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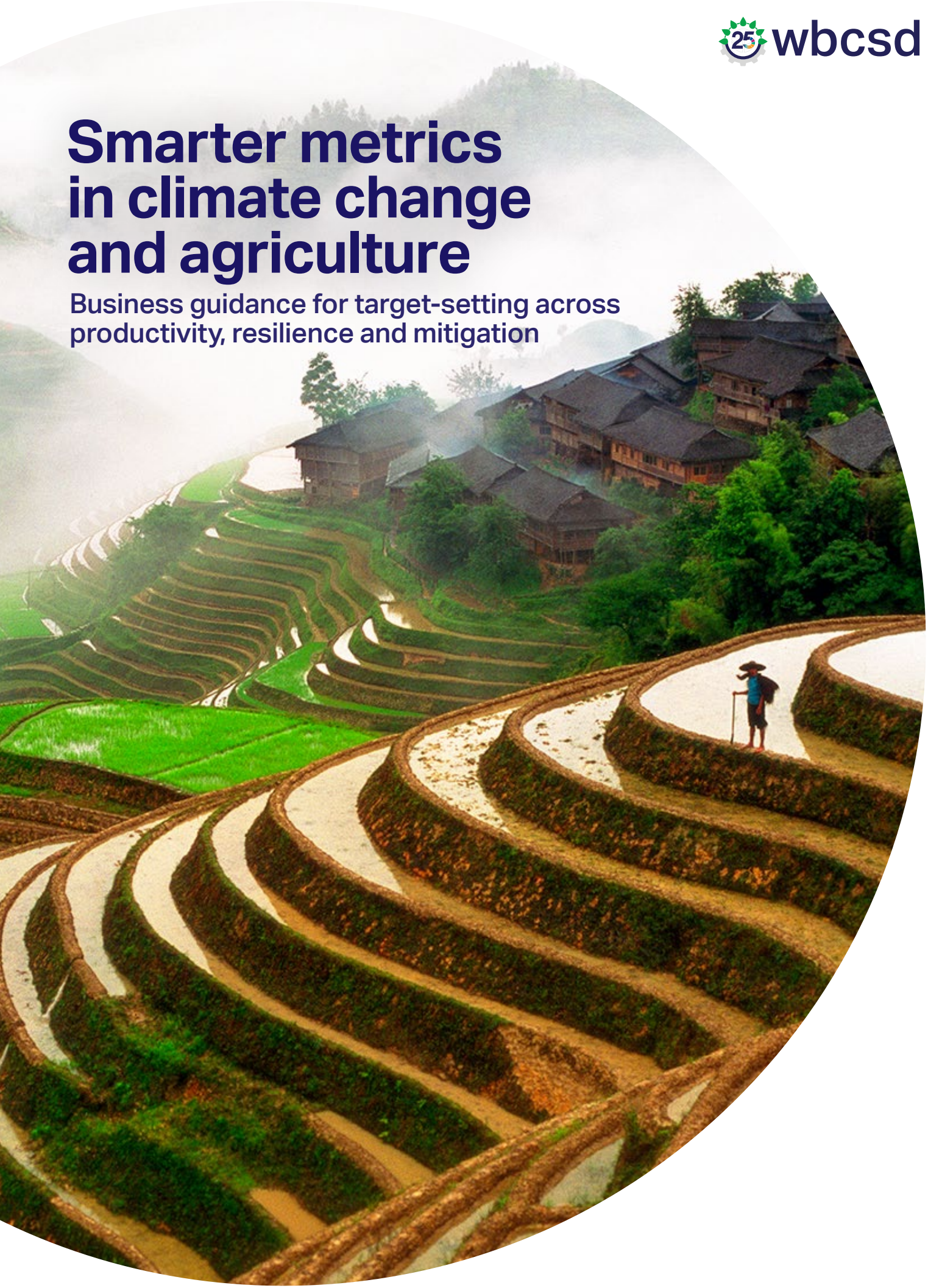
Smarter metrics in climate change and agriculture

Business guidance for target-setting across productivity, resilience and mitigation



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WBCSD would like to acknowledge and thank PwC for their support in producing this document.

This paper is the product of a collaboration between members of the WBCSD, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), International Center for Tropical Agriculture (CIAT) and Ceres.

Foreword

Day after day, the threat of climate change becomes ever clearer, and as a consequence, in the coming years, agriculture faces a trio of challenges – providing for a rapidly growing population, dealing with extreme, unpredictable weather, and shifting the agriculture and food sector from a net greenhouse gas (GHG) emitter (currently responsible for 23% of global GHGs) into a net carbon sink.[1]

Climate Smart Agriculture (CSA) tackles these three issues by finding solutions that strengthen productivity, resilience and mitigation. To scale private sector solutions in CSA and thereby bolster government ambitions under the Paris Agreement, in 2015 WBCSD launched its CSA project, and more recently, worked with WeMeanBusiness on the CSA 100 Campaign.

As a part of this, since 2017, we have supported over 30 companies to set corporate targets with our 'Smarter Metrics' workstream. With this work now entering its third year, this guide acts as an essential repository for companies who are embarking on addressing CSA, providing both an overview of industry trends, and practical guidance to help businesses start the journey of setting and disclosing targets.

Our analysis of corporate disclosures has shown we need more progress on CSA target setting and disclosure for all companies, including multi-national, domestic and small and medium-sized enterprises. As such, we have sought to design this guidance to be initially simple, but also rich in additional resources and methods.

It should also be a guide that can be used by both sustainability and enterprise risk management teams alike, saving time and resources for companies.

We would like to thank all our member companies and partners for their technical contributions to this report, which was written as a joint effort between WBCSD, PricewaterhouseCoopers (PwC), the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), International Center for Tropical Agriculture (CIAT) and Ceres.

Tony Siantonas
Director, Climate Smart Agriculture, WBCSD

1 Introduction

1 Introduction

PURPOSE OF THIS GUIDE

This Smarter Metrics Guide helps your company understand and set targets for Climate Smart Agriculture (CSA), which is defined by the UN Food and Agriculture Organization (FAO) according to three priorities or 'pillars':

Pillar 1 - Productivity: sustainably increasing agricultural productivity and incomes

Pillar 2 - Resilience: adapting and building resilience to climate change

Pillar 3 - Mitigation: reducing and/or removing/sequestering greenhouse gas (GHG) emissions to limit global warming to 1.5 – 2 degrees Celsius.

To support your company's work on CSA, this guide has two key objectives:

- to provide easy, open access information for companies to set and have the confidence to disclose CSA targets, and
- to galvanize action and use of CSA as a key solution for transforming food systems and tackling climate change.

The audience for this guide is sustainability and risk professionals working in agri- and food businesses, and finance companies. Working together, these groups can ensure you apply this guide using existing resources.

HOW TO START USING THE GUIDE

To use the guide, we recommend the following:

1. Read the **Industry trends & insights section** to learn more about CSA metrics, trends and case studies of companies who are setting targets. This will help you gauge where to focus your target setting efforts and see what others are doing.
2. Go to the **Practical guidance section**, which provides you detailed advice and steps for embarking on CSA target-setting. Work with your sustainability and enterprise risk teams to address the process and your needs. Select the relevant sub-section according to where your company sits in the agricultural value chain:
   - Page 17 – 29: Inputs suppliers
   - Page 30 – 41: Producers and traders
   - Page 42 – 55: Brands and retailers
   - Page 56 – 65: Finance providers
3. Refer to the **Additional Resources section**, which provides a rich resource of definitions, example metrics, targets and references to support your CSA target-setting process.

We designed this guide as an introduction for CSA target-setting. Nevertheless, it's worth noting that while some companies are more advanced (e.g. in areas such as GHG mitigation), the same companies may be at much earlier stages of target setting (e.g. for adaptation and productivity).

2 Industry trends & insights

② Industry trends & insights

DISCLOSURE AND TARGET-SETTING ACROSS CSA

Our Smarter Metrics research has shown that many companies are adopting CSA targets and solutions. To deliver on these ambitions, business along the entire value chain – including producers and traders, input suppliers, brand and retailers, and finance providers – should measure progress based on consistent, transparent metrics and targets.

However, current evidence shows the industry lacks the data and guidance necessary to track corporate progress on CSA across the sector[2] (as described in Box 1). Furthermore, the multiple methodologies for climate change target setting mean companies face a complex, often fragmented landscape, meaning it can be difficult to know where to start in setting CSA targets. This Guide has been developed to help companies get started on this journey.

In the upcoming sections, we introduce each CSA pillar and the different target categories that can be set. We also provide an overview of key trends in the food and agribusiness industry relating to each target category, supported by case studies.

