Greenhouse Gas Inventory Policy and Reference Guide

Responsibly Managed Peatlands Standard

Background

The Responsibly Managed Peatlands certification program was formed by SCS Global Services (SCS) in 2011, with the aim of promoting environmentally appropriate, socially beneficial, and economically viable peatland management through a certification system. A new version of the Responsibly Managed Peatlands Standard V1.0 has been published and implemented starting January 1, 2018, replacing the previous version (Veriflora Standard V3.1 and Responsible Horticultural Peat Moss Production Annex). This revised Standard is the result of a multi-stakeholder consultation process, during which SCS collected feedback from practitioners on the latest best practices in responsible peat moss production.

Peat Carbon Storage and GHG Emissions

It is widely known that peatlands represent a significant reservoir of carbon and assist in reducing the amount of greenhouse gases (GHGs) in the atmosphere. Peatland disturbance (e.g., from land-use changes or peat harvesting) is also a major source of greenhouse gas emissions. Reestablishing the natural functions of peatlands following peat harvest can bring significant emissions reductions, restore the carbon sequestration function, and preserve the remaining carbon stock of the peatland.

As such, a stated goal of the Responsibly Managed Peatlands Standard is "To reduce the environmental footprint of peat moss production and enhance the degree to which peat moss production operations restore carbon accumulating wetland ecosystems." Restoration and rehabilitation activities – and the water quality management and drainage strategies that take into account the future needs for these activities – are crucial to minimizing GHG emissions and restoring the carbon sink function. The Responsibly Managed Peatlands Standard stipulates and encourages best practices that would lead to the return of functional peat accumulating ecosystems, with specifications for goal-setting, implementation, and monitoring.

The measurement of both mechanical and non-mechanical emissions from harvest activities, as well as consideration of sequestration rates from restoration, are important for (i) identifying emission hot spots and reduction opportunities, (ii) prioritizing GHG reduction efforts, (iii) setting reduction targets, (iv) measuring and reporting GHG performance over time, and (v) developing performance benchmarks. However, there are several challenges to attaining accurate and reliable results. Firstly, the rates of GHG emissions and carbon sequestration of peatlands have considerable spatial variability related to differences in peat depth, plant species and cover, water table levels, and other ecological and hydrological factors. Moreover, cost effective monitoring tools are not universally available, and data to assess the scale of peat carbon losses and sequestration is incomplete.

One important outcome of the revision process of the Responsibly Managed Peatlands Standard includes the expansion of carbon footprint calculation requirements and the development of this corresponding guidance document, "Greenhouse Gas Inventory Policy and Reference Guide." The aim of this Guide is to introduce guidance and a set of procedures that would assist Responsibly Managed Peatlands certificate holders in assessing greenhouse gas emissions and climate benefits related to their operations. It is expected that this document will be periodically updated and revised to ensure incorporation of the most up-to-date research and findings on GHG emissions and calculation procedures for peatlands.

Demonstrating conformance with the procedures set forth in this Guide is mandatory for compliance with the following requirements:

5.2.3 Carbon Stabilization and Sequestration (Year 1)

5.2.3.1 The Producer shall provide a description of its approach for increasing the level of terrestrial carbon stabilization and sequestration resulting from production processes including, for example, maintenance of forested wetlands, maintenance of buffer zones or planting of windbreaks, restoration, rehabilitation, or through off-site carbon stabilization strategies.

5.2.3.2 The Producer shall demonstrate that the approach is supported by scientifically tested methods and is in line with the strategies to achieve the set GHG target (see 6.2.1).

6.2.1 Greenhouse Gas Inventory and Target (Year 1)

6.2.1.1 The Producer shall develop an accurate baseline GHG inventory, expressed in terms of metric tons of carbon dioxide equivalent (CO2e), as indicated in the "Responsibly Managed Peatlands – Greenhouse Gas Inventory Policy and Reference Guide."

6.2.1.2 The Producer shall use the baseline GHG inventory as the basis to develop a GHG target and strategies to reduce the GHG emissions and/or increase GHG sequestration, with timetables for implementation.

6.2.1.3 The Producer shall track and document progress toward meeting the GHG target.

Transition to GHG Policy for Existing Certificate Holders

For existing certificate holders, requirement 6.2.1. was reviewed during the 2018 audit cycle, but not formally evaluated for compliance. This approach was taken to allow sufficient time for the operation to address all aspects of the requirement. Starting February 1, 2019, this requirement will be evaluated, and a full corrective action will be expected in cases of non-compliance.

Operational Boundaries and Scopes

This Guide applies to the processes and inputs under the certificate holder's management related to the harvesting and handling of horticultural peat moss, including facilities involved in the screening of peat

materials and creation of peat mixes, as well as the restoration or rehabilitation activities that occur after cessation of harvesting activities. All sites that are part of the Peat Moss Production Operation are included in scope, including open peatlands, closed peatlands, and adjacent land designated as buffer zones, donor sites and/or HEV areas.

To distinguish among emissions sources, SCS groups emissions into three categories (or "scopes"), adapted from the scopes framework used in the *GHG Protocol Corporate Accounting and Reporting Standard* [Ref. 5].

> **Scope 1**: Direct GHG emissions sources owned or controlled by the company, including both mechanical and non-mechanical sources. This would also include emissions from onsite transportation, packaging, and the screening of peat materials and creation of peat mixes, to the extent that these processes are owned or controlled by the company. Non-mechanical sources would include CO_2 emissions related to land use change.
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> **Scope 2**: Indirect GHG emissions sources from the consumption of purchased electricity, heat, or steam.
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> **Scope 3**: All other indirect GHG emissions sources.

