Scope of Work

Water Smart Agriculture Use Case Consultant, Data Science Program
RFP Number US7452

Background:
CRS works with its partners to implement high quality humanitarian and development programs. To support learning, accountability and impactful programming, we collect a range of data from our projects. Currently, much of our data collection and analysis responds to specific donor requirements, with project staff and resources focused on these requirements. In some cases, it would be valuable to capture additional data to inform our programming and understand how application of Catholic social teachings contributes to addressing the social and economic problems of the most vulnerable. Another limitation in our current data use is that data platforms are not harmonized, such that data are stored in different databases and in different forms, limiting analysis across projects.

With the advent of new technologies and improved data analysis methods, CRS has the opportunity to leverage such analytics to increase the scale and impact of our program interventions. Strengthening our data science capabilities will contribute to the CRS Vision 2030 strategy, in particular Strategic Initiative 1.2 “Transform our approach to evidence, learning and outcomes measurement to support collaborative implementation and influence of solutions at scale” and Strategic Initiative 4.4 “Transform CRS into a truly data-informed organization”.

As CRS continues to deepen its commitment to local leadership and as project implementation is increasingly led by our local partners, supporting high quality data analysis and use – including by project participants – can be a key role CRS can play to ensure impactful programs. More broadly, data science can help CRS to catalyze scale, build a more agile and innovative organization, and ultimately help us better meet the needs of our project participants.

A private donor provided a generous gift to CRS to support us to map our current data systems, develop a roadmap for strengthening our data capabilities, and establish a strategic platform that enables us to utilize and scale data science within the organization, with a focus primarily on CRS projects. In the first phase of this project, CRS worked with the consultancy firm, Element 22, to develop a roadmap based on CRS’ current programming and technologies. The key recommendation in the roadmap was that CRS build a Data Science Program to utilize its extensive and rich data as a strategic asset for serving CRS’ communities.

Summary of Assignment:
The primary responsibilities of the Water Smart Agriculture Use Case Consultant are to:

- Work closely with agriculture projects in LACRO, with particular emphasis on projects implementing Water Smart Agriculture, to identify the questions/hypotheses and the aligned datasets for the Agriculture Use Case
- Coordinate with the Data Science Technical Advisor and Use Case Lead to review datasets, clarify gaps, and address quality issues with project staff.
• Attend weekly meetings with the Use Case Lead, Data Scientist, Analysts, and Data Science Technical Advisor to monitor data quality and reporting, review and escalate issues, and review root cause analysis.
• Lead the coordination with regional and project staff on a weekly basis for ground truthing, to review models result and interpretation, identifying any gaps in reporting or unexpected results.
• Assist in after-action review activities led by the Data Science Technical Advisor and Data Science Director

**Timeframe and Level of Effort:**
This assignment is expected to take place from TBD. During this 6-month period, the Water Smart Agriculture Use Case Consultant is expected to require 50% effort level.

**Detailed Activities:**
• Coordinate with project staff, technical advisors, and key Data Science Center of Practice (DSCOP) staff to identify the questions/hypotheses and internal and external datasets that align with the Agriculture Use Case learning questions and data requirements.
• Support project staff responsible for managing WSA datasets with the provision of data requirements and setting data quality expectations of internal and external datasets.
• Coordinating with country and regional stakeholders and platforms for data use and learning from models – ensuring that quality issues are reported and that unexpected results are analyzed.
• Coordinate with the Data Science Technical Advisor and Use Case Lead to conduct root cause analysis on key data quality issues that arise.
• Participate in meetings with the Use Case Lead, Data Scientist, Analysts, and Data Science Technical Advisor to monitor data quality and reporting, review and escalate issues, and review root cause analysis.
• Assist key DSCOP staff and agriculture use case stakeholders on finalizing the following:
  o Data requirements and cataloging of internal and external datasets;
  o Critical data elements and prioritization (e.g., participant ID, name, location) essential for data modeling and use;
  o Data quality rules and metrics definitions for internal and external datasets;
  o Processes for quality improvement of data in models and reporting, among others.
• Assist the Data Science Technical Advisor in conducting an after-action review of the process of onboarding datasets, remediating data to ensure quality, interpreting and using results, and capacity strengthening of staff interfacing with the data science program

