

Hashemite Kingdom of Jordan
Ministry of Planning and International Cooperation

National Unified Registry and Outreach Program

Android Application Developer

Design, Development and Implementation of Cash Transfer MIS platform

1. Background

The Government of Jordan received a grant from the World Bank (WB) to implement a program entitled "Support to Implementation of a National Unified registry and Outreach Program for Targeting Social Assistance (P143193). The project development objective is to improve the targeting of social safety net programs and developing an efficient outreach mechanism. The project's direct beneficiaries will be the poor households. The indirect beneficiaries will be the Government of Jordan ministries concerned with building the registry and serving as referral to the integrated outreach worker program. The components will be implemented across Jordan.

The project comprises two main components. Component 1: Building and Using the National Unified Registry (NUR) for Targeting; and Component 2: Piloting Integrated Outreach Worker Program (IOWP). **The activities under both components are designed to reinforce linkages between the two components while achieving a common objective of better targeting of poor and helping them graduate from poverty.** Simply identifying the poor and providing them with cash assistance is insufficient to keep families out of poverty. Guided by other countries with similar socio-economic context and who have adopted "graduation policies" to help activate the poor to enter into the labor market, Jordan is planning to adopt a similar approach calling it the "Integrated Outreach Worker Program" (IOWP). The recently launched Poverty Reduction Strategy (PRS) for 2013-2017 includes IOWP as an integral part of its action plan. This is not a policy in Jordan yet. It is an approach to be piloted under this project.

Component 1 of the project focuses on: (i) System design and implementation support: assisting the Recipient in designing an institutional interoperability framework and technical specifications for NUR system through carrying out an assessment of the business processes and Management Information Systems for NAF and the Participating Institutions; (ii) System development and Capacity Building: supporting the Recipient in the establishment of the NUR system through, inter alia: (a) developing the NUR system as per the institutional interoperability framework and the technical specifications of NUR through the hiring of a service firm; (b) acquiring necessary software and hardware for the establishment of NUR system, (c) upgrading NAF's and the Participating Institutions' systems; and (d) carrying out relevant Training for the purpose; and (iii) Technical and Management Support Strengthening

the capacity of NAF and Participating Institutions in managing the implementation process of the NUR through, inter alia, hiring of consultants and provision of technical advisory and Training.

Component 2 (IOWP) supports reaching out and working directly with the poorest beneficiaries (households) through outreach workers to **(i)** validate the target population of the NUR and decrease error of inclusion; **(ii)** verify the access of poorest households to the compensation program; and **(ii)** link them to the relevant social and labor market programs that will meet their unique and multiple demands to help graduate out of poverty. ***Along with revamped targeted cash transfer program (and other anti-poverty programs detailed in the PRS), the Government will pilot the IOWP to enhance the effectiveness of its social assistance.*** By employing the outreach workers and through its validation process, the poverty impact of the subsidy compensation program could be improved. IOWP will be piloted in 3 governorates in Jordan reaching about 22,400 households.

NAF has an in-house management information system (MIS) for maintaining the centralized database of program beneficiaries. However, the system was developed for a small beneficiary database using a technology that is no longer supported. The recent technical findings of NAF MIS assessment showed that the existing system has design and technology constraints that could potentially pose a technical risk using the same system for the implementation of the expansion because of some technical limitation. Therefore, NAF considers developing a new MIS using modern technology that is more sustainable and could potentially meet the requirement for future business needs and growth of NAF as well as to have an enhanced connectivity with the National Unified Registry (NUR).

2. Objectives

The main objective of this assignment is to develop a scalable interim MIS platform to support the expansion of NAF's cash transfer program. The interim MIS is expected to cover the key functionalities of the program along the delivery chain: (i) registration module which includes receiving data from tablets during the outreach phase; (ii) targeting and enrollment of new beneficiaries, to be connected to the automated data-exchange system to verify eligibility information; (iii) simplified payment module; and (iv) GRM module.

This Terms of Reference therefore outlines the scope of work and tasks for a qualified Android Application Developer(s)¹ to achieve the outlined objectives.

3. Technology Overview of existing NAF MIS

NAF has been running this program over the past several years through a centralized MIS system that is designed and developed in-house for the management and administration of the NAF program beneficiaries. This MIS was developed in client

¹ The project may need to hire more resources for this position depending upon the work volume.