An important distinction for the peat sector is between mechanical and non-mechanical sources. Mechanical sources[1] are equipment or machinery operation on peat operations (emit CO_2, CH_4, and N_2O), whereas non-mechanical sources are the biological processes shaped by climatic and peat conditions, connected by complex patterns of N and C flows (emit CO_2, CH_4, an N_2O). The relative contribution of non-mechanical sources is much greater than that from mechanical sources, and the specific magnitude is difficult to predict for a given peat operation. Moreover, the peat sector differs from other industrial sectors given the significance of C pools, which act as reservoirs or sources of CO_2 during land use. The procedures outlined in the following section take this distinction into account.

Procedure for Calculating Emissions

The procedure described below was adapted from the *GHG Protocol Agricultural Guidance: Interpreting the Corporate Accounting and Reporting Standard for the Agricultural Sector* [Ref. 6]. The procedure is meant to complement what is already required in the Standard regarding improving the environmental footprint of peat operations, including peatland restoration and rehabilitation. Given the aforementioned challenges associated with GHG accounting of non-mechanical sources of emissions in peatlands, this Guide includes flexibility as to what is required for the Responsibly Managed Peatlands

[1] From Ref. 6, describing mechanical sources of emissions in agriculture: *Mechanical sources are equipment or machinery operated on farms, such as mobile machinery (e.g., harvesters), stationary equipment (e.g., boilers), and refrigeration and air-conditioning equipment. These sources emit CO_2, CH_4, and N_2O, or HFCs and PFCs, and their emissions are wholly determined by the properties of the source equipment and material inputs (e.g., fuel composition).*

standard. **The primary objective is that the certificate holder (i) takes adequate steps to understand the GHG consequences of the peat operation, including calculation of GHG emissions *to the extent possible* given the state of research on GHG emissions from peatlands and associated operations, (ii) identifies and pursues potential opportunities to participate in relevant research or initiatives related to GHG emissions, and (iii) uses this information to inform management decisions.**

1. **Setting base periods.** Established a base period, specifying the reasons for choosing that period. The base period shall be the earliest point in time for which verifiable data are available on Scope 1 and Scope 2 emissions. Rolling base periods may be used to help minimize the influence of long-term environmental trends and ensure that inventories are more useful as a basis for tracking the impacts of management practices. The base period inventory shall be recalculated when changes occur, such as structural changes (e.g., mergers), or changes in calculation methodologies (use of improved emission factors).

2. **Collect activity data.** First identify the management practices and emissions sources that would need to be reflected, before selecting a calculation approach. Next collect activity data, prioritizing data collection efforts for key courses, expected to have the highest GHG fluxes, offer the most emissions reduction potential, and are most relevant to the operation's goals. In general, data on energy consumption, procurement and production levels can be obtained from high quality sources (e.g., invoices, electricity meters, field records of tractor passes, production records, land registry records, amounts of chemicals used in mixes). Reliable data on land management practices and land-use change can be more difficult to obtain (e.g., peat moisture, drainage, temperature, area of peatland, peat content, volume of harvested peat). Lastly, consult individual calculation tools to determine exact data requirements (see Step 3 below).

3. **Selecting a calculation approach**. GHG fluxes can be determined in different ways, ranging from the use of highly specialized, field-scale measurement equipment to global emission factors or empirical models. In general, emission factors and empirical models are the easiest and least resource-intensive approaches to use, although they tend to be less accurate and do not capture the GHG impacts of multiple, simultaneous peat management practices. The Responsibly Managed Peatlands certification program is not prescriptive on calculation approach, and does not require a specific tool to calculate emissions. Publicly available tools (spreadsheets, software, and protocols) allow for the calculation of GHG fluxes based on emission factors and/or models. Potential references for calculation are listed in the References section of this document, and include the Canadian National GHG Inventory Report [Ref. 2], the IPCC Wetland Supplement [Ref. 3], and the IPCC emission factor database [Ref. 1].

In order to address requirement 6.2.1.1., certificate holders must, at minimum, calculate Scope 1 and Scope 2 emissions from mechanical sources, and, include information to the extent possible on Scope 1 emissions for non-mechanical sources (e.g., resulting from land-use change). If the operation is not able to provide detailed GHG emissions calculations related to Scope 1 non-mechanical sources, then any limitations must be detailed in writing. The approach shall be explained and justified based on

company goals, feasibility, company resources, access to participation in research projects or initiatives, as well as other relevant information. Companies shall qualitatively report information about uncertainty and all assumptions made.

4. **Reporting GHG data**. Companies shall report to SCS auditors the following information, at minimum:

- Information on operational boundaries
- The time period covered, including base period and any additional reporting periods (if different from base)
- Data by GHG (including CO_2, CH_4, N_2O, SF_6, PFCs, HFCs and NF_3, as relevant and as available data allows), and reported in units of both metric tons and tons CO_2-equivalent (CO_2e)
- Total scope 1 and 2 emissions without subtractions for trades in offsets
- A reference or link to the calculation methodologies used
- Justification for exclusion of sources from the calculation
- A description of non-mechanical sources and any calculation methodologies, with a description of how those methodologies were chosen
- Description of participation in academic studies, partnerships, or initiatives regarding GHG emissions
- Available CO2 flux data and sequestration data from land use management
- Data should be reported in terms of relative emissions according to amount of peat produced (volume or weight) as well as total emissions for the reporting period

References

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