

Greenhouse Gas Protocol Land Sector and Removals Initiative

Project Overview

1 Project Overview

The Greenhouse Gas Protocol (GHG Protocol) is a multi-stakeholder partnership of businesses, non-governmental organizations (NGOs), governments, and others convened by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). Launched in 1998, the mission of the GHG Protocol is to develop internationally accepted greenhouse gas (GHG) accounting and reporting standards and tools, and to promote their adoption in order to achieve a low emissions economy worldwide.

The Greenhouse Gas Protocol is launching a process to develop new guidance on how companies account for and report the following activities in their greenhouse gas inventories:

- Land use
- Land use change
- Carbon removals and storage
- Biogenic products
- Related topics

The project will develop internationally accepted guidance on corporate GHG accounting on the above topics. The new guidance is expected to be used by companies to:

- **Inform mitigation strategies** by understanding the GHG emissions/removals impacts of land use, land use change, bioenergy and carbon removal activities
- **Set targets and track performance** by including the above activities in GHG targets
- **Report** GHG inventories including GHG emissions and carbon removals and report progress toward GHG mitigation goals

The new guidance will be designed to create more consistency and transparency in the way companies quantify and report GHG emissions and removals from land use, land use change, bioenergy and carbon removal technologies and track progress toward GHG mitigation goals, following a credible approach. The guidance will be developed through an inclusive, multi-stakeholder process and will build on existing methods and approaches.

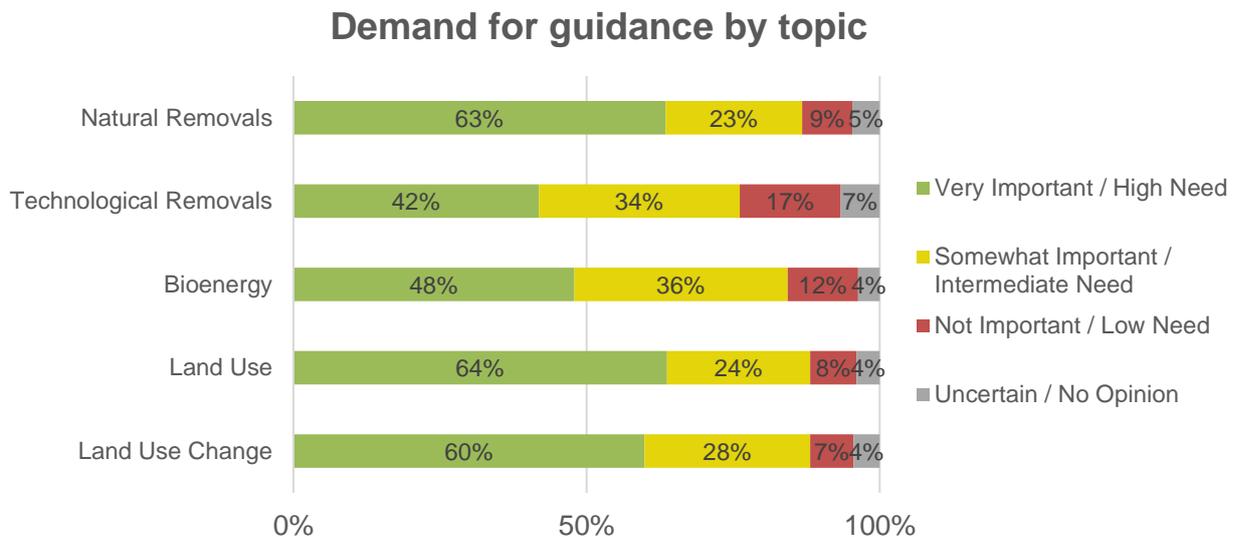
The new guidance is also likely to be adopted by key programs and initiatives such as the Science Based Targets Initiative.

2 Summary of Scoping Survey

In early 2019, WRI developed a survey to assess the demand for additional Greenhouse Gas Protocol guidance on carbon dioxide removals (natural and technological), bioenergy, land use and land use change. The survey was distributed online and ran from January to April 2019. A total of 417 individuals responded to the survey from businesses, governments, NGOs, academic/research institutions and consultants across over 50 countries.

