



## FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

### Terms of Reference for Consultant/PSA

<b>Job Title:</b>	Senior Database Engineer		
<b>Division/Department:</b>	FAO-Somalia		
<b>Programme/Project Number:</b>	FAO/118/2013		
<b>Location:</b>	Nairobi, Kenya		
<b>Expected Start Date of Assignment:</b>	Immediately	<b>Duration:</b>	42 days (with possibility of working on solution for 6 months)

#### GENERAL DESCRIPTION OF TASK(S) AND OBJECTIVES TO BE ACHIEVED

Under the overall supervision of the Officer in Charge (O.I.C.) FAO Somalia and under the direct supervision of the Senior Information Systems Advisor, the incumbent will perform the duties as defined below:

##### Background

FAO Somalia implements numerous humanitarian and relief projects throughout Somalia targeting hundreds of thousands of beneficiaries. FAO partners with local service providers who collect data on each activity and beneficiary. The data collected enables FAO to better track the activity, and understand the household dynamics of its beneficiaries. Currently, much of the data are being collected using a standard data entry system which uses web-based forms and a backend MySQL database. The application runs on laptops which then send the data via email to Nairobi where it is stored, processed, and analyzed. The system is primarily structured to allow quick form creation and deployment, and data entry/storage.

##### Objective

FAO Somalia is planning to dramatically increase the amount of data collected from each beneficiary household. The additional information will be collected during field work and via remote surveys (call center). The new information also needs to be mined in order to extract critical indicators which each sector will use to better understand the characteristics of their beneficiaries. The additional data and analytical needs will dramatically increase the requirements of the current database system. The current database needs to be prepared to handle a much larger load for storage and processing, and have the ability to automate and simplify analysis using business-intelligence type tools.

##### **Duties and responsibilities:**

FAO Somalia requires a senior database engineer with experience in designing and implementing large relational databases for business intelligence purposes. The expert is required to review the current systems, business processes, and capacities and write a report which defines the design and change requirements for the new systems. The report will include a project plan, detailed scope for hardware, software, capacity, and guidelines for programming (database schema, scripts, optimization, etc) the enhanced system. The report should provide all necessary pieces to turn into a project plan which can be shared with potential programmers for in-house or outsourcing purposes.

The expert will conduct individual and group meetings with members of Information Technology, Information Management, and some sectors in order to better understand the existing systems and the future needs. The foreseen steps are as follows:

##### Review and Assess

- Research existing database, applications, including the biometrics software, the form management tools, other FAO software
- Review a series of existing data collection forms and questionnaires which are being used by FAO Somalia to collect data in the field
- Review descriptive document (concept notes, system requirements documents, others) to better understand the work.
- Review existing capacities, procedures, tools, and business processes

##### Define Solution via Report

Based upon the assessment, draft a document and present internally. The report includes details on how to modify or redo aspects of the current system for the increased work load and analytical needs. The report will include detailed steps on the work plan in the following areas:

- Database enhancements:
  - design a schema (in E-R diagram) including data dictionaries
  - recommendations for script changes (provide examples)
  - recommendations for store procedures, functions, views, triggers, etc
  - recommendations for indexes, constraints, foreign keys, queries,
  - recommended best practices and standards to be maintained.
- Application and Programming requirements:
  - define application requirements (changes or new),
  - recommend enhancements or existing OSS/other tools,
  - recommend and give examples of code changes,
- Optimizations
  - define optimization requirements for planned system to be able to handle hundreds of thousands of beneficiaries for maximum performance

- Train programmers in standards, best practices, and required modifications
- Work plan – detailed time line with steps including proposed test plan
- Budget – an estimated budget for additional hardware/software/capacities
- Staffing – develop ToRs for required staff
- Hardware/Software Support and Maintenance – define the support

### **Required Competencies:**

#### Qualifications

University level degree in software engineering or related field.

#### Technical Competencies and Experience Requirements

- 12+ years experience designing and developing complex database models using OSS.
- 12+ years experience working as a database mining expert or similar using OSS.
- 5+ years experience with BI application architecture and development
- 5+ years experience as an advisor working with various clients on needs and requirements definitions, and estimation experience
- 5+ years experience in project management related to BI/data mining/analysis
- Systematic and efficient approach to work assignments
- Able to comprehend appropriate solutions for different clients
- Strong analytical background
- Ability to communicate complex concepts in a simple way
- Ability to work under pressure and work extra hours to meet deadlines
- Extreme attention to details
- Excellent working knowledge of English

### **KEY PERFORMANCE INDICATORS**

Expected Outputs:

Required Completion Date:

### **HOW TO APPLY**

Interested applicants are required to create an online Personal Profile form (PPF) in iRecruitment. To create the PPF, please follow the instructions available at:

[http://www.fao.org/fileadmin/user\\_upload/Employment/docs/Applying\\_to\\_Consultancy\\_Vacancies\\_at\\_FAO.pdf](http://www.fao.org/fileadmin/user_upload/Employment/docs/Applying_to_Consultancy_Vacancies_at_FAO.pdf)

The PPF along with a cover letter quoting the Position Title and Vacancy Announcement No. **FAO/118/2013** and a current/detailed Curriculum Vitae should be sent to: [HR-Somalia@fao.org](mailto:HR-Somalia@fao.org)

Deadline for applications: **27 November 2013.**

Applications must be received by the deadline. Late applications will not be considered. Only short-listed candidates meeting all essential qualifications will be contacted.