

TERMS OF REFERENCE FOR INDIVIDUAL CONSULTANTS AND CONTRACTORS

Title	Funding Code	Type of engagement	Duty Station:
Consultant in groundwater data and pumptesting		<input type="checkbox"/> Consultant	Antananarivo and remote

Purpose of Activity/Assignment:

Consultancy to establish pumping test protocol and interpret 1,100 pumptest protocol with university of Antananarivo

Background

This Technical Reference Document outlines the terms of reference for recruiting an international consultant who will play a crucial role in overseeing data collection and analysis for two significant projects undertaken by UNICEF Madagascar.

Phase 1 of the project focuses on improving the nutritional status in three districts located in the southern region of the country: Sihanamaro, Tsivory, and Itampolo. These districts face significant challenges in accessing safe and reliable water. The consultancy will conduct a comprehensive assessment of the water situation in these areas by analyzing groundwater databases, hydrogeological maps, reports, and social/demographic data. This assessment aims to provide a comprehensive understanding of the current state of water supply, infrastructure, and hygiene practices. The collected data will inform decision-making processes to enhance access to safe drinking water, sanitation, and hygiene. Additionally, the consultancy project will integrate additional data, including information on non-successful boreholes, into the groundwater information system. This will involve recording borehole logs data, water quality information, and relevant documentation following UNICEF's data input and organization procedures. The project will also involve collaborating with students from Antananarivo to perform pump tests and analyze existing boreholes, providing valuable field experience and a deeper understanding of the water situation in the area.

Phase 2 of the consultancy project will build upon the findings of Phase 1. It will encompass a comprehensive analysis of 1,100 test pumpings using specialized tools and software for data processing. The ranking and prioritization of boreholes will be determined based on their suitability for larger water infrastructure projects and their vulnerability to contamination and climate change-induced events.

The systematic analysis conducted throughout the project will yield valuable insights for identifying boreholes suitable for conversion into multiple uses of water. This approach aims to optimize the utilization of water resources, catering to various applications and meeting the diverse needs of the community.

Scope of Work:
Phase 1

- Analyze access to water in Sihanamaro, Tsivory, and Itampolo through collection and interpretation of different sources of information. (groundwater database in mwater and other sources, hydrogeological maps and reports, social and demographic data) and taking into consideration previous methodology to assess the situation of water supply in the country
- Introduce additional water point data (including non-successful boreholes) into the groundwater information system. Data input must include borehole logs data and water quality, following the procedures defined by UNICEF for data input and organization.
- Conduct test pumps (step drawdown and long term constant rate) for 10 selected boreholes. Pump test must comply with the standard procedure and equipment as defined in the agreement. Selected boreholes must also be inspected with borehole cameras (with procedures defined in the agreement)
- Contribute to the improvement of procedures for pump tests and produce a complete manual
- Conduct field tests for water quality in each water point, according to the standard procedure, tools and methods defined in the agreement, Basic water quality parameters must be collected in each water point, and assessment of water quality must be produced taking into consideration national and international guidelines
- Analyze the results of pump tests according to the standard procedure defined in the agreement. Specific tools and software to process the data, as well as any modification to the standard procedure, must be proposed by

the consultant and approved by UNICEF. Suggestions of the consultants can be included in an improved version of the manual for pump tests

- Introduce all the new information collected into the groundwater information system using the mwater interface and following the procedure defined by UNICEF and contained in the manual for data collection and organization. Taking into consideration that new type of data are collected (e.g. borehole video, time series), modification of the database and interface required must be proposed and discussed with UNICEF in order to include all the information in the system , including test pumping data and borehole drilling videos.
- Completing the technical dossier of boreholes, according to the guidelines indicated by UNICEF for standard documentation of water points. Suggestions and proposed modification by the consultant for the guidelines can be discussed with UNICEF and included in a new version of guidelines
- Produce a groundwater map of the study area, showing potential for groundwater exploitation, depth of water, water quality issues
- In agreement with UNICEF and DREAH, propose a strategy to improve water access in the 3 selected areas, taking into consideration the present situation (defined in point 1) and the potential for groundwater exploitation (as a results of the analysis of hydrogeological and water quality data)

