

Project Summary

Title	Integrating indigenous and scientific soil quality indicators for improved crop production
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Purpose	The goal of this research is to enhance capacity of farmers and scientists to improve and sustain food crop production through effective stakeholder involvement in land use planning and timely implementation of soil management interventions. This project is guided by the general objective focused on developing an easy-to-use, on-farm soil quality assessment tool that integrates indigenous and technical knowledge of indicators.
Project Summary	Declining soil productivity is rampant in Eastern and Central Africa. This contributes to the alarming food insecurity and poverty situations in the region. In Uganda, agriculture employs 80% of the population and over 75% of all households are directly engaged in agriculture. The farming system is predominantly small scale with hardly any external soil inputs, mainly relying on natural bush fallow for soil fertility rejuvenation and expansion of cultivated land area to meet the growing food and cash demands. It is thus characterized by nutrient mining, low crop yields per unit area and declining soil quality. Yet, 70% of Uganda's soil cover comprises the highly weathered, chemically poor ferrallitic soils that require judicious use of external inputs to be able to sustain crop production. Soil quality is the soil's fitness to support crops. Research has improved understanding of technical indicators of soil quality (TISQ) and their assessment criteria. Yet Knowledge on farmer-perceived indicators of soil quality remains limited. The study intends to establish and validate indigenous knowledge of soil quality indicators, improve local understanding and contribute to the process of developing a farmer-friendly soil quality monitoring (SQM) tool for use in land use planning. The study will focus on documentation of farmers' knowledge and characterization of six major local indicators of soil quality (LISQ) by field and laboratory tests and experiments to test their reliability.

	<p>Expected outputs of this research will include an inventory of farmer knowledge and perceptions of local indicators of soil quality (LISQ) in Uganda and agro-ecological characteristics documented. Reliability and sensitivity of six major ones and scientific explanation of what makes them thrive on the different soil qualities will be determined. The impact of different cultivation periods and cropping patterns on local and technical indicators will be established. Finally a farmer-friendly decision support tool which integrates indigenous and technical knowledge of soil indicators will be developed for use in routine soil quality monitoring and evaluation. Meanwhile, the outcomes are expected to include increased knowledge of soil quality indicators for farmers, scientists (including MSc Students) and other stakeholders, increased access to indigenous farmer knowledge and improved linkage between scientists and land managers for more effective stakeholder participation in land use planning. All these will contribute to enhancement capacity of stakeholders to make appropriate and timely soil management decisions for sustainable agriculture.</p>
Country and Specific Location(s)	Uganda
Participating Institutions	NEMA, Uganda
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