

TERMS OF REFERENCE

Job title:	Groundwater Quality International Consultant
Contract type:	Individual Contract (IC)
Duty station:	Home-based with up to 3 missions to the Republic of Moldova
Reference to the:	“Supporting the Moldovan authorities in the sustainable management of the Dniester River” Project
Payment arrangements:	Payments linked to satisfactory performance and delivery of outputs
Contract Duration:	January 2025 – August 2026 (45 working days)

1. Background

Sustainable management of water resources in accordance with the principle of integrated water management is a priority for Moldova. In the process of improvement of the national regulatory framework, and harmonization of the environmental legislation with the provisions of European Union (EU) legislation, the national environmental protection system faces many constraints, particularly, related to outdated standards, normative acts, capacity of responsible institutions, shortage of qualified staff in the government sectoral institutes, etc.

The importance of integrated management of the Dniester River is indisputable for the Republic of Moldova. It is the Republic of Moldova’s largest river, covering 70% of the country's water consumption needs, thus being considered a strategic surface water resource for both environmental and socio-economic security of the country. At the same time, the Dniester River is Ukraine’s second largest river in terms of water discharge.

Along with efforts to manage the cross-border issues of the Dniester River management under the framework of the Dniester Commission, currently, the national environmental institutions are engaged in an extensive process of functional analysis aimed at streamlining their structure, functions, and capacities in the field of integrated management of water resources.

The strategy of the project “Support to the Moldovan authorities for the sustainable management of the Dniester River” is to improve environmental and social conditions in the Dniester River Basin District through enhanced management of water resources on the basis of updated regulatory framework, comprehensive and reliable river basin management planning, improved water management institutional capacities and implementation of practical environmental activities that would improve the ecological status of the Dniester River, identified as part of the Dniester Impact Study (2021).

2. Objectives and approach of the assignment

The Project “Support to the Moldovan authorities for the sustainable management of the Dniester River” seeks to enhance the capacity of national institutions in determining the chemical status of surface and ground water.

Under EU legislation, the chemical status of groundwater is primarily regulated by the Water Framework Directive (WFD) (2000/60/EC) and the Groundwater Directive (2006/118/EC). These directives establish a framework for protecting and managing groundwater resources across member states, focusing on maintaining and improving water quality to ensure it is suitable for human use and ecological systems.

The WFD sets out a broad objective to achieve good status for all water bodies, including groundwater. It aims to prevent the deterioration of water quality and promote sustainable water use. To assess the chemical status of groundwater, the directive mandates regular monitoring of pollutant concentrations to ensure they do not exceed established quality standards. It also provides a list of pollutants and threshold values, though member states can set stricter values based on local conditions.

The determination of the chemical status of groundwater bodies is crucial for assessing the effectiveness of measures undertaken for groundwater protection and for developing river basin management plans, in accordance with the provisions of WFD. The importance of determining the chemical status arises from the fact that waters subjected to anthropogenic pressures often contain a wide range of chemical compounds, including toxic, mutagenic, carcinogenic, persistent, and other substances hazardous to the environment and humans. This assessment helps ensure that groundwater quality is maintained and potential risks to both the environment and human health are mitigated.

Currently, in the Republic of Moldova the Agency for Geology and Mineral Resources manages the national system for monitoring the quantity and quality of groundwater, while the State Enterprise "Hydrogeological Expedition of Moldova" undertakes the monitoring of groundwater quantity and quality and collects groundwater samples. Laboratory analyses of water quality were carried out by the State Enterprise "hydrogeological Expedition of Moldova" until 2022, after which the laboratory of the National Agency of Public Health took over the water quality analyses.

An institutional reform in water resources management is envisioned in the Republic of Moldova. Thus, the Agency "Apele Moldovei" will manage both surface and groundwater. The Environment Agency will monitor the quality of surface and ground water, ensuring proper laboratory accreditation. The Public Institution "Meteorological and Environmental Monitoring Authority," set to be established based on the existing State Hydrometeorological Service, will be responsible for monitoring the quantity of surface and groundwater.

The study of groundwater quality is conducted at 165 groundwater monitoring points for groundwater. Among these, 39 monitoring boreholes are in the Dniester River basin and are equipped with sensors (Levellogger and Barologger) for automatic data recording. Data storage from these sensor-equipped monitoring wells is performed four times a year.

