**Terms of Reference**

**National Consultant – Utilization of geospatial information and satellite data for drought and dzud hazards**

**Project title:** Consultant – National Capacity Development

**Type of Position**: National Consultant

**Type of contract**: Individual contract

**Duty Location**: Ulaanbaatar, Mongolia

**Reports to:** Head of UN-SPIDER Beijing office

**Duration of contract**: 5 months

**Languages Required:** English

**Application deadline**: 29.06.2020

1. **Background**

Mongolia is prone to recurring extreme weather events, such as droughts and dzud - harsh winter conditions which can lead to large-scale livestock deaths. Droughts severely affect national crop production, such as animal feed, and staple wheat, barley, oats, potatoes and vegetables, while dzud can lead to widespread death of livestock, negatively impacting on livelihoods of large numbers of the population.

Early warning systems in Mongolia are nascent, and while the development of drought and dzud conditions are monitored regularly, response activities continue to rely mainly on rapid assessments for identifying needs and assessing disaster impact. Further strengthening and linking early warning systems and available information is important to enable more effective response, but, above all, timely and targeted preparedness and early action, thereby reducing the level of disaster damage and loss experienced by herders and the national economy.

United Nations Platform for Space based Information for Disaster Management and Emergency Response (UN-SPIDER), administered by United Nations Office for Outer Space Affairs, conducted a technical advisory mission (TAM) in Mongolia in 2014 and the submitted the reports to the National Emergency Management Agency (NEMA) of Mongolia in English and Mongolian language. Since then the UN-SPIDER is working with NEMA to provide capacity in using space-based information in disaster management and emergency response. In August 2018, UN-SPIDER conducted the institutional strengthening mission which focused on knowing current usage of space-based and geospatial systems in NEMA, review progress in the context of the recommendations of the report of the UN-SPIDER technical advisory mission, provided ideas to assist NEMA to strengthen its capacity in disaster management and emergency response.

From April 2019 to May 2020, the United Nations World Food Program (WFP) through its Regional Bureau for Asia and the Pacific, has worked alongside key stakeholders to configure and deploy the Platform for Real-time Impact and Situation Monitoring ([PRISM](https://innovation.wfp.org/project/prism)) to Mongolia. PRISM combines data on socio-economic vulnerability with satellite and other remotely sensed data on hazards and exposure to provide national disaster management agencies with risk and impact analysis products through a web-based dashboard. WFP has collaborated with the NEMA as the primary user of PRISM in Mongolia and with the National Agency for Meteorology and Environment Monitoring (NAMEM) – including the Information and Research Institute of Meteorology, Hydrology and Environment (IRIMHE) – to ensure the satellite products used in the system are validated for use in Mongolia. In addition WFP has partnered with [eOshpere](http://www.eosphere.co.uk/), a UK-based company implementing the [SIBELIUS](https://sibelius-mongolia.org/) project through support from the UK Space Agency International Partnership Programme ([IPP](https://www.gov.uk/government/collections/international-partnership-programme)) – which seeks to maximize the use space solutions to solve development challenges and build capacity in developing countries on the use of satellite data. SIBELIUS specifically improves NAMEM’s capacity for distributing new and upgraded environmental products to key stakeholders who are supporting herding communities.

With WFP’s engagement in Mongolia coming to a close and the platform delivered to key government agencies, the next phase of work aims to ensure its successful adoption and long-term sustainability through capacity development and the creation of links between monitoring data from satellite sources to actions.

To facilitate this, UN-SPIDER seek to hire a Consultant based in Ulaanbaatar to work with NEMA and IRIMHE on further utilization of satellite data on drought and dzud hazards for disaster risk reduction.

1. **Objectives**

Under the direct supervision of the Head of UN-SPIDER Programme office in Beijing and in close collaboration with government counterparts in NEMA, NAMEM, and IRIMHE, the consultant’s primary role is to further develop national capacity within Mongolian institutions on the use of satellite data for disaster risk reduction, including through outputs produced by PRISM. She/he will coordinate activities with UN-SPIDER’s network of experts, government counterparts, and eOsphere to ensure that data products derived from satellite data are effectively understood and utilized.

1. **Scope of Work**

The key elements of the assessment will include:

1. Develop capacity at NEMA on the utilization of satellite-based approaches for drought and dzud monitoring, including the use of PRISM through training and hands-on exercises
2. Facilitate technical working groups consisting of key government and partner stakeholders which contribute to and benefit from monitoring systems related droughts and dzud where satellite data plays a key role
3. Provide guidance to NEMA, NAMEM, IRIMHE, and the technical working group on the utilization of satellite derived hazard monitoring products including their benefits and limitations
4. Link outputs from hazard monitoring systems including PRISM to early actions protocols by government and partners including UN agencies and international NGOs through consultative processes including workshops and trainings
5. Coordinate sub-national rollout of PRISM through additional training to Aimag and Soum staff at NEMA and other relevant government agencies
6. Support NEMA and partners to include additional hazard and vulnerability data sources in PRISM
7. Explore additional opportunities for satellite data to play a role in NEMA’s primary activities
8. **Expected output/deliverables**