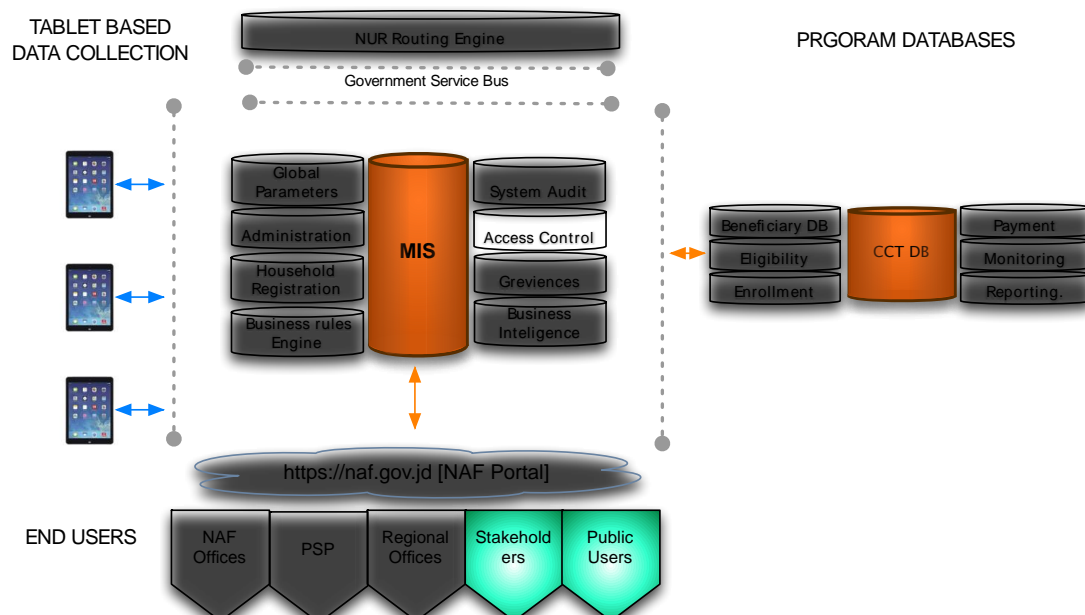
server architecture using Oracle Forms 6i as a front-end development tool and Oracle 11g as the backend RDBMS. The system is centrally hosted in the NAF data center wherein its 40-branch offices access to this centralized MIS through its own secure network. Currently, NAF technical team is maintaining the system to ensure its smooth operation and business continuity.

While the system could be considered well functional, it has its challenges. Firstly, the system is designed and developed in a client-server architecture using Oracle forms 6i that is no longer supported by the manufacture - Oracle. Oracle forms 6i has now become an obsolete technology. Secondly, since the system is designed in client server architecture, the underlying system design prohibits further scalability in case NAF wants to add more programs or decides to further increase of beneficiary coverage. Lastly, but not the least, continuing with this technology not only increase the cost of system administration and maintenance but also could potentially put a greater challenge in future in terms of NAF business continuity if at all if any major technology issues or bugs arise that require deeper technology support from the manufacturer. In such case, Oracle will not be able to provide any support nor will have any such technical expertise readily available in the market who could provide such high skill technical support.

4. Proposed MIS Platform design framework

The new high-level MIS design framework as presented has been agreed upon with NAF for which this TOR calls for the Android Application Developer's position.

PROPOSED INTEGRATED NATIONAL AID FUND MIS DESIGN FRAMEWORK



The scope and tasks initially covers developing MIS platform as per the above high level design framework for implementing business functions of new cash transfer program to begin with. However, its core design architecture should adhere to the following guiding principles to enable to continue building and adding new programs

as the strategy should be to move the old MIS into this new MIS platform following by a seamless data migration taking place from old system into new MIS.

Single Sign On: The design should adopt the concept of Single Sign On (SSO) which means that all the programs within NAF would be accessed a centralized MIS using a unified link (for example, <https://mis.naf.gov.jo>) in near future. Depending upon user-rights and access control, the MIS should automatically navigate into the respective program(s) for the authorized end users to perform their respective business functions as authorized.

Design Scalability: The proposed design architecture should take considerations of future scalability aspects to meet the transactional growth and data volume in case NAF decides to further increase the program beneficiary coverage. The design should be done in a manner that requires minimal level of technology intervention for meeting such potential demands in near future.

Data Security: As a part of the data security measures, the design considerations should be made to ensure encrypted data transmission within MIS with an functionality to maintain an audit trail of the user's behaviour in the system.

Interoperability: The design should consider using the existing IT infrastructure of the Government to the extent possible with an aim to maximize the NAF business automation process. For instance, the design should ensure the interoperability with NUR platform for the seamless exchange of data among the various external entities connected to NUR.