Key Findings

1) There was strong demand across survey respondents for guidance in all areas identified

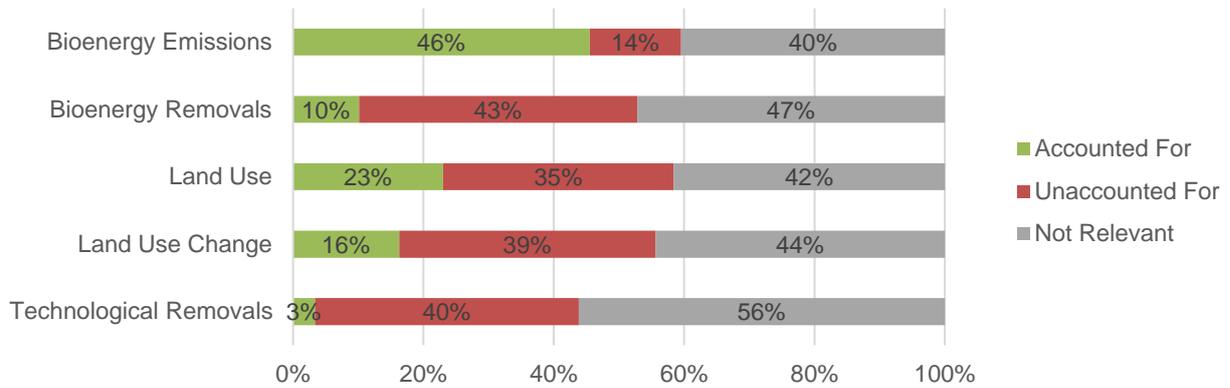


More than three quarters of survey respondents identified new guidance on each topic as being important (either very important or somewhat important):

- Natural (biogenic) carbon removals (86%)
- Technological carbon removals (76%)
- Bioenergy (84%)
- Land use (88%)
- Land use change (88%)

2) Few companies currently account for land sector emissions and removals, even when relevant

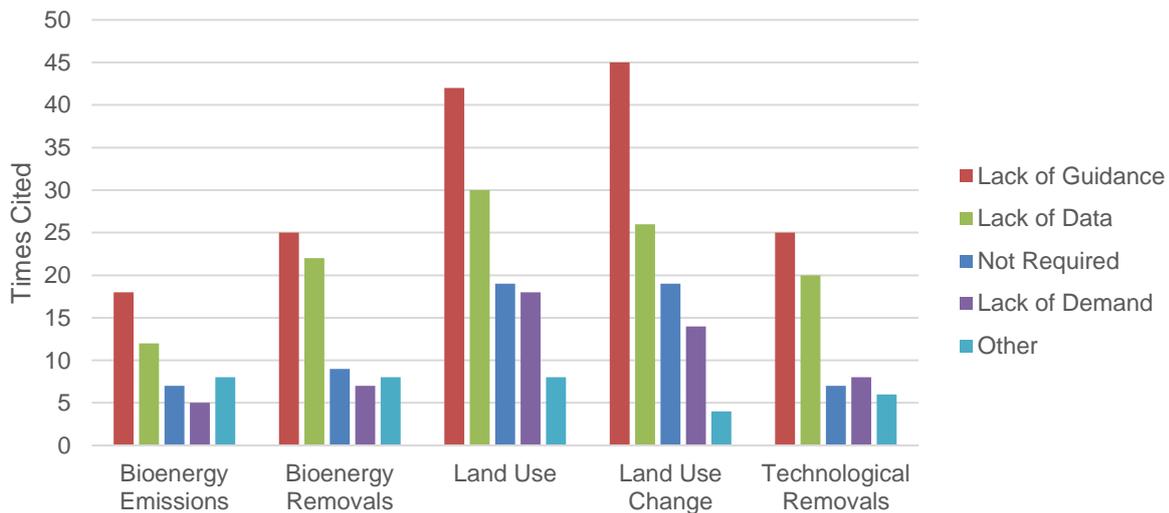
Share of respondents with GHG inventories accounting for each activity



Emissions and removals from bioenergy, land use and land use change are relevant for more than half of respondents with GHG inventories (n=178), yet few companies account for bioenergy removals, land use and land use change. Very few companies are currently accounting for technological removals (e.g., carbon capture and storage) but 76% of stakeholders still identified a need for new guidance in this area.

