UNIVERSITY OF CAMBRIDGE
INSTITUTE FOR SUSTAINABILITY LEADERSHIP

THE FASHION PACT

CONSERVATION INTERNATIONAL

gef

Raising the ambition for nature

A fashion, textile and apparel sector primer on the first **science-based targets for nature**

University of Cambridge Institute for Sustainability Leadership

The University of Cambridge Institute for Sustainability Leadership (CISL) partners with business and governments to develop leadership and solutions for a sustainable economy. We aim to achieve net zero, protect and restore nature, and build inclusive and resilient societies. For over three decades, we have built the leadership capacity and capabilities of individuals and organisations and created industry-leading collaborations to catalyse change and accelerate the path to a sustainable economy. Our interdisciplinary research engagement builds the evidence base for practical action.

The Fashion Pact

The Fashion Pact represents one third of the global fashion industry and is committed to mitigating the impact of climate change, restoring biodiversity, and protecting the oceans. The initiative brings together CEOs and senior leaders to accelerate joint action, from suppliers to retailers, working together to achieve a nature-positive and net-zero future.

Conservation International

Conservation International protects nature for the benefit of humanity. Through science, policy, fieldwork and finance, we spotlight and secure the most important places in nature for the climate, for biodiversity and for people. With offices in 30 countries and projects in more than 100 countries, Conservation International partners with governments, businesses, civil society, Indigenous peoples and local communities to help people and nature thrive together. As an agency of the Global Environment Facility, Conservation International disburses funding for global conservation to support national governments and partners to generate global environmental benefits through responsible and sustainable stewardship of natural capital.

GEF

The Global Environment Facility (GEF) believes that every person on Earth deserves a healthy environment and the fundamental benefits that nature provides. Since its inception in 1991, the GEF has improved the lives of billions of people while creating conditions for sustainable development. By investing in the planet, the GEF is investing in the human capital of this generation – and of generations to come.

The project *Transforming the Fashion Sector with Nature* is funded by a $2 million grant from the Global Environment Facility and co-executed by Conservation International and The Fashion Pact.

Authors and Acknowledgements

The lead authors of this document are Dr Stephanie Hime and Ryan Twyford of Little Blue Research, with contributions from Elizabeth Clark and Edmund Dickens of CISL. Little Blue Research is an independent sustainability consultancy focused on provision of support across environmental economics, social impact analysis, and nature-related risks. The authors would also like to thank the following organisations for their support and input: Science Based Targets Network, The Fashion Pact, Conservation International, and Textile Exchange. This work was made possible by a grant from the Global Environment Facility (GEF).

Legal Disclaimer

This work is a product of the staff of Little Blue Research and CISL with external contributions, funded by The Global Environment Facility (GEF). The findings, interpretations, and conclusions expressed in this work are those of the authors and do not necessarily reflect the views of the GEF, its Council, the governments they represent, Little Blue Research or CISL. The GEF, Little Blue Research or CISL do not guarantee the accuracy of the data included in this work. The boundaries, colours, denominations, and other information shown on any map in this work do not imply any judgment on the part of the GEF, Little Blue Research or CISL concerning the legal status of any territory or the endorsement or acceptance of such boundaries. Nothing herein should constitute or be considered to be a limitation upon or waiver of the privileges and immunities of the GEF, Little Blue Research and CISL, all of which are specifically reserved.

Copyright

Executive summary

Nature is declining at an unprecedented rate, posing a direct threat to all human society and economic activity. Business failure to act in the face of this crisis will risk operational longevity, with the fashion, textile and apparel industry particularly vulnerable. The release of science-based targets for nature provides businesses with the opportunity to set critical targets and take the actions necessary to protect and restore nature. This Primer provides an introduction to the Science Based Targets Network (SBTN) and science-based targets for nature, helping fashion, textile and apparel organisations enable an equitable and nature-positive future.

Nature is both our life source and the origin of all raw materials required to produce the goods and services we rely upon. In the next ten years, environmental changes will redefine competitive advantages for all businesses, investors and countries, with access to natural resources completely reshaping these advantages. A complex, multi-trillion-dollar sector, the fashion, textile and apparel industry both contributes to these impacts and is particularly vulnerable to these shifts, with its supply chains and operations highly dependent on nature. This dependency will only increase – today, the apparel industry generates US$1.5 trillion a year in revenue and is expected to grow towards US$2 trillion by 2027.[1]

Science-based targets for nature offer businesses a way of taking action to ensure their operational resilience while also addressing the wider issues associated with business impacts on nature. This Primer provides an introduction to the recently launched science-based targets for nature and their application within the fashion, textile and apparel industry, including:

- an overview of science-based targets for nature
- an illustrative case study demonstrating how targets can be calculated and set
- immediate actions businesses can take to address nature loss.

The methods to set science-based targets for nature published by the Science Based Targets Network (SBTN) compliment and build upon science-based targets for climate published by the Science Based Targets initiative (SBTi). By setting both targets at once, businesses can incorporate both into their strategies, drive cost efficiencies and increase innovations that are win–wins for both nature and climate.

The industry can start to prepare now for the implementation of science-based targets for nature to ensure credible targets and actions to deliver these are in place. As a first step, there are several immediate actions that businesses can take to help address nature loss, no matter where they are on their sustainability journey, including:

- **understanding the business's impacts** on nature by determining which are most material and where they occur in its operations and across its value chain (see 'Where to begin')
- **understanding the data the business** has access to and the gaps
- **starting to trace material sourcing back to the regional**, farm or site level for one product/unit, initially focusing on the most material impacts
- **mobilise change, becoming part of the collaborative actions** to address nature loss by joining groups like the Corporate Engagement Program or Business for Nature, among others, who are putting businesses at the forefront of developments and enabling them to contribute, test, learn and share their experiences with technical experts.

Science-based targets for nature will continue to be an iterative and evolving process as learnings are incorporated, updates released, and the nature and climate reporting landscape develops. As the guidance and regulatory landscape for nature continues to evolve, leading businesses will keep updating their strategies in accordance with the latest best practice to maximise their impact and ensure nature is integrated into their business practices and decision-making.

For the most recent available guidance and updates on all future guidance, please see the Science Based Targets Network website.

Contents

Purpose of this Primer

This Primer is for businesses in the fashion, textile and apparel industry. It aims to provide an introduction to the science-based targets for nature and their application within the industry for those in the position of Chief Sustainability Officer (CSO), lead sustainability roles and those addressing biodiversity topics in their organisation. The illustrative case study includes more details for those who may be responsible for implementing science-based targets for nature within the organisation.

This Primer's role is to provide a high-level introduction, detail a case study and set out specific challenges or considerations for the fashion, textile and apparel industry. For full technical details in relation to the science-based targets for nature and the development of targets, which are not covered here, please refer to the Science Based Targets Network's (SBTN's) currently available technical guidance:

- **Step 1: Assess** – Technical Guidance
- **Step 2: Interpret & Prioritise** – Technical Guidance
- **Step 3: Measure, Set & Disclose Targets** – Freshwater Technical Guidance
- **Step 3: Measure, Set & Disclose Targets** – Land Technical Guidance (beta).

The above SBTN guidance provides all technical specifications for the development of targets and is available on the SBTN Resources page.

Introduction

What do we mean by nature and the impact of business on nature?

Nature is critical to the long-term resilience of corporate activity, especially for businesses operating in or dependent upon inputs from nature-sensitive areas. As an example, following an initial analysis in 2020, the Dutch financial sector reported a €15 billion risk exposure to "companies that were active in already protected areas".[2]

Nature encompasses "all non-human living entities and their interaction with other living or non-living physical entities and processes",[3] which can be split into four aspects, or realms: **land, freshwater, oceans** (addressed by SBTN) and **climate** (covered in the Science Based Targets initiative (SBTi)). Each of these realms is underpinned by biodiversity, allowing them to provide a range of essential ecosystem services.

Biodiversity[4] – "The variability among living organisms from all sources, including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems."[5]

Nature's Contributions to People, or NCPs (also known as Ecosystem Services) – "All the beneficial and detrimental contributions that humans obtain from and with nature."[6]

Business activities can contribute to each of the five drivers of nature loss: land/water/sea use change, resource exploitation, climate change, pollution, and invasive species. Of these, land use and sea use change have been found to be the largest biodiversity loss drivers.[7] Recognising this issue, commitments made under the Kunming-Montreal Global Biodiversity Framework (GBF)[8] will necessitate businesses understanding and addressing their impacts and dependencies on nature leading towards nature-positive actions.

Nature positive – "A high level goal and concept describing a future state of nature (e.g., biodiversity, nature's contributions to people) which is greater than the current state."[9] Further details of the SBTN's approach to enabling a nature-positive world are set out in the following blog.

Impacts of the fashion, textile and apparel industry

The fashion, textile and apparel industry drives a number of pressures and impacts on nature. These pressures and impacts are a result of dependencies on the materials and processes used in the production of fibres, processing of materials and production of clothes, and in the use and disposal of clothing and apparel.

As an example, cotton production can lead to pressures on land and water due to high rates of monoculture planting, intensive agrochemical usage, massive water withdrawals and conversion of native grasslands. Despite cotton cultivation accounting for 2.4 per cent of crop land in the world, it involves 22.5 per cent of all insecticides used worldwide.[10] Cotton is also a water-intensive crop, being one of the highest consumers of water of all agricultural commodities.[11] In the US, a study carried out as part of the *Transforming the Fashion Sector with Nature* project funded by the Global Environment Facility demonstrated that threats directly attributable to cotton production have impacts on several species, including species with high extinction risk, using existing supply chain data.[12] Further details on the impact of the fashion, textile and apparel industry are provided in the appendices.

Other examples of the fashion industry's impacts and dependencies on biodiversity can be found in the Textile Exchange's forthcoming *Biodiversity Landscape Analysis for the Apparel, Footwear and Textile Industry* report.

The pressures on nature identified by the SBTN are driven by the fashion, textile and apparel industry in a number of ways (see Figures 4 and 5 in the appendix). Some illustrative examples of drivers that may lead to increased pressures on nature from a fashion, textile and apparel industry perspective include: **overproduction and overconsumption** (a fashion, textile and apparel industry business model often characterised by prioritising quick turnover, high volumes and cheap prices, leading to intensive natural resource use and associated impacts and/or dependencies on nature), **consumer preference** (the consumer demand for one product or service over another), **materials technology** (the availability, affordability and scalability of technologies to produce, manufacture, recycle and dispose of materials, leading to waste and landfill), and **opaque supply chains** (lack of transparency in fashion supply chains, leading to hidden impacts, such as land conversion and/or deforestation and dependencies on nature).

Science-based targets for nature aid businesses in understanding their nature impacts, how they contribute to the pressures mentioned above and setting their nature targets for reversing these trends. This Primer will set out the business case for businesses in the fashion, textile and apparel industry to set science-based targets for nature, including sector-specific risks and opportunities relating to nature.

The Primer will also provide a brief introduction to the science-based targets for nature, their importance and how they relate to other initiatives, as well as providing an overview of the steps followed to set targets with the SBTN. The methods to set science-based targets for nature compliment and build upon the methods to set science-based targets for climate published by SBTi, reducing the repetitions in the process and aligning requirements for companies across climate and nature target setting.

For the most recent available guidance and updates on all future guidance, please see the Science Based Targets Network website.