Box 1: Reporting matters deep-dive for Climate Smart Agriculture findings & insights

As part of its Reporting matters project, in 2019 WBCSD assessed corporate target-setting towards the three pillars of CSA, scoring company performance.

Based on the results of assessing 17 companies across the value chain, while key CSA issues were often disclosed and considered of material importance to business, most companies were not fully disclosing specific targets. Key findings are shown below:

Figure 1: Reporting matters deep-dive on Climate Smart Agriculture: results & findings

PILLAR 1: PRODUCTIVITY	PILLAR 2: RESILIENCE	PILLAR 3: MITIGATION
Lowest average scores	**Very dispersed average scores**	**Highest perfomance**
Companies need more guidance on setting and tracking targets for productivity	Sustainability reports need to more closely address resilience and physical climate risk as a material issue	Targets to reduce Scope 1 and 2 GHG emissions are well covered by companies
Food loss and waste metrics exist but there are not	Companies require more technical support to define and set measurable targets towards resilience	Science-based targets are becoming mainstreamed
		Adoption of Scope 3 targets remains an area for wider adoption and improvement

PILLAR 1: SUSTAINABLY INCREASING PRODUCTIVITY

WBCSD considers this pillar as focusing on: (1) increasing global food security by making 50% more nutritional food available[1] through increased production on existing land; (2) protecting ecosystem services[2] and biodiversity; (3) bringing degraded land back into productive use; and reducing food loss from field to shelf.[3]

Two fundamental ways of tracking this are through measuring productivity and food loss and waste along the value chain. You can also find more on the specific definitions and target categories for Pillar 1 - **productivity** and **food loss and waste** – in Appendix 1.

Box 2: Industry trends - Productivity

- Attempting to measure improvements in productivity across all the producers a company sources from or supplies is generally not feasible given the high costs of field monitoring and measurement.
- Bearing this in mind, it makes sense to focus on production areas where the productivity gap is greatest, possibly on specific programs or sub-sections of the supply chain where positive action can be taken in a resource-efficient manner.
- The improvements needed in productivity go beyond just the production of additional food and avoiding supply chain inefficiencies. They also need to ensure well-balanced nutrition to meet the dietary needs of a growing global population.

Box 3: Industry trends - food loss and waste (FLW)

- There are a number of global FLW initiatives in place which set industry-wide targets such as the 12.3 Champions group which promote the SDG of the same name: "By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses".
- There is a growing recognition that targets and efforts to reduce FLW can make a significant contribution to the achievement of other corporate sustainability targets such as net GHG reductions. FLW alone accounts for 8% of GHG emissions worldwide and may be a significant portion of a food and agribusiness company's GHG emissions.[3]
- Many companies to date have adopted these global targets in their own corporate target setting. However, each company is very different and such a target may not be appropriate for them, depending on the nature of their supply chain and end product.
- WBCSD, along with six expert organizations contributed to the development of the Food Loss and Waste Accounting and Reporting Standard[4] that enables companies as well as countries, cities and others to quantify and report on food loss and waste so they can develop targeted reduction strategies and realize the benefits from tackling this inefficiency.

[1] Includes milk and dairy, meat and fish, vegetable oils, fruit and vegetables, oilseeds and products, pulses, sugar, roots and tubers and food cereals available for consumption by the global population after food waste is taken into account. All food will be produced in accordance with rigorous safety standards. Nutritional food, in accordance with the WHO Guidelines on Nutrition, should include protein, energy, vitamin A and carotene, vitamin D, vitamin E, vitamin K, thiamine, riboflavin, niacin, vitamin B6, pantothenic acid, biotin, vitamin B12, folate, vitamin C, antioxidants, calcium, iron, zinc, selenium, magnesium and iodine. Retrieved from: http://www.who.int/nutrition/topics/nutrecomm/en/.

[2] Ecosystem services are the benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services, such as nutrient cycling, that maintain the conditions for life on Earth. Retrieved from: Millennium Ecosystem Assessment (2003). Ecosystems and Human Well-being: A framework for Assessment.

[3] Food losses up to the point of the consumer. This does not include post-consumer loss which is considered outside the scope of CSA.

[4] https://flwprotocol.org/

OLAM: MEASURING AND TACKLING FOOD LOSS & WASTE[4]

Context:

Olam is a leading global agri-business operating from seed to shelf. The company's CEO, Sunny Verghese, is part of Champions 12.3 and Olam were a founding organization of the Global Agribusiness Alliance, a WBCSD sector project. Both coalitions are focused on reducing food losses by 50% by 2030.