3) Lack of guidance was the most common reason respondents cited for why they were not accounting for activities, where such activities were relevant

Reasons cited for not accounting for a category



3 Scope

The GHG Protocol Land Sector and Removals Guidance will address the following topics:

- 1) **Removals:** Accounting and reporting for carbon dioxide removals and storage
- 2) **Land sector emissions/removals:** Accounting and reporting for greenhouse gas emissions and removals from agriculture, forestry, other land use, and land use change
- 3) **Biogenic products:** Accounting and reporting for greenhouse gas emissions and removals from the production and consumption of biogenic products such as bioenergy

4 Draft List of Topics to Address

4.1 Carbon Dioxide Removals

- Defining terms and concepts
 - Removals (from the atmosphere) vs. carbon storage in pools/reservoirs (i.e. carbon sequestration)
 - Removal enhancements vs. avoided emissions or reduced emissions
 - Removals occurring in the company's value chain vs. removals occurring outside of the value chain
- Types of removals and storage
 - Biogenic removals and storage (e.g., afforestation, reforestation, forest restoration, urban tree planting, agroforestry, building soil carbon, etc.)
 - Technological removals and storage (e.g., direct air capture, enhanced weathering/mineralization, etc.)
- Accounting methods for removals and sequestration across scopes 1 and 3
 - Carbon dioxide removals or carbon fluxes from the atmosphere vs. monitoring carbon storage in pools
 - Accounting for removals and storage over time
 - Allocating removals across companies and scopes
 - Accounting for biogenic and technological removals that do not store carbon and will be emitted back to the atmosphere (i.e. carbon removal and utilization)
 - Accounting for biogenic and technological removals with temporary or long-term storage, including monitoring and verification
- Quantification methods and data sources
 - Identification of relevant tools, methodologies/protocols, datasets, etc.
- Reporting
 - Separate reporting of emissions and removals
 - How to report removals across the value chain (e.g., whether to establish scope 1 removals and scope 3 removals)
 - Separate reporting of removals vs. carbon storage
 - Separate reporting of removals outside of the scopes (i.e., purchased from/sold to other companies, or interventions with impacts outside the value chain)
- Target setting and tracking changes over time
 - Setting targets that cover removals

- Setting a base year and recalculating base year removals and storage
- Setting separate targets for emissions and removals
- Role of removals in achieving net zero targets
- Tracking removal enhancements within an inventory
- Mitigation strategies/actions to enhance removals
- Alignment with or revisions to other GHG Protocol standards

4.2 Land Sector

- Types of emissions, removals and sequestration within the land sector
 - Carbon emissions and removals from land use (e.g., forest management, crop and livestock production, bioenergy feedstock production, soil carbon, etc.)
 - Carbon emissions and removals from land use change (e.g., deforestation, afforestation, wetland conversion, etc.)
 - Direct and indirect land use change and related impacts from changes in production
 - Agricultural GHG emissions (e.g., livestock methane emissions, soil nitrous oxide emissions, etc.)
 - Biogenic removals and temporary to long-term storage in biogenic products/materials (e.g., furniture, building materials, etc.)
 - Biogenic carbon dioxide emissions and removals from bioenergy production and consumption (e.g., biomass, biofuels, biogas)
- Land sector accounting approaches
 - Use of land-based vs. activity-based accounting methods
 - Addressing the timing of removals and emissions
 - Separate biogenic carbon emissions and removals accounting vs. bringing biogenic emissions and removals into scopes 1, 2 and 3
 - Guidance by scope
 - Scope 1 accounting (e.g., for farmers, ranchers, timber/forest management companies, bioenergy feedstock producers, land managers/owners, etc.)
 - Scope 2 accounting (e.g., for bioenergy-sourced electricity consumption)
 - Scope 3 accounting (e.g., for food and beverage companies, forest product companies, apparel companies, retailers, finance/investors, etc.)
 - Guidance by sub-sector
 - Forest management / forest products
 - Cropland management / crops
 - Rangeland management / animal products
 - Bioenergy feedstock production / bioenergy (aligning bioenergy accounting approaches with land sector accounting approaches)
- Quantification methods and data sources
 - Methods across carbon pools (i.e., biomass carbon, dead organic carbon, soil organic carbon, carbon storage in biogenic products/materials)
 - Use of primary (monitored) data vs. secondary (estimated) data and modeling approaches

- Data collection based on the company's location within the value chain (e.g., land managers, processors and retailers)
- Data approaches depending on whether there is data traceability
- Estimating and managing uncertainty in data, methods and models
- Reporting requirements for the land sector
 - Reporting emissions and removals across scopes (i.e., scope 1, 2 and 3)
 - Separate reporting of fossil versus biogenic carbon
 - Whether and how to report avoided emissions (e.g., in a bioenergy life cycle)
 - How to report purchases or sales of credits/certificates
- Target setting and tracking changes over time
 - Setting targets that cover land sector activities
 - Setting a base year and recalculating base year emissions and removals
 - Identifying land sector mitigation strategies and interventions
 - Role of bioenergy and land use removals in achieving GHG targets
- Alignment with or revisions to other GHG Protocol standards and guidance
 - Agriculture Guidance (e.g., livestock emissions, emissions from manure management, soil emissions, biomass burning), Corporate Standard, Scope 3 Standard, Scope 2 Guidance, Product Standard
- Relationship of corporate land sector accounting to other programs and initiatives
 - Jurisdictional accounting initiatives (i.e., national GHG inventories, REDD+ programs)
 - Project-based accounting initiatives (i.e., Agriculture Forestry and Other Land Use (AFOLU) sector offset/inset projects, C removal certificates)
 - Sustainability certification (i.e., sustainable agriculture, green gas certificates, apparel and forestry standards)

4.3 Bioenergy and other biogenic products

- Guidance for biogenic product producers and consumers
- Direct / scope 1 GHG accounting for consumers
 - Accounting for direct biogenic emissions
- Indirect / scope 2 GHG accounting for electricity consumers
 - Accounting for indirect biogenic emissions associated with purchased electricity, heat, steam or cooling
- Indirect / scope 3 accounting for producers and consumers
 - Accounting for upstream life cycle GHG emissions and removals for consumers
 - Accounting for downstream life cycle GHG emissions for producers
 - Accounting for bioenergy carbon capture and storage across the value chain
- Evaluating mitigation impacts to inform mitigation strategies
 - Comparing GHG impacts relative to counterfactual scenarios
- Target setting and tracking progress
 - Accounting for bioenergy and biogenic products in GHG emissions and removals targets

- Reporting
 - Reporting emissions and removals across scopes (i.e., scope 1, 2 and 3)
 - Separate or combined reporting of fossil versus biogenic carbon
 - Whether and how to report avoided emissions
 - How to report purchases or sales of credits/certificates

5 Approach

Key elements of the Greenhouse Gas Protocol approach include:

- **Develop guidance through a global, inclusive, multi-stakeholder process** in partnership with companies, government agencies, NGOs, and other experts and stakeholders from around the world. GHG Protocol has twenty years of experience convening global stakeholders to develop consensus GHG accounting methodologies. The GHG Protocol will follow the same type of global, inclusive, and open multi-stakeholder process used to develop the *GHG Protocol Corporate Standard* (2004), the *GHG Protocol for Project Accounting* (2005), the *Corporate Value Chain (Scope 3) Standard* (2011), and the *Product Life Cycle Standard* (2011).
- **Build on existing approaches**, such as the IPCC guidelines for national GHG inventories, GHG Protocol *Agricultural Guidance* and *LULUCF Guidance for Project Accounting*, ISO 14064-1:2018, Quantis' *Accounting for Natural Climate Solutions* guidance, Gold Standard Value Change Initiative's *Value Chain (Scope 3) Intervention Guidance* and *Guidance for Soil Organic Carbon*, GHG Protocol Brazil Forestry tool, REDD+ programs and other jurisdiction land sector approaches, CDM and voluntary AFOLU sector project methodologies and other methods and reports recommended by participants in the scoping process.
- **Pilot test draft guidance** by a set of companies to gain real-world feedback on the practicality and usefulness of draft guidance and ensure that the final guidance are well-suited to their needs.
- **Ensure rigorous and user-friendly technical design** to ensure a true and fair account of emissions, removals and sequestration and provide comprehensive guidance for land sector accounting aligned with international best practices. The guidance will be based on key GHG accounting principles (relevance, accuracy, completeness, consistency, and transparency).