Scope of the Primer

The scope of this Primer includes the inputs into the fashion, textile and apparel industry (as outlined below), as well as the manufacturing and production processes used to create the final product ('Raw material production' and 'Material processing and product manufacturing' in Figure 1). The Primer does not cover retail operations, consumer use, product end-of-life (disposal, recycling and reuse) or transport throughout the product value chain. The scope of the Primer has been set based on the current scope of the science-based targets for nature.

For this Primer the fashion, textile and apparel industry includes textiles, clothing, leather and footwear, with jewellery considered out of scope. An overview of the fashion, textile and apparel industry value chain is shown in Figure 1, including which areas of the value chain are in and out of the Primer scope. Today, the apparel industry generates US$1.5 trillion a year in revenue and is expected to grow towards US$2 trillion by 2027.[13] Given the current impact of the sector, growth in the industry is likely to increase its pressures on nature and lead to increased urgency on businesses within the sector to take action.[14]

Industry context and economic importance

The fashion, textile and apparel industry is characterised by geographically dispersed production,[16] with varying processes and value chains depending on what is being produced. In addition, the raw inputs and processing undertaken within the value chain can vary depending on the materials being used.[17] Apparel, accessories and footwear can be produced from a variety of materials including plant-based, animal-based, synthetic or hybrid materials that can be blended.[18] [19]

Growth in the industry is likely to increase over its current US$1.5 trillion a year value along with its associated pressures on nature.[20]

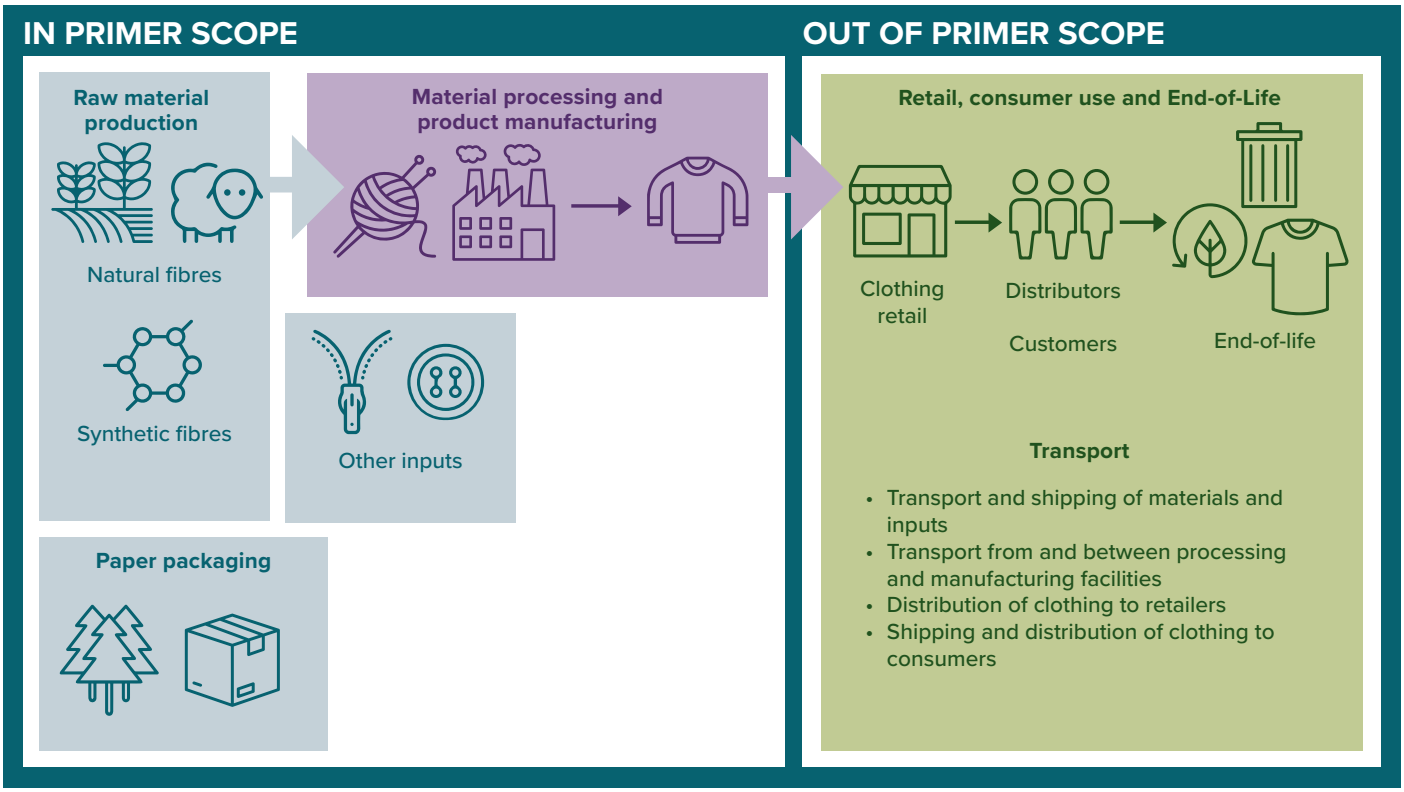


Figure 1: Scope of this guidance – definition of the fashion, textile and apparel industry and its value chain. Note that depending on the location of a business, different parts of this diagram may fall into upstream, downstream and own operations.[15]

The scope of the science-based targets for nature is expected to change in future iterations of the guidance.

The business case

Science-based targets for nature offer clear benefits for our planet as well as businesses. The current trend in the loss of nature poses a direct threat to economic activities, as all economic activities are dependent on nature, with more than half of global gross domestic product (GDP) moderately or highly dependent.[21]

Local and global pressures on nature are decreasing ecosystems' ability to function and, consequently, their ability to provide contributions to the wellbeing of human and non-human life.

Businesses, and in particular large businesses, are driving these pressures, leading to a decline in the state of nature on which they are dependent. Some examples of the risks and/or opportunities for businesses can be found in the appendix.

As data tracking impacts on nature is further developed to enable progress against targets set out in the GBF, stakeholders including investors, consumers and governments, etc. will expect businesses to identify and mitigate nature-related risks.

Introducing the science-based targets for nature

Science-based targets for nature are measurable, actionable and time-bound objectives, based on the best available science, which allow actors to align with Earth's limits and societal sustainability goals.[22]

Climate change and nature loss are deeply interrelated and present enormous risks to businesses. A net-zero, nature-positive future is the only one in which people and planet can thrive, so businesses need to take an innovative approach to finding nature-positive solutions alongside rapid decarbonisation.

Businesses tackling nature loss alongside climate change will help sequester more carbon and build resilience to nature and climate-related impact. By setting both targets at once, businesses can incorporate both into their strategies, drive cost efficiencies, and increase innovations that are win–wins for both nature and climate. The methods to set science-based targets for nature published by SBTN compliment and build upon the methods to set science-based targets for climate published by SBTi, reducing the repetitions in the process and aligning requirements. For example, the land methods (in the science-based targets for nature) include requirements for Forest, Land and Agriculture (FLAG) businesses to set (SBTi) FLAG targets (for climate).

The science-based targets for nature are developed by the SBTN; a key component of the Global Commons Alliance, a network of organisations working together to positively transform the world's economic systems and protect the global commons.

The SBTN defines five distinct steps in the process of setting science-based targets for nature: Assess; Interpret & Prioritise; Measure, Set & Disclose; Act (to avoid, reduce, regenerate, restore and transform); and Track. Businesses can follow the SBTN guidance and frameworks to complete each of these steps. See also The Fashion Pact's Biodiversity Strategy Tool Navigator for a helpful set of resources and tools that can aid businesses along each step of the SBTN process.

While there are several nature-related initiatives, tools and frameworks, including the SBTN, they do serve distinct purposes and aim to align and support the commitments set out in the Global Biodiversity Framework. The following diagram (Figure 2) shows some examples of the relationship between sustainability reporting requirements and a range of initiatives in the sector. Further details on the alignment between the Taskforce on Nature-related Financial Disclosures (TNFD) and the SBTN is detailed in this paper.

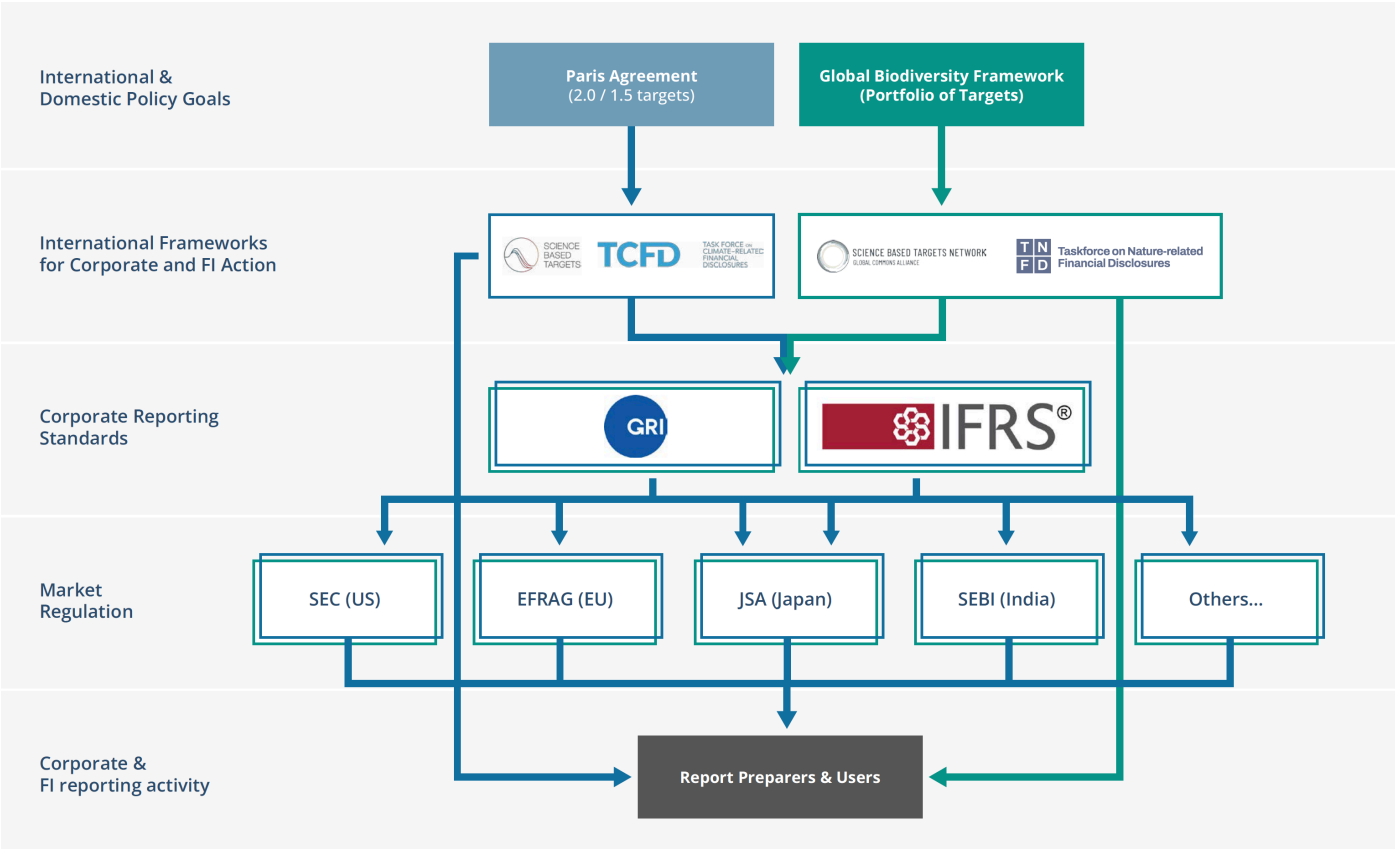


Figure 2: Links between initiatives; adapted from Taskforce on Nature-related Financial Disclosures Nature-related Risk and Opportunity and Disclosure Framework beta v0.4[23]

Illustrative case study

To illustrate how the fashion, textile and apparel industry can apply the science-based targets for nature, this Primer includes a hypothetical case study to bring the process to life. The case study demonstrates how the SBTN guidance can be used by the sector to help direct initial efforts for action.

The case study, shown throughout the report in boxes in each section, will demonstrate how a fashion, textile and apparel business may approach the SBTN target-setting process for a selection of targets, and how they may address some common challenges. The specific challenges were chosen based on feedback provided by the SBTN on their experience with fashion, textile and apparel businesses piloting the target-setting process. The following table sets out the context for the case study.

Table 1: Setting the context for the illustrative case study

ORGANISATION	Ace Apparel Plc is a mid-tier multinational fashion, textile and apparel business. Employing more than 20,000 people worldwide, it interacts with numerous suppliers (direct and indirect) of cotton, leather, etc, which are used in its products. Ace Apparel's sustainability team consists of three full-time members of staff: an Environmental Manager, a Health and Safety Specialist and a junior sustainability team member. For specific technical support on working towards nature-positive outcomes and developing a nature strategy, the team hire some consulting support.
CASE FOR ACTION	Ace Apparel Plc has become concerned at the changing perception of the fashion, textile and apparel industry and has joined The Fashion Pact to help address its impact on biodiversity. In addition, the business wishes to demonstrate that it has taken the concerns of its customers seriously, thereby responding to changes in the market. Ace Apparel Plc is also looking to increase resilience within their supply chain and increase security to combat unpredictable markets and events. The business is subject to increased scrutiny of its sustainability commitments and the potential associated reputational risks, and has been approached by several investors on this key topic, meaning the topic is crucial to maintaining access to finance.
OBJECTIVE	Ace Apparel Plc wishes to determine what actions it should prioritise to protect, restore and enhance biodiversity and ensure that it meets its public commitments. To do this it wants to understand where its impacts occur and in which part of the value chain.
STARTING POINT	Ace Apparel Plc has previously set climate targets under the SBTi, which they are hoping to build on. As a starting point, the business wishes to look at their best-selling product within the North America (NA) business unit. While Ace Apparel Plc will be required to carry out a screening exercise for the whole business as part of setting its science-based targets for nature, the case study will use the example of one product and its value chain to illustrate the process.
INITIAL CHALLENGES	• Lack of mapping of full supply chain. • Supply chains based in areas with different data availability (including across North America, Argentina and India). • Data and responsibilities split across multiple business units. • Lack of dedicated resources for undertaking these tasks.

Where to begin

Stakeholder buy-in

Obtaining stakeholder buy-in, both internally and externally, is critical for the definition, adoption and implementation of nature targets and strategies. Ensuring internal buy-in is often the first hurdle businesses face when developing and executing ambitious new strategies. Before approaching internal stakeholder mapping and engagement, businesses should evaluate management readiness for the potential changes represented by science-based targets for nature. Identifying who the key decision-makers and influencers are within the organisation, and the upfront support and buy-in needed, will be critical in ensuring effective change management.

Engagement with external stakeholders requires a multi-pronged approach, including working with groups at an organisational level, like shareholders and institutional investors, value chain partners, service providers and supply chain intermediaries, and with local stakeholders, like government actors and public agencies. It is also vital that organisations collaborate with those who could be significantly impacted on the ground, with a focus on traditionally under-represented groups like Indigenous Peoples and local communities. Collective and collaborative action must be taken to ensure the transition towards more sustainable and resilient landscapes is inclusive, just and builds positive outcomes for all involved. Some initial steps are outlined in the SBTN Stakeholder Engagement Guidance v0.1.

How to take action now

With the release of the first science-based targets for nature, the fashion industry can now start the target-setting process to ensure credible targets and action to deliver. Wherever a business is on its sustainability journey, there are immediate actions to take to help address nature loss using SBTN's guidance:

1. **Understand impacts on nature**
   Using SBTN's guidance on approaches and tools, businesses should undertake a 'root and branch' audit that will enable them to identify and learn about their most material impacts and dependencies on nature – and where they occur in the business's operations and across its value chain.

2. **Measure and set targets**
   When they have assessed and prioritised areas to take action, businesses can begin to test SBTN's methodologies to prepare to set science-based targets for nature, beginning with freshwater and land, alongside their climate targets through the SBTi.

3. **Mobilise change**
   Some businesses want to take action but are not ready to set science-based targets for nature. All businesses can start using SBTN's guidance to assess their impacts on nature, beginning with a sector-level impact assessment, and use SBTN's onboarding resources to rally internal buy-in. They can also become part of collaborative efforts to address nature loss by joining the SBTN Corporate Engagement Program. This puts businesses at the forefront of ambitious corporate action on nature, and gives them the opportunity to share experiences with other leading businesses, feed into the development of future methodologies, and learn the latest from SBTN's technical experts.

   A detailed list of short- and long-term actions specific to the fashion, textile and apparel industry is available in Table 4.

In addition to the actions set out above, businesses can also use their voices to drive collaboration and advocate stronger government action through initiatives such as Business for Nature,[24] the TNFD Forum[25] and The Fashion Pact.

Data requirements

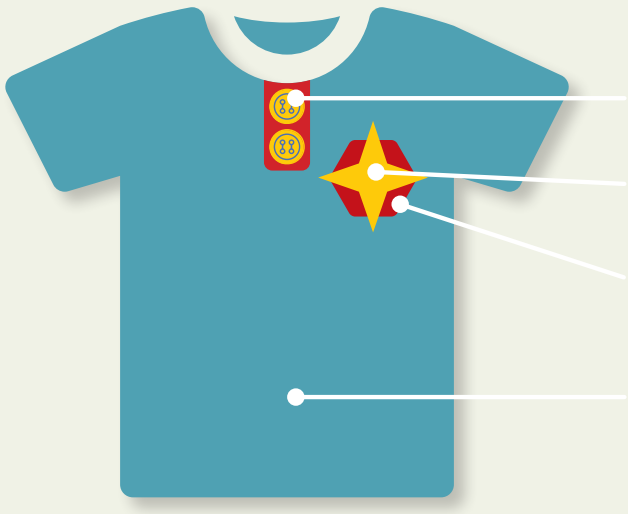
Before starting the target-setting process, it is recommended that businesses look at the data needs for each section of each relevant piece of SBTN guidance to identify any gaps in the required data, or to request data from other stakeholders internally or externally, e.g. from other units/teams within the business or suppliers they have direct relationships with. Data requirements are outlined in the SBTN guidance for each step, and in the Data Needs table found on the SBTN Resources page in the Company Data Needs document.

Box 1: The starting point

Ace Apparel Plc tasked their internal sustainability team to gather data for the target-setting process. The business has previously set business-wide science-based targets for climate with the SBTi. For this case study example, the North America (NA) business unit has been selected as it currently manufactures one of the business's most popular lines of clothing: Super-shirts – a series of shirts that link to a popular film franchise. The targets set within the NA business unit will contribute towards wider business targets in future.

The business unit was also chosen for the following reasons:

- It is responsible for 23 per cent of the business's total sales.
- The business unit wants the brand to sustain its reputation of being quirky and providing good value for money.
- The NA business unit may potentially face more EU regulation, such as the EU Directive on corporate sustainability due diligence (EUDD)[26] and EU Regulation on deforestation-free products (EUDR),[27] for products sold in the EU, and the introduction of the Fashion Act in New York, a bill requiring fashion and apparel businesses to be accountable to social and environmental standards.[28] A pension fund that currently holds a 9 per cent stake in the business has asked to see its plans for mitigating its impact on biodiversity as they begin to scrutinise businesses across their portfolio.
- The sustainability team worked closely with the business's NA business unit and regional supplier teams to identify the materials and inputs that go into producing the t-shirts within the Super-shirts product line, as well as gathering available information on material sourcing locations. A breakdown of the materials used is shown below.



Note: the percentages shown in the picture above reflect the percentage of each material used to produce the whole t-shirt.

While the supplier team found that cotton sourced from the US was traceable to the farm area across farms in the southeastern US, cotton sourced from India is sourced indirectly, and cannot be traced beyond the country level, reflecting the challenges seen during the pilot testing of the science-based targets for nature.

The t-shirts are produced in a factory in the US, which is owned and managed by Ace Apparel Plc. The factory's impacts are already being monitored in order to comply with local regulations.

Challenges:

- poor supply chain visibility for indirectly sourced commodities
- the inclusion of inputs and components that make up a small percentage of the final product, eg buttons, zippers, elastic etc.

Addressing challenges

To address these challenges Ace Apparel Plc decided to focus an initial pilot study on the elements of the t-shirt that made up most of the product, ie cotton and leather. The team focused on the data for cotton sourced from the US and set out a country/regional-level analysis for the sourcing of the remainder of the cotton and leather used in the product.

Overview of the SBTN steps: Assess; Interpret & Prioritise; Measure, Set & Disclose; Act; Track

The SBTN's Initial Guidance for Business sets out a five-step process for businesses to follow to set targets on nature.

Assess: The SBTN requires businesses to assess and identify the material impacts and dependencies on nature across their value chain. As a result of this assessment, businesses will be able to identify material issue areas for their value chain.

Interpret & Prioritise: Guidance is provided on how to interpret the outputs of the Assess stage and identify the business's sphere of influence, allowing them to prioritise locations for action, and generate a 'shortlist' of key locations of direct operations and upstream activities for target setting.

Measure, Set & Disclose: Following guidance set out by the SBTN for each realm (land, freshwater and oceans), businesses can develop applicable baselines and targets for material issues identified during the Interpret & Prioritise stage.

Act: Businesses can use the SBTN's Action Framework(AR^{3}T) and best practice for implementation to develop grounded action plans for delivering on targets for nature.

Track: Once targets have been set and the business has put grounded action plans in place for applicable targets, the SBTN sets out how businesses can monitor their progress towards targets, adapt the business strategy if necessary, and publicly report progress towards set targets.

The first release of the science-based targets for nature includes technical guidance for Step 1, Step 2 and Step 3 (Land and Freshwater). SBTN will be releasing guidance for Step 4 and Step 5 in the near future.