The target-setting process

To reflect their commitment to these initiatives, Olam set their target to align to Champions 12.3.

Olam has taken early action to implement this target in several key locations. For example, to optimize productivity in Gabon, Olam quantified losses to establish a baseline across its directly managed operations. In 2017, total Olam Gabon Operations plantation crop losses were estimated at 0.4t/ha/year or approximately 8.7% of produced yield over 20,080 hectares of early maturing fields. On large plantation blocks it is time-consuming to identify where the backlog is located because information is logged without exact GPS coordinates, which can lead to crop losses that could be prevented. So, in 2018, Olam Palm Gabon operations developed Agripal, a mobile app that drastically reduces crop losses by recording real-time data on harvested, evacuated and uncollected bunches with geotagging functionality traced back to individual harvesters and exact location of backlogs (uncollected bunches).

In 2018, Olam also directly measured post-harvest loss across 80 smallholder rice farms in Nigeria, from the point of harvest to the procurement warehouse. This study involved farmer surveys, field observations, and direct value chain measurements. The pilot findings identified critical loss points in the initial harvesting and handling stages, which accounted for 35% of the losses. This equated to an income loss estimated at USD $520 per hectare for the farmers.

Lessons learned:

- **Olam is tacking post-harvest loss by engaging farmers on good agricultural practices, training, improving post-harvest practices and preventing quality deterioration.** Yet, it is challenging to conduct direct farmer measurements across all its smallholder value chains, a combined total of 4.8 million farmers.
- **Pilots are easy to implement and offer valuable insights on volume losses** but can frequently be perceived as too costly to implement for smallholder value chains.
- For that reason, **collaboration between companies operating in the same area is important.** More baseline studies on post-harvest loss should be made available.
- **The insights and data are crucial for more companies operating in the same region to benchmark data and make the business case internally** to speed-up interventions in their own supply chains.

> By 2030, Olam aims to have reduced post-harvest loss by 50% in its own operations, as well as in Olam-managed farmer programs.

PILLAR 2: BUILDING FARMER RESILIENCE

WBCSD considers this pillar as focusing on the need to: (1) adapt to and build resilience to climate change; (2) strengthen the climate resilience of agricultural landscapes and farming communities to successfully adapt to climate change through agroecological approaches appropriate for all scales of farming; (3) invest in rural communities to deliver improved and sustainable livelihoods necessary for the future of farmers; and (4) bring prosperity through long-term relationships based on fairness, trust, women's empowerment and the transfer of skills and knowledge.

One of the key factors influencing resilience is the material risk posed to your company by climate variability, which, if not properly tackled, might endanger long-term business goals. As such, good corporate practice lies in embedding climate analysis into risk management strategies both in company operations and along the supply chain – in this guide, we refer to this process as Climate Risk Assessment (CRA). As part of building resilience to manage risks, we then refer to Climate Resilience Building through specific initiatives.

In contrast to other CSA pillars such as productivity and mitigation, there exists no standard/universal metric or method for measuring resilience and adaption, nor one single activity for its strengthening. Therefore, all metrics are essentially proxies for this broad yet deeply critical need, meaning a host of actions may qualify.

However, emerging requirements from the Task Force for Climate-Related Disclosure (TCFD) (see Box 4) are key for driving and setting industry expectations and consistency.

For detailed resources, please refer to Appendix 1 for key working definitions to be considered within this section and target categories for Pillar 2 - Climate risk assessments (CRA) and on Climate resilience building. Appendix 4 contains more details on CRA, and Appendix 6 specific examples of metrics and targets where resilience building can be undertaken.

Box 4: Industry trends in climate risk management and resilience

Businesses are facing an evolving landscape of environmental, social and governance (ESG)-related risks. The Committee of Sponsoring Organizations of the Treadway Commission (COSO) and WBCSD have partnered to develop the Enterprise Risk Management report, providing guidance to help entities better understand the full spectrum of these risks and to manage and disclose them effectively. WBCSD's observations on this issue are the following:

- Few companies have set targets on conducting Climate Risk Assessments in the operations, but for those that have there is a strong narrative on how they are contributing to resilience building.
- There is mixed evidence of companies incorporating Climate Risk Assessments in their risk management strategies, which is a critical gap.
- When climate risk is factored into target setting, the main focus is preventing impacts on the company's operations, not always extending the analysis to the clients/suppliers' risks.

