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Terms of Reference

Consultancy/Position Title: Assessment of TSF tailings sediments-depth, volume, contaminant levels, density, chemical interaction with surface waters (fluxes) Consultancy

Project Name: Managing Risks Associated with the Gold Ridge Mining TSF

Duty Station: Honiara, Solomon Islands

Duration of the Contract:

- Contract Period: 1st October to 8th December 2017
- Starting date: 1st October 2017
- Duration: 40 Working days over 2 months (20 days home based/20 days duty station)
- End Date: 8th December 2017

Objectives:

Managing Risks Associated with the Gold Ridge Mining TSF Project is seeking to engage an individual Contractor to provide support to the Mines Division in the Ministry of Mines Energy and Rural Electrification (MMERE), the Environment and Conservation Division in the Ministry of Environment, Climate Change, National Disaster Management and Meteorology (MECDM) and the Environmental Health Division in the Ministry of Health and Medical Services (MHMS) to meet the following objective;

- To identify key impacts from tail water spill over and dam break scenarios by conducting qualitative assessment on likely environmental, social, health and economic impacts.
- To conduct geophysical and geochemical assessment of the TSF tailings sediments-depth, volume, contaminant levels, density, chemical interaction with surface waters (fluxes)

• **Background**

The Gold Ridge Mine Tailings Storage Facility (TSF) on the main island of Guadalcanal in Solomon Islands has been a constant threat to its surrounding communities since the April 2014 earthquake magnitude of 7.6 at 314.0 km SE of Honiara, Solomon Islands and heavy rainfalls then. The TSF is part of a bigger tailings storage system which has been operating since 1998 within a 25 year 30km² lease. The tailings storage system consists of the main TSF embankment covering 0.62km², a water treatment plant with separate (now combined) sedimentation and discharge ponds and a Return Water dam upstream for storing treated water to be reused in the gold processing plant. The closure of the Gold Ridge Mine in 2014 also meant that maintenance of the water balance in the tailings storage system could not be sustained.

The Solomon Islands Government with support through the United Nations had conducted assessment on various aspect of dam safety. Although the assessment did not find any serious threat of the dam collapsing as a result of the earthquake and heavy rains at the time of their visit, there were concerns expressed regarding the overall design of the tailings storage site (TSF and the Return Dam). In the long term, the impacts of the potential breach of the TSF would be catastrophic to the environment and the river communities of more than 8000 people downstream since the tailings water contains harmful substances of which the two main chemicals of concern are arsenic and cyanide. Based on these concerns and issues, the need to conduct a structural assessment of the TSF and RWD stabilities and a holistic assessment of environmental, social, health and economic impacts is required.



The report on the Gold Ridge Tailings Dam and Return Water Dam Risk Management by the Norwegian Geotechnical Institute Pty Ltd, the concept note on the Risk management and mitigation on the Tailings Dam and Return water dam at Gold Ridge mine by UNDAC and UNDP Gold Ridge Risk Management Initiative inception report provide the details and the need to conduct a structural assessment of the TSF and RWD stabilities and the assessment of environmental, social, health and economic impacts. The information gaps on understanding of the stability of the “as built” TSF embankment, Saddle Dam embankment and RWD embankment, understanding on the mud flow potential in the event of a dam break scenario, understanding of movements of the TSF embankment, Saddle Dam embankment and RWD embankment since construction and understanding of the piezometric levels within the TSF embankment, Saddle Dam embankment and RWD embankment are expected to be addressed at the end of this assignment. The information gathered from the assessments will not only inform the contingency planning but help will also establish information support monitoring and data management requirements for the TSF and RWD.

2.0 Scope of work/Expected Output

The purpose of this consultancy is to carry out various physical and specific assessments to inform and support the contingency planning process at the institutional and community levels. The assessments will cover the Assessment of TSF tailings sediments-depth, volume, contaminant levels, density, chemical interaction with surface waters (fluxes).

