



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



Terms of reference:
***National Expert – Water Quality
Surveillance Monitoring and Sampling
Training***

In the framework of:

Memorandum of Understanding
for the Management of the Extended Transboundary Drin Basin

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

08 June 2017

The Coordinated Action for the implementation of the Memorandum of Understanding for the management of the Drin basin (Drin CODA) 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.

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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 and its Secretariat guides the implementation of the action plan while its implementation is currently being supported by the Global Environment Facility¹ (GEF); see below.

¹ www.thegef.org

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.

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 the 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.

It is managed by a Project Coordination Unit (PMU), based in Tirana, Albania; staff is stationed also in Podgorica, Ohrid, Pristina, and Athens. The duration of the Project is four years.

Description of the assignment

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.

A set of activities under *Component 1. Consolidating a Common Knowledge Base, Outcome 1: Consensus Among Countries on Key Transboundary Concerns, Including Climate Change and Variability, Reached Through Joint Fact Finding*, and within work on Output 1. *Transboundary Diagnostic Analysis (TDA)* consists of an analysis of priority transboundary environmental problems. What sectoral activities cause the degradation and how serious this is? Which are the actual drivers, causing the degradation? What are the information gaps on the existing environmental state, policy distortions and institutional deficiencies? Available and new scientific knowledge, national environmental documents and plans will inform the responses to the aforementioned questions and will provide inputs for preparing this analysis as well as identifying priorities among environmental concerns.

The Surveillance Monitoring is planned to improve the understanding of the present baseline conditions of the Drin Basin and the major transboundary concerns or more specifically, to amend and improve the existing data and information of the current state of water resources, and fill the data and info gaps.

The objective of the assignment is to conduct a Second Campaign of the Surveillance Monitoring at selected surface and groundwater bodies, analyze the samples and prepare the report. The surveillance monitoring will comprise of physical-chemical parameters/indicators, heavy metals, and priority substances (morphological and biological parameters/indicators will be part of a separate contract) for surface waters, and quantitative, chemical, heavy metals and priority substances for groundwater. The selected expert will carry out training on sampling methodologies for the representatives of national institutions (up to four).

The surveillance monitoring exercise should be carried out fully in accordance with EU Water Framework Directive (EU WFD 2000/60/EC) and pertaining guidelines and standards.

The Physical - Chemical (including heavy metals and priority substances) monitoring of water along the basin will complement and support the biological monitoring of water quality using as bio – indicators macro invertebrates, diatoms and macrophytes. The monitoring of Physical-Chemical, Heavy Metals and Priority substances will take place at the same period and locations as the biological monitoring campaign, so the two should be harmonized.

This Second monitoring campaign is planned for the **dry season – summer: July 2017**.

The detailed list of monitoring locations/stations to be monitored is presented in the Annex 1 to this document.

INPUT BY GWP-Med

GWP-Med will provide:

- i. locations of the monitoring points, with coordinates;
- ii. List of parameters to be monitored/analyzed at each monitoring point individually;
- iii. Preferred schedule (dates) of the sampling; (table 1)
- iv. List of standards for sampling of surface and ground water;
- v. Standards for analyses for various parameters;
- vi. Datasheets for reporting results, methods, and instrumentation, and
- vii. List of trainees from national institutions.

REQUESTED SERVICES

The Expert will:

1. Participate in one-day consultation/training in Tirana, Albania, on the manner of conducting the surveillance monitoring campaign, *i.e.* planning of water sampling survey, surface and groundwater sampling procedures, and the analytical protocol. A detailed plan of the campaigns will be drafted and agreed with the Project Manager and/or National Coordinator.
2. Conduct the complete field work, including:
 - a. Recording of field conditions;
 - b. Sampling of water at designated locations;
 - c. In situ determinations of basic-physicochemical parameters;
 - d. Samples pretreatment for storage, preservation and transportation to the laboratory.
3. Provide trainings on sampling, identification and data interpretation related to water quality, to the institutional authorities' representatives who will attend the expert during the monitoring period.
 - a. Training on sampling
The expert/trainer will present the sampling protocols of surface and groundwater, and the procedures for samples pretreatment, storage, and preservations. The expert will present the protocols for the *in situ* determinations of certain parameters. The expert should provide guidance on quality assurance practices for field procedures. The duration of the training is 1-2 days for sampling, which will take place during the monitoring campaign within July 2017.
 - b. Training Report
The expert/trainer should provide a brief Training Report within the period indicated to timeframe of the assignment.
4. Perform the Analysis of all requested/agreed parameters in the water samples in a certified/accredited laboratory (ISO standard has to be provided by each laboratory conducting the analyses), accompanied with analyses reports; Laboratories may select any analytical method of their choice for the purpose, provided that certain minimum performance criteria are met and demonstrated in accordance with the 2009/90/EC Directive laying down, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, technical specifications for chemical analysis and monitoring of water status.
5. Prepare a Comprehensive Monitoring Report of the monitoring campaign, organized as follows:
 - i. Description of Monitoring sampling sites, including a record of field conditions;
 - ii. Description of sampling procedures and potential protocol deviations in each sampling site;
 - iii. Report demonstrating laboratory's quality of analytical results;
 - iv. Input analyses results in appropriate Data-Sheet provided by PMU, including:
 1. Physical-chemical parameters;
 2. Priority substances;
 3. Heavy metals;
 - v. Quantitative information– water level (lakes, reservoirs and groundwater) on the day of sampling/analyses and flow conditions (riverine samples) if available;
 - vi. Summary of results from the analyses, including:
 1. Summary per parameters;
 2. Summary per location (classification, setting of quality class, if and where possible);
 3. Potable water or not (all water sources used/abstracted for drinking water purposes)

- vii. All laboratory reports/results should be provided in Annex, as well as in datasheets provided by PMU.
 - viii. Brief interpretation and evaluation of results.
6. The Surveillance Monitoring campaign has to be completely carried out by the Expert, including travel and accommodation arrangements, provision of sampling and sample preservation equipment and consumables, complete laboratory services.
 7. The logistical arrangements for the trainees following and participating in the sampling will be arranged and financed by the PMU, in coordination with the Expert/Trainer.

