



SBTN

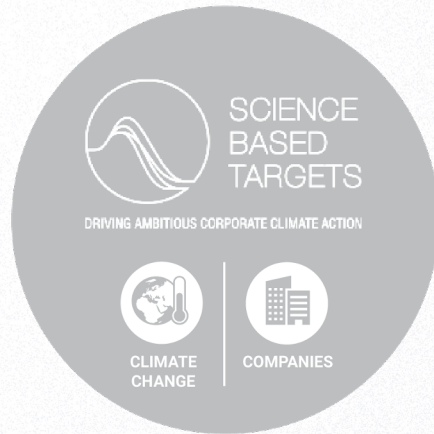
The use of LCA in corporate science-based targets for land

87th LCA Discussion Forum – 03 September 2024

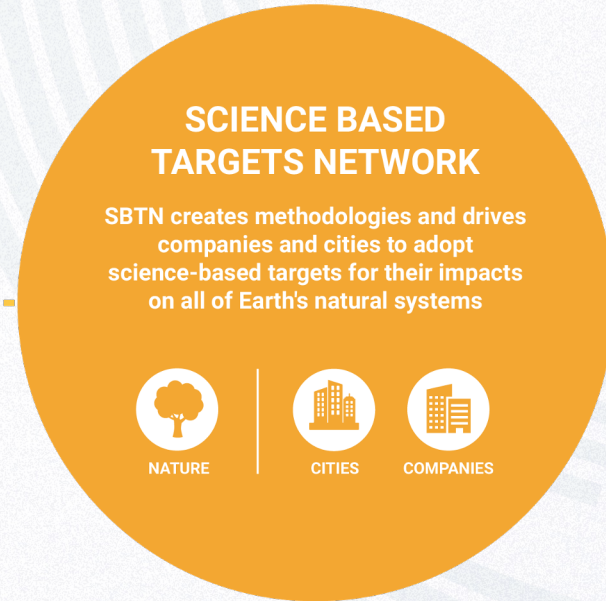


SCIENCE BASED TARGETS NETWORK
GLOBAL COMMONS ALLIANCE

A NET ZERO, NATURE POSITIVE PATHWAY FOR BUSINESS



CLIMATE SBTs



NATURE SBTs

BUILDING AND EXPANDING UPON CLIMATE TO ALL
ENVIRONMENTAL IMPACTS

AN INTEGRATED APPROACH TO NATURE ACTION

5 key action areas



**Reducing
carbon
emissions**



**Preserving
freshwater
resources and
water security**



**Supporting
biodiversity
and ecosystem
services**



**Preserving and
regenerating
land systems**

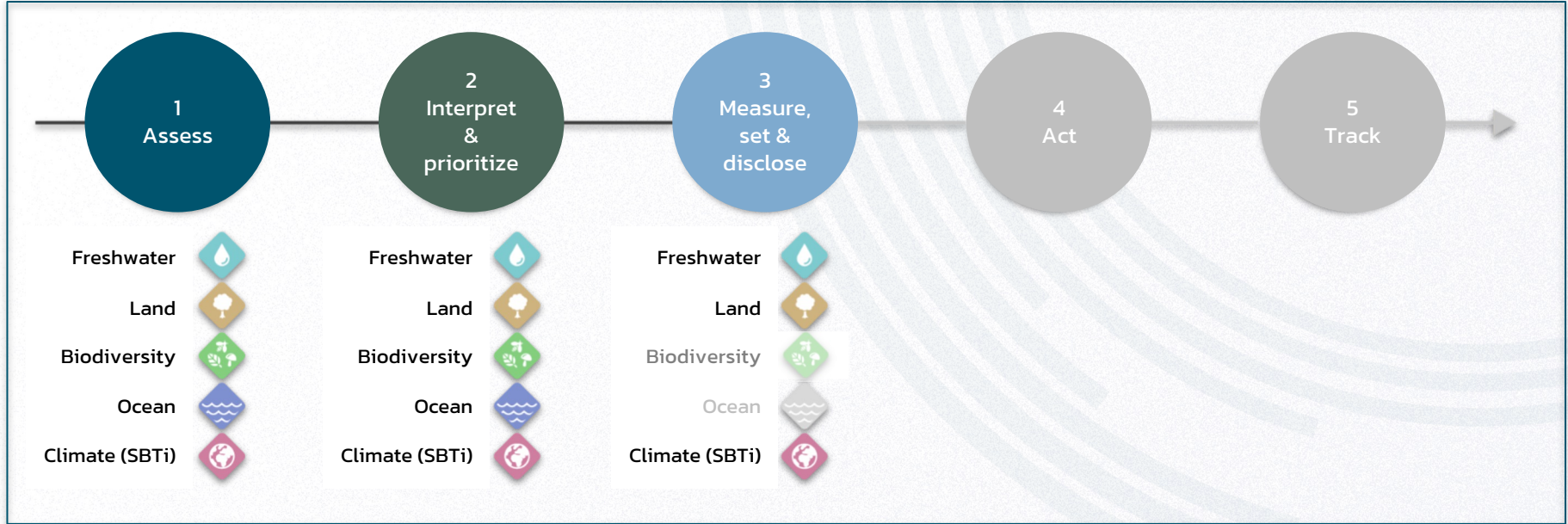


**Securing
healthy,
diverse oceans**



SBTN enables companies to take the **right actions** in the **right places** at the **right time** to do their part to halt and reverse nature loss by 2030

SBTs FOR NATURE – FIRST RELEASE



FIRST LAND TARGETS FOR COMPANIES TO TAKE INTEGRATED ENVIRONMENTAL ACTION



Target 1 No Conversion of Natural Ecosystems

Stop direct and indirect conversion of all natural, terrestrial ecosystems



Target 2 Land Footprint Reduction

Reduce the global occupation of production systems and liberate land, ideally for ecosystem restoration




Target 3 Landscape Engagement

Engage in materially relevant landscape scale initiatives to support actions and enabling conditions that lead to substantial improvements in nature

*For Forest, Land and Agriculture (FLAG) companies: to set land targets you must additionally set an SBTi FLAG target.

SBTN LAND TARGETS V1

