



Consultancy - Flood Modelling - Cambodia

Annex 1: Terms of Reference

Background

People in Need (PIN) has been working in Cambodia since 2008 providing development and emergency assistance in both rural and urban areas, with a focus on Disaster Management (DM) and Disaster Risk Reduction (DRR). The DM team introduced the first early warning system (EWS), EWS1294, to Cambodia in 2013, in collaboration with the National Committee for Disaster Management (NCDM), to support hazard preparedness of communities vulnerable to flooding. Since its early development, innovation has been key to the systems success, utilising Interactive Voice Response (IVR) technology to ensure accessibility to vulnerable populations across the Kingdom; accompanied by continuous promotional activities through outreach activities in the field. Additionally, EWS1294 contains an innovative monitoring component, through the production and installation of river gauges, providing important real-time hydrological information to local disaster management authorities to support evidence-based decision making. Hence, PIN has worked closely with both NCDM and PCDM (provincial level), sharing an active MoU, to ensure a collaborative approach with the Cambodian government, enhancing the nations disaster management capacities.

About Us

People in Need are an international Non-Governmental Organisation (NGO) who have been working on a range of Disaster Risk Reduction projects in Cambodia since 2013. This has included embracing early warning system technology incorporating flood alerts from hydrological gauges. We are also investing in the development of tools to improve the sustainability and resilience of cities across the country.

Project Context

People in Need are now conducting an 18-month project, titled Strengthening Climate Information and Early Warning System in Cambodia to Support Climate Resilient Development and Adaptation to Climate Change project, under the Cambodia Climate Change Alliance (CCCA) Innovation Project. People in Need have been investing in conducting data collection for Krong Battambang on a GNSS kinematic ground survey; Aerial drone topographic survey; data processing of the ground and aerial survey to construct a high-resolution Digital Elevation Model (DEM); and a cross-sectional bathymetric survey the Sangkae River in Krong Battambang. People in Need is seeking a hydraulic modelling expert ('the consultant'), who has the capabilities to develop a flood scenario by assessing the hydrological condition, flood situations to determine flood scenarios in Battambang municipality and assessing the likely impacts in terms of future flood damage and risk. The flood modelling outputs of Battambang will be used to assess hazard impacts and therefore generate valuable information, to enhance the capacities of local disaster management authorities to conduct evidence-based decision making.

CONTACT DETAILS:



We are looking a potential candidate to join our team who can:

- ❖ Assess the topographic and hydrological conditions of Battambang municipality to determine the hazard risk for varying flood scenarios;
- ❖ Assess the possible impacts of future flood flows, considering damage and risk;
- ❖ Determine possible flood mitigation recommendations for Battambang municipality.

Data Requirements

Hydrology

People in Need will provide hydrological data for using in this study consisting of

- **Primary data**
 1. A Digital Terrain Model (DTM);
 2. A Digital Surface Model (DSM);
 3. A digital surface classification layer (the same extent as the DEM), derived from the drone survey, in an appropriate format for use in QGIS software;
 4. A digitised cross-sectional survey of a 7km reach, of the Sangkae River in Krong Battambang
- **Secondary data**
 1. River level Time-series
 2. Rainfall Time-series

Flood History

People in Need will provide relevant flood history (where possible) for the project area.

Flood Model Development

The consultant will be expected to source a range of open source or proprietary data required for this project at their own cost.

It is expected that the successful consultant will develop and maintain a data register that will be submitted with the final model. This will include details of the incoming and outgoing data used in the study such as date obtained, source location and additional details where appropriate.

Model Conceptualization

As part of the tender submission process, the consultant should describe the approach that will be taken to construct a flood model which will accurately represent flooding in Krong Battambang.

Flood Modelling

Model Development - Calibration and Sensitivity Testing

The Consultant shall undertake model calibration and sensitivity testing. As a minimal, the consultant should review flood history for the project area and ensure that generated model outputs correlate with this information.

CONTACT DETAILS:



Outputs

The consultant shall develop a robust, stable and replicable flood model that can demonstrate different flood scenarios within the project area. Specifically,

- 1) Activity workplan outlining the methodology and intended timeframe to deliver the outputs (in English);
- 2) Calibrated 2D flood model of Battambang City;
- 3) Flood inundation maps for Battambang City;
- 4) Historical analysis of existing river flow data;
- 5) Future flood inundation scenarios for Battambang City (data dependent);
- 6) Final Battambang Urban Flood Modelling report presenting the abovementioned outputs and containing possible flood mitigation recommendations (in English).

Collaboration and Technical Advice

The consultant should allocation time (2 days) to provide trainings, advice and recommendations to People in Need staff in basic concepts of flood modelling technology.

Profile of the consultant

- Advanced University degree in Hydrology, Meteorology, Water Engineering, Geography, Environmental Science or related discipline.
- Minimum 2 years of experience in conducting similar work, particularly in consultative positions on short term project work.
- Extensive knowledge and understanding of regional geography and working in development contexts is considered highly valuable.
- Knowledge of GIS Mapping tools, such as ArcGIS; Modelling capability in Flood Modeller Pro, HEC RAS, MIKE and TUFLOW software packages, or equivalent, is required;
- Strong track record in project management and delivery of projects;
- Excellent oral and written English skills required;
- Current or past working experience in Cambodia is a strong asset.

Timeframe:

Contract length: No longer than two (2) calendar months from date of contract signing, to be completed no later than October 15th 2021.

Application:

The incumbent must provide a technical / quality / price proposal (including programme / costs / risks). The consultant should ensure they cover the requirements specified within this term of reference.

Selection criteria:

Selection committee consists of PIN employees. Selection of incumbent strictly follows PIN's procurements guidelines and will be based on the following criteria:

CONTACT DETAILS:



- Price incl. relevant taxes: **30%**
NOTE: VAT 10% for registered legal entity / Withholding Tax 14% for a non-residential taxpayer (foreigner) and a foreigner residing overseas / Withholding Tax 15% for a residential taxpayer (foreigner) and for a Cambodian citizen individual
- Consultant's experience with similar assignments: **30%**
- Approach (methodology) to the assignment: **40%**

Please submit the application by **July 30th, 2021 at 05:30 p.m.** to:

procurement.cambodia@peopleinneed.cz

We encourage all interested candidates to submit application before July 30th, 2021 at 05:30 p.m. because we are looking to fill this position as soon as possible to start in early August 2021. We will review applications on a rolling basis from **July 23rd 2021** until the position is filled.

CONTACT DETAILS: