

## The Rio Conventions Pavilion Science Day on 5 September 2019 in New Delhi

### Tools for soil carbon estimation

Managing land to sustain or increase soil carbon levels is optimized by good information about what management practices are most suitable to a specific area. Soil carbon is affected by many interacting processes related to its ecoregion and use. Therefore, an optimal sustainable land management option in one place cannot be assumed to be optimal in another.

Tools for soil carbon estimation are designed to help assess soil carbon levels, including across land areas, and as they change with sustainable land management. These tools can be used to help identify optimal management options and help monitor the effect of sustainable land management changes on carbon levels through time.

However, tools for soil carbon estimation only work as well as the data used to develop them, test their accuracy, and generate estimation results. In many situations soil carbon estimation is limited in its accuracy, for example if:

- o A tool for soil carbon estimation that may never have been used in a land area or for a type of management of interest, or
- o information for soil carbon estimation is not available, poor, or too coarse to be useful.

Therefore: the key idea proposed in the UNCCD-SPI Objective 1.1 Technical Report is strategic investment in soil carbon monitoring and improvements in soil carbon estimation resources to elevate national capacity for soil carbon management in order to achieve LDN

Central question:

What are the priorities and challenges in building national capacities for soil carbon estimation?

Decision trees in the report are meant to support countries in identifying priorities and navigating challenges. Decision tree 1 provides overall guidance on where is investment in soil carbon estimation and monitoring recommended, while decision trees 2 – 5 support this process.

Tools for SOC assessment play an important role in identifying sustainable land management practices to maintain or increase SOC (Slide 1). The entry point into Decision Tree 3 and the use of SOC assessment tools is the level of certainty required of the results (Slide 2) for example, to inform policy discussions (low certainty required) versus for a carbon credit payment (high certainty required). Once the level certainty is identified, the availability of data and the applicability of existing SOC assessment tools will determine if investment is needed to fill data gaps or develop SOC assessment tools to select sustainable land management practices (Slide 3).

Table 8 in the report summarizes the review of 7 existing tools for their suitability to compare potential sustainable land management practices and to support SOC monitoring. These tools are already available, can be used globally, and received a level of assessment through a 2018 report on carbon accounting tools by the World Bank Group (Slide 4). They provide a starting point for SOC assessment.