Technical Guidance for Step 1: Assess and Step 2: Prioritize

Draft for Public Comment
September 2022

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Disclaimers for readers

Please keep the following disclaimers in mind as you review this content.

1. This consultation is open to the public and applies to the following documents: "Technical Guidance for Step 1: Assess", "Technical Guidance for Step 2: Prioritize", and "Technical Guidance for Step 3: Measure, Set & Disclose - Initial Freshwater SBTs".

2. The scope of the guidance documents in this public consultation are restricted to Steps 1 (Assess), 2 (Prioritize and Interpret) and 3 (Measure, Set, and Disclose) of the five-step SBTN Framework. Steps 4 (Act) and 5 (Track) will be addressed in later versions of SBTN's guidance.

3. These documents are the result of several iterative internal feedback reviews with SBTN's NGO and corporate partners conducted over the last year.

4. Companies are not able to start setting targets using SBTN's guidance until Q1 2023, at which point SBTN will release science-based targets for nature v1. SBTN will not recognize claims, public statements, or any targets coming from the use of this guidance before public approval in Q1 2023.

5. The guidance documents are written in technical language; the primary audience of this document are assumed to have the technical knowledge necessary to engage with this content. A more corporate-friendly version of this guidance will be published as part of the SBTs for nature v1 release in 2023.

6. Due to the technical nature of this content, feedback is requested from stakeholders with the following expertise: sustainability, environmental risk management, environmental and social science, ecology and conservation.

7. For further information about this public consultation, please visit [this site](#).

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Roadmap for SBTN guidance development

SBTN Roadmap
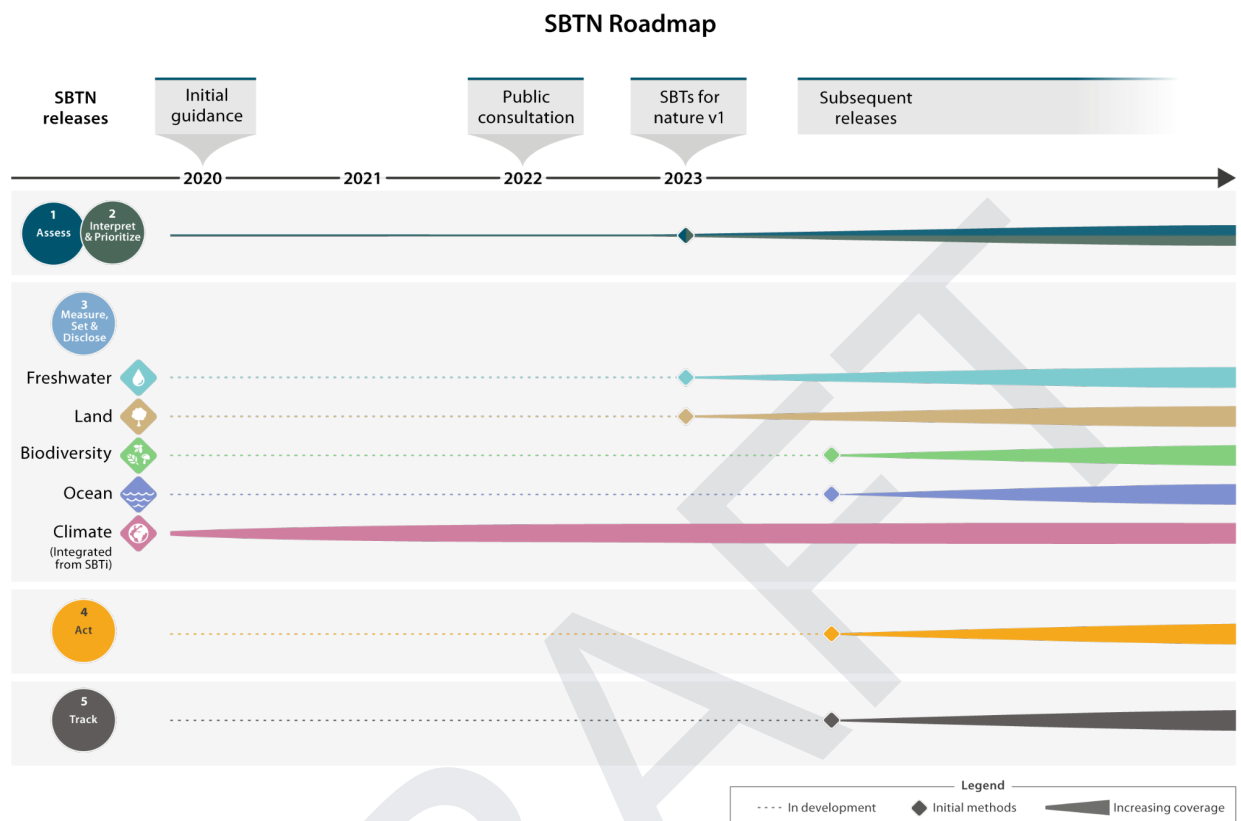
Dear Reader,

The first release of science-based targets for nature v1 will occur in early 2023. Ahead of this release, the Science Based Targets Network (SBTN) is seeking public comment on new technical guidance from the Network for companies, including initial target-setting methods for freshwater.

SBTN is a unique collaboration of over 60 leading global non-profits and mission-driven organizations, helping companies adopt a roadmap for integrated environmental action in the face of mounting environmental and social crises associated with nature loss. To complement existing science-based targets for climate through the Science Based Targets initiative, SBTN is developing science-based targets for nature: including freshwater, land, oceans and biodiversity. By using this guidance, companies can take actions aimed at mitigating their environmental pressures, and seize opportunities to tackle those dual crises.

In 2020, SBTN publicly issued its Initial Guidance for Business on science-based targets (SBTs) for nature. The Initial Guidance was the first introduction for the public to what science-based

targets for nature are, why they are important, and how they will work. It also identified "no regrets" actions consistent with the urgency of biodiversity and nature loss.

With that Initial Guidance, SBTN created a framework for companies to use to set SBTs for nature, and helped increase the familiarity of the business world with core concepts and tools to prepare for target setting.

With the release of SBTs for nature v1 in 2023, SBTN will make available a robust methodology that offers both guidance and tools to enable the first companies to set validatable targets.

SBTN guidance is developed using an iterative process, constantly evolving with feedback from partners, stakeholders and experts. Much of the forthcoming guidance has already been piloted, with significant corporate consultation via our NGO partners and Corporate Engagement Program. This guidance builds on the 2020 release to provide the additional detail requested by companies and other stakeholders.

SBTN is, by design, more detailed than other frameworks in the sustainability space, providing thorough step-by-step guidance at each stage of the process. The purpose of our guidance is to empower companies to deploy a clear, analytical approach for assessing and addressing their environmental impacts which has been tested and vetted by scientific experts.

Today we are starting the public consultation of these new guidance documents, which will be launched in early 2023. In reading the guidance documents provided, you will now be introduced to: prescriptive and flexible methodologies on how to proceed through the target-setting process; guidance on data needs and outputs for validation for each of the discrete steps; and guidance on tools, data, and metrics for use when calculating statistics for assessing pressures and the state of nature, and for setting targets.

The methodology for SBTs for nature v1 will address freshwater and land impacts, constituting a subset of the overall projected issues that the SBTN methods will cover. This version covers a subset of the types of targets that companies may eventually be able to set, reflecting the current state of science and technology. As SBTN's science teams advance our work to understand the key relationships between anthropogenic pressures and nature, we will be updating the scope of our guidance and recommendations.

Key advancements to look for in future versions (V2 and on) include additional guidance on biodiversity and ocean and the inclusion of additional sources of freshwater pollution, to name a few. We will also update guidance on tools and data in order to address noted gaps.

This guidance we are sharing today represents a milestone on our path toward SBTs for nature v1. Additional developments anticipated before Q1 2023 include:

- The release of initial land SBTs
- The release of an updated Sectoral Materiality Tool and High Impact Commodity Tool for companies to use in the prescriptive methodology for materiality screening in Step 1: Assess
- Data management approaches (templates and tools) to support companies with formatting and data provision in line with SBTN validation requirements
- A "SBTN Criteria and Recommendations" v1 document summarizing all required and optional steps including: concrete data requirements, scopes of all assessment steps, and the respective validation criteria for each step of the guidance
- A "Claims Guidance" v1 document stating what claims companies can make about their SBTs for nature, and where they are at in the target-setting process, including additional guidance on time horizons for target setting and re-assessment
- Stakeholder engagement guidance for companies to apply throughout their target-setting process

This public consultation marks a critical point in the development of SBTs for nature. It is your opportunity to provide input into our multi-stakeholder process to ensure the finalized guidance for companies released in 2023 is as robust, clear and practical as possible.

With this pioneering technical guidance for SBTs for nature v1, we aim to ensure companies take measurable steps toward assessing, mitigating, and managing their impacts on nature. By taking enough of the right actions, in the right places, and at the right time, companies can contribute towards an environmentally safe and socially just future.

We look forward to your input.

Varsha Vijay
Technical Director
Science Based Targets Network

Guide for readers

In 2020, the Science Based Targets Network (SBTN) released its Initial Guidance for Business.[1] This foundational guidance document introduced readers to the process of setting science-based targets (SBTs) for nature and the basic elements of the conceptual framework that underpins the Network's approach to developing target setting methods. For anyone getting started with target setting or just learning about SBTs for nature, it is recommended that they consult the Initial Guidance.

Building on the Initial Guidance, the SBTN Technical Guidance documents have been developed to provide the methodological detail requested by companies to set targets; they build on but do not completely replace the Initial Guidance for Business. Each Technical Guidance document developed is specific to a step in the full target setting process, and the *environmental pressures*[2] and scope of the *value chain*[3] covered by the guidance will vary depending on factors such as the availability of data and tools. Technical documents are expected to be expanded over time as datasets, tools and other methodological inputs improve.

To set SBTs for nature, companies are expected to follow five steps: (1) assessment of impacts; (2) interpretation of data and prioritization of locations; (3) baseline data collection, target setting, and disclosure; (4) action to meet targets; and (5) monitoring, verifying and reporting on progress over time.

Five primary steps of setting science-based targets for nature.

As of September 2022, Technical Guidance is available for Step 1: Assess and Step 2: Prioritize. By following the methods in this guidance, companies will be able to use methods for setting targets, as part of Step 3: Measure, Set, Disclose. For the September public consultation, Step 3 guidance will be provided for freshwater pressures of water use and water pollution. Step 3 guidance for land pressures will also be available in SBTs for nature v1, launching in Q1 of 2023.

These documents follow a rigorous internal review and piloting process with our NGO and corporate partners conducted over the last year.

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[1] Accessible here:
https://sciencebasedtargetsnetwork.org/wp-content/uploads/2020/11/Science-Based-Targets-for-Nature-Initial-Guidance-for-Business.pdf

[2] A key term used in SBTN, pressures are anthropogenic activities that have changed the state of the environment and ecosystem, including the addition or removal of substances or organisms to the environment, or direct changes to the structure, function, or composition of ecosystems.

[3] Another key term using SBTN, state of nature indicators describe the general conditions of nature in physical, chemical, or biological terms

Together, the release of this new technical guidance will guide companies through the target-setting process, enabling them to process, assess, and manage key material pressures within their value chains.

Connection with external frameworks

We highlight points of alignment between SBTN and existing climate and nature-based frameworks within the Technical Guidance documents including the Science Based Targets Initiative (SBTi), the Taskforce on Nature-Related Financial Disclosure (TNFD), the Natural Capital Protocol (NCP), CDP, the Biological Diversity Protocol (BDP) and Global Reporting Initiative (GRI).

SBTN ultimately intends to facilitate a streamlined target-setting process for companies, and enable companies to make progress towards multiple sustainability objectives in tandem. Making points of alignment explicit in SBTN documents is therefore intended to enable companies to use information already collected for other purposes when setting SBTs for nature.

Use of SBTN methods, alongside those from SBTi

Please note that all SBTN guidance and methods are intended to complement those developed by SBTi to facilitate target setting for climate. These methods do not override the guidance and requirements provided by SBTi, e.g. for assessing GHG impacts throughout all material value chain activities.

Language used in SBTN publications

SBTN uses terms such as "*shall*," "*must*," "*should*" and "*may*" in alignment with the Science Based Targets Initiative (SBTi).[4] These terms should be interpreted as indicating the following meanings:

- The terms "*shall*" or "*must*" are used throughout this document to indicate what is required for targets to be in conformance with the criteria.
- The related term "*required*" is used to indicate what is necessary to be in conformance with the criteria.
- The terms "*should*" or "*recommended*" are used to indicate a recommendation, but not a requirement.
- The related terms "*may*" or "*can*" are used to indicate an option that is permissible or allowable.

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[4] See https://sciencebasedtargets.org/resources/files/SBTi-criteria.pdf

Details on the public consultation

The public consultation period
- September 15th-October 14th
- During the consultation period, SBTN is soliciting targeted feedback on a suite of questions. Readers can access the feedback form here: https://forms.gle/r8o9S9mAqZk1a75E8
- Further questions should be directed to info@sciencebasedtargetsnetwork.org

What's next after the public consultation?
After the 4-week public consultation is completed, SBTN technical teams will review and integrate feedback into guidance which will then be submitted to an Expert Review Panel. Pending requests for revision from this panel, the technical guidance will be finalized, and a thematic summary of the feedback received and how it was addressed will be shared.

To support the use of the technical guidance, SBTN will create a "how to" corporate manual which can serve as the primary reference point for companies on their target-setting journey.

The corporate manual and technical guidance will be published as part of the first release of SBTs for nature in early 2023, which will provide a limited set of methods and coverage. Subsequent releases will increase the scope of target setting methods that SBTN, in line with the latest science and technical developments.

Technical Guidance for Step 1: Assess

1. Introduction to Step 1

The Initial Guidance for Business published by SBTN in September 2020 outlines a multistep process for setting science-based targets for nature (see Guide for Readers).

Figure 1. The five-step process for setting science-based targets for nature.

In this process, companies first screen their portfolio of **economic activities**[5] for materiality, and then estimate their contributions toward these through an assessment of pressures and impacts associated with each category of activity.

By using the Technical Guidance on Step 1: Assess, companies can determine which pressures[6] they most likely need to address with targets, and which parts of their business are the highest priority to get started with first. Within the context of the full methodology for setting SBTs, Step 1 is meant to be a quick and relatively simple assessment, giving companies a sense of materiality and where to invest their time and energy in the target-setting process. Regardless of their sector, geographic location, or level of sustainability experience, companies should be able to complete Step 1 of the target-setting process and gain an idea of the pressures that matter most for them to address.

Box 1. Details on the Step 1 and 2 technical development process.

The methods for Step 1: Assess and Step 2: Prioritize have undergone multiple rounds of consultation and iteration, including an internal consultation with 44 network partners and 167 SBTN Corporate Engagement Program members in January-February 2022. The final stages of development between May-August 2022 have been led by the SBTN technical team and facilitated by Metabolic with a working group of technical experts from: Capitals Coalition, CDP, Conservation International, Taskforce on Nature-related Financial Disclosures, The Biodiversity Consultancy, UN Environment Programme World Conservation Monitoring Centre, and the World Wildlife Fund.

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[5] SBTN defines *economic activities* as: the *production activities* where labor and assets are used to transform inputs of goods and services into outputs of other goods and services that can be sold on markets or transferred between units in other (non-market) forms. This excludes *non-productive activities* such as those performed by financial corporations, governmental units, non-profit organizations, and households that focus on the distribution, redistribution, consumption, saving, and accumulation of income.
[6] SBTN defines environmental pressures as "anthropogenic activities that have changed the state of the environment and ecosystem, including the addition or removal of substances or organisms to the environment, or direct changes to the structure, function, or composition of ecosystems."

1.1 Method Scope

1.1.1 Value Chain Scope

Companies <u>must</u> include the broadest possible coverage of their corporate activities as they start the method, with the expectation that this scope will narrow as companies get closer to applying target-setting methods and taking action to control their overall footprints. Many companies who engage with the SBTN target-setting methods have experience with other sustainability frameworks or approaches with guidance on value chain scope. Table 1 defines SBTN requirements and recommendations for company value chain scope relative to several commonly used frameworks.

*The current version of the SBTN methods including Steps 1 and 2 only cover **direct operations** and **upstream***, for the following reasons:
- better methods to assess impacts based on both primary and secondary data; greater confidence in estimates of impacts for these parts of the value chain
- less access to available methods and data for assessing downstream impacts
- greater clarity on how target setting will occur for these segments than for downstream

Guidance on how to assess a company's **downstream** impacts will be provided in future methods. This exclusion in the methods will inevitably bring certain caveats to the applicability of the methodology across different sectors, because for some sectors, downstream impacts to nature and people are of concern. Many of the companies in these sectors will *also* have impacts in their direct operations and upstream, making it critical that they complete screening for these portions of their value chain. Companies are encouraged to seek solutions for tracking and managing these impacts in the absence of methods and guidance from SBTN.

The following are sectors with noted downstream impacts on nature:[7]
- oil and gas - impacts include GHG emissions
- chemical production (fertilizer and pesticides) - impacts include water and soil pollution
- plastics - impacts include water pollution
- mining - impacts include GHG emissions and water pollution
- finance - impacts vary by industry
- internal combustion engine (ICE) manufacturing - impacts include GHG emissions

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[7] This list and associated impacts are informed by expert opinion. A refined list will be provided in future iterations of the guidance documents.

Table 1. *General description of value chain categories, applicable to most businesses.*
The column labeled SBTN contains SBTN requirements and recommendations for value chain scope. The other columns contain the same for Greenhouse Gas Protocol (GHGP), Biological Diversity Protocol (BDP) and Natural Capital Protocol (NCP), and Life Cycle Impact Assessment (LCIA).

	SBTN	GHGP	BDP & NCP	LCIA
Upstream	SBTN *requires* companies to assess and address the impacts associated with their purchased goods and services.[8]	Scope 3—Upstream activities. These include • purchased goods and services (Category 1) • capital goods (Category 2) • fuel and energy-related activities (Category 3) • upstream transportation and distribution (Category 4) • waste generated in operations (Category 5) • business travel (Category 6) • employee commuting (Category 7) • leased assets (Category 8)	Activities of suppliers	"Cradle-to-gate"—typically includes some combination of the following, depending on what the company does in-house versus what it outsources to other companies: • material or resource extraction • manufacturing and processing (before purchase by the assessing company) • packaging • distribution and storage (when using vehicles and facilities not owned by the assessing company)
Direct Operations	SBTN *requires* companies to assess impacts associated with all their directly owned or operated sites and facilities. SBTN *recommends* companies assess impacts from vehicles, if already accounted for in climate SBTs.	Scope 1—Activities of the reporting company. These include • production of goods and services • company facilities • company vehicles	Activities over which the business holds ownership or control	"Gate-to-gate"—depending on the activities owned or operated by the company, this can again include • material or resource extraction • manufacturing and processing • packaging • distribution and storage
Downstream	*SBTN does not currently require the assessment of downstream impacts.*	Scope 3—Downstream activities. These include • downstream transportation and distribution (Category 9) • processing of	Activities linked to the purchase, use, reuse, recovery, recycling, and final disposal of the business's products and services	"Gate-to-grave"—again depends on the activities owned and operated by the company, but typically includes • distribution and storage

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[8] SBTN is currently considering a *recommendation* that companies include coverage of impacts associated with Scope 2 (impacts associated with the purchase and consumption of electricity, including the production of energy, distribution of electricity, and heating or cooling of facilities used in direct operations.

		sold products (Category 10) • use of sold products (Category 11) • end-of-life treatment of sold products (Category 12) • downstream leased assets (Category 13) • franchises (Category 14) • investments (Category 15)		• activities associated with the use of a product or service (within households, other companies, or other users such as governments) • end-of-life (e.g., landfilling or incineration) • recycling

1.1.2 Pressure Scope

The methods for both Steps 1 and 2 will focus on pressure and state of nature variables that are covered by the Step 3 methods currently under development by SBTN for setting science-based targets (SBTs) for nature, as well as those that are covered by methods from SBTi for setting SBTs for climate. SBTN selection of these variables is influenced by the scientific literature on the factors driving the degradation and loss of nature.[9]

Pressure variables describe anthropogenic activities that have changed the state of the environment and ecosystem, including the addition or removal of substances or organisms to the environment, or direct changes to the structure, function, or composition of ecosystems. Important pressures in the SBTN methods include water withdrawals, habitat conversion, land management practices (e.g., overgrazing or tillage), pollution, and land use changes.[10]

State of nature indicators describe the general conditions of nature in physical, chemical, or biological terms. These state of nature indicators change in response to pressures. This interaction between human activities and the environment can be understood with reference to the DPSIR causal framework,[11] which SBTN utilizes throughout the target-setting methodology. Important state indicators in the SBTN methods include water availability, terrestrial ecosystem intactness, water quality, and ecosystem extent or connectivity.[12]

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[9] See IPBES 2019 Global Assessment for an overview of the literature and authoritative summary of the factors driving declines in the various components of nature. https://ipbes.net/global-assessment.

[10] Terminology note: While SBTN uses the term "pressures" in alignment with the DPSIR framework, other initiatives, such as TNFD and the Capitals Coalition, use the term "impact drivers" to describe these same factors within the causal chain of environmental change. SBTN reserves the use of the term "impact" to describe changes in functioning of nature, due to an accumulation in or amelioration of pressures (e.g., decreased pollination due to loss of habitat and food sources for pollinators, and improved regulation of water flows due to restoration of soils and riverine ecosystems).

[11] The DPSIR framework describes causal relationships in social-ecological systems between driver (D), pressure (P), state (S), impact (I) and response (R) indicators.

[12] Terminology note: While SBTN uses the term "state" in alignment with the DPSIR framework, other initiatives, such as TNFD and the Capitals Coalition, use the term "changes in natural capital" to describe these same factors within the causal chain of environmental change.

Companies following the SBTN methodology are _required_ to assess the eight pressures covered in the current SBTN guidance. These pressures are in focus because they are those for which SBTN has developed a method for setting targets (Step 3) (or for which these methods are in development). These pressures are shown in **black** in Table 2.

Companies are _not currently required_ to assess pressures shown in **gray** in Table 2. Though these pressures have been identified alongside the eight pressures in focus as significant contributors to the loss of nature, these are not yet addressed by SBTN's target-setting methods. Still, because these pressures can generate important impacts to nature, SBTN _recommends_ companies assess them whenever possible using available data and methods.

Table 2. Pressures managed with science-based targets for nature.

IPBES Pressure Category	SBTN Pressure Category
Ecosystem use and use change	Terrestrial ecosystem use and use change
	Freshwater ecosystem use and use change
	Marine ecosystem use and use change
Resource exploitation	Water use
	Other resource use (minerals, fish, other animals, etc.)
Climate change	GHG emissions
Pollution	Non-GHG air pollutants
	Water pollutants
	Soil pollutants
	Solid waste
Invasives and other	Disturbances
	Biological alterations/interferences

Table 3. Pressure-linked state of nature indicators relevant for the SBTN methodology.
The variables in this list are intended to serve as examples. Guidance on the use of specific indicators is provided in Step 1b: value chain assessment and Step 3: measure, set, and disclose. Biotic variables are shown in green, variables at the intersection of biotic and abiotic processes are in yellow, and abiotic variables are in blue.

SBTN pressure-linked state of nature variables
Ecosystem extent, connectivity (e.g., fragmentation) and integrity (e.g., habitat quality)
Species biodiversity (e.g., population dynamics, richness, extinction risk, and loss)
Nature's Contributions to People (i.e., Ecosystem Services)
Water quality
Soil quality
Air quality
Water availability
Precipitation
Temperature
Nutrient availability

1.1.3 Sector Applicability

All companies are encouraged to apply the methods developed by SBTN to assess material pressures (Step 1) and prioritize locations and business components for target setting (Step 2). Some aspects of the methods, including the language used in the guidance and recommended tools, may be more easily understood and used by certain types of companies depending on the complexity of their operations and value chains. Other aspects of the methods, including the scope of pressures covered and value chain scope within the SBTN methods, may result in some companies needing to consult additional resources to address other material pressures.

1.2 Data Needs for Step 1

Table 4 provides an overview of the data companies need in order to use the current Step 1 methods. Where needed, additional details on data requirements for each step and value chain category are provided within the methodology document. Data needed for each step of the target-setting process builds on what is collected and used for the previous step, so it is _required_ that companies will collect the data required for Step 1a before proceeding to Step 1b.

Key sources companies may wish to consult in order to access data include
- internal environmental data management systems
- financial departments
- procurement teams
- suppliers (contact with questionnaires)
- certification bodies
- industry coalitions
- tools appropriate for use in the assessment step (see Appendices 3-8)

Table 4. Overview of data requirements per step and value chain segment.

	Step 1: Assess
Objective of the method for this step	***For impact screening (Step 1a):*** Determine the material pressures *most likely* to require target setting by a company, based on sector-level information. ***For pressure assessment (Step 1b):*** Estimate a company's contributions to key environmental pressures across its operations and value chains and screen the state of nature in order to inform decisions about what to set targets on, for which parts of the business, and where in the value chain.
Direct operations	
Data needs	<u>***Required*** *for impact screening (Step 1a):*</u> • List of economic activities involved in the company's direct operations (aligned with ISIC Group or other equivalent sectoral classification). <u>***Required*** *for pressure assessment (Step 1b):*</u> • Secondary data[13] on pressures for all sites and locations within the company's organizational boundary. • Secondary estimates of state of nature (SoN) values per location, at least to country level. <u>***Recommended*** *for pressure assessment (Step 1b):*</u> • Primary data[14] on pressures for all sites and locations within the company's organizational boundary.
Associated with what parts of the company's data?	Operational sites within the company's organizational boundary with activities/commodities and their geographic locations.
Inputs and outputs	**Input:** • List of all directly owned or operated sites, location, and activity/commodity involved. **Output:**

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[13] SBTN defines **secondary data** as "Data that were originally collected and published for another purpose or a different assessment."
[14] SBTN defines **primary data** as " Data source collected firsthand by the company for use in this or other similar sustainability/environmental assessments."