To specifically support climate, the **Task Force on Climate-related Financial Disclosures (TCFD)** further helps companies understand what financial markets want from disclosure in order to measure and respond to climate change risks and align their disclosures with investors' needs.

To fully assess and understand today's complex landscape, TCFD is urging companies to further integrate and disclose climate risks across their business. Both transition risks (e.g. high impact products that may no longer be viable due to a high emissions footprint) and physical risks (e.g. supply chains that are exposed to extreme weather and/or temperature rise) must be considered for companies to have a wider perspective of the landscape in which they operate.

The TCFD also allows companies to better measure and evaluate their own risks and those of their suppliers and competitors, and over the course of 2019 and 2020 WBCSD hosted the TCFD Preparer form for Food, Agriculture and Forest Product companies. Learn more on the TCFD website.

Box 5: Industry trends in farming communities and agricultural landscapes resilience targets

- Target-setting on climate resilience is rare and is often embedded in broader sustainability goals without explicit consideration of the topic from the risk management perspective.
- Actions on climate resilience can have a strong business case and be linked with commercial objectives relating to the broader strength and viability of supply chains.
- Leading companies are working in this area by undertaking a science-based **'Climate Risk Assessment'** to ensure actions they take are addressing highest climate risk 'hot spot' areas (see Appendix 4 for more resources), followed by actions to build climate resilience (see Appendix 6 for example actions).
- Risk considerations include acute (extreme weather events), chronic (rising temperature, sea levels, precipitation, water stress, soil erosion and drought) and social (access to sanitation, food security).

KELLOGG COMPANY – STRENGTHENING CLIMATE RESILIENCE IN FARMING COMMUNITIES

Context:

Kellogg Company has set global sustainability commitments since 2015 and in 2019 announced its next-generation Kellogg's Better Days global purpose platform and commitment to create Better Days for three billion people by the end of 2030. Efforts provide nature-based solutions to address the issues of food security, climate resilience and well-being.

Through Kellogg's™ Origins program, the company has worked since 2010 to support farmers and workers as they improve productivity, reduce postharvest loss, and support economic resiliency. To date, Origins has reached more 330,000 farmers, many of whom are smallholders and women, through dozens of active programs globally. This includes work on climate resilience, including CocoaCloud, a project focused on enhancing weather tracking infrastructure and forecasting for 500 farmers in Western Region, Ghana, where changing climate patterns are resulting in increased crop failures and major impacts to farm families.

The target-setting process

Kellogg's Better Days set a goal of reaching one million farmers and workers by the end of 2030. To achieve this, Kellogg partners with a diverse community of suppliers, NGOs, research institutions, and collaborators to provide training and/or technical assistance that contributes to:

- Improved adoption of climate smart agriculture practices;
- Social benefits, including human rights and diversity programs; and
- Financial resiliency, including capability to sustain during periods of economic and environmental stress.

Kellogg tracks and reports KPIs including the numbers of farmers and workers that have participated in training, received technical assistance or inputs, funding or educational resources to help change agricultural, business or financial practices.

Lessons learnt

- Origins has centered on the needs of farmers across multiple crops and countries, resulting in a **program with local engagement and global reach of over 330,000 farmers**. While some Kellogg collaborations, including CocoaCloud, are designed to reach hundreds of farmers, many Origins projects are smaller in scope, which can limit our short-term ability to reach scale.
- Since climate smart activities also have an influence on mitigation, there is also a need **to develop a roadmap for translating the climate impacts of Kellogg's work** from project-level estimates in sourcing regions to reportable progress toward science-based targets to reduce Scope 3 emissions by 15% by 2030 and 50% by 2050.
- **Kellogg has partnered with Gold Standard and others to explore options for capturing reportable improvements from programs with farmers**, and is seeking future guidance under the Greenhouse Gas Protocol and the Science Based Targets Initiative for how to account for emission reductions or carbon removals from land use.