LCA IN MATERIALITY ASSESSMENT


 In Step 1, companies determine which environmental impacts they need to address with targets and which parts of the businesses have the highest priority. Lifecycle thinking and databases have already been used to develop the **Materiality Screening Tool** which defines the most important impact categories for each different economic sector through its direct operations and upstream supply chain. The tool uses the **ENCORE** database to determine which sectors are relevant and their hotspots.

ISIC Group (Alphabetical)	Production process (associated with each group)	Land/Water/Sea use change		Resource Use		Climate change		Pollution					
		Terrestrial use		Freshwater use		Water use		GHG emissions		Water pollutants		Soil pollutants	
		Indexed pressure score	Materiality rating (0 or 1)	Indexed pressure score	Materiality rating (0 or 1)	Indexed pressure score	Materiality rating (0 or 1)	Indexed pressure score	Materiality rating (0 or 1)	Indexed pressure score	Materiality rating (0 or 1)	Indexed pressure score	Materiality rating (0 or 1)
Business support service activities n.e.c.	Infrastructure holdings	ND	ND	ND	ND	8.0	1	ND	ND	7.0	1	7.0	1
Growing of non-perennial crops	Large-scale irrigated arable crops	9.0	1	9.0	1	9.0	1	ND	ND	8.0	1	7.0	1
	Large-scale rainfed arable crops	9.0	1	ND	ND	ND	ND	ND	ND	7.0	1	7.0	1
	Small-scale irrigated arable crops	9.0	1	8.0	1	8.0	1	ND	ND	7.0	1	6.0	1
	Small-scale rainfed arable crops	9.0	1	ND	ND	ND	ND	ND	ND	6.0	0	6.0	1
Manufacture of other food products	Processed food and drink production	ND	ND	ND	ND	8.0	1	9.0	1	6.0	0	6.0	1