The groundwater quality is assessed in accordance with [Government Decision \(GD\) No. 932/2013](#), which approves the Regulation on the systematic monitoring and recording of surface and underground waters. This study of groundwater's chemical composition aims to determine the changes, including seasonal variations that occur during groundwater exploitation. Intensive water extraction significantly accelerates the transfer processes between groundwater salts compared to natural conditions. The water quality assessment criteria are regulated by legislation on drinking water quality, specifically [Law No. 182/2019 on drinking water](#).

Due to the lack of data on groundwater quality, it is proposed that the project shall conduct a research-oriented program, which should involve the following activities:

- will be selected those boreholes that open the groundwater of a particular water body (aquifer). Since there are 7 (seven) groundwater water bodies greatly varying in area/ volume, location of pollution sources, number of used boreholes, etc., therefore, at least 3 monitoring points will be established on each aquifer;
- for water bodies that are widely used for water supply, the number of control points will be increased up to 10 per aquifer. Of greatest interest are such water bodies as the Holocene alluvial aquifer complex and the permeable locally water bearing Pliocene-Pleistocene complex (decentralized water supply), Middle Sarmatian Badenian-Sarmatian and Silurian - Cretaceous complexes (centralized water supply).

Thus, in total, the study of the chemical status of groundwater will be carried out at 60 control points.

The feasibility of the above sampling programme has yet to be determined, as well as several details, such as:

- Project implementation period (including laboratory, interpretation and reporting of results).
- Available project budget for laboratory analysis.
- Co-ordinates of the sampling sites.
- Selection of the laboratory/laboratories for analysis of the samples.

Besides a laboratory meeting such requirements, the Project Document furthermore mentions that at least 10% of samples shall be analysed by an independent laboratory.

The EU Directive 2009/90/EC “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” lays down technical specifications for chemical analysis and monitoring of water status in accordance with Article 8(3) of Directive 2000/60/EC. It establishes minimum performance criteria for methods of analysis to be applied by Member States when monitoring water status, sediment and biota, as well as rules for demonstrating the quality of analytical results.

This Directive contains specifications, among others for:

- Article 3: Methods of Analysis, which mandates the validation and documentation of laboratory, field, and on-line methods used in chemical monitoring programs under Directive 2000/60/EC. These methods must comply with the EN ISO/IEC-17025 standard or equivalent international standards.
- Article 4: Minimum Performance Criteria for Methods of Analysis, which outlines minimum performance criteria for all analysis methods. These criteria, particularly concerning limits of quantification, must be in line with relevant environmental quality standards.
- Article 6: Quality Assurance and Control, which includes requirements such as EN ISO/IEC-17025 accreditation and participation in proficiency testing, among other quality assurance measures.

Furthermore, the project aims to strengthen the capacity of the water quality laboratory of the Environment Agency by equipping the laboratory with necessary reagents, consumables, standards for conducting analyses and preparation of a package of documents for national accreditation to perform analyses of groundwater quality.

3. Scope of the work, duties and responsibilities

The scope of this assignment is to provide technical support to the Government of the Republic of Moldova towards enhancing the groundwater quality monitoring towards determination of the chemical status of groundwater bodies.

The specific tasks, duties, and responsibilities of the Groundwater Quality International Consultant, hereinafter referred to as the “Consultant”, are outlined in the following sections.

3.1. Capacity enhancement to assess the chemical status of groundwater bodies

The capacity enhancement will target the Water Quality Laboratory, a subdivision of the Environment Reference Laboratory under the Environment Agency with the purpose to find out:

- Potential for participation of the laboratory in the groundwater quality research monitoring exercise;
- Potential topics and issues for capacity building possibly to be supported during the project’s duration.

a) Assessment of current laboratory capacity and needs for analysis in groundwater quality

The assessment will address various aspects, but not limited to:

- Inventory of available analytical equipment.
- Inventory of substances already analysed by the laboratory, including:
 - method of analysis;
 - limit of detection and/or quantification;
 - accreditation by the National Accreditation Center (MOLDAC).
- Inventory of substances that theoretically might be analysed within the current settings.
- Quality assurance and control, including participation in proficiency testing schemes.
- Costs for analysis per sample per (group of) substance(s).
- Inventory of reagents, consumables, reference materials, etcetera, necessary for the laboratory to carry out analysis of groundwater quality with present analytical equipment?
- Training needs to strengthen the capacity for groundwater quality analysis.
- Develop a Roadmap for capacity development in analysis of groundwater quality.
- Identify potential topics and issues for capacity development for analysis of groundwater quality possibly to be supported during the project’s duration.