6 Governance and Development Process

6.1 Overview

WRI and WBCSD will convene a series of stakeholder groups as part of the global, inclusive, multi-stakeholder guidance development process. The stakeholder groups will be balanced by including participation from diverse geographies and include a range of government, business, and civil society participants. All outputs will be subject to comprehensive review by any interested stakeholders.

The governance process to oversee and develop the new guidance will consist of five groups:

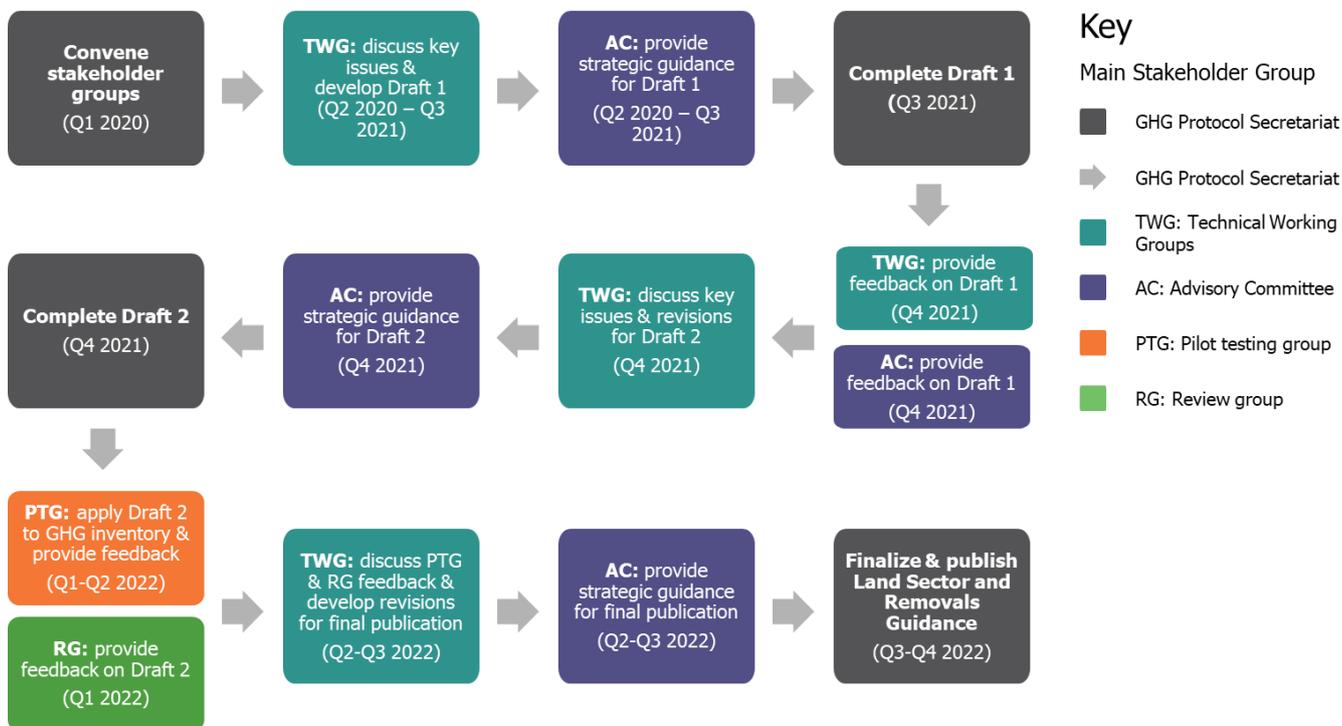
- Secretariat
- Advisory Committee
- Technical Working Group(s)
- Review Group
- Pilot Testing Group