The snapshot above shows the results for direct operations using the MST to generate sector-level scores. All scores are indicative of a typical company in that sector, and may not accurately represent the materiality of a given company's specific activities. **The scores in the ENCORE dataset and in the MST reflect a high-level understanding of impacts at a global or non-spatially explicit level and are expressed as a sectoral average based on the typical impact profile of a company in the given sector.** This approach has some methodological limitations including sample size (impacting sector representativeness), lack of availability or accuracy of studies, and geographic bias.

SBTN LAND TARGETS V1

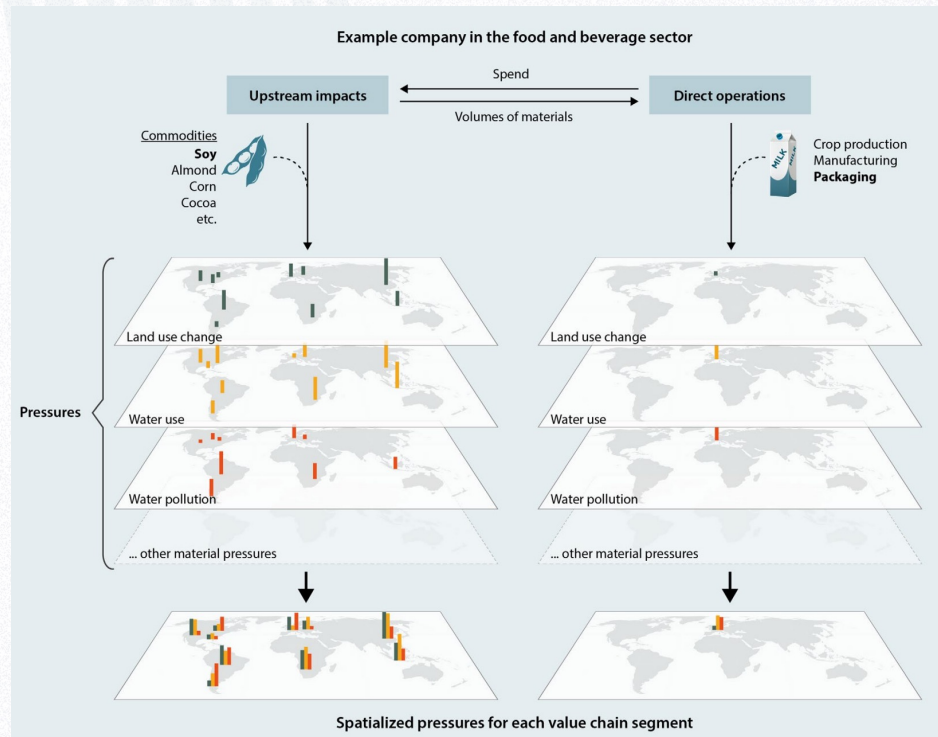
LCA IN MATERIALITY ASSESSMENT



Companies continue their target-setting journey by refining the materiality assessment by estimating the pressures on nature that a company generates and to identify the geographic areas in which these pressures are particularly harmful for nature.

Companies can use primary data when available and model-based estimations when direct assessments have not been conducted and when traceability of commodities purchased is limited.

Companies can use existing tools and data bases such as extended input-output (EEIO) models and databases (e.g., EXIOBASE or EORA), LCA methods (e.g., IMPACT WORLD+, ReCiPe) and life cycle inventory databases (e.g., Ecoinvent)