3.2. Design and implementation of the Research monitoring programme

Based on the assessment of current laboratory capacity and the needs for groundwater quality analysis, the Consultant will design a research monitoring programme groundwater quality that will encompass the following:

a) Refinement of the basin approach (plan) for study the chemical status of groundwater bodies

The design of the Research monitoring programme to study the chemical status of groundwater bodies includes:

- Determine the optimal number and locations of control (monitoring) points for collection of data on groundwater bodies quality.
- Define the list of monitoring parameters, sampling frequency and timeline for the research to be conducted at each location.
- Estimate the costs for the implementation of the research monitoring programme.
- Identify the laboratory/laboratories to perform the required sampling and chemical analyses and estimate the costs for laboratory services.
- Develop the Terms of Reference for required laboratory services involving sampling and chemical analyses, and act as an observer in the evaluation of tender bids providing the necessary expertise for assessing the offers submitted by bidders.

b) Equipping the laboratory with the necessary reagents, consumables, standards necessary for conducting analyses

In case the Water Quality Laboratory under the Environment Agency will be involved in the research programme, the Consultant will:

- i) Identify the list of consumables (e.g. standard solutions, solvents for extraction, acids, various high-quality gases, gas chromatography accessories, etc.) for equipping the laboratory.
- ii) Develop the technical specifications and estimate the costs for the required consumables and laboratory equipment and participate in the preparation of tender documents.
- iii) Participate in evaluation of the tender bids as an observer and offer the necessary expertise for assessing the offers submitted by bidders.

c) Comparative tests and external quality control (at least 10% of samples shall be analysed by an independent laboratory)

In case the Water Quality Laboratory under the Environment Agency will be involved in the research programme, the Consultant will:

- i) Identify at least 3 independent laboratories for comparative tests and external quality control that will analyse at least 10 % of samples managed by the Water Quality Laboratory.
- ii) Develop the Terms of Reference for the required comparative tests and external quality control to analyse at least 10 % of samples managed by the Water Quality Laboratory and estimate the costs of services.
- iii) Participate in evaluation of the tender bids as an observer and offer the necessary expertise for assessing the offers submitted by bidders.

d) Analysis of obtained data and preparation of a report

The Consultant will prepare reports, assessing and evaluating the – analytical – results of the Research monitoring programme, addressing the following (but not limited to) topics:

- Substances identified as candidates for further research, surveillance and/or operational monitoring (after the lifetime of the project).
- Potential sources of the above pollutant substances, requiring further attention in the Dniester River Basin Management Plan(s).

- Prepare an overview detailing specific requirements for capacity building of the laboratory of the Environment Agency.

e) Preparation of laboratory and a package of documents for national accreditation to perform analyses of substances relevant for groundwater quality in the Dniester River Basin District

In case the Water Quality Laboratory under the Environment Agency will engage to apply for national accreditation to perform analyses of groundwater quality, the Consultant will undertake the following tasks:

- Provide training on accreditation procedures for selected methods of analysis of groundwater quality in the laboratory.
- Offer guidance on preparation of a package of documents required for national accreditation.

4. Expected deliverables, tentative timeframe, and other arrangements

The Consultant is expected to deliver the following outputs as per the below-identified timeline and anticipated workload:

