Science-based targets for Forest, Land and Agriculture sectors

Introductory briefing

Global Compact
Network Denmark

Global Compact
Network Finland

Global Compact
Network Norway

Global Compact
Network Sweden

In collaboration with

RAMBØLL

Bright ideas.
Sustainable change.

Table of contents

Science-based targets for Forest, Land and Agriculture sectors - Introductory briefing

Published
February 2024

Thank you

Special thanks to **Lars Lundahl** at Orkla for providing the case study. This project was made possible with support from the Nordic Council of Ministers.

This briefing was prepared for the UN Global Compact Nordic Networks

Author:

Shane Hughes (Ramboll)

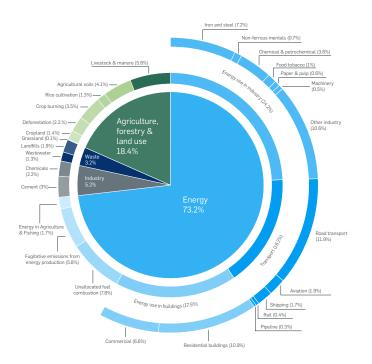**Project Leads**

Karoliina Koistila
Leonie Goodwin

Global Compact
Network Denmark

Global Compact
Network Finland

Global Compact
Network Norway

Global Compact
Network Sweden

In collaboration with

RAMBØLL

Bright ideas.
Sustainable change.

Part I
Introduction

1.1
Science-based targets for Forest, Land and Agriculture

In this introductory briefing, we delve into the unique challenges associated with setting science-based targets within the Forest, Land and Agriculture (FLAG) sectors. Recognition of the crucial role the FLAG sectors play in addressing climate change has increased rapidly in the last two years along with a growing push to incorporate companies' impacts on nature, but the complexities in calculating and addressing the greenhouse gas (GHG) emissions and climate impacts from these sectors is significant and risks delaying action.

It is imperative that we act fast, as the significance of the FLAG sectors in our collective endeavours to mitigate and address the most severe impacts of climate change cannot be overstated. These sectors contribute to 18.4% of global emissions, ranking second only to the energy sectors (Figure 1). However, when we factor in the fossil emissions emitted by the FLAG sectors, as well as their capacity to sequester emissions from the atmosphere, FLAG sectors encompass 30% of all global mitigation activities[1].

FIGURE 1.
GLOBAL GREENHOUSE GAS EMISSIONS BY SECTOR[2]

Additionally, those individuals whose lives and livelihoods are intrinsically tied to these sectors face heightened vulnerability to the repercussions of climate change, including flooding, droughts, and related consequences. More than 50% of all habitable land is dedicated to the production of agriculture and forestry products used by humans[3]. When these are produced in an unsustainable manner, this can lead to land degradation, habitat destruction, and the loss of biodiversity.

1   Science Based Targets initiative. 2022. The SBTi's FLAG Guidance: A groundbreaking moment for addressing land-related emissions. See https://sciencebasedtargets.org/blog/the-sbtis-flag-guidance-a-groundbreaking-moment-for-addressing-land-related-emissions

2   Ritchie, H. 2020. Sector by sector: where do global greenhouse gas emissions come from? See https://ourworldindata.org/ghg-emissions-by-sector

3   Ritchie, H. 2019. Half of the world's habitable land is used for agriculture. Our World in Data. See Half of the world's habitable land is used for agriculture - Our World in Data

1.2
Focus and purpose

This introductory briefing outlines some of the challenges and opportunities in GHG accounting, target setting, and mitigation for FLAG sectors, concluding with some practical business recommendations.

The Science Based Targets initiative (SBTi) is the leading target setting initiative and has developed methodologies for different sectors since 2015. In 2022, it launched the Forest, Land and Agriculture (FLAG) Science Based Target Setting Guidance[4] and launched FLAG target setting requirements for companies in the land intensive sectors. Similarly, the GHG Protocol is the leader in carbon accounting standards and has provided credible industrial sector methodologies for decades.

