



Technical Advisory Group (TAG) on soil carbon stock changes

Terms of reference for TAG members

BACKGROUND

While representing a significant contributor to human-induced GHG emissions, the livestock sector has the potential to reduce the sector's emissions through soil carbon sequestration in grasslands and rangelands, which cover circa 70% of the global agricultural land.

Carbon sequestration corresponds to an increase in the stock of soil organic carbon, which can be measured at farm level or estimated in different ways from balances of carbon fluxes.

The lack of consensus on a reference method and data to account for soil carbon stock changes is an important barrier to correctly report the sequestration potential. Overlooking or miscounting carbon sequestration has major implications on the environmental footprint of livestock products, and might also play a role when establishing sustainable dietary recommendations. Furthermore, measuring soil carbon stock changes is essential to monitor progress towards national targets set in the context of both the Paris Agreement's Intended Nationally Determined Contributions (INDCs) and the Agenda 2030 for Sustainable Development.

Some of the technical challenges are the high spatial variability of soil carbon, the array of management practices in the environmental accountancy, and the dynamics behind management practices and land use changes (e.g. from grassland to cropland).

Efforts are currently conducted to improve the understanding and assessment of soil carbon stock changes.

The Global Research Alliance is currently coordinating research on models and methods related to soil carbon. Several other international initiatives include a soil carbon component, such as the CGIAR research programme on Climate Change, Agriculture and Food Security, the Global Soil Partnership, the Global Carbon Project, and AgMIP. Despite these efforts, reference guidelines for the accounting of soil carbon stock changes are still lacking. Such guidelines would be essential to attain the ambitious target to increase current soil organic carbon stocks to achieve the proposed targets agreed during the COP21 meeting.

AIMS OF THE ACTIVITY

Based on existing methods, the activity will focus on building consensus on the accounting of soil carbon stock changes related to livestock supply chains. This is deemed necessary to achieve the mitigation potential offered by carbon sequestration and to draw a more complete picture of GHG sources and sinks of emissions in the existing LEAP guidelines.

Some of the questions that will be answered by the TAG include the following:

- Which soil carbon stock changes modelling approaches are currently recommended for application at various scales and in different application contexts (e.g. farm, region, country, product)? What are their key features, application contexts, strengths and limitations?
- Which models or assessment frameworks are suited for benchmarking the environmental performance of livestock supply chains? Which indicators are relevant for assessments conducted at regional or global scale?
- Which accounting rules and models shall be incorporated into the LEAP guidelines in order to obtain fair results?

SCOPE

A scoping analysis is currently under development, and it will provide direction to the work of the TAG. This scoping analysis will include:

- A review of the main approaches for modelling soil carbon stock changes, with special emphasis on grasslands and rangelands.
- Identification and description of those contentious issues in modelling approaches (with specific emphasis on LCA and national GHG emission accounting frameworks) where consensus should to be built.
- A proposal for the technical boundaries of the TAG regarding, but not restricted to:
 - The definition of grasslands (e.g. whether to include savannahs, cut grasslands) and rangelands
 - Whether to include other land use types, e.g. cropland, which are relevant for feed
 - How to define a reference state for land use and land use change
 - Whether and how to consider carbon stock changes during land occupation
 - How to consider carbon stock changes after a land use transformation, e.g. forest to grassland, grassland to cropland
 - Existing sources of data for soil carbon storage and which model they follow
 - The type of biomass: below ground only (and until what depth) or above ground as well
 - Where to cut off the carbon cycle
 - Whether implications on soil fertility or quality should be addressed

DELIVERABLES

- LEAP guidelines on accounting for soil carbon stock changes
- Peer-reviewed paper for publication in scientific journal

TIMEFRAME

An indicative timeline for the work programme of the soil carbon TAG is provided below:

	2016							2017											
Activities	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Scoping analysis																			
Nomination of the expert	■	■																	
Final scoping analysis			■	■															
TAG formation																			
Call for nominations			■	■															
Final nominations				■															
Selection of TAG members				■															
TAG work timeline																			
Preparation of the 1 st face-to-face meeting			■	■	■	■													
1 st face-to-face mtg							■												
Online discussion and writing of draft guidelines							■	■	■	■									
2 nd face-to-face mtg										■									
Development of cases studies and writing of journal paper								■	■	■	■	■	■						
Online discussion											■	■	■						
First draft to LEAP Steering Committee														■					
Peer-review														■	■				
Public review/revision																■	■	■	■
Final publication																			■

ENGAGEMENT

TAG members are warmly invited to participate in-person and actively contribute to the two face-to-face meetings on the way to be scheduled this year. Each meeting will last two-three days.

Besides participation in the two meetings¹, TAG members are requested to continue to work on TAG deliverables under the overall guidance of the TAG co-chairs in order to deliver quality technical products on schedule.

Without active participation in TAG activities, no co-authorship of the LEAP technical products is granted.

TAG members report to TAG co-chairs.

LEAP will not grant any honorarium to TAG members, who are also expected to arrange their own trips autonomously. Trips will be pre-arranged by FAO only in specific circumstances (e.g. ensuring balanced participation of regional experts from developing countries).

QUALIFICATIONS

TAG members are technical experts having a strong background in one or more of the following subjects: soil science, LCA, ecology, livestock production systems, animal science, agriculture science.

Ideally, TAG members have a proven track record in research and/or have built technical expertise by implementing soil carbon accounting.

Minimum requirements include:

- Working knowledge of English
- Skilled in team working and hence in sharing views and knowledge in a constructive manner
- Highly-motivated and committed to develop sound tools enabling to support transparent decision making at various scales and in all regions worldwide
- Respect of cultural and scientific diversity of TAG members

APPLICATION

LEAP aims to establish a TAG with diverse education and experience background, and therefore encourages scientists from all regions of the world to express their interest.

Candidates are kindly requested to submit their CVs to the LEAP Secretariat (Livestock-Partnership@fao.org) by **September 30th 2016**. CVs must include an updated list of publications and work experiences.

All applications will be reviewed by the LEAP Secretariat and LEAP Steering Committee.

Merit, balanced regional representation of participants and gender balance are three key selection criteria.

¹ While the first face-to-face meeting will be held at the FAO HQ in Rome, Italy, the second one is likely to be arranged outside Europe.