Summary of responsibilities and expected commitment of each stakeholder group

Group	Responsibilities	Commitment
Secretariat (WRI and WBCSD)	Convene, facilitate, and oversee process	The Secretariat will consist of 5 FTE staff dedicated to this initiative
Advisory committee	Provide strategic guidance on the goals and direction of the project	Participate in 2-4 meetings per year
Technical working group(s)	Develop the technical content of the guidance	Participate in biweekly conference calls during the development of the first draft (unless fewer calls are necessary); and the necessary time to prepare and review materials (approx. 5-10 hours per month)
Review group	Review and provide feedback on draft guidance produced through the working group process	At the discretion of the participant, review and provide written comments on draft guidance
Pilot testing group	Implement the draft guidance and provide feedback for their improvement	Implement the draft guidance. Provide feedback on the strengths and weaknesses of the draft guidance. Generate case studies to be included in the final publication(s).

The following figure illustrates the overall governance and development process.

Figure 1: Overview of GHG Protocol Land Sector and Removals Guidance Development Process



6.2 Terms of reference for stakeholder groups

See below for additional details on the composition, responsibilities, decision making process, commitment and acknowledgement for each of the groups.

1. Secretariat

WRI and WBCSD will convene and facilitate the guidance development process and act as the secretariat.

Responsibilities

- Convene participants
- Raise funds to support the process
- Facilitate and coordinate meetings of the advisory committee, technical working groups, and stakeholder workshops
- Draft written inputs into the advisory committee and technical working group process, including background on relevant standards and methodologies, accounting issues and challenges, and key decisions to be made by each group
- Draft sections of the standards/guidance
- Recruit pilot testers and manage pilot testing
- Ensure consistency and user-friendly presentation in the final standards across all sections developed by the technical working groups
- Produce final publications taking into account feedback received to ensure the highest quality

2. Advisory Committee

The Advisory Committee will provide strategic guidance on the goals and direction of the project.

Composition

The Advisory Committee will consist of 10-20 strategic and technical advisors with expertise in GHG accounting and reporting related to carbon removals and sequestration and land sector accounting (i.e., agriculture, forestry, other land use, land use change and bioenergy expertise). Participation in the Advisory Committee is by invitation only.

Responsibilities

1) Strategic guidance

- Provide advice on the objectives and scope of the standards/guidance
- Provide advice and guidance on objectives and composition of working groups and ensure that working group outputs are consistent with established objectives
- Provide guidance on the topics to be addressed by the technical working groups
- Support broad adoption and use of the standards/guidance by companies, GHG reporting and target setting programs/initiatives, governments, financial institutions, and civil society

2) Technical and policy guidance

- Recommend solutions to major technical or policy disagreements or questions when the technical working groups are unable to reach consensus and/or provide solutions (e.g., technical questions include what types of methods are available, while policy questions include what types of methods should be required or optional.).

3) Standards/guidance review

- Review draft standards/guidance from the technical working groups for relevance, accuracy, consistency, and completeness.

Decision Making Process

Members of the Advisory Committee will provide inputs and recommendations on key questions. In cases where the Advisory Committee is unable to reach consensus recommendations, the Secretariat retains the authority to make a final decision, guided by the majority viewpoint.

Commitment

Advisory Committee members are requested to make a two-year commitment to participate in the standards/guidance development process. This is expected to involve:

- 2-4 meetings per year (for 3 years)

Acknowledgement

Members of the Advisory Committee will be acknowledged as such and listed by name and affiliation in the final publication.

3. Technical Working Group(s)

Members of the technical working group(s) will develop the technical content of the standards/guidance. The number of technical working groups is to be determined.

Composition

Each technical working group(s) will consist of about 15-20 experts from business, government, academia, and NGOs with technical backgrounds in quantifying carbon removals and sequestration and land sector accounting (i.e., agriculture, forestry, other land use, land use change and bioenergy expertise). A Secretariat staff member will be designated as a facilitator for each group.

