A record of successfully implemented projects of this kind in the last 10 years is required. Experience in performing monitoring in the framework of the EU WFD will be considered an asset.

- **Composition and qualification of Team of experts:** The scope of work requires a team of experts to possess technical skills related to environmental monitoring in order to successfully implement the assignment.

  The following table summarizes the key qualification requirements of the team members for each of the areas/sub-areas of expertise; a team of experts able to respond to all areas of expertise defined below is mandatory (NOTE: there is no limitation on the number of experts per area of expertise).

Team members/experts and their qualifications

Category	Team members and/or areas of expertise	Qualification requirements of lead experts
	Team Leader	• Advanced university degree (minimum M.Sc.) in relevant area (Environment, Natural Sciences, or similar) • Minimum 10 years of professional experience in similar assignments (water quality monitoring and management projects) • Record of minimum 5 projects of comparable nature (implementation of water quality monitoring programmes, or water management projects which include water

		quality monitoring) • Team Leader of at least 2 projects of comparable nature and degree of complexity
CHEMISTRY	**General chemistry and nutrients**	• Advanced university degree in chemistry, chemical engineering, environmental science or related. • At least 5 years of experience in hydrochemical analyses • Knowledge of standard chemical techniques for water monitoring
	Heavy metals	• Advanced university degree in chemistry, chemical engineering, environmental science or related. • At least 5 years of experience in hydrochemical analysis • Knowledge of chemical techniques for detection of heavy metals in water and sediments
	Priority substances	• Advanced university degree in chemistry, chemical engineering, environmental science or related. • At least 5 years of experience in hydrochemical analysis • Knowledge of chemical techniques for detection of priority substances in water
BIOLOGY	**Phytobenthos / phytoplankton expert**	• Advanced university degree in biology, ecology, environmental science or other related subjects. • At least 5 years of experience in hydrobiological analyses • Experience in techniques for identification of phytobenthos and phytoplankton in rivers/lakes
	Zoobenthos	• Advanced university degree in biology, ecology, environmental science or related • At least 5 years of experience in hydrobiological analyses • Knowledge of techniques for identification of zoobenthos in rivers and lakes

	Macrophytes	• Advanced university degree in biology, ecology, environmental science or related • At least 5 years of experience in hydrobiological analyses • Knowledge of techniques for identification of macrophytes and riparian vegetation in rivers and lakes
	Fish	• Advanced university degree in biology, ecology, environmental science or related • At least 5 years of experience in fish and fishery analyses • Knowledge of techniques for identification of freshwater fishes
HYDROLOGY AND HYDROMORPHOLOGY	**Hydrology / Hydromorphology / Hydrogeology**	• University degree in civil engineering, hydrology, environmental engineering or related • At least 5 years of experience in projects in hydrology / hydromorphology or similar • Record of at least 1 projects where s/he had a role of a hydrology / hydromorphology expert • Knowledge of standard techniques for hydrological / hydromorphological monitoring

The evaluation of qualified offers will be made as follows:

Evaluation Criteria	**Points (max)**
Methodology and Approach	20 points
Number of relevant Projects implemented in the last 10 years	40 points
Composition and qualification of Team of experts	40 points
Total:	**100 points**

The score of each one of the offers received will be calculate with the following simple formula: **Sx=Cx/Ex**, where:

Cx is the amount of the Financial Offer

Ex is the total sum of the evaluation criteria points

Sx is the final score round it up to the first digit.

The selected offer will be the one with the smaller Sx

NOTES:

Interested parties should submit an offer including the following:

- **Methodology and Approach Note** (three pages maximum except for the annexes; the tables indicating the methodologies can be annexed) explaining the planned methodology and approach to be followed for each of the Tasks described in the ToR, including what sampling and analysis methodology will be used (reference to the methodology for each parameter should be enough).
- **Qualifications Note**: explaining the composition of the team as well as its qualifications and experience in relation to the requested services. The Note should indicate (in a Tasks Table) the experts that will be used for each of the tasks listed in the ToR and provide a break-down of planned man-days per task and expert under each task.
- **CVs** of the team members.
- **List of implemented projects** to be submitted along with contact details for reference checking purposes (please indicate the e-mail addresses or fax numbers of contact persons).
- **Financial Offer** in a separate sealed envelope.
- Official registration certificate, VAT number registration and legal status form.

Terms and Conditions

-Language

The language of the deliverables/outputs is English. The Company/Consortium will make sure that all deliverables will be edited by qualified professionals.

-Legal requirements

The content of the requested documents shall conform to the pertaining relevant legislation in the two countries and international best practices and models.