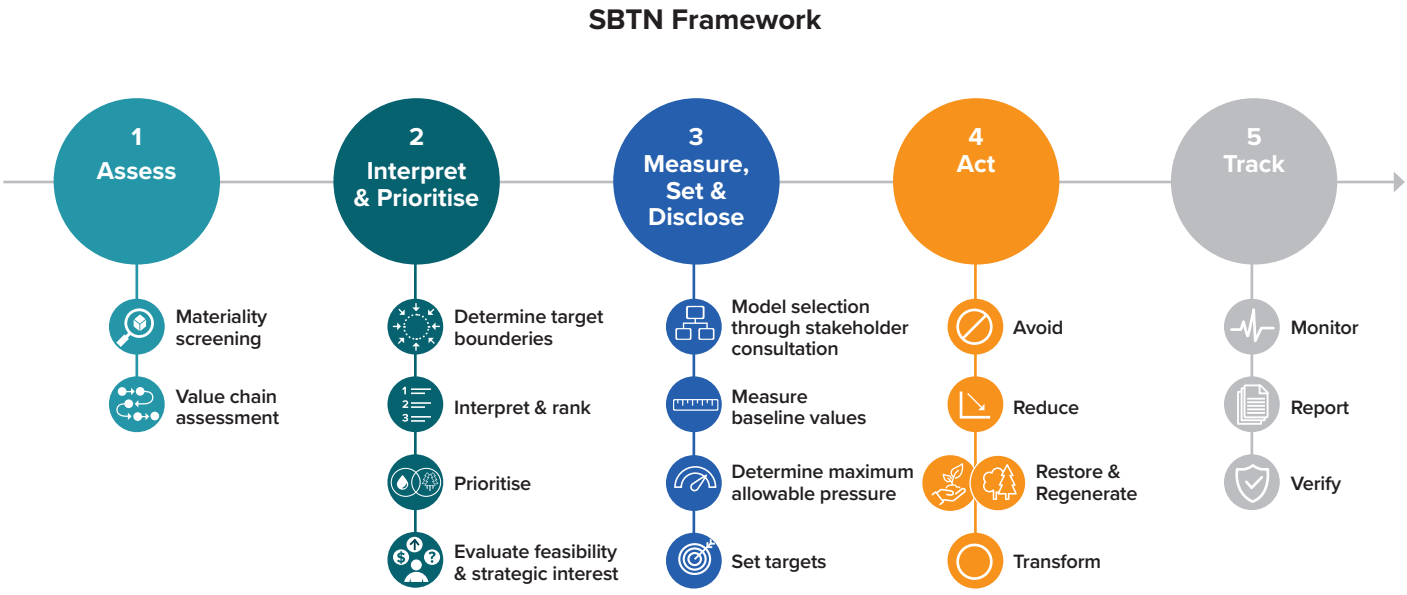


Figure 3: SBTN framework overview

Assess

Within the Assess step, the SBTN sets out guidance for businesses to:

1. Define their materiality screening scope. If a business has previously set climate targets with the SBTi, the same scoping approach is recommended for setting science-based targets for nature. Where no climate target has been set, businesses can follow one of three approaches outlined in the Step 1 guidance:
    - Financial control – based on the ability of the business to direct the financial and operating policies of an operation (e.g. if the business 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 business 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 business holds in an operation.
2. Identify activities within their direct operations and upstream, including associated International Standard Industrial Classification (ISIC) classes. In the final version of the Materiality Screening Tool, a tool which provides a general high-level estimation of the business's pressures on nature and effect on the state of nature, upstream activities are automatically generated using the direct operations selected.

ISIC is a standard classification of economic activities arranged so that entities can be classified according to the activity they carry out. The description of activities and associated classes can be found in the United Nations Statistics Division's ISIC review.[29] The Materiality Screening Tool will also provide the high-level activity associated with each class, and a table to translate any ISIC class into its equivalent classifications. A selection of ISIC codes relevant to the fashion, textile and apparel industry are shown in Table 2.

Table 2: Relevant ISIC classes

Activity	ISIC description	ISIC class
Sourcing plant fibres	Growing of non-perennial crops	A011
Sourcing animal fibres and leather	Animal production	A014
Sourcing wood-based fibres	Forestry and logging	A02
Sourcing paper packaging		
	Manufacture of paper and paper products	C17
Sourcing metal zippers and buttons	Mining of metal ores	B07
	Manufacture of metals	C24
Manufacture of leather	Manufacture of leather and related products	C15
Manufacture of synthetic fibres	Manufacture of man-made fibres	C203
Manufacture of textiles and clothing	Manufacture of textiles	C13
	Manufacture of wearing apparel	C14
Retail of apparel and clothing	Retail sale of clothing, footwear and leather articles in specialized stores	G4771
Retail of textiles	Retail sale of textiles in specialized stores	G4751
Office and administration activities	Office administrative, office support and other business support activities	N82
Warehousing and transportation	Warehousing and support activities for transportation	H52

3. Businesses can screen for material pressures using one of two approaches: the Prescriptive approach and the Flexible approach.

   Using the Prescriptive approach, businesses must identify material environmental pressures relevant to the user's industry through the application of the SBTN's Materiality Screening Tool, available through the SBTN Resources page. The pressures that businesses can screen for relate to: land/water/sea use change, resource exploitation, climate change, pollution, and invasives and other. Each sector is classified according to the ISIC coding.

   The Flexible approach allows businesses to use other tools or models to determine the business's core economic activities that are societally material. Resources for using the Flexible approach are available in the SBTN's Step 1 Toolbox.

When using either approach, businesses will be required to use the SBTN's High Impact Commodity List, a resource that enables businesses to quickly identify priority inputs (upstream) and activities (direct operations) to focus on during target setting, based on known environmental impacts of commodities. The High Impact Commodity List can only be used for commodities purchased directly by the business, and not for commodities purchased by suppliers within the business's value chain. The Materiality Screening Tool will eventually link High Impact Commodities to direct operations and upstream activities based on existing environmental activity and trade data, but this functionality is not included in the first version of the tool released on 24 May 2023. A list of potentially relevant High Impact Commodities is shown in Table 3. Businesses should refer to the full High Impact Commodity List to determine purchased commodities relevant to them.

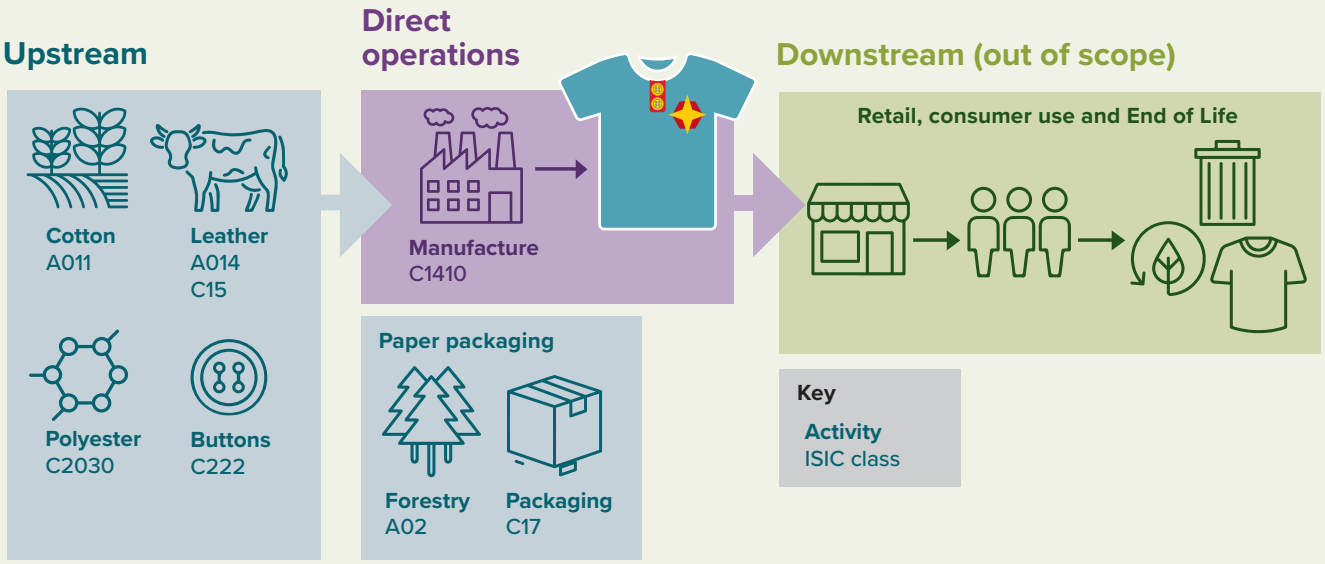
The Materiality Screening Tool and High Impact Commodity List are both available through the SBTN Resources page.

Some impacts may have clear and direct links to the fashion, textile and apparel industry, for example, the growth of plant fibres such as cotton for use within products. However, other impacts may be indirect, for example, man-made cellulosic fibres (MMCFs) and the packaging for products linked to deforestation for raw materials, and the growth of forest plantations which may lead to a decrease in species variability.[30]

Table 3: Potentially Relevant High Impact Commodities

Input	High Impact Commodities
Paper packaging and man-made cellulosic fibres (MMCFs)	Pulp, cellulosics, paper, paperboard, cardboard, tissue
Metal zippers and buttons	Iron
	Zinc
	Steel
Leather	Leather
Cotton	Cotton
Energy	Liquefied Natural Gas (LNG)
	Petroleum

Box 2: Step 1 – Assess



Ace Apparel Plc mapped out their value chain and identified activities in their own operations and direct supply chain, and associated ISIC class.

Using these classes, they undertook a screening using the Materiality Screening Tool. Ace Apparel Plc sense-checked the production processes under each class and excluded any that were not relevant to their direct operations or upstream activities. For ISIC classes with multiple relevant processes, they took the highest materiality rating. The outputs of this screening are shown for a selection of activities below.

Pressure category	Materiality threshold	Upstream				Direct operations
		Leather Animal production – A014	**Cotton** Growing of non-perennial crops – A011	**Packaging** Manufacture of paper and paper products – C170	**Polyester** Manufacture of man-made fibres – C2030	**Manufacture** Manufacture of wearing apparel, except fur apparel – C1410
Terrestrial use	8.5	9	9	ND	7	8
Freshwater use	8	ND	9	ND	ND	ND
Marine use	8	ND	ND	ND	ND	ND
Water use	8	9	9	9	9	9
Other use	5.5	ND	4	ND	ND	ND
GHG emissions	7	7	7	7	7	ND
Water pollutants	6	6	7	7	7	6
Soil pollutants	6	6	7	7	7	6
Non-GHG air pollutants	7	7	7	6	7	7
Solid waste	6	5	5	7	7	7
Biological alterations	6	6	7	ND	ND	ND

Box 2: Step 1 – Assess (continued)

Note
The Materiality Screening Tool takes a global view and provides a baseline for businesses to build on using local context. Where no data is available for a pressure category/ISIC class (ND), businesses must provide justification for materiality based on their own data, and are encouraged to sense-check their results. Businesses are also able to challenge the results of the Materiality Screening Tool based on their own data and understanding of their impacts.

Animal production and growing of non-perennial crops have been included in the materiality screening as they are major activities associated with the production of inputs into Ace Apparel's products: leather and cotton.

Ace Apparel Plc also looked at the High Impact Commodity List to check against their purchased commodities, or commodities linked to their direct operations. The High Impact Commodities that they purchased for their Super-shirts were cotton and leather.

Challenges:
- difficulty identifying all relevant activities and associated ISIC classes
- lack of awareness of all supporting activities and input processes for some inputs.

Addressing challenges
To address these challenges, the Ace Apparel Plc sustainability team undertook an internal stakeholder engagement exercise and spoke to the procurement and manufacturing teams associated with Super-shirts. The sustainability team checked their initial assumptions and terms of production processes with each team and updated these as needed to ensure the correct ISIC classes were selected.

