
Food and Agriculture Organization of the United Nations
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SoilFER: findings from Zambia
GLOBAL SOIL PARTNERSHIP
11th Plenary Assembly
12-14 July 2023
GLOBAL SOIL PARTNERSHIP

Institutional barriers and gaps

Institutional Weakness

SSM and fertilizer programs are mostly focus on food security

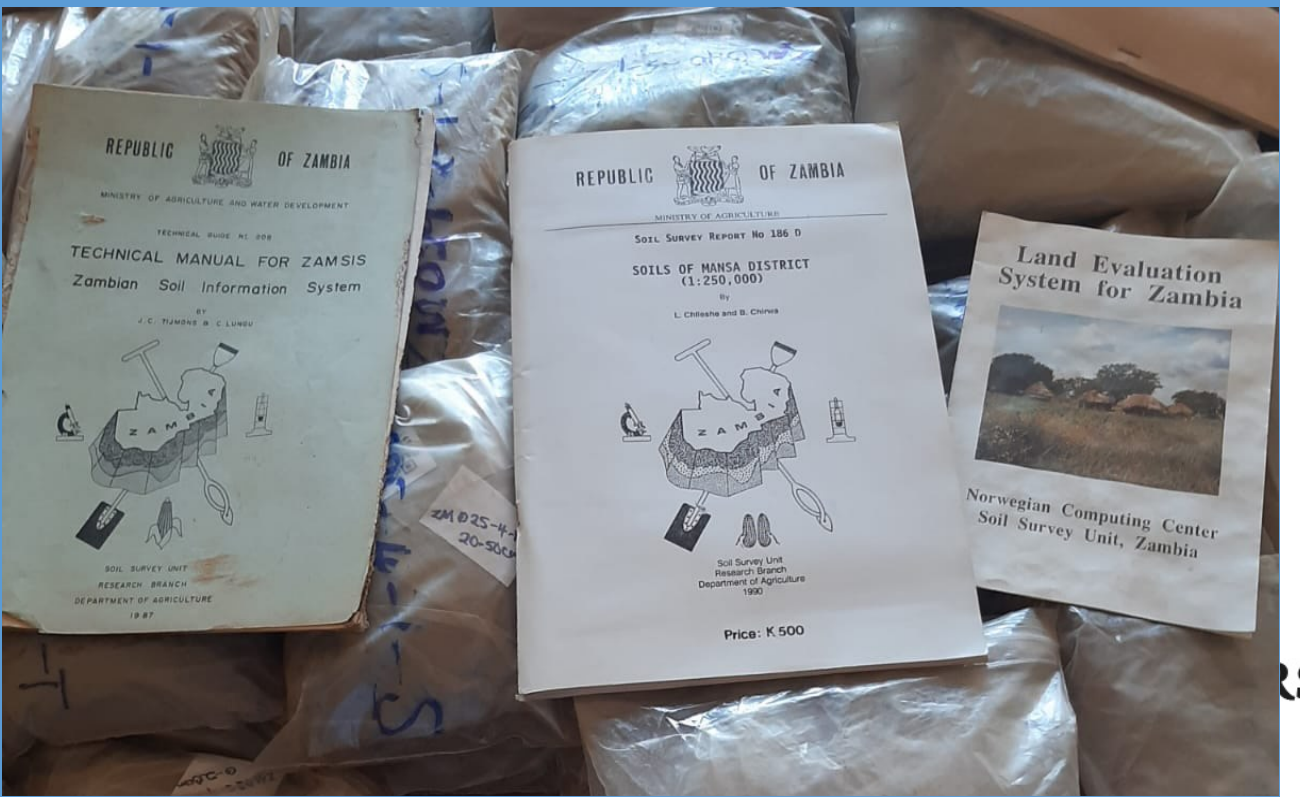
Absence of soil and fertilizer management national laws

A fertilizer law is under development

No National Soil Partnership

There is no national partnership that includes all the key players in the field of soils. Such actors are in connection with each other the scientific approach is outdated

Technical barriers and gaps: Soil mapping and soil information systems



National Soil Information System does not exist

The is no soil information system in the country (even if some attempt were done in the past). Some activities are under implementation but are not harmonized. Samples brought to the lab are normally not georeferenced.

Need for a modern technical approach

The technologies are outdates, data and information are scattered.

Lack of harmonization and monitoring

Technical barriers and gaps:

Analytical Capacities and Soil Laboratories

Low quality of soil data produced

The analytical capacity of laboratories is not enough to cover country's demand. There is a weak quality control and inter-comparison systems between laboratories

Zambian Soil Laboratory Network does not exist

Laboratories are in touch each other, but do not share a common work plan and do not meet on a regular basis

Lack of georeferencing

This makes it impossible to use the information for soil mapping, modelling purposes

No Proximal Sensing Capacity (Spectroscopy)

Some promising results have been achieved by private laboratories. It is important to position Zambia towards more efficient, cleaner, less costly, and faster soil analysis

Lack of analytical capacity for biological parameters

The implementation of these methodologies is essential for determining the effect of biofertilizers on the soils of Zambia

Technical barriers and gaps:

Soil health and fertility

- **Extension service is understaffed**
- **Misuse of fertilizers**
  Fertilizers are mostly underused by small-scale farmers and over-used in industrial farms
- **Not-harmonized fertilizer recommendations to stallholder farmers**
  No consideration of the soil fertility, crop yield, crop varieties and famer's affordability
- **Soil fertility loss**
  Soil fertility is declining with limited nutrient inputs in smallholder famers
- **Low implementation of organic agriculture**

13 key actions to strengthen sustainable soil management in Zambia:

01

National Soil Partnership (ZSP)

To strengthen institutionalization and organize existing efforts in the country through a participatory and multisectoral process.

02

Supporting the update of the National Fertilizer Act

Support for the development and enactment of the Soil Law in Zambia.

03

National Soil laboratory Network (ZASOLAN)

With major activities to build the capacity of public laboratories on quality control, health and safety, the analysis of soil biological parameters (important for the analysis of biofertilizers and biostimulants) and the use of soil spectroscopy.

04

National Workshops on Soil and Fertilizer Analysis Laboratories

05

National Soil Information System (ZamSIS)

Starting from the work done in the past by ZARI and including all other data produced in the country through a participative approach

06

Interface between the member of ZASOLAN and ZamSIS

Adopt a new approach for georeferencing of all soil samples and sharing data

07

Field trials and calibration experiments

Response curves of nutrient uptake, response to fertilization, and estimation of greenhouse gas emissions under different management (including the use of biofertilizers and biostimulants) in coordination with academic and governmental institutions to leverage the information and capacities available at KASISI, UNZA, ZARI, MoA

08

FerSIS app

Decision support system based on existing laboratory data, soil sampling, and field trials. This tool will consider the economic aspect in fertilizer recommendations, prioritizing the optimization of economic returns over the maximization of yield. Information will be also transferred through radio programs and magazines

09

Fertilizer Quality Analysis

Strengthening of harmonization of methodologies and quality control (including biofertilizers)

10

Regulatory framework for fertilizers

Analysis of the regulatory framework for the use, consumption, and purchase of fertilizers, as well as imports and exports

11

Installation of a soil moisture monitoring network

Essential for the implementation of soil management strategies, especially in the Central and Southern areas of the country

12

Soil Doctors Programme

Transformative training in pilot areas (e.g. KASISI), and then expand it all over the country in order to reinforce the extension service in the country

13

Biofertilizers and biostimulants

Installed capacities for the safe production of biofertilizers and biostimulants

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