-Sources of data

All necessary data will be collected by the **Company/Institute/Institution or Consortium**. The RINA/PointPro will support the **Company/Institute/Institution or Consortium** in gathering information in the riparian countries necessary for delivering the tasks. The **Company/Institute/Institution or Consortium** shall also be responsible for identifying and collecting additional information necessary for carrying out the assignment.

-Review and quality assurance

A review of the deliverables will be made by RINA/PointPro. Relevant comments and suggestions made by the reviewer(s) will have to be integrated in the final versions of the deliverables.

-Submission of data, reports and other material produced

All primary data, reports, and other documentation produced during this assignment shall be made available to the Drin Project in electronic form in a USB storage device. All products developed during the assignment will be in the ownership of Drin Project and cannot be used by the **Company/Institute/Institution or Consortium** and its team without prior written permission.

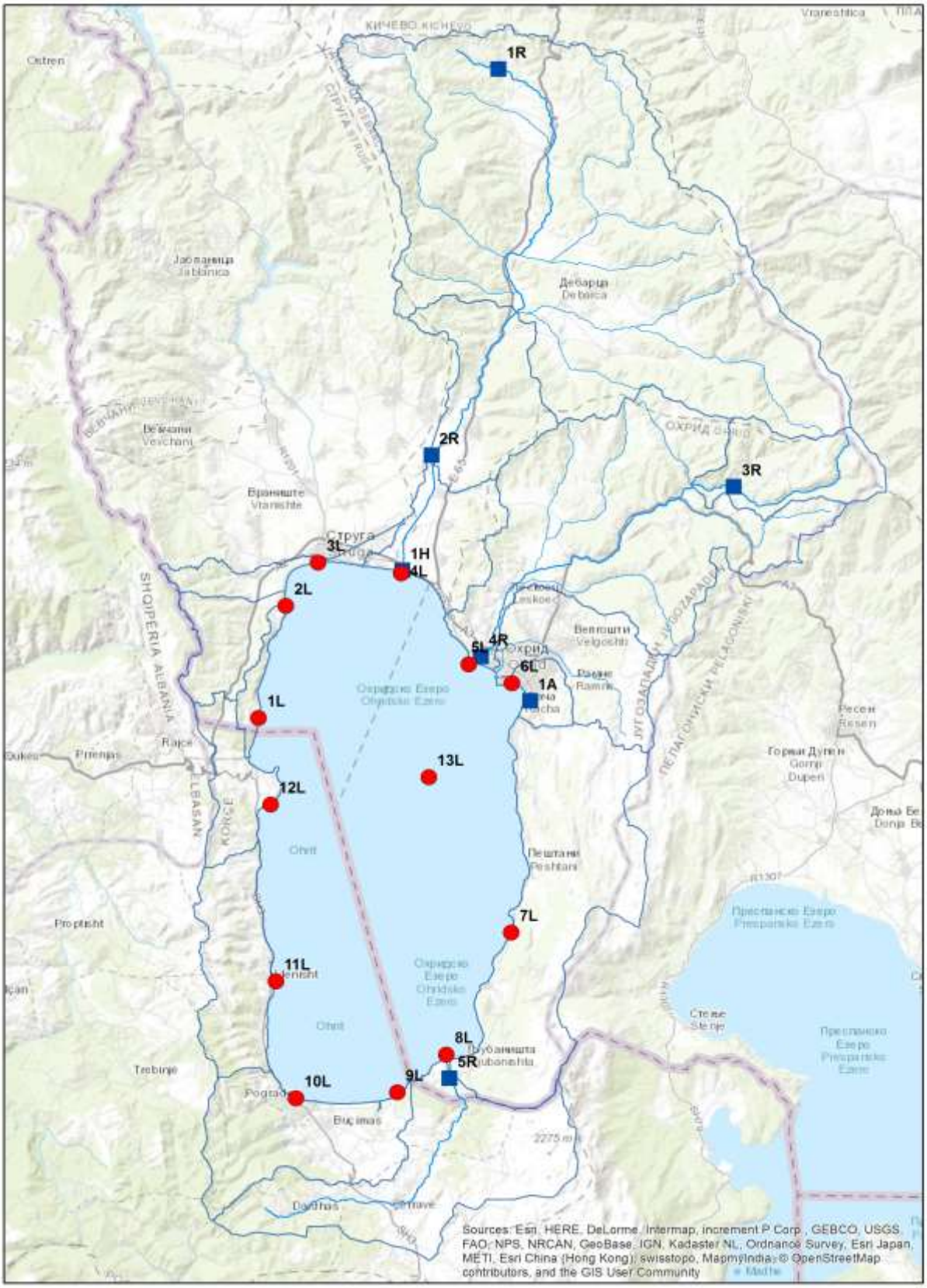
-*Cooperation requirements*

Company/Institute/Institution or Consortium is expected to work closely with the Drin PCU and receive guidance from RINA/PointPro.