	● Estimate of pressures per site/activity or product/commodity and state of nature (SoN) scores.
Upstream	
Data needs	**Required for impact screening (1a):** ● List of goods and services procured from upstream suppliers (Tier 1) (services aligned with ISIC Group or other equivalent sectoral classification). **Required for pressure assessment (1b):** ● Commodities or activities associated with all of the company's direct spend (Tier 1). ● List of high-impact commodities (both in raw and processed form) in the company's sourcing and upstream activities. ● Estimated volume or spend on high-impact commodities and other goods or services (e.g., distribution) procured from upstream suppliers. ● Estimated or modeled locations for highest-impact activity, by pressure, for each commodity/activity. ● Secondary estimates of state of nature (SoN) values per location, at least to country level. **Recommended for impact screening (1a):** ● Primary data on pressures (if available from Tier 1 or for commodities with high traceability). **Recommended for impact assessment (1b):** ● Secondary data on pressures for all other commodities and activities.
Associated with what parts of the company's data?	Commodities/goods, activities/services associated with all of the company's procurement data
Inputs and outputs	**Input:** ● List of procurement and activities (paired with supplier location or sourcing location) and including spend or volume. **Output:** ● Estimate of pressures and state of nature (SoN) per site/activity or product/commodity.

2. Screen for Material Pressures—Step 1a

Overview

Screening for material pressures in Step 1a enables companies to identify which pressure areas they will likely need to set targets on. This information can be used to set expectations for the company about the level of effort needed to address its key environmental pressures and to be compliant with SBTN validation requirements.

The guidance for the screening step is foundational for companies just getting started with setting targets for nature, and for those just thinking about sustainability action. It introduces companies to the pressures that will be managed by science-based targets, and also encourages companies to get a better understanding of their business and its different contributions toward environmental pressures. Both of these aspects of the screening step make this a key starting point for companies in the SBT-setting process.

Given that the information used for this step is based on sector-level, global averages, it will not provide an exact representation of a company's footprint for each pressure area. This screening sub-step is designed to help companies focus the scope of their target-setting efforts in subsequent steps of the method (such as data collection and baselining), and to give companies enough information to begin communicating internally about what the target-setting process is likely to entail (in terms of pressures and value chain segments covered).

As an output from this sub-step, companies will have a list of pressures by sector, activity, and/or associated commodities relevant to the company. Companies will be able to use an output template to organize this information. *Output templates are under development and will be made available in the v1 release.*

2.1 Define Scope of Assessment for Materiality Screening

Throughout the process of setting targets, the scope of pressures and the scope of the business become more focused based on materiality and potential for effective interventions.

The broadest scope of the company's direct operations to be covered in the assessment can be referred to as the ***organizational boundary.***[15] This boundary *must* be defined by companies before they begin applying the method for Step 1.[16] Once defined, the organizational boundary will dictate which parts of the organization *must* be considered in scope for the pressure screening step of the target-setting process (Step 1a). The scope of the business covered within the SBT-setting methodology may narrow as companies undertake the value chain assessment; see Figure 2.

Possible approaches for defining the organizational boundary include
- ***financial control***—based on the ability of the company to direct the financial and operating policies of an operation (e.g., if the company has the right to majority benefits, or if it retains the majority of financial risks and rewards of the operation)
- ***operational control***—based on the ability of the company or one of its subsidiaries to introduce and implement operating policies at the operation
- ***equity control***—based on the share of equity or economic interest that the company holds in an operation

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[15] Companies may have experience defining such a boundary if they have used this for greenhouse gas accounting and financial reporting.
[16] Note that for setting SBTs for climate and greenhouse gas accounting, companies use the organizational boundary as the basis for accounting or creating a precise impact inventory. In setting SBTs for nature, because this is more complex in terms of indicators required and methods for assessment, we use the organizational boundary as the starting point for the screening and assessment step. A more concise scope for inventorying impact is introduced in Step 3.

The choice of approach will dictate which subsidiaries and other activities are included within the direct operations scope of the target-setting process. By delimiting what is included within the company's direct operations, the organizational boundary will also define which activities will be accounted for when looking at the upstream and downstream segments of the company's value chain.[17] For more on the organizational boundary approaches, see GHG Protocol Corporate Standard, Chapter 3.[18]

To determine which activities to include within the organizational boundary used for setting SBTs for nature, companies are _recommended_ to use either the financial or operational control approach. Companies that have already set SBTs for climate using the Greenhouse Gas Protocol (GHGP) for greenhouse gas accounting _must_ use the same organizational boundary for setting SBTs for nature. This means that if a company is using the equity control approach for its SBTs for climate, then it must use the same one for its SBTs for nature.

When defining the organizational boundary, teams working on target setting can find information specific to the company in annual and financial reports, as well as internal reporting systems tied to procurement and environmental management.

Companies begin setting SBTs by first screening for material pressures across the entirety of their business, as determined using the organizational boundary concept (Step 1a). In the value chain assessment, companies will likely focus on a smaller subset of their activities (Step 1b).

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[17] As stated in Section 1.1 - Method scope, companies are not currently required to assess impacts associated with their downstream activities.
[18] For more detail on how to define the organizational boundary, see the Greenhouse Gas Protocol (Chapter 3): http://pdf.wri.org/ghg_protocol_2004_chp003.pdf.
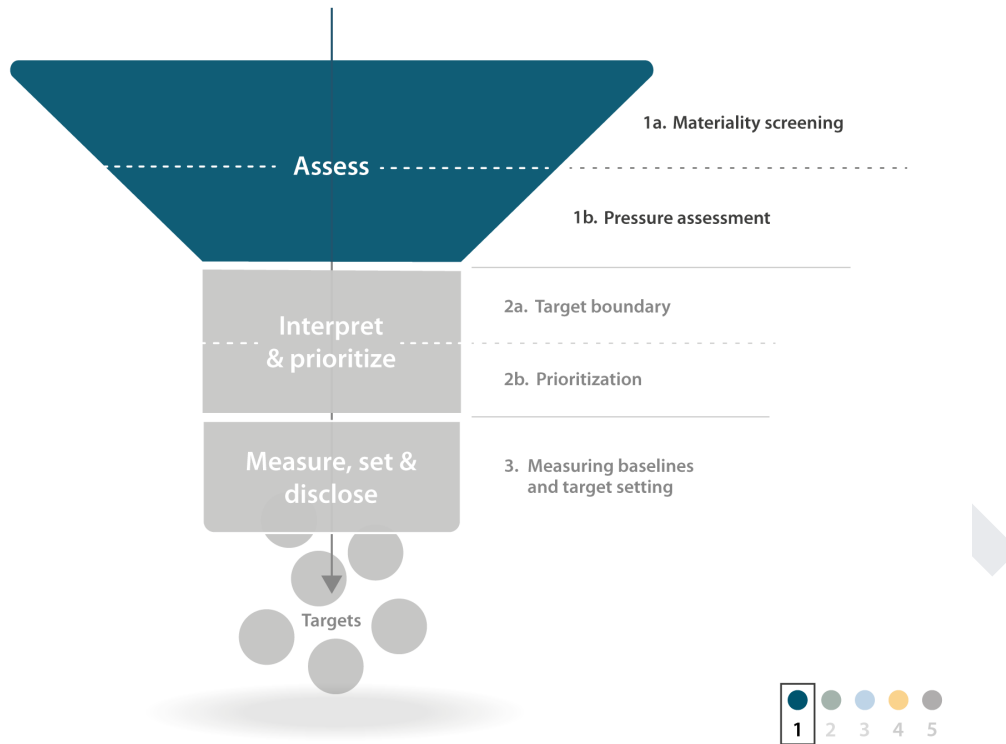
Figure 2. Narrowing the scope of the target-setting process.

2.1.1 List Activities Within Direct Operations

Regardless of the approach used for the material pressure screening (introduced in Section 2.2), companies will need basic information on the types of activities that characterize their business. This information on economic activities is commonly used by materiality tools to assess materiality, in datasets on impacts as the basis for organizing data, and for conveying information on impacts to users of those resources. This information (basic data on activities) will also be used by SBTN in order to verify comprehensive coverage of a company's most impactful activities in the short term.

To complete the materiality screening step (Step 1a), companies _must_ be able to classify all of their direct operations (see SBTN **data requirements** in Table 4) activities (e.g. products and services) into categories found in an economic activity classification scheme (e.g., ISIC4[19] or GICS[20]).

2.1.2 Conceptualize Value Chains

Once companies have defined the organizational boundary, specifying the activities that fall within their direct control or direct operations, they will then need to define which activities within the other parts of their value chains need to be included within the assessment for Step 1

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[19] Under ISIC, productive activities are classified into mutually-exclusive *categories* that are defined in terms of their inputs (goods, services, factors of production), processes and technologies, characteristics of their outputs, and the use of their outputs. See ISIC4 https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf.
[20] See https://www.msci.com/our-solutions/indexes/gics.

of the target-setting process. Companies *must* assess all value chain activities included in the SBTN data requirements table (Table 4).   For more information on how SBTN defines the different value chain segments, see Table 1 and Section 1.1: Method scope - Value chain scope.

Upstream

In Step 1, companies   <u>*must*</u>, at a minimum, screen impacts associated with the most environmentally impactful cradle to gate stage associated with all procurements of goods and services[21] These include activities related to **high-impact commodities** (HICs)[22] *and* all other upstream economic activities (classified as described above for direct operations) associated with their procurement data as described above.

Normally, the most impactful stage in the cradle to gate would be the primary production ("cradle") stage and companies <u>*must*</u> assess that stage. For some commodities, however, preprocessing or another stage may be more impactful. Companies will find information in SBTN's High Impact Commodity Tool to determine which commodities this would apply to; in these cases, companies <u>*may*</u> assess this more impactful stage, instead of the cradle stage. When assessing a stage other than "cradle stage" they <u>*must*</u> report their justification with references to the information source.

We <u>*recommend*</u> that companies first evaluate the activities related to the purchasing, processing, or production of high-impact commodities, using data provided by SBTN through the High Impact Commodity Tool (see prototype in Appendix 6) and other resources. We then <u>*recommend*</u> that companies evaluate additional goods and services from their procurement activities, ordered by spend, until ensuring that *all* of their upstream spend is included. Companies may be able leverage supplier relationships to access data more easily for upstream goods and services with a high spend for the company, allowing the company to complete Step 1 more quickly. These rules apply to the materiality screening step (Step 1a), and value chain assessment (Step 1b) for material activities and pressures.

Downstream

As stated in Section 1.1 - Method scope, *companies are not currently required to assess impacts associated with their downstream activities in Step 1a or in Step 1b.*

2.2 Select an Approach to Screen for Material Pressures

SBTN methods emphasize **environmental and societal materiality**, or the importance of pressures stemming from economic activities, due to their impacts on the environment (e.g.,

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[21] This would be all procurement from their Tier 1 upstream suppliers: all the partners that the company directly conducts business with, including contracted manufacturing facilities or production partners.

[22] SBTN defines **high-impact commodities** as: raw and value-added materials used in economic activities that are known to have material links to the key drivers of biodiversity loss, resource depletion, and ecosystem degradation. Activities associated with high impact commodities include: extraction of these commodities (e.g. mining, farming), clearing of lands for extraction, processing of commodities (into refined or value-added forms), manufacturing commodities into complex products (with additional inputs), distribution of commodities, and the procurement of commodities (in their raw, value added, or final form). The approach for compiling SBTN's initial High Impact Commodity List is explained in *Appendix 6* and is informed by peer reviewed literature, expert opinion and gray literature. SBTN is continuing to conduct research to identify additional commodities and their environmental impacts.

extinction of species, depletion of water, release of carbon, and other disruptions of ecological processes) and their impacts on humans (e.g., toxicity of water, depletion of essential foodstocks, removal of natural barriers to disease, and increased exposure to hazards like fires, heat, and floods). This perspective differs from the *financial perspective of materiality* typically used by companies, which emphasizes how environmental impacts will affect the company (e.g., through disruptions of supply chains, exposure to lawsuits or media campaigns, and loss of social license to operate).

By conducting a rapid materiality screening using the SBTN methodology, companies will understand which of their activities are likely to lead to environmental and social impacts, and are thus _required_ for further assessment in the SBTN target-setting process.

Options
- **A flexible approach**: Use available tools or models to determine which of the company's core economic activities are societally material. For this approach, companies can use resources included within the "toolbox" for Step 1a (see Appendix 3), or alternative tools that meet SBTN's data and tool quality criteria (see Appendix 4).
- **The prescriptive approach**: Use the Sectoral Materiality Tool (SMT)[23] and the High Impact Commodity List (HICL) developed by SBTN to conduct a quick screening of the pressures linked to a company's core activities and identify those that are most likely to be material for target setting. *The SMT tool and the fully functional HICL are under development and will be released with the SBTs for Nature V1. For more information on some of our in-progress outcomes for the SMT, please review Appendix 5.*

Box 2. SBTN approach to evaluating materiality.

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The information provided in this section is intended to improve readers' understanding of how SBTN interprets materiality. For companies using the SBT for nature methodology, it is recommended that the following aspects of materiality are considered:
- *Magnitude* (e.g., number of people affected, species affected, or extent of area impacted)
- *Irreversibility* (i.e., difficulty of remediating impacts)
- *Frequency of impact* (e.g., number of times the impact is expected to occur in order for a given economic activity to occur) – *Note: this may be captured in a magnitude estimate that accounts for the impacts of the activity as a whole*
- *Likelihood of impact* (e.g., confidence that an impact will occur, based on what is known about the economic activity)

These aspects may be assessed in some, but not all, tools available to assist with the screening of materiality (Step 1a), as well as those tools used for the subsequent steps of the SBT-setting methodology (including Step 1b and Step 3). Companies may choose to interpret either component (separate values representing aspects of materiality) or index values (combined and/or weighted aggregate materiality scores) in their evaluation of impacts.

Companies are therefore _recommended_, but not required, to consider all of these aspects. As the output of the screening step, companies should be able to provide estimates of the expected materiality of each of their broad activity categories, e.g., manufacturing vs. distribution.

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[23] *This tool is currently under development and is expected to be ready for public use in early 2023.*

If companies use tools or resources (including literature) to include additional aspects of materiality, they _must_ ensure it is clear how these aspects are weighed, and that this weighing is appropriate for the purposes of the screening step.

Companies _must_ follow guidance on reporting and interpretation of materiality scores as outlined in the SBTN flexible and prescriptive approaches below.

Requirements for Step 1a—Pressures to Cover

As stated in _Section 1.1 - Method Scope_, all companies _must_ conduct a high-level screening that covers eight of the key pressures driving the loss of nature.[24] Other pressures, such as non-GHG air pollutants, solid waste, disturbances, and biological alterations, _may_ be optionally included in the Step 1a assessment.[25]

Recommendations for Step 1a—Choice of Screening Approach

Companies that have a more advanced understanding of the societal materiality of their activities and have gathered data on their environmental pressures and impacts (including primary or secondary data) _may_ use the flexible approach to impact screening. In cases where companies have done primary data collection or an assessment of their unique footprint, the flexible approach is particularly useful, as it may be better able to deliver accurate results.

Once the SMT is available for use, we will _recommend_ that practitioners and companies new to sustainability assessments use the prescriptive approach. This approach is also _recommended_ in cases where a company is uncertain about whether its existing tools and data will meet the quality criteria established by SBTN (see Appendix 4).

2.3 Screen for Materiality

2.3.1 Flexible Approach

1. List the company's activities using a preferred economic activity classification scheme (e.g., ISIC4[26] or GICS[27]) and relevant production processes.
   - Activities should be selected based on the best information companies have available to describe their business, e.g., growing of rice, rainfed agriculture. Depending on the granularity of the tool or method used, companies should assess the material contributions of each activity in the company's direct operations and upstream separately (e.g., manufacturing of steel should be assessed separately from the construction of buildings).
2. Assess, for all of the company's direct operations and upstream activities, the estimated materiality score (reference Box 2 for description of materiality values consistent with

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[24] These pressures include terrestrial ecosystem use and use change, freshwater ecosystem use and use change, marine ecosystem use and use change, water use, other resource use (minerals, fish, other animals, etc.), GHG emissions, soil pollutants, and water pollutants.

[25] As noted in Section 1.1, these are considered optional because there are no target-setting methods under development by SBTN to address these pressures.

[26] See https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf.

[27] See https://www.msci.com/our-solutions/indexes/gics.

SBTN methods) for each of the eight key pressure categories,[28] using a preferred resource.

3. Companies using previously collected information should consult the definitions of pressures and the interpretation of materiality used by SBTN in order to ensure their method will be defensible within the SBTN validation process.

4. To cross-reference between third-party approaches and those suggested by SBTN, see Natural Capital Protocol for definitions of pressure categories[29] and technical documentation and interpretation guidance provided by tool developers and third parties.

5. For materiality assessments conducted using the flexible approach, companies _must_ report both the estimated materiality of their economic activity for each of the eight key pressure categories and the maximum materiality value by pressure (e.g., a given tool may estimate a materiality score of 5 for water use with a maximum allowable score of 10; both values must be reported for validation to SBTN). This value is typically a provided output of the tool.

6. Companies _must_ use the interpretation guidance provided by SBTN below in order to determine which pressures _must_ be included in the value chain pressure assessment (Step 1b), and _will likely_ require targets (Step 3).
   ○ Companies may use a qualitative assessment of the score to determine which activities and pressure _must_ be assessed further (reporting both the estimated materiality score and maximum values for validation as stated above).
   ○ If the distribution of scores by pressure is available, the company may use a threshold, calculated as the median value by pressure, to determine which activities and pressures the company _must_ continue to assess. For example, as in the previous case, the score for water use may be 5 but the median value for water use across sectors is 4, indicating the company _must_ continue to assess that activity for water use. If using this approach, companies _must_ report both the materiality value and the threshold.

7. Companies _must_ record the outcome of the assessment of impacts material to the business for direct operation and upstream activities separately.

8. To complement the insights of the chosen assessment of materiality, companies may use the High Impact Commodity List (full functionality to be available in early 2023). This list will help the company determine which environmentally significant commodities are associated with their business.
   ○ The list will include the sectoral codes for the activities most closely related to the production, manufacturing, and other key activities for the commodities.
   ○ Note that this list may be used by companies purchasing commodities, as well as those involved directly in the growing, processing or other life cycle steps of commodity production to assess significance.

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[28] Companies must currently assess terrestrial ecosystem use, freshwater ecosystem use, marine ecosystem use, water use, other resource use, climate change, soil pollution, and freshwater pollution.
[29] See https://capitalscoalition.org/capitals-approach/natural-capital-protocol/?fwp_filter_tabs=guide_supplement for more information.

9. Record outputs in the template for the materiality screening step (Step 1a) (see example in Box 3).
    ○ *Output templates are under development and will be made available in the SBTs for Nature v1 release.*
10. Provide details of the methods, tools, and resources used for your screening step, as well as the rationale for inclusion and exclusion of activities and pressures.[30]

2.3.2 Prescriptive Approach
1. List the company's activities using a preferred economic activity classification scheme (e.g., ISIC4[31] or GICS[32]) and relevant production processes.
    ○ Activities should be selected based on the best information companies have available to describe their business, e.g., growing of rice, rainfed agriculture. Depending on the granularity of the tool or method used, companies should assess the material contributions of each activity in the company's direct operations and upstream separately (e.g., manufacturing of steel should be assessed separately from the construction of buildings).
2. Select the relevant sector and production process categories within the Direct Operations tab of the Sectoral Materiality Tool (SMT).
    ○ These categories are provided as ISIC Group (the three digit score in the hierarchical ISIC classification).
3. Review the pressure estimates generated by the tool for each of its activities within the company's direct operations.
    ○ SMT materiality scores are calculated based on the ENCORE[33] impact materiality database.
4. Generate a list of upstream activities linked to each of the direct operations activities.
    ○ *Pending further technical development. SBTN is investigating approaches for this work including input-output models.* The tool will likely link direct operation activities to expected upstream activities based on sector estimates and provide percentage values (based on spend) for their contribution to the direct operations activity.
5. Review the tool-generated list of upstream activities, and refine based on the particularities of the company (e.g., exclude oil and gas production from upstream energy sources if the company is only sourcing from renewables).
6. Generate list of high-impact commodities (HICs) linked to the company's direct operations and upstream activities.
    ○ *Pending further technical development.* The tool will link HICs to direct operations and upstream commodities based on existing environmental activity and trade data. The High Impact Commodity List (HICL) used for this analysis is based on

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[30] This evidence must comply with the data quality criteria (see Appendix 4).
[31] See https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf.
[32] See https://www.msci.com/our-solutions/indexes/gics.
[33] See https://encore.naturalcapital.finance/en.

novel SBTN research and expert input from the SBTN network. The linkages between commodities and sectors are based on the ISIC classification system.

○ Note that the HICL may be used by companies purchasing commodities, as well as those involved directly in the growing, processing or other life cycle steps of commodity production to assess significance.

7. Review the list of HICs highlighted by the tool as being most relevant, and refine based on the particularities of the company.

○ Companies should sense-check if commodities listed are truly part of their economic activities, products, or services.

8. Companies _must_ use the interpretation guidance provided by SBTN in the SMT in order to determine which pressure categories _must_ be included in the value chain pressure assessment (Step 1b), and _will likely_ require targets (Step 3).

○ The SMT uses a threshold, calculated as the median value by pressure, to determine which activities and pressures the company _must_ continue to assess.

9. Companies _must_ record the outcome of the assessment of impacts material to the business for direct operation and upstream activities separately.

10. Record outputs in the template for the materiality screening step (Step 1a) (see example in Box 3). _Output templates are under development and will be made available in the v1 release_

Box 3. Using the impact assessment method example - fictional case of Ursus Nourishment (Part I)

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* Please note that this is a fictional case using data generated by SBTN. The complexity of this example may not depict the full complexity of a real company.

Ursus Nourishment is a food and beverage producer. The company specializes in plant-based drinks and food and reaches a global market of consumers. Their directly owned and operated manufacturing facilities are clustered in Belgium, France, Germany, Spain and the United Kingdom. Their upstream and downstream activities are dispersed across the globe. They import major commodities (directly or indirectly) including almonds, cacao, cashews, coconut, rice, soybean, oats, timber (paperboard) as well as other ingredients, such as sugar and additives.

The company is eager to get started with setting SBTs for nature, but is unsure how much effort it will require. Corporate leadership tasks a small team of folks from across different departments to trial SBTN's draft methods.

To begin, the team decides to look first at the impacts associated with the company's upstream (procurement-related) and direct operations.

For Step 1a, the team at _Ursus Nourishment_ was able to determine the categories which best describe the core of its business:

- Class 1079: Manufacture of other food products n.e.c.
- Class 1025: Growing of non-perennial crops
- Class 8292: Packaging

Using the Sectoral Materiality Tool (currently under development by SBTN), the team was able to define the following

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materiality values for each pressure and activity.

Table 5. Materiality scores by ISIC group and production process for Ursus Nourishment.

Pressure category	Materiality threshold *for each pressure*	Materiality scores at sector-level		
		Manufacture of other food products (ISIC Group 107)	**Growing of non-perennial crops (ISIC Group 011)**	**Packaging (ISIC Class 8292)**
Terrestrial ecosystem use	6	4	6	6
Freshwater ecosystem use	4	ND	5	ND
Marine ecosystem use	4	ND	ND	ND
Water Use	5	5	6	5
Other resource use	4	5	6	5
GHG air pollutants	5	6	6	6
Non-GHG air pollutants	3	5	4	4
Water pollutants	4	4	4	4
Soil pollutants	4	3	4	3
Solid waste	5	5	4	5

: Very High, : High, **4** : Medium, **3** : Low, **2** : Very low, ND : No Data

Using the ISIC Rev 4 system, the team was also able to categorize some of its upstream activities and screen for materiality using this information.

To get started with the upstream assessment, the team reviewed their procurement sheet for traces of high impact commodities, recorded as volumes or spend on raw materials or commodities themselves, as well as ingredients, semi-finished and finished goods made during transformations of the raw commodity.

When looking at the High Impact Commodity List published by SBTN, they found that six of their core inputs were included in the list:
- Cocoa – imported as both powder and butter
- Corn/Maize – imported as for oil and syrup
- Soy (bean) – used for beverages
- Sugar cane – used as a sweetener
- Timber – used for packaging
- Tree nuts (Almonds & Cashews) – used for beverages, desserts, powders, oil and yogurt

Table 6. Materiality of key commodities, based on SBTN High Impact Commodity List

Pressure category	Expected materiality, per commodity					
	Cocoa	**Maize**	**Soy (bean)**	**Sugar cane**	**Timber**	**Tree nuts**
Terrestrial ecosystem use	*Concern during raw material production*	*Concern during raw material production and extraction phase*	*Concern during raw material production and extraction phase*	*Concern during raw material production and extraction phase*	*Concern during raw material production and extraction phase*	*Concern during raw material production and extraction phase*
Freshwater ecosystem use	ND					
Marine ecosystem use	ND					

Water Use	Concern during raw material production phase	Concern during raw material production phase	Concern during raw material production phase	Concern during raw material production phase		Concern during raw material production phase
Other resource use	ND					
GHG air pollutants		Concern during raw material production phase	Concern during raw material production phase	Concern during raw material production phase	Concern during raw material production and extraction phase	Concern during raw material production and extraction phase
Non-GHG air pollutants	ND					
Water pollutants	ND	ND	Concern during raw material production phase	Concern during raw material production phase	Concern during raw material production phase	Concern during raw material production phase
Soil pollutants	ND	ND	Concern during raw material production phase	Concern during raw material production phase	Concern during raw material production phase	Concern during raw material production phase
Solid waste	ND					

2.4 Interpret Materiality Screening Assessment

This section provides guidance on how to interpret the outputs of the materiality screening assessment as it pertains to the subsequent steps of the SBT-setting methodology. The recommendations and requirements here will be linked to the validation criteria used by SBTN when reviewing submissions.

Targets should be understood as specific to data on companies' direct operations and upstream activities; companies therefore _must_ treat data for these value chain segments separately as they progress through the rest of the methodology from Steps 1-3. When setting targets in Step 3, companies will set targets separately for impacts occurring within their direct operations versus their upstream supply chain. Monitoring progress against these targets (Step 5) will also be done separately.

Requirements for Scope of Pressures and Activities Covered in Subsequent Steps
- Companies _must_ continue to assess and commit to set targets for all _pressures_ for which they have any activities where values are either
    - Greater than or equal to the given threshold for materiality in the SMT (Prescriptive approach),
    - Of concern, based on the materiality score relative to the highest value for that pressure[34] (Flexible approach), OR

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[34] Note this should be provided in the value range for the tool used.

- Greater than or equal to the median materiality value by pressure (Flexible approach)

Both options for the flexible approach must be documented using the following guidance for validation.

These requirements are specific to pressures that <u>must</u> be addressed by targets. These requirements will determine which tools and methods are appropriate for use in the subsequent steps of the methodology (Step 1b—value chain assessment, Step 2—interpretation and prioritization, Step 3—target setting), as different resources will vary in their ability to assess all pressures. The requirements regarding activities shape the corporate scope of the subsequent steps. Because the screening step is based on coarse, sector-level information, the outputs can only be used to recommend which activities <u>should</u> be the focal point of companies' efforts to address key pressures. Whereas the data used in Step 1 is sufficient for determining priority pressures for target setting, companies will only confirm which activities <u>must</u> be included within their target boundaries and strategies for target setting after having used the Step 2 methodology.

Note that the relative materiality of activities flagged during the materiality screening assessment will be particularly important for companies using a business unit approach for assessment and target setting.

Box 4. Using the impact assessment method example - fictional case of Ursus Nourishment (Part II)

Looking at SBTN's validation criteria for Step 1a (Section 1.2 and 2.4 of the Technical Guidance on Step 1: Assess), the team determines the following pressures must be included in their value chain assessment:

- Terrestrial ecosystem use (and use change)
- Freshwater ecosystem use (and use change)
- Water use
- Other resource use
- GHG emissions
- Water pollution
- Soil pollution

Of the three activities within their direct operations assessed, the team finds that the activity of growing and producing the raw commodities is consistently most intensive across the pressure categories. The team judges this intensity as the number of pressures per activity above the mean materiality score for each pressure in the dataset consulted. Given the SBTN guidance, they still plan to assess all aspects of the company's direct operations, but will note that particular attention might be needed on crop production.

For the upstream assessment, Ursus must eventually assess all impacts associated with their procurement. The team begins with focusing on the value chains connected to the commodities on the SBTN High-Impact Commodity List.[35] Though the team knows that they will need to assess impacts associated with all of their procurement-related activities within the scope of their assessment, they begin with these commodities to get a better understanding of the SBTN process.*
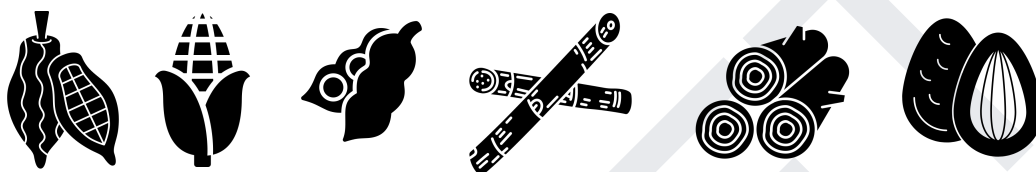
Note for readers: Companies will need to complete the value chain assessment for all of their direct operations, and for all activities/services and commodities/goods which they source directly (i.e. from Tier 1 suppliers or service providers). For the simplicity and brevity of this case study, we focus on just the assessment of the high impact commodity value chains.

Icon credits from the Noun Project[36]

3. Estimate Value Chain Pressures

Overview

The objective of this section is to estimate the ***pressures*** on nature that a company generates and to identify the geographic areas in which these pressures are particularly harmful to the ***state of nature (SoN)***. Companies can do this either by gathering environmental data where it is already available, or estimating this for the first time. A company <u>shall</u> then estimate their contributions to each pressure separately, within each of the value chain segments in focus for this version of the SBT for nature methods: direct operation and upstream.[37]

Box 5. Differentiating between Step 1 and Step 3

In the value chain assessment for Step 1, companies <u>must</u> estimate their pressures and state of nature. For this value chain assessment, companies can use primary or secondary data, at varying levels of spatial granularity (e.g., country-level or sub-national). However, when baselining and target-setting in Step 3, companies <u>must</u> move to a more precise quantification of pressures and impacts for baselining, and use a more granular spatial scope (specific to the target-setting methods). For the value chain assessment (Step 1), a company could use precise data for the pressure assessment, and therefore use this information as well when baselining (Step 3). To ensure compatibility of data, companies using the Step 1 method should use SBTN

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[35] See Appendix 6 for details on this list.

[36] Image credits: "Factory" by Dinosoftlab from <u>the Noun Project</u>; "Farmland" by Symbolon from <u>the Noun Project</u>; "Milk" by Hilmy Abiyyu Asad from <u>the Noun Project</u>; "Cacao" by rdesign from <u>the Noun Project</u>; "Corn" by Andi Nur Abdillah from <u>the Noun Project</u>; "Soybean" by Aficons from <u>the Noun Project</u>; "Sugarcane" by Amethyst Studio from <u>the Noun Project</u>; "Timbers" by Lars Meiertoberens from <u>the Noun Project</u>; and "Almond" by VectorsLab from <u>the Noun Project</u>

[37] See *Section 1.1 - Value chain scope* for more information on what should be included in the assessment.

recommendations on indicators and tools to ensure that the choices of pressure and SoN data are compatible with the methods for target setting (Step 3).

Pressures Covered in the Value Chain Assessment

Companies _must_ assess the contributions of their activities to all pressures flagged as material in Step 1a. Companies _may_ assess their contributions to additional pressures while collecting data for Step 1b, but to fulfill the requirements of this method and be able to set SBTs using Step 3 methods, additional pressure data collection is not required.

Table 7 summarizes the pressures companies must assess their contributions towards and the preferred metrics to use for this assessment. Please note, these **indicators**[38] are essential for gathering information to inform prioritization decisions (i.e., for Step 1 and Step 2), but may not be the exact list of indicators used for setting targets (i.e., for Step 3). As well, the list of preferred metrics is subject to change in response to advances in the study of environmental impacts and dynamics, innovations in environmental monitoring and modeling (tools and data), and as the SBT-setting methods are updated.[39] See Appendix 4 for guidance on spatial and temporal resolutions to use when estimating pressures, and Appendix 7 on _list of value chain assessment tools under consideration for V1 release_.

Table 7. Environmental pressure indicators recommended to be used in the value chain pressure assessment (September 2022).[40]

IPBES Pressure Category	SBTN Pressure Category	Metric
Ecosystem use and use change	Terrestrial/freshwater/ marine ecosystem conversion	Area (km^2 or ha) converted, by pre-and post-conversion ecosystem use and ecosystem type[41]
	Terrestrial/freshwater/ marine ecosystem use (occupation)	Area (km^2 or ha) used, by ecosystem use, and including the management practices[42]

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[38] SBTN defines **indicators** as "A specific metric used to track performance or progress (positive or negative change) against a goal or target."

[39] As an example of how this list is subject to updating over time, some reviewers may notice that indicators for pressures such as biotic resource use, invasive alien species, short-term disturbances like light pollution, additional pollutants beyond nitrogen and phosphorus, and fragmentation of rivers from dams or other infrastructure are not included above, despite being previously acknowledged by SBTN as significant pressures fueling the loss of biodiversity. _These indicators are not directly applicable for use with the methods under current development, hence companies are not asked to estimate their contributions toward these at the moment._ This may change in the future according to future SBTN method development.

[40] Spatio-temporal guidance on best practice for pressure estimation is provided in Appendix 4 and in the Step 3 methods.

[41] For a standard classification scheme, SBTN will draw from IPCC 2003, which identifies six categories of land use: forest land, cropland, grassland, wetlands, settlements, and other land, including infrastructure and human settlements, and from AFI 2020, which identifies a seventh category: plantation, which must be accounted for when measuring deforestation and conversion.

[42] Please note: as part of a company's contributions toward land/terrestrial ecosystem use, intensity of use will also need to be quantified. Today, we expect that the intensity of use will be approximated based on the company's contributions toward the other key pressure categories, such as pollution, resource exploitation, and invasive alien species. _Further guidance on accounting is forthcoming._

Resource use	Water use	m^3 or km^3, per source (surface water, ground water, etc.)[43]
	Other resource use	*Recommendations on metrics pending SBTN technical development*
Climate change	Greenhouse gas emissions	GT CO_2e, per activity estimated separately for industrial activities and land-based emissions; tCO_2/t (product, e.g., cement or steel) or gCO_2/spatial unit
Pollution	Soil pollution	mol N, P and H+ eq/(ha)
	Water pollution	kg N, P eq; total or concentration (%) in discharged water (and volume of these discharges)

3.1 The Scope for the Value Chain Assessment

Companies _must_ *eventually* assess all material aspects of their organizational boundary (as determined in Step 1a) as well as the value chains associated with this when using the method for the value chain assessment (Step 1b).[44] However, after completing the materiality screening for their full organizational boundary, companies with complex operations may focus on discrete parts of their business in the value chain assessment (Step 1b) and use of SBT-setting methodologies (Step 3). These discrete parts, known as **business units**, correspond to geographic regions, industries, or brands (see Appendix 2).[45]

To select which business units to begin with, companies _must_ use the outputs of the materiality screening (Step 1a) to determine activities with material contributions toward key pressure categories, which could be managed through target setting (see *Section 2.3 - Screen for materiality*). To exclude business units with activities warranting further analysis, companies _must_ justify exclusions and provide sufficient evidence.[46]

In addition to evidence proving materiality from a **societal or environmental perspective**, companies _may_ wish to prioritize business units that account for the majority of their overall spend or revenue (i.e., they may wish to consider materiality from a **financial perspective**). Guidance on time horizons and claims for business unit approaches is forthcoming (see Appendix 2).

Within their direct operations, companies _must_ estimate and assign location data to the pressures associated with 100% of all sites and activities which they directly own and operate. Within their upstream, companies _must_ estimate and spatialize the pressures associated with

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[43] SBTN is considering including net water consumption as an optional indicator for companies whose water use is better captured by this indicator. Given that the location, time, and quality of the water returns would affect the impact of the water use, the criteria to use this indicator is still under development.

[44] Time horizons of the validity of assessment are forthcoming.

[45] Appendix 3 covers how to define a business unit, and how to use the methodology for Steps 1 and 2 with a business unit scoping approach.

[46] Additional guidance on evidence for business units to be provided in validation documentation.

all commodities identified on the SBTN **High Impact Commodity List**,[47] as well as any additional commodities, goods, and services that comprise their total spend. These rules apply for companies using the business unit approach to simplify the assessment, as well as those covering the full scope of their direct operations and upstream activities.

Table 8 provides an overview of the value chain segments, including descriptions and details of the activity assessment boundaries recommended for inclusion in this version of the Step 1 value chain assessment method.[48] Companies should reference guidance in Section 1.1 - Value Chain Scope and Table 1 for additional details on the activities to include in the assessment of each value chain category and Section 2.1.2 for more methodological guidance on upstream analyses.

Table 8. Assessment boundaries for value chain segments in the pressure and state of nature assessment.

Value chain segment	Description of activities	Minimum pressure assessment boundary
Direct Operations	100% of sites and facilities within defined organizational boundaries *Vehicles optional*	All pressures generated at or by those facilities in the year of assessment
Upstream	All high-impact commodities, as well as other goods and services associated with the company's spend	All upstream pressures generated by the activities (from cradle-to-gate) required to create HICs sourced from upstream suppliers in the year of assessment, as well as cradle-to-gate impacts generated in the production of other goods and services for that year.

3.1.1 Screening for Readiness

Before beginning the value chain assessment, *it is recommended* that companies determine where they have complete, missing, or partial data available for getting started with target setting. This can be done in reference to the data needs outlined in Table 4. Companies may be able to leverage past assessments and data collection efforts for the process of setting science-based targets. Past efforts likely to be helpful to companies completing the value chain assessment (and the rest of Steps 1 and 2) include

- certifications or other investments in supply chain traceability

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[47] Note again that this rule applies to the direct and indirect procurement of commodities. Companies must include all commodities received in their raw form, as well as value-added commodities, and products containing those commodities. See SBTN's initial list of high-impact commodities in Appendix 6.
[48] Note this is the basic scope of activities we recommend companies include; companies in certain sectors may wish to also assess the activities associated with additional value chain categories.

- product or enterprise-level impact assessments following standardized life cycle impact assessment methods (e.g., those from the International Standard Organization, ISO)
- greenhouse gas accounting and data used for setting science-based targets for climate
- water impact accounting and data used for setting enterprise-level water targets or context-based water targets
- applications of the Natural Capital Protocol
- information collected for reporting to CDP on water or forests
- information collected for disclosing in line with the GRI, particularly the standards on material issues, water, and biodiversity
- information collected for the TNFD disclosure requirements

Note that while companies' engagement in the initiatives mentioned above can lead to more and better data being available for use in the target-setting process, companies will only introduce information on existing sustainable practices during the baselining assessment in Step 3, not in Steps 1 and 2.[49]

SBTN _recommends_ that companies complete a pressure and state of nature assessment for all parts of their business for which they have the required data, while continuing to collect data to fill gaps for those where they are not yet able to meet the SBTN requirements. See Appendix 2 for more details on increasing coverage from business units to enterprise-wide.

Table 9 can be used by companies to record the type of information companies currently have on hand for the value chain assessment. Based on this table, they can get a quick sense of their "data readiness" for target setting.

When screening for readiness upstream, companies may wish to specify whether they have better data available for certain commodities, activities, goods, and services. For many companies, location data for upstream activities may initially be a barrier to setting science-based targets. To get started today, SBTN recommends that companies use approximated location data (e.g., for sourcing of a commodity like cotton), based on footprinting and pressure/impact assessment tools and global trade datasets.

Table 9. Readiness screening template for companies planning to assess their whole business.

Each row should represent an activity (goods or services), separated by direct operations and upstream, allowing companies to distinguish data readiness between each row (good/service). If using a business unit approach, rows should be associated with both activities and business units (keeping distinction between direct operations and upstream). This allows companies to distinguish data needs for a given activity between business units.

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[49] These practices are only considered once companies have determined the specific locations and activities that they will manage with targets. This will allow for the evaluation of efforts within a specific context, using appropriate indicators.

	Descriptions of activities (direct operations), and goods and services (upstream)	Pressure data (e.g., water use)	Location data (e.g., countries)	State of nature data (e.g., water availability)
Direct Operations				
Upstream				

3.2 Estimate Contributions Toward Environmental Pressures

For the value chain assessment, multiple methodological pathways are possible, depending on the type of data available to companies. These options are described in the following sections, and will be illustrated using workflow diagrams.

3.2.1 Direct Operations

For the value chain pressure assessment, companies _must_ estimate pressures for 100% of the sites and facilities they own or operate. For each site or facility, the pressures covered _must_ correspond to the pressure categories flagged as potentially material in Step 1a.[50]

The spatial resolution of pressure data _should_ be at the finest spatial resolution possible to represent the site being evaluated (site-scale). When using direct measurements (primary data on pressures),[51] they _should_ be collected at the site scale, allowing for aggregation to appropriate scales for further analyses (see Appendix 4 for guidance on tool and data criteria). See the case study in Box 6 for an example of how a company can format results for their direct operation pressure assessment.

Where available, companies _must_ use primary data on pressures. In some cases, to estimate the pressures for all of their direct operations sites and activities, companies may need to estimate pressures. In those cases, companies _can_ employ alternate approaches to estimate their contributions toward pressures as required for the direct operations portion of the value chain assessment.

These estimates primarily draw on life cycle assessment approaches to estimate pressures, based on both resource use (inputs) and production impacts (outputs) for activities at the sites in scope for the assessment.[52] Pressure estimates or measurements _must_ be representative of the actual activities undertaken at each operational site.

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[50] In other words, companies must estimate total pressure contributions for each pressure category in which they had activities with expected pressure contributions above the global average. Pressure categories for the value chain assessment are listed in Table 7.
[51] For both direct operations and upstream impacts, in cases where companies have collected primary data for some of these pressure indicators (e.g., GHG emissions for operational sites), they _must_ opt for utilizing these pressure quantifications rather than using modeled estimates.
[52] See Life Cycle Initiative: https://www.lifecycleinitiative.org/starting-life-cycle-thinking/life-cycle-approaches/environmental-lca/.

The three main approaches for pressure quantification in this methodology are
- Direct estimation (primary data on pressures)—*preferred option (must be used if available)*
- Estimation through use of quantitative modeling (secondary data on pressures)
- Modeling estimates of pressures based on primary data about the activity, spend/quantity, and geographic location

See Figure 3 for a simplified diagram of the workflow for the direct operations value chain assessment.
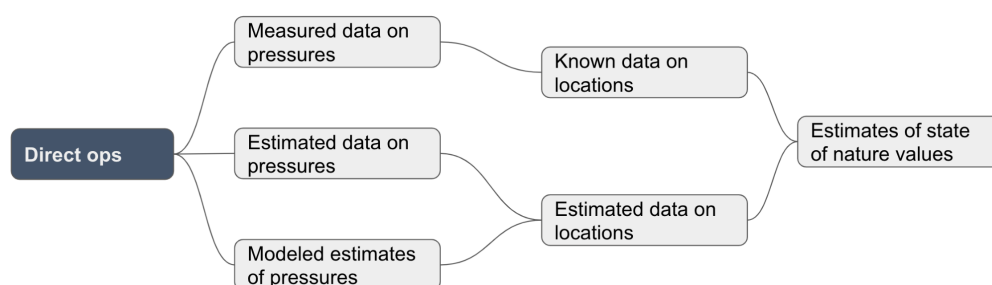
Figure 3. Overview of data collection pathways for direct operations segment of the value chain assessment.

Companies are *recommended* to select tools and resources for pressure estimation, when primary pressure data are not available, based on both the amount of available company data and the pressures they *must* assess after materiality screening. These include models like environmentally extended input-output (EEIO) tables (e.g., EXIOBASE or Eora) or life-cycle impact inventories (e.g., ecoinvent). See additional tools available to support the Step 1b pressure assessment in Appendix 7.

Note: The information compiled during this exercise is for referencing by the company during the target setting process. Some of this information will need to be submitted to SBTN for validation but, per SBTN guidance, does not need to be publicly disclosed.

3.2.2 Upstream Pressures
For the value chain assessment, companies *must* estimate pressures for all high-impact commodities (sourced directly as raw commodities, value added commodities, or finished products), as well as the pressures associated with the rest of their spend data (organized by activity or another category). From the list of pressures introduced in Table 7, companies *must* estimate or measure pressures for all pressure categories flagged as potentially material in Step 1a. Pressures *must* be estimated in accordance with the types of activities, commodities/goods, or services that companies source from upstream suppliers. Table 11 provides an example of how a company can format their results for their upstream pressure assessment.

It is anticipated that companies will have varying amounts of data on their upstream value chain, necessitating the use of different pressure estimation methods for upstream activities. In cases where companies can use primary data from upstream suppliers to quantify pressures, they _must_ use this information rather than pressure estimation. However, in most cases, upstream pressures will need to be estimated.

The three broad approaches for upstream pressure quantification in this methodology are

- unit process-based estimation method
- spend-based estimation method
- volume-based estimation method

See Figure 4 for a simplified diagram of the workflow for the upstream value chain assessment.
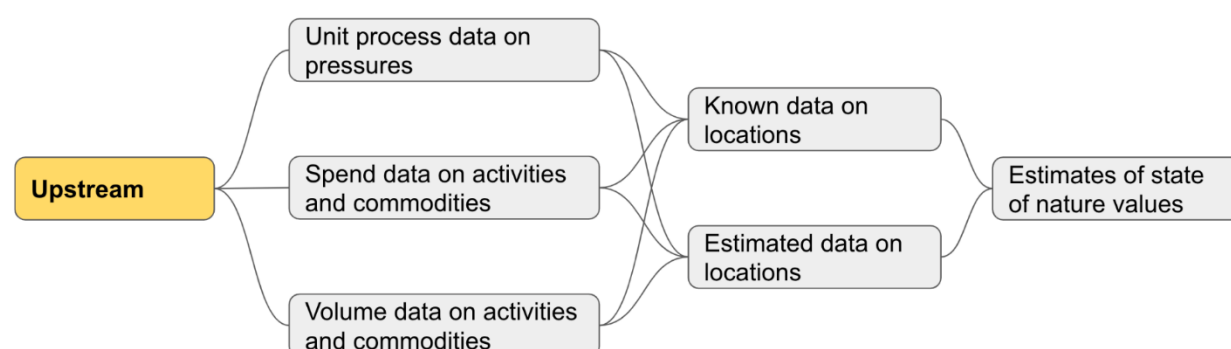
**Figure 4**. Overview of data collection pathways for the upstream segment of the value chain assessment.

As for direct operations, companies _are recommended_ to select tools and resources for pressure estimation, when primary pressure data are not available, based on both the amount of available company data and the pressures they _must_ assess after materiality screening.

As an example of the variation in data availability for upstream activities, for commodities and supply chains (e.g., palm oil or timber) where companies have invested heavily in traceability or conducted life cycle impact assessments, they may have unit process level data to use in pressure estimation. For other parts of their upstream activities, pressures may be relatively unknown (e.g., aluminum) and estimation will require the use of more readily available data (e.g., spend to Tier 1 suppliers of the metal).

Companies _must_ focus on the activities that are expected or known to be the greatest contributors to a given pressure category. Note that this may mean that multiple unit processes and locations need to be included for a given commodity, if they are significant for different pressures. Companies _should_ assume that raw extraction or sourcing is the highest-impact activity for a given pressure unless there is evidence to prove otherwise. Location information is

often implicit in approaches to estimate pressures, so it is recommended that companies specify the locations associated with their activities in order to get the most accurate results.

For location data, SBTN *recommends* that companies attempt to collect or model sourcing location data to at least a country-level sourcing location. Companies may only use data coarser than country level when sourcing locations cannot be refined past a region or set of possible countries of origin (this may be the case when sourcing commodities through a wholesaler). Companies are encouraged to model these sourcing locations using information from suppliers (solicited through questionnaires) or global datasets reflecting typical sourcing profiles for certain commodities (e.g., FAOSTAT[53] or Trase[54]). For upstream activities, data gaps on likely sourcing locations can also be addressed by modeling data using environmentally extended input-output (EEIO) tables (e.g., EXIOBASE or Eora) or life-cycle impact inventories (e.g., ecoinvent).

Note: The information compiled during this exercise is for referencing by the company during the target setting process. Some of this information will need to be submitted to SBTN for validation but, per SBTN guidance, does not need to be publicly disclosed.

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[53] See source: https://www.fao.org/faostat/en/.
[54] See source: https://www.trase.earth/.

Box 6. Using the impact assessment method example – fictional case of Ursus Nourishment (Part III)

The *Ursus* team began their **value chain assessment** by collecting data for their full direct operations (all directly owned and operated sites and activities associated with crop production, manufacturing, and packaging) and all upstream value chains for the purchased commodities identified as high impact in SBTN's High-Impact Commodity List.*

For their direct operations, the team compiled a list of operational sites, associated with different activities, and specific locations (see Table 10). While collecting this information on direct operations, the team was also able to gather primary data on water use and GHG emissions per production facility by using their environmental management system. Land use measures were derived based on the size of the company's factories, farms and surrounding land included in the estimate as an environmental buffer.

For their upstream value chains, the team compiled a list of commodities, associated with different magnitudes of spend and/or volume, and their sourcing locations (see Table 11). To ensure they linked their pressure estimates to the right locations, the team first consulted their procurement sheets then did a quick review of the scientific literature and databases focused on commodities to ensure that sourcing is indeed the highest impact node in these upstream value chains. They were able to pinpoint locations based on information on suppliers in most instances, and where this wasn't available, they selected countries to include in the assessment that were the most likely origin sites for their commodities purchased. At this point, they recorded which locations they were certain of and those which required confirmation by direct suppliers. Because of previous work done on their supply chains, the team was also able to record estimates for three of the key pressures requiring assessment–total land use, land use change, and water use–for most of the HIC supply chains.

*See note on scope of example in Box 3.

Table 10. Direct operations data collected by Ursus Nourishment to use in the value chain pressure assessment.

Operational Site	List of activities occurring at each site	Geographic location	Additional information
Facility #1	Manufacture of products; Packaging	Belgium	Water use (m^3) = 1,000,000 Land use (km^2) = 5 GHG emissions (tons CO2-eq) = 6,000
Facility #2	Manufacture of products; Packaging	France	Water use (m^3) = 700,000 Land use (km^2) = 2.5 GHG emissions (tons CO2-eq) = 3,000
Facility #3	Manufacture of products	United Kingdom	Water use (m^3) = 300,000 Land use (km^2) = 3 GHG emissions (tons CO2-eq) = 2,800
Facility #4	Manufacture of products	Spain	Water use (m^3) = 250,000 Land use (km^2) = 4 GHG emissions (tons (CO2-eq) = 4,200
Farm #1	Growing of non-perennial	Spain	Water use (m^3) = 2,800,000 Land use (km^2) = 20

	crops		GHG emissions (tons CO2-eq) = 10,000
Farm #2	Growing of non-perennial crops	Germany	Water use (m^3) = 1,000,000 Land use (km^2) = 45 GHG emissions (tons CO2-eq) = 8,000
Farm #3	Growing of non-perennial crops	France	Water use (m^3) = 1,200,000 Land use (km^2) = 50 GHG emissions (tons CO2-eq) = 6,000

Table 11. Upstream data collected by Ursus Nourishment to use in the value chain pressure assessment.

Commodity	Quantity sourced	Sourcing location	Additional Information
Cocoa	4,500 ton	Côte d'Ivoire, Ecuador, Ghana	Yearly estimates for total land use change, land use and water use since 2018
Corn/Maize	35,000 ton	Belgium, Finland, USA	N/A
Soy	40,000 ton	Argentina, Brazil, India	Yearly estimates for total land use change, land use and water use since 2015
Sugar cane	10,000 ton	Philippines, Sri Lanka	N/A
Timber	30,000 ton	Brazil, Canada USA	Yearly estimate for total land use change from 2020
Tree nuts	75,000 ton	Côte d'Ivoire, India, Spain, USA	Yearly estimate for land use from 2020

Sourcing locations and quantity sourced (spend or volume) are taken from the same year

After compiling these basic data points, the team discussed best methods for estimating the remaining pressures. To estimate impacts associated with both their direct operations and upstream activities at once, the team decided to use a life cycle assessment (LCA) approach. The main tools used were EcoInvent and OpenLCA.

To use the LCA approach the team first had to evaluate the information within its procurement sheet on commodities and goods, and then determine whether the inputs sourced were processed ingredients or whole commodities. For processed or mixed ingredients, a conversion was necessary to ensure the absolute volume of a commodity was used to estimate the pressures. For whole commodities sourced such as soy, the volume sourced and location of origin were sufficient to quantify the remaining pressures using an LCA approach. These upstream estimates were therefore calculated on a unit per unit basis; changes in the quantity sourced overall, as well as from a certain location, could change the estimated pressure total for a given category.

The final output from the LCA approach provided estimates per pressure category for the commodity (upstream) as well as facilities (direct operations). Table 12 and 13 present the results per value chain segment. Note that soil pollution–though indicated as material in Step 1a–is excluded from the remainder of the example for Step 1b and Step 2 for simplicity.

The data in the tables are *illustrative values* for a one-year period (12-month inclusive).[55] Companies conducting the assessment _may_ structure data in a way that makes most sense for them. Data _should_ retain links between unique sites, activities, and locations, and provide estimates for each pressure within each line.

Table 12. Illustrative data for Ursus case - Direct operations pressure estimates per category.

Site ID	Activities at site	Location	Climate Change (tCO$_2$)	Land use - (km^2)	Land use change (km^2)	Water use (m^3)	Water pollution (kg P-eq)
DO #1	Manufacture of other food products; Packaging	Belgium	6,000 (industrial emissions)	5	0	1,000,000	500,000
DO #2	Manufacture of other food products; Packaging	France	3,000 (industrial emissions)	5.5	2	700,000	115,000
DO #3	Manufacture of other food products n.e.c.	United Kingdom	2,800 (industrial emissions)	3	0	300,000	300,000
DO #4	Manufacture of other food products n.e.c.	Spain	4,200 (industrial emissions)	4	0	250,000	160,000
DO #5	Growing of non-perennials	Spain	10,000 (LULUC emissions)	20	16	2,800,000	1,450,000
DO #6	Growing of non-perennials	Germany	8,000 (LULUC emissions)	45	23	1,000,000	1,200,000
DO #7	Growing of non-perennials	France	6,000 (LULUC emissions)	50	15	1,200,000	900,000
		Totals	40,000	129.5	0	6,550,000	4,625,000

Table 13. Illustrative data for Ursus case - Upstream pressure estimates per category.

Commodity	Quantity sourced (ton)	Location sourced from	Climate Change (tCO$_2$- eq)	Land use (km^2)	Land use change (km^2)	Water use (m^3)	Water pollution (kg P-eq/m^3)

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[55] This period applies to all indicators other than land use change, which was calculated using a 10 year period.

Cocoa	*1,500*	Côte d'Ivoire	1,640	980	20	55	40
	1,000	Ecuador	890	760	10	34	75
	2,000	Ghana	1,210	1,400	15	80	60
Corn/maize	*25,000*	Belgium	18,850	75,175	200	600	25
	30,000	USA	24,320	84,800	1,200	580	80
Soy	*5,000*	Argentina	3,490	20,455	1,640	275	60
	25,000	Brazil	11,550	69,225	4,560	25	25
	10,000	India	6,980	40,910	1,180	550	120
Sugar cane	*5,000*	Philippines	3,465	13,435	570	1,600	0
	5,000	Sri Lanka	2,485	9,960	100	900	0
Timber	*15,000*	Brazil	560	2500	10	80	30
	8,000	Canada	240	1650	5	60	10
	5,000	USA	130	1700	20	40	10
Tree nuts	*25,000*	Côte d'Ivoire	12,450	40,650	8,400	30,160	10
	80,000	India	60,670	110,860	7,460	76,450	65
	75,000	Spain	47,850	99,900	3400	67,080	45
	100,000	United States	94,380	180,640	4600	97,270	80
Total	*422,500*		**298,700**	**785070**	**33735**	**276079**	**745**

Figure 5. Spatial representation of the company's pressure data after using estimation tools.
Figure 5 shows how companies generate estimates for each material pressure, using information on their different activities (direct operations) and the commodities they source (upstream). The activity and commodity (bolded) are intended to show that the estimates generated should correspond to each aspect of the business included in the scope of the assessment. Companies generate pressure estimates specific to each activity and commodity.
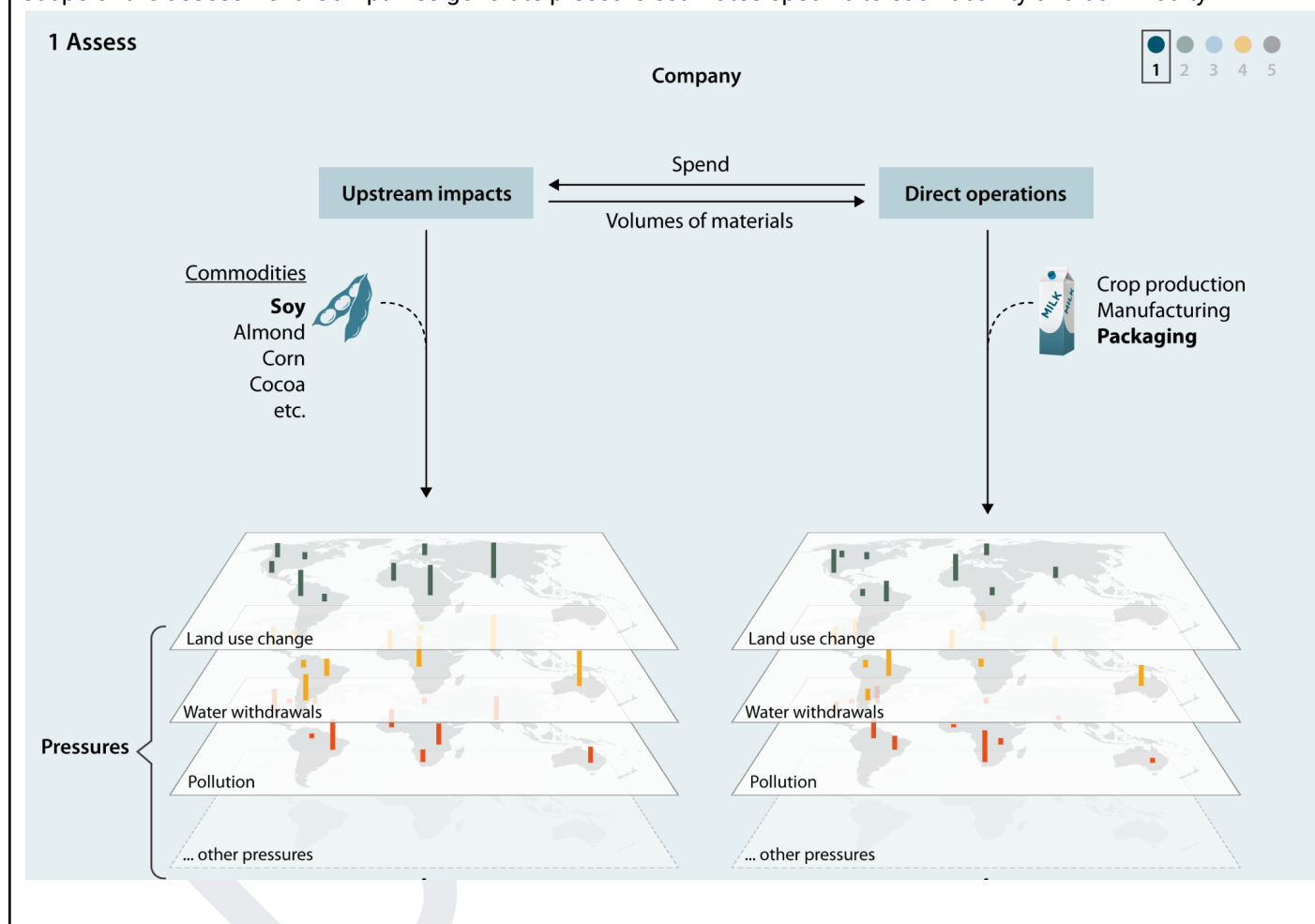
3.3 Use State of Nature Indicators to Contextualize Pressure Data

Information about where an impact is occurring is necessary to understand the relative significance of a pressure. Pressure flows of the same magnitude occurring in different locations will have different significance, depending on factors such as the sensitivity of the local ecosystem to additional changes, presence of threatened species, or reliance of local communities on an affected resource. Therefore, to understand the contextual significance of a company's pressure footprint, spatial indicators are needed.

3.3.1 General State of Nature vs. Pressure-Sensitive State of Nature Indicators

Inthe methods for Step 1 and Step 2, two types of spatial indicators are used:

- **general state of nature indicators [SoN$_G$]**: indicators appropriate to estimate biodiversity related to three key dimensions of biodiversity at the ecosystem, species, and genetic level.
- **pressure-sensitive state of nature indicators [SoN$_P$]**: indicators appropriate to summarize the features of the "state of nature" most directly connected to the pressure in question. In some cases these indicators may themselves be measures of biodiversity (see ecosystem integrity and NCPs below for more information).

Biodiversity is often defined as a measure of variability at the ***ecosystem***, ***species, and genetic scale***. This methodology utilizes three main indicators of biodiversity to describe the state of nature: species extinction risk, ecosystem integrity, and Nature's Contributions to People (NCPs) (Table 3, Section 1.1).

In the SBTN method for Step 1: Assess and Step 2: Interpret and Prioritize, ecosystem integrity and NCPs[56] are closely tied to the pressure-specific state of nature (SoN$_p$) indicators. Species extinction risk is not well represented by the SoN$_p$ indicators, requiring a separate indicator, SoN$_G$, in order to capture other relevant dynamics influencing species health. To assess species extinction risk, companies are *recommended* to use the global Species Threat Abatement and Restoration (STAR) metric that measures contributions to reducing species' extinction risk.

To build a more holistic picture of the "state of nature," additional pressure-sensitive indicators (SoN$_p$) are included in Step 1 and Step 2 and considered within the broader SBT-setting methodology. These capture additional biophysical (biotic and abiotic) processes closely linked to the pressures being evaluated. Table 14, adapted from the Transparent Methodology,[57] illustrates known connections between different pressures and aspects of nature. *Further work on these connections will be captured in the SBTN Indicator Framework, to be included with the V1 release of the methods.*

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[56] SBTN does not currently have guidance for the evaluation and use of NCPs in baselining and target setting (Step 3). This is projected to be available with a V2 release of the methods.

[57] See Transparent Project: https://capitalscoalition.org/wp-content/uploads/2022/08/A-Methodology-Promoting-Standardized-Natural-Capital-Accounting-for-Business.pdf.

Box 7. Relationships between variables and rationale for the approach.

Changes in pressure flows, accumulated pressure levels, and pressure-linked state of nature values can lead to changes in the general state of nature[58], but the causal relationships between these variables is not always clear. For this reason, SBTN intentionally includes the assessment of pressures and states of nature *separately* within the company's initial screening of their contributions toward negative impacts on nature. This separation acts as a methodological safeguard to ensure that all aspects of a company's activities that may be contributing toward negative impacts on nature are captured in the assessment.

The staged assessment approach in Step 1 provides companies information on

- the magnitude of each pressure generated by the company in each location
- the health of nature, expressed in terms of state of nature (pressure-specific and general), in each location

The combination of data points collected during the value chain assessment will allow companies to choose which locations and business activities to prioritize based on the magnitude of pressure and health of nature and the values of these indicators relative to one another (in Step 2). This analysis allows companies to consider the potential connection between each pressure (e.g., water withdrawals) and a specific state of nature variable (e.g., water availability), and the potential connection between that pressure and biodiversity (e.g., species extinction risk, linked to water availability). The use of these different variables is intended to ensure that companies are focusing on the right pressures in the right places.

Note that the value chain assessment method only requires companies to consider nominally current state of nature values (based on values from the recent past and present). This present and historical impact-focused approach is more compatible with the type of information companies are required to use for measuring and estimating pressures (again recent past or present, based on data availability). Forecasted data are not currently required, but subsequent versions of SBTN methodologies may include future projections of pressures and states of nature (incorporating climate and socio-economic scenarios).

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[58] The general conditions of nature in physical, chemical, or biological terms.

Table 14. Changes in the state of nature resulting from different pressures. Adapted from the Transparent Project.[59]

Pressure indicators	Changes in state variables
Ecosystem conversion and use	*Converting land cover can lead to:* - Change in soil quality (soil organic carbon) - Changes to functioning of ecosystems (ability to regenerate) - Change in species richness - Change in biomass *Land use can lead to:* - Accumulation of nonpoint pollution - Loss of native habitats and/or habitat fragmentation - Land development can lead to heat islands - Changes to functioning of ecosystem *Conversions of freshwater ecosystem can lead to:* - Changes in water flows - Changes in species richness - Changes in species abundance *Use of freshwater ecosystems can lead to:* - Changes in water quality (oxygen, nutrients, pollution) - Loss of habitats (Freshwater ecosystem intactness) *Conversion and use of marine ecosystems can lead to:* - Changes in species richness - Changes in species abundance - Changes in water quality (oxygen, nutrients, pollution) - Changes in sediment quality - Loss of habitats (marine ecosystem intactness)
Water use	*Water use can lead to:* - Surface water depletion (Water availability) - Groundwater depletion (Water availability) - Loss of habitat (Freshwater ecosystem intactness)
Other resource use	*Other resource use can lead to:* - Land degradation - Soil and water pollution - Loss of habitat (ecosystem intactness) - Changes in species abundance - Changes in species richness
GHG emissions	*Changes to natural capital arise from the increased concentration of GHGs in the*

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https://capitalscoalition.org/wp-content/uploads/2022/08/A-Methodology-Promoting-Standardized-Natural-Capital-Accounting-for-Business.pdf

	atmosphere, including: - Rising mean temperatures - Shifting climate patterns - Sea level changes - Desertification - Loss of habitat
Water pollution	*Water pollution can lead to:* - Changes in water quality - Algae growth - Bioaccumulation in fish/biota - Eutrophication
Soil pollution	*Soil pollution can lead to:* - Changes in soil quality (nutrient imbalance) - Changes to functioning of ecosystems - Change in species richness

3.3.2 Tools to Support the State of Nature Assessment

There are a number of existing tools and data layers that can be used to derive information on state of nature indicators for the value chain assessment. To complete this step of the target-setting methodology, companies are *recommended* to use datasets or tools presented in Table A5 (see Appendix 8) or a tool that meets the SBTN tool criteria (see Appendix 4).

SBTN *recommends* that companies evaluate multiple datasets for each SoN indicator, if available, in order to increase confidence that they are prioritizing the places where nature and society need it the most. Note that state of nature values derived from any given dataset are subject to interpretation guidance provided by the developers of the dataset. This includes ranges and threshold values that can be used to interpret the health of nature relative to the given variable as well as guidance around the uncertainty of estimated values.

For some variables, SBTN provides explicit requirements about which tools to use for the value chain assessment. To understand the level of water availability and water pollution (SoN$_P$ indicators related to the pressures of water use and water pollution) throughout their value chains, companies are *required* to consult the following:

- *Water availability:* Aqueduct, Baseline water stress layer;[60] WWF Water Risk Filter,[61] Water depletion and Blue water scarcity layers

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[60] See Aqueduct:
https://resourcewatch.org/data/explore/wat050-Aqueduct-Baseline-Water-Stress?section=Discover&selectedCollection=&zoom=3&lat=0&lng=0&pitch=0&bearing=0&basemap=dark&labels=light&layers=%255B%257B%2522dataset%2522%253A%2522c66d7f3a-d1a8-488f-af8b-302b0f2c3840%2522%252C%2522opacity%2522%253A1%252C%2522layer%2522%253A%2522fdf06d8c-72e9-48a7-80f1-27bd5f19342c%2522%257D%255D&aoi=&page=1&sort=most-viewed&sortDirection=-1.
[61] See Water Risk Filter: https://waterriskfilter.org/explore/map.

- *Water pollution:* Aqueduct, Coastal eutrophication potential layer;[62] WWF Water Risk Filter, Surface Water Quality Index;[63] the Global Water Quality Database; [64] and the Global Nutrient Yields Dataset[65]

Additional pressure-sensitive SoN indicators will be suggested for use to complement the assessment of the required categories of pressures, pending the availability of additional Step 3 methods.

For other pressures flagged as material in the Step 1a materiality screening but not required within the Step 1 methodology (see Section 1.1 – Method Scope), companies may consult tools to gather information on SoN_p variables but are not required to do so.

3.4 Spatialize Value Chain Pressure Data

When completing the value chain assessment, companies are *strongly recommended* to use state of nature data which are compatible with the spatial and temporal scale of the pressure data they have collected. When the spatial resolution of pressure and recommended state of nature data are not equal, the finer-scale data should be aggregated to the coarser of the two scales. Because of the potential inconsistency of spatial scales, the level of aggregation of location information, between these data points, companies are recommended to use datasets and resources for the state of nature assessment with a broader spatial extent (coverage across company sites) to avoid having to harmonize datasets before proceeding with the analysis.

When pressure data are finer scale than recommended SoN_P data (e.g., pressures at sub-national or site level vs. states at country level), the data for that given pressure *must* be added within the spatial unit of the SoN_P data. As an example, companies would therefore calculate the sum of all water use associated with different activities within a given country. Each of these water-using activities would be associated with one common SoN_P value for water availability at country level.

When the spatial resolution of the state of nature data is at a finer spatial resolution than pressure data, then an appropriate aggregating statistic *must* be used to upscale the data (in many cases, mean or median values). An example of this would be a company that has state- or province-level data on land management for agricultural holdings but finer-scale data on ecosystem intactness. The company would then calculate the median ecosystem intactness for the province in order to continue in the analysis.

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[62] See Aqueduct:
https://resourcewatch.org/data/explore/wat059-Aqueduct-Coastal-Eutrophication-Potential?section=Discover&selectedCollection=&zoom=3&lat=0&lng=0&pitch=0&bearing=0&basemap=dark&labels=light&layers=%255B%257B%2522dataset%2522%253A%2522d5e7884d-e4dd-47dd-8f28-c5b9c2318a9f%2522%252C%2522opacity%2522%253A1%252C%2522layer%2522%253A%25222c5ca21a-c646-4b8c-b329-909d66ec5615%2522%257D%255D&aoi=&page=1&sort=most-viewed&sortDirection=-1.

[63] See Footnote 54.

[64] See database: https://figshare.com/s/4bee9c6ae6d1332a7015; accessed from McDowell et al. (2020a), https://www.nature.com/articles/s41598-020-60279-w#Sec10.

[65] See dataset: https://data.lincoln.ac.nz/articles/dataset/Global_Nutrient_Yields/11894697; accessed from McDowell et al. (2020b) - https://rmets.onlinelibrary.wiley.com/doi/full/10.1002/gdj3.111.

Operationally, this step is *necessary* for the Step 2 prioritization but can be conducted after collecting pressure and state of nature data in Step 1, so that a common spatial scale can be identified, avoiding the potential of multiple aggregating steps.

3.4.1 Direct Operations State of Nature Assessment

The state of nature assessment for a company's direct operations is performed using the pressure estimates per operational site as derived in Section 3.2.1 and combining this with the location for each operational site. This should be done in accordance with guidance on harmonizing spatial and temporal scales. Taking the data gathered during the pressure assessment, companies should be able to export these into the state of nature tools highlighted above for the SoN$_P$ variables linked to their material pressures (e.g., Aqueduct and Water Risk Filter if water withdrawals are material), and then IBAT/STAR for their SoN$_G$ assessment. These tools will generate a list of values indicating the state of nature—i.e., relative health of different ecosystems—for the different locations where the company operates.

To complete Step 1, companies _must_ record this state of nature information alongside their pressure data for each site/activity-location pair in their direct operation dataset. This information will then be analyzed in Step 2 in order to determine which locations are highest priority for target setting.

Table 15 provides an example of the outputs from the SoN assessment and the complete dataset companies will have at the end of the Step 1.

3.4.2 Upstream State of Nature Assessment

When performing the state of nature assessment for the upstream segment of the value chain, companies _should_ repeat the process described above for direct operations (inputting location data into the SoN tools or referencing the values for locations in the suggested datasets). For the upstream analysis, pressure estimates _must_ be associated with procurement or upstream activity data (in spend or volumes) and be consistent with guidance on spatial resolution of pressure data, as described in Section 3.2.2. For ease of analysis in Step 2, we _recommend_ that companies sort their data by commodity.

Because of the various methods available for the upstream pressure assessment, companies may find that their pressure data on commodities reflects different levels of precision, both in terms of activities included and the sites or locations associated with these (spatial resolution). The methods and tools used in the upstream pressure assessment may be based on an in-depth review of activities along the commodity supply chain (e.g., unit process data from cradle-to-gate) or it may be based on a model of that commodity's impacts based on a handful of activities (e.g., impacts related to sourcing activities). Because of these differences in pressure data, companies _may_ either compute their upstream pressure estimates per activity or compute the aggregate pressure estimates by commodity.

In both approaches, a unit process estimation or basic estimation of pressures, multiple sites, or locations associated with these activities may be implicitly or explicitly factored into the estimation. Before beginning the state of nature assessment, companies _must_ consider the

level of precision in their pressure data to determine the locations to use for the state of nature assessment (e.g., the country or set of countries estimated as probable sourcing locations).

Companies *must* record state of nature information for upstream alongside their pressure data for each commodity-location or activity-location pair in their upstream dataset in order to complete Step 1. This information will then be analyzed in Step 2 in order to determine which locations are highest priority for target setting.

Box 8. Using the state of nature tools – fictional case of Ursus Nourishment (Part IV)

For the ***state of nature assessment*** the *Ursus* team used the data on activities and locations collected for the pressure assessment and extracted the list of locations for use in spatial tools.

Based on the pressures that were most material, the company began connecting their material pressures to state of nature indicators.[66] They used percent tree cover loss, as the SoN_P linked to land use change (conversion) for its upstream activities, the Ecosystem Integrity Index, as the SoN_P linked to land use for its upstream and direct operations, and both the Water Risk Filter and Aqueduct as the SoN_P linked to water withdrawals and pollutants in its direct operations and upstream. For the SoN_G the team used the $STAR_{(T)}$ layer within IBAT to assess species extinction risk). Using these tools, the company generated SoN scores for each of the locations associated with its direct operations and upstream value chains. For tools like Water Risk Filter and Aqueduct, where values are given at a sub-national level, the team took the average value for all basins in that country. For the $STAR_{(T)}$ dataset, the company took the median score of all species $STAR_{(T)}$ scores within each country.

Note that the data in the tables are *illustrative values* for economic activities assessed in a one-year period (12-month inclusive)[67], though the state of nature data often reflect multiple years in their estimate (referencing Appendix 4 guidance). Companies conducting the assessment are welcome to structure data in a way that makes most sense for them. Data should retain links between unique sites, activities, and locations, and provide estimates for each pressure within each line. *This information is compiled for reference by the company. Some of this information will need to be submitted to SBTN for validation but, per SBTN guidance, does not need to be publicly disclosed.*

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[66] Sources and citations for all data referenced in this example are provided in Appendix 4.
[67] For the estimation of state values, years of assessment are pertinent for upstream in particular, as locations sourced from may vary on an annual basis.

Table 15. State of Nature assessment results for direct operations. (Note these are illustrative results.)

Basic information			SoN$_P$				SoN$_G$
Site code	Activities occurring at location	Location	Ecosystem integrity[68] (SoN$_P$ - land use)	Percent Tree Cover Loss[69] (2010-2021) (SoN$_P$ - land use change)	Water Stress[70] (SoN$_P$ - water withdrawals)	Eutrophication potential[71] (SoN$_P$ - water pollutants)	Species[72] STAR$_{(T)}$
DO #1	Manfctg. of products; Packg.	Belgium	0.2	12	High	Very High	11.78
DO #2	Manfctg. of products; Packaging	France	0.3	7.9	Medium	High	24.13
DO #3	Manfctg. of products	United Kingdom	0.2	14	Low	Very High	2.56
DO #4	Manfctg. of products	Spain	0.4	13	High	High	18.9
DO #5	Growing of crops	Spain	0.4	13	High	High	18.9
DO #6	Growing of crops	Germany	0.2	9.1	Medium	High	22.67
DO #7	Growing of crops	France	0.3	7.9	Medium	High	24.13

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[68] Values for the dataset range from 0.0 (fully degraded) to 1.0 (full integrity).
[69] Values range from 0-100%.
[70] Values range from Low to Very High.
[71] Values range from Low to Very High.
[72] Companies are recommended to take the median score for all species within a given country.

Table 16. State of Nature assessment results for upstream.

Note these are illustrative results. In the table, tons are grayed out because location information is all that is used to determine SoN values.

Basic information			SoN$_P$				SoN$_G$
Commodity	Quantity sourced (ton)	Sourcing location	Ecosystem integrity[73] (SoN$_P$ - land use)	Percent Tree Cover Loss[74] (2010-2021) (SoN$_P$ - land use change)	Water Stress[75] (SoN$_P$ - water withdrawals)	Eutrophication potential[76] (SoN$_P$ - water pollutants)	Species STAR$_{(T)}$
Cocoa	1,500	Côte d'Ivoire	0.2	23	Very Low	Low Medium	836.54
	1,000	Ecuador	0.6	4.7	Low	Medium	720.14
	2,000	Ghana	0.2	20	Low	Low Medium	600.36
Corn/maize	25,000	Belgium	0.2	12	High	Very High	11.78
	30,000	United States	0.6	16	Medium High	Medium High	1035.98
Soy	5,000	Argentina	0.7	16	Medium	High	860.33
	25,000	Brazil	0.6	12	Low	Medium	1405.56
	10,000	India	0.1	5.3	Very High	Medium High	1259.47
Sugar cane	5,000	Philippines	0.3	7.2	Low	Low Medium	897.62
	5,000	Sri Lanka	0.2	5.1	Low	Medium High	637.28
Timber	15,000	Brazil	0.7	12	Low	Medium	1405.56
	8,000	Canada	0.9	11	Very Low	Low	940.89

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[73] Values for the dataset range from 0.0 (fully degraded) to 1.0 (full integrity). Value shown reflects the average for the country.

[74] Values range from 0-100%. Percent shown reflects the total for the country.

[75] Values range from Low to Very High. Value shown reflects the average for the country.

[76] Values range from Low to Very High. Value shown reflects the average for the country.

	5,000	United States	0.6	16	Medium High	Medium High	1035.98
Tree nuts	*25,000*	Côte d'Ivoire	0.2	23	Very Low	Low Medium	836.54
	80,000	India	0.1	5.3	Very High	Medium High	1259.47
	75,000	Spain	0.4	13	High	High	18.9
	100,000	United States	0.6	16	Medium High	Medium High	1035.98

Figure 6. Compiling spatial data to contextualize information on pressures.

Figure 6 depicts the process of taking locations identified in the pressure assessment assessment (spatial layer with dots, resulting from the assessment of pressure data) and generating information on the state of nature for the indicators required by the SBTN method. Note that the state of nature layers included in the graphic are exemplary, and not to be considered directly indicative of SBTN guidance.
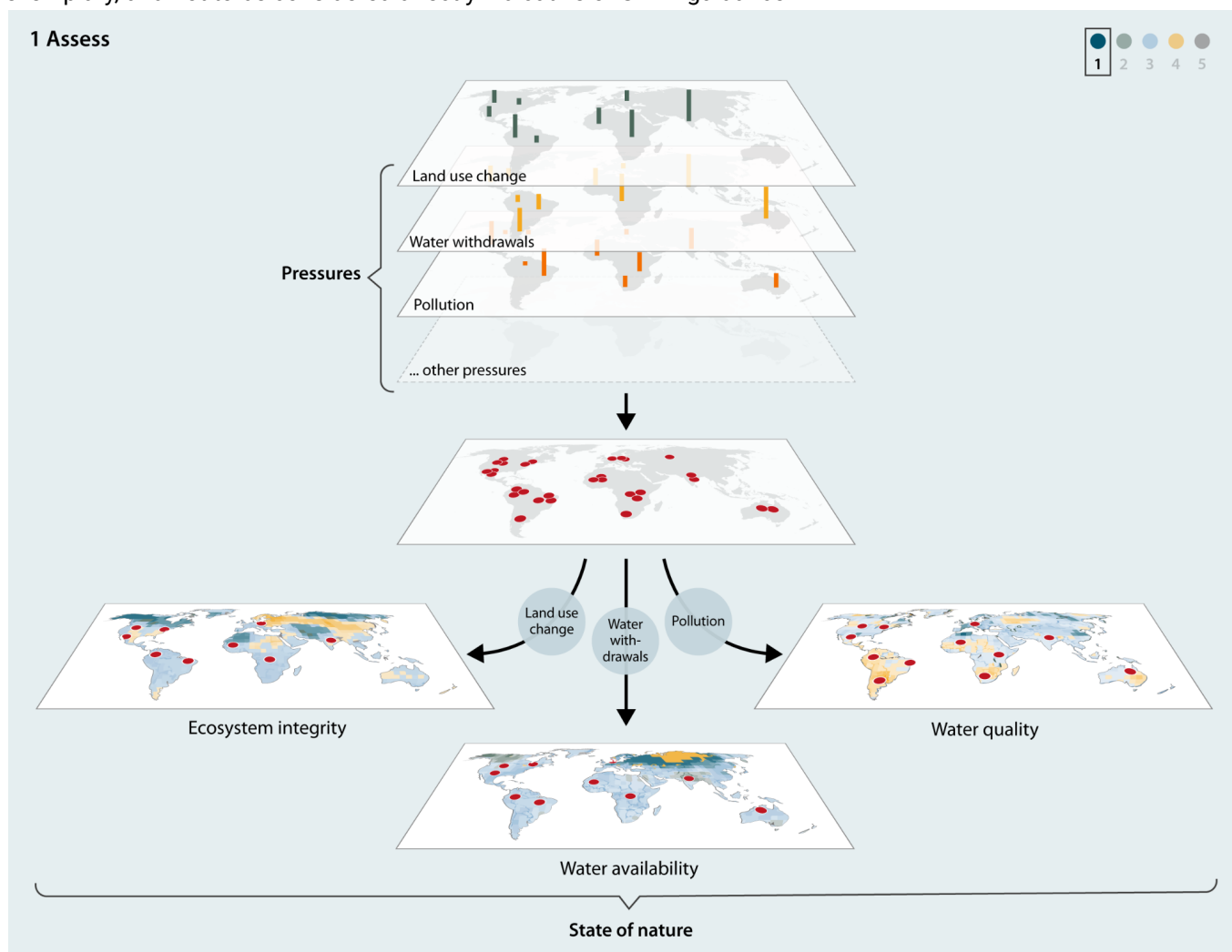
After compiling this data on states, in addition to the data on pressures, the Ursus team now has a good idea of the relative contributions of its different activities towards the different areas on which it will set targets, as well as the relative health of nature in the places where it has impacts. To get a closer look at the locations that are most important to act in for each pressure, the team begins to use the method for Step 2 of the SBT-setting process.

4. Confirm Data for SBTN Validation

Companies _must_ document the data used to perform their materiality screening (Step 1a) and pressure assessment (Step 1b).

Box 9. Validation criteria for Step 1: Assess

To have their targets validated, companies will be subject to meeting the following validation criteria:

C1. Organizational boundary
- **C1.1** _Companies must define their organizational boundary using the financial, operational, or equity control approaches._
    - _If using a business unit approach to conduct their analysis, the full organizational boundary must be covered in accordance with SBTN guidance on time horizons (timebound coverage)._

C2. Coverage and interpretation of the materiality screening
- _In terms of value chain segments,_
    - **C2.1** _Companies must screen for material impacts in 100% of their direct operations._
    - **C2.2** _Companies must screen for material impacts at the cradle to gate stage expected to be the most impactful stage for 100% of their purchased goods and services. Companies must provide evidence supporting the assessment of a phase other than the "cradle" or sourcing stage._
- _In terms of pressures,_
    - **C2.3** _Companies must screen for material impacts against 8 pressures: Terrestrial ecosystem use and use change, Freshwater ecosystem use and use change, Marine ecosystem use and use change, Water use, Other resource use (minerals, fish, other animals, etc.), GHG emissions, Water pollutants, and Soil pollutants._
- **C2.4** _If using a flexible approach, companies must determine which pressures require inclusion in the value chain pressure assessment (Step 1b) using the interpretation guidance provided by SBTN. Companies must report these pressures separately for direct operations and for upstream activities._

C3. Assess and spatialize pressures
- _For all activities (in direct operations and upstream) determined in C2. to require inclusion in the value chain assessment,_
    - **C3.1** _Companies must assess the contributions to all pressures identified as material for each activity using the following pressure indicators and metrics:_

Pressure	Metric
Terrestrial/freshwater/marine ecosystem conversion	Area (km^2 or ha) converted, by pre-and post-conversion ecosystem use and ecosystem type[77]
Terrestrial/freshwater/marine ecosystem use (occupation)	Area (km^2 or ha) used, by ecosystem use, and including the management practices[78]
Water use	m^3 or km^3, per source (surface water, ground water, etc.)[79]
Other resource use	*Recommendations on metrics pending SBTN technical development*
Greenhouse gas emissions	GT CO_2e, per activity estimated separately for industrial activities and land-based emissions; tCO_2/t (product, e.g., cement or steel) or gCO_2/spatial unit
Soil pollution	mol N, P and H+ eq/(ha)
Water pollution	kg N, P eq; total or concentration (%) in discharged water (and volume of these discharges)

- *C3.2 Companies must provide the spatial location of 100% of the sites associated with these activities.*
- *C3.3 Companies must eventually assess 100% of the activities identified as material but may perform this pressure assessment in discrete parts by business units. Companies must start with the business units associated with material impacts and must justify any exclusion.*

C4. Contextualize pressures with State of Nature indicators
- *C4.1 For the location of each site associated with their material activities, companies must provide State of Nature (SoN) indicators in accordance with SBTN guidance.*
- *C4.2 Companies must harmonize the spatial scales of all pressure and SoN indicators in accordance with SBTN guidance.*

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[77] For a standard classification scheme, SBTN will draw from IPCC 2003, which identifies six categories of land use: forest land, cropland, grassland, wetlands, settlements, and other land, including infrastructure and human settlements, and from AFI 2020, which identifies a seventh category: plantation, which must be accounted for when measuring deforestation and conversion.
[78] Please note: as part of a company's contributions toward land/terrestrial ecosystem use, intensity of use will also need to be quantified. Today, we expect that the intensity of use will be approximated based on the company's contributions toward the other key pressure categories, such as pollution, resource exploitation, and invasive alien species. *Further guidance on accounting is forthcoming.*
[79] SBTN is considering including net water consumption as an optional indicator for companies whose water use is better captured by this indicator. Given that the location, time, and quality of the water returns would affect the impact of the water use, the criteria to use this indicator is still under development.

Appendices

Appendix 1 Acronyms

Box A1. Acronyms

Biological Diversity Protocol	BDP
General State of Nature Indicators	SoN_G
Global Reporting Initiative	GRI
Greenhouse Gas Protocol	GHGP
High-Impact Commodity	HIC
High-Impact Commodity List	HICL
Indexed Pressure Score	I_p
Life Cycle (Impact) Assessment	LC(I)A
Measurement, Reporting and Verification	MRV
Natural Capital Protocol	NCP
Nature's Contributions to People	NCPs
Pressure-sensitive State of Nature Indicators	SoN_P
Science-Based Targets	SBTs
Science Based Targets Initiative	SBTi
Science Based Targets Network	SBTN
Sectoral Materiality Tool	SMT
State of Nature	SoN
Taskforce for Nature-related Financial Disclosures	TNFD

Appendix 2. Business Units

After completing the screening step, companies should have a comprehensive picture of all of their activities, as well as an initial idea of the impacts associated with these.

However, for complex companies spanning hundreds of activity categories within their direct operation, it may be helpful to organize this information in terms of business units to simplify the subsequent impact assessment steps.[80] Business units can be defined using discrete units corresponding to geographic regions, industries or brands.

Companies can exclude business units, but this _must_ only occur after the company has performed the material issue screening for the entirety of its business. Companies must justify exclusions and provide sufficient evidence. SBTN is calling this, "the business unit approach".

Business units are recommended to be used in the target setting process only when these are a well-established part of the company's organizational structure (e.g. different units already used for determining decentralized business strategies or reporting); business units should not be delineated solely for the purpose of setting SBTs for nature. Claims guidance will also reflect the language and time bounds for business unit targets.

If using the business unit approach, companies should first 'map' out their business units (Output templates are under development and will be made available in the v1 release.).[81] Once completed, this map can be used by companies as reference for how much of their business they are collecting data for, assessing, and then addressing with targets. This map will also be used by SBTN to validate the company's scope of assessment.

If using a business unit approach, companies should plan to do a value chain assessment (Step 1.3), and follow the approach to defining target boundaries and screening for feasibility (Step 2) for all activities associated with business units for which they intend to set targets (Step 3). If using this approach, we _recommend_ that companies complete a value chain pressure assessment for all business units where they have the required data, while continuing to collect data to fill gaps for those business units for which they are not yet able to meet those requirements.

SBTN guidance on timelines for full coverage of operational boundary and claims guidance for business unit targets will be determined in accompanying validation and claims guidance documents with the launch of V1 methods for SBTs for nature in Q1 2023.

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[80] As noted in Section 1.1 of the Step 1 method, **_'business units'_** can be defined by a company on the basis of regions, industries or brands and should be a well-established part of the company's organizational structure.
[81] Companies may be asked for an Annual Report or equivalent to evidence the business unit classification used for the SBT process.

Box A2. Examples of the way that companies use business units to manage their businesses

- Company A
    a. Global Infrastructure and Networks
    b. Global Energy and Commodity Management
    c. Green Power and Thermal Generation
    d. Global Retail
    e. Global e-Mobility
- Company B
    a. Marketing and Communications,
    b. Supply
    c. Industry
- Company C
    a. Pharmaceuticals
    b. Consumer health
    c. Crop science.
- Company D
    a. Beauty & Personal Care
    b. Foods and refreshment
    c. Home care.
- Company E
    a. Cement
    b. Aggregates
    c. Ready-mix concrete
    d. Solutions and products.
- Company F
    a. Zone Americas
    b. Zone Europe, Middle East and North Africa
    c. Zone Asia, Oceania and sub-Saharan Africa
    d. Health Science

Appendix 3. Tools under consideration for use when screening for materiality

Box A3. Tools for use in Step 1a

This list summarizes the current resource landscape in the context of the SBTs Initial Guidance focusing on tools and datasets that are actively used or may be used by the SBTN community to guide a flexible approach in Step 1a Screen for material issues.

Resource Name	Description
ENCORE	ENCORE is a tool to help users better understand and visualize the impact of environmental change on the economy.
CDP Water Watch	Water Watch is a tool which ranks industrial activities according to their potential impact on water resources – both in terms of water quantity and water quality

Appendix 4. Data quality criteria

Providing clear evidence is vital to ensuring the robustness and credibility of the science-based target setting process. The draft characteristics of decision-grade criteria under consideration by the TNFD can be adapted for use here to enhance alignment between data requirements for SBTN and TNFD. Please note that these are still in draft and may evolve over time.

Table A1. Data quality criteria.

Characteristic	Definition
Relevance	Appropriate to the decision context
Resolution matching	The resolution of the data used and scale to which the data corresponds are either the same as the resolution and scale of the decision which is being made based on that data, or compatible with the resolution and scale of the decision being made.
Temporal correctness	Reflects the appropriate time scales for the indicator of interest, and the feasibility of data collection.
Frequency of update	Regularly updated or updated at appropriate timescales for the subject matter.
Spatial coverage	Data should be collected to permit aggregation and to allow for attribution across portfolios, corporate footprints etc. Where possible, data should be globally consistent and comprehensively cover the spatial context of the assessment or targeted issue. Where multiple datasets are needed to address the full extent of the company sites data should be harmonized (consistent units, timeframe, spatial resolution) within pressure or State of Nature
Representative Data and Methods	Data are derived, where possible, from the organization, process, and materials under direct study. Where this is not possible, data should be derived from a similar organization using the same processes and materials.
Authoritative	Data are recognised as accurate and reliable, and have been through a third-party review process, e.g. peer-review in the scientific literature, reviewed by peers in the gray literature, or an alternative process such as assurance.

Table A2. Criteria for the use of pressure tools for Step 1

Criteria	Requirement tools must meet to be used for Step 1
Relevance	Covers pressure categories included in scope for Step 1: water use, water pollution, land use (occupation), land conversion, and GHG emissions.

Resolution of data is fit for purpose	Pressure data is associated with specific unit processes/activities or commodities.
Temporal resolution	Information within the tool is based on impacts of activities as measured or estimated within the last 30 years. Where possible, nominal present day estimates (range of years incorporated) should capture both a company's recent activities and those of the recent past.
Frequency of update	Pressure assessments represent nominal present conditions. These data may remain relatively static over assessment time scales (in accordance with validation and claims guidance for re-assessment of impacts).
Spatial Resolution	Data on pressures may be associated with country-level location data or global averages.
Accessibility	Data must be readily accessible online. Free access is preferred, but paid tools are acceptable. Tools should be accessible to non-expert users, but more advanced tools are possible to use if outputs meet SBTN validation requirements.
Availability of Guidance and Support	Guidance on how to use the tool to generate outputs appropriate for use in Step 1 should be readily available and compatible with validation criteria
Authoritative	Regularly reviewed and update to represent the best available science

Table A3. Criteria for the use of State of Nature tools for Step 1

Criteria	Requirement tools must meet to be used for Step 1
Relevance	Covers state of nature elements included in scope for Step 1: water availability, water quality (load/eutrophication), land conversion rate/extent, ecosystem integrity, species extinction risk, and nature's contributions to people (NCPs).
Resolution of data is fit for purpose	Sufficient resolution to represent the current state of natural system structure/function/processes.
Temporal Resolution	Nominal present day (i.e. within the last 20 years).
Frequency of update	State of nature data represent nominal present conditions. These data may remain relatively static over assessment time scales (in accordance with validation and claims guidance for re-assessment of impacts).
Spatial Resolution	Sufficiently fine spatial resolution to represent the current state of natural system structure/function/processes.
Accessibility	Data must be readily accessible online. Free access is preferred, but paid tools are acceptable. Tools should be accessible to non-expert users, but more advanced tools are possible to use if outputs meet SBTN validation requirements.

Availability of Guidance and Support	Guidance on how to use the tool to generate outputs appropriate for use in Step 1 should be readily available and compatible with validation criteria
Authoritative	Regularly reviewed and updated to represent the best available science

Appendix 5. Sectoral Materiality Tool (SMT)

The content in this appendix constitutes a qualitative description of the tool functioning and is subject to change pending further research and development.

Box A4. User guide for the current SBTN Sectoral Materiality Tool (SMT) scores and projected developments.

Current SMT outputs described below are based on analyses conducted by the SBTN Technical Team with the UNEP-WCMC ENCORE team.

Direct operations:
- Scores for each issue area and pressure category are specific to economic activities, matched to data on production processes from ENCORE and associated with 'group' categories from ISIC Rev4. ISIC group categories have been matched with production processes based on a 'crosswalk' of classification schemes developed by UNEP-WCMC.
  - Categorical/numerical scores range from: 2-6
  - No Data: Some categories will likely be identified as "ND", meaning that no data is available to assess them in the ENCORE/EXIOBASE systems. No data does not mean no material impact, but rather that the Sectoral Materiality Tool does not currently have enough evidence to estimate a value.
- The qualitative data on pressures from ENCORE (referred to as 'impacts' within ENCORE) are based on literature review and expert interviews.[82] The categorical scores assigned to each pressure are based on an evaluation of materiality, centered on two key aspects: severity/magnitude and frequency of impact.[83] Scores presented are an equally weighted index of these two component scores.
- Upstream [pending further development]:
  - Scores are again specific to economic activities, matched to data on production processes and groups.
  - For any given company using the tool, a set of upstream activities will be generated, based on the direct operations activities selected
    - Rather than an aggregate impact score assigned to each issue area for all upstream activities, the company will be able to see discrete impact scores for each pressure category, for each upstream activity. Note: this reflects a divergence from the current tool which most of the early testers have reviewed and used. By presenting separate scores for each upstream activity, the tool is better able to provide users information on the relative importance of different upstream activities.

- SBTN Sectoral Materiality Tool interpretation guidance is based on the distribution of scores for each issue area (see figure below - based on new scores). Using the distribution of scores for each pressure category we calculate the median value of scores. This value becomes the threshold used to determine which activities are material for a given pressure category. As such, users of the tool should anticipate that interpretation guidance will shift over time as the data underpinning the tool is expanded and improved:

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[82] See methodological detail from ENCORE: https://encore.naturalcapital.finance/en/data-and-methodology/methodology
[83] See Box A5 below for further information on these aspects of materiality.

- For terrestrial ecosystem use: Companies should aim to include in their pressure assessment all activities with an index score of *5 or higher* for this pressure category
- For freshwater ecosystem use: Companies should aim to include in their pressure assessment all activities with an index score of *5 or higher* for this pressure category
- For marine ecosystem use: Companies should aim to include in their pressure assessment all activities with an index score of *5 or higher* for this pressure category
- For water use: Companies should aim to include in their pressure assessment all activities with an index score of *5 or higher* for this pressure category
- For other resource use: Companies should aim to include in their pressure assessment all activities with an index score of *4 or higher* for this pressure category
- For climate change: Companies should aim to include in their pressure assessment all activities with an index score of *6 or higher* for this pressure category
- For soil pollution: Companies should aim to include in their pressure assessment all activities with an index score of *4 or higher* for this pressure category
- For freshwater pollution: Companies should aim to include in their pressure assessment all activities with an index score of *4 or higher* for this pressure category

- Note that the tool enables assessment of pressures for which there are no Step 3 methods currently under development. Companies are able to use the tool to review the likelihood of material contributions towards these pressures, *but are not required* to include these in the value chain pressure assessment. These pressures are non-GHG air pollution, solid waste, and invasive species and biological disturbances. Based on the current data within the SMT, the interpretation rules for these categories are as follows:
    - For non-GHG air pollution: Companies should aim to include in their pressure assessment all activities with an index score of *5 or higher* for this pressure category
    - For solid waste: Companies should aim to include in their pressure assessment all activities with an index score of *4 or higher* for this pressure category
    - For disturbances and invasive alien species: Companies should aim to include in their pressure assessment all activities with an index score of *4 or higher* for this pressure category
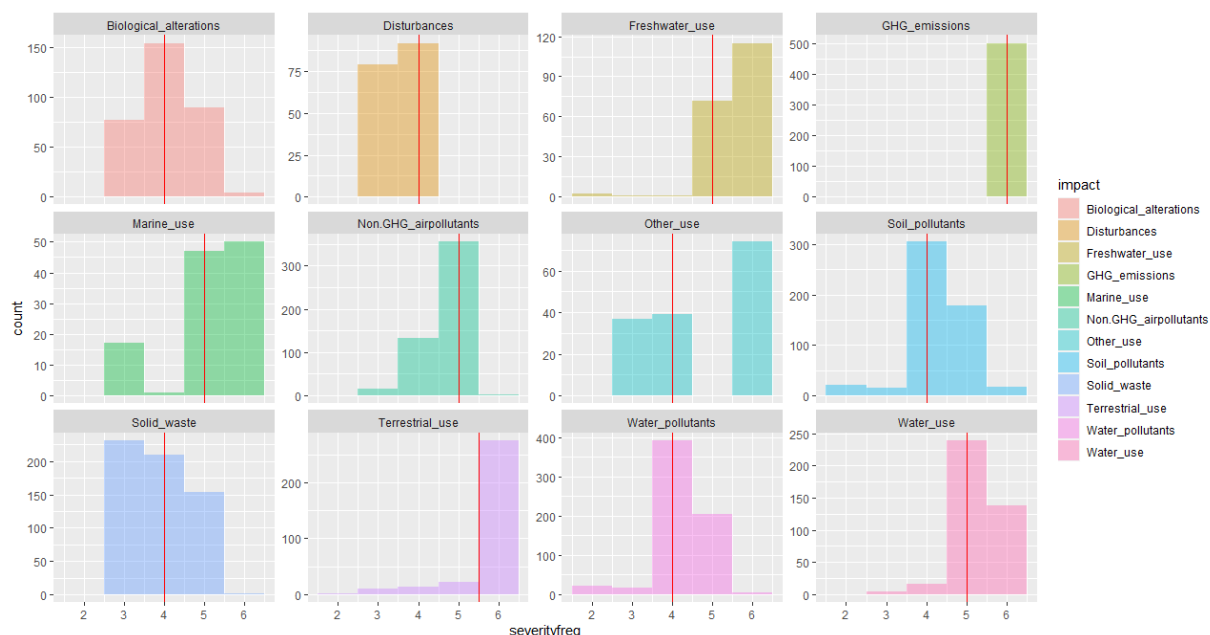
Figure S1. Each panel shows the distributions of SMT index scores per pressure category (indicated by the histogram title). Each sample in the distribution represents the index value per activity (direct operations). The vertical red line in each panel is the median SMT index value and is used as a threshold to determine whether a company must continue to assess those activities for a given pressure

Box A5. SMT approach to materiality

In the Sectoral Materiality Tool and prescriptive approach, the effects of economic activities on different issue areas have been evaluated according to two of the four criteria recommended above:
1. Severity of impact (including magnitude and irreversibility) and
2. Frequency of impact

The background research that underpins the Sectoral Materiality Tool—conducted by UNEP-WCMC, Global Canopy, and the Natural Capital Financial Alliance—evaluated each of these aspects separately and proposed equal weighting of the information for each aspect in the indexed score of materiality attributed to each activity, for each issue.