Note: Businesses using crude oil or petroleum for energy should also identify these as High Impact Commodities. However, this case study does not include energy use considerations. Emissions from energy use are covered in the business's SBTi climate targets.

Interpret & Prioritise

Once material pressures have been identified, and the contribution of economic activities to these pressures and subsequent impact on the state of nature have been assessed, results can be interpreted. This includes determining target boundaries, ranking locations within these boundaries and prioritising locations for target setting.

Target boundaries are determined by the pressures identified as material in Step 1, and the traceability of supply-chain data. Once set, target boundaries are prioritised using state of nature indicators, determining the feasibility of target setting and assessing stakeholder interest.

The SBTN guidance sets out two boundary types for upstream targets: 'target boundary A', based on more accurate national or subnational information, and 'target boundary B', based on less precise and more uncertain, coarser resolution information. The boundary type will determine which upstream boundaries to prioritise.

The guidance also sets out an approach to incorporating social and human considerations into the prioritisation process, and for evaluating the feasibility of actions within the target boundaries set.

Box 3: Target boundaries

Based on the outputs of the Assess step, Ace Apparel Plc set target boundaries for their upstream activities and direct operations, including for the cattle ranches and cotton farms in their supply chain. The business is setting their direct operations target boundary for each material pressure for all sites of manufacture in the US.

For upstream activities, they set 'target boundary A' for upstream operations across four countries: the US, Argentina, India and China. For the sourcing of packaging, 'target boundary B' had to be used, as sourcing locations could not be refined to the country level.

Ace Apparel Plc ranked their activities within 'target boundary A' using pressure-specific indices on the state of nature and biodiversity. Based on the outputs of Step 2, the business identified their cotton supply chain boundaries as priorities for target setting.

Measure, set & disclose

Using the data collected in Step 1 and the target boundaries set during Step 2 of the SBTN guidance, businesses can begin measuring their impacts on nature and determining the level of action that they need to take.

Technical guidance documents are available for the **land** and **freshwater** realms and are under development for the **oceans** realm.[31] The guidance outlines the minimum data required, the process for determining which targets are relevant for each business, how to measure impact, and the process for setting and validating targets.

Freshwater

The SBTN provides guidance on freshwater targets for:

- Freshwater Quantity: freshwater withdrawals from surface water bodies and groundwater (where local models exist)
- Freshwater Quality: load of nitrogen (N) and phosphorus (P) to surface water bodies.

The aim of the freshwater targets is to address two major pressures on nature contributed to by businesses: water consumption and nutrient pollution. With the Global Commission on the Economics of Water advising that water supply will soon exceed demand, with the prospect of a 40 per cent global shortfall in freshwater supply by 2030, it is increasingly important to conserve water and maintain water quality.

These pressures are selected because (1) they are those most relevant to the impacts that a large percentage of corporations pose on freshwater, and (2) methods are available to define science-based targets that link these pressures to a healthy state of nature. Targets for toxic chemicals, groundwater quality and groundwater quantity across all basins are expected in future releases. In the meantime, businesses are encouraged to start gathering their own data on these pressures.

The process for setting freshwater targets is split into four phases:

1. Stakeholder consultation
2. Determine modelling approach
3. Aggregation of total pressures
4. Target setting

Following the SBTN's freshwater target-setting guidance, businesses can set targets for both freshwater quantity and freshwater quality at the basin level. The guidance requires businesses to set targets to manage direct operations and upstream impacts.

Businesses will be required to set freshwater targets for priority sites identified within the target boundaries set out in Interpret & Prioritise. Relevant areas for target boundaries are likely to include: raw material processing facilities (e.g. tanneries, cotton mills) due to effluents and air pollutants; arable farms due to land conversion, fertiliser and pesticide runoff; and livestock farms due to land conversion and effluent runoff.

Land

The SBTN provides technical guidance on setting three targets for land that are in the beta-testing phase:

- Target 1: No Conversion of Natural Ecosystems – stop direct and indirect conversion of all natural and terrestrial ecosystems
- Target 2: Land Footprint Reduction – reduce the global footprint of production systems and work with stakeholders on ecosystem restoration through the Landscape Engagement target
- Target 3: Landscape Engagement – engage in materially relevant landscape initiatives to support actions and enable conditions that lead to substantial improvements in nature.

The three land targets have been chosen because they:

- achieve maximum coverage of pressures most relevant to the impacts most businesses have on land
- offer quantifiable and measurable metrics that can be feasibly impacted by business activities to make progress against the target
- are aligned with and build on active and relevant corporate sustainability standards and initiatives
- can incentivise action across SBTN's AR^{3}T mitigation hierarchy: Avoidance and Reduction of impacts as well as Regeneration and Restoration of nature, all underpinned by Systems Transformation.

Depending on the sectors included in the business's value chain (eg arable agriculture) and the percentage of the business's emissions from the forest, land and agriculture sectors, the SBTi guidance may also require businesses to set targets for Forest, Land and Agriculture (FLAG) related greenhouse gas (GHG) emissions. Where a business is either in the FLAG sector or where >20 per cent of its emissions are from the FLAG sector, they will be required to set Target 2: Land Footprint Reduction. However, Target 2 may still be recommended if these criteria are not met. Note that if the business is required to set an SBTi FLAG target, it must do so alongside the science-based targets for nature in order for the target to be validated. For more information on FLAG targets, consult the SBTi FLAG guidance. Land use is a key topic in most major international and global conventions, assessments and reports, including those on biodiversity, desertification, climate, freshwater and oceans. In addition, the protection and restoration of land factors into the targets set within the Global Biodiversity Framework.

As the land targets are currently in beta-testing phase, they are subject to change following the results of the testing.

Target validation

A broader rollout of validation on science-based targets for nature (beyond pilot businesses) is expected in 2024.[32] Once targets have been set, they can be validated by the SBTN. For this validation, science-based targets for all material pressures identified must be set where relevant. Businesses are encouraged to set targets and take action to address all their material impacts as soon as possible, however the SBTN does not currently provide guidance on all issues. Validation of SBTN targets (for freshwater and land) will not be contingent on businesses taking action on any other issue areas not required in the technical guidance. For example, in Step 1 businesses **do** have to assess their pressures on multiple issues that do not yet have target-setting methods, however, further actions and targets are not currently needed.

SBTN are anticipating a late 2024 release to include expanded land targets, further coverage of biodiversity, marine impacts, and additional sources of freshwater pollution. SBTN will also issue guidance to companies on target implementation (Step 4) and target monitoring, reporting and verification (Step 5), along with validatable metrics associated with the Stakeholder Engagement Guidance. For the most recent available guidance and updates on all future guidance, please see the Science Based Targets Network website.

Box 4: Setting freshwater targets

Based on the outputs of Ace Apparel's materiality screening in Step 1, targets for Freshwater Quantity are required for all of its upstream activities and direct operations, as they meet or exceed the threshold for Water use. Targets for Freshwater Quality are also required for all of these business activities, except for sourcing of synthetic materials, as this did not meet the Water pollutants pressure threshold.

This case study will focus on one target: the Freshwater Quantity target for cotton sourcing. However, based on the context described, Ace Apparel would also be required to set Freshwater Quantity and Quality targets for cotton processing and manufacture of clothing.

Ace Apparel Plc decided to start the target-setting process by focusing on a target for Freshwater Quantity for their direct cotton supply chain in the US, which is reliant on one water basin. The business was unable to find a local hydrological model in SBTN's Water model database, however, consultation with local government stakeholders revealed a localised model that could be used.

Using the Step 3 Freshwater Technical Guidance, Ace Apparel Plc was able to calculate the reductions from current-day water withdrawal over a year that are necessary to meet the target water basin's quantity threshold. As water for cotton is not withdrawn from a single point, Ace Apparel Plc decided to estimate withdrawals using secondary data on the average annual water needs for cotton grown in the US for this basin. As it is unknown whether all of the cotton purchased is irrigated or rain-fed, an assumption was made that 100 per cent of the water need was met through irrigation. This assumption was used based on the information from local stakeholder engagement.

As the water withdrawals were calculated on an annual basis, Ace Apparel Plc was required to express their target as an annual reduction. The resulting Freshwater Quantity target is shown below:

"Ace Apparel Plc will reduce its water withdrawal in the Flint River basin to 35x106 ML/year by the year 2028."[33]

Box 5: Setting land targets

Based on the outputs of Steps 1 and 2, pressures on land (ie terrestrial ecosystem use or change, and soil pollutants) are material for Ace Apparel's direct operations, and upstream for leather, cotton and paper packaging.

Currently required targets

Target 1: No Conversion of Natural Ecosystems for direct apparel manufacturing operations, leather and cotton supply chains and packaging supply chain.

Target 3: Landscape Engagement for direct apparel manufacturing operations, leather and cotton supply chains and packaging supply chain.

Note:

- Land targets are currently in the beta-testing phase.
- Ace Apparel Plc is not required to set FLAG targets under the SBTi, ie businesses in any non-FLAG sector with FLAG-related emissions of less than 20 per cent of overall emissions across scopes are not required to set Target 2: Land Footprint Reduction.
- This case study will focus on Target 1: No Conversion of Natural Ecosystems as an example of land targets using Ace Apparel's cotton supply chain. However, based on the case study context, the business would also be required to set targets for their leather and paper packaging supply chains, as well as all relevant direct operations (eg manufacturing facilities).

Cotton supply chain

Information is required for the following:

- Supply chain: Sourcing from producers or first point of aggregation (US) and Sourcing downstream from first point of aggregation (India)
- Traceability: Production unit or sourcing area (US) and Country-level (India).

Both supply chains, ie for the US and India, include priority target boundaries, as identified in the outputs to Step 2.

For cotton sourced from US farmers, Ace Apparel Plc has a complete mapping of farm areas using satellite data. The No Conversion target requires the business to first assess the conversion of natural ecosystems within the farm areas it sources from, using a cut-off date of 2020 (or earlier), and they use the Natural Lands Map as a reference (see the SBTN Resources page). In order to identify the baseline for the No Conversion target, the business's sourcing locations are overlaid onto the Natural Lands Map. Ace Apparel Plc carried out a spatial prioritisation to identify any farm areas within the US cotton supply chain that meet the criteria for 'Core Natural Lands'. The business used the hectares of conversion within the farm area from the cut-off date until carrying out its assessment to determine the land-use change within the farm areas. An attribution is applied to each farm area based on the percentage of the farm's total production purchased by Ace Apparel Plc.

As the US cotton is directly sourced, and cotton is classified as a Regional conversion-driving commodity within Annex 1 of the Step 3 Land Technical Guidance, Ace Apparel Plc is required to set:

- a 100 per cent Deforestation and Conversion Free (DCF) target for all Core Natural Lands
- an 80 per cent DCF target for 2027 which rises to 100 per cent for 2030 in all other natural lands.

The business must also set a target for no deforestation by 2025 for all stages of its value chain, in alignment with the Accountability Framework initiative (AFi).

For cotton supplied from India, data was not available as the commodity can only be traced to the country level. As a result, Ace Apparel Plc will seek to address this data gap by engaging suppliers in its supply chain to enhance traceability and increase the percentage of volumes in compliance with any deforestation- and conversion-free requirements in line with target dates.

The resulting statement for the No Conversion of Natural Ecosystems target is shown in quotes below:

"Ace Apparel Plc will source 100 per cent of volumes of cotton from areas known to be conversion free from 2020 onwards, by 2025.