No.	Deliverables	Tentative timeframe
1	Report on evaluation of the current Environment Agencies' laboratory capacity and needs for analysis of groundwater quality in accordance with Section 3.1.a) above.	By February 2025 10 w.d.
2	Design and implementation of the Groundwater Quality Research Monitoring Programme in accordance with Section 3.2. a), 3.2 b) i), 3.2.b) ii) above.	By February 2025 10 w.d.
3	1 (one) Evaluation of Request of Quotation and participation in the evaluation panel for the procurement of consumables to equip the laboratory according to Section 3.2. b) iii) above.	By April 2025 2 w.d.
4	1 (one) Evaluation of Request of Quotation and participation in the evaluation panel for the procurement of external quality control laboratory services according to Section 3.2. c) iii) above.	By July 2025 2 w.d.
5	1 (one) Report on analysis and interpretation of groundwater quality data collected in the framework of the Research monitoring programme according to section 3.2.d).	By February 2026 5 w.d.
6	1 report on preparation of laboratory for national accreditation to perform analyses of groundwater quality in the Dniester River Basin District in accordance with section 3.2. e).	By March 2026 10 w.d.
7	Final Report on implementation of assignment on capacity enhancement to assess the chemical status of groundwater bodies.	By August 2026 6 w.d.

Note: exact dates of deliverables are subject to adjustments based on the project's progress and specific requirements, in consultation and confirmation with the consultant. Flexibility will be maintained to accommodate any changes or unforeseen needs that may arise during the course of the project implementation.

5. Institutional Arrangements

This is an individual contract. The timeframe for the work is January 2025 – August 2026.

The International consultant will be given access to relevant information and data necessary for execution of the tasks under this assignment. The Consultant will work under the direct supervision and guidance of the Project Manager.

6. Financial Arrangements

The financial proposal shall specify a total amount, and payment terms around specific and measurable (qualitative and quantitative) deliverables (i.e., whether payments fall in instalments or upon completion of the entire contract). Payments are based upon output, i.e., upon delivery of the services specified in TOR. To assist the requesting unit in the comparison of financial proposals, the financial proposal will include a breakdown of this total amount (including the daily fee, taxes, and the number of anticipated working days).

Payments will be disbursed in several instalments, upon submission and approval of deliverables, and certification by UNDP Moldova Programme Specialist/Cluster Lead that the services have been satisfactorily performed.

Duty Travel

All envisaged travel costs must be included in the financial proposal (Annex 2, Breakdown of Cost, Section A, Duty Travel). This includes all travels/missions to be to Chisinau/ Moldova. In general, UNDP should not accept travel costs exceeding those of an economy class ticket. The travel costs to Moldova shall be indicated separately in the offer and will be paid only if the travel will take place. Please note that the mission may be considered only when it is confirmed to be safe for staff, consultant, stakeholders. The exact duration and period of the missions shall be coordinated with UNDP. For purpose of estimation of services' costs, the expected number of missions is up to 3 (three) and total number of mission days is up to 15 (fifteen).

7. Academic qualifications, skills and experience required

Qualifications:

- An advanced degree (master's or Ph.D.) Environmental Engineering, Geology and Hydrogeology, Chemistry or other relevant fields is required.

Experience:

- At least 10 years of professional experience in groundwater quality management (research, monitoring, evaluation, management, and protection).
- At least 10 years of experience in implementing the WFD and its related documents.
- Proven experience in working on groundwater quality assessment in the Republic of Moldova.

Language skills:

- Fluency in English language. Knowledge of Romanian or Russian would be an advantage.

Skills and Competencies:

- Knowledge of provisions under the Water Law 272/2011.
- Experience of working with water authorities from the Republic of Moldova with special focus on groundwater quality.
- Strong analytical, interpersonal and communication skills, demonstrated by previous assignments.
- Ability to work under pressure, and to meet tight deadlines demonstrated by previous assignments.

The UNDP Moldova is committed to the workforce diversity. Women, persons with disabilities, Roma and other ethnic or religious minorities, persons living with HIV, as well as refugees and other non-citizens legally entitled to work in the Republic of Moldova, are particularly encouraged to apply.

Please specify in CV, in case you belong to the group(s) under-represented in the UN Moldova and/or the area of assignment.

PERFORMANCE EVALUATION

Contractors' performance will be evaluated against timeliness, responsibility, initiative, creativity, communication, accuracy, and overall quality of the delivered products.

8. Documents to be included when submitting the proposals

Interested individual consultants must submit the following documents/ information to demonstrate their qualifications:

- CV, including information about past experience in similar assignments and contact details for at least 3 referees;
- Brief description of why the individual considers him/herself as the most suitable for the assignment;
- Offeror's Letter confirming Interest and Availability with financial proposal (in USD, specifying the total lump sum amount). Financial proposal template prepared in compliance with the template in Annex 2.