Data Usability: The new design should fully ensure the seamless, accurate and complete data migration from the existing NAF system into the new MIS platform. This would ensure full usage of the existing data to ensure the business continuity as when new MIS as per the proposed design framework becomes ready in near future.

5. Scope of work and tasks

Based on above design strategy, the consultant's responsibilities shall be to work closely under the leadership of the Team Leader/Senior System Analyst for achieving the overall objectives of this assignment.

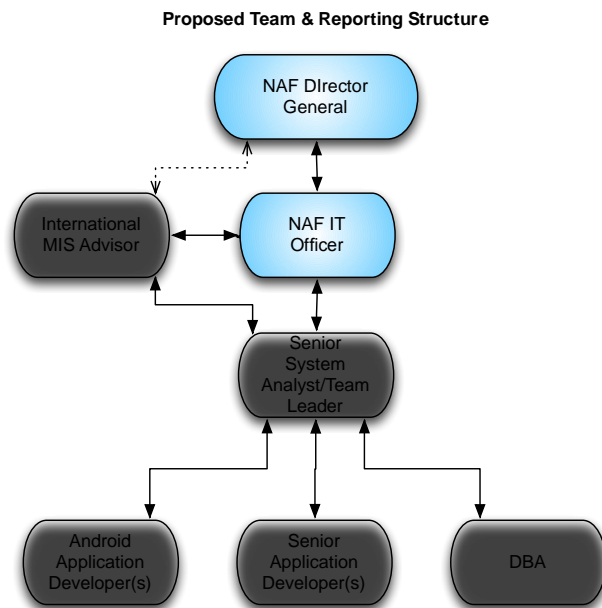
Specific tasks and responsibilities include:

- Design, build, and maintain efficient, reusable, and reliable code using Android SDK or ODK, Eclipse, Android Studio and/or appropriate application software;
- Develop tools for data synchronizations;
- Implement appropriate security measures and standards in the application and during data synchronization with centralized MIS;
- Make approved changes in the system by amending flow charts, develop detailed programming logic, and coding changes;

- Test and troubleshoot programs utilizing the appropriate hardware, database, and programming technology;
 - Recommend technical changes to project team for implementing system developed during project;
 - Train, develop and support end users;
 - Timely fixation of errors/bugs encountered in the application by support staff from users;
 - Generate ideas with the project team members and offer insightful technical solutions;
 - Ensure the best possible performance, quality, and responsiveness of applications and its smooth operation;
 - Develop technical documentation throughout the software development life cycle (SDLC) and provide report to the Team Leader in a regular basis;
 - Assist in other IT related activities as assigned.
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- Identify and document potential technical issues, challenges foreseen during the MIS development and implementation period with clear recommendation and time bound action plan to mitigate such potential challenges for the higher management to take an appropriate resolution measure;
 - Provide necessary user training for the operational staffs and relevant users at central and local levels to ensure long-term system sustainability.
 - Document weekly progress and activities report stating the work accomplished, issues and challenges, next steps, key recommendations and timeline for each activity identified – to report to the Team Leader.

6. Proposed Team Structure, Project Management and Reporting

Following outlines a broad layout of the proposed team structure and reporting for the project. A pool of IT consultants having a specific experience, qualification and skill sets will be hired for this purpose.



From IT Consultants:

Senior System Analyst/Team Leader: This position will act a lead focal person on behalf of the IT consultants. This full time position will be responsible for providing day-to-day technical support, super visioning and overall team mobilization for the desired activities and achieving the project objectives as stated in this TOR.

Moreover, this position will work closely with the NAF IT officer and an International MIS Advisor with regard to MIS/IT aspects related to the project deliverable and compliance.

Android Application Developer/Senior Application Developers: These full time positions will actively work under the direct supervision of the Senior System Analyst/Team Leader to achieve the project objectives.

From NAF:

Director General: The project will be under the guidance of the NAF Director General who will be guiding the team on necessary policy direction, facilitate inter-ministerial coordination and provide high level support for the effective implementation of the project.

NAF IT Manager and MIS Advisor: The International MIS Advisor will work closely with NAF IT officer and the team in a day-to-day basis to achieving the project objective and to provide a needed technical guidance and overall ensuring design compliance as expected out of the overall TOR and the future vision of implementing an integrated MIS Platform for NAF.

7. Qualifications and Experience

- At least 2 year(s) of overall software development and android software development experience.

