ToR- Development and Deployment of Geoportal for Soil Values Program

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Funded by:

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Coalition:

IFDC, SNV, Wageningen University & Research, AGRA, IITA, IWMI International Water Management Institute, ISRIC World Soil Information, CIFOR, World Agroforestry

Background

Soil Values, a 10-year program (2024-2034) financed by the Netherlands Directorate-General for International Cooperation (DGIS), is a transformative initiative unfolding across Burkina Faso, Mali, Northern Nigeria, and Niger. Soil Values aims to improve the soil fertility and productive capacity of 2 million hectares of farmland in the Sahel, fostering resilience and well-being among 1.5 million farmers, with an emphasis on women. Soil Values is being implemented by IFDC in collaboration with core partners SNV and Wageningen University and Research (WUR) and various knowledge partners (ICRAF, IITA, ISRIC, IWMI), and works through existing projects and programs, such as World Bank's Food Systems Resilience Program (FSRP).

The Soil Values Geoportal is a strategic digital initiative designed to strengthen evidence-based planning, monitoring, and learning across the Soil Values Program across the implementation countries. Operating in complex and climate-vulnerable landscapes, the program requires consistent, spatially informed data to support effective decision-making and demonstrate results. The Geoportal responds to this need by establishing a shared foundation for organizing, analysing, and visualizing spatial and monitoring information across countries and partners.

The Geoportal was therefore conceived as a unifying digital infrastructure that brings together spatial data, monitoring data, and analytical tools into a single, shared platform. Its primary role is to translate complex spatial and monitoring data into accessible, decision-oriented information that can be used by program managers, MEL teams, technical partners, and, progressively, by field teams and farmers.

Within the Soil Values Program, the Geoportal serves three strategic functions.

1. It supports planning and targeting, ensuring that intervention areas are selected based on clear spatial criteria such as soil condition, water availability, climate risk, and socio-economic vulnerability.
2. It strengthens monitoring and learning by linking interventions to measurable changes in soil health, land use, and landscape condition over time.
3. It improves accountability and communication, enabling the program to demonstrate progress and outcomes through visual, map-based evidence.

Purpose of the Assignment

The Geoportal is intended to serve not only as a technical platform but also as an institutional mechanism that supports coordination between GIS specialists, monitoring, evaluation and learning (MEL) teams, knowledge partners, and implementation teams. IFDC therefore seeks to engage a qualified service provider for the development and deployment of a Geoportal to support its Soil Values Program objectives. The Service provider will assume full responsibility to deliver a working solution that cover Geoportal function of both a geodatabase and a web portal, allowing access and communication, generating dashboard reports up to the level of consortium partners and implementation teams.

Scope of Work

The service provider will assume full responsibility to design, develop, deploy, and operationalize a working Soil Values Geoportal within twelve (12) months from the official start date.

The technical approach should include the following features:

- **Develop a prototype** solution: software system that combines GIS and Monitoring and Evaluation Data indicators collected in the fields.
- **A Dedicated Team:** work with a dedicated delivery team (IFDC and SNV) including all needed roles to build the defined deliverables.
- **Integration and Training of IFDC/SNV Staff:** Assimilation of the existing technical resources on IFDC/SNV side into the overall project team. Training IFDC/SNV team on the skillsets needed to run and operate the Geoportal in the long run.
- **Full Delivery Responsibility:** Technical development, deployment, hosting, maintenance, and support of the Geoportal during the contract period.
- **Capacity Building:** Training and roll-out to the Soil Values Regional Team and the Knowledge partners.

Development of the existing Geoportal Prototype

The development of the Geoportal will build upon the outcomes, learnings, and technical artefacts generated during the previous project phase (the Geoportal prototype). The prototype shall serve as a conceptual and technical foundation, while the present project shall transform it into a secure, server-based, production-ready solution. The Geoportal shall be delivered as one integrated digital product consisting of three interlinked modules:

1. Geospatial Data Repository and Processing Layer. The Geodata Portal shall support the structured management of geospatial datasets, including:

- Receiving and organizing spatial data from internal teams and external partners.
- Managing geographic boundaries (e.g., program, country, watershed, intervention areas).
- Storing and maintaining thematic layers (e.g., soil data, land use, environmental context).
- Preparing spatial datasets for use in map visualization and indicator analysis.
- Maintaining traceability of data sources and versions.
- Providing controlled access to spatial data for use within the Geoportal and Monitoring Dashboard.
- The platform must support structured data ingestion through a user-friendly interface allowing authorized users to upload datasets.