Important notice: The applicants who have the statute of Government Official / Public Servant prior to appointment will be asked to submit the following documentation:

- a no-objection letter in respect of the applicant received from the Government, and,
- the applicant is certified in writing by the Government to be on official leave without pay for the entire duration of the Individual Contract.

9. Evaluation

Initially, individual consultants will be **short-listed** based on the following minimum qualification criteria:

- An advanced degree (master's or Ph.D.) in Environmental Engineering, Chemistry, Geology and Hydrogeology, or other relevant fields is required.
- At least 10 years of professional experience in groundwater quality management (research, monitoring, evaluation, management, and protection);
- At least 10 years of experience in implementing the WFD and its related documents.

The short-listed individual consultants will be further evaluated based on the following methodology:

Cumulative analysis

The award of the contract shall be made to the individual consultant whose offer has been evaluated and determined as:

- a) responsive/ compliant/ acceptable, and
- b) having received the highest score out of a pre-determined set of weighted technical and financial criteria specific to the solicitation.

* Technical Criteria weight – 60% (300 pts);

* Financial Criteria weight – 40% (200 pts).

Only candidates obtaining a minimum of 210 points would be considered for the Financial Evaluation.

Criteria	Scoring	Maximum Points Obtainable
<u>Technical</u>		
An advanced degree (master's or Ph.D.) in Environmental Engineering, Chemistry, Geology and Hydrogeology or other relevant fields is required.	<i>Master's degree – 5 pts, Ph.D.'s degree – 10 pts</i>	10
At least 10 years of professional experience in groundwater quality management (research, monitoring, evaluation, management, and protection).	<i>10 years – 10 pts, each additional year of experience – 10 pts, up to a maximum of 40 pts</i>	40
At least 10 years of experience in implementing the WFD and its related documents.	<i>10 years – 10 pts, each additional year of experience – 10 pts, up to a maximum of 40 pts</i>	40

Proven experience in working on groundwater quality assessment in the Republic of Moldova	<i>Up to 5 years – 10pts, more that 5 years -20 pts</i>	20
Total technical – 110 pts.		
Interview (demonstrated technical knowledge and experience; communication/ interpersonal skills; initiative; creativity/ resourcefulness).		
Only the first 3 applicants that have accumulated the highest technical score shall be invited to the interview.		
Excellent knowledge of WFD and its related documents	<i>Limited – up to 20 pts, good – up to 40 pts, excellent – up to 60pts</i>	185
Knowledge of provisions under the Water Law 272/2011	<i>Limited – up to 15 pts, good – up to 25 pts, excellent – up to 40pts</i>	
Experience of working with water authorities from the Republic of Moldova	<i>5 years – 20 pts, each additional year – 5 pts up to max. 30 pts;</i>	
Strong interpersonal and communication skills, demonstrated by previous assignments	<i>Limited – up to 5 pts, good – up to 10 pts, excellent – up to 15 pts</i>	
Ability to work under pressure, and to meet tight deadlines demonstrated by previous assignments	<i>1 assignment – 5 pts, each additional assignment – 5 pts up to max. 15 pts</i>	
Fluency in English languages. Knowledge of Romanian or Russian would be an advantage	<i>English – up to 10 pts, Romanian – up to 10 pts, Russian – up to 5 pts</i>	
Belonging to the group(s) under-represented in the UN Moldova and/or the area of assignment*	<i>no – 0 pts., to one group – 2.5 pts., to two or more groups – 5 pts.</i>	5
Total interview – 190 pts.		
Maximum Total Technical Scoring		300

**Under-represented group in the area of assignment are persons with disabilities, LGBTI, ethnic and linguistic minorities, especially ethnic Gagauzians, Bulgarians, Roma, Jews, people of African descent, people living with HIV, religious minorities, especially Muslim women, refugees, and other non-citizens.*

Financial	
Evaluation of submitted financial offers will be done based on the following formula: $S = F_{min} / F * 200$ S – score received on financial evaluation; F _{min} – the lowest financial offer out of all the submitted offers qualified over the technical evaluation round; F – financial offer under consideration	200

Winning candidate

The winning candidate will be the candidate, who has accumulated the highest aggregated score (technical scoring + financial scoring).