

Terms of Reference

Anticipatory Analysis to Improve Access and Program Implementation in the Sahel

1. Background

The NRC regional office for Central and West Africa (ROCWA) is spearheading efforts to enhance strategic and programmatic decision-making to improve humanitarian presence and responses in complex operating environments in the Sahel region through its offices in Burkina Faso, Mali and Niger. The rapid expansion of violent conflict has made timely and accurate information gathering challenging and as such, preparedness is less effective when it comes to overcoming access obstacles.

Conscious that maintaining presence across a wide diversity of areas requires innovation and adaptability, NRC wishes to use data and predictive analytics to be more anticipatory in its approach to access, trigger timely adaptation measures and allocate adequate resources where needed. Whereas the application of predictive analysis in humanitarian responses is relatively new, the increasing availability of data from a variety of sources and the advancements in machine learning are generating growing opportunities to gain insight and trigger such anticipatory action.

Because securing and maintaining humanitarian access is critical to the work of humanitarian actors, NRC wishes to pilot a predictive data model to analyze current and historical data and establish ***which elements have affected access most systematically between 2015 and 2020 in the Liptako-Gourma region¹ to better understand the influence exerted by different factors on the resulting restriction of humanitarian access.***

By using an explanatory model consistent with data observations, NRC aims to infer rather than forecast the interplay between context and access through historical, contextual, secondary and access-specific data. This should result in an assistive web-app based system (data model) to be used by NRC, and possibly the wider humanitarian community, to perform anticipatory and effective analysis in the field. ***The ultimate goal is to analyze current and historical data to predict what combination of factors are likely to result in access interruption and eventually failure and vice versa, which combination is more likely to facilitate humanitarian access.***

Background of the project:

With the support of USAID's Office of U.S. Foreign Disaster Assistance, this intervention aims to contribute to enhanced strategic and programmatic decision-making at field level to improve humanitarian presence and responses in complex operating environments in the region of Liptako-Gourma in Burkina Faso, Mali and Niger. The project will leverage

¹ For the purpose of this consultancy, the Liptako-Gourma area would entail the following regions: in Mali, Gao, Menaka, Mopti; in Burkina Faso; Sahel, Nord, Boucle du Mouhoun, Centre-Nord Est; in Niger, Tahoua and Tillabery.

NRC's presence in hard-to-reach areas, our relevance as a key operational humanitarian actor with a strong access, protection and advocacy capacity.

The forward-looking analysis will enable the humanitarian community, through regular updates presented to HCTs and relevant working groups, to anticipate and to adapt, ensuring the sustainability and relevance of their programming, in a rapid and constantly changing context. Furthermore, this action seeks to enhance the relevance, timeliness and impact of humanitarian responses while strengthening the application of the humanitarian principles across the region

2. Objectives of the consultancy

By integrating multiple sources of data (topographic, geospatial, meteorological, demographic, economic, labor, human mobility, conflict, political etc.) the Consultant(s) should perform the following tasks (lists is indicative, not exhaustive):

A) Data integration

- Establish a longitudinal database between 2015 and 2020
- Develop a set of analytics to establish:
 - o The factors most likely to influence access, the evolution of these factors and early signs \ criteria defining them
 - o Anomalies in data and the evolution of the factors (both positive and negative outliers)

B) Data modeling

- Implement a model to establish which factors, elements or actors have affected access most systematically both alone or in combination with each other (model to be inferred from the data and proposed in a methodology note to NRC)
- Contribute to the development of rules by which to score access
- Perform a study of the model and develop a report in collaboration with NRC to showcase the findings

C) Web-app platform

- Realize a long-term geared dynamic visualization of the model
- Highlight the predicted effects of the model
- Build and connect a set of APIs for automated data extraction from external and secondary sources

3. Scope of the Assessment

To achieve the above objectives, the Consultant(s) will conduct the activities within the following bounds:

- The geographic area of Liptako- Gourma, entailing the following regions: in Mali, *Gao, Menaka, Mopti*; in Burkina Faso; *Sahel, Nord, Boucle du Mouhoun, Centre-Nord, Est*; in Niger, *Tahoua and Tillabery*.
- The given historical period between 2015 to 2020.

4. NRC's Roles and Responsibilities

- Offer the Consultant(s) relevant sources of data from within NRC, such as hard to reach assessments, access indicators etc.
- Provide timely feedback at every stage of the consultancy
- Provide support in liaising with potential data sources across the region and broadening buy in for the project
- Facilitate the creation of alliances with public and academic institutions to expand availability of datasets

- Organize brainstorming with NRC`s access experts to gather input and feedback to facilitate the Consultant(s) understanding of substantive matters
- Make payment to the Consultant(s) in line with the contract and upon receipt of the agreed, high quality, deliverables
- NRC will not provide logistical support.

