

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ



Ministry of Climate Change, Environment and Energy
Republic of Maldives

**DIGITAL MALDIVES FOR ADAPTATION, DECENTRALIZATION AND
DIVERSIFICATION (D'MADD) PROJECT
P177040**

TERMS OF REFERENCE

for

**Hiring a Consultant (Firm) for TA to review, design and develop the Systems
Requirement Specification**

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1. INTRODUCTION

The Digital Maldives for Adaptation, Decentralization and Diversification (D'MADD) Project (P177040), aims to support the Maldives in its digital transformation. The D'MADD project is funded by a grant from the World Bank and is implemented by the Ministry of Climate Change, Environment and Energy (MoCCEE). The key stakeholders include the National Centre for Information Technology (NCIT), the Communications Authority of Maldives (CAM) and the Department of National Registration (DNR).

The Project aims to enhance the enabling environment for the digital economy in Maldives, to improve identification for in-person and remote service delivery, and to leverage data and analytics for a green, resilient, and inclusive development. It is designed around three components and the proposed activities are conceived following the country's priorities and funding needs in the medium term. The components are as follows:

Component 1: Enabling environment for improved digital connectivity and competitiveness

- 1.1. Improving regulatory frameworks, oversight, and enforcement for a competitive broadband market
- 1.2. Empowering public institutions for digital transformation in Government

Component 2: Digital identification for improved online and in-person service delivery

- 2.1. Legal and institutional enablers and safeguards for secure data and identity management
- 2.2. Modernizing of the foundational ID system and credential
- 2.3. Strengthening the digital authentication ecosystem

Component 3: Digital technologies and data platform for climate resilience

- 3.1. Establishing a climate data platform
- 3.2. Leveraging digital technologies and tools for climate adaptation

2. BACKGROUND

The Department of National Registration (DNR) is mandated to establish a civil registration system, to formulate standards for maintaining record keeping of civil population and maintain official civil registration. The process was computerised in 2003. The Civil Registration Vital Statistics Identity Management System (CRVSID) is designed to maintain the history of citizen information from birth to death.

Historically, CRVSID in Maldives is divided into two main components. The first component is the local council (city/ island) which is responsible for creating, updating, and maintaining the information of the citizens who live in the council's jurisdiction, and to issue a birth certificate and death certificate. The second component is the DNR which is responsible for creating, updating, and maintaining citizen identity information. The identity is based on the birth certificate and the household registry issued by the local council.

The mandates have recently changed and the DNR will assume the responsibility for both aspect of the citizen registration including birth, and death registration, and the maintenance and management of National Identification System.

As the Government of Maldives aims to align its digital ecosystem with global best practices, it recognizes the need for specialized expertise and a global perspective. Accordingly, DNR requires the services of a consultant to support the modernization of the civil registration and identity ecosystem.

The ToR will support subcomponent 2.2 of the D'MADD project, "The modernization of the foundational ID system and credentials", which will help meet growing demand for secure authentication for in-person and offline transactions. The use of legacy systems and the current ID card design limits opportunities for digital identity verification and authentication for in-person transactions. To address these constraints, the project will support an update of DNR's existing identity management system and the issuance of new ID credentials, including a physical card. To ensure optimal design and sustainability, the modernization of the system will be informed by rigorous analysis of needs and technology choices, complemented by stakeholder engagement.

3. OBJECTIVE

The objective of this assignment is to engage a qualified firm to: i) conduct a comprehensive assessment of business-, user-, and system requirement needs for the CRVSID system; ii) provide options, recommendations, and prepare a High-level (abstract and general) Software Requirements Specification (SRS) document outlining the requirements for transforming the current civil registration and civil identification system(s) into a highly responsive, secure, and robust multi-stakeholder platform; iii) provide options, recommendations, and prepare specifications for the issuance of a new physical identity credential (e.g., ID card), taking into account the existing documentation if any.

The platform should support the secure collection of biometric data and the issuance of an identity card that can be used to support digital identity verification/ authentication for in-person transactions and conforms with international design and security standards.

4. SCOPE OF WORK

The following scope of work outlines in general, the activities and responsibilities expected from the firm to successfully achieve the stated deliverables in section 5.

- 4.1. Conduct **stakeholder consultations** with relevant organizations and individuals to determine and document the immediate and future business, user, and system requirement needs of the CRVSID system of the Maldives.
- 4.2. **Provide options and recommendations for the most suitable model for the CRVSID management system**, considering both custom software, off-the-shelf, and open-source software solutions. The consultant must thoroughly assess each model, considering factors such as the total cost of ownership and long-term feasibility (such as but not limited to licensing costs, availability of local talent / technical personnel, opensource or proprietary languages and technology) and the respective pros and cons of each approach. The final recommendation should be based on a comprehensive analysis that ensures the successful implementation and sustainable operation of the chosen system.
- 4.3. Considering the above, the Consultant will also prepare a **High-level System Requirements Specification (SRS) document** for the development of an Information System that automates and digitizes the back-office operations of the Citizen Registration Vital Statistics and Identity Management (CRVSID) as well as technical specifications for biometric data collection devices (if needed/appropriate), fixed and mobile workstations, information security products, server storage and computing and disaster recovery setups at 3 remote locations to enable the operation of the system. The High-level SRS, must provide an overview of the system's functional and non-functional requirements at a conceptual level, emphasizing the system's overall objectives, major features, and

