



**STATE DEPARTMENT FOR AGRICULTURE
MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT**

**TERMS OF REFERENCE (TOR)
FOR
DATABASE ADMINISTRATOR**

Contract No: KE-MOALF-571596-CS-INDV

Client:

State Department for Agriculture
Ministry of Agriculture and Livestock Development
Kilimo House, Cathedral Road
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1.0 BACKGROUND

1.1 Introduction

The Food Systems Resilience Project (FSRP) is a Government of Kenya project with co-funding from the World Bank and the National Government. The project will be implemented in 13 counties targeting to increase preparedness against food insecurity and improve the resilience of food systems in targeted project areas of Kenya. The project will be implemented over 6 years commencing September 2023 to August 2029. The FSRP will build on the strong foundation laid by National Agriculture and Rural Inclusive Growth Project (NARIGP), Kenya Climate Smart Agriculture Project (KCSAP) and Emergency Locust Response Project (ELRP). The project will broaden and deepen investments in existing interventions through a multiphase programmatic approach (MPA). The five MPA program pillars of FSRP are: (1) Responding to a deteriorating food security situation, (2) (Re-)building resilient agricultural production capacity, (3) Supporting the sustainable development of natural resources for resilient agricultural landscapes, (4) Getting to market, and (5) Promoting a greater focus on food systems resilience in Policymaking.

1.2 Project Development Objectives and Indicators

The FSRP project development objective (PDO) is to increase preparedness against food insecurity and improve the resilience of food systems in targeted project areas of Kenya. In order to realize this objective, project activities will be implemented through five components namely (i) (Re-) Building Resilient Agricultural Production Capacity; (ii) Supporting the Sustainable Development of Natural Resources for Resilient Agricultural Landscapes; (iii) Regional and domestic markets for food security; (iv) Promoting a Greater Focus on Food Systems Resilience in National and Regional Policy making; (v) Contingency Emergency Response (vi) Project Coordination and Management.

Progress towards the realization of the PDO will be measured through the following five (Outcome) indicators:

- i). Percentage reduction of food insecure people in project-targeted areas
- ii). Number of farmers adopting resilience-enhancing technologies and practices: of which female (percentage); of which, climate-resilient (percentage)
- iii). Hectares of land area under integrated land management practices
- iv). Percentage increase in volume of agricultural production sold on domestic and regional markets

Number of policy products related to agriculture, natural resources management, and food systems resilience adopted with project's support.

2.0 OBJECTIVE OF THE ASSIGNMENT

The overall objective of the assignment is to strengthen the Agricultural Information Resource Centre (AIRC) capacity as it transforms into the Kenya Agricultural Digital Information Centre (KADIC) to design, implement, administer, secure, optimize and maintain reliable, scalable and well-governed databases that support agricultural information systems, digital services, data management and decision-making across the agricultural value chain.

The consultant will be responsible for the following key objectives:

- a) To design, configure, administer, monitor, optimize and maintain database environments supporting the Ministry's agricultural information systems and digital services.
- b) To ensure the availability, integrity, security, performance and scalability of production, development, testing and analytical databases.
- c) To implement appropriate database backup, recovery, replication, business continuity and disaster recovery mechanisms for critical agricultural information systems.
- d) To establish and maintain appropriate database access controls, user privileges, audit trails and security measures in line with approved information-security and data-protection requirements.
- e) To support data integrity, consistency, quality, standards and interoperability across agricultural databases and digital systems.
- f) To support database design, data migration, consolidation and integration activities in collaboration with Application Developers, Backend Developers, Data Scientists and other technical teams.
- g) To monitor database capacity, performance, availability and resource utilization and implement improvements to support growing agricultural data volumes and digital services.
- h) To strengthen database operational support and contribute to reliable, secure and sustainable digital service delivery within the Ministry.
- i) To provide technical advice and operational support on database architecture, administration, performance, security, availability and scalability while maintaining clear separation from application development, backend development and data-science responsibilities.

3.0 SCOPE OF SERVICES AND SPECIFIC TASKS

3.1 Scope of service

The Agricultural Information Resource Center (AIRC), a directorate under the State Department for Agriculture, Ministry of Agriculture and Livestock Development, is implementing strategic initiatives to strengthen the Ministry's digital presence and enhance agricultural information and service delivery. These initiatives are aligned with AIRC's transition into KADIC to coordinate data and digital agriculture in providing

timely, relevant, and accessible agricultural information to farmers, policymakers, researchers, private-sector actors, and other stakeholders.