5. Responsibilities of the Consultant(s)

- Respect NRC`s policies and fully adhere to the NRC code of Conduct
- Make available both soft and hard copy documents and datasets related to the study (including any non-proprietary script and code developed and related documentation) as well as the list of interviews, sources, and partners consulted or used for the research
- Finalize the research based on the agreed time frame
- All activities shall be conducted with strict adherence to NRC`s consultancy service procurement guidelines
- Respect reporting requirements and provide high-quality deliverables in a timely manner

6. Deliverables

o Work plan

The Consultant(s) is expected to submit a high quality and detailed working plan within the first week after the start of the contract which includes the various activities foreseen, delays for the deliverables and person in charge of each activity.

o Methodology for Data Integration and Catalogue of Data Sources

Before starting the data integration process, the Consultant(s) has to submit a catalogue of data sources to be integrated and the methodology used for their treatment. The Consultant(s) is also expected to highlight lack of data and propose mitigation measures.

o Dataset

Once data is integrated, the Consultant(s) has to share the code that led to its integration and the complete version of the dataset (to be updated if additional data are integrated).

o Methodology for the data model

Once the dataset is complete, the Consultant(s) is expected to present a whole encompassing methodology of the model they will implement. Since the choice of model should be inferred from the data, the Consultant(s) should justify the choice and discuss it with the NRC technical referents for the project.

o The data model

Once the model is established and its subsequent study performed, the Consultant(s) has to deliver a comprehensive report of the study and the reproducible code.

o **The visualization of the model (web-app)**

The web-app should enable a dynamic visualization of the predicted effects, and before its realization the Consultant(s) should consult NRC to best understand its final purpose and use by the humanitarian community.

7. Terms and conditions

The contract will be managed by NRC ROCWA. The consultancy can be carried out from the home / duty station of the Consultant(s). The Consultant(s) must have their own equipment necessary for the assignment (computer, phone, etc.) and software required to perform the activities. NRC will not cover travel expenses, insurances and other expense allowances.

8. Duration of assignment

The Consultant(s) is requested to propose an estimated timeframe in their proposal for consideration. This will be considered as estimation and will be revised based on the finalization of the deliverables. The Consultant(s) should finalize the work with a maximum of 12 months from the start of the consultancy contract.

9. Reporting

In all matters relating to consultancy, the Consultant(s) will communicate with the Regional Conflict and Access Analyst to discuss the progress made at every stage as well as challenges, if any. In absence of the Analyst, the Head of Advocacy will act as interim interface. Any changes to this consultancy must be communicated in writing by both parties.

10. Required skills and experience

- Consultant(s) registered in one of the countries within the scope of this project (Burkina Faso, Mali or Niger)
- Proven track record of engagement with local organizations across the Sahel
- Proven track record of successfully completed projects including data processing cycles, data modelling, geospatial and social media analysis
- Proven track record of partnerships with international organizations, including in the humanitarian and development sector
- The team leader(s) must possess doctoral degree(s) in political science, conflict studies, international relations, research methodology or data science
- Awareness of the context and conflict trends across the Sahel
- Tech-driven and able to design innovative solutions

- Exceptional organizational skills, ability to work independently in order to meet deadlines.
- Excellent English and French drafting and communication skills.

11. Application and Required Documents

This is an international bid open to qualified applicants. Requirements for application are outlined as follows:

- **Technical Proposal (in English):**
 - A cover letter with a brief presentation of your consultancy experience and explaining your suitability for the work, including previous pertinent projects and how they are linked to this project;
 - Complete attached expression of interest form;
 - An in-depth methodology on how you will undertake work and achieve outputs set out in the terms of reference;
 - proposal of sources of open-source data you would use;
 - proposed timeline and expected delivery for each output;
 - team composition and quality assurance approach.
- **Financial Proposal**
 - Detailed cost breakdown to be included in financial proposal
- **References**
 - A description of previous work experience on similar projects (data modelling) and context (Sahel), with three contactable referees (email & phone).
- **Previous work examples**
 - Applicant should share three previous examples of final work products from recent completed consultancies.
- **Resume**
 - The resume of key staffs must be annexed to the application documents in French or English.
- **Submission of BID documents and Deadline for submission**
 - Documents must be submitted based on the deadline set on the bid advert.