For Severity, impact information was sorted into three categories, with three different scores used for compiling the index:
- High (3): The impact and its resulting effects are expected to cause *major, irreparable, and long-lasting damage* to the natural capital.
- Medium (2): The impact and its resulting effects are expected to cause *significant and lasting damage* to natural capital.
- Low (1): The impact and its resulting effects are expected to cause *minor, reparable, and temporary damage* to natural capital.

For Frequency, impact information was again sorted into three categories, with three different scores used for compiling the index:
- High (3): The impact and its resulting effects on natural capital are expected to occur *continuously* (i.e. at almost every instance of the activity).
- Medium (2): The impact and its resulting effects on natural capital are expected to occur *regularly* (i.e. from several times per year to several times per month).
- Low (1): The impact and its resulting effects on natural capital are expected to occur *only a small number of times* (e.g. only during construction/set-up of the activity).

Appendix 6. High-Impact Commodity List

Box A6. The SBTN High-Impact Commodity List (HICL)

- *What it is:*
    - A resource to use to simplify upstream assessment by focusing on specific commodities rather than assessing all upstream inputs and activities.
    - A reference to ensure that companies include key commodities known to be most responsible for driving deforestation, nutrient pollution and other impacts in their assessments and target strategies
        - Note that once the HICL is finalized, HIC coverage will be part of SBTN validation criteria
- *Current status:*
    - 'Proof of concept' – the current includes a sample of the types of commodities that will be included, some data points on these, and guidance on how to this information within the target setting method. The list is NOT comprehensive and is expected to be updated on a regular basis as data reveals new commodities of concern, and reasons to downgrade others.
    - Research to create the list has included collection of the following:
        - Citations on the contributions of these commodities to SBTN's key issue areas; searching white and gray literature
        - Quantitative estimates of impacts (specific to a unit of production or global), expressed in SBTN metrics or similar; searching key databases like FAOSTAT, Water Footprint Network
        - Specification of the key activities related to the production or use of a commodity or product which are most significant for the generation of a given impact
        - Most common sourcing locations
        - Most credible impact management and certification schemes
    - Commodities prioritized in this round of research correspond to those covered by the CAMEL tool and The Fashion Pact

- *How the HICL is used in the method:*
    - To refine the scope of the pressure assessment, by prioritizing supply chains to spend time on for data collection, and identifying which pressures are most affected by which commodities;
    - To prioritize investments for target setting, for instance in supply chain transparency and relationship-building, and to prioritize commodities to focus on innovations in practice changes;
    - Note that the High-Impact Commodity List *should not* be used by target setting companies to determine which commodities or locations to divest from; the intention of this list is to help to spur active engagement, create targeted partnerships and strengthen relationships in key commodities chains

- *HICL Development plans*
    - SBTN will expand the HICL, based on additional research
    - Expansions of the list will be reflected in updated language around recommendations and requirements in the methods documents
    - SBTN will explore how and whether to give companies 'credit' for work done to date on addressing impacts related to these commodities in Steps 1-3 as companies estimate impacts, prioritize where to act, and get started with target setting (noting that not all certification schemes and related reporting use indicators which can be easily

	translated into companies' reductions of pressures or contributions towards improvements in states)
-	SBTN will look into how shifts in different socioeconomic systems (e.g. food, energy and the built environment) should alter the prioritization and inclusion of different commodities

Appendix 7. Data and tools under consideration for use in the value chain pressure assessment

Table A4. Data and tools reviewed by SBTN and under consideration for the quantification of pressures for their direct operation and upstream categories of the value chain.[84]
The datasets and tools mentioned in this table are exemplary and not yet meant to be comprehensive. Information on accessibility of tools will be added for further context.

Name of Tool	Description of its use	Pressures quantified
Bioscope[85]	Determines the impact of a company's supply chain on biodiversity, visualized on a world map.	GHGs Land conversion Land use Soil pollution Water pollution Water use
CAMEL[86]	This tool estimates the impacts of production and sourcing of 5 of the most impactful crops on land systems: soy, cotton, maize, rice and oil palm; companies can use this to estimate their existing impacts on land.	Land use Land conversion Soil pollution
ecoinvent[87]	The ecoinvent Database is a repository covering a range of sectors at global and regional level. It contains more than 18,000 activities. ecoinvent datasets contain information on the industrial or agricultural process they model, measuring the natural resources withdrawn from the environment, the emissions released to the water, soil and air, the products demanded from other processes (electricity), and the products, co-products and wastes produced.	GHGs Land conversion Land use Soil pollution Water pollution Water use Non-GHG air pollutants Solid waste
Eora[88]	The Eora global supply chain database consists of a multi-region input-output table (MRIO) model that provides a time series of high-resolution IO tables with matching environmental and social satellite accounts for 190 countries.	GHGs Land use Soil pollution Water use Non-GHG air pollutants

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[84] Note that SBTN recommendations on preferred tools are subject to revision based on feedback from companies about the usability of tools and expansion based on further tool development.
[85] See source: https://bioscope.info/.
[86] Currently under development by SBTN Land Hub.
[87] https://ecoinvent.org/the-ecoinvent-database/
[88] https://worldmrio.com/

Exiobase - v3[89]	Detailed Multi-Regional Environmentally Extended Supply-Use Table (MR-SUT) and Input-Output Table (MR-IOT) used for the analysis of the environmental impacts associated with the final consumption of product groups.	GHGs Land use Resource extraction
GABI[90]	Software used to support Life Cycle Assessment, Life Cycle Costing, Life Cycle Reporting and Life Cycle Working Environment, outputs dependent on the method.	KPIs dependent on individual LCA methodology chosen
Global LCA Data Access network (GLAD)[91]	GLAD is an open sourced directory to various LCA databases which can be used to analyze and monitor the sustainability performance data of your company's products and services for sustainability reporting.	KPIs dependent on individual LCA methodology chosen
LandGriffon[92]	Tool to measure impacts of agricultural products.	Land use (occupation) Water use
OpenLCA[93]	An open source and free software for Sustainability and Life Cycle Assessments.	KPIs dependent on individual LCA methodology chosen
Simapro[94]	Software used to support Life Cycle Assessment, and analyze and monitor the sustainability performance data of your company's products and services for sustainability reporting.	KPIs dependent on individual LCA methodology chosen

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[89] See source: https://www.exiobase.eu/.
[90] See source: https://gabi.sphera.com/databases/gabi-databases/.
[91] See source: https://www.globallcadataaccess.org/.
[92] See source: https://www.landgriffon.com/.
[93] See source: https://www.openlca.org/.
[94] See source: https://simapro.com/.

Appendix 8. Data and tools under consideration for use in the value chain state of nature assessment

Table A5. Data and tools reviewed by SBTN and under consideration for the value chain state of nature assessment.

The datasets and tools mentioned in this table are exemplary and not yet meant to be comprehensive.

Resources	Description of use	Specific dataset(s) or tool(s) recommended	State of nature indicator
Aqueduct Water Risk Atlas[95]	Online mapping tool that helps users understand where and how water risks and opportunities are emerging worldwide.	- Baseline water stress; - Coastal eutrophication	Water stress Water pollution
Water Risk Filter	Online mapping tool that allows users to explore different water risks at different geographical scales.	- Water depletion; - Blue water scarcity; - Surface water quality	Water scarcity Water quality
McDowell et al.[96]	Global model of nitrogen and phosphorus concentrations in freshwater.	- Map of freshwater nutrient enrichment and periphyton growth potential[97] - Global database of diffuse riverine nitrogen and phosphorus loads and yields[98]	Water pollution
Trends.Earth[99]	Online platform that monitors "land degradation" — the reduction or loss of the biological or economic productivity of land.	Layers: - ESA Climate Change Initiative (Land cover) - SoilGrids USDA - GIMMS NDVI	Land degradation
Global Forest Watch[100]	Online repository of the latest data, technology and tools to monitor forests and land use impacts, and guide forest protection.	Layer: - Tree cover loss - Global biodiversity intactness[101]	Land degradation Biodiversity (Ecosystem integrity;

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[95] World Resources Institute, https://wri.org/applications/aqueduct/water-risk-atlas/#/?advanced=false&basemap=hydro&indicator=w_awr_def_tot_cat&lat=2.63 57885741666065&lng=-90.703125&mapMode=view&month=1&opacity=0.5&ponderation=DEF&predefined=false&projection=absolu te&scenario=optimistic&scope=baseline&timeScale=annual&year=baseline&zoom=2

[96] For the McDowell layers, companies can use either the coarse map in McDowell et al. (2020a) to define whether undesirable conditions exist at a particular location, or use the more spatially discrete N and P data available in McDowell et al. (2020b).

[97] McDowell et al. (2020a): https://www.nature.com/articles/s41598-020-60279-w

[98] McDowell et al. (2020b): https://rmets.onlinelibrary.wiley.com/doi/full/10.1002/gdj3.111

[99] Conservation International - https://docs.trends.earth/en/latest/#

[100] World Resources Institute, https://www.globalforestwatch.org/

[101] See UNEP-WCMC, https://www.globalforestwatch.org/map/

		- Global biodiversity significance[102] - Biodiversity Hotspots[103]	Terrestrial)[104]
Red List of Ecosystems (RLE)[105,106]	Global framework for monitoring the status of ecosystems and part of a toolbox with various resources for assessing risks to biodiversity and aims to support conservation, resource use, and management decisions by identifying ecosystems most at risk of biodiversity loss.	Tools - R scripts to calculate the Ecosystem indices to support global biodiversity conservation - Conceptual Model Tool - IUCN RLE Assessments - Global 10 x 10-km grids suitable for use in IUCN Red List of Ecosystems assessments	Biodiversity (Ecosystem integrity)
Integrated Biodiversity Assessment Tool (IBAT)[107]	Online mapping tool used to provide authoritative geographic information about global biodiversity for both land and water.	Layers: - Species threat abatement and restoration metric (STAR)[108] and/or - IUCN Red List of Threatened Species (species extinction risk/species benefit potential)[109] - Key biodiversity areas[110,111,112]	Biodiversity (Terrestrial; Ecosystem integrity and species)
Beyer et al.[113]	An intactness metric which captures both habitat loss, quality and fragmentation effects and is calculated using continuous measures of habitat quality.	Ecoregion intactness index	Biodiversity (Terrestrial; Ecosystem integrity and species)

[102] See UNEP-WCMC, https://www.globalforestwatch.org/map/

[103] See Conservation International, https://www.cepf.net/our-work/biodiversity-hotspots

[104] Global Forest Watch can be used to perform a biodiversity assessment in terms of ecosystem integrity and species extinction risk.

[105] See https://www.iucnrle.org/

[106] See Keith *et al.* (2013): https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0062111.

[107] Birdlife, Conservation International, IUCN, UNEP-WCMC, https://www.ibat-alliance.org/

[108] See Mair *et al.* 2021 and IUCN 2021. See IBAT for the global STAR data. https://www.ibat-alliance.org/star?locale=en.

[109] The IUCN Red List of Threatened Species can be a useful reference for species groups not covered in STAR and for freshwater and marine realms. See Hoffmann *et al.* (2010).

[110] See https://www.keybiodiversityareas.org/

[111] *For ecosystems*, the key criteria for KBAs which can be used to evaluate condition and significance are A2a, A2b, B4, and C.

[112] *For species*, the key criteria which can be used to evaluate condition and significance are A1, B1, B2, B3, D1, D2, and E.

[113] See Beyer et al. 2019: https://conbio.onlinelibrary.wiley.com/doi/full/10.1111/conl.12692.

Ecosystem integrity index[114]	An Ecosystem integrity index (EII) is an indicator of ecosystem integrity based on structure, composition, and function.	Ecoregion integrity index	Biodiversity (Terrestrial; Ecosystem integrity and species)
Biggs and Scholes, 2005[115]	The Biodiversity Intactness Index (BII) is an indicator of the overall state of biodiversity in a given area, synthesizing land use, ecosystem extent, species richness and population abundance data.	Biodiversity intactness index (BII)	Biodiversity (Terrestrial; Ecosystem integrity and species)
Bulle et al 2019[116], IMPACT World +[117], as well as Quantis 2021[118].	Used to calculate measures of potentially disappeared fractions (PDFm^2 year).	IMPACT World+ files: - Implementation for Simapro - CSV files; - Implementation for Brightway2; - Access database	Biodiversity (Terrestrial; Ecosystem integrity and species)
Forest Landscape Integrity Index[119]	Integrates data on observed and inferred forest pressures and lost forest connectivity to generate the first globally-consistent, continuous index of forest integrity as determined by degree of anthropogenic modification.	Google Earth Engine map and continuous spatial datasets that combine and index: - World Database of Protected Areas ; - Intact Forest Landscapes ; - Primary Humid Tropical Forests	Forest Landscape Integrity Index
Oliver et al.[120]	Metric used to quantify losses and predict gains in terrestrial biodiversity value at development and offset sites.	Vegetation Integrity Index	Vegetation Integrity metric
Global Ecosystem Typology[121]	A classification framework for Earth's ecosystems that integrates their functional and compositional features.	Tool - IUCN Global Ecosystem Typology	Ecosystem mapping
Ocean+[122]	Online platform that provides an overview of global marine and	Tools - Ocean+ Habitats	Biodiversity (Marine)[123]

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[114] See pre-print available here: https://www.biorxiv.org/content/10.1101/2022.08.21.504707v1

[115] See Biggs and Scholes 2005: https://researchspace.csir.co.za/dspace/bitstream/handle/10204/2026/scholes_2005.pdf?sequence=3.

[116] See Bulle et al. 2019: https://link.springer.com/article/10.1007/s11367-019-01583-0

[117] See source: https://link.springer.com/article/10.1007%2Fs11367-019-01583-0

[118] See source: https://quantis-intl.com/wp-content/uploads/2021/07/quantis-biodiversity-methodology-2021-3.pdf

[119] See https://www.forestintegrity.com/

[120] See Oliver *et al*. 2021: https://www.sciencedirect.com/science/article/pii/S1470160X21000066.

[121] See https://global-ecosystems.org/ and Keith *et al*. (2020): https://portals.iucn.org/library/node/49250.

[122] GEO BON, UNEP-WCMC, https://oceanplus.org/

[123] Ocean+ can be used to perform a biodiversity assessment in terms of ecosystem integrity and species extinction risk.

	coastal datasets of biodiversity importance. The site can be used to identify resources to support 1) assessments and monitoring of ecosystems/biodiversity within marine habitats 2) site assessments and risk prevention, 3) identification of ecosystem services and marine natural capital, 4) development of marine spatial plans/siting of marine protected areas, 5) analyses of national and international conventions and agreements.	- Ocean Library - Protected Planet - Ocean data viewer	
GLOBIO[124]	A model that calculates local terrestrial biodiversity intactness, expressed by the mean species abundance (MSA) indicator.	Mean species abundance (MSA)	Biodiversity (Terrestrial; Ecosystem integrity and species)
Chaplin-Kramer et al. (2021)[125]	If using remote sensing, maps of existing critical natural assets can be used to assess current NCPs production. The methods used to create those maps can also be used to explore potential future changes in and methods for forecasting changes in distribution and performance in response to changes in land use, climate, population, economic strategies, etc.		Biodiversity (NCPs) Note: The services included in that analysis are Nitrogen retention, Sediment retention, Atmospheric moisture recycling, Pollination, Grazing, Commercial timber, Domestic timber, Fuelwood, Flood regulation, Access to nature, Riverine fish catch, Marine fish catch, Coral reef tourism, Coastal risk reduction.

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[124] See description on the GLOBIO site: https://www.globio.info/what-is-globio.

[125] See https://www.researchsquare.com/article/rs-1102108/v1.

Technical Guidance for Step 2: Prioritize

1. Introduction to Step 2

Following SBTN guidance for the first part of the target-setting process, Step 1: Assess, companies gather information on the significant pressures generated by their activities and on the corresponding state of nature in the locations where they operate. In the next phase of target setting, Step 2: Prioritize, companies use that information to determine *which types of targets to set*, *which economic activities to include within their target boundaries*, and *where to act first* in order to effectively mitigate their most significant negative impacts on nature and increase their potential for positive impacts.

Before using the Step 2: Prioritize method, companies _must_ first complete a value chain assessment using the guidance outlined by SBTN in Step 1: Assess. Whether or not companies use the prescriptive method introduced by SBTN for Step 1, companies _must_ follow SBTN guidance on data quality (see Appendix 4 for Step 1) and essential outputs (see Table 4 in Section 1.2 for Step 1 for "outputs") in order to make validatable claims about the completion of the first step in the target-setting process. Use of the SBTN prescriptive method for Step 1 and compliance with the requirements detailed in the guidance will also enable companies to apply the methods outlined for Step 2 below without collecting additional information.

As with the Technical Guidance for Step 1, the content in this document has been developed based on iterative feedback from companies and practitioners testing SBTN's Initial Guidance for Business and incremental advances in the method since its launch in 2020. This version of the guidance has been tailored to be compatible with the data requirements for the methods under development for Step 3.[126]

1.1 Method Scope

For the value chain and pressure scope of the Step 2 method, please see the guidance in Step 1: Assess. The guidance for Step 2: Prioritize covers the same scope, with companies applying the method to all parts of the value chain and pressures identified as material in Step 1.

1.2 Overview of the Step 2 Method

When starting Step 2: Prioritize, companies _must_ have defined the scope of their business included in the assessment step of the target-setting process, and identified the key environmental pressures generated by the economic activities included in that scope.

SBTs for nature will correspond to the key pressure categories included within the scope of the overarching SBTN methodology.[127] Using SBTN methods and guidance, *companies will set targets specific to each of the pressures that are material for their business*. If a company has material contributions toward water use, greenhouse gas emissions, and water pollution, they _must_ set targets on each of these pressures.[128]

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[126] From SBTN, these methods include those for setting targets on freshwater quantity and freshwater quality, land use change, land use and soil pollution. Links for land methods will be available beginning in 2023. Methods for setting climate targets are already available through SBTi, see: https://sciencebasedtargets.org/.

[127] The list of pressures covered by SBTN in Step 1 and Step 2 are also available in 1.1.2 Pressure Scope - Table 2 .

[128] The full list of pressures companies may continue to assess and analyze in Step 2 is provided in 1.1.2 Pressure Scope - Table 2
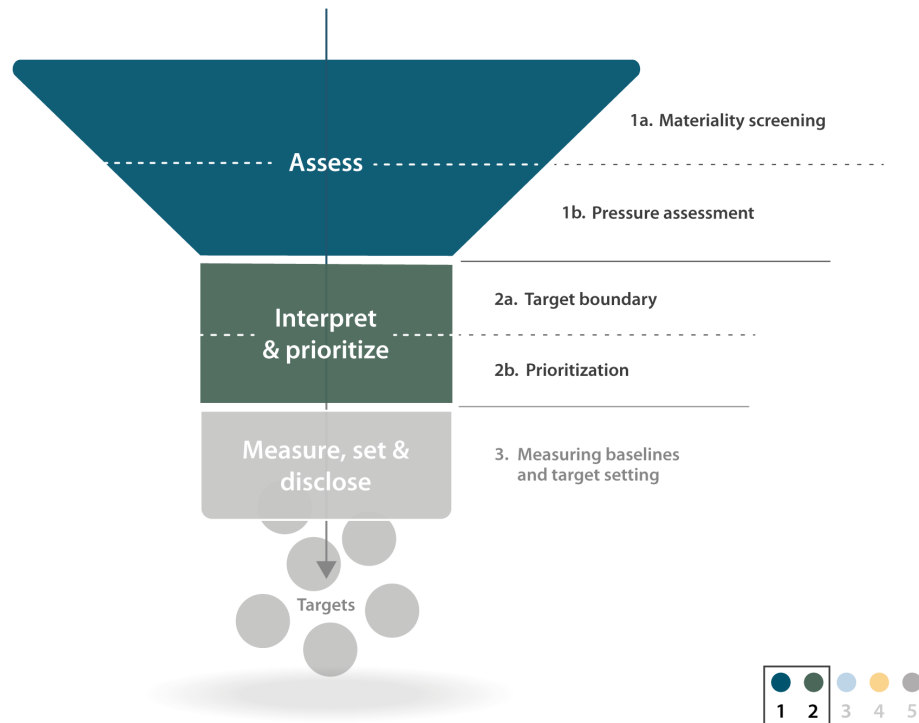
Figure 1. Narrowing the scope of the target-setting process.

Material contributions of the company and its different activities (e.g., mining, manufacturing, and distribution) are estimated during Step 1 of the target-setting process. In Step 2, companies take these estimates and analyze them to determine which activities contribute toward the overall corporate footprint, in which locations, require management through targets. The activities that are within scope for a given pressure target are said to fall within the **"target boundary"**[129] for that pressure. *To make claims about setting SBTs for nature, companies will need to define the target boundary for each pressure identified as material*. After defining target boundaries, companies _must_ analyze the data on locations within each to assess the relative urgency of action for nature, generating an impact-based **ranking** of priority locations. Together, the definition of the target boundary and ranking of locations within it are considered Step 2a: Interpret, and are required elements of the Step 2 method.

To enable application of the methods for measuring baseline impacts and setting targets (Step 3), companies _may_ wish to apply a **prioritization approach** to determine which of the ranked locations they should proceed with for the first stage of target settings. Companies _may_ also complement the use of these prioritization approaches with a **feasibility screening** to assess which locations are most feasible to begin with, and which have the highest strategic importance of action.

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[129] A **target boundary** denotes the full scope of activities and locations which must be considered within a company's comprehensive target plan for a given pressure category.

Both of these analytical approaches are optional within the Step 2 methodology and provide complementary information for consideration by businesses; together, these processes of prioritization and screening are referred to as Step 2b: Prioritize.[130] The first is an impact-based approach, relying on information on the values of pressures and states of nature determined in Step 1, using an environmental perspective of materiality. The second is a risk-based approach, relying on information introduced by the company applying the method, to determine the strategic opportunity and feasibility of target setting, and is based on information grounded in a financial or corporate perspective of materiality.

Table 1. Overview of requirements and recommendations for Step 2a and 2b

Method Section	Description	SBTN guidance for companies
Step 2a	Generate target boundary and location ranking	_Required_ to use in the target-setting methodology
Step 2b	Prioritize between locations using additional criteria; screen for feasibility	_Recommended_ to use in the target-setting methodology

As an outcome of Step 2: Prioritize, companies will know the relative importance of different pressures and locations, and where different types of action (e.g., avoidance, reduction, and restoration)[131] are most needed. This information can be critical for companies' overarching target-setting strategies and will enable companies to pointedly engage with the appropriate methods available for taking baseline measurements and setting targets in Step 3.[132]

See Section 1.3 for an overview of the information companies should use to determine their target boundaries and then prioritize within these. The table also provides an overview of the data outputs from Step 2 needed in order to engage with the Step 3 target-setting methods.

Box 1. Note for readers familiar with the Initial Guidance.

Section 2: Set Target Boundaries focuses on two of the seven factors for interpretation and prioritization introduced in the Initial Guidance.[133] These include factors _A - Contribution of different locations, commodities, suppliers to total impact of the company_ and _B - State of nature in value chain locations_. These two factors are emphasized given the ease of accessing information relevant for the assessment in Step 1 and evaluation in Step 2, and the factors which have been recommended by experts engaged in the SBTN development process as most significant from an environmental and societal materiality perspective. Additional factors from the Initial Guidance are included in Section 3:

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[130] **Spatial prioritization** is a tool used to identify priority areas for action, as an analysis which integrates spatial data about company pressures, the state of nature , and aspects of implementation including the needs and capacity of stakeholders, the needs of value chain partners, and the policy context

[131] See SBTN Initial Guidance on Step 4: Act.
https://sciencebasedtargetsnetwork.org/wp-content/uploads/2020/11/Science-Based-Targets-for-Nature-Initial-Guidance-for-Business.pdf

[132] See SBTi if climate is material: https://sciencebasedtargets.org/. If other issues are material, see SBTN Resources page for Step 3 guidance.

[133] See :
https://sciencebasedtargetsnetwork.org/wp-content/uploads/2020/11/Science-Based-Targets-for-Nature-Initial-Guidance-for-Business.pdf

Screen for Feasibility and Strategic Interest, in this document. Using the numeration from the Initial Guidance, these include factors *D - Needs and capacity of local stakeholders, E - Company-level stakeholders, F - Needs and capacity of value chain partners and/or subsidiaries,* and *G - Policy environment*.

The only factor for prioritization introduced in the Initial Guidance that is not included in this revision of the Step 2 method is *Factor C - Relative contribution of the company to the state of nature, compared to other stakeholders*. This factor is addressed in Step 3 baselining and target-setting methods.

1.3 Data Requirements

Table 2 provides an overview of the data companies need in order to use the current Step 2 guidance. Where needed, additional details on data requirements for each step and value chain category are provided within the methodology for each step. Note that data needed for each step builds on what is collected and used for the previous step, so companies *must* collect the data required for Step 1 before proceeding to Step 2.

