TERMS OF REFERENCE

UPDATING OF THE DANUBE, PRUT AND BLACK SEA RIVER BASIN CHARACTERISATION

19 March 2018

1. Financing

European Union (ENI/2016/372-403)

2. Procedure

Competitive Negotiated Procedure according to EU PRAG

3. Contracting Authority

International Office for Water (IOW)

4. Nature of contract

Service contract

5. Time period of implementation

May 2018 – December 2018

6. Contract amount

Max. amount: 35 000 EUR

7. Background and Objectives

The EUWI+East project addresses existing challenges in both development and implementation of efficient management of water resources. It specifically supports the Eastern Partnership[1] countries to move towards the approximation to EU acquis in the field of water management with a focus on trans-boundary river basin management as identified by the EU Water Framework Directive (WFD).

The overall objective of the project is to improve the management of water resources in the EaP countries.

The specific objective is to achieve convergence of national policies and strategies with the EU Water Framework Directive, Integrated Water Resource Management (IWRM) and relevant existing Multilateral Environmental Agreements (MEAs).

The EUWI+East project is divided into three result areas as follows:

- Result 1: Legal and regulatory frameworks improved in line with the WFD, IWRM and MEAs;
- Result 2: River Basins Management Plans designed and implemented in line with the WFD principles;
- Result 3: Lessons learnt regularly collected, shared and communicated to stakeholders.

This assignment will contribute to the implementation of the Result 2, activity 2.3.2. "Technical Support in the elaboration and implementation of the pilot River Basin Management Plans (RBMPs)" and activity 2.3.6. "Development and strengthening of national databases on water related issues & ensure compliance of data with SEIS principles for collection and sharing of data".

This specific assignment concerns the preliminary steps of the refinement of the RBMP for the Danube, Prut and Black Sea (DPBS) Hydrographic District in Moldova (see current RBMP for the DPBS for the period 2017-2022 in Annex 1 and related assessment for WFD compliance made in the frame of the EUWI+East Project) in line with annex 7 of the WFD (Directive 2000/60/EC) and national framework on the preparation of River Basin Management Plan:

- Characteristics of the River Basin (note that delineation of water bodies, monitoring program and status assessment are subjected to another tender),
- Pressure and impact assessment of human activities,
- Protected areas identification,
- Economic analysis - part 1 (the part 2, to be made in a later stage, will focus on the costing and funding of the program of measures).

With these chapters, a metadata catalogue will be established to describe the data used and their availability.

[1] The Eastern Partnership (EaP) is a policy initiative launched at the Prague Summit in May 2009. It aims to deepen and strengthen relations between the European Union and its six Eastern neighbours: Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine.

The results will contribute to feed different meetings and consultations with technical experts, stakeholders, etc., which will be implemented during this assignment.

In parallel, an assignment concerns water bodies' delineation, monitoring program and status assessment. The two assignments will be steered in an interactive way.

8. Scope of work

The main objective of this assignment is to produce and/or update the elements for the characterisation of the PDBS Hydrographic District, preliminary step of the refinement of the PDBS RBMP, in line with the Water Framework Directive and national framework, based on a review of available and new data, information and literature, meetings with stakeholders, data formatting and exploitation, brainstorming, experts' judgement, etc. The data used and gathered to establish the first DPBS RBMP will be shared with the consultant at the beginning of the assignment.

The deliverables will include:

- 4 Technical reports: Characteristics of the River Basin, Pressure and impact assessment of human activities, Protected areas identification and Economic analysis - part 1. Key information and results from these technical reports should also be synthetised (in a few pages) in order to support consultation activities;
- 1 thematic summary to prepare Main Issues consultation;
- 1 cartographic atlas taking into account the specifications in Annex 2;
- Summary of methodologies used to develop the above-mentioned planning steps/tools;
- All datasets used described and uploaded;
- And active participation at meetings and training sessions (described further).

Results will be presented at basin level, sub-basin level, water bodies level, and/or at "water management unit" (i.e. any specific scale which corresponds to an adapted area for managing water resources, depending on the issues considered, the situation, the objective, etc.) level. Results will be mapped for the whole Danube, Prut and Black Sea Hydrographic District in Moldova.