Responsibilities

- For the set of technical accounting issues designated to the group: review relevant existing methodologies and practices; analyze the issues and challenges; and develop recommendations around content of standards/guidance
- Draft sections of text on the designated topics and review draft text at frequent intervals

- Receive and respond to feedback on draft chapters from the Advisory Committee, the Review Group, the pilot testing phase, and public comment periods

Decision-Making Process

Technical Working Groups will strive to reach consensus recommendations on each aspect of the standards/guidance. If the Technical Working Group is unable to reach a consensus, the group will provide the Advisory Committee with a set of options for review and recommendation, indicating the relevant advantages and disadvantages of each option. In cases where the Advisory Committee is unable to reach a consensus, the Secretariat retains the authority to make a final decision, guided by the majority viewpoint.

Commitment

Technical working group members are requested to make a two-year commitment to participate in the standards and guidance development. This is expected to involve:

- 2 conference calls per month during the first draft development (unless fewer calls are necessary), with optional participation in additional conference calls in sub-groups as needed
- Occasional calls after the first draft is developed, as needed
- The necessary time to prepare and review materials (approx. 5-10 hours per month)

Acknowledgement

Members of the Technical Working Groups will be acknowledged as Technical Working Group Members and listed by name and affiliation in the final publication.

4. Review Group

The review group will provide feedback on the draft guidance as it is produced through the working group process.

Composition

The group will consist of any interested stakeholders from government, business, NGOs, academia, etc.

Responsibilities

At the discretion of the individual participant, provide written feedback on draft guidance. Comments from the Review Group will be incorporated at the discretion of the Technical Working Groups, Advisory Committee members, and the Secretariat.

Commitment

Receive draft guidance and provide written feedback at the discretion of the individual participant.

Acknowledgement

Stakeholders who submit comments as part of the Review Group will be acknowledged and recognized as Reviewers and listed by name and affiliation in the final publication.

5. Pilot Testing Group

After the draft guidance is prepared, a select group of companies and organizations will have an opportunity to test the draft guidance to ensure that it can be practically implemented, provide any feedback for its improvement, and serve as important case studies in the final publication. The Secretariat will provide technical support to pilot testers in implementing the draft guidance. Feedback from the pilot testing will be incorporated into the final version of the guidance.

Composition

The group will consist of selected organizations representing a diversity of sectors and geographic locations.

Responsibilities

Implement the draft guidance. Provide detailed, constructive feedback on the strengths and weaknesses of the draft guidance. Generate case studies to be included in the final publication.

Commitment

Commit to testing and implementing the draft guidance, providing feedback through a questionnaire, and developing a case study.

Acknowledgement

Pilot testers will be recognized as Pilot Testers and listed by affiliation in the final publication.

6.3 List of participants

Advisory Committee Members

Greg Downing	Cargill
Thomas Maddox	CDP
Frances Wang	ClimateWorks Foundation
Nicolas Gordon	CMPC
Michele Galatola	European Commission
Till Neeff	Food and Agriculture Organization of the United Nations
Owen Hewlett	Gold Standard
Uwe Fritsche	IEA Bioenergy / IINAS
Andreas Ahrens	IKEA
Kevin Rabinovitch	Mars
Gladys Naylor	Mondi
Conor McMahon	Nestlé
Jon Dettling	Quantis International
Martin Noponen	Rainforest Alliance
Alex Cantlay	Shell
Antti Marjokorpi	Stora Enso
Cristiano Resende De Oliveira	Suzano
Volker Sick	Global CO ₂ Initiative / University of Michigan
Martha Stevenson	WWF
Bernhard Stormyr	Yara

Technical Working Group Members

Maya Kelty	3Degrees
Richard Sheane	3Keel
Beatriz Shanez Jimenez	Aether UK
Jad Daley	American Forest
Edie Sonne Hall	American Forest Foundation
Caroline Gaudreault	Anthesis
Sofyan Kurnianto	Asia Pacific Resource Holdings International
Annette Cowie	Australia NSW Dept. of Primary Industries / IEA Bioenergy
Tilmann Silber	Barry Callebaut
Monica McBride	Bayer
Amargit Singh	Biz Excellence Systems Sdn Bhd
Mike McMahon	BP
Yuki Hamilton Onda Kabe	Braskem
Mounyelle Nkake Manfred Claude Cyrille	Cameroon Ministry of External Relations