Phase 2

1. Assess and analyze the results of 1,100 test pumpings conducted in batches of 300, according to the standard procedure defined in the agreement. Specific tools and software to process the data must be proposed and approved by UNICEF
2. Provide training and support to university students involved in data collection during the test pumpings.
3. Rank and prioritize the boreholes based on suitability for larger water infrastructure projects. The methods for ranking and prioritization must be agreed in advance with UNICEF. The aspects of vulnerability to contamination and to climate change induced events (drought, flood, etc) must be taken into consideration.
4. Introducing the results of ranking and prioritization for each water point in the groundwater database. The required modification in the data input interface must be discussed with UNICEF and implemented by the data administrator
5. Make clear recommendations for the selection of boreholes for future interventions

The consultancy will be a mix of field based and remote. The applicants are requested to detail in their submission a tentative timeline clearly stating periods of remote work and presential work. Two return flights are previewed. For the second phase, the major part of the assignment will be carried out remotely, The total duration of the assistance is previewed for ten month. It is previewed as full time for the first phase and as part time (50%) for the second phase.

Child Safeguarding

Is this project/assignment considered as “[Elevated Risk Role](#)” from a child safeguarding perspective?

YES NO If YES, check all that apply:

Direct contact role YES NO

If yes, please indicate the number of hours/months of direct interpersonal contact with children, or work in their immediately physical proximity, with limited supervision by a more senior member of personnel:

Working in team with university and together with field office. 1 months field work

Child data role YES NO

If yes, please indicate the number of hours/months of manipulating or transmitting personal-identifiable information of children (name, national ID, location data, photos):

Budget Year: 2023	Requesting Section/Issuing Office: WASH/Fredrik Asplund	Reasons why consultancy cannot be done by staff: Specialized skills not available with staff
Included in Annual/Rolling Workplan: <input checked="" type="checkbox"/> Yes		
Consultant sourcing: <input checked="" type="checkbox"/> International Competitive Selection: <input checked="" type="checkbox"/> Advertisement <input type="checkbox"/> <input type="checkbox"/> Roster Single Source Selection <input type="checkbox"/> (Emergency - Director's approval)		Request for: <input type="checkbox"/> New SSA – Individual Contract <input type="checkbox"/> Extension/ Amendment
If Extension, Justification for extension:		
Supervisor: P3 CC	Start Date: 01 Août 2023	End Date: 30 Avril 2024



Work Assignments Overview	Deliverables/Outputs	Delivery deadline	Estimated Budget
Phase 1		From start	
Inception report	Inception report	1 week	10%
Analyze access to water in Sihanamaro, Tsivory, and Itampolo through collection and interpretation of different sources of information. Introduce additional water point data (including non-successful boreholes) into the groundwater information system	Report about water access in Sihanamaro, Tsivory, and Itampolo Additional water point data uploaded into the groundwater information system	3 weeks	10%
Revise the existing procedures for pump tests and produce a complete manual Conduct test pumps (step drawdown and long term constant rate) for 10 selected boreholes, including inspection with borehole camera / Analyse the results of pump tests according to the standard procedure defined in the agreement	Manual for pump tests. Test pumping reports for the 10 selected boreholes, including findings and recommendations. Video recorded during borehole inspection. Groundwater information system	2 months	20%

	completed with new data from pump and water quality tests		
Produce a groundwater map of the study area, Propose a strategy to improve water access in the 3 selected areas	Groundwater map and reports Report containing strategy to improve water access	3 months	10%
PHASE 2			
Assess and analyze the results of 1,100 test pumpings conducted in batches of 300, according to the standard procedure defined in the agreement. Rank and prioritize the boreholes based on suitability for larger water infrastructure projects.	Test pumping reports, with analysis, for the first 300 selected boreholes, including findings and recommendations	4 Months	10%
	Test pumping reports, with analysis, for the second batch of 300 selected boreholes, including findings and recommendations	5 months	10%
	Test pumping reports, with analysis, for the third batch 300 selected boreholes, including findings and recommendations	6 Months	10%
	Test pumping reports, with analysis, for the fourth batch 300 selected boreholes, including findings and recommendations	7 months	10%
Introducing the results of ranking and prioritization for each water point in the groundwater database. Make clear recommendations for the selection of boreholes for future interventions.	Groundwater database containing information about ranking and prioritization of 1100 boreholes Comprehensive Final Report consolidating the findings, analysis, and recommendations from all batches of boreholes	10 months	10%