The Individual consultant will work closely with the relevant government ministries (MMERE, MECDM and MHMS) and in collaboration with UNDP Project Office to specifically carry out the following tasks;

- Water quality profiling through water column to sediment-water interface
- Assessment of arsenic and cyanide (Heavy metals) concentrations within TSF sediment porewaters for identification and mapping of hotspots
- Mapping of TSF sediments including coring for density, arsenic and cyanide concentrations
- Sediment core incubations from hotspots to determine flux rates
- Risk assessment undertaken for defined events and tail water spill-over scenarios developed to inform contingency planning

The following deliverables are expected to be delivered by the Individual Consultant at the completion of tasks.

Deliverables:

- A concept note and work plan for the assignment deliverables clearly defining the time schedules and duration to carry out activities. The concept note should outline how the three tasks will be carried out and completed.
- Report on the water quality profiling through water column to sediment-water interface is completed
- Report on the assessment of arsenic and cyanide concentrations within TSF sediment porewaters and mapping of hotspots
- Mapping of TSF sediments including coring for density, arsenic and cyanide (heavy metal) concentrations completed
- Sediment core incubations from hotspots to determine flux rates
- Risk assessment undertaken for defined events and tail water spill-over scenarios developed to inform contingency planning

Resources Provided

- The project will provide support in organising transportation for meetings and the field trips.

Reporting and Supervision

Report to: The overall substantive work is to be guided by the Technical Staff from the Mines Division (MMERE), Environment Division (MECDM) and Health Environment Division (MHMS). Administratively, the individual contractor will report to the UNDP Country Manager and PS MECDM, NDMO Director on need be bases.
The deliverables shall be submitted to the Country Manager who will liaise with the stakeholders for peer review and to the government for approval through the National Disaster Committee

Requirement for Qualifications & Experience

Minimum educational qualifications:

Master's degree in, geology, geography, geo-chemistry, or environmental chemistry and in any physical sciences related field.

Experience & skills:

- At least 7-10 years of experience working in environment field assessments, disaster and mining related risk management assessments, water quality assessment and any other related field;
- Experience and skills in conducting and managing field work in Impact assessments in relation to the physical environment and mining
- Experience in working with international organization including governments in developing countries is an advantage.
- Good understanding of interface between national and international humanitarian architecture; and

Functional Competencies:

Must have and be able to show the following functional competencies

- Evidence of similar work undertaken in the past.
- Ability to work under pressure in a challenging and multi- cultural environment and deliver on a wide range of tasks; and
- Fluency in spoken and written English is a requirement.
- Demonstrate integrity, positive values and ethical standards in actions.
- Display cultural, gender, religion, race, nationality and age sensitivity and adaptability.
- Shares information, knowledge and experience through effective and frequent communication
- Ability to build consensus and garner support under complex situations

Proposal Requirements

Technical Proposal

- Technical proposal including a P11 form (available on the UNDP website; www.undp.org.fj), an updated current CV, contact details of at least three referees and a cover letter setting out how the applicant meets the selection criteria, and a proposed approach and methodology)
- Letter confirming availability and Interest using UNDP template (available on the UNDP website: www.undp.org.fj)

Financial Proposal

Individuals requested to provide a quotation or the fees/cost (in USD) for the services which will be rendered using the following format.

Daily consultancy rates	A daily consultancy rate proposed by the Individual Consultant
Air Ticket Estimate (UNDP will reimburse based on actual costs)	To and from respective duty station
Living Allowance	Based on the number of days spent at the respective duty station
Other miscellaneous expense	Please state

Travel;

All envisaged travel costs must be included in the financial proposal. This includes all travel to join duty station/repatriation travel. In general, UNDP should not accept travel costs exceeding those of an economy class ticket. Should the IC wish to travel on a higher class he/she should do so using their own resources.

In the case of unforeseeable travel, payment of travel costs including tickets, lodging and terminal expenses should be agreed upon, between the Individual Consultant, prior to travel and will be reimbursed.