The assignment will be rhythmed by different meetings with different publics (expert groups for technical exchanges and trainings, basin council for active involvement, stakeholders' consultation).

Comments received during those meetings will be considered to review the reports, and tracks of those contributions will be annexed to the produced deliverables. It is important to notice that the overall planning process will be co-constructed with local partners and, of course, with an important input from this assignment. The contractor will have to participate to (but not organise) most of the meetings to present and take into account opinions and views expressed.

Meetings with experts' groups will also take the form of training sessions. These trainings will be set up by the project team in order to improve national capacity building. The contractor will have to participate

to the trainings to present methodologies, tools (for cartographic work and GIS tools, among other) and results.

The consultant will present as well the methodologies used, which have to be in line with the European Guidance documents developed in the Frame of the Common Implementation Strategy.
See http://ec.europa.eu/environment/water/water-framework/facts_figures/guidance_docs_en.htm
In particular for this assignment, the following the CIS Documents:

- N° 1 – Economics,
- N° 2 – Identification of Water Bodies
- N° 3 - Analysis of Pressures and Impacts
- N° 4 – Identification and Designation of Heavily Modified and Artificial Water Bodies N° 8 - Public Participation in Relation to the Water Framework Directive
- N° 11 - Planning Processes
- N° 34 - Water Balances Guidance

Specific attention will also be paid to the existing guidance documents produced within the previous EPIRB project:

- Guidance Document addressing hydromorphology and physico-chemistry for a Pressure-Impact Analysis/Risk Assessment according to the EU WFD
- Guidance Document addressing Chemical Status of Surface Water Bodies for a Pressure-Impact Analysis/Risk Assessment according to the EU WFD

See http://blacksea-riverbasins.net/en/downloads-library-search?f[0]=field_downloads_type%3A61
Also national legislation will be used by contractor, such as:
- Water Law n° 272 from 23.11.2011,
- Governmental regulations #775 from 04.10.2013, #866 from 04.10.13; #950 from 25.11.13 etc.
Of course, Prut River Basin Analysis (RBA) and Danube-Prut and Black Sea RBA developed in the previous EPIRB project will be used for present assignment. See http://blacksea-riverbasins.net/en/downloads-library-search?f[0]=field_downloads_type%3A16

I. Deliverables

Content: Characterisation constitutive parts

The final report will contain four main chapters. Template of the proposed table of contents is shown below that gives idea of the minimum information required for each section (subject to data and information availability). Annex 2 proposes a list of maps for Danube-Prut and Black Sea River District characterisation which will be elaborated from the "data topics" (Annexe 5) and which will constitute the Cartographic Atlas.

1. Description of the characteristics of the DPBS River District

1.1. Geographic overview
- 1.1.1. Administrative boundaries
- 1.1.2. Climate (effective rainfall, etc.)
- 1.1.3. Topography
- 1.1.4. Geology
- 1.1.5. Soils
- 1.1.6. Vegetation, land cover

1.1.7. Outstanding aquatic ecosystems & wetlands

1.2. Water resources

1.2.1. Hydrographic network (natural, artificial)

1.2.2. Surface water resources (characteristic flows, annual and inter-annual variations, ecological flows; water quality related information)

1.2.3. Groundwater resources (quantitative & qualitative aspects)

1.3. Human activities & water uses (description and main trends)

1.3.1. Population (urban, rural, trends) and socio-economic data

1.3.2. Agriculture (crops and livestock husbandry)

1.3.3. Fish farms, shellfish aquaculture

1.3.4. Forestry

1.3.5. Industry, mining, aggregates extraction, dredging

1.3.6. Hydropower generation (incl. hydropower potential)

1.3.7. Waste disposal, landfills, polluted sites

1.3.8. Navigation

1.3.9. Tourism

1.3.10. Linear infrastructures (roads incl. winter road maintenance, underground infrastructures, dikes, dams, etc.)

1.4. Risks (incl. climate change)

1.4.1. Flood

1.4.2. Water scarcity

1.4.3. Erosion

1.4.4. Health issues

1.5. Stakeholders & programmes

1.5.1. Administrative organisation

1.5.2. Directory of water users

1.5.3. Summary of strategies, programmes and development projects concerning water resources

1.6. Diagnosis

1.6.1. Synthetic description with key figures

1.6.2. Brief SWOT analysis

The document will focus on topics and activities with likely impacts on water resources with relevant facts and figures which will be used to evaluate their pressures.