high-level functionalities, to ensure better comprehension among stakeholders with varying technical expertise. The document must avoid highly technical jargon and should adopt user-friendly language to provide stakeholders with a clear understanding of the system's scope and key requirements, without delving into specific implementation details. The High-level SRS must serve as a crucial reference point for more comprehensive and detailed documentation to be developed later in the software development lifecycle. The Consultant's SRS document should layout a conceptual design and development of the Information System, considering the current laws, regulations, policy decisions. The proposed solution should align with these criteria to create an effective, modern, and user-friendly CRVSID management system. For a more detailed description of the system's criteria see Annex 1.

- 4.4. Considering the needs and requirements identified, **provide options and recommendations for the issuance of a new physical identity credential, including a technical specifications document to inform any future procurements.** The analysis should cover all core aspects of credential design including, *inter alia*, card material, features enabling digital verification/authentication, security features, etc. In developing the recommendations, the Consultant should take into account the digital identity credentials already available via the eFaas app (<https://efaas.egov.mv/>) and holistically consider the costs and benefits of different physical ID card options, with a view to long-term operational and financial sustainability as well as affordability for the population. The analysis should also include a review of the existing technical documentation/proposals that the DNR has obtained on hardware and software to produce and issue the Maldives National Identity Card (NID) and validate if/to what extent any of the proposals would be aligned with the recommended option(s) and, by extension, the immediate and future needs of the DNR. The documentation prepared by the Consultant shall include the specifications for the physical ID card, the ID card printing and production equipment, and any other related software and hardware required for seamless and secure ID card issuance.

5. DELIVERABLES AND TIMELINE

Based on the above-described general scope of work for this assignment, in close coordination with PMU and DNR, Consultancy firm shall be responsible for delivering the below outputs:

Deliverables	Duration
5.1. Deliverable 1: Conduct one-on-one consultation meetings and a joint stakeholder workshop with relevant government stakeholders of the Citizen Registry	45 calendar days

Management Process to identify their specific needs and goals.	
5.2. Deliverable 2: Draft report documenting the needs, options, and recommendations for the new CRVSI Management System – informed by the prior stakeholder consultations, including cross agency high level workflows, and system requirement specifications for the recommended solution.	45 calendar days
5.3. Deliverable 3: Draft report detailing the needs, options and recommendations for the issuance of new physical ID cards and related technical specifications (hardware and software required for the implementation of the recommended ID card solution).	35 calendar days
5.4. Deliverable 4: Validation workshop to present the analysis and recommendations for the CRVSI Management Software and the new physical ID cards to key stakeholders and gather final feedback.	10 calendar days
5.5. Deliverable 5: Final reports and technical specifications for the CRVSI Management System and the new physical ID cards , incorporating feedback from validation workshop.	45 calendar days

6. PAYMENT SCHEDULE

Payment will be made in proportion to the contract terms upon completion of each deliverable, conditional upon the DNR’s approval of the said deliverable.

Stages of Work	Percentage of Payment (%)
Advance Payment Upon submission of Advance Payment Guarantee/ Bond	10%
Deliverable 5.1	20%
Deliverable 5.2	10%
Deliverable 5.3	15%
Deliverable 5.4	20%
Deliverable 5.5	25%

7. INTELLECTUAL PROPERTY

All information pertaining to this project (documentary, audio, digital, cyber, project documents, etc.) belonging to the client, which the Consultant may come into contact within the performance of his/her, duties under this consultancy shall remain the property of the client who shall have exclusive rights over their use. Except for purposes of this assignment, the information shall not be disclosed to the public nor used in whatever manner without written permission of the Client in line with the national and International Copyright Laws applicable. All the material used in the project should be provided to the client with copyrights cleared.

8. INSTITUTIONAL ARRANGEMENTS, REPORTING AND SUPERVISION

- 8.1. The consultant will work under the guidance and direction of PMU and the PMU will be the primary focal point representing the stakeholders or any other parties.
- 8.2. Unless approved and agreed, the consultant shall not directly have communications, obtain or share any documentation to and from the stakeholders or any other parties.
- 8.3. The consultant shall report to the Project Manager on the status of the assignment on a regular basis.
- 8.4. The consultant will work in a place and a method agreed with the PMU and will be required to take part in all the relevant meetings. As such, the consultant shall make arrangements to be available in Male' City, Maldives for set durations where physical meetings (such as workshops) are required. The cost of accommodation and food must be borne by the Consultant.
- 8.5. All reports shall be submitted as stipulated in the deliverables and all reports will be submitted as drafts and upon review by the DNR and PMU, the Consultant shall revise the draft reports. Once the revised reports are accepted by the DNR and PMU they will be termed as final reports by the consultancy.
- 8.6. All draft documents should be in Microsoft Word and all final documents in Adobe Acrobat format with relevant signatures where needed.
- 8.7. The Consultant shall ensure that all outputs are delivered on time, and in accordance with the time frame and requirements stated in the proposal to be submitted.