Ace Apparel Plc will remediate all past conversion occurring between 2020 and 2023 (associated with its share of volumes sourced)."

Note: While accounting for conversion will be required for Ace Apparel Plc's target validation, the remediation of conversion post cut-off date(s) (ie conversion happening between 2020 and 2027 or 2030 – depending on the type of natural lands) will be part of SBTN Step 4: Act, and the business will be able to start the remediation process after target validation.

Act

Several recent papers published by industry organisations have also outlined some preliminary actions that the sector can take as they begin to set targets and address sustainability challenges. The summary in Table 4 below includes a selection of impactful actions that can result in better outcomes for nature and deliver on targets.

All actions taken should follow the AR^{3}T principles:

- Avoid and reduce the pressures on nature loss, which would otherwise continue to grow.
- Regenerate and restore so that the state of nature can recover (e.g. the extent and integrity of ecosystems and species extinction risk).
- Transform underlying systems, at multiple levels, to address the drivers of nature loss.

More information on the AR^{3}T principles and hierarchy can be found in the SBTN's Step 4 overview.

Table 4: High-level summary of fashion, textile and apparel industry actions[34]

	SHORT TERM	LONGER TERM
Regenerative solutions and sustainable sourcing	Start to adopt a nature-positive approach to sourcing, by setting a no deforestation or conversion of natural ecosystems commitment	Implement regenerative agriculture practices and solutions, and promote sustainable sourcing practices and principles to lower the impacts on nature and protect biodiversity within agriculture, forestry and livestock supply chains
Water stewardship	Responsibly manage water sources; identify which watersheds you use and understand their condition	Pursue a context-driven approach to water stewardship that aims to mitigate shared water risks
Chemical and nutrient management	Identify any hazardous chemicals within your products and/or supply chain	Eliminate hazardous chemicals and ramp up sustainable chemical management to minimise the risk to water, land and people
Recycled material/ elimination of virgin material	Shift from virgin fossil-fuel-based fibres and materials to recycled synthetics	Increase the percentage of recycled synthetics and natural fibres used in products over time
Smart product design	Explore innovative and existing smart design for one product	Design products for circularity, so they can be used more, remade, recycled, and after maximum use and recycling, safely composted
Circular/alternative business models	Pilot concepts to understand priority areas for business focus, ie repair models vs recycling vs take-back models	Unlock the environmental and economic potential of circular business models for fashion and extend product longevity through rental, resale, repairs, remaking and new circular models
Collaboration and scaling	Engage in pre-competitive collaboration eg SBTN Corporate Engagement Program	Potential to engage in joint investments in proven systems and solutions to facilitate transformations such as textile-to-textile recycling at scale
Impact data	Understand the data you have access to and the gaps	Evolving impact data comparison and collection to a Life Cycle Analysis plus (LCA+) approach
Location data	Start to trace material sourcing back to the regional, farm or site level for one product/ unit etc	Scale to the organisation
R&D and development of materials methodology	Identify and research new solutions	Start discussions on aligning on a methodology to assess new and emerging materials. Cross-sector alignment on new solutions
Waste feedstocks	Establish a commitment on end-of-life	Increase waste feedstocks through closed-loop production systems

Box 6: Thinking through initial actions

After setting their initial targets for land and freshwater, Ace Apparel Plc started looking at the actions that they could take to meet their targets while working on the remaining targets. They consulted the AR^{3}T principles to ensure that they took actions in the correct order. The initial actions that they decided to take were:

Address the data gaps within the supply chain to enhance traceability.

Avoid: adopting a 'no deforestation and no conversion of natural ecosystems' sourcing policy for their US cotton supply chain, with consideration of how to scale to other regions in future.

Reduce: identify water conservation measures, implementation partners and associated necessary incentives that they could roll out to their direct cotton US suppliers to maximise uptake of better practices/technologies.

Ace Apparel Plc is developing plans to address the remaining AR^{3}T principles following these initial actions.

The business also signed up for the SBTN Corporate Engagement Program and The Fashion Pact to keep up to date with the latest guidance and opportunities for collective action, and to benefit from sharing knowledge with other businesses setting science-based targets for nature.

While downstream activities are not included in current SBTN guidance, Ace Apparel Plc is aware that impacts from product end-of-life are material to the business's stakeholders. Because of this, they have decided to take separate actions to avoid the impacts of solid waste by investing in textile-to-textile recycling programmes and designing their products for recyclability.

Challenges:

- difficulty identifying appropriate initiatives that will result in progress towards the targets and determining the correct level of action
- securing internal buy-in from stakeholders to agree on resources, capacity and time to build necessary partnerships and implement on the ground.

Addressing challenges

To address these challenges, Ace Apparel Plc joined the SBTN Corporate Engagement Program and used the office hour sessions, where companies can engage directly with SBTN, as a forum for asking questions on the implementation of the science-based targets for nature. They also took advantage of the SBTN Referral Program to access service providers and partners who are actively engaged in the SBTN for some technical support. When working in-house, Ace Apparel Plc frequently consulted the Biodiversity Strategy Tool Navigator for available tools and resources to assist with each step of their Biodiversity Strategy development and SBTN target-setting process.

Track

Measurement, reporting and verification (MRV) related activities occur throughout the target-setting process, including:

- while measuring impacts on nature (Step 1)
- while deciding which locations to prioritise (Step 2)
- while collecting baseline data and disclosing this when targets are set (Step 3)
- throughout the process of acting on science-based targets for nature (Step 4), when businesses will track and report on their progress (Step 5).

Throughout these steps, public disclosure through the business's own reporting is encouraged, including results of the business's materiality and value chain assessment and baseline data for targets.

More details can be found in the Step 5 overview.

Summary: looking ahead

This initial release of science-based targets for nature is a critical milestone for organisations. While the ongoing pilot process (involving an initial group of 17 companies that are piloting the target validation process as well as the land methods) will help inform updates to future iterations, given the scope of work ahead, immediate engagement with and application of this guidance is highly encouraged. The target validation process and version 1 of the land targets are anticipated to be available in Q1 2024 after incorporating insights from the pilot; organisations will be able to submit their targets for review after this point (see SBTN website for updates). Unlike SBTi, SBTN will only be accepting set targets, not commitments to do so.

Looking ahead, science-based targets for nature will continue to be an iterative and evolving process as learnings are incorporated, updates released, and the nature and climate landscape develops. The same approach will apply to other emerging frameworks, like TNFD. It is important that organisations incorporate the SBTN approach into their target setting and think more broadly about the enabling environment needed to ensure nature is integrated into their business practices and decision-making.

Creating the enabling environment includes looking more broadly than targets and disclosure. Education and capacity building are critical enablers of strategic action on sustainability, and accelerate the ability of individuals and organisations to lead strategic change. Employees will need to understand key environmental and social challenges, the commercial implications, and be equipped with the tools to add value as best practice evolves. However, this must be partnered with transformative leadership, aligned culture and incentives, management systems that can support setting and delivering on targets, as well as monitoring compliance with associated policies, and support for bottom-up innovation and ideas.

The scale of the nature crisis facing us is significant. As the world moves to action on the critical targets established in the GBF, access to water, energy and soil will completely reshape the commercial world, with operational longevity contingent on the development of robust strategies to mitigate negative impacts on nature. Given its dependencies and impacts on nature but also the global and industry-specific momentum articulated in this Primer, the fashion, textile and apparel industry is well positioned to utilise science-based targets for nature to act now and pave the way to a net-zero, nature-positive world.

Appendices

Definitions

While SBTN definitions have been used for this Primer, it is recognised that alternative varied definitions are available from other organisations, e.g. CISL and IUCN, among others. The full SBTN Glossary can be found on the SBTN Resources page.

Avoid (within AR³T) – Prevent impact happening in the first place, eliminate impact entirely.

Biodiversity – The variability among living organisms from all sources, including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems

Core Natural Lands – Places with acknowledged ecological importance that require immediate action to prevent conversion due to:

- existing legislation and/or initiatives, which include commitments to deforestation and conversion-free commodities
- extinction/collapse risk, irreplaceability, or natural uniqueness
- maintaining natural ecosystem contiguity or intactness
- the provision of critical natural assets or contributions to people.

Direct operations – All activities and sites (eg buildings, farms, mines, retail stores) over which the enterprise has operational or financial control. This includes majority-owned subsidiaries.

Direct sourcing – Sourcing from producers or first point of aggregation.

Ecosystem – A dynamic complex of plant, animal and micro-organism communities and the non-living environment interacting as a functional unit.

Impacts – Can be positive or negative contributions of a business or other actor towards the state of nature, including pollution of air, water, soil; fragmentation or disruption of ecosystems and habitats for non-human species; alteration of ecosystem regimes.

Indirect sourcing – Sourcing from stages of the value chain that are downstream from the first point of aggregation.

Nature's Contributions to People, or NCPs (also known as Ecosystem Services) – All the beneficial and detrimental contributions that humans obtain from and with nature.

Nature loss – The loss and/or decline in the state of nature.

Nature positive – A high-level goal and concept describing a future state of nature (eg biodiversity, Nature's Contributions to People) which is greater than the current state.

Operational site – Operational locations within a business's value chain/spheres of control and influence (including direct operations). Sites can include operations from any phase of a product's life cycle, from extractive operations, production facilities, logistics facilities, wholesale and retail to recycling/ end-of-life.

Reduce (within AR³T) – Minimise impacts, from a previous baseline value, without eliminating them entirely.

Regenerate (within AR³T) – Actions designed within existing land uses to increase the biophysical function and/or ecological productivity of an ecosystem or its components, often with a focus on specific areas of Nature's Contributions to People (eg on carbon sequestration, food production, and increased nitrogen and phosphorus retention in regenerative agriculture).

Restore (within AR³T) – Initiate or accelerate the recovery of an ecosystem with respect to its health, integrity and sustainability, with a focus on permanent changes in state.

Science-based targets – Measurable, actionable and time-bound objectives, based on the best available science, that allow actors to align with Earth's limits and societal sustainability goals.

Target – In global (eg United Nations) sustainability framings, a more specific quantitative objective, usually nested under a goal, with defined measurement and an associated indicator.

Transform (within AR³T) – Actions contributing to system-wide change, notably the drivers of nature loss, eg through technological, economic, institutional and social factors, and changes in underlying values and behaviours (adapted from IPCC and IPBES 2019, 9).

Appendices

Commonly used materials and associated impacts

The textile production process can also have detrimental effects on the environment, including water consumption and freshwater pollution caused by the discharge of hazardous chemical effluents into local water sources and surrounding land, with textile dyeing and treatment contributing to approximately 25 per cent of industrial water pollution.[35]

The impacts on nature that occur across the industry's value chain have the potential to cause irreversible damage to the state of nature and alter the ecosystems on which businesses within the sector rely, prompting the need for action from within the industry. These impacts are linked closely to the most common materials currently being used in the industry. In 2021, ~113 million tonnes of fibre were produced globally:

1. Synthetic fibres (~64 per cent)
2. Plant fibres (~28 per cent)
3. Man-made cellulosics (~6.4 per cent)
4. Animal fibres (~1.6 per cent).

Within this, the most common single fibre was polyester, over half of all synthetic fibres produced. Cotton was the second most common single fibre, one-fifth of all plant fibres produced.[36]

The value chain pressures of commonly used fibres are shown against the realms that they impact in Figure 4 and Figure 5.