Note that water body delineation and status of water bodies is assessed through another tender. The project team will synchronise the 2 assignments.

2. Pressures and impact of human activities on water resources

2.1. Point source pollution:

2.1.1. Identification of point sources of pollution (e.g. wastewater treatment plants)

2.1.2. Estimation of point source pollution load:

- organic matter, nitrogen, phosphorus, pesticides, hazardous substances, bacteriology (e.g. urban waste water treatment plants discharges: location, connected population (number of inhabitants), and connected industries (name, type and volume of activities, abstraction volume and discharge quality),
- pollution before treatment and discharged after treatment if measured, sludge management, storm water management, etc.

2.2. Diffuse source pollution:
  2.2.1. Identification of diffuse sources of pollution
  2.2.2. Estimation of diffuse source of pollution loads of:
    - Organic matter, nitrogen, phosphorus, pesticides, hazardous substances, bacteriology (e.g. balance estimation from crops yields, agronomic practices, and manure management, etc.)

2.3. Identification and estimation of quantitative pressures on surface water and groundwater (water abstraction for households, industrial activities, irrigation; transfers outside/inside the river basin; localisation, volume, trends)

2.4. Analysis of other pressures and impacts of human activity (hydrological regime –abstraction, works, hydropeaking-, river continuity, morphological conditions, etc.)

2.5. Other pressures (e.g. alien species proliferation)

2.6. Synthesis
  2.6.1. Quantity of pollution affected by domain of origin and balance during low flows
  2.6.2. Quantitative balance assessment between abstractions and surface water and groundwater resources availability, and link with minimum ecological flows
  2.6.3. Global synthesis of pressures and hot spots, related risk assessment

2.7. Trend analysis and baseline scenario
  2.7.1. Trend analysis of pressures and of water body status
  2.7.2. Baseline scenario and future evolution of the pressures
  2.7.3. Simulation of the impact on qualitative and quantitative status

Results will be estimated in link with the results of section 1.3 at the smaller level in order to merge them regarding water bodies and/or sub-basins.

Comparisons of theoretical estimations will be made with monitoring results (and, if available, modelling results), depending on availability of robust results.

Special attention should be given to the inventory of pollution sources and to the quantitative water balance assessment. A preparatory work has been realised on the inventory of point source and diffuse source pollution to feed the pressure analysis. The results are presented in Annex 6.

3. Identification and mapping of protected areas

3.1. Drinking water abstractions

3.2. Economically significant species (fish, shells)

3.3. Bathing waters

3.4. Vulnerable zones (first attempt of designation from Nitrates monitoring results and/or intensive agricultural activities areas)

3.5. Sensitive areas (first attempt of designation from signs of eutrophication and population density)

3.6. Special areas of conservation (habitats), special protection areas (birds) (first attempt from Emerald networks and current protection areas)

Identification and mapping will be formatted with results from chapter 1 and according to the QGis file (Annex 3) providing maps template. Coordination and coherence with the activity of the IFP project supported by ADA/SDC focusing on pilot identification and mapping of protected areas along the Prut mainstream and one tributary will be ensured (see ToR in Annex 4).

4. Economic analysis (part 1)

4.1. Economic weights by relevant water uses (results from chapter 2), socio-economic issues, main trends
4.2. Water prices by sector and by territory
4.3. Funding (investment, maintenance) by sector
4.4. Preliminary cost-recovery assessment

5. First thematic summary

This document will be used to prepare stakeholders consultation to collectively identify main issues.

This concise document (around 12 pages) will describe in a synthetic manner main results through 5 stakes: health (protection of human health through better drinking water availability, reduction of hydric diseases, etc.), quality, quantity, ecosystems, governance.