- Proven knowledge of Android SDK, Eclipse, Android Studio and/or appropriate equipment and software.
- Extensive hands-on experience of creating custom UI controls, designing protocols, implementing interfaces, and performance optimization.
- Working knowledge of Web Services & REST (JSON) APIs.
- Familiarity with Team Foundation Service or Git source code management.
- Manage the full technical life-cycle of Android applications during each development phase.
- Work from UI/UX requirements, APIs, mockups to build functional, high-performance Android phone and tablet apps.
- Document and maintain design specifications, source code, and archives for new applications and ideas.
- Perform individual project components within the entire development lifecycle including implementation, testing, deployment and maintenance.
- Diagnose performance issues, fix bugs to increase the functionality of new applications.
- Understand the nuances of fragments and Android XML layouts, and how to create adaptive interfaces that work for multiple device form factors.
- Obtain buy-in from leadership in order to secure resources for app development.
- Knowledge of Android SDK, Eclipse, Android Studio and/or appropriate equipment and software.
- Extensive hands-on experience of creating custom UI controls, designing protocols, implementing interfaces, and performance optimization.

Other requirements:

- Generate ideas with the Team Leader and other IT team members and offer insightful solutions.
- Ensure the best possible performance, quality, and responsiveness of applications
- Coordinate and work closely with Team Leader and team members to achieve the overall objectives of the assignment;
- Assist Team Leader to develop documentation throughout the software development life cycle (SDLC) and provide report to Team Leader in a regular basis.
- Strong trouble shooting skills and Enjoy challenges.
- Participate in project discussion/analysis.
- Learning and using new technologies Research & Development.
- Assist in other IT related activities as assigned.

8. Key Deliverables

- Technical documents on System analysis and requirement study, system design, user manual etc;
- Well functional and fully tested MIS platform as per the agreed design framework;
- Monthly progress report of the team;
- Participate in technical meetings, discussions with regard to MIS design and implementation;
- Perform duties and tasks as advised by NAF Technical team;

9. Duration and timeline

The contract duration is expected to initially for 7 months (December 2018 to June 2019).

Annex

Proposed high-level functional and technical requirements for MIS Design and Development

The initial phase of the MIS is expected to cover the following main functions, as indicative, for which a pool of IT experts having a specific experience, qualification and skill sets will be hired.

i. **Registration:**

A beneficiary registration can be done in two ways:

- ***Tablet based data collection:***

An android-based Android application shall be developed, configured and installed with the following core functions:

- Data digitization as per the program specific data collection format and business process;
- Data validation and quality controls and checks;
- Data management and tracking of registered applicants/beneficiaries using basic search features;
- Data synchronization (push/pull) with the central MIS;
- Data consolidation at the centralized MIS;
- Basic generation of reports;

- ***Registration Interface:***

- A data entry interface shall be developed to facilitate data entry of the registration form as an alternative means of doing data digitization;

ii. **Eligibility (Beneficiary selection):**

- Functionality to record program specific criteria which shall be applied to the households for identifying the eligible beneficiary based on the rule based criteria provided;
- Functionality to perform internal validation checks and quality control;
- Functionality to perform external validation process through the NUR platform (which is being developed and implemented by another IT firm);

iii. ***Enrollment module:***

- Functionality to enroll beneficiaries found eligible after applying the agreed poverty formula;
- Functionality to generate beneficiary enrolment formats and maintain information updates.

- iv. **Payment:**
- Functionality to generate the electronic beneficiary payment lists including the automatic calculation of amount to be paid based on the program payment cycle and business rules in order to make payments to the beneficiaries;
 - Functionality to electronically push payment list and facilitate payment reconciliation with the payment service provider;
- v. **Grievance Redress:**
- Ability to digitize and maintain/track and review information on appeal/grievances lodged;
 - Ability to generate report on total number of grievance lodged in a day/week/month/year; types of grievance made, status of case grievances (opened, pending, processed, resolved, unresolved, closed);
- vi. **Reporting:**
- Should generate various kinds of inbuilt and ad-hoc reports at various levels for effective monitoring, program improvement and well-informed decision-making;

Technology Platform Requirements

MIS shall be developed in an open source technology, preferably using the following components:

Architecture:	n-tier (web based)
RDBMS:	MySQL
Front-end tool:	ASP Dot net framework
Application Server:	Internet Information Services
Operating System:	Windows Server

Development Methodology

The outlined functional requirements are high level and not final. The consultant is expected to conduct a detailed analysis and requirement study in close consultation with the NAF team including other key stakeholders such as the World Bank team. Based on this discussion, the consultant is expected to develop a necessary technical documentation such as the system requirement document, system design document, system installation guide etc for necessary review and approval. An agile development approach will be taken for this purpose.