

TERMS OF REFERENCE

Job title:	National Consultant – Hydrological Engineer to support the project “Promotion of climate change and disaster risk reduction solutions in the water and civil protection sectors for enhanced rural resilience”
Duty station:	Chisinau, Moldova
Reference to the project:	“Promotion of climate change and disaster risk reduction solutions in the water and civil protection sectors for enhanced rural resilience”
Contract type:	Individual Contract (IC)
Expected duration of the assignment:	May 2019 – November 2020, 200 days
Starting date:	May 2019

I. Background

Considering its economic structure and geographic features, Moldova is highly vulnerable to climate change and is exposed to disasters due to hydrometeorological phenomena and natural hazards. While drought and floods are among top hydro-meteorological hazards caused by extreme weather and climate events, due to the current and projected abnormal high temperatures leading to water scarcity, the incidence of forest fires is increasingly posing a threat to natural ecosystems, the agricultural system and human settlements.

Such high exposure is due to the country’s dependence on rain-fed agricultural production which is tied to climate, making it the most vulnerable of all economic sectors. This is primarily due to the shortage of water for agricultural needs and limited resources and capacities to plan and put in place water storage facilities for irrigation needs in rural communities of Moldova, especially, since climate projections show larger rainfall events in the future, which could supply such facilities.

Climate scenarios also indicate the country is strongly trending towards becoming more arid. Unfortunately, rural communities experience a capacity deficit in terms of fire prevention, preparedness and timely response, mainly due to the liquidation of over 400 equipped and capacitated firefighting units. It resulted in increased response time and lower awareness of fire risks by the rural population, subsequently leading to considerable increase in loss of life, property and affected ecosystems. It is widely accepted that rural women are disproportionately affected by fires due to them being mostly engaged in cooking in unsafe cook stoves and collection of firewood in ecosystems that might be at high risk of fires.

Against this background, the project aims to increase resilience and adaptive capacities of rural communities to climate change and disasters through improved water storage infrastructures and disasters risk reduction measures. The project is supporting implementation of climate-smart water management solutions for agriculture, flood management, fire prevention and expansion of community-based rescue/firefighting teams in rural communities of Moldova with the purpose of reducing the exposure and vulnerability of the rural communities to climate change and disaster risks. The project will be implemented over a period of 36 months and the activities are clustered around 2 major outputs intended to produce impact in 5 districts of Moldova, in the Central (Hincesti, Criuleni and Ungheni districts) and Southern (Leova and Cantemir) regions.

II. Scope of work and expected outputs

The overall objective of the assignment is to provide technical backstopping and to support the project team to put in place proper water storage infrastructures in 5 districts of Moldova, more specifically, in Hincesti, Criuleni, Ungheni, Leova and Cantemir.

The consultant will collaborate closely with the core team of national consultants and will be contracted to: (1) provide support to the technical analysis of the water infrastructures at the site level, (2) design technically sound reservoirs and ensure their structural integrity; (3) provide guidance on obtaining the required construction and operation authorizations and permits for the basins; and, (4) prepare cost estimates for the selected reservoirs.

In order to achieve the expected objective, the Consultant will have the following responsibilities:

- Support the project team in developing selection criteria for the Call for Expression of Interest for establishment/rehabilitation of the water storage infrastructures. Participate, when required, in selecting applicants under the Call.
- Conduct relevant site analysis supporting the design and construction of the selected water storage infrastructures.
- Review information and data on geology, hydrology, and irrigation provided by other national experts hired by the project with reference to each site and the neighboring area to identify the existing conditions, risks, and needs for additional information.
- Identify exact size of the reservoirs based on the water need, engineer design and available resources. Design site reservoir capacities, considering climate change risks, when overall level of climate variability is projected to increase. Consider all risks referring to evaporation of water, seepage losses, sedimentation, additional water for prevention of clay base drying and cracking, other risks.
- Provide options for the design of the reservoirs (e.g. with or without embankments, and other structural components), describing the advantages and disadvantages of each option.
- Identify potential construction problems/risks and provide solutions to solve them.
- Provide relevant information and prepare a list/flow chart with the permits and/or authorizations required by the relevant national authorities when building a water reservoir to support the project team and the beneficiaries of the support package.
- Prepare Terms of Reference, cost estimates and the list of licensed companies for the design of water storage basins. Lead the technical evaluation of the water storage design bids.
- Ensure the technical supervision of the water basin design services (including ensuring compliance with current standards; verification of developed documents, usage of modern techniques, etc.)
- Provide technical supervision of construction works, including compliance with current standards, quality of used materials, compliance with proposed technologies; verification of documentation, etc.
- Prepare Terms of Reference, cost estimates and the list of licensed companies for the construction of water storages. Lead the technical evaluation of the construction works bids. Ensure technical supervision of construction works.
- Design on-farm resource-efficient irrigation systems for 15 sites and prepare technical specifications for the respective equipment.
- Provide guidance and recommendations for farmers on the most resource-efficient and less-polluting irrigation equipment.
- Provide site-related technical information, relevant data and water reservoir sketches/drawings to the National Environmental Specialist during the preparation of the Environment Impact Assessment/Risk Management & Sustainability Plan (EIARMSP).
- Respond to requests for inputs from UNDP and beneficiary institutions with respect to the engineering aspects of the Project.
- Prepare periodical reports on relevant activities and contribute to Project reporting on matters related to engineering.
- Undertake any other related tasks requested by the project team.