PILLAR 3: MITIGATING GHG EMISSIONS

For companies that produce, trade, or source agricultural products, emissions from agricultural production and associated land use change typically contribute a large proportion of the company's total greenhouse gas emissions. For example, a recent review of the 50 largest food and beverage companies in the US found that Scope 3 emissions accounted for an average of 89% of companies' total emissions.[5] Companies should accelerate commitments to establish greenhouse gas reduction targets aligned with the Science-Based Targets Initiative[(5)] to limit global warming to under 2 degrees Celsius, while working towards pledges which align with a 1.5 degrees Celsius future through the UN Business Ambition for 1.5°C. [(6)]

Please refer to Appendix 1 for key working definitions to be considered within this section and target categories definitions for Pillar 2 - greenhouse gas emissions, deforestation and other

Box 6: Industry trends in land use change and target ambition

Many companies have excluded emissions from deforestation and other land use change from their greenhouse gas disclosures and targets because of a lack of standards, methodologies, and guidance for accounting for these emissions.[6] There is a similar lack of guidance on how to account for carbon removals (also called "negative emissions") due to sequestration in biomass and soils; currently these must be reported separately, and the **Science-based targets initiative (SBTi)** does not allow their inclusion in company targets.

However, WBCSD and the World Resources Institute are working together on the co-developed **Greenhouse Gas Protocol** to develop guidance on carbon removals, bioenergy, land use, and land use change during 2020 and 2021. This will provide greater clarity on best practices for including emissions from land use change in company greenhouse gas disclosures and targets. In the meantime, companies may join the Natural Climate Solutions project in WBCSD and contribute to development of consistent and credible supply of solutions, as well as use the **Accounting for Natural Climate Solutions Guidance**[7] or other sources to inform the inclusion of emissions from deforestation and land use change in their targets.

WBCSD is working to assure carbon removals become an allowable strategy for meeting targets under SBTi guidelines. Carbon removals within or closely related to a company's own supply chain (i.e. "carbon insets") are one approach, as are carbon offsets.

As urgency grows around the climate crisis, there is also a trend towards increasing target ambition to limit warming to 1.5 degrees rather than 2 degrees Celsius. As of mid-October 2019, the SBTi will only approve scope 1 and 2 targets that are in line with either well-below 2 degrees Celsius or 1.5 degrees Celsius. Scope 3 targets should be similarly ambitious but need only be in line with 2 degrees Celsius for SBTi approval.

[(5)] https://sciencebasedtargets.org/

[(6)] https://www.unglobalcompact.org/take-action/events/climate-action-summit-2019/business-ambition

UNILEVER'S PROCESS FOR SETTING A SCIENCE-BASED TARGET FOR REDUCING GHG EMISSIONS

Context:

Unilever's work on target-setting dates back to 2008, when the company was in the early stages of developing the Unilever Sustainable Living Plan (USLP). The company already had a target for scope 1 and 2 emissions but wanted to include a more ambitious target for reducing GHG emissions.

The target-setting process

When Unilever launched in USLP in 2010 it not only set targets for its operational emissions but also for its upstream and downstream emissions. Unilever already had a complete accounting of their GHG emissions and in-house scientific capacity for conducting life cycle assessment of its products, in collaboration with universities and research groups. This provided a good picture of the company's scope 3 emissions, the major drivers of those emissions, and where the company could act to reduce emissions.

25% of the Scope 3 emissions were upstream, primarily from agricultural raw materials used by their brands. Two third of the raw ingredients used by Unilever come from agriculture. Unilever identified the main drivers of those emissions, with deforestation and agricultural practices the most impactful. By far the biggest upstream contributor to the lifecycle analysis is deforestation related to tropical commodities, which has led to a major focus on the issue of deforestation, supported by ambitious targets and partnerships. Another contributor is on-farm emissions related to land management practices. The implementation of sustainable agriculture practices such as those informed by Unilever's Sustainable Agriculture Code supports farmers to reduce their on-farm emissions.

Unilever has partnered with the Cool Farm Alliance as part of this strategy, embedding the Cool Farm Tool into their supplier sustainable agriculture self-assessment platform, which allows them to collect data needed to develop GHG footprints specific to the company's sourcing in order to track progress. Supply chain traceability has been critical to both the deforestation and agricultural efforts.

Emissions related to the downstream use of Unilever's products, which contribute two-thirds of the company's GHG footprint, has proven more problematic. Addressing emissions from consumer use of these products proved more difficult than anticipated, with updated targets submitted as part of the process for Science-based targets to be approved.

The company's approved science-based targets are: (1) a 100% reduction in scope 1 and 2 GHG emissions by 2030 from a 2015 base year and (2) a reduction in GHG emissions from the life-cycle of the company's products of 50