Target setting and carbon accounting methods for FLAG sectors are still in the early stages of development for the corporate FLAG sectors. In some cases, draft documents such as the GHG Protocol Land Sector and Removals Guidance (GHG Protocol LSRG)[5], have not yet been finalised. Moreover, tracking GHGs in FLAG sectors is complex due to the vast diversity of biological systems and locations; even growing the same crop in different regions yields different emission profiles.

This briefing aims to navigate these complexities and uncertainties, providing FLAG companies with recommendations that can enhance climate mitigation action.

The content is informed by insights gathered from industry leaders during four peer learning sessions focused on SBTi FLAG target setting. The sessions hosted by UN Global Compact Networks Denmark, Finland, Norway, and Sweden, and funded by the Nordic Council of Ministers, focused on tangible dilemmas and solutions from large, frontrunner companies in the Nordics, with support from subject experts from Rambøll Consulting.

Each session was typically attended by sustainability professionals working in large multinational companies that already have approved science-based, cross-sectoral targets and are now trying to understand FLAG target setting approaches.

This introductory brief is part of a set of briefs geared toward decision-makers, sustainability officers, and strategists in forerunner companies who are keen to adopt best practices in their respective industries.

---

4   Science Based Targets. No date. Forest, Land and Agriculture (FLAG). See https://sciencebasedtargets.org/sectors/forest-land-and-agriculture
5   Greenhouse Gas Protocol. No date. Land Sector and Removals Guidance. See https://ghgprotocol.org/land-sector-and-removals-guidance

Part II

Introduction to the SBTi's FLAG target setting framework

The SBTi FLAG Guidance provides the world's first framework for companies in land-intensive sectors to set science-based targets that include land-based emissions, reductions, and removals. Interestingly, in contrast to other SBTi target setting methods, the SBTi FLAG guidance allows for FLAG removals to count toward achieving an SBTi FLAG target. They affirm that more than 50% of the global land-related mitigation opportunity is from removals[6]. In addition to GHG accounting of land-related GHG emissions, the SBTi requires companies to make a no-deforestation commitment.

The SBTi FLAG Guidance provides an overview of FLAG criteria that companies can fall under. Companies that are required to set FLAG targets fall under FLAG-C1 (ie. criterion 1) whereas those companies recommended to set targets fall under FLAG-R1.

From September 2022 until April 2023, setting FLAG targets was voluntary but recommended for companies that meet FLAG-C1 as specified in section 2.1 below. However, since April 30, 2023, after the FLAG Tool and Guidance had been available for more than six months, companies operating under the conditions specified in section 2.1 below (FLAG-C1), are required to set a FLAG target upon (re)submission of their SBTi targets. Companies submitting net-zero targets must also set a FLAG target if FLAG-C1 is met.

Companies with validated science-based targets that are required to submit a FLAG target must do so within six months of the release of the final GHG Protocol LSRG.

---

6   Anderson CM., Bicalho, T., Wallace, E., Letts, T., and Stevenson, M. 2022. Forest, Land and Agriculture Science-Based Target-Setting Guidance. World Wildlife Fund, Washington, DC.

2.1
Is it relevant to your company?

Setting FLAG targets is mandatory if your company has already committed to or is going to commit to SBTi targets in the following sectors:
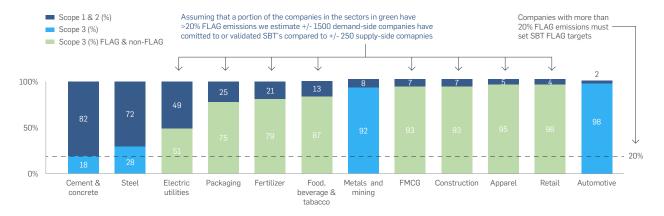
- Forest and paper products
- Food production (agricultural production)
- Food production (animal source)
- Food and beverage processing
- Food and staples
- Retailing
- Tobacco

A FLAG target is still mandatory if your company is not in one of the aforementioned sectors but has scope 1, 2, and 3 FLAG emissions totalling 20% or more. For example, this may include companies in: Packaging, Hospitality, Textiles, Apparel, Construction, and other sectors, even when they are not directly involved in FLAG activities themselves but use or consume bio-based materials.

