Terms of Reference for Information Technology Consultant for “MnObstetrics” software platform development and utilization

Duty Station: The MCH component unit, at the NCMCH
Starting date: August 2015
Expected duration of consultancy 6 months
Type of contract Special Service Agreement (SSA)

1. Introduction:

Telemedicine, the application of information and communication technology (ICT) in health, is ideally suited for Mongolia, a vast and sparsely populated country. With the support from the Government of Luxembourg, the application of telemedicine started in the area of cardiovascular disease (CVD) back in 2002. Later in 2007, the approach was expanded to the maternal and newborn health (MNH) co-funded by the Government of Luxembourg and UNFPA and covering aimags and the National Center for Maternal and Child Health (NCMCH).

The CVD component of the project, funded bilaterally by the Government of Luxembourg and executed through the Lux Development Agency, started developing a special software for use of transferring CVD patient data from aimags to the Shastin Memorial Hospital, which served as the tele-consultation hub. The software is now complete and called MnCardio. In order to start tele-consultations as early as possible, the MNH component, however, applied the iPath platform, developed by the University of Basel and supported by the Swiss Surgical Team and used in Mongolia in area of telepathology. But with time, iPath was upgraded into the Campus Medicus software and now is owned by Klughammer, a German company. It is not open source and requires license fees annually.

These telemedicine systems (MnCardio & Campus Medicus) are leading to significant improvements of the quality of care in areas of major public health importance: CVD and MNH. Although both systems are simple, flexible and allow distance consultation, on-line support to physicians and distance learning opportunities, there is an increasing need to integrate these systems. Moreover in case of Campus Medicus, in addition to the annual fees, it is no longer acceptable for the MOHS that Mongolian patients’ data are stored at a server abroad.

For those two reasons, Campus Medicus is not fully accepted by the MOHS and it is unlikely that it will be integrated into the national e-Health architecture which is about to be developed with the support from the World Bank and the Chinese Government. Thus, the transition of MNH component to the ICT-wise same software as MnCardio was strongly recommended in the
Project Midterm Evaluation report, 2014. Moreover, the software transition was later discussed amongst key stakeholders and endorsed by the Project Steering Committee in June 2015.

To implement this recommendation, one national consultant will be hired to provide a smooth transition from Campus Medicus to MnCardio-like software with a working label “MnObstetrics”. The selected consultant will work under the direct guidance of the Telemedicine Project Manager in close collaboration with the CVD component ICT focal point.

2. Purpose of consultancy:

The purpose of the consultancy is to develop a new software platform using MnCardio principles, including testing and validation, and initial training of service providers.

3. Main tasks

The main tasks for this consultancy will be a focus on

- Changes, adjustments, and conversions of the telemedicine and electronic medical record software MnCardio necessary to meet the needs of MNH diagnostic and management activities;
- After deployment of the adapted version, any flaws, errors and shortcomings that the software may contain will be fixed for improvement as guided by feedbacks and requests collected from the doctors
- The recovery of the semi structured patient data from Campus Medicus and transfer to the MnObstetrics
- Validation of the new software
- Training of service providers on the use of the new software
4. **Detailed sub-tasks:**

1. Study and analyze the software “Campus Medicus” used for MCH component and identify its complete functional operations and capabilities;

2. Study and analyze the functional operations, database, structure and architecture, source code of the software MnCardio for getting clear understanding on these aspects;

3. By adopting a systematic approach, identify and collect information on the particular needs of MCH field service providers;

4. By following the needs and demands identified, prepare a design of a structure based on software MnCardio able to be adapted to the MCH field of activities;

5. After presentation and validation of these preliminary tasks of the project IT consultant should work independently carry out following duties under direct guidance by CVD component ICT focal point:
   - Execute the prepared design including modifications that can be requested by the project IT focal person;
   - Develop and prepare functional operations as needed. Any new feature to be developed shall not be limited to the maternal and child purposes must be coherent/shared with other areas of use (currently, there is only one software, which is the software MnCardio for cardiovascular purpose). Reciprocally any new module that may be introduced or become incorporated into the software MnCardio will be shared with the maternal and child use software as well;
   - Place the developed software in server and put it into use;
   - Recover the patient records from the Campus Medicus and place in the server;
   - Organize required trainings for doctors and users;
   - Maintain the normal and secure operation of the system. Maintenance of the server shall also be handled;
   - After the release or introduction into use, any flaws (software bug), errors and shortcomings that the software may contain will be rectified/fixed for improvement as guided by feedbacks and requests collected from the doctors and constant improvement will be maintained.

5. **Expected duration of consultancy**

6 months starting from August 15, 2015.

**Expected Outputs/Deliverables**
- Monthly, quarterly reports on progress.
• Validated and tested software.
• Training reports and final consultancy report

6. Qualifications
• University degree on Information technology with specialization on program development;
• At least five years of relevant experience;
• Previous experience with international organizations and familiarity with UN mandates are considered to be an asset;
• Working command of English

7. Special requirements
• To be able to independently prepare and develop web-application (software) both from server and client perspectives. In particular, the developer should be able to complete the development from the stage of “sketch” up to the final product without using any Content Management Systems (such as WordPress, Joomla, Moodle, etc.).
• **Server side back-end development**: Development of web-based software in PHP programming language using Object Oriented Programming (OOP) technology. Database shall be in MySQL and SQL programming.
• **Client side front-end development**: Developments using Javascript, HTML, and CSS programming technologies. Code writing has to be performed in Javascript using Object Oriented Programming technology.
• **Ability to efficiently use ReactJS, YUI 2, JQuery javascript frameworks, as well as HTML5 language and Bootstrap CSS framework, is required when applicable. Alternatively, the developer shall be able to learn these frameworks quickly by him or herself.**
• **Security**: To possess knowledge of web attacks such as Query injection and Cross-site scripts (XSS) and be able to provide security and protective measures in codes written by him or herself.
• **Maintenance**: Able to install, configure, and maintain the web-based software in Ubuntu linux server or able to learn these skills by him or herself
• **Statistics**: Able to use R programming language for database, a technology used in extracting statistical reports from the software or able to learn this skill by him or herself
• **Learning ability should** be supported by evidence of previous experiences or recommendations from reference persons.
HOW TO APPLY
Interested individuals are encouraged to visit UNFPA Mongolia website located at [http://mongolia.unfpa.org](http://mongolia.unfpa.org) and its social media sites for downloadable templates. Please send the following documents electronically to dedicated email inbox of [vacancy@unfpa.org.mn](mailto:vacancy@unfpa.org.mn):

- Application cover page
- CV indicating relevant experience and academic background
- List of similar consultancies and job experiences undertaken outlining brief description of consultancy, deliverables, employer name, etc.

UNFPA Mongolia Country Office

UN House, UN Street 14, Sukhbaatar District, Post Office 46, Ulaanbaatar, Mongolia 14201
Tel: 976-11-353503, ext 3355; Fax: 976-11-353502

Contact person: Ms. G. Enkhjargal, UNFPA Administrative Associate