**Deliverables:**
• Defined and screened data sources (content, quality, operability, automation feasibility, sustainability) for the following products:
  o Tracking tool for water and soil monitoring
  o Tracking tool of adoption of WSA practices at scale and over time (WSA platform).
  o System for extension recommendation (WSA hybrid model) on drought (forecast), planting, fertilization, crop selection and eventually pest & disease management (farmer).
• Remote sensing data repository
• Training courses for SIGA group members on repository and analytics platform.
### Workplan for Activities:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Month</th>
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<tbody>
<tr>
<td>Identify internal and external datasets that align with the Agriculture Use Case learning questions and data requirements.</td>
<td>X</td>
</tr>
<tr>
<td>Establish data requirements and setting data quality expectations of internal and external datasets</td>
<td>X</td>
</tr>
<tr>
<td>Coordinate with country and regional stakeholders and platforms for data use and learning from models (frequency: weekly, bi-weekly)</td>
<td>X X X X X X</td>
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<tr>
<td>Coordinate with the Data Science Technical Advisor to conduct root cause analysis on key data quality issues that arise (frequency: as issues are flagged)</td>
<td>X X X X X X</td>
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<tr>
<td>Participate in meetings with the Data Scientist, Analysts, and Data Science Technical Advisor to monitor data quality and reporting, review and escalate issues, and review root cause analysis (frequency: weekly)</td>
<td>X X X X X X</td>
</tr>
<tr>
<td>Assist key DSCOP staff and agriculture use case stakeholders on finalizing deliverables (frequency: as consulted)</td>
<td>X X X X X X</td>
</tr>
<tr>
<td>Assist the Data Science Technical Advisor in conducting an after-action review</td>
<td>X</td>
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### Basic Qualifications:

- A master’s degree in a relevant field such as Geography, Environmental Science, Remote Sensing, Geoinformatics, Computer Science, or a related field.
- A minimum of 5-10 years of professional experience in remote sensing, GIS (Geographic Information Systems), and advanced data analysis.
- Experience in developing and implementing automatic data collection and analysis platforms.
- Experience in working with agricultural and water resource data and related models (e.g., WAPOR).
- Experience in working on projects in Central America or similar regions would be an added advantage.
- Proficiency in programming languages such as Python, R, or JavaScript as well as in using remote sensing software such as ArcGIS, QGIS, ERDAS Imagine, or ENVI.
- Experience in working with satellite data and high-resolution imagery data from sources such as Landsat, Sentinel, MODIS, etc. for agricultural and environmental purposes.
- Experience in developing and implementing algorithms and models for data analysis.
- Experience in developing user-friendly interfaces for data visualization and interpretation (dashboards).
- Knowledge of cloud computing platforms such as AWS, Google Cloud, or Microsoft Azure.
- Certifications in GIS, remote sensing, or related fields would be an added advantage.

### Knowledge, Skills, and Abilities:

- Excellent relationship management skills with ability to work with individuals in diverse geographical and cultural settings.
• Very strong strategic, analytical, problem-solving and systems thinking skills with capacity to see the big picture and ability to make sound judgments.
• Ability to work independently and as part of a team. Strong team player, inclusive and consultative in approaches, collaborative, encouraging of and respectful of others’ inputs and perspectives.
• Very strong written and oral communication skills
• Very strong presentation, facilitation, training, mentoring, and coaching skills.
• Proactive, resourceful, and results oriented.
• Ability to manage multiple tasks and meet deadlines.

**Required languages:**

• Excellent spoken and written English skills.
• Working knowledge of Spanish (since the consultant will be working in collaboration with colleagues in Central America) desirable.

**Submission Deadline**
All submission must be received by CRS no later than October 23, 2023 [11:59 PM for electronic submission] to anthony.russell@crs.org. The RFP number indicated above must be included in the subject line.

Submissions should include the following information:

a. A copy of your CV (In English)

b. Three (3) client references with contact details

c. Daily Rate/Billable days

d. Relationship disclosure

i. Describe any current or past relationships you or your organization may have with CRS.

ii. Describe any personal or family relationships any employee of the Contractor has with any employee of CRS.