Companies with FLAG emissions below 20% (FLAG-R1) are urged to set a FLAG target. Without a target, it is still mandatory to include FLAG emissions in the overall non-FLAG target boundary. Not setting a FLAG target can disadvantage companies with FLAG emissions because their FLAG-related climate mitigation activities (e.g. shifting to low and zero carbon biomaterials or energy efficiencies that reduce biofuel emissions), cannot count towards their non-FLAG target achievement.

Rambøll estimates that approximately 1,500 demand-side companies and 250[7] supply-side companies listed on the SBTi website that have committed to or that already have validated SBTs, should consider setting a FLAG target (Figure 2). Notably, as society and industry increase the use of biofuels and biomaterials, the number of companies that should consider setting FLAG related climate goals will also increase. If a significant portion of demand-side companies set science-based target FLAG emissions reporting will become a 'license to operate' rather than an optional extra.

FIGURE 2.

PERCENTAGE SCOPE 1, 2, AND 3 EMISSIONS HIGHLIGHTING POSSIBLE DEMAND-SIDE FLAG SECTORS THAT MAY HAVE MORE THAN 20% FLAG EMISSIONS[8]

---

7 Rambøll Consulting research of SBTi list of companies with validated targets or commitments to set targets.
8 Ramboll research of quantity of companies listed on SBTi website that may need FLAG targets: CDP. 2022. CDP Technical Note: Relevance of Scope 3 Categories by Sector. See https://cdn.cdp.net/cdp-production/cms/guidance_docs/pdfs/000/003/504/original/CDP-technical-note-scope-3-relevance-by-sector.pdf and WBCSD. 2021. Pathfinder Framework – Guidance for the Accounting and Exchange of Product Life Cycle Emissions. See https://www.wbcsd.org/contentwbc/download/13299/194600/1 for spilt of scope 3 to scope 1 and 2 emissions.

2.2
Are you a demand-side or supply-side company?

Distinguishing between whether your firm is a demand or supply-side company is crucial for understanding the appropriate FLAG target setting methodology.

For some companies, particularly those that are vertically integrated (i.e. control and manage various stages of their production and distribution process, including land-based activities such as growing), the distinction between being a demand or supply-side company may not be black and white.

Typically, the distinction is:

Demand-side companies tend to have the majority of their FLAG-related emissions in their scope 3 upstream activities. These companies will likely be involved in the consumption or selling of FLAG-derived materials and products to end consumers, or into intermediate industrial processes. These include companies such as supermarkets, manufacturing, and food processing companies.

Supply-side companies tend to have the majority of their FLAG emissions in their operational scope 1 activities. These companies will likely be directly involved in the cultivation and production of bio-based raw materials and commodities. These include forestry companies and agribusinesses, such as food brands that do their own growing on land they manage.

2.3
SBTi's FLAG target setting methods

Selecting the appropriate FLAG target-setting methods for a company hinges on the sector it operates in, as well as the commodities in its supply chain. The SBTi FLAG Guidance[9] provides two overarching approaches: The FLAG Sector Approach and the FLAG Commodity Approach.

The FLAG **Sector Approach** suits companies with diverse emissions across FLAG sources, employing a percentage reduction against a baseline, with a near-term absolute target of -3.03% per year. For example, this approach is typically used by supermarkets or big food brands who have a large range of different FLAG-related products.

The FLAG **Commodity Approach** is an alternative for companies who work with the eleven commodities listed in the SBTi FLAG Guidance, including beef, chicken, dairy, leather, maize, palm oil, pork, rice, soy, wheat, timber, and wood fibre[10]. A percentage reduction target is set for each commodity based on emission intensity (tCO2e/tonne of product).

Companies may combine multiple commodity pathways and the sector pathway as appropriate for their target setting.

