

TERMS OF REFERENCE

SHORT TERM FOR SEISMIC AND VOLCANIC MONITORING

Procurement: PREPSamoa/CON 13

Position:	Seismic and Volcanic Consultant
Location:	Samoa Meteorological Division, SMD, Mulinu'u, Apia.
Input:	1 person-month
Expected date of Start:	15 th March 2017

1. BACKGROUND

The Samoa Meteorology Division (SMD) of the Ministry of Natural Resources and Environment is the official government agency responsible for the observation of astronomical processes, observation of weather, oceans, atmospheric processes and air quality, climate and variability and forecasting, monitoring and detection of hazardous seismological activities and study of geological processes and provision of warning services and products pertaining to severe weather events, extreme climate conditions, earthquakes, tsunamis and volcanic eruption. Recipients of such information are the general public, the office of DMO, Disaster Advisory Council, Media, private and other government sectors.

SMD is also the designated meteorological authority in Samoa for providing weather service for international air navigation in accordance with the rules and regulations of International Civil Aviation Organization (ICAO) and the Civil Aviation Division of the Ministry of Works, Transport and Infrastructure, Samoa.

SMD is also responsible for the installation, operation and maintenance of all observation networks for weather, climate, seismic and volcanic activities, processes including communication systems to receive data from observations stations and to disseminate warning information and public weather services to the intended recipients.

SMD is also the primary agency of government that provides scientific information to strengthen climate change adaptation and mitigation in Samoa.

The SMD as part of the Pacific Resilience Program (PREP) intends to hire a short term consultant to design and provide technical specifications for the seismic stations (volcanic monitoring at Matavanu, Savaii).

The Pacific Resilience Programme (PREP) is a 'Series of Projects' articulated in two Phases at this stage, with the potential of a third and/or fourth phase in the future. The regional approach of the Programme will help Pacific Island Countries (PICs) to: (i) strengthen early warning and preparedness; (ii) create a framework for stronger and prioritised investments in resilience and retrofitting of key-public assets to meet internationally recognised resilience standards; and (iii) improve the post-disaster response capacity of the countries through strengthened financial resilience to disaster events. The PREP is funded by the World Bank.

The objective of PREP is to strengthen early warning, resilient investments and financial protection of Samoa.

The project has four components with Component 1 aims to strengthen the ability of Samoa, to make warning information actionable by those at risk, in order to minimize adverse impacts to vulnerable communities. It will enable people to make informed decisions about what to do to protect themselves from hazards and help emergency services target limited resources to where they are most needed, in order to maximize the impact of their response efforts.

Component 1 includes the following key elements: (i) detection, forecasting and warning of the impact of natural hazards; (ii) dissemination of timely warnings to the population, including last mile communication; and (iii) strengthening of emergency preparedness and response mechanisms. This would involve the introduction of a multi-hazard impact forecast and warning system, which would build on existing capabilities in meteorological, hydrological and seismological monitoring, forecasting and warning, and the Pacific Catastrophe Risk Assessment and Finance Initiative (PCRAFI) vulnerability assessments to establish a fully functioning Multi-Hazard Impact-based Early Warning System (MHEWS) for Samoa, and Tonga. The aim is to strengthen both national and regional early warning systems, creating common approaches to warning services among the participating countries wherever possible.

2. OBJECTIVES OF THE ASSIGNMENT

The objective of the Component 1 of the Project is to modernize the observation infrastructure, data management systems, forecasting and warning systems. The technical modernization of the observation networks includes expansion of the seismic observation network. The modernized observation networks will be capable of being fully integrated with any existing observing systems.

The Seismic and Volcanic Consultant is hired to undertake and enable the Ministry of Natural Resources and Environment (MNRE) to discharge its functions in relation to the design and technical specifications for the seismic stations (volcanic monitoring at Matavanu, Savaii – see Appendix 1).

The Consultant is requested to design and link the new communication system to the existing Real Time data network infrastructure. The Consultant is expected to undertake and continue consultations with SMD and liaise with the World Bank and Government of Samoa to ensure aligning with terms and conditions of all parties.

3. SCOPE OF SERVICES

The Seismic and Volcanic Monitoring Consultant shall undertake the following tasks under the direction of the CEO of MNRE or its representative ACEO Meteorology Division and in accordance with all requirements of the World Bank and the Government of Samoa.

- a) The Consultant shall prepare a comprehensive review report of existing seismic and volcanic monitoring networks in Samoa.
- b) The Consultant shall review the site at Mt Matavanu for the location of a new volcanic monitoring station and confirm that it is the most appropriate location

required. The Consultant shall ensure that the site is the object of a preliminary screening as per the Environmental and Social Management Framework and the Laws of Samoa with a particular focus on land ownership issues.