9. REQUIREMENTS OF THE FIRM

- 9.1. Minimum five (5) years of proven experience related to software development and implementation or IT infrastructure development and implementation including hardware and software.
- 9.2. Minimum of three (3) successfully completed projects related to ID management systems or projects related to the assignment.

10. REQUIRED EXPERTISE OF THE CONSULTANTS

The firm is expected to propose a team with three (3) members. All the requirements given below should be met by the team collectively (i.e. at least one member of the team should meet each of the requirements). The firm should assign a team leader. To ensure that portfolio of previous projects and work done by all members of the team should be submitted.

- 10.1. The Expert must hold a minimum of a bachelor's degree in software engineering/ information and communication technology/ business computing/ business process reengineering/ IT project management/ computer science OR an equivalent, professional certification.
- 10.2. Minimum five (5) years experience in system analysis and design and business process re-engineering to optimize an organization's processes with integration of ICT. The experience must encompass tasks such as thorough analysis of existing process flows and systems, identification of organizational and operational challenges and implementation of software /applications/information systems-based solutions..
- 10.3. Minimum five (5) years experience on preparation of software and hardware requirement specifications (documenting functional requirements / business requirements / user requirements and system requirements), including calculation of hardware requirement needs and financial costing.
- 10.4. Experience and expertise with National Identity Management Systems, vital statistics, and civil registration processes with a robust background in ICT will be an added advantage.

Note: Key Experts will not be evaluated at the shortlisting stage.

11. REQUIRED DOCUMENTS

- 11.1. The firm is expected to demonstrate past experience, provide references and documented proof that it meets the above requirements.

12. SUBMISSION

- 12.1. The deadline for submission of the Expression of interest is before 10:00am on April 25th, 2024.
- 12.2. You may submit your Expression of interest through email, postal mail or by hand-delivering them in sealed envelopes addressed to the Purchaser.

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ANNEX 1

Select design criteria for the CRVSID system / SRS document

The new system should, *inter alia*, fulfil the following criteria:

1. Check and Balance: The system design must incorporate a robust request and approval workflow to handle sensitive data modifications to ensure proper responsibility and accountability, thereby establishing a comprehensive system of checks and balances. When any data modifications are requested, the system must trigger notifications to the appropriate stakeholders, ensuring they are informed promptly. The stakeholders will then have the responsibility to review and approve the proposed changes before they are applied to the database.
2. Delegation of Functions: The system should be designed in a manner that allows the Department of National Registration (DNR) to delegate specific functions to relevant government agencies, such as local councils and health facilities from both government and private sectors. Furthermore, it should facilitate seamless integration with other government systems, promoting decentralized yet streamlined operations.
3. Modular Design: The system must adopt a modular model, enabling easy and swift incorporation of changes to the CRVSID management policies. This flexibility will ensure that the system remains up to date with evolving requirements and can adapt to new policies without extensive reworking and system downtime.
4. Security, Robustness, and Availability: Emphasis should be placed on ensuring that the system is highly secure, robust, and available. It should facilitate real-time data sharing for digital services that require relevant identity data, without compromising on data integrity or confidentiality.
5. Digital-First Approach: The new process should prioritize digital services, focused on providing Government to Citizen (G2C) services online. This digital-first approach will enhance accessibility, convenience, and efficiency for citizens interacting with the CRVSID system.
6. Oversight and system integrity: The system will provide authorized users with the capability to modify data stored in the database. To ensure data integrity and accuracy, the modification process will be designed with strict controls, preventing unauthorized access to sensitive information. Users will have the flexibility to perform data addition and modifications or based on their assigned privileges and role-based access, ensuring that only relevant and authorized personnel can make changes to the database. This workflow will facilitate proper oversight and accountability, as it ensures that critical data

alterations undergo a thorough review and authorization process, thus maintaining data integrity and security throughout the system.

7. Audit Trail and Logging: The system shall be equipped with a robust audit trail and extensive logging capabilities to meticulously track all data view and modification activities. Every single action, along with details such as the user responsible, timestamp, and specific changes made, data viewed will be diligently recorded. This comprehensive audit trail will serve as a vital tool for fostering accountability, enabling effective error tracing, and ensuring compliance with regulatory standards. By maintaining such detailed logs, the system will not only enhance transparency but also provide valuable insights for auditing purposes and support in identifying and rectifying any potential issues or discrepancies that may arise during data modifications.
8. Integration with (proprietary) Identity biometric data collection and Card production software and hardware platforms: the system should seamlessly integrate and enable a smooth and efficient data exchange process between the CRVSID management system and the specialized identity card production software, ensuring a streamlined workflow for generating national identity cards to significantly enhance the overall efficiency, accuracy, and security of the national identity card issuance process, providing a comprehensive and reliable solution for identity management.