Over the years, AIRC has accumulated substantial data, information and knowledge across diverse agricultural thematic areas. The Centre is progressively digitizing these resources and transforming them into digital agricultural products and services to improve access, usability and uptake. Key initiatives include the Farmer Registry and the Fertilizer Subsidy Programme, which currently support the issuance of vouchers to 7.3 million farmers nationwide.

As the Centre advances its data and digital roadmap, there is a need to strengthen its internal technical capacity in database administration. The engagement of the Database Administrator Consultant is to establish, administer, secure, optimize and maintain robust database environments that support agricultural digital services, data management and sector-wide coordination.

The Database Administrator will provide technical expertise in database architecture, installation and configuration, database administration, performance optimization, backup and recovery, database security, access management, data integrity, availability, capacity planning, monitoring, database integration and operational lifecycle management. The Consultant will coordinate closely with Application Developers, Backend Developers, User Interface Developers, Webmasters, Data Scientists, Knowledge Management teams and other relevant technical stakeholders.

3.2 Specific tasks

3.2.1 Database Architecture, Installation and Configuration

- a) Design, configure, install, upgrade and maintain approved database management systems and database environments for agricultural sector.
- b) Establish appropriate development, testing, staging, production and analytical database environments in accordance with approved technical standards.
- c) Develop and maintain database architecture, configuration standards, naming conventions and technical documentation.
- d) Assess database infrastructure and recommend appropriate configurations, scaling and capacity requirements.

3.2.2 Database Administration and Performance Management

- a) Monitor database availability, health, storage, capacity, connections, resource utilization and overall operational status.
- b) Analyse and optimize database queries, indexes, schemas, stored procedures and other database objects to improve performance.
- c) Identify and resolve database performance bottlenecks, failures and operational issues with relevant technical teams.
- d) Conduct capacity planning and recommend scaling, optimization and resource-allocation measures as agricultural data volumes and digital services grow.
- e) Maintain accurate records of database instances, dependencies, configurations and operational changes.

3.2.3 Backup, Recovery, Business Continuity and Disaster Recovery

- a) Design, implement and maintain database backup and retention procedures for critical systems.
- b) Conduct routine backup verification and restoration tests and document the results.
- c) Develop and maintain database recovery procedures and support business continuity and disaster recovery arrangements.
- d) Support database replication, failover and high-availability arrangements where required.
- e) Identify recovery risks and recommend corrective actions to improve database resilience.

3.2.4 Database Security, Access Control and Data Protection

- a) Establish and maintain role-based database access controls, user accounts, privileges and authentication mechanisms.
- b) Apply least-privilege principles and periodically review database access rights.
- c) Maintain database audit trails and monitor for unauthorized or anomalous access.
- d) Identify and address database vulnerabilities, insecure configurations and security risks in collaboration with ICT/security teams.
- e) Support secure handling, confidentiality and protection of agricultural information in accordance with applicable Ministry requirements.

3.2.5 Data Integrity, Governance and Interoperability

- a) Implement database constraints, validation rules and integrity controls to maintain reliable and consistent agricultural data.
- b) Support database standards, metadata, naming conventions, documentation and controlled schema changes.
- c) Support data migration, consolidation, cleansing and integration activities.
- d) Work with Data Scientists and application teams to support interoperable data structures and secure data exchange.

3.2.6 Data quality monitoring and resolution

- a) Monitor the database for optimization.
- b) Provide database support for application releases, integrations, incident resolution and system troubleshooting.
- c) Establish and maintain database monitoring, alerting, logging and operational dashboards where appropriate.
- d) Apply approved database patches, upgrades and maintenance activities with appropriate change-control procedures.
- e) Document operational procedures, database runbooks, recovery procedures, dependencies and known issues.

4.0 DURATION AND LOCATION OF THE ASSIGNMENT

The duration of the assignment will be three (3) calendar years. The consultant shall be contracted for an initial period of twenty-four (24) calendar months from the contract commencement date. This period is subject to extension up to the project closing date, based on project needs, availability of funds, and satisfactory performance.

The position shall be based in Nairobi, Kenya, at the Agricultural Information Resource Centre Office, with travels to participating Counties where necessary.