III. Deliverables and Timeframe

No.	Deliverables	Tentative timeframe/deadline
1.	Relevant inputs and support in the design of the Call for Expression of Interest provided.	May 2019
2.	Relevant analysis and drawings supporting the design and construction of the first batch of selected water storage infrastructures completed for the selected sites.	June-July 2019
3.	Relevant analysis and drawing supporting the design and construction of the second batch of selected water storage infrastructures completed for the selected sites.	July-August 2019
4.	Relevant analysis and drawings supporting the design and construction of the third batch of selected water storage infrastructures completed for the selected sites.	August-September 2019
5.	Relevant guidance provided and a list of required permits and authorizations for construction and operation of water storage infrastructures prepared for project beneficiaries.	June-August 2019
6.	Site-related technical information, relevant data and sketches/drawings provided to the National Environmental Specialist and incorporated into EIARMSP.	August 2019
7.	Terms of Reference, cost estimates and a list of licensed companies for the design of water storage infrastructures developed; support to the selection of the design company(ies) ensured.	July- September 2019
8.	Terms of Reference, cost estimates and a list of licensed companies for the construction of water storage infrastructures developed; support to the selection of the construction company(ies) ensured.	November 2019- February 2020
9.	Supervision reports demonstrating proper construction of water storage infrastructures developed and approved by the project team	March-May 2020
10.	Provide guidance and recommendations for farmers on the most resource-efficient and less-polluting irrigation equipment.	June-September 2020
11.	Provide guidance and recommendations to farmers in procurement of on-farm irrigation equipment.	September-October 2020
12.	Final report on the performed assignment submitted and approved	November 2020

All documentation related to the assignment will be in English and Romanian. Before submission of the deliverables, the consultant will discuss the draft documents with the parties involved (e.g. GIES, UNDP and other stakeholders) so that final products reflect their comments.

This is a part-time consultancy. The timeframe for the work of consultant is planned for May 2019 – November 2020.

Management Arrangements: The consultant will work under the guidance of CC and DRR Project Manager.

Financial arrangements: Payments will be disbursed in several instalments, upon submission and approval of deliverables, and certification by UNDP Moldova Project Manager that the services have been satisfactorily performed.

IV. Qualifications and skills required:

- I. Academic Qualifications:
 - University degree in civil engineering.

II. Experience and knowledge:

- At least 7 years of progressively responsible professional experience in water engineering, including planning, design and construction of small-scale infrastructure.
- Knowledge of Moldova water resources management and legislative requirements for water catchment/harvesting, ground and surface water quantity and quality analysis.
- Experience on preparation of technical design of water reservoirs.

III. Competencies:

- Excellent proven analytical skills;
- Good organizational, time management and facilitation skills;
- Knowledge of Romanian or Russian languages, a fair level of understanding and spoken English is required for this assignment.

IV. Personal qualities:

- Proven commitment to the core values of the United Nations, in particular for differences of culture, gender, religion, ethnicity, nationality, language, age, HIV status, disability, and sexual orientation, or other status.

The UNDP Moldova is committed to 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.

V. Documents to be included when submitting the proposals:

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

1. Proposal:
 - Providing a brief information on each of the above qualifications, item by item and a brief methodology on how they will approach and conduct the work.
2. Financial proposal (in USD), specifying a fee per day and total requested amount including all related costs, e.g. fees, per diems, travel costs, phone calls etc.;
3. CV with at least 3 contact references;
4. Offeror's Letter confirming Interest and Availability