- c) The Consultant shall design the new volcanic monitoring station (including its communication system) and link it to the existing communication system. The Consultant should ensure that any design and upgrading can be integrated into the forthcoming multi hazard early warning system (MHEWS) which will be developed and implemented by the System Integrator Consultant (to be recruited under PREP).
- d) The Consultant shall provide a description of all functional and commissioning tests required for the acceptance of all equipment and accessories for the new volcanic monitoring station (including its communication system) to link the new station to the existing seismic communication network; these tests will form part of the bidding document to be prepared by the Client
- e) Provide details of all civil works (platforms, fencing, access to new site etc.) required with the new volcanic monitoring station and communication system.
- f) Identification and detailing a training programme for the operation of the new volcanic monitoring station and its communication system with cost estimates;
- g) Identification and detailing of spare parts required for the new volcanic monitoring station and its communication system.
- h) Prepare Detailed Tender Specifications for the new volcanic monitoring station and communication system. The technical specifications shall be used in the standard bidding document (to be prepared by the Client) in conformity with the Laws of Samoa and World Bank procurement guidelines.
- i) Prepare a detailed Bill of Quantities for the supply, installation and commissioning of all equipment and accessories for the volcanic monitoring station and its communication system as well as any civil works deemed necessary for the new station and its communication system so that they are fully functional.
- j) Prepare detailed cost estimate for the volcanic monitoring station and its communication system and the civil works.
- k) Prepare an implementation plan for the volcanic monitoring station and its communication system taking into account the PREP updated procurement plan for the first 18months for Samoa;
- l) Make a presentation of the review, design and Technical Specifications for the volcanic monitoring station and its communication system, the civil works required to Samoa Meteorology Division and MNRE.

4. REPORTING OBLIGATIONS AND DELIVERABLES

The Consultant will be required to prepare the following reports:

- a) Comprehensive review of the needs for the new volcanic monitoring station(including its communication system);
- b) Detailed Tender Specifications of all works for the new volcanic monitoring station (including its communication system) as well as any civil works, Detailed Bill of Quantities and confidential cost estimate report;
- c) An Implementation Plan for the new volcanic monitoring station and its communication system and civil works.

5. DUTY STATION, OBLIGATIONS / INSTITUTIONAL ARRANGEMENTS

The consultant will be based at the SMD, Mulinu'u, Apia.

The tasks shall be undertaken in the manner directed by the CEO of MNRE and the ACEO Meteorology Division.

Client obligations & responsibilities:

- i. Provision of relevant documents, data, statistics and information at the disposal of the Government will be done by SMD.
- ii. Coordination with stakeholders and partners will be provided by SMD, including field visits with SMD staff.
- iii. Logistical arrangements and coordination of the workshops/consultations will be arranged by SMD. The workshop agenda, session plans, presentations and other materials to be used in the workshop will be developed by the Consultant, in consultation with SMD.

Consultant obligations & responsibilities:

- i. All activities and tasks relating to understanding the process and getting the relevant formats to develop the documents is the responsibility of the Consultant.
- ii. All costs relating to accommodation and international air fares will be borne by the consultant.

The Consultant will be hired under a Lump Sum Contract, with maximum 2 payments to be considered, one after each trip. The payments will be discussed and agreed during the negotiation process with the recommended Consultant.

6. DURATION OF THE CONSULTANCY SERVICES

It is estimated that one (1) person month including 2 trips to Samoa will be required to complete the contract as per Scope of Consultancy services.

7. QUALIFICATION AND EXPERIENCE REQUIREMENTS

The Consultant is expected to have:

ESSENTIAL QUALIFICATION AND KNOWLEDGE/EXPERIENCE:

- A post graduate qualification in a discipline related to geology, seismology, volcanology, and related sciences;
- At least eight (8) years' experience in design and installation of seismic and volcanic monitoring network;
- Relevant practical experience in volcanic hazards monitoring techniques;

DESIRABLE QUALIFICATION AND KNOWLEDGE/EXPERIENCE:

- Previous experience in dealing with multilateral agencies such as WB, EU, ADB etc. with their respective procurement systems;
- Demonstrated experience in similar assignments in island states, preferably in a Pacific Island Country environment will be an advantage;

8. ESTIMATED COST

The estimated costs for the consultancy services are as follows:

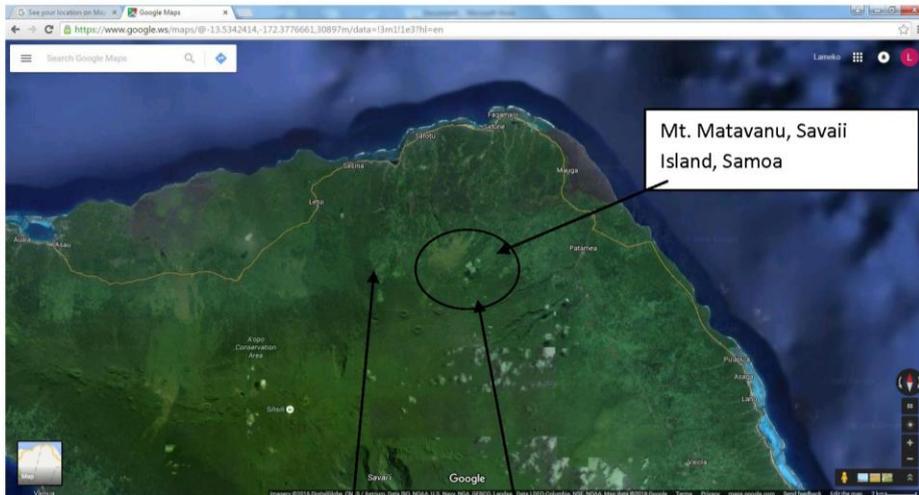
Consultancy fees	USD 10,000
Disbursements (airfare, per diem including accommodation)	USD 10,000
Total	USD 20,000

9. CONFIDENTIALITY

All deliberations relating to preparations of the design specifications including information collected from shall be kept confidential and shall not be divulged to any third party either verbally or in writing or in any other form.

Appendix 1

Google image of the Samoa Islands Savaii and Upolu –



Govt Land Near the Mt. Matavanu in Savaii Island Samoa where the Seismic and Volcanic Monitoring equipment will be located.



Contour map portion of Savaii Island showing the location of government land area where the Seismic and Volcanic monitoring equipment will be located.