

## **TERMS OF REFERENCE (TOR)**

### **International consultant**

**Project title:** “Improving Adaptive Capacity and Risk Management of Rural Communities in Mongolia” project  
**Type of position:** International consultants  
**Type of Contract:** Individual contract  
**Duration:** 50 days  
**Duty Location:** MET office and Ulaanbaatar based Project office.  
**Language Required:** English  
**Expected Start Date:** 20 July, 2022

#### **A. Project description**

Mongolia is among the countries most impacted by climate change, due to its geographical location and livelihood of local communities associated with the pasture based livestock husbandry. Increased temperatures, coupled with decreased precipitation, has resulted in a drying trend impacting pastures and water sources. In respect of natural hazards the frequency and intensity of extreme events, including summer drought followed by harsh winters, cold waves related low temperatures, and higher snowfalls etc. Unsustainable herding practices and increase of livestock numbers, inconsistent with climate parameter fluctuation are leading to destabilization of income source of herding families, while further stressing increasingly fragile ecosystems.

The “Improving Adaptive Capacity and Risk Management of Rural Communities in Mongolia” project funded by the Green Climate Fund was launched in March 2021. The project will be implemented by the Ministry of Environment and Tourism (MET), the Ministry of Food, Agriculture, and Light Industry (MoFALI) and the United Nations Development Program (UNDP) for 7 years in Dornod, Sukhbaatar, Zavkhan and Khovd aimags. The objective of the project is to strengthen the climate resilience of resource-dependent rural populations in the 4 targeted aimags through feasible adaptation measures for maintaining ecosystem services. In addition to that one of the principal outcome of the Project is the development of capacity for the National Agency for Meteorology and Environmental Monitoring (NAMEM) and its main activity is weather forecasting. The agency has super-computing facilities for weather modelling and produce short-, mid-, and long-term information. Within the framework of the capacity building development, the training is planned to be organized among NAMEM’s staff in use of high performance computer and IT technology, which will be installed as part of the project for short-, middle-, and long-term weather forecasting and climate modelling.

The project is expected to benefit an estimated 800,000 people (approximately 130,000 direct and 800,000 indirect beneficiaries), of whom 50% are women. To achieve the project goal, the following activities within the interrelated components will be implemented and the expected results will be reached which include:

**Output 1:** Climate information integrated into land and water use planning at national and sub-national levels;

**Output 2:** Climate-resilient water and soil management practices scaled-up for enhanced small-scale herder resource management;

**Output 3:** Herder capacity to access markets built for sustainably sourced, climate-resilient livestock products.

**Key stakeholders of the assignment are:** MET, UNDP, relevant Government agencies and NGOs and Project Implementation Unit (PIU).

## **B. Objective of the assignment**

The objective of the assignment is to conduct training for NAMEM technical staff on the usage of models for meteorological research and forecasting, climate model in terms of earth system models and command language after the procurement and installation of a new supercomputing system at NAMEM.

In order to strengthen and advance their research work and numerical modelling system, staff and experts in the numerical modeling team must get adequate knowledge and expertise in modern technology, approach, methodology, and guidance. Toward that objective, NAMEM's technical staff will receive training in command language and programming, as well as model compiling, preprocessing, running, and postprocessing stages.

## **C. Scope of work**

The following outputs should be achieved as a result of the consulting services.

- Investigate training needs and gaps in global and regional weather and climate modeling, including initial and boundary condition, data assimilation, and statistical techniques;
- Develop a training manual and lecture module for each need and requirement, including numerical experiment practical examples and case studies;
- Conduct internal training which includes setting up, compiling and running weather, climate, hydrological, and air pollution numerical models, as well as preprocessing, and postprocessing;
- Develop a case study using numerical models that are running over Mongolian territory, focusing on how to improve forecast accuracy and precision and what numeric and statistical techniques are needed to apply in the national operational systems;
- Identify international and regional training tutorial modules on modelling, and organize participation of the technical staffs in the training at the selected international centers;
- Report on all activities and develop an evaluation form for training, and evaluate each training module during the period of participant engagement;
- Provide technical assistance in developing ToRs for providing technical service, training, and other activities under the project's annual work plan 2022;
- Provide support/advice capacity building in the exploration of new and sophisticated technologies to MET and NAMEM as needed; Consult with MET, NAMEM and PIU, as well as other project stakeholders, on proposals and recommendations, and relevant and incorporate them in the reports;
- Finalize the report in English for submission to the MET/NAMEM and PIU.