Content: Metadata catalogue

RBMP implementation supposes production of maps and indicators during the successive phases of the planning process. The necessary datasets for efficient Integrated Water Resources Management are produced by various national organisations. For a list of potential data providers and available data please refer to Mission Report (Annex 6).

The basic principle of action is that all the datasets presented or used in a map or a table or an indicator (available as electronic data but also in hardcopy) must be described in a catalogue of metadata established by the project and must be available in the national FTP (File Transfer Protocol service), in compliance with the national legislation (Government Decision n°738, Law 264, etc.), SEIS standards, and in order to feed the Water Resources Information System (SIRA).

The contractor will have to identify official existing data sources, their availability and data producers.

As a consequence, the task of the contractor will include:

- To collect and update the necessary datasets at the level of the producers and, if required, digitalize data which is only available in hardcopy format (e.g. in annual reports);
- To work with the data producers in order that the dataset provided are described on line into the metadata catalogue made available by the project;
- To copy the raw data made available by each producer on the FTP made available by the project.

The corresponding expected results can be formulated as follow:

- All datasets used are described in English and in Romanian (at least) into the metadata catalogue;
- All raw dataset used are available on FTP.

The letter of request for data should include the obligation that when the data producer provides a dataset or GIS layer, he/she also provides the corresponding metadata sheet fulfilled (see Template in Annex 7).

The consultant will insure that the metadata are entered in the catalogue with in addition:

- Thumbnail
- Geographical limits
- Translation in English/Romanian of all metadata entered
- Declare of public access the metadata sheet

A list of the main "data topics" has been established and is available in Annex 5. This list can be complemented by specific topics.

Format

Each chapter will be subject of a specific report (i.e. 6 deliverables incl. 1 thematic summary and 1 cartographic atlas).

All the documents consulted, data and information collected, interviews' records will be transmitted in their original forms (paper, files) and their valorised forms (GIS layers, data base, Excel, etc).

Reports will be transmitted in digital form which can be corrected (MS Office 2007 or more recent). Priority will be focused on illustrations and straightforward style.

GIS layers will be provided in Esri format (.shp) and at the closest possible of scale 1:50,000, respecting the national official projection.

Maps will be produced and delivered in QGis format and as TIF file (300 dpi), based on a template provided to the contractor by the Project Team (see specimens in Annex 3 file). All data and information collected will be provided in their original forms (paper, files) and their valorised forms (GIS layers, data base, Excel, etc.)

Maps will include only layers and dataset described into the metadata catalogue and having raw data available on FTP.

Maps will respect the standard GCS_WGS_1984 projection (Geographic Coordinate System of the World Geodetic System) of the UTM coordinate system (Universal Transverse Mercator) or the official projection system adopted at national level.

Meetings & trainings

Specific meetings will be organised with various audiences (experts, basin committee, stakeholders) during the planning process.

In a first approximation for the characterisation, 4 training sessions intended to experts group will be organized to cover the following topics: Description of the characteristics of the river basin, Pressures and

impact of human activities on water resources, identification and mapping of protected areas (in coordination with IFP project's activity on this topic), and economic analysis. Each of these technical training sessions will concern limited audience (around 15-20 persons) and can be organised on several days.

Phase	*Meeting*
Characteristics of the river basin	*Experts group training*
Pressures and impact of human activities on water resources, baseline scenario	*Experts group training*
Identification and mapping of protected areas	*Experts group training*
Economic analysis part 1	*Experts group training*
First thematic summary - main issues	*Basin Committee* *Stakeholders consultation*

For each training session, technical synthesis and oral presentations will be produced by the contractor in Romanian and English language. There will be in total about 6 events in the Capital or in the River Basin (4 experts' groups trainings, 1 Basin committee, 1 stakeholders' consultation).

9. Schedule & implementation modality

9.1. Schedule

Duration of the assessment will be up to 8 months and is expected to start from May 2018. The assignment is divided into phases and the finalisation respective to the following schedule.

Successive reports have to be prepared according with a schedule presented below and delivered to the project team in due time.

It is anticipated however that the draft deliverables will be first reviewed by the project team and the beneficiaries as Water Agency “Apele Moldovei” and if necessary will be returned to the implementing institution for finalisation and re-submission. Therefore, Draft reports and deliverables will be submitted to the Project Team at least 2 months before the deadline, and reviewed reports and deliverables at least one month before the related deadline.