Please find below some examples of validated FLAG targets.
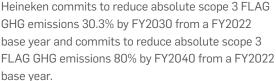
TESCO   1

Tesco has committed to reduce absolute scope 3 FLAG GHG emissions 39.4% by FY2032 from a FY2019 base year and commits to reduce absolute scope 3 FLAG GHG emissions by 72% by FY2050 from a FY2019 base year.

HEINEKEN   3

Heineken commits to reduce absolute scope 3 FLAG GHG emissions 30.3% by FY2030 from a FY2022 base year and commits to reduce absolute scope 3 FLAG GHG emissions 80% by FY2040 from a FY2022 base year.

MARS INTERNATIONAL   2

Mars International commits to reduce absolute scope 1 and 3 FLAG GHG emissions 45.5% by FY2030 from a FY2015 base year and commits to reduce absolute scope 1 and 3 FLAG GHG emissions 72% by FY2050 from a FY2015 base year.

SODEXO   4

Sodexo commits to reduce absolute 3 FLAG GHG emissions 40% by FY2030 from a FY2017 base year and commits to reduce absolute scope 3 FLAG GHG emissions 72% by FY2040 from a FY2017 base year.

---

9   Anderson CM., Bicalho, T., Wallace, E., Letts, T., and Stevenson, M. 2022. Forest, Land and Agriculture Science-Based Target-Setting Guidance. World Wildlife Fund, Washington, DC.
10   As of the 14th of December 2023, the Science Based Targets initiative (SBTi) has decided to suspend the timber and wood fiber pathway while they research improvements to the methodology. See https://sciencebasedtargets.org/resources/files/Suspension-of-the-Timber-and-Woodfiber-Pathway.pdf Also see link here for suggested improvements developed by Rambøll Consulting based our experience in the market and insights gathered from industry leaders during the before-mentioned four workshop sessions.

Part III

Key challenges and recommendations

This section introduces the key challenges identified by the leading companies that participated in the four peer learning sessions hosted by UN Global Compact Networks Denmark, Finland, Norway, and Sweden, with support from subject experts from Rambøll Consulting.

The challenges identified by the participants focused on carbon accounting, data quality, target setting, and value chain engagement. The recommendations are meant to direct the reader to resources and areas to consider and are designed to help those companies starting out on their FLAG decarbonisation journey.

Implementing these recommendations will help inform and enable better decarbonisation decision-making. These decisions are not only relevant to sustainability professionals. Board-level discussions are also crucial as these recommendations will have a far reaching impact as they need to be integrated into a company's overarching business strategy.

3.1
Carbon Accounting

1 CHALLENGE

FLAG carbon accounting is complex: Including diverse carbon pools, emission and removal cycles, storage, reversals, and hugely varied biological systems.

RECOMMENDATION

Allocate resources: Invest in hiring sustainability experts, upskilling your team, and developing new carbon accounting systems. Because FLAG carbon accounting is complex, it typically requires more resources than first estimated.

3 CHALLENGE

Tools: A plethora of tools are available for calculating FLAG emissions both from a demand-side perspective (with useful emissions factors) and from the supply-side perspective (in terms of measuring and modelling scope 1 net emissions).

RECOMMENDATION

Locate the right digital tool for your business: A good starting point is a review of those tools listed by the GHG Protocol. Where Life Cycle Assessments (LCAs) haven't been completed, good emissions factors databases are important. For example, see Blonk Land Use Change data, Quantis food footprint database, and the Ecoinvent and WRAP emissions factor databases. Please note that some of these need to be paid for. Carbon modelling protocols may be needed by supply-side companies such the FAO Soil Carbon Monitoring, Reporting and Verification (MRV) protocol.

2 CHALLENGE

Guidance is still in draft: The GHG Protocol LSRG has not been finalised which creates uncertainty.

RECOMMENDATION

Engage in guidance development: Be at the forefront and support the development of the GHG Protocol LSRG and additional sector-specific guidance, such as the sector specific guidance for the livestock sector or the dairy sector.

4 CHALLENGE

Communicating avoided emissions is risky: Avoiding emissions by substituting fossil-based products with bio-based products is seen as a potential climate solution, but credibility around related carbon accounting practices is low.

