For: Agriculture and Agri-Food Canada (AAFC)

An Advance Contract Award Notice (ACAN) is a notification through the open bidding methodology of the intent to award a directed contract.

An Advance Contract Award Notice (ACAN) allows departments and agencies to post a notice, for no less than fifteen calendar days, indicating to the supplier community that it intends to award a good, service or construction contract to a pre-identified contractor. If no other supplier submits, on or before the closing date, a statement of capabilities that meets the requirements set out in the ACAN, the competitive requirements of the government's contracting policy have been met. Following notification to suppliers not successful in demonstrating that their statements of capabilities meets the requirements set out in the ACAN, the contract may then be awarded using the Treasury Board's electronic bidding authorities.

If other potential suppliers submit Statements of Capabilities during the fifteen calendar day posting period, and meet the requirements set out in the ACAN, the department or agency must proceed to a full tendering process on either the government's electronic tendering service or through traditional means, in order to award the contract.

Applicability of trade agreements and other obligations:

N/A

Objective of the ACAN:

AAFC intends to enter into a consulting service contract to Develop Operational Drought Forecasts

Background

Agriculture and Agri-Food Canada (AAFC) produces the Canadian Drought Monitor (CDM), which is Canada's official source for the monitoring and reporting of drought at a nationwide scale in Canada. Additionally, AAFC has released a new product in 2021 called the Canadian Drought Outlook (CDO), which is a monthly drought forecast identifying how drought conditions across the country will evolve over the next month.

To produce these drought products, AAFC currently collects meteorological data from other Canadian government agencies such as Environment and Climate Change Canada (ECCC) and processes them in-house using a mixture of software tools in different languages. These tools produce a fleet of standard and scientifically recognized indices related to drought, which are then tied to current and future drought conditions.

Objective

The contractor will replicate the AAFC workflow for the production of drought indices in the cloud by leveraging Climate Engine's cloud processing and data storage. The contractor will align all data sources and processing methodologies with the existing workflow at AAFC, and produce a suite of centralized and accessible data products in a cloud environment for downstream incorporation into the CDM and CDO. The cloud

processing would include all external data ingestion, bias correction, quantile-quantile mapping and drought index calculations.

Description and Scope of Work

The Contractor will be required to complete the following:

1. Perform project management related tasks associated with bi-weekly technical team meetings, progress reporting, final reporting, and billing and accounting.

2. Coordinate with AAFC to develop overall software architecture and automated process for ingesting, computing, and saving drought forecasts of SPI, SPEI, and Palmer within a Google storage bucket using Kubernetes and Argo.

3. Coordinate with AAFC to integrate Quantile-Quantile (percentile) mapping lookup values (based on static Global Ensemble Prediction System (GEPS) hindcasts and ANUSPLINE) within Climate Engine workflows, and write software for bias correction of GEPS forecasts, and GEPS forecasts past 2 weeks (based on dynamic SUBX GEPS ensemble hindcasts)

4. Coordinate with AAFC to integrate static distribution parameters for computing SPI and SPEI, integrate existing SPI, SPEI, and Palmer software (potentially a mix of codes and executables already developed by AAFC and NOAA) into the Climate Engine AAFC forecast workflow, make and test calculations by comparing to benchmark AAFC forecasts using current on-premise workflows at AAFC.

1. Once forecasts are tested and approved by AAFC, perform operational production of drought forecasts using Kubernetes and Argo, and develop Climate Engine API endpoints for AAFC to make API queries to operationally retrieve the forecasts as geotiffs.

2. Develop summary report and manual outlining the process and products developed, and how to make API queries to produce and retrieve operational drought forecasts using Climate Engine.

Deliverables and Schedule

The contractor shall all deliverables by March 31, 2022. Payment for all three deliverables will be made at the end of the contract.