Payment for the deliverables shall be considered only when the work is re-submitted and accepted by the Project Team and the Thematic Focal Points in behalf of the country beneficiaries.

Summary of the work deliverables and schedule

Deliverables	**Approx. number of pages outside annexes**	**Languages of deliverable**	**Due date for the draft report (M0 = signature of the contract)**	**Finalisation**
Description of the	50	Romanian/English	M+3	M+6

characteristics of the river basin				
Pressures and impact of human activities on water resources	40	Romanian/English	M+4	M+7
Identification and mapping of protected areas	15	Romanian/English	M+5	M+7
Economic analysis (part 1)	20	Romanian/English	M+3	M+6
First thematic summary on main issues	12	Romanian/English	M+5	M+8
Metadata catalogue	> 20	Romanian/English		
Cartographic Atlas	~ 40-60 maps	Romanian/English	M+6	M+8
Methodological fiches	6 fiches, 2-5 pages each	Romanian/English	M+6	M+8

EUWI+ work plan for RBMP - 2018

2018

	January	February	March	April	May	June	July	August	September	October	Nov.	December
	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Updating of the DPBS district characterisation												
River Basin characteristics												
Economic analysis (part 1)												
Pressures & impacts analysis of human activities, baseline scenario and related risk analysis												
Identification & mapping of protected areas												
Cartographic Atlas												
Main Issues												

Development of ToRs and approval of beneficiaries
Selection of tender list and tender
Appointment of contractor and inception period
output development activity
training workshop
delivery of report, guidelines

In the bid, the prices will contain a detailed breakdown of the cost for all goods and related services being provided, starting from the unit price until the lot price. Individual figures shall be provided for each deliverable, if any. Any estimates of cash expenses, such as expert trips and pocket expenses, shall be specified separately.

9.2. Implementation modality

Works shall be implemented by a local company or group of NGO(s), university, research institution, etc. that are not representing the project beneficiaries. The pilot studies will be closely coordinated, assisted and monitored by the project team, consisting mainly of the thematic experts (RBMP, data management, stakeholders' involvement), the country representative, the technical advisor and the national thematic focal points for RBMP, data management and stakeholders' involvement. Close relationships will be formed and maintained with the beneficiary who will own the product and take ownership of the RBMP.

The contractor will have to designate competent specialists for each part of the assignment as well as a coordinator who will be responsible of managing these specialists, harmonise the document, and inform regularly the project team.

As a matter of illustration, the contractor's team could be typically composed of the following expert profiles:

- 1 team leader and redactor of the reports;
- 1 specialist of point source pressures; typically from domestic, agriculture, industrial/mining water use with knowledge of water uses and solution to reduce pressures;
- 1 specialist of diffuse pollution sources; typically from urban and agriculture sector with knowledge of water uses and solution to reduce those pressures;
- 1 GIS specialist for map production with knowledge of the water sector;
- 1 economist with knowledge of the water sector.

Technical issues as data description (producers, availability, quality, scales, collection frequency, etc), related difficulties to collect them, data formatting requirements, methodological aspects (average ratio to convert socio-economic data into pressures data), etc. will be discussed with the project team.

Contact details:

The responsible person at national level (National Focal point):
Ms. Valentina TAPIS, State Secretary of the Ministry of Agriculture, Regional Develop-ment and Environment
valentina.tapis@madrm.gov.md

The coordinator on behalf of EUWI+ (relevant country reps):
Mr Victor Bujac, victor.bujac@euwipluseast.eu

The responsible thematic leader:
Mr Philippe Sennhauser
International Office for Water
p.sennhauser@oieau.fr

10. PARTICIPATION TO THE TENDER

Interested parties (individual and legal persons) are invited to inquire the full tender dossier containing instructions and further information about the tender procedure from Ms Ilke CICEKOGLU, Project Assistant, International Office for Water (IOW) and Mr Philippe Sennhauser, Project Manager, International Office for Water (IOW)
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Deadline for submission of the technical and financial offer is 23 April 2018, 17:00 (CET)