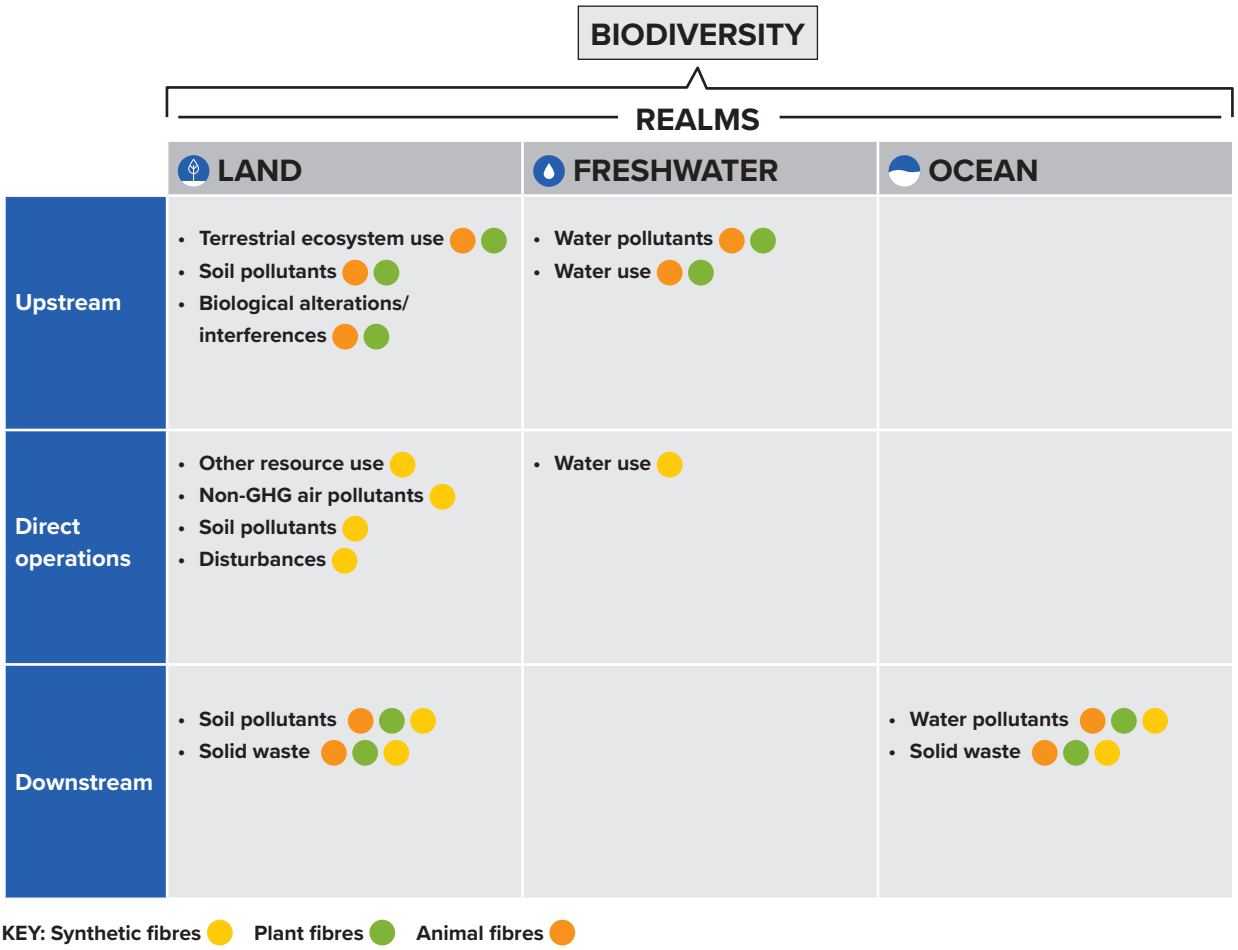


Figure 4: Example pressures across the fashion, textile and apparel industry value chain

Appendices

Commonly used materials and associated impacts

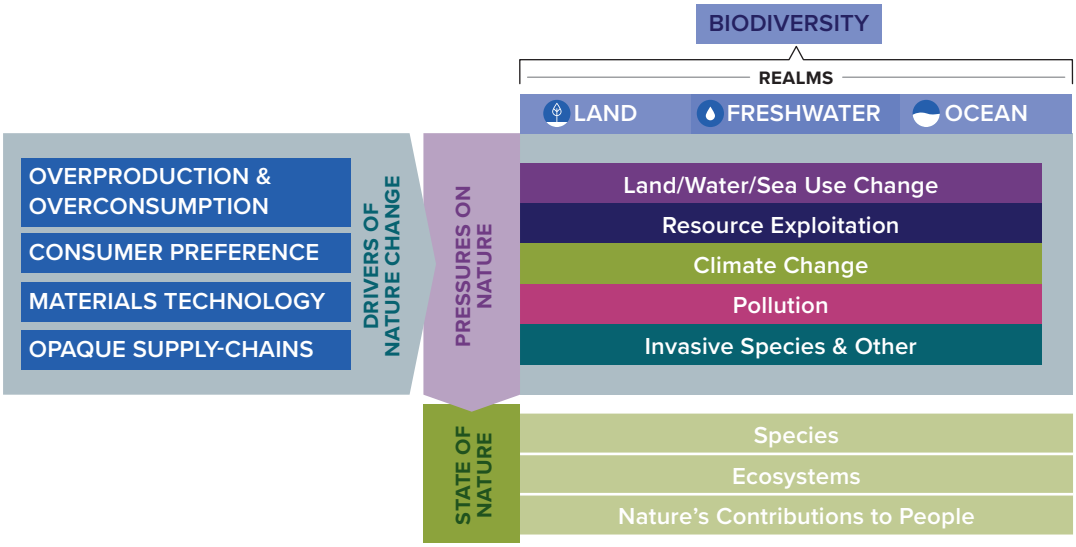


Figure 5: Realms and pressures covered by the SBTN (adapted from Table 2 of the Initial Guidance)

Appendices

Risks and opportunities for fashion, textile and apparel businesses

Table 5: Example risks and opportunities for fashion, textile and apparel businesses

Some examples of the risks and/or opportunities for the sector are outlined here. Other examples can be found in the upcoming Biodiversity Landscape Analysis for the Apparel, Footwear and Textile Industry report from Textile Exchange, The Fashion Pact and Conservation International.

RESPONDING TO EVOLVING POLICY & REGULATIONS; REGULATORY RISK & TARGETS, REPORTING AND DISCLOSURE REQUIREMENTS	Increasing regulation, policy and voluntary standards driving action, eg the Kunming-Montreal Global Biodiversity Framework and EU Corporate Sustainability Due Diligence Directive (CSDDD)[37] and Deforestation-Free Regulation (EUDR)[38]; disclosure, eg the Corporate Sustainability Reporting Directive (CSRD), Taskforce on Nature-related Financial Disclosures (TNFD), Global Reporting Initiative (GRI) alongside the SBTN; proposed legislation, eg The Fashion Sustainability and Social Accountability Act in New York.[39]
MAINTAINING ACCESS TO FINANCE; INVESTOR PRESSURE	Rising to US$35.3 trillion in 2020, environmental, social and governance (ESG) assets accounted for around 36 per cent of all global assets under management, an increase from <30 per cent in 2016.[40] According to the Global Sustainable Investment Alliance, common sustainable investment strategies include ESG integration, negative screening, corporate engagement and shareholder action, among others.[41] Clearer classifications of 'sustainable' investments are being developed/launched as the market develops.
MITIGATING OPERATIONAL RISK; SUPPLY CHAIN RESILIENCE	Commitments under the Kunming-Montreal Global Biodiversity Framework to increase land protection, leading to increased costs of operation and more scrutiny. All businesses depend on natural materials. Ongoing environmental degradation will impact supply chains, production, etc. Addressing impacts on nature will be critical for building operational resilience in the face of these risks.
RESPONDING TO CHANGES IN THE MARKET	More engaged customers demanding better performance with initiatives prioritising nature, further demands for transparency in the supply chain and waste handling. Fifty-nine per cent of consumers worldwide state that sustainability is important or very important when making apparel purchasing decisions.[42]
MITIGATING REPUTATIONAL RISKS	Potential for fraudulent or inaccurate green claims in highlighting sustainable actions leading to loss of consumer trust and brand damage. In addition, more concerns relating to greenwashing and increased fines, eg Competition and Markets Authority (CMA) scrutiny and fines from the Advertising Standards Authority in the UK; CMA to issue consumer protection penalties of up to 4 per cent of global turnover. Increased scrutiny and pressure from activist groups highlighting business examples of greenwashing.

Appendices

References

Business for Nature. “COP15: Governments send a strong signal to businesses that the time to act on nature is now.” Accessed June 13, 2023. https://www.businessfornature.org/.

Capitals Coalition. “Natural Capital Protocol: Apparel Sector Guide.” July 13, 2016. https://capitalscoalition.org/natural-capital-protocol-apparel-sector-guide/.

Convention on Biological Diversity. “Kunming-Montreal Global biodiversity framework.” Agenda item 9A. Conference of the Parties to the Convention on Biological Diversity. Fifteenth meeting – Part II. Montreal, Canada, December 7–19, 2022. https://www.cbd.int/doc/c/e6d3/cd1d/daf663719a03902a9b116c34/cop-15-l-25-en.pdf.

European Commission. “Deforestation-free products.” Accessed June 13, 2023. https://environment.ec.europa.eu/topics/forests/deforestation/regulation-deforestation-free-products_en.

European Commission. “Just and sustainable economy: Commission lays down rules for companies to respect human rights and environment in global value chains”. February 23, 2023. https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1145.

Global Fashion Agenda and UN Environment Programme. “Fashion Industry Target Consultation.” Global Fashion Agenda, 2022. https://globalfashionagenda.org/fashion-industry-target-consultation/.

Global Sustainable Investment Alliance. Global Sustainable Investment Review 2020. Global Sustainable Investment Alliance, 2021. https://www.gsi-alliance.org/wp-content/uploads/2021/08/GSIR-20201.pdf.

Granskog, Anna, Franck Laizet, Miriam Lobis, and Corinne Sawers. “Biodiversity: The next frontier in sustainable fashion.” McKinsey & Company. July 23, 2020. https://www.mckinsey.com/industries/retail/our-insights/biodiversity-the-next-frontier-in-sustainable-fashion.

IPBES. Global assessment report on biodiversity and ecosystem services. Bonn, Germany: IPBES secretariat, 2019. https://www.ipbes.net/global-assessment.

Jaureguiberry, Pedro, Nicolas Titeux, Martin Wiemers, Diana E. Bowler, Luca Coscieme, Abigail S. Golden, Carlos A. Guerra, Ute Jacob, Yasuo Takahashi, Josef Settele et al. “The direct drivers of recent global anthropogenic biodiversity loss.” Science Advances 8, no. 45 (November 2022): 9982. https://www.doi.org/10.1126/sciadv.abm9982.

Science Based Targets Network (SBTN). “Submitting your targets for validation.” Accessed June 19, 2023. https://sciencebasedtargetsnetwork.org/submitting-your-targets-for-validation/.

Science Based Targets Network (SBTN). SBTN Glossary of Terms. SBTN, 2023. https://sciencebasedtargetsnetwork.org/wp-content/uploads/2023/05/SBTN-Steps-1-3-Glossary_2023.docx-1.pdf.