Estimated Consultancy fee			
Travel International (if applicable)	2 travels intrnl	3,000 USD	
Travel Local (please include travel plan)	2 local flights (300 USD) + 1 month DSA (100 USD)	3,600 USD	
DSA (if applicable)	1 month Tana (230 USD)	6,900 USD	
Total estimated consultancy costsⁱ			
<p>Minimum Qualifications required*:</p> <p>Masters</p> <p>Minimum of 8 years as Hydrogeologist, GIS, data management, community engagement or related fields</p> <p><i>*Minimum requirements to consider candidates for competitive process</i></p>	<p>Knowledge/Expertise/Skills required*:</p> <p>Strong background in water resource management, hydrogeology, or a related field. · Experience in analyzing borehole drilling data and utilizing aquifer monitoring software. · Proficiency in conducting pump tests and interpretation of results · Experience in data input, retrieval and analysis into geographic database, preferably in the water sector ·</p> <p>Excellent technical writing and documentation skills. · Familiarity with UNICEF guidelines and standards in the WASH sector is desirable. Familiarity with large scale engagement with mWater desirable Background in university environment highly desirable</p> <p><i>*Listed requirements will be used for technical evaluation in the competitive process</i></p>		
<p>Evaluation Criteria (This will be used for the Selection Report (for clarification see Guidance))</p> <p>A) Technical Evaluation (e.g. maximum 75 Points)</p> <p>-Educational background 20 Points</p> <p>-Relevant work experience 35 points</p> <p>-Previous experience of working w university students 10 Points</p> <p>-Previous experience of mWater 10 points</p> <p>B) Financial Proposal (e.g. maximum of 25 Points)</p> <p>Lowest proposal 25 points. All other fee proposals will receive points in inverse proportion to the lowest price</p>			
<p>Administrative details:</p> <p>Visa assistance required: No <input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/> Home Based <input checked="" type="checkbox"/> Office Based: Mixed. Phase one Office based, Phase two mainly home based</p>		<p>If office based, seating arrangement identified: <input checked="" type="checkbox"/></p> <p>IT and Communication equipment required: No <input type="checkbox"/></p> <p>Internet access required: <input checked="" type="checkbox"/></p>	
Request Authorised by Section Head		Request Verified by HR:	

Approval of Chief of Operations (if Operations):

Approval of Deputy Representative (if Programme)

Representative (in case of single sourcing/or if not listed in Annual Workplan)



Mathieu Joyeux
Dep-Rep OIC
27/06/2023

¹ Costs indicated are estimated. Final rate shall follow the “best value for money” principle, i.e., achieving the desired outcome at the lowest possible fee. Consultants will be asked to stipulate all-inclusive fees, including lump sum travel and subsistence costs, as applicable.

Payment of professional fees will be based on submission of agreed deliverables. UNICEF reserves the right to withhold payment in case the deliverables submitted are not up to the required standard or in case of delays in submitting the deliverables on the part of the consultant

Text to be added to all TORs:

Individuals engaged under a consultancy or individual contract will not be considered “staff members” under the Staff Regulations and Rules of the United Nations and UNICEF’s policies and procedures and will not be entitled to benefits provided therein (such as leave entitlements and medical insurance coverage). Their conditions of service will be governed by their contract and the General Conditions of Contracts for the Services of Consultants and Individual Contractors. Consultants and individual contractors are responsible for determining their tax liabilities and for the payment of any taxes and/or duties, in accordance with local or other applicable laws.

The selected candidate is solely responsible to ensure that the visa (applicable) and health insurance required to perform the duties of the contract are valid for the entire period of the contract. Selected candidates are subject to confirmation of fully-vaccinated status against SARS-CoV-2 (Covid-19) with a World Health Organization (WHO)-endorsed vaccine, which must be met prior to taking up the assignment. It does not apply to consultants who will work remotely and are not expected to work on or visit UNICEF premises, programme delivery locations or directly interact with communities UNICEF works with, nor to travel to perform functions for UNICEF for the duration of their consultancy contracts.

UNICEF offers [reasonable accommodation](#) for consultants with disabilities. This may include, for example, accessible software, travel assistance for missions or personal attendants. We encourage you to disclose your disability during your application in case you need reasonable accommodation during the selection process and afterwards in your assignment.