Deliverable	Description	Amount (CDN)	Delivery Date
1	AAFC and the contractor team members to meet online to establish workflows and calculation parameters to be used in this project. The contractor will deliver the detailed methodological outline to AAFC.		February 7, 2022

2	The contractor will deliver Drought forecasts of SPI, SPEI, and Palmer tested an approved by AAFC. This will include cloud-based raster files and results of evaluation delivered through a presentation to the AAFC team.		February 23, 2022
3	The contractor will establish application programming interface (API) endpoints for AAFC to make API queries to operationally retrieve the forecasts as geotiffs. The contractor will present to the AAFC team a methodology for accessing these data sets from the cloud environment.	$35000	March 31, 2022

Language of Work

Deliverables will be in English

Performance Standards and Quality Measurement

The contractor shall be in contact with AAFC to ensure material meets requirements.

Departmental Responsibilities and Support

The department will provide current methodology, lookup values for data calibration and hindcasts of Global Ensemble Prediction System weather data. Other data sets that may be required will also be provided by AAFC upon agreement of both parties.

Risks and Constraints

The completion of the deliverables is contingent on AAFC providing data sets to the contractor. The schedule may slide if unforeseen issues occur by either the contractor or AAFC which lead to a delay in meeting deliverables.

Timelines

If time becomes a limiting factor, then the timeline can be adjusted by mutual agreement. Any proposed changes to the scope or timeline of the work are to be discussed with the Project Authority, and any resulting changes can only be confirmed with the Project Authority.

Reporting and Communications

The Contractor shall maintain regular communications with department staff. Communications is defined as all reasonable effort to inform all parties of plans, decisions, proposed approaches, implementation and results of the work to ensure that the project is progressing well and in accordance with expectations. Communications may include: phone calls, electronic mail, mailings and meetings. In addition, the Contractor is to immediately notify the Project Authority of any issues, problems, or areas of concern in relation to any work completed under the Contract, as they arise. The general expectation is a minimum monthly consultation on progress towards deliverables. Specific

teleconferences to discuss progress will be required prior to submission of deliverables will be on an ad hoc basis.

Security

All work will be done off-site and therefore no security clearance by the Federal Government is required.

Location of Work and Travel

The entirety of the work will be carried out at the Contractor's facilities. AAFC will not provide the Contractor(s) with facilities or equipment. There are no requirements for travel.

Change Management

Any changes to the scope of work or deliverables of the contract must be done in writing by the AAFC Project Authority, and an amendment must be prepared to reflect these changes.

Special Requirements

The Contractor shall be responsible for any translation of deliverables prior to their submission to the AAFC Project Authority. Translation shall be at no cost to AAFC.

Duration /Period of Agreement

Work will commence upon Contract Award, and will conclude no later than March 31, 2022.

Departmental Representative

The Contractor shall report and provide deliverables to the AAFC Project Authority.

Intellectual Property (IP)

It is not expected that any intellectual property will be created by this contract. The data sets and products are publicly available data sets and methods are commonly used.

Estimated Value

The value of the contract is estimated at $35000 + HST

Payment Schedule/Basis of Payment

Payment on completion (one payment only) 100% upon completion and acceptance by the Departmental Representative of the work

The cost details are as follows:
March 31, 2022 : $35,000 + taxes

Proposed Supplier

Habitat Seven Inc.
208*159 Murray Street
Ottawa, ON K1N 5M7

Sole Source Justification

Habitat Seven's Climate Engine is a unique tool set to compute science-based drought indicators and no similar tool sets exist. Given our experience in this area of science, we are confident that there are no other qualified contractors who could complete this work. This contractor is able to do this because this tool set was developed initially by scientists for clients in the United States Drought Mitigation Center to perform similar work.

Suppliers' Right to Submit a Statement of Capabilities

Suppliers who consider themselves fully qualified and available to provide the services described herein may submit a Statement of Capabilities in writing to the contact person identified in this Notice on or before the closing date of this Notice. The Statement of Capabilities must clearly demonstrate how the supplier meets the advertised requirements.

Deadline for submission of a Statement of Capabilities:

February 2, 2022, at 2:00 p.m. (EST)

Inquiries and submission of Statements of Capabilities: Inquiries must be submitted **BY EMAIL** to the Contracting Authority:

aafc.escprocurement-cseapprovisionnement.aac@agr.gc.ca