## **D. Expected Outputs, Deliverables, and Schedule of Payments**

The following outputs should be delivered as a result of the consulting services, working as a member of the team with common ToR, as described below.

- Provide training to NAMEM technical staff on the use of numerical weather and climate models and related applications and processing methods. The following outcomes are required:

- Weather Research and Forecasting (WRF) model, for which at least 8 staffs must be trained; Climate model/Community Earth System model (CESM), for which at least 4 staff must be trained;
- NCAR command language (NCAR CL), for which at least 12 staffs must be trained;
- Other models that could be explored as an additional or better alternative to existing ones.

The capability of the NAMEM staff will be improved and ready for operation of the procured supercomputer from installation to full operation stage.

<b>Deliverables/Output</b>	<b>Target due dates</b>	<b>Installment (%)</b>	<b>Review and Approvals Required</b>
<b>Inception report:</b> It consists of the following: <ul style="list-style-type: none"> <li>• A detailed work plan and timetable of tasks to be performed during the project, with specific responsibilities for each group of staffs participating in training;</li> </ul>	Within 15 days after contract signing	20% of the total amount	NAMEM , PIU and UNDP
<b>Progress Report:</b> <ul style="list-style-type: none"> <li>• A desk study on current methodologies and practices for running weather and climate models using high performance computing systems;</li> <li>• Progress on project implementation in terms of staff training within the timeframe specified.</li> </ul>	Within 20 days after submission of Inception Report	50% of the total amount	NAMEM , PIU and UNDP
<b>Final report and recommendations in English:</b> <ul style="list-style-type: none"> <li>• Contribute to the development of knowledge products and knowledge transfer activities linked to the assignment's theme;</li> <li>• Discuss proposals and recommendations with the PIU and relevant project stakeholders and incorporate them into the report and guiding documents as part of the report;</li> <li>• Complete the final report and submit it to the PIU.</li> </ul>	Within 15 days after submission of the Progress Report	30% of the total amount for International Consultant	Upon satisfactory result of the PIU and Programme Analyst of UNDP, and relevant stakeholders including MET and NAMEM

#### **E. Institutional arrangements**

Under the direct supervision of the National Project Director (NPD) and National Project Coordinator (NPC) and with the guidance of the Technical Expert , the consultant shall be responsible for updating the methodology, guidelines and recommendations for operating the newly installed supercomputer/high performance computer and its testing and running of weather, climate and pertinent related models.

The Consultant will work closely with the NAMEM, MET and other stakeholders to develop the methodology and guidelines described in the current ToR in cooperation with pertaining national staffs. The consultant will work closely with a team of international and national consultants on impact-based forecasting and forecast and projection-based planning to integrate the outputs of various tasks with common general goals for maximum synergy.

This Terms of Reference can be modified in consultation with the NPC without altering the purpose and scope of the Terms of Reference. Contract shall enter into force upon signing.

The Consultant will report to the MET and PIU once every 3 weeks on the progress of the performing the tasks. The Consultant is also responsible for identifying potential risks in a timely manner and providing timely notification of delays in the delivery of outputs after the Consultant becomes aware or should have become aware. The PIU, the MET own the copyright of all outputs.

The PIU has the following responsibilities: (i) Provide relevant documentation and resources; (ii) Discuss and agree on the Terms of Reference; (iii) Monitor and assess the task performed and its progress. The contract and payments will be based on the performance and will be regularly reviewed by the PIU and key implementing parties.

#### **F. Duration of the Work**

The work shall be performed within a total of 50 days after his/her arrival in Ulaanbaatar and signing the contract. The time for reviewing and commenting on the results of the PIU and confirming/receiving the approval is 10 days.