APPENDICES

Appendix 1 – Sampling sites

No.	Water body type	Code	Name of the Water Body	Altitude	Latitude	Longitude
River monitoring points						
1	R	1R	R-Sateska 1	985	41.42039	20.788455
2	R	2R	R-Sateska 2	710	41.22645	20.745655
3	R	3R	R-Koselska 1	943	41.21103	20.941533
4	R	4R	R-Koselska 2	695	41.125584	20.778007
5	R	5R	R-Cerave	698	40.914029	20.758484
Lake monitoring points						
1	L	1L	L-Radozhda	693.4	41.094014	20.634611
2	L	2L	L-Kalishta	693.4	41.150345	20.651818
3	L	3L	L-Struga-Black Drin	693.4	41.172124	20.672604
4	L	4L	L-Sateska	693.4	41.166857	20.726561
5	L	5L	L-Koselska	693.4	41.121281	20.770415
6	L	6L	L-Ohrid bay	693.4	41.111774	20.798303
7	L	7L	L-Velidab	693.4	40.986694	20.798226
8	L	8L	L-Bay of St. Naum	693.4	40.925334	20.756616
9	L	9L	L-Tushemisht	693.4	40.906405	20.72499
10	L	10L	L-Pogradec	693.4	40.9033	20.659692
11	L	11L	L-Udenisht	693.4	40.961899	20.646443
12	L	12L	L-Lin	693.4	41.050631	20.642544
13	L	13L	L-Lake Ohrid-Pelagic	693.4	41.064553	20.744755
Heavily modified water body monitoring points						
1	HMWB	1H	Sateska 3	694.5	41.168719	20.727015
Artificial water body monitoring points						
1	AWB	1A	Studenchishki Kanal	694	41.103364	20.809959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Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Appendix 2 – List of quality parameters

1. BIOLOGY

Specific biological quality elements to be monitored

Quality element	Frequency (number of expeditions and periods within which the expedition(s) should be performed)	What to monitor *)
Lakes		
Phytoplankton	2: Sept/Nov 2018; April 2019	S,A,B
Phytobenthos	2: Sept/Nov 2018; April 2019	S, A
Macrophytes (including riparian plants)	1: Sept/Nov 2018;	S, A
Benthic invertebrates	2: Sept/Nov 2018; April 2019	S, A
Fish	1: Sept/Nov 2018;	S,A,L,(B)
Rivers		
Phytobenthos	2: Sept/Nov 2018; April 2019	S, A
Macrophytes (riparian plants included)	1: Sept/Nov 2018;	S, A
Benthic invertebrates	2: Sept/Nov 2018; April 2019	S, A
Fish	1: Sept/Nov 2018;	S,A,L

*** S = Species composition, A = Abundance, L = Age structure, B = Biomass**

2. CHEMISTRY

List of Obligatory general physico-chemical parameters to be monitored in water samples

Obligatory general physico-chemical parameters	Lakes	Rivers	Frequency (number of expeditions and periods within which the expedition(s) should be performed)
Oxygen content and/or saturation	yes	yes	2: Sept/Nov 2018; April 2019
Temperature	yes	yes	2: Sept/Nov 2018; April 2019
Salinity	yes	yes	2: Sept/Nov 2018; April 2019
Concentration of total phosphorus	yes	yes	2: Sept/Nov 2018; April 2019
Concentration of total of nitrogen	yes	yes	2: Sept/Nov 2018; April 2019
Transparency	yes	no	2: Sept/Nov 2018; April 2019
pH value	yes	yes	2: Sept/Nov 2018; April 2019

List of chemical quality elements to be monitored in water samples

Chemical element	Lakes	Rivers	Frequency (number of expeditions and periods within which the expedition(s) should be performed)
Ammonium (NH_4)	yes	yes	2: Sept/Nov 2018; April 2019
Nitrites (NO_2)	yes	yes	2: Sept/Nov 2018; April 2019
Nitrates (NO_3)	yes	yes	2: Sept/Nov 2018; April 2019
Orthophosphates (PO_4)	yes	yes	2: Sept/Nov 2018; April 2019
Calcium Ca^{2+}	yes	yes	1: Sept/Nov 2018;

Magnesium Mg^{2+}	yes	yes	1: Sept/Nov 2018;
Iron (Fe)	yes	yes	1: Sept/Nov 2018;
Manganese (Mn)	yes	yes	1: Sept/Nov 2018;
Zink (Zn)	yes	yes	1: Sept/Nov 2018;
Chromium (Cr)	yes	yes	1: Sept/Nov 2018;
Chloride (Cl^-)	yes	yes	1: Sept/Nov 2018;
Sulfate (SO_4)	yes	yes	1: Sept/Nov 2018;