2. Spatial Visualization and Exploration Interface. The Geoportal shall support spatial navigation, visualization, and contextual exploration of programme data, including:

- Displaying program geographies across multiple levels.
- Visualizing thematic geodata layers provided through the Geodata Portal.
- Spatial Analysis: ensure the Geoportal goes beyond simple map visualization and enables users to interpret spatial patterns, relationships, and trends in program data.
- Presenting geographically activities, interventions, and related contextual information.
- Linking qualitative evidence to specific locations where available.
- Enabling filtering, layer selection, and comparison of spatial datasets.

- Connecting spatial entities to related program indicators.

3. Strategic Reporting and Decision-Support Interface. The Monitoring Dashboard shall support the structured presentation and exploration of programme indicators, including:

- Aggregating indicator data across defined levels whenever possible.
- Presenting progress in relation to approved targets and the Soil Values Results Framework.
- Highlighting performance trends and areas requiring attention.
- Supporting spatial analysis functionalities to help interpret spatial patterns and relationships within the programme data. This may include overlaying datasets, aggregating indicators by geographic units (e.g., watersheds or landscapes), and identifying spatial trends or clusters.
- Linking indicators to relevant source datasets managed through the Geodata Portal.
- Supporting internal monitoring processes and the preparation of external reporting.
- Enabling alignment or integration with LandScale assessment where feasible.

Technical Setup & Architecture Approach

The Geoportal will be implemented as a secure, modular web application consisting of:

- A frontend application (user interface)
- A backend service layer (APIs, business logic)
- A geospatial database (PostgreSQL/PostGIS)

The final architecture will be determined during the initial implementation phase, following assessment of:

- The existing SNV Geoportal prototype
- The technical readiness of the IFDC MEL platform
- Hosting constraints and governance requirements

Service providers will assess which components from the prototype phase and from existing platforms can be reused, extended, or integrated.

Deliverables

Phase 1 – Specification & Technical Readiness Assessment

Timeline1 month

Objective: Review the existing system (prototype) and validate key system dependencies and define the architecture and implementation plan for the Geoportal.

Phase 1 shall be considered complete upon delivery and validation by IFDC of the following:

- **Technical Assessment Report –** Soil Values MEL Platform describing system structure, available data, and integration options.
- **Technical Assessment Report –** Existing Geoportal Prototype including code and architecture review, reusable components, and technical limitations.

- **Architecture Options –** Assessment comparing feasible architecture approaches, including explicit assessment of ESRI Geoportal, and recommending the preferred solution.
- **System Specification –** Document describing the proposed system architecture, modules, hosting approach (cloud-based or equivalent, operational costs, security, etc.), and security principles.
- **Documented Interface –** Definition with IFDC systems describing required data inputs, integration method (API, ETL, or data transfer), and update mechanisms.
- **Data Flow –** Diagram illustrating system data flows from source systems to visualization and reporting components.
- **Approved MVP Scope and Implementation –** Plan defining the prioritized feature set and implementation roadmap for Phase 2.

Phase 2 – Minimum Viable Product (MVP) Implementation

Timeline: 5 months

Objective: Implement and deploy a functioning Geoportal supporting spatial visualization and program monitoring using real program data.

Phase 2 shall be considered complete when the following are operational:

- **Approved system architecture deployed**, including frontend, backend, geospatial services, and database.
- **Operational production environment** accessible online to authorized users.
- **Three functional modules implemented**
    - Geospatial Data Repository and Processing Layer
    - Spatial Visualization Interface
    - Monitoring and Reporting Dashboard
- **Core program indicators implemented** and displaying available Soil Values program data (This should be linked to data collection tools to and be dynamic to avoid manual data entry that will be additional work.).
- **Integration with the Soil Values MEL platform** established using the agreed data interface.
- **Role-based user management and access control implemented.**
- **Interactive map interface operational**, displaying program geography and thematic geospatial layers.
- **System documentation delivered**, including technical and user documentation.
- **Training delivered** to designated IFDC/SNV staff.

Phase 3 – Iteration, Stabilization, and Scaling

Timeline: 6months

Objective: Improve system usability and stability, integrate additional datasets, and prepare the Geoportal for broader stakeholder use.