#### **G. Duty Station**

The contractor will work in the office, allowing him/her to collaborate closely with the NAMEM and other key stakeholders such as MET. The contractor shall include the costs of travel, meetings and printing/copying in the financial proposal.

#### **H. Qualifications of the Individual Contractor**

The consultant shall be specialized in the following areas and have the following educational and professional qualifications and skills, which include:

##### ***Academic qualifications and Professional Experience:***

- Master's degree or higher in information technology, meteorology, climate change or similar fields, with a focus on the development of weather and climate models and practical experience testing and running models on high performance computers;
- At least 10 years working experience in modelling and the usage of high-performance computer systems;
- Teaching experience in modelling and the use of high-performance computer systems;
- Experience working on UN-funded projects and programs is desired.

##### ***Skills***

- Excellent communication, articulation and coordination skills;
- Excellent verbal and written skills in English;
- Ability to understand different interests and seek for conciliation and coordination of activities;

- Ability to build informal networks internally and externally and visualize them as part of the value creation process;
- Ability to demonstrate behaviors such as teamwork, knowledge sharing and relationship maintenance;
- Ability to encourage collaboration and improve performance.
- Ability to work under pressure and deliver high quality results on time is required.

### **I. Scope of Price Proposal**

Contractor must send a financial proposal in accordance with related regulatory documents. The total amount quoted shall be inclusive and include cost components required to perform the deliverables identified in the ToR, including professional fees, content dissemination costs, third party involvement and any other applicable costs to be incurred by the contractor in completing the assignment. The contract price will be a fixed output-based price regardless of the extension of the herein specified duration.

### **J. Evaluation Method and Criteria**

Professional service provider will be evaluated based on the following methodology of Cumulative Analysis. The award of the contract shall be made to the professional service provider whose offer will be evaluated and determined as a) responsive/compliant/acceptable; and b) having received the highest score out of set of weighted technical criteria (70%) and financial criteria (30%). Financial score shall be computed as a ratio of the proposal being evaluated and the lowest priced proposal received by UNDP for the assignment.

### **K. Technical Criteria for Evaluation (Maximum 70 points)**

A point-based scoring system is used for the technical criteria evaluation. A detailed breakdown of each criterion and its point is illustrated in Annex III. Only candidates obtaining a minimum of 49 points (70% of the total technical points) would be considered for the Financial Evaluation.

### **L. Documents required**

Interested person must submit the following documents/information to demonstrate his/her qualifications.

- Letter of Confirmation of Interest and Availability** using the template provided in Annex I.
- Personal CV or P11**, indicating all past experience from similar projects as well as the contact details (email and telephone number) of the Candidate and at least three (3) professional references;
- Technical proposal**, including a) a brief description of why the professional service provider considers itself as the most suitable for the assignment; and b) a methodology, on how he/she will approach and complete the assignment.
- Financial proposal**, as per template provided in Annex II.

Incomplete proposals may not be considered.

### **Approval**

The ToR is approved by:

Khishigjargal Kharkhuu  
Program Analyst UNDP, Mongolia

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*Khishigjargal Kharkhuu*  
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27-Jun-2022

**Annex 1. Technical Criteria for Evaluation**

<b>Criteria</b>	<b>Weight</b>	<b>Max. Point</b>
<b>Technical criteria 1: Education and General Criteria</b>		<b>50</b>
Master's degree or higher in information technology, meteorology, climate change or similar fields, with a focus on the development of weather and climate models and practical experience testing and running models on high performance computers;		15
At least 10 years of experience in the field of modelling and use of high performance computer systems;		35
<b>Technical criteria 2: Qualification and Expertise</b>		<b>30</b>
Experience in developing models and their use in practical operations		20
Experience in teaching modelling and use of high-performance computer systems		10
<b>Technical criteria 3: Language skill</b>		<b>20</b>
A brief description of how to perform the tasks outlined in the Terms of Reference;		10
Fluent in English, both verbal and written;		10
<b>Technical Score</b>	<b>70</b>	<b>100</b>