The national Consultant will deliver the following outputs:

|  |  |  |  |
| --- | --- | --- | --- |
| **Deliverables/Outputs** | **Installment** | **Deadline** | **Condition for payment release** |
| **Inception Report** * A detailed workplan including Capacity building plan with NEMA, plan to engage with the stakeholder organisations and working groups, utilization of satellite derived products in PRISM, utilization of outputs of PRISM, training plan for NEMA staff in Aimag and Soum
 | 10% | 15 July 2020 | * Upon submission of the report with addressed comments from the UN-SPIDER
 |
| Monthly report * Progress of activities 1 to 7 based on the activities defined in the inception report
 | 20% | 15 August 2020 | * Upon submission of the report with addressed comments from the UN-SPIDER
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| Monthly report * Progress of activities 1 to 7 based on the activities defined in the inception report
 | 20% | 15 September 2020 | * Upon submission of the report with addressed comments from the UN-SPIDER
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| Monthly report * Progress of activities 1 to 7 based on the activities defined in the inception report
 | 20% | 15 October 2020 | * Upon submission of the report with addressed comments from the UN-SPIDER
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| Monthly report * Progress of activities 1 to 7 based on the activities defined in the inception report
 | 20% | 15 November 2020 | * Upon submission of the report with addressed comments from the UN-SPIDER
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| Final report* Summary of the work and achievements
* Thoughts on future activities
 | 10% | 30 November | * Upon submission of the report with addressed comments from the UN-SPIDER
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**Note:** Instalments will be based on invoices on achievement of agreed milestones i.e. upon delivery of the services specified in the TOR and certification by the UNDP. While preparing your submission, please use the “Template for Confirmation of Interest and Submission of Financial Proposals” found on the right side of the procurement webpage for downloading. No costs other than what has been indicated in the financial proposal will be paid or reimbursed to the consultant.

1. **Institutional arrangements**

The Consultant will be based at NEMA and will be supported by the team of NEMA engaged with the UN-SPIDER programme and PRISM project.

**Duration of the assignment**

The work will be undertaken over a period of up to 5 months in July to November 2020 .

**Duty station**

The consultant will be based at NEMA, Ulaanbaatar.

1. **DEGREE OF EXPERTISE, Qualifications and COMPETENCIES**

**Qualifications**

* Advanced degree (master’s degree at minimum) in Earth Sciences, Remote Sensing, Computer Science, or similar technical degree
* At least five years of experience using Earth Observation data for measuring and monitoring natural hazards; specific experience on the use of satellite data for drought and dzud monitoring is a highly desired
* Experience providing training on remote sensing methods is desired
* Programming experience with Python for geospatial and statistical applications, including spatial and statistical libraries (e.g. ArcPy, numpy, gdal, rasterio and/or pandas) is an advantage
* Excellent communication skills including the ability to explain highly technical subject matter to non-technical audiences
* Prior experience working with distributed teams on open-source technology projects is desirable
* Fluency (level C) in English and Mongolian languages are required.
1. **Recommended Presentation of Offer**

The following documents should be provided:

1. **Letter of Confirmation of Interest** to conduct the assignment;
2. **Personal CV or P11**, indicating all experience from similar projects, as well as the contact details (email and telephone number) of the Candidate and at least three (3) professional references;
3. **Brief description** of why the individual considers him/herself as the most suitable for the assignment, and a proposed work plan and methodology on how they will approach and complete the assignment.
4. **Financial Proposal** that indicates the all-inclusive fixed total contract price, supported by a breakdown of costs in USD.
5. **Criteria for Selection of the Best Offer**

Selection criteria is Combined Scoring method – where the qualifications will be weighted a maximum of 70%, and combined with the price offer which will be weighted a max of 30%. Criteria for technical qualifications is shown in Annex I.

**Annex – Scoring sheet**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Criteria | Weight | Max. point |
|  |
| **Expertise of the National Consultant** |  |  |
| a. | Advanced degree (master’s degree at minimum, doctorate preferred) in Earth Sciences, Remote Sensing, Computer Science, or similar technical degree |  | *[10]* |
| b. | At least five years of experience using Earth Observation data for measuring and monitoring natural hazards; specific experience on the use of satellite data for drought and dzud monitoring is a highly valuable asset |  | *[20]* |
| c. | Experience providing training on remote sensing methods is required |  | *[15]* |
| d. | Programming experience with Python for geospatial and statistical applications, including spatial and statistical libraries (e.g. ArcPy, numpy, gdal, rasterio and/or pandas) is an advantage |  | *[15]* |
| e. | Prior experience working with distributed teams on open-source technology projects is desirable |  | *[10]* |
| f. | Excellent proposed methodology and approach |  |  *[20]* |
| g. | Fluency (level C) in English and Mongolian languages are required.  |  | *[10]* |
| **Technical Score** |  | **100** |

Selection criteria is Combined Scoring method – where the qualifications will be weighted a maximum of 70%, and combined with the price offer which will be weighted a max of 30%. Candidates who successfully pass the screening process (80% of the technical qualification) will be called for an interview (20% of the technical qualifications).

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| ***Weight for technical criteria*** |
| Weak: below 70% | The individual consultant/contractor has demonstrated a WEAK capacity for the analyzed competence |
| Satisfactory: 70-75% | The individual consultant/contractor has demonstrated a SATISFACTORY capacity for the analyzed competence |
| Good: 76-85% | The individual consultant/contractor has demonstrated a GOOD capacity for the analyzed competence |
| Very good: 86-95% | The individual consultant/contractor has demonstrated a VERY GOOD capacity for the analyzed competence |
| Outstanding: 96-100% | The individual consultant/contractor has demonstrated an OUTSTANDING capacity for the analyzed competence |