Lump sum contracts

The financial proposal shall specify a total lump sum 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 the TOR. In order to assist the requesting unit in the comparison of financial proposals, the financial proposal will include a breakdown of this lump sum amount (including travel, living expenses, and number of anticipated working days).

Financial proposal to be submitted separate from technical proposal

Payment Schedule & Deliverable : (Percentage to be negotiated later)

%	Deliverable as approved by the Government of SOI and UNDP SOI	Target Date
10%	Submission of concept note and work plan for the assignment deliverables clearly defining the time schedules and duration to carry activities.	5 th October 2017
30 %	<ul style="list-style-type: none"> Report on the water quality profiling, assessment of arsenic and cyanide concentrations, mapping of sediments and sediment core from hotspots and influx rates is completed 	5th November 2017
30%	<ul style="list-style-type: none"> Report on Risk assessment undertaken for defined events and spill-over scenarios developed to inform contingency planning 	15 th November 2017
30%	<ul style="list-style-type: none"> Submission of Final Mission Report 	1 st December 2017

Evaluation :

The proposals will be evaluated using the cumulative analysis method with a split 70% technical and 30% financial scoring. The proposal with the highest cumulative scoring will be awarded the contract. Applications will be evaluated technically and points are attributed based on how well the proposal meets the requirements of the Terms of Reference using the guidelines detailed in the table below: When using this weighted scoring method, the award of the contract should be made to the individual consultant whose offer has been evaluated and determined as:

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

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* Technical Criteria weighting; 70%

* Financial Criteria weighting; 30%

Only candidates obtaining a minimum of 70% out of 100% in technical evaluation would be considered for the Financial Evaluation

Technical Criteria		Weightage 70%
Education:	<ul style="list-style-type: none"> Master's degree in any physical sciences, geology, geography, geo-chemistry, or environmental chemistry and in any physical sciences demography or other related field. 	20
Experience:	<ul style="list-style-type: none"> At least 7-10 years of experience working in environment field assessments, disaster and mining related risk management assessments, water quality assessment and any other related field; Experience and skills in conducting and managing field work in Impact assessments in relation to the physical environment and mining Experience in working with international organization including governments in developing countries is an advantage. Good understanding of interface between national and international humanitarian architecture; and 	35
Functional Competency:	<ul style="list-style-type: none"> Evidence of similar work undertaken in the past. Ability to work under pressure in a challenging and multi- cultural environment and deliver on a wide range of tasks; and Fluency in spoken and written English is a requirement. Demonstrate integrity, positive values and ethical standards in actions. Display cultural, gender, religion, race, nationality and age sensitivity and adaptability. Shares information, knowledge and experience through effective and frequent communication Ability to build consensus and garner support under complex situations 	15
**If necessary interviews shall also be conducted as part of the technical evaluation to ascertain best value for money.		
Financial Proposal Weightage		30%
Cumulative		100%

Proposal Submission :

- Closing date of all applications will be on 15th September 2017 @4:00 pm local time (GMT +11)
- All applications must be submitted either electronically to soi.bids@undp.org, or addressed under confidential cover to:

Assessment of TSF tailings sediments-depth, volume, contaminant levels, density, chemical interaction with surface waters (fluxes) Consultancy

Attention: Procurement Unit

UN Joint Presence Office, Ground Floor ANZ Haus Ranadi, P.O.Box 1954, HONIARA, Solomon Islands

All proposal should be submitted to the above email, failure to submit on this email address, will result in disqualification of proposals. No proposals will be accepted if submitted on Jobshop/ on this site

Incomplete application will not be considered and only candidates for whom there is further

For further information concerning this Terms of Reference, send email to soi.procurement@undp.org or / telephone +677 27446 at United Nations Development Programme, ANZ Haus – UN Joint Presence Office, Ranadi, Honiara

*Sub
sept 4.*