John Kazer	Carbon Trust
César Dugast	Carbone 4
Pedro Faria	CDP
Peggy Kellen	Center for Resource Solutions
Juan Jose Rincon Cristobal	Climate Change Atelier, S.L.
Louis Uzor	Climeworks
Catharina Hohenthal	Confederation of European Paper Industries
Marie-Pierre Bouquet Lecomte	Danone
Edwin Alders	DNV GL
Michael Goldsworthy	Drax
Benjamin Bartley	Ecosystem Services Market Consortium
Thibaut Brac de la Perriere	EDF
Braulio Pikman	Environmental Resources Management Brazil
Jessie Dzura	Enviva Biomass
Harmen Dekker	European Biogas Association
Parminder Plahe	European Investment Bank
Valeria De Laurentiis	European Joint Research Centre
Jesse Scharf	European Renewable Gas Registry
Sudha Padmanabha	Fair Climate Services Pvt. Ltd.
Allison Thomson	Field to Market
William Gischlar	Firmenich Inc.
MaryKate Bullen	Forest Investment Associates
Pina Gervassi	Forest Stewardship Council
Steven Rosenzweig	General Mills
Ruaraidh Petre	Global Roundtable for Sustainable Beef
Roger Ballentine	Green Strategies
Madeleine Hardy	Guidehouse
Remi Samad	Heineken
Christoph Leibing	Inter IKEA Group
Andreas Flad	KlimAktiv Consulting GmbH
Miguel Brandão	KTH - Royal Institute of Technology, Sweden / IEA
George Peridas	Bioenergy
Laura Overton	Lawrence Livermore National Lab
Anthansia Xeros	Mars Incorporated
Pete Garbutt	Mastercard
Lauren Cooper	McDonald's Corporation
Christian Ramaseder	Michigan State University Forestry Department
Rob Waterworth	Mondi
Kirsten Vice	Mullion Group
Urs Schenker	NCASI
James Goudreau	Nestlé Research
Michelle Nutting	Novartis
Tom Oldfield	Nutrien
Morten Pedersen	Olam International
Mary Booth	Orsted
Fabio Nogueira de Avelar Marques	Partnership for Policy Integrity
	Plantar Carbon

Abdulmutalib Yussuff	Project Drawdown
Olivia Tuchten	Promethium Carbon
Simon Gmuender	Quantis International
Jeff Seale	Regrow Agriculture
Jamie Bohan	Republic Services, Inc.
David Morris	Royal DSM
Jacob Crous	Sappi Forests
Steve Muzzy	Second Nature
Tanya Yatchenia	Shell
Derik Broekhoff	Stockholm Environment Institute
Simon Armstrong	Sustainable Biomass Program
David Cockburn	Tetra Pak
Stephan Wehr	The Delphi Group
Ran Tao	The Estée Lauder Companies Inc
Steve Wood	The Nature Conservancy
Michael Mugarura	Thünen Institute of Forest Ecosystems
Cher Xue	True North Collective
Sara Ohrel	United States Environmental Protection Agency
Sasha Wilson	University of Alberta
Gary Bull	University of British Columbia
Diarmaid Clery	University of East Anglia
Matthew Brander	University of Edinburgh
Rachel Lamb	University of Maryland
Hilton Thadeu do Couto	University of São Paulo
Ara Erickson	Weyerhaeuser
Anna Stephens	WSP
Christa Anderson	WWF

A list of pilot testing organizations and reviewers will be provided in 2022.

7 Draft Timeline (Subject to Change)

Activities	2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Convene stakeholder groups												
Technical Working Group and Advisory Committee discussions and development of first draft												
TWG and Advisory Committee review (4 weeks) and revision												
Review by Review Group												
Pilot Testing (4 months)												
Revise guidance, incorporating feedback from pilot testing and review												
Finalize and publish standard/ guidance												