Required Qualifications and skills

- University degree in Chemistry, Biology, Water/Environmental sciences, or a similar field related to water resources management;
- Knowledge and experience in the EU Water Management sector and EU WFD acquis in general.

General professional experience

- At least 10 years of relevant professional experience in the field of water monitoring and water quality assessment.
- Good knowledge on WFD monitoring.
- Good communication and team working skills

Specific professional experience

- Practical experience in providing technical expertise for water monitoring -Physical-Chemical, Heavy Metals, Priority Substances - and reporting; relevant international working experience in the environmental/water quality field.
- Experience with water quality assessment including sampling, analyses and/or data interpretation.
- Experience with regards to the implementation of WF Directive requirements related to water quality assessment.
- Experience in providing on the job training and capacity building activities.
- Experience with MSFD would be considered an asset.
- Regional working experience would be considered an advantage.

Deliverables and timeframe of the assignment

Tasks, deliverables, and timeframe, as well as estimated expert days needed for completion of the assignment are presented in the table below:

Tasks	Deliverable	Timeframe/ deadline	Working days
Participation in one-day consultation in Tirana (see point 1. under Requested Services).	A. Time table of sampling & reporting	June 2017	1
Sampling Campaign 2- Summer 2017; Provide training on sampling		July 2017	7

(See points 2. and 3. under Requested Services).			
Assessment and laboratory Analysis (See point 4. under Requested Services).			7
Report 1: Surveillance Monitoring Report 2017 Preparation of a summary report - overall findings (see point 5. under Requested Services).	C. <u>Monitoring Report</u> D. <u>Brief Training Report</u>	End of September 2017	5

Location and language of the assignment

The location of the assignment will be in Macedonia. Travelling locally within Macedonia will be required for the completion of the assignment.

The language for all documents and reports as well as for all communication is English.

ANNEX I Monitoring Locations

Sampling Points – Drin basin

The following locations are planned for the Surveillance Monitoring:

No.	Location	GW	SW	Coordinates (X, Y, Z)		
1	Spring Crn Drim		X			
2	Ohridsko	x				
3	Drim Struga (exit of Ohrid Lake)		X			
4	Strushko	x				
5	Before entrance in Globochica		X			
6	Globochica Reservoir		x			
7	Shpilje Reservoir		X			
8	Drim – exit of Shpilje		X			
9	Radika –entrance in Shpilje		x			
10	Debarsko	x				

ANNEX 2. List of parameters to be monitored/analyzed at each monitoring point individually

Parameter		
Physico – chemicals		
pH in situ		
Conductivity salinity TDS		
Dissolved oxygen in situ		
Transparency in situ		
gw: Dissolved oxygen		
Concentration of suspended matter		
HCO ₃ ⁻ , NH ₄ +Fe ₂ ⁺ ,		
+SW DOC and chlorophyll (- nh ₄ ⁺ , Fe ₂ ⁺)		
Chemical oxygen demand - COD		
Biochemical oxygen demand 5 days incubation - BOD5		
Ammonia N –NH ₄		
Nitrite N – NO ₂		
Nitrate N – NO ₃		
Phosphorous P – PO ₄		
Phosphorous total		
Alkalinity		
Air T		
Water T		
oxygen saturation/SO ₂		
Ca 2+		
Mg 2+		
Na +		
K+		
Fe ₂ ⁺		
Cl-		
Tot. N		
SiO ₂		
F		
Hydro-chemical Type (Ca ₂ ⁺ / Mg ₂ ⁺)		
Total Costs/10 samples		
Heavy Metals		
Cd		
Pb		
Cr		
As		
Mn		
Ni		
Zn		
Fe		
Cu with sample prep		

Hg with sample prep		
Cyanides		
Total Costs/10 samples		
Priority Substances/organic pollutants		
Sampling preparation for analyzis		
Pesticides		
Atrazine (triazines: simazine, propazine, terbutylazine,DEA, DIA, DET...)		
Chlorfenvinphos + Chlorpyrifos (Chlorpyrifos-Ethyl)		
Organochlorine pesticides (Endosulfan, HCB, HCH isomers, p,p-DDT...)		
Cyclodiene pesticides (Aldrin, Dieldrin, Endrin, Isodrin)		
Trifluralin		
Trichloro-ethylene, Carbon-tetrachloride, Trichloromethane, Trichlorobenzenes		
Phthalates		
Di(2-ethylhexyl)phthalate (DEHP)		
Phenols		
Pentachlorophenol, 4-octylphenol, 4-t-nonylphenol		
Polyaromatic hydrocarbons		
(B(a)P), B(b)F, B(k)F, B(g,h,i)P, Indeno(1,2,3-cd)P, naphthalene, anthracene,		
Fluoranthene		
Polychlorinated Biphenyls – PCB		
mineral oils		
Total Costs/4 sampling points		
Sampling and Reporting		
Expert/Hydrologist		
Team Leader		
Total Costs/10 samples		
Overall Total		

ANNEX 6. Data-Sheet

Data Sheet will be provided by PMU in Microsoft Excel format.