Phase 3 shall be considered complete when:

- **The Geoportal operates reliably under normal user load.**

- **Usability and performance improvements** identified during Phase 2 have been implemented.
- **Additional spatial and monitoring datasets are integrated and visible in the system.**
- **Dashboards refined** to support leadership and government reporting needs.
- **System interoperability strengthened** through improved data integration or interfaces.
- **Scalability and reuse options documented** to support future program expansion.
- **Updated documentation and handover materials delivered**, enabling continued system operation.

Duration of Assignment

The assignment is expected to last 12 months, with clear milestones and review points.

Required Qualifications of the Service Provider

The service provider must demonstrate the technical, organizational, and sector expertise required to design, develop, deploy, and maintain a production-ready geospatial information platform supporting the Soil Values program across multiple countries and partners.

End-to-End Delivery Capacity

The service provider must demonstrate the ability to deploy a **dedicated multidisciplinary team capable of delivering the Geoportal end-to-end**, covering system architecture, software development, geospatial data infrastructure, deployment, and operational support.

The team should include expertise covering the following roles:

- Technical Architect / Lead Engineer
- Backend Developer(s)
- Frontend Developer(s)
- Geodata Engineer / GIS Infrastructure Specialist
- Data Engineer
- UX/UI Designer for data platforms
- DevOps / Infrastructure Engineer
- QA / Testing Specialist
- Product Owner / Project Manager

The service provider must demonstrate experience delivering **integrated digital platforms combining geospatial data infrastructure, analytics workflows, and web-based user interfaces**.

Required Technology Stack

The Geoportal will build upon an existing prototype and therefore requires experience with technologies compatible with the current architecture.

The service provider must demonstrate **hands-on production experience with the following core technologies:**

- Backend development: **Laravel (PHP framework) – required**
- Frontend development: **Vue.js or React**
- Database technologies: **PostgreSQL & PostGIS – required**
- Geospatial servers : GeoServer or comparable **geospatial server technologies**, Web map services
- APIs and integration services connecting to IFDC MEL platform.

Proposals must demonstrate **practical experience implementing Laravel-based systems using PostgreSQL/PostGIS in production environments.**

Geospatial Data Infrastructure and Analytical Workflows

The Geoportal requires strong expertise in the design and implementation of **geospatial data infrastructures that support spatial analysis and monitoring workflows.**

The service provider must demonstrate experience in:

- Designing and managing **geospatial databases and spatial data architectures**
- Building **data pipelines for geospatial datasets**
- Integrating spatial data from multiple sources
- Developing geospatial APIs and map services
- Processing and analyzing environmental, agricultural, or landscape datasets
- Building web interfaces for spatial exploration and map-based decision support

The delivery team must include a **Geodata Engineer** with experience implementing operational geospatial workflows and services.

Demonstrated Operational Platforms

The service provider must demonstrate that the proposed expertise has been applied in **operational software platforms deployed for real-world users**.

Proposals should provide examples of **running systems or platforms** that include:

- Web-based geospatial data portals
- Spatial monitoring systems
- Environmental or landscape data platforms
- Map-based dashboards and analytical interfaces

Preference will be given to providers that can demonstrate **existing deployed platforms supporting ongoing monitoring, analysis, or decision-making processes.**

Sector Experience

Given the objectives of the Soil Values program, the service provider must demonstrate experience working in **digital systems supporting development programs focused on people and natural resources.**

Relevant experience may include projects related to:

- Agriculture and soil management systems
- Landscape restoration and natural resource management
- Climate resilience and environmental monitoring
- Monitoring, evaluation and learning (MEL) systems for development programs

Experience working with **international development organizations, research institutions, NGOs, or government agencies** will be considered an advantage.

Duration of Assignment

The design, piloting and adjustment is expected to last **twelve (12) months**, with clearly defined milestones and review points.

Reporting & Coordination

The service provider will report to IFDC and coordinate closely with the Soil Values MEL, Geoportal Team and Geoportal Committee.

Submission Requirements

Interested Service Providers shall submit:

- A detailed technical and financial proposal
- Previous work experience
- CVs of key personnel proposed for the assignment
- A detailed budget

How to apply: Interested applicants can fill out the submission form online at: https://ifdc.org/2026/03/13/development-and-deployment-of-sv-geoportal/

If you have questions, please direct them to: akoffi@ifdc.org and csmitherman@ifdc.org.

Deadline for applications: March 30th CoB UTC.