

RWANDA SOIL INFORMATION SERVICES (RWASIS)

Locations	Rwanda
Dates	01/02/2020 - 31/05/2021

Summary

70% of Rwanda's population rely on agriculture for their livelihoods. However, productivity has been severely compromised by a lack of crop and soil-specific fertilizers and soil erosion. Real-time, reliable, soil and agronomy data can inform farmers, helping them to make the best decisions for their land, but this data is currently not shared between stakeholders. The Government's Rwanda Soil Information Service (RwaSIS) will provide a centralised resource for in-country actors to better understand the state of soils in Rwanda at a local level. CABI's integral role will be to lay the foundations of a modern soil information system that will justify the costs of obtaining high-quality soils data. Working on the basis of FAIR (Findable, Accessible, Interoperable, Reusable) data principles will ensure that legacy and new investments in soil research maximise their potential and result in better decision-making for Rwandan farmers and their soils.

The problem

Rwanda's people depend heavily on agriculture for their livelihoods, with 70% of the population involved in the sector (FAO). However, factors such as a lack of crop and soil-specific fertilizers, and heavy nutrient losses due to soil erosion mean crop productivity has been severely compromised across the country.

Better management of soils is necessary to ensure that crop yields can sufficiently provide food and income security for a rapidly growing population.

Access to real-time, reliable, soil and agronomy data can ensure the choices farmers and their advisors make, such as what fertiziliers to apply, are the best they can be for their land.

While the technological capacity is usually there to collect and store data, when sharing data with people who use it to make decisions, there is often a lack of understanding of who can be given access, when and why.

It is necessary, therefore, to embed the protocols, skills and culture necessary for effective data sharing within projects at an early stage. It is important to acknowledge that although data cannot always be made open, it should be managed in a way that those who need it can: find it, access it, understand it and reuse it (FAIR data).

Furthermore, by making sure that data can be understood by machines, tools and apps can be developed to help in this process, contributing to the country's technological transformation and enabling Rwanda to be at the forefront of a burgeoning digital farming industry.

What we are doing

The Rwandan Agricultural Board (RAB) is developing a soil information service for Rwanda (RwaSIS) which will allow the country to go from a system where soil data is easier to share and access among stakeholders.

The RwaSIS will provide high-quality data on soil properties and crop yields to stakeholders such as ministries, soil scientists and fertilizer companies who can all ensure that soils are managed in a way that is data-driven, sustainable and maximises outputs for the farmer.

The service will also enable the Government of Rwanda and other relevant stakeholders to understand changes occurring in food production, promote the delivery of other ecosystem services and future investment plans necessary to maximize yields.

CABI's role in the project is to help lay the foundations of a modern soil information system that will justify the costs of obtaining high-quality soils data. By supporting the development of the necessary infrastructure to build FAIR data principles into the RwaSIS from the beginning, CABI will help to ensure that legacy and new investments in soil research maximise their potential, resulting in better decision-making for Rwandan farmers and their soils.

CABI will be taking a human-centered design approach in this project. We will work to understand the challenges faced by those working with soil data in Rwanda. We will conduct interviews and hold (virtual) workshops that will bring together, and identify, the barriers to access faced by the relevant stakeholders. Understanding current operations and future hopes will ensure effective delivery of what local stakeholders need. From this research, we will produce a map showing how data flows and outline what needs steps to achieve this.

CABI will then help the RwaSIS team to co-create the soil and data agronomy data policy and training necessary to ensure frameworks are in place for sharing data with those who need it and can use it.

Results so far

The project is currently in the landscaping phase. During this phase, which ends in August 2020, we will:

1. Identify the key organizations and individuals involved
2. Understand individual and institutional perspectives and build relationships with and beyond the core partner group

3. Map the current flow of data within the national system relevant to RwaSIS and work with stakeholders to understand a future vision for how the data flow within RwaSIS will improve decision-making. These maps will be created with stakeholders to increase understanding of data sharing barriers and opportunities
4. Document these challenges and barriers to data sharing (technical, institutional, cultural and political) and identify opportunities to overcome these barriers
5. Make recommendations for short, medium- and long-term interventions
6. Create a Rwanda Country Briefing Guide (an overview of data policy and practice landscape that can be used by Bill and Melinda Gates Foundation and other partners as an easy and quick reference guide to the current status of data sharing in the country)

In phase two, we will co-create processes and resources that are useful and relevant for in-country stakeholders. This might involve [indicative list only]:

1. Plans for RwaSIS partner data governance, data sharing agreements and licensing principles (under FAIR)
2. Developing a more detailed policy for RAB, explicitly mapping onto pre-existing frameworks in-country, including where possible:
    1. Policy consultation
    2. Policy co-creation and drafting (with RAB as policy 'owner')
    3. Policy implementation planning and support
3. Capacity development. Working with the International Soil Reference and Information Centre to share relevant materials and approaches in support of training on data sharing good practice.

Where possible, we will seek to draw upon experience obtained through CABI engagement in other BMGF-funded soil system programmes and national systems engagements, most notably in Ethiopia.

Donors	Bill & Melinda Gates Foundation (BMGF), The International Institute of Tropical Agriculture (IITA)
Partners	World Agroforestry Centre (ICRAF), International Soil Reference and Information Centre (ISRIC), The International Institute of Tropical Agriculture (IITA), Rwanda Agriculture Board (RAB)
CABI Project Manager	Chipo Cosford





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