Table 2. Overview of data requirements per step and value chain segment.

	Step 2: Interpret & prioritize
Objective of the method for this step	***For drawing target boundaries (Step 2a):*** *Determine where to act first for nature, based on information about pressures and the state of nature.* ***For prioritization (Step 2b):*** *Create a target-setting strategy based on prioritization and a feasibility screening.*
Direct operations	
Data needs	*Required for defining target boundaries:* • Data collected during Step 1: pressure data for all activities assessed, data on State of Nature (pressure-specific and general), and the locations of all sites
Associated with what parts of the company's data?	Operational sites (paired with activities and commodities) and their geographic locations.
Inputs and outputs	Input: • Long list of pressure and state of nature (SoN) *estimates* per operational site, output from Step 1 Output: • Prioritized list of operational site-location pairs
Upstream	
Data needs	*Required for determining the target boundary:* • Data collected during Step 1: data on pressures, states, and locations of

	highest impact activities in production chain of high impact commodities
Associated with what parts of the company's data?	Activities and commodities (paired with locations)
Inputs and outputs	Input: • Long list of pressure and SoN *estimates* per procurement or activity, output from Step 1 Output: • List of prioritized activity/commodity and location-pairs

2. Set Target Boundaries

2.1 Target Boundary Overview

As stated in the Introduction to this guidance, companies must apply the Step 2 methods for each material pressure identified in Step 1.

To begin defining target boundaries, companies _must_ have all relevant pressure estimates and **state of nature (SoN)**[134] scores per site location in their **direct operations**, and per good or service assessed for their **upstream**.[135] The method for Step 2 is written based on the assumption that company data collected during Step 1 will have been organized by activity-location pairs for direct operations and activity/service-location or commodity/good-location pairs for upstream.

For the determination of target boundaries (Step 2a), companies _must_ separate data on upstream activities and direct operations. This will facilitate the validation process for each distinct target boundary (associated with each pressure and value chain segment). Separating the data can allow companies to break apart the process of target setting into a more manageable process. This separation also allows companies to tease out factors influencing feasibility and implementation that may differ depending on whether companies are acting on their own activities or on those of upstream suppliers. In Step 3, companies may choose to combine the data on direct operations and upstream activities when these are occurring within the same **spatial domain** in order to act on pressures related to multiple activities (stemming from both) all occurring within a shared landscape or spatial extent (e.g., country).

As stated above, the method for Step 2 _requires_ companies to analyze their data for each pressure separately. It is _recommended_ that companies group their data by pressure before starting to use the method (e.g., sort data into new sheets grouped by pressure). This data structure will support the use of the rest of the methodology; the required sub-steps for defining target boundaries and ranking of locations within target boundaries (Section 2.1.1-2.2.4), as well

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[134] SBTN defines **state of nature** indicators as those that describe the general conditions of nature in physical, chemical, or biological terms. These state of nature indicators change in response to pressures.
[135] *Guidance on downstream activities will be covered in future methods.*

as the optional sub-steps (if used) for prioritizing (Section 2.2.5) and screening for feasibility (Section 3 and Appendix 2 - Step 2), _must_ be applied for each material pressure.

For Step 2, companies _should not_ combine data _between_ pressure categories, nor _between_ states of nature, as the units, values, and spatio-temporal resolutions are not compatible. All estimates of pressures must be analyzed separately; for instance, estimates of water use and land use change across sites and value chains cannot be combined.

2.1.1 Guidance on Spatial Scale of Step 2

At the end of Step 1: Assess, companies associated spatially-explicit pressure data with spatially-explicit state of nature data (e.g., data on land use change for a given farm was associated with the level of ecological integrity for that region). After Step 1, companies should preserve the data they have on activities and commodities in compatible units and **spatial scales** (also referred to as spatial resolution).[136] For each pressure category, the spatial scales of pressure data per activity should be consistent with state of nature data (e.g., retain both at country level if already compatible scales, or aggregate one value from sub-national to country level to match the other dataset). In this way, companies can use more precise data to describe their activities where it is available, but have the flexibility to prioritize at the country level when more precise data are not available.

Companies are _recommended_ to use the finest spatial scale possible for each activity, depending on available pressure and state of nature data. Note that where coarser data are used, more precise pressure data may be required for target setting in Step 3.

In the Step 1 value chain assessment, companies received guidance on combining the scale of pressure and state of nature data. This guidance states that when pressure data are finer scale than recommended state of nature data (e.g., pressures at sub-national or site level vs. state of nature at country level), the data for that pressure category must be added within the spatial unit of the state of nature data (e.g., a company would calculate the sum of all water use associated with different activities within a given country if pressures for all other direct operations activities for water use are known at the country scale) such that the single aggregated pressure value would be associated with one state of nature value.

When the spatial resolution of the state of nature data are finer than that of pressure data, an appropriate aggregating statistic must be used to upscale the data (in many cases mean or median values). An example of this would be a company that has state- or province-level data on land management for agricultural holdings but finer-scale data on ecosystem intactness. The company would then calculate the median ecosystem intactness for the province in order to continue the Step 2 analysis. Note that the same approach for aggregation is recommended to be used by companies when dealing with uncertainty or variability of sourcing in their upstream data sets (see Section 2.1.3).

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[136] See Table 2; see also Section 3.4: Spatialize Value Chain Pressure Data in the Step 1 method.

Once companies have harmonized the spatial scale of their data for each pressure category, they will have their final spatial data on pressures and states of nature per relevant economic activity needed to calculate the target boundary.

Table 3. Distinguishing between fine and coarse data.

Spatial Scale/Resolution	Definition	Example
Fine-scale data *(i.e. high resolution data)*	Data where small areas can be evaluated are said to have fine or high spatial resolution.	Company A may have data on water use at the farm scale, meaning they know how much water is used by specific farms. They can also estimate total water use for the country by adding up the values for individual farms.
Coarse-scale data *(i.e. low resolution data)*	Data where only large areas can be evaluated are said to have coarse or low spatial resolution.	Company A may only have data on land conversion at the country level, meaning that while they know the net deforestation in the country, they cannot assign it to specific farms *within* the country.

2.1.2 Define Direct Operations Target Boundary

Companies _must_ define a target boundary within their direct operations for *each* pressure category required for assessment based on the outcome of Step 1: Assess. The **target boundary** for a pressure is *the full scope of activities and locations that must be considered within a company's comprehensive target plan for a given pressure category*. By the end of this step in the method, companies will have defined as many target boundaries as they have pressures _requiring_ assessment.[137]

To define the target boundary, companies _must_ use data on pressures (e.g., for water use, water pollution, land use/occupation, and land use change/conversion) and state variables that are most sensitive to those pressures (e.g., water availability, water quality, and ecosystem integrity), called pressure-specific state of nature variables (SoN_P), as well as general state of nature variables (SoN_G) (specifically, species extinction risk).[138] This information should have been derived either using the Step 1 methods or in compliance with the Step 1 criteria for validation. See the Step 1b value chain assessment method for information on the datasets appropriate for use and the informational inputs companies should have in order to use them.[139]

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[137] This can be anywhere between 1-8 material pressures, he full list of pressures companies may continue to assess and analyze in Step 2 is provided in 1.1.2 Pressure Scope - Table 2.

[138] Species are the only component of biodiversity currently covered by the SoNG indicators. Other components - ecosystems and nature's contributions to people (NCPs) - are covered in SoN_P.

[139] *SBTN is working to ensure that recommended datasets are either open access and freely available to end users or providing access where required.*

The direct operations target boundary for each pressure must include all material activities in the company's direct operations at a spatial scale compatible with their pressure and state of nature and consistent with SBTN tool and data criteria outlined in Step 1.

Box 2. Defining the target boundary – fictional case of Ursus Nourishment (Part VI)

The sites directly owned and operated by *Ursus Nourishment* are located in Belgium, France, United Kingdom, Spain, Germany, The Netherlands and France. Each location contributes in different intensities towards the pressures required for assessment within their direct operations: land use, land use change, water use, greenhouse gas emissions, water pollution and soil pollution.* To start Step 2, the Ursus team begins reviewing their data to see which activities and commodities need to be included within the target boundary of each material pressure.

See Box 6 in the Step 1 method for the (mock) data compiled by the Ursus team.

Figure 2. Example target boundary.
A target boundary denotes the full scope of activities and locations which must be considered within a company's comprehensive target plan for a given pressure category. Each target boundary for each material pressure includes the estimated pressures for each site-location pair. Figure 2 shows how a company determines its target boundary for a material pressure as the total area covered by all economic activities material for a given pressure category. Here water use (calculated as water withdrawals) is shown in orange bars with the quantity of water use indicated by the height of the bar. The symbols indicate economic activities, pressure bars with multiple symbols have multiple economic activities occurring in the same location. For each pressure-specific target boundary that the company needs to generate they could imagine a similar map with the appropriate data points for activities and pressures at each relevant location.

2.1.3 Define Upstream Target Boundary

When defining target boundaries for pressures that are material for their upstream activities, companies should use the same rules of thumb for harmonizing spatial scales introduced in Section 2.1.1 and on data collection and processing as overviewed in Section 2.1.2 for direct

operations. Again, companies _must_ determine an upstream target boundary for each pressure determined to be material in Step 1, for validation of Step 2.

Companies' upstream data on pressures is likely to be associated with broad categories of goods/commodities and services/activities, and estimated based on the best available data the company has for tracking these. Often this will mean that a coarser scale of analysis may be needed for processing state and pressure data on upstream activities than is used for direct operations (e.g., all country level rather than local, and yearly rather than monthly). As well, activities and commodities may not all have the same level or type of data available. Companies may need to consider these differences in information availability, and the range of uncertainty in the data, based on differences in precision as they consider what to prioritize for action.

The upstream target boundary for each pressure must include all material goods and services in the company's upstream, consistent with guidance in the Step 1a materiality screening for coverage rules, at a spatial scale compatible with their pressure and state of nature and consistent with SBTN tool and data criteria outlined in Step 1.

Companies may face challenges identifying sourcing locations when applying the Step 1 and 2 methods. In the Step 1 value chain assessment, companies may use models to estimate sourcing locations in cases where sourcing locations are shifting or where there is great uncertainty about sourcing locations (e.g., when purchasing from wholesalers). In these cases, companies may have identified a set of countries with possible production of a commodity. The Step 2 methods offer guidance for addressing the uncertainty in upstream location information in Section 2.1.1, Section 2.1.4, Appendix 2, and validation criteria.

2.1.4 Interpretation of Target Boundaries

The target boundary denotes the full scope of activities and locations that must be considered within a company's comprehensive target plan for a given pressure category. Though companies are eventually[140] _required_ to act to address their impacts across pressure-specific target boundaries, this _does not_ mean that companies will set targets _throughout the full spatial extent_ associated with their target boundary.

Target boundaries are set with less precision on spatial extent than that eventually required for target setting in Step 3. As companies apply the methods for target setting in Step 3, they may find that they set targets _within_ the full target boundary but not for the whole area.[141] Taking the _Ursus Nourishment_ example, the company's original pressure data for Step 1 and Step 2 may be at the country level (and therefore companies target boundaries will indicate that 11 countries need to be considered within the scope of targets for their material pressures), but as the company begins baselining, they may be able to define the specific provinces or farms from which they source. The spatial domain of a target set in Step 3 would therefore be of a smaller and more precise scope than that used to determine the target boundary and to prioritize in Step 2.

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[140] _Guidance on time horizons for full coverage of material pressures and target boundaries is forthcoming with the release of the V1 of SBTs for Nature._

[141] Note: Companies may come across these issues of spatial incongruence in their direct operations data, but are more likely to find these with their upstream data.

Companies *must* provide adequate documentation[142] if further analysis toward target setting (Step 3) shows that they impact only a subset of the areas identified in the upstream target boundary. For example, uncertainties in upstream sourcing may mean that companies estimate pressures using multiple countries associated with sourcing a given commodity and incorporate that modeled information into their target boundary. Further analysis may show that, for that company, only one country is an accurate commodity sourcing location.

Box 3. Defining target boundaries – fictional case of Ursus Nourishment (Part VII)

Scope included in ***direct operations target boundaries*** (see Box 6, Table 12 in Step 1 method):

Target boundary	Activities covered
Climate change[143]	*Industrial emissions* – All 4 manufacturing and packaging sites/countries: Belgium, France, Spain, and the United Kingdom (UK) *Land use change emissions* – All 3 crop production sites/countries: Spain, Germany and France
Land use	All 5 sites/countries: Belgium, France, Germany, Spain, and the UK, and all activities: production, manufacturing, and packaging
Land use change	Manufacturing site in France Crop growing in Spain, Germany and France
Water use	All 5 sites/countries: Belgium, France, Germany, Spain, and the UK, and all activities: production, manufacturing, and packaging
Soil pollution	All 5 sites/countries: Belgium, France, Germany, Spain, and the UK, and all activities: production, manufacturing, and packaging
Water pollution	All 5 sites/countries: Belgium, France, Germany, Spain, and the UK, and all activities: production, manufacturing, and packaging

Countries included in **upstream target boundaries** *(see Box 6, Table 13 in Step 1 method):*
Activities related to the production of high-impact commodities are included within the scope of each target boundary. All 11 crop production sites/countries are included in the scope of each target boundary other than that for water pollution, which includes only 9 countries.

Target boundary	Activities covered
Climate change[144]	All 11 crop production sites/countries: Argentina, Belgium, Brazil, Canada, Côte d'Ivoire, Ghana, Ecuador, India, Philippines, Sri Lanka, and

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[142] *Further guidance on validation is forthcoming from SBTN.*

[143] If climate is material the company *must* consult SBTi and FLAG methods to determine which activities and locations must be within their target boundary.

[144] If climate is material the company *must* consult SBTi and FLAG methods to determine which activities and locations must be within their target boundary.

	the United States, and all high-impact commodities
Land use	All 11 crop production sites/countries: Argentina, Belgium, Brazil, Canada, Côte d'Ivoire, Ghana, Ecuador, India, Philippines, Sri Lanka, and the United States, and all high-impact commodities
Land use change	All 11 crop production sites/countries: Argentina, Belgium, Brazil, Canada, Côte d'Ivoire, Ghana, Ecuador, India, Philippines, Sri Lanka, and the United States, and all high-impact commodities
Water use	All 11 crop production sites/countries: Argentina, Belgium, Brazil, Canada, Côte d'Ivoire, Ghana, Ecuador, India, Philippines, Sri Lanka, and the United States, and all high-impact commodities
Soil pollution	All 11 crop production sites/countries: Argentina, Belgium, Brazil, Canada, Côte d'Ivoire, Ghana, Ecuador, India, Philippines, Sri Lanka, and the United States, and all high-impact commodities
Water pollution	9 production sites/countries: Argentina, Belgium, Brazil, Canada, Côte d'Ivoire, Ghana, Ecuador, India, and the United States, and all high-impact commodities

2.2 Interpreting Importance within the Target Boundary

Though companies _must_ eventually set targets throughout their target boundary, it may be impractical for companies to act on all material pressures, in all locations, at once.

This method introduces a two-phased approach to developing a target-setting strategy. The first part of this process is required, and the second is recommended.
- Ranking of locations (2.2.1-2.2.4)
- Prioritization of locations (2.2.5)

Companies are _recommended_ to use a prioritization approach when determining their target-setting strategy. Assuming that many companies will require some form of prioritization, SBTN has introduced prescriptive options for prioritization (Section 2.2.5) in order to increase the likelihood of the following benefits:
- _Focusing corporate action to the places most urgent for nature._ If all companies act in locations where rapid action is needed, society is more likely to "bend" the curve of biodiversity and nature loss.
- _Reducing the barriers to entry for companies getting started with setting SBTs._ By prioritizing, companies can first focus on the key locations for data acquisition and stakeholder engagement. This approach can also reduce time to target establishment and increase effectiveness of established targets.
- _Creating capacity within organizations._ Enabling companies to get started not only where it matters most for nature, and also where they have the most to build on can increase

the confidence of the teams setting targets and create a community of learning and empowerment within the company.

As noted earlier in this guidance, companies *must* apply the ranking rule, and the optional prioritization approach and feasibility screening, within each pressure-specific target boundary. This will ensure that the priority locations to address for each pressure category are determined independently, and then compared to assess opportunities for synergies.

2.2.1 Calculating Pressure-Specific Index Values

Prior to conducting the pressure-specific ranking of locations, companies must calculate an index value for each location using estimated pressure values (P) and pressure-sensitive state of nature scores (SoN_P). As a reminder, this must be calculated independently for each material pressure. The number of index values needed for a given location corresponds to the number of target boundaries that include that location. The pressure categories requiring the calculation of I_P should correspond to the material pressures identified in the value chain assessment. The links between pressures and SoN_P variables is covered in Section 3.3.1 of the Step 1 method.

To create the index (I_P), companies combine pressure and state data for each location relevant to that pressure (e.g., each direct operation activity known to have water pollution impacts) using the equation $I_P = P \times SoN_P$. This means that the pressure-specific index is the product of the pressure (P) multiplied by the relevant pressure-sensitive state of nature value (SoN_P).

To derive the components used to calculate this index, companies *must* use the datasets indicated in the Step 1 guidance for estimating SoN_P and the units specified for pressure data.[145] In cases where SBTN has not given prescriptive guidance (i.e., requirements) for SoN_P estimation, companies *must* document their choice of datasets when reporting the results of their ranking (making sure the choice is consistent with the tool and data criteria in Appendix 7 of Step 1).[146]

The index value must be calculated for each site, and as such, must use data for each variable associated with compatible spatial scales (see Section 2.1.2). If pressure estimates for a given direct operation activity are only available at the country scale, then the company should summarize SoN_P data (e.g., if collected for sub-national basins) appropriately to the country scale (e.g., using a mean or median value). The output of this step is shown in the right-most column of Table 4 (see column in bold).

Companies *must* repeat this exercise for every material pressure.

Box 4. Ranking locations within target boundaries – fictional case of Ursus Nourishment (Part VIII)

The Ursus team followed guidance from SBTN on how to generate indexed values (I_P) to

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[145] See Table 7 in the Step 1 method.

[146] Note that before calculating index values, companies should make sure to consider interpretation guidance from method developers when using a state of nature dataset without specific SBTN guidance. Use of an inappropriate indicator could impact the ranking and prioritization. If low values indicate greater urgency for action, address this within the SoN metric before combining with the pressure score and altering the prioritization.

capture the relationship between their pressure (P) and pressure-specific state of nature (SoN_P) data.

The team began calculating index values starting with the pressure indicators of water use and water pollutants. The SoN_P indicators linked to these pressures, Water Stress and Eutrophication, are captured in the recommended tools by qualitative categorical scores. In order to apply the index rule, the team therefore needed to begin by converting the categorical scores to quantitative scores appropriate to the range used in the tool (1-5, where 1 = Very Low, 2 = Low, 3= Medium, 4 = High, and 5 = Very High).

Table 3. Using pressure and state data to generate index values, water use and water stress example.

Site ID	Activities at site	Location	P - Water withdrawals (m³)	SoN_P - Water Stress[147]	Index value I_P (Pressure × SoN_P)
DO #1	Manufacture of other food products; Packaging	Belgium	1,000,000	4	4,000,000
DO #2	Manufacture of other food products; Packaging	France	700,000	3	2,100,000
DO #3	Manufacture of other food products	United Kingdom	300,000	2	600,000
DO #4	Manufacture of other food products	Spain	250,000	4	1,000,000
DO #5	Growing of non-perennials	Spain	2,800,000	4	11,200,000
DO #6	Growing of non-perennials	Germany	1,000,000	4	4,000,000
DO #7	Growing of non-perennials	France	1,200,000	4	4,800,000

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[147] Values range from Very Low to Very High.

Table 4. Using pressure and state data to generate index values, water pollutants and eutrophication example.

Site ID	Activities at site	Location	Water pollution (kg P-eq)	Eutrophication potential[148] (SoN$_P$ - water pollutants)	Index value I$_P$ (Pressure × SoN$_P$)
DO #1	Manufacture of other food products; Packaging	Belgium	500,000	5	2,500,000
DO #2	Manufacture of other food products; Packaging	France	115,000	4	460,000
DO #3	Manufacture of other food products	United Kingdom	300,000	5	1,500,000
DO #4	Manufacture of other food products	Spain	160,000	4	640,000
DO #5	Growing of non-perennials	Spain	1,450,000	4	5,800,000
DO #6	Growing of non-perennials	Germany	1,200,000	4	4,800,000
DO #7	Growing of non-perennials	France	900,000	4	3,600,000

2.2.2 Ranking Sites Based on Pressure-Specific Index Values

For both the pressure and the SoN$_P$ datasets, higher values are interpreted as requiring more urgent action (e.g., higher pressure is interpreted as indicating more damage potential from a given economic activity, and a higher state value is interpreted as greater damage already felt by the ecosystem). Based on this interpretation rule, after calculating the pressure-specific index value (I$_P$), companies can then rank sites connected to a given pressure from high to low, taking

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[148] Values range from Low to Very High.

higher values to mean higher priority of action. See Tables 5 and 6 for examples of location rankings by index value (right-most column in bold). Note: *Companies will not use this information on I_P ranks in the methodology until they have generated ranks for all locations based on SoN_G, see Section 2.2.3 on generating ranks based on SoN_G and Section 2.2.4 for combining information on ranks from both variables*.

Box 5. Ranking locations within target boundaries – fictional case of Ursus Nourishment (Part IX)

Using the index values for each pressure-state combination, the team then generated ranks for all locations within each pressure target boundary. They found this part of the process straightforward when sorting the data in Excel. Based on the sorted order, the team manually recorded the ranking for each location within the target boundaries for water use and water pollutants.

This process was conducted independently for water use and water pollutants, following guidance in Step 2. Because this guidance reflects the structure of baselining and target setting methods for freshwater (see Step 3: Measure, Set & Disclose - Initial Freshwater SBTs), companies are on the path to determining a final location ranking (incorporating the SoN_G location ranking described in the following case study segment) and their target-setting strategy.

Table 5. Ranked locations within the direct operations water use target boundary, using I_P.

Site ID	Activities at site	Location	P - Water use (m³)	SoN$_P$ - Water Stress[149]	*Index value I_P (Pressure × SoN$_P$)*	*Priority rank within target boundary, using I_P*
DO #5	Growing of crops	Spain	2,800,000	4	11,200,000	**1**
DO #7	Growing of crops	France	1,200,000	4	4,800,000	**2**
DO #1	Manufacture of other food products; Packaging	Belgium	1,000,000	4	4,000,000	**3 (tie)**
DO #6	Growing of crops	Germany	1,000,000	4	4,000,000	**3 (tie)**
DO #2	Manufacture of other food products; Packaging	France	700,000	3	2,100,000	**5**

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[149] Values range from Very Low to Very High.

| DO #4 | Manufacture of other food products | Spain | 250,000 | 4 | 1,000,000 | **6** |
| DO #3 | Manufacture of other food products | United Kingdom | 300,000 | 2 | 600,000 | **7** |

Table 6. Ranked locations within the direct operations water pollution target boundary, using I_P.

Site ID	Activities at site	Location	P - Water pollution (kg P-eq)	SoN_P - Eutrophication potential	Index value I_P (Pressure $\times$ SoN_P)	Priority rank within target boundary, using I_P
DO #5	Growing of crops	Spain	1,450,000	4	5,800,000	**1**
DO #6	Growing of crops	Germany	1,200,000	4	4,800,000	**2**
DO #7	Growing of crops	France	900,000	4	3,600,000	**3**
DO #1	Manufacture of other food products; Packaging	Belgium	500,000	5	2,500,000	**4**
DO #3	Manufacture of other food products	United Kingdom	300,000	5	1,500,000	**5**
DO #4	Manufacture of other food products	Spain	160,000	4	640,000	**6**
DO #2	Manufacture of other food products; Packaging	France	115,000	4	460,000	**7**

2.2.3 Ranking Sites Based on a General State of Nature Indicator (SoN$_G$)

As outlined in Step 1, pressure-linked state of nature datasets (SoN$_P$) datasets do not reflect all aspects of biodiversity necessary for companies to best understand how their actions may contribute to positive impacts on nature. For that reason, companies _must_ also evaluate the significance of different sites using a SoN$_G$ indicator to capture additional aspects of biodiversity.

For this method, SBTN _recommends_ that companies use the STAR metric,[150,151] which estimates contributions that different company activities can make to reduce threats to species.[152] The STAR metric provides data corresponding to two broad categories of action aimed at reducing species extinction risk: threat abatement (STAR$_T$) and habitat restoration (STAR$_R$). STAR$_T$ is applicable for use in the ranking of locations for all target boundaries, because it quantifies how company actions that reduce threats at a particular location contribute to the mitigation of species extinction risk. STAR$_R$ is applicable for use only in the ranking of locations for targets focused on terrestrial ecosystem restoration.[153]

After companies have calculated STAR scores for all locations relevant for a given pressure (target-setting boundary), they should identify the STAR metric for target setting (STAR$_T$, and also STAR$_R$ if relevant). For each location, companies _must_ take the median STAR score (calculate STAR$_T$ and STAR$_R$ separately) for all species within a given location. Locations should then be ranked independently of the location ranking on index values (I$_P$). In the ranking of locations using SoN$_G$, locations with higher STAR scores are again regarded as higher priority for the company.[154]

Note that this SoN$_G$ value will be the same for every pressure and activity occurring in a given location. Because the pressure-specific target boundaries vary, companies that want to conduct this evaluation only once may combine their pressure-specific target boundaries into a single dataset including all the relevant activity locations for a company.