RECOMMENDATION

Communicate avoided emissions with caution: Start calculating avoided emissions utilising existing guidance but be very cautious how you communicate, especially when making counterfactual claims comparing against other products. Avoided emissions claims can be linked to greenwashing or breaches in competition law. As a minimum, report avoided emissions separately from your GHG inventory and be transparent about uncertainties.

3.2
Data Collection

1 CHALLENGE

Lack of data collection systems: Especially smaller farmers and foresters may not have the needed systems or skills to collect primary data.

RECOMMENDATION

Prioritise: Conduct a screening or estimate of your full value chain emissions identifying potential hotspots and the priority areas where data collection systems are required. For more details on screening see question 6 here and the Scope 3 Technical Guidance (not FLAG specific).

Transparency: Disclose all data issues and uncertainties relevant to your GHG inventory and develop an inventory improvement plan to inform future data collection systems.

2 CHALLENGE

Lack of consistent approaches: Those companies with land-based activities that collect relevant primary data are often using inconsistent approaches (also see "Lack of traceability" below).

RECOMMENDATION

Verification: Implement third-party verification programs using auditors with a strong understanding of your sector to help identify potential issues with your approach. GHG verifications are often completed in line with ISO 14064-3.

Sector experts: Also work with sector specific associations and interest groups to agree and define what "good" data looks like for your sector in line with the GHG Protocol LSRG.

3 CHALLENGE

Emissions and emissions factors not disaggregated: Existing emissions factors and systems for collecting primary data often do not disaggregate FLAG from non-FLAG emissions.

RECOMMENDATION

Life cycle assessment (LCA's): Conduct LCA's on your key commodities openly sharing disaggregated FLAG and non-FLAG emission factors in accessible databases. LCA's are often completed in line with ISO 14040 or the GHG Protocol Product Standard. Please note that SBTi mandates disaggregation of FLAG and non-FLAG emissions for target setting purposes.

4 CHALLENGE

Lack of traceability: Especially for larger demand-side companies traceability is difficult when dealing with a huge range of products and/or ingredients.

RECOMMENDATION

Material or product passports: Implement initiatives such as material digital passports increasing visibility of supply chains. Digital passport requirements are soon to become mandatory for some products sold in the EU, not including food and feed. Also see the WBCSD's Pathfinder Framework which provides support on the exchange of product level data across the value chain.

5 CHALLENGE

Removals too difficult to prove: Accounting for removals, in line with the GHG Protocol LSRG, comes with higher data quality requirements than emissions accounting.

RECOMMENDATION

Primary data: Supply-side companies need to start collecting verifiable primary data on soil carbon, land use change, net carbon balance, etc. to be able to clearly evidence that a removal has occurred. See the section on removals in the GHG Protocol LSRG for more details.

3.3
Setting Targets

1 CHALLENGE

Choice of base year: Doubts around which base year to choose especially when considering already implemented carbon reduction actions.

RECOMMENDATION

Run tests: If you have emissions data for more than one year you can run tests in the SBTi FLAG target setting tool to see how your targets will differ based on a different target and base year. Often the most recent year is the best base year in terms of data quality and being most representative of the current business size and product range.

2 CHALLENGE

Choice of near term target year: Deciding the base year and target year will define the overall level of near term ambition.

RECOMMENDATION

2030: Most commonly used near term target year is 2030 but can be anywhere from 5 to 10 years from the date the target is being submitted. You will also need to factor in strategic considerations, such as aligning with other reporting or sustainability initiatives, acquisitions, product launches, and strategy cycles.

3 CHALLENGE

Choice of the net-zero target year: Not mandatory under SBTi but relevant for many companies.

RECOMMENDATION

Between 2040 and 2050: Most companies will select a year between 2040 and 2050. Companies should try to be as ambitious as possible given the increasing pressures on temperature increases.

4 CHALLENGE

Knowing if a target is achievable: The dilemma of wanting to be ambitious, while also being uncertain about being able to reach the targets.