5.0 REPORTING REQUIREMENTS AND TIMELINES FOR DELIVERABLES

The Database Administrator will be expected to deliver the following outputs:

Table 1: Reporting requirements

No.	Deliverables/Reports	Timelines after contract commencement	Format of Submission
1	Monthly Progress Report summarizing activities undertaken during the reporting month, level of effort, stakeholder engagements, progress against the assignment, outputs/work products developed, issues, risks, challenges and planned activities for the following month.	Monthly, throughout the contract period	Soft copy
2	Contract completion report - summarizing all the activities undertaken by the consultant during the contract period, challenges, and recommendations as to how the challenges should be addressed.	Within 14 days after the end of contract	Soft copy

All reports shall be submitted in both hard and soft copies and addressed to:

Principal Secretary,
State Department for Agriculture
Ministry of Agriculture and Livestock Development
Cathedral Road, Nairobi
P. O. Box 30028-00100,
Nairobi, Kenya.

Attention: National Project Coordinator

All reports prepared by the Consultant shall be reviewed and submitted to the Director, AIRC, with copies to the National Project Coordinator by the 7th day after the end of the reporting month

6.0 PAYMENT SCHEDULE/REMUNERATION

The Database Administrator shall be remunerated based on a monthly rate (a consolidated amount inclusive of all costs with clearly identified applicable taxes), which will be as proposed in the financial proposal and agreed upon at contract award. Remuneration will be based on national competitive rates, commensurate with the selected candidate's area of expertise and work experience, provided he or she has satisfactorily fulfilled all requirements stipulated here-in above.

Costs incurred by the Consultant outside the head office will be reimbursed upon submission of a statement of expense and verifiable supporting documentation.

Payment shall be monthly upon submission and approval of the monthly reports.

7.0 CONSULTANT'S QUALIFICATION AND EXPERIENCE REQUIREMENTS

- a) A minimum of a bachelor's degree in Computer Science, Information Technology, Information Systems, Database Administration, Software Engineering, or a related field from a university/institution recognized in Kenya.
- b) At least five (5) years' demonstrable general experience in database administration and management.
- c) At least three (3) years' demonstrable specific experience in enterprise database administration, database performance tuning, backup and recovery, database security and access management, high availability, database monitoring and database lifecycle management.

8.0 MANAGEMENT AND ACCOUNTABILITY OF THE ASSIGNMENT

The Ministry of Agriculture and Livestock Development (MoALD), State Department for Agriculture is the Client for these services. The Database Administrator will report directly to the Director, Data and Digital Agriculture, and will work closely with the ICT team and relevant technical teams to facilitate the effective and successful implementation of the assignment.

9.0 OBLIGATIONS OF THE CLIENT

The Client will provide:

- a) Suitable furnished office space
- b) Telecommunication
- c) Transport to field assignments as and when required

The Client shall provide, free of charge, all existing information and will assist the Consultant in obtaining other relevant information and materials from governmental

institutions and State authorities, where necessary. However, it is the duty of the Consultant to check the viability, quality, and suitability of this information. The information, data, and reports mentioned above will be available to the Consultant for unlimited use during the execution of the proposed services within the project.

When traveling individually on project duties, subsistence allowance shall be paid in the equivalence of the Public Service Job Group R rates. All individual travel shall be approved by the National Project Coordinator prior to the task.

10.0 OBLIGATIONS OF THE DATABASE ADMINISTRATOR

The Database Administrator shall perform and carry out the services with all due diligence, efficiency and economy in accordance with generally accepted professional standards and practices and shall observe sound management practices.

The consultant shall always act with respect to any matter relating to this Contract or to the Services and shall at all times support and safeguard the Ministry's legitimate interests in any dealings with third parties.

The Database Administrator has an obligation to disclose any situation of actual or potential conflict that impacts on capacity to serve the best interest of the Client, or that may reasonably be perceived as having this effect. Failure to disclose such situations may result in the disqualification of the Consultant or the termination of his/her Contract.

11.0 CONFIDENTIALITY, PROPRIETARY RIGHTS OF CLIENT IN REPORTS AND RECORDS.

All the reports, data, information, products and services developed, collected, or obtained from the implementing agencies etc., Client, and other Institutions during this exercise shall belong to the Client. No use shall be made of them without prior written authorization from the Client.

At the end of the Services, the Database Administrator shall relinquish all data, products and services, manuals, reports and information (including the database, codes, and related documentation) to the Client and shall make no use of them in any other assignment without prior written authority from the Client.