Box 6. Ranking locations within target boundaries − fictional case of Ursus Nourishment (Part X)

For this part of the methodology, the team was able to draw on the data on SoN$_G$ already collected in Step 1 (see Box 8 in the Step 1 method). For analyzing within the water use target boundary, they simply isolated their data on locations with material contributions to water use. Based on the information collected during the value chain assessment, they knew that for their direct operations, all sites and locations would need to be included, as all were estimated to have material impacts on water use.

As done for the ranking of locations based on I$_P$, the team sorted the data in Excel to rank locations from

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[150]See Mair _et al._ 2021 and IUCN 2021. See IBAT for the global STAR data. https://www.ibat-alliance.org/star?locale=en.

[151] SBTN is currently working on securing access to STAR data for companies setting SBTs for nature.

[152] Note that STAR metric values only represent terrestrial species extinction risk. As more STAR data become available covering freshwater and marine ecosystems SBTN will update guidance accordingly. SBTN will also note other changes in taxonomic coverage for STAR in future updates of the methodology.

[153] Such a target may be released in the V1 release of SBTs for Land

[154] For the STAR datasets higher scores correspond to the higher opportunity associated with threat abatement, and restoration, respectively.

that with the highest SoN$_G$ value to that with the lowest, and then recorded that order as the ranked value for the locations within the direct operations water use target boundary.

Table 7. Ranked locations within the direct operations water use target boundary, using SoN$_G$. Location rankings are shown in bold.

Site code	Activities occurring at location	Location	SoN$_G$ - Species[155] STAR$_{(T)}$	*Priority rank within target boundary, using SoN$_G$*
DO #2	Manufacturing of products; Packaging	France	24.13	**1 (tie)**
DO #7	Growing of crops	France	24.13	**1 (tie)**
DO #6	Growing of crops	Germany	22.67	**3**
DO #4	Manufacturing of products	Spain	18.9	**4 (tie)**
DO #5	Growing of crops	Spain	18.9	**4 (tie)**
DO #1	Manufacturing of products; Packaging	Belgium	11.78	**6**
DO #3	Manufacturing of products	United Kingdom	2.56	**7**

Box 7. STAR and types of action
SBTN's initial methods for Step 3: Measure, Set and Disclose will be of two types: those that enable mitigation of negative impacts through actions that avoid and reduce, and those that enable positive contributions through actions to regenerate and restore.

To use both types of methods, companies are _recommended_ to evaluate STAR scores, using STAR$_T$ (avoid and reduce) or STAR$_R$ (regenerate and restore[156]) when the pressures are addressed through targets associated with terrestrial restoration. This will enable companies to have information on hand useful for determining which locations are most strategic to prioritize for the different types of targets they will set in Step 3.

See the SBTN Initial Guidance on Step 4 for more information on taking action and setting targets in alignment with

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[155] For country-level scores, companies are recommended to take the median score for all species within a given country.
[156] Anticipated to be covered in the Step 3 methods for land.

the mitigation hierarchy.[157]

2.2.4 Combining Site-Based Rankings on Pressure-Specific Index Values and General State of Nature (SoN$_G$) values

Once companies have ranked locations within their target boundaries based both on index values (composed of pressure and SoN$_P$) and on SoN$_G$ values, they can combine the rankings to determine priority locations to address with targets for each pressure. This ranking will indicate priority based on an environmental materiality perspective or impact-based approach. This information will allow companies to take action where it is most needed and where their company-specific pressures (and opportunities to reduce and minimize harm) are greatest.

Using this approach, locations that are the top priority in either ranking remain the first priority and are selected first. The company then moves down the list selecting the second priority in both rankings, and so on. If the next-highest-ranked location has already been included due to its priority in the other ranking or if both rankings agree, then the company selects a single location before moving down the list. Table 6 provides an example for how companies can rank and present their highest-priority locations based on the indexed pressure values and SoN$_G$ values.

In moving from Step 2 to Step 3, companies will gather more precise information about their pressures and state of nature at the site level (per target-specific guidance in Step 3) and evaluate additional factors related to the just and equitable implementation of targets.[158]

Box 8. *Ranking locations within target boundaries, combining I$_P$ and SoN$_G$ − fictional case of Ursus Nourishment (Part XI)*

To finish the ranking exercise, the team then combined the *I$_P$ and SoN$_G$* rankings for each location. Following guidance from SBTN, the team determined highest priority locations to be those with a rank of 1 for either of the indicators, and then moved sequentially through the data to determine the next tiers of priority. Because of ties in rankings between locations, the team ended up grouping locations within the water use target boundary into four priority groups.

The example below shows this process for a single material pressure, in reality the team conducted this ranking exercise for each material pressure.

Table 8. *Evaluating rankings from I$_P$ and SoN$_G$ within the water use target boundary to determine priority locations.*

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[157]See
https://sciencebasedtargetsnetwork.org/wp-content/uploads/2020/11/Science-Based-Targets-for-Nature-Initial-Guidance-for-Business.pdf.
[158] SBTN is developing additional guidance to companies on social safeguards within the Step 3 methods and overarching guidance on stakeholder engagement.

The right-most column shows how the company will sequentially progress through target setting, based on the priority level of the different locations and activities in the target boundary.

Site code	Activities occurring at location	Location	*Priority rank within target boundary, using I_P*	*Priority rank within target boundary, using SoN_G*	*Overall priority within the target boundary*
DO #1	Manfctg. of products; Packg.	Belgium	**3 (tie)**	6	**Priority 2**
DO #2	Manfctg. of products; Packaging	France	2	1 (tie)	**Priority 1**
DO #3	Manfctg. of products	United Kingdom	7	7	**Priority 4**
DO #4	Manfctg. of products	Spain	6	4 (tie)	**Priority 3**
DO #5	Growing of crops	Spain	1	4 (tie)	**Priority 1**
DO #6	Growing of crops	Germany	3 (tie)	3	**Priority 2**
DO #7	Growing of crops	France	2	1 (tie)	**Priority 1**

2.2.5 Prioritization of Locations for Step 2

Companies choosing to use a prioritization approach _must_ first have defined their target boundary and ranked locations for each material pressure.

As noted in the start of Section 2.2, many companies may find that they require a shorter list of locations to begin setting targets. To further prioritize, using the ranked list of sites, companies _may_:

- Apply an **area-based rule** to determine how many of the top ranked locations to set targets for first. This rule is based on percent coverage of the target boundary area, and is more effective if companies introduce more precise location data (e.g., if they know the polygon of their farm or factory). For example, companies can first set targets for at least 10% of their pressure-specific target boundary. After setting targets for the first 10%, they can proceed to the next 10%, down the prioritized list of sites, until completing target setting for the full target boundary.[159]

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[159] Reminder: Guidance on time horizons for target setting are forthcoming.

- Apply a ***proportional coverage rule*** based on the number of sites. In this approach, companies prioritize a fraction of the total sites in which they need to set targets. Companies then continue to move through target setting using these sets of sites until completing target setting for the full target boundary.
- Apply a ***co-benefit perspective***.[160] Companies can look at the ranked data for each material pressure and conduct a hotspot analysis to identify locations, commodities/goods, or activities/services that consistently emerge as high priorities for multiple pressure categories (where the values are correlated). Acting first in these sites may create a larger net benefit for nature in that location and allow companies to more rapidly advance progress in target setting across multiple pressure categories. Applying this approach, companies evaluate their data by sorting and ranking as highest priority, those locations, commodities or activities that appear first for multiple pressures until only locations, commodities or activities prioritized for single pressures remain.

These approaches can ensure that companies are simultaneously working on setting targets for enough sites to complete target setting within the specified time horizon.[161] For all of these approaches, companies _must_ use the location ranking approach (see Section 2.2.1-2.2.4). The "priority" levels generated during this exercise should be added to the data derived during the ranking exercise and not used to reorder or re-rank locations. This information should only be used to generate a target-setting plan and include justification in the company's validation submission for decisions about which locations were included in the company's first round of baseline data collection and target setting.

For all of the above approaches, the number of sites companies can simultaneously set targets on will depend on the number of sites, activities, and pressures material to the company's operations, and the resourcing and capacity of the company.

As companies use the prioritization approaches, they _may_ choose to combine direct operations and upstream data to speed up progress toward target boundary coverage. Alternatively, they may still wish to keep the two value chain categories apart, reflecting differences in implementation and data precision.

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[160] We describe co-benefits as the added benefits for nature when companies act in a single location to address multiple pressures in their operations simultaneously.

[161] *Guidance on time horizons for target setting across the pressure-specific target boundary will be provided with the V1 of SBTs for Nature in Q1 2023.*

> **Box 9.** Prioritization approach – fictional case of Ursus Nourishment (Part XII)
>
> From the prioritization approaches suggested by SBTN, the *Ursus* team chose to apply the "co-benefit perspective" approach. They found this to be the most appropriate approach for evaluating their data because during the assessment they realized that a number of locations were consistently ranked higher for the pressures material to the company, e.g. Spain and France for both water quantity and quality.
>
> They found that identifying countries where multiple activities and commodities were occurring, and location-activity pairs which were material for multiple pressures allowed them to prioritize locations to invest in for data collection, to strengthen supplier and operator relationships, and to begin a concerted effort prepare for baselining and target setting (Step 3) in all facilities and farms within these regions. Applying this approach, the team was able to maximize co-benefits for nature *and* resource efficiencies within the company. They anticipated that this approach would also allow them to invest in developing strong relationships with local stakeholders critical for determining ambition and equitable implementation of targets.
>
> By using this approach to evaluate the rest of their locations and inform their target setting strategy, the team hopes to reduce the time needed to set targets covering all locations within their boundaries for each material pressure.

2.2.6 Interpretation Guidance

The above methodology results in a prioritized list of sites for each pressure category that the company *must* eventually address. Companies may move from this list toward action on target setting.

Before moving to target setting (applying SBTN Step 3 methods, and climate methods from SBTi), companies *may* evaluate their prioritized list using additional factors that consider their ability to take effective action (see Section 3). When doing so, companies *should not* re-rank prioritized locations, but rather should focus on identifying opportunities and barriers for action, and adding this information to their Step 2 output template.[162] When creating their plan for target setting in Step 3, companies should detail how they will address barriers to implementation for high-priority locations so these locations may be included within the scope of the company's next round of target setting.

If companies use the prioritization approach, they *must* repeat these prioritization steps for all material pressures they are required to assess, per SBTN guidance. Companies *may* conduct prioritizations for other pressure categories not currently covered by SBTN target-setting methods but are *not required* to do so.

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[162] *Output templates are under development and will be made available in the 2023 release of SBTN methods.*

> **Box 10.** Note on rare revisions of location rankings
>
> In rare cases, companies beginning to collect precise baseline data in Step 3 may find that the activity or pressure value is not what was anticipated and used for Step 1 and Step 2. In that case, they can recalculate priorities (Section 2.2.1–2.2.4) and revise their target-setting strategy.

3. Screen for Feasibility and Strategic Interest

3.1 Overview

The second phase of prioritization described here is optional. This risk-based approach to prioritization complements the _required_ method for ranking (Sections 2.2.1-2.2.4) and _recommended_ methods for impact-based prioritization explained in Section 2.2.5. As with the other phases of Step 2, this method _must_ only be applied within each of the target boundaries, not across boundaries (i.e., associated with a given pressure).

Whereas the target boundary is defined based solely on aspects of environmental materiality (i.e., how the company's actions generate impacts with the greatest potential to increase the health of nature), and the initial phase of prioritization is also rooted in this view of significance, this optional feasibility screening step enables companies to consider additional factors that may influence which locations and aspects of their business they will set targets on first. In this step of the method, companies are encouraged (if they have not done so already) to review the locations shortlisted within their target boundary for the following:
- Data availability/readiness
- Stakeholder needs and relationships
- Potential risks or opportunities
- Strategic significance

The factors above may influence the feasibility of target setting and the relative ease of execution. These are factors important to consider, both for the company and for society. SBTN wants companies to act on the pressures and in the locations that matter most for nature but also in the places where they have the greatest ability to succeed. For this reason, companies are _recommended_ to use SBTN guidance on feasibility with the understanding that they may use this to guide their target-setting strategy.

3.2 Application of the Feasibility Screening Method

Before screening for feasibility, companies _must_ have a list of locations ranked from highest to lowest priority for nature for each pressure category. This output will tell companies where to set targets based on the exertion of pressures on nature across their value chains, and will be used by validators to ensure that companies are taking action and setting targets where this is needed the most.

However, to determine where target setting is _most effective_ for a positive impact on nature, it may be important for companies to also consider internal factors that may take priority for

selecting where to set SBTs. These factors include data availability/readiness, stakeholder needs and relationships, potential risks or opportunities, and strategic significance. Companies *may* use this screening process to identify barriers to implementation and add information to their output templates for this step, but *must not* use these to re-rank sites prioritized within each target boundary.

As with the information generated during the prioritization approach (see Section 2.2.5), companies must only use information on feasibility to contextualize their ranking of locations. This will then be included as additional information submitted to validators to explain why any highly ranked locations are not being addressed by companies in their first round of target setting. In order for companies to have their target-setting plans/targets validated by SBTN, they must be able to show that they have plans in place for increasing data availability (or other factors influencing feasibility, e.g., stakeholder relationships) for high-priority, low-feasibility sites, so that they may include these within a future round of target setting. Companies *must* report on progress against this target implementation plan as part of their overall Measurement, Reporting and Verification (MRV) for SBTs until setting targets for that location.

The factors for feasibility screening are described in detail in Appendix 2 for the Step 2 method. Companies may use any combination of these factors to inform their identification of highest-opportunity and lowest-barrier locations and business aspects for target setting. It is not mandatory for companies to use data from all four factors to inform this evaluation.

If companies are using a feasibility screening approach using criteria linked to financial materiality or operations, they *must* provide additional information for validation before getting started with baselining and setting targets in Step 3. Companies *must* record the evidence for feasibility as well as details on which factors were used, why these are most relevant for their company, which datasets or information sources were used, why these were selected, and how they plan to address high-priority locations and value chains/activities that proved more difficult.

Note that *once a screening approach is determined for a given target boundary, this same approach should be used for each pressure category and target boundary*. Any deviations in approach *must* be justified and explained in the validation step.

As they begin planning for setting spatial targets, companies should develop strategies for removing barriers to implementation.

3.3 Interpretation Guidance

Following this screening step, companies *must* retain the full ranked list of locations and activities identified as priority in Section 2.2.4. They can then add to this their feasibility assessment as a column to the table of ranked locations.

If de-prioritizing from immediate, spatially-explicit target setting any locations that would be considered a high priority (e.g., where the company has a high footprint and the SoN indicators show the greatest needs for nature), companies *must* provide adequate justification for the additional time needed to set a target for that location. If deprioritizing sites (i.e., the company skipped over those locations and proceeded to lower-ranked ones), the company *must* also

create a plan for addressing the high-priority, low-feasibility locations (e.g., through increasing data availability and improving stakeholder relationships). Until targets have been set for these high-priority locations/activities, the company must continue to report progress against their articulated plan for reducing barriers to action.

4. Confirm Information for Validation

Companies _must_ document the data used to define the target boundary and their location ranking (2a). If applying the _recommended_ prioritization approaches or feasibility screening, companies _must_ report their justifications for not acting first to set targets in places where it is needed the most from an environmental and societal materiality perspective.

Box 11. Validation criteria for Step 2: Prioritize

To have their targets validated, companies will be subject to meeting the following validation criteria:

C5. Target Boundary Coverage
- _C5.1_ The company _must_ define a target boundary for each pressure determined to be material (from Step 1) and for each value chain categories (direct operations and upstream).
- _C5.2_ The direct operations target boundary for each pressure _must_ include all material activities in the company's direct operations at a spatial scale compatible with their pressure and SoN data, and consistent with SBTN tool and data criteria outlined in Step 1.
- _C5.3_ The upstream target boundary for each pressure _must_ include all material goods and services in the company's upstream that were required after the materiality screening in Step 1 (see Section 3.1 in the Step 1 method), at a spatial scale compatible with their pressure and SoN and consistent with SBTN tool and data criteria outlined in Step 1.
    - _C5.3.1_ Companies _must_ provide documentation from specific suppliers if precise data collected during baselining (Step 3) show that they impact only a subset of the areas identified as necessary for inclusion in the upstream target boundary in Step 1 and 2 based on less precise data.

C6. Location Ranking
- _C6.1_ The company _must_ provide a list of ranked locations within the target boundary for each material pressure, using data on the indexed relationship between the pressure and SoN_P (I_P), as well as the SON_G (see Sections 2.2.1-2.2.4 in the Step 2 method). This ranked list should be provided along with the associated pressure and SON_P and SON_G dataset. SBTN _recommends_ that companies provide this information separately for each value chain category (direct operation and upstream).

C7. Feasibility Screening
- _C7.1_ If companies are not initially able to set spatially-explicit targets for all locations, they _must_ provide adequate written justification for skipping locations that may be

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ranked higher priority than others. The company _must_ also put in place a plan for increasing the feasibility of target setting in those locations and _must_ continue to report on progress against this feasibility commitment as part of their overall Monitoring, Reporting and Verification (MRV) for SBTs until targets have been set in all locations within the target boundary.

Appendices

Appendix 1. Pressure and state variables covered in the Step 1 & 2 methods

Table A1. *Pressures managed with science-based targets for nature.*

IPBES Pressure Category	SBTN Pressure Category
Ecosystem Use and use change	Terrestrial ecosystem use and use change`
	Freshwater ecosystem use and use change
	Marine ecosystem use and use change
Resource exploitation	Water use
	Other resource use (minerals, fish, other animals, etc.)
Climate Change	GHG emissions
Pollution	Non-GHG air pollutants
	Water pollutants
	Soil pollutants
	Solid waste
Invasives and Other	Disturbances
	Biological alterations/interferences

Table A2. Pressure-linked state of nature indicators relevant for the SBTN methodology.

The variables in this list are intended to serve as examples. Guidance on the use of specific indicators is provided in Step 1b: value chain assessment and Step 3: measure, set and disclose. Biotic variables are shown in green, variables at the intersection of biotic and abiotic processes are in yellow, and abiotic variables are in blue.

Pressure-linked state of nature variables
Ecosystem extent, connectivity (e.g. fragmentation) and integrity (e.g. habitat quality)
Species Biodiversity (e.g. population dynamics, richness, extinction risk and loss)
Nature's Contributions to People (i.e. Ecosystem Services)
Water quality
Soil Quality
Air Quality
Water Availability
Precipitation
Temperature
Nutrient Availability

Appendix 2. Factors for feasibility screening

Note the documentation below can be considered indicative of the final detailed appendix which is in development by SBTN.

1. ***Data availability and target setting 'readiness'***
   ○ The data required to carry out the Step 1 assessment of pressures, and then spatialize these will have some companies restricted the scope of their business that they were able to cover. As companies continue with the target setting process, onto baselining and setting up systems for monitoring, reporting and verifying targets, their data needs may grow. For this reason, it may be sensible for companies to focus on business units (e.g. a product line or multi-country region), commodities/value chains, specific activities (e.g. oil production), or specific locations (e.g. a set of countries or basins) where they are confident in their ability to access the information needed to set targets.
   ○ Confidence in data availability may be informed by previous investments in traceability of products, activities or commodities in order to ensure compliance with voluntary certification schemes, reporting frameworks like CDP, GHGP, and GRI, or measurement and evaluation frameworks like the Natural Capital Protocol. In cases where companies have made investments in in-depth assessments of their impacts through life cycle impact analyses or natural capital impact analyses, this information may also improve their ability to engage in the target setting process. Companies may also wish to focus on setting targets for parts of their business for which they have already started applying SBTN or SBTi methods.
   ○ As noted in Step 1, there may be some commodities and upstream activities for which companies are changing suppliers on a yearly basis or similar frequency. For these commodities and activities, it may be difficult to maintain a stable flow of information from upstream suppliers to the target setting company, and difficult to use a dependable spatial reference point to factor into both the Step 1 estimation of impacts, and the Step 3 baselining of impacts for target setting. Further guidance is forthcoming on how companies can address impacts associated with commodities and activities upstream prone to fluctuation.

2. ***Stakeholder needs and relationships***
   Note that guidance on stakeholder engagement from SBTN is forthcoming. When provided, guidance will be consistent with best practice and justice, equity, diversity and inclusion (JEDI) principles.

   Pre-existing relationships with stakeholders (at upstream companies, within local communities, or other third-party actors) may influence the effectiveness of a target setting intervention.
   ○ **Needs and capacity of value chain partners and/or subsidiaries**

- For many companies, the largest impacts and greatest opportunities for action will take place in their value chains, and thus relationships with suppliers and other value chain partners are a key consideration. Similarly, for conglomerates, it will not be possible to achieve material outcomes for nature without the cooperation and support of their subsidiaries. Just as companies may wish to act first where key value chain relationships can be leveraged, conglomerates may wish to act first where subsidiaries are ready and willing to engage in the process of SBT setting.
  - **Needs and capacity of local stakeholders**
    - The values, needs, and goals of local stakeholders, like government, citizens, and civil society are crucial considerations for where and how to act, particularly because many types of action will require collaboration and multi-stakeholder efforts at a landscape, watershed, or seascape level using jurisdictional or scape approaches (WWF & Proforest 2020). Understanding local needs and capacity is a time-consuming process if companies have not already pursued local stakeholder engagement. Though companies may be able to rely on prior knowledge of local stakeholders' needs and capacity in order to determine whether an aspect of their business should be prioritized for action, they will likely need to work closely with these stakeholders—verifying assumptions about their needs and capacities, as these pertain to environmental and social objectives influenced by SBTs—in the target development and implementation phases. Companies may therefore wish to prioritize action in locations where they are familiar with key local stakeholders and able to work with them in partnership to develop corporate SBTs that will satisfy their needs, and engage these stakeholders in the development of strategies to meet and monitor these targets over time (e.g. local communities and governments may be key stakeholders to ensure the lasting success of restoration initiatives).
  - **Company-level stakeholder**
    - In addition to local stakeholders, the preferences and demands of company-level stakeholders, like shareholders and investors, for action in certain locations or on certain areas of the business, may be relevant for choosing where to act first. For many companies, these preferences may be reflected in their internal strategy documents, or reflected in reports on materiality compiled according to GRI or another framework. Prioritizing in this manner can help the company ensure buy-in around its chosen targets, thereby potentially increasing resources available to set, meet, and monitor these, as well as support from these internal stakeholders throughout the learning process involved in setting targets.

3. *Potential risks and opportunities*

Physical risk: Companies that already have information on hand about expected changes in the availability of natural resources such as water, and the stability of ecosystem service provision such as that related to hazard regulation or pollination may wish to factor this into their prioritization of locations, particularly if changes in the availability of these resources or services would challenge or potentially prevent the company from continuing to operate as normal. Changes in these resources and services can be assessed using a dependency framework such as that laid out in the Natural Capital Protocol,[163] or using a tool like ENCORE,[164] the WCMC Natural Capital Hotspots Map,[165] InVEST,[166] or Swiss Re BES.[167]

Regulatory risk: Current or changing policies in different locations where your value chains extend may influence how quickly companies should act, and what kind of actions are possible in a given period. For instance, expected changes in regulations within the EU and US regarding the disclosure of impacts would signal that companies need to invest in increasing supply chain transparency, even in value chains and locations which may not have been flagged as priority within this methodology.

Reputational risk*:* Companies have for decades been aware of the risks associated with attacks on their brands or loss of face due to events and disasters. If companies seek to prioritize based on reputational risk, they may ask the following questions:

- Are there certain areas of the world where the company is more likely to be scrutinized?
- Are there certain commodities or types of activities for which the company is more likely to be thrust into the spotlight?
- Where are the opportunities for leadership (which could lead to reputational gain)?

Societal risk: Societal risk overlaps with physical, regulatory and reputational risk in the factors of exposure for the company, and the ways that the risk manifests. Key additional considerations a company should look at to determine whether a location should be prioritized for target setting include:

- The reliance of local stakeholders on a resource or ecosystem service.

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[163] https://capitalscoalition.org/capitals-approach/natural-capital-protocol/?fwp_filter_tabs=training_material; see Chapter 5 on measurement of dependencies
[164] https://encore.naturalcapital.finance/en/explore
[165] https://s3.eu-west-2.amazonaws.com/ncfa.documents/resources/hotspots_methodology.pdf
[166] https://naturalcapitalproject.stanford.edu/software/invest
[167]
https://www.swissre.com/institute/research/topics-and-risk-dialogues/climate-and-natural-catastrophe-risk/expertise-publication-biodiversity-and-ecosystems-services.html#/

- The relative status of self sufficiency of local communities and the satisfaction of their basic needs. Again, this may be difficult in some cases to assess, but could be approximated through information on SDGs (e.g. access of local populations to clean water) or the Social Progress Index, or through primary data collected through social or environmental impact assessments for specific sites/projects.
- Real or perceived abuse by the company of workers (e.g. through poor labor conditions) or of the local environment (e.g. through illegal dumping)
- A history in the area or in the industry of environmental conflicts.

4. ***Strategic significance*** – of a location, commodity, or business line for the company
   - *Financial materiality*
     - Significance of an activity, location, commodity, or business line in terms of spend or revenue.

   - *Level of influence*
     - The company's expected influence over the activity or part of a value chain

   - *Company strategy*
     - Expansion - E.g. Areas targeted for growth
     - Identity - locations/pressures closely aligned with company purpose
     - Opportunities for learning – ways to cluster sites, locations or business lines/activities to increase opportunities for exchange within the professionals setting and implementing/tracking targets; ways to align with market competitors or allies in order to learn and improve?