RECOMMENDATION

Estimate carbon reductions: Run high level estimates for a selection of key carbon reduction initiatives typically available in your sector. Value chains must be engaged as soon as possible to confirm if these reductions are truly possible and what resources are needed. Engagement is particularly important for companies that have most of their emissions in scope 3.

5 CHALLENGE

Setting no deforestation or no conversion targets: Going beyond pure carbon mitigation targets.

RECOMMENDATION

Understanding what is required: See the Accountability Framework a guide to deforestation and conversion free supply chains.

Tracking: Demand-side companies should consider using geospatial software that provide deforestation alerts highlighting possible areas to focus supplier engagement efforts.

3.4
Value Chain Engagement

1 CHALLENGE

Collaboration is currently inadequate: The level of decarbonisation needed to meet FLAG targets will only be possible with significant engagement and action across the value chain.

RECOMMENDATION

Value chain engagement: Invest in quality value chain engagement programs, such as those promoted by the Value Change Initiative or using CDP's or SBTi's guidance. An early task could be a supplier product footprint questionnaire.

Partner and innovate: Explore climate solutions with value chain partners and opportunities to deliver both environmental gains and competitive advantages.

2 CHALLENGE

Not knowing where to invest: Progressive companies want to invest in sustainability, but insufficient traceability of supply chains can mean they're not sure where to invest (see also traceability above).

RECOMMENDATION

Explore market-based mechanisms: Investment should go directly into your value chain where supply chains are traceable. Market-based mechanisms can be useful for investing in projects that reduce carbon when supply chains aren't traceable. However currently market-based mechanisms are only accepted by the GHG Protocol for corporate reporting in relation to green electricity tariffs, but they are undertaking a detailed review of market-based approaches and may consider updating guidance in the future.

Part VI

Case Study: Orkla

Orkla ASA is a leading industrial investment company focused on brands and consumer-oriented companies. With twelve portfolio companies featuring around 300 brands, Orkla generates more than 70% of revenues from food companies.

Orkla's main climate impact is attributed to raw materials and ingredients used in the production of food and other products. Scope 3 emissions account for more than 90% of its GHG emissions, which is dominated by purchased goods and services.

A significant share of Orkla's raw materials derive from agriculture, making FLAG emissions substantial. Orkla's first science-based targets were approved in 2018, and complemented with a net-zero target for 2045 in 2022. Currently, Orkla is focused on calculating its FLAG emissions, with new scope 3 targets and non-FLAG emissions targets expected to be approved in 2024.

Scope 1 and 2 emissions:

Orkla has reduced its scope 1 and 2 emissions by improving energy efficiency in its manufacturing operations and transitioning from fossil fuels to renewable energy sources.

Value chain engagement:

Orkla is increasing its communication with raw materials suppliers to obtain detailed climate footprint data, expressdemands for target setting, and identify emissions reduction strategies. In Sweden, Orkla collaborated with a beef supplier, introducing an algae feed additive to cow feed that reduced their methane emissions by about 80%. Orkla successfully used this beef in meatball production while maintaining processing and quality standards. The company aims to expand such initiatives through collaborative efforts within its supply chain.

Scope 3 emissions:

Orkla takes a cross-functional approach to scope 3 emissions, involving key functions such as innovation, procurement, and marketing. In product development, improvements have been made by changing to packaging materials and ingredients with less environmental impact, with a focus on increasing plant-based options. Orkla actively informs customers about the climate impact of food and has developed climate scales and labelling schemes to encourage more climate-conscious purchasing and eating habits.

Carbon removal and storage:

Carbon removal and storage is being explored with Orkla engaging in a research project that produces biochar from agricultural residues and sewage sludge. The biochar was incorporated into a circular system, undergoing field tests at Orkla's contract farmers and greenhouse pot trials. The stable biochar acts as a carbon sink and may offer additional benefits such as enhancing crop resistance to drought (see image).

Credits: Lars Lundahl (Environmental Manager, Orkla) adding biochar to the soil in Scania, Sweden