Science Based Targets Network (SBTN). Science-based targets for nature: Initial Guidance for Business. SBTN, 2020. https://sciencebasedtargetsnetwork.org/wp-content/uploads/2020/09/SBTN-initial-guidance-for-business.pdf.

Simon-Kucher & Partners. Global Sustainability Study 2021. Simon-Kucher & Partners, 2021. https://www.simon-kucher.com/sites/default/files/studies/Simon-Kucher_Global_Sustainability_Study_2021.pdf. Sample size of 10,281 consumers from 17 countries.

Statista. “Revenue of the apparel market worldwide from 2014 to 2027 (in trillion U.S. dollars).” Accessed June 8, 2023. https://www.statista.com/forecasts/821415/value-of-the-global-apparel-market.

Taskforce on Nature-related Financial Disclosures (TNFD). The TNFD Nature-related Risk and Opportunity Management and Disclosure Framework, Beta v0.4 – Summary. TNFD, 2023. https://framework.tnfd.global/introduction-to-the-framework/executive-summary/v04-beta-release/.

Taskforce on Nature-related Financial Disclosures. “The TNFD Forum.” Accessed June 13, 2023. https://tnfd.global/about/the-tnfd-forum/.

Textile Exchange. Material Pathways: Accelerating action towards Climate+ goals. Textile Exchange, 2023. https://textileexchange.org/knowledge-center/reports/material-pathways/.

Textile Exchange. Preferred Fiber & Materials Market Report. Textile Exchange, 2022. https://textileexchange.org/app/uploads/2022/10/Textile-Exchange_PFMR_2022.pdf.

The Fashion Act. “Read the Bill.” Accessed June 8, 2023. https://www.thefashionact.org/billtext.

The Fashion Pact and Conservation International. Deep-dive Analysis on United States Cotton Production Impacts on Biodiversity, Ecosystems, and Land. The Fashion Pact and Conservation International, 2023. https://linkprotect.cudasvc.com/url?a=https%3a%2f%2fwww.thefashionpact.org%2fUSA_Cotton_Report.pdf&c=E,1,Cxcfd6dBL93b29DFYrlH8bp0NHEH27KqNECm1X-Id3Dw-N6ZeTXT4z9U9-_DxcbnjZPidtGhlVZlmfOMrYdfiQFjryoLblzxlj5lQ90_M-zXkSV_yG5p4Zkk&typo=1.

United Nations Department of Economic and Social Affairs, Statistics Division. International Standard Industrial Classification of All Economic Activities, Revision 4. Statistical Papers, Series M No.4/Rev.4. New York: United Nations, 2008. https://unstats.un.org/unsd/classifications/Econ/Download/In%20Text/ISIC_Rev_4_publication_English.pdf.

University of Cambridge Institute for Sustainability Leadership (CISL). Developing a Corporate Biodiversity Strategy: A Primer for the fashion industry. Cambridge, UK: Cambridge Institute for Sustainability Leadership, 2020: 12. https://www.cisl.cam.ac.uk/system/files/documents/developing-a-corporate-biodiversity-strategy.pdf.

Van Toor, Joris, Danijela Piljic, Guan Schellekens, Mark van Oorschot, and Marcel Kok. Indebted to nature: Exploring biodiversity risks for the Dutch financial sector. Amsterdam: De Nederlandsche Bank; and Planbureau voor de Leefomgeving, 2020. https://www.dnb.nl/media/4c3fqawd/indebted-to-nature.pdf.

World Economic Forum. Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy. World Economic Forum, 2020. Accessed June 8, 2023. https://www3.weforum.org/docs/WEF_New_Nature_Economy_Report_2020.pdf.

World Wildlife Fund. “Sustainable Agriculture: Cotton.” Accessed June 8, 2023. https://www.worldwildlife.org/industries/cotton.

Endnotes

1 "Revenue of the apparel market worldwide from 2014 to 2027 (in trillion U.S. dollars)," Statista, accessed June 8, 2023, https://www.statista.com/forecasts/821415/value-of-the-global-apparel-market.
2 Joris van Toor, Danijela Piljic, Guan Schellekens, Mark van Oorschot, and Marcel Kok, *Indebted to nature: Exploring biodiversity risks for the Dutch financial sector* (Amsterdam: De Nederlandsche Bank and Planbureau voor de Leefomgeving, 2020), https://www.dnb.nl/media/4c3fqawd/indebted-to-nature.pdf.
3 IPBES, Global assessment report on biodiversity and ecosystem services (Bonn, Germany: IPBES secretariat, 2019), https://www.ipbes.net/global-assessment.
4 All definitions used within the Primer are aligned to those used by the SBTN, however, we acknowledge that alternative definitions are available from groups such as the IUCN, CISL, etc.
5 Science Based Targets Network (SBTN), SBTN *Glossary of Terms* (SBTN, 2023), https://sciencebasedtargetsnetwork.org/wp-content/uploads/2023/05/SBTN-Steps-1-3-Glossary_2023.docx-1.pdf
6 Science Based Targets Network (SBTN), *SBTN Glossary of Terms*.
7 Pedro Jaureguiberry, Nicolas Titeux, Martin Wiemers, Diana E. Bowler et al., "The direct drivers of recent global anthropogenic biodiversity loss," *Science Advances* 8, no. 45 (November 2022): 9982, https://www.science.org/doi/10.1126/sciadv.abm9982.
8 Convention on Biological Diversity (CBD), "Kunming-Montreal Global biodiversity framework" (Agenda item 9A, Conference of the Parties to the Convention on Biological Diversity, Fifteenth meeting – Part II Montreal, Canada, December 7–19, 2022), https://www.cbd.int/doc/c/e6d3/cd1d/daf663719a03902a9b116c34/cop-15-l-25-en.pdf.
9 Science Based Targets Network (SBTN), *SBTN Glossary of Terms*.
10 Anna Granskog, Franck Laizet, Miriam Lobis, and Corinne Sawers, "Biodiversity: The next frontier in sustainable fashion," McKinsey & Company, July 23, 2020, https://www.mckinsey.com/industries/retail/our-insights/biodiversity-the-next-frontier-in-sustainable-fashion.
11 "Sustainable Agriculture: Cotton," World Wildlife Fund, accessed June 8, 2023, https://www.worldwildlife.org/industries/cotton.
12 The Fashion Pact and Conservation International, *Deep-dive Analysis on United States Cotton Production Impacts on Biodiversity, Ecosystems, and Land* (The Fashion Pact and Conservation International, 2023), https://linkprotect.cudasvc.com/url?a=https%3a%2f%2fwww.thefashionpact.org%2fUSA_Cotton_Report.pdf&c=E,1,Cxcfd6dBL93b29DFYrlH8bp0NHEH27KqNECm1X-ld3Dw-N6ZeTXT4z9U9-_DxcbnjZPidtGhlVZImfOMrYdfiQFjryoLblzxlj5lQ90_M-zXkSV_yG5p4Zkk&typo=1.
13 "Revenue of the apparel market worldwide," Statista.
14 Textile Exchange, *Material Pathways: Accelerating action towards Climate+ goals* (Textile Exchange, 2023), https://textileexchange.org/knowledge-center/reports/material-pathways/.
15 SBTi tiers may also change depending on the structure of the company.
16 "Revenue of the apparel market worldwide," Statista.
17 IPBES, *Global assessment report*.
18 "Natural Capital Protocol: Apparel Sector Guide," Capitals Coalition, July 13, 2016, https://capitalscoalition.org/natural-capital-protocol-apparel-sector-guide/.
19 Textile Exchange, *Preferred Fiber & Materials Market Report* (Textile Exchange, 2022), https://textileexchange.org/app/uploads/2022/10/Textile-Exchange_PFMR_2022.pdf.
20 "Revenue of the apparel market worldwide," Statista.
21 World Economic Forum, *Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy* (World Economic Forum, 2020), https://www3.weforum.org/docs/WEF_New_Nature_Economy_Report_2020.pdf.
22 Science Based Targets Network (SBTN), *Science-Based Targets for Nature, Initial Guidance for Business* (SBTN, 2020), https://sciencebasedtargetsnetwork.org/wp-content/uploads/2020/09/SBTN-initial-guidance-for-business.pdf.
23 Taskforce on Nature-related Financial Disclosures (TNFD), *The TNFD Nature-related Risk and Opportunity Management and Disclosure Framework, Beta v0.4 – Summary* (TNFD, 2023), https://framework.tnfd.global/introduction-to-the-framework/executive-summary/v04-beta-release/.
24 "COP15: Governments send a strong signal to businesses that the time to act on nature is now," Business for Nature, accessed June 13, 2023, https://www.businessfornature.org/.
25 "The TNFD Forum," Taskforce on Nature-related Financial Disclosures, accessed June 19, 2023, https://tnfd.global/about/the-tnfd-forum/.
26 European Commission, "Just and sustainable economy: Commission lays down rules for companies to respect human rights and environment in global value chains," February 23, 2022, https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1145.
27 "Deforestation-free products," European Commission, accessed June 13, 2023, https://environment.ec.europa.eu/topics/forests/deforestation/regulation-deforestation-free-products_en.
28 "Read the Bill," The Fashion Act, accessed June 8, 2023, https://www.thefashionact.org/billtext.
29 United Nations Department of Economic and Social Affairs, Statistics Division, *International Standard Industrial Classification of All Economic Activities*, Statistical Papers, Series M No.4/Rev.4 (New York: United Nations, 2008), https://unstats.un.org/unsd/classifications/Econ/Download/In%20Text/ISIC_Rev_4_publication_English.pdf.
30 University of Cambridge Institute for Sustainability Leadership (CISL), *Developing a Corporate Biodiversity Strategy: A primer for the fashion industry* (Cambridge, UK: Cambridge Institute for Sustainability Leadership, 2020): 12, https://www.cisl.cam.ac.uk/system/files/documents/developing-a-corporate-biodiversity-strategy.pdf.
31 Guidance for oceans target setting will not be available under the first release of the SBTN.
32 "Submitting your targets for validation," Science Based Targets Network (SBTN), accessed June 19, 2023, https://sciencebasedtargetsnetwork.org/submitting-your-targets-for-validation/.
33 Figures approximated for example purposes from: The Fashion Pact and Conservation International, *Deep-dive Analysis*.
34 Adapted from "Fashion Industry Target Consultation," Global Fashion Agenda and UN Environment Programme, 2022, https://globalfashionagenda.org/fashion-industry-target-consultation/; and Textile Exchange, *Material Pathways*.
35 Anna Granskog et al., "Biodiversity: The next frontier."
36 Textile Exchange, *Preferred Fiber & Materials*.
37 European Commission, "Just and sustainable economy."
38 "Deforestation-free products," European Commission.
39 "Read the Bill," The Fashion Act.
40 Global Sustainable Investment Alliance, *Global Sustainable Investment Review 2020* (Global Sustainable Investment Alliance, 2021), https://www.gsi-alliance.org/wp-content/uploads/2021/08/GSIR-20201.pdf.
41 Global Sustainable Investment Alliance, *Global Sustainable Investment Review, 5*.
42 Simon-Kucher & Partners, Global Sustainability Study 2021 (Simon-Kucher & Partners, 2021), https://www.simon-kucher.com/sites/default/files/studies/Simon-Kucher_Global_Sustainability_Study_2021.pdf. 10,281 respondents. Global set of consumers from 17 countries.