SBTN LAND TARGETS V1

LCA IN MATERIALITY ASSESSMENT

Upstream	Commodity	Quantity sourced (ton)	Sourcing location	Land use (km ²)	Land use change (km ²)	Water use (m ³)	Climate Change (tCO ₂ - eq) <i>*All are from LULUC unless specified</i>	Water pollution (kg P)
	Cocoa	1,500	Côte d'Ivoire	29	1	6,000	15,690	11,600
		1,000	Ecuador	18	0.24	4,000	5,560	7,200
		2,000	Ghana	35	0.38	8,000	20,290	14,000
	Corn/maize	30,000	USA	27	0.38	1,890,000	29,100	10,800
	Paperboard <i>(Pressure estimates do not include timber production, which is recorded separately below)</i>	17,500	USA	4	0	154,000	23,931	299 <input type="text"/>
	Soy	10,000	Argentina	36	4	50,000	18,400	14,400
		25,000	Brazil	73	5	25,000	46,000	29,200
		10,000	India	96	3	230,000	28,700	38,400

SBTN LAND TARGETS V2

CHARACTERIZATION FACTORS

- ◆ **6 different impact categories** considered to be included in version 2 of SBTN Land targets: land transformation, land occupation, terrestrial eutrophication, terrestrial acidification, soil organic carbon loss, soil erosion.
- ◆ Worked with NTNU (Francesca Verones, Pinar Gulbeyaz, Martin Dorber) to identify best methods to quantify this impacts category at endpoint and midpoint level
- ◆ The availability of characterization factors underpins the ability of companies to estimate impacts across value-chains and define transition plans.

Impact Category	Endpoint	Midpoint
Land Transformation	Scherer et al., 2023	N/A
Land Occupation	Scherer et al., 2023	Huijbregts et al., 2016 (ReCiPe 2016), Pfister et al. (2011)*
Terrestrial Acidification	Verones et al., 2020	Huijbregts et al., 2016 (ReCiPe 2016)
Terrestrial Eutrophication	Zhou et al., 2024	Huijbregts et al., 2016 (ReCiPe 2016)
SOC	N/A	Teixeira et al., 2021
Soil Erosion	N/A	De Laurentiis (2019), Sonderegger et al., 2020*

SBTN LAND TARGETS Version 2

REGIONAL ECOLOGICAL THRESHOLDS

◆ **To deliver a relevant method for companies, STBN will need to quantify the spatially-explicit thresholds that define what nature needs** for the selected set of indicators of pressure to land systems at a place-based level, both in terms of avoiding further ecosystem degradation and loss, as well as the restoration actions which would assist in returning the system back to a stable state and resume proper functioning, if a threshold has been surpassed.

◆ **Thresholds quantify the boundaries around the human modification and use of terrestrial land systems.** The concept is similar to aligning climate targets with 1.5°C, which is the negotiated international limit, beyond which science predicts even greater and catastrophic impacts of climate change, as one of 9 planetary boundaries (Rockstrom et al, 2023 – LOOK FOR ACTUAL CITATION)

◆ **Ongoing thresholds work includes:**

1. Analyzing and comparing existing thresholds in the literature, including research generated by the Earth Commission, for their relevance and applicability to the SBT land work, and identifying where new research is needed for these thresholds to be defined, and
2. Generating spatially explicit thresholds at an ecoregion scale through collaborative research efforts with experts in the field. These thresholds will illuminate what different ecoregions need regarding SBTN's indicators for land systems to maintain resilience.

SBTN LAND TARGETS V2

WHAT'S NEXT?

- ◆ V2 Land Targets will expand on v1 targets by incorporating place-based thresholds and LCA impact accounting, as well as the learnings from v1 pilots. The first draft will be available by end of 2024 and the methods submitted to SBTN from the Land Hub by Mid 2024.
- ◆ SBTN will produce guidance (Step 4) to support companies in target implementation to make progress towards achievement whilst avoiding unintended consequences. LCA will be important to empower companies in estimating the potential benefits of practice changes by playing scenario analysis on the different available options.
- ◆ **Call to action:** the LCA community plays a crucial role in supporting the private sector in transitioning toward sustainable models. The more companies can determine their impacts and identify which practices will result in lower impacts and/or higher benefits for nature, the more we will be closer to nature-positive future.



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