List of priority substances to be monitored in water and/or sediment samples

Priority substance	**Lakes**	**Rivers**	**Frequency (number of expeditions and periods within which the expedition(s) should be performed)**	**Water samples**	**Sediment samples**
- Cadmium and its compounds	yes	yes	2: Sept/Nov 2018; April 2019	yes	yes
- Lead and its compounds	yes	yes	2: Sept/Nov 2018; April 2019	yes	yes
- Mercury and its compounds	yes	yes	2: Sept/Nov 2018; April 2019	yes	yes
- Nickel and its compounds	yes	yes	2: Sept/Nov 2018; April 2019	yes	yes
- Endosulfan	yes	yes	2: Sept/Nov 2018; April 2019	yes	no
- Hexachlorobenzen	yes	yes	2: Sept/Nov 2018; April 2019	yes	no
- Hexachlorocyclohexan – HCH	yes	yes	2: Sept/Nov 2018; April 2019	yes	no
- Cyclodienepesticides: Aldrin, Dieldrin, Endrin, Isodrin	yes	yes	2: Sept/Nov 2018; April 2019	yes	no
- DDT total, pp DDT	yes	yes	2: Sept/Nov 2018; April 2019	yes	no
- Heptachlorandheptachlo repoxide.	yes	yes	2: Sept/Nov 2018; April 2019	yes	no

List of priority substances and their Environmental Quality Standards

No	Name of substance	CAS number (1)	AA-EQS (2) Inland surface waters (3)	AA-EQS (2) Other surface waters	MAC-EQS (4) Inland surface waters (3)	MAC-EQS (4) Other surface waters	EQS Biota (12)
(6)	Cadmium and its compounds (depending on water hardness classes) (6)	7440-43-9	≤ 0,08 (Class 1) 0,08 (Class 2) 0,09 (Class 3) 0,15 (Class 4) 0,25 (Class	0,2	≤ 0,45 (Class 1) 0,45 (Class 2) 0,6 (Class 3) 0,9 (Class 4) 1,5 (Class	≤ 0,45 (Class 1) 0,45 (Class 2) 0,6 (Class 3) 0,9 (Class 4) 1,5 (Class	

			5)		5)	5)	
(9a)	Cyclodiene pesticides: Aldrin (7) Dieldrin (7) Endrin (7) Isodrin (7)	309-00-2 60-57-1 72-20-8 465-73-6	Σ = 0,01	Σ = 0,005	not applicable	not applicable	
(9b)	DDT total (7), (9)	not applicable	0,025	0,025	not applicable	not applicable	
	para-para-DDT (7)	50-29-3	0,01	0,01	not applicable	not applicable	
(14)	Endosulfan	115-29-7	0,005	0,0005	0,01	0,004	
(16)	Hexachloro-benzene	118-74-1			0,05	0,05	10
(18)	Hexachloro-cyclohexane	608-73-1	0,02	0,002	0,04	0,02	
(20)	Lead and its compounds	7439-92-1	1,2 (13)	1,3	14	14	
(21)	Mercury and its compounds	7439-97-6			0,07	0,07	20
(23)	Nickel and its compounds	7440-02-0	4 (13)	8,6	34	34	
(44)	Heptachlor and heptachlor epoxide	76-44-8/1024-57-3	2×10^{-7}	1×10^{-8}	3×10^{-4}	$3x10^{-5}$	$6,7x10^{-3}$

AA : annual average.
MAC : maximum allowable concentration.
Unit : [µg/l] for columns (4) to (7)

[µg/kg wet weight] for column (8)

List of Hydromorphological quality elements and parameters to be monitored in both monitoring expeditions

Quality element	Sub-elements	Parameter
Continuity		1. number, location and possibility to cross barriers 2. accessibility/connectivity for fish
Hydrological regime	Quantity and dynamics of the water flow	3. water level 4. discharge, current velocity 5. degree of free run-off 6. degree of natural discharge pattern 7. tidal features: (tidal rivers) a. slack tide b. tidal amplitude c. ratio of horizontal tide
Morphological conditions	Depth and width variation of the river Structure and substrate of the river bed	8. river course 9. cross section and degree of naturalness 10. presence of artificial river bed 11. degree of naturalness of substrate composition of

	Structure of the riparian zone	the river bed 12. erosion/sedimentation structures 13. presence of embankment zone 14. land use of embankments 15. land use of flood plain/river valley 16. possibility for entirely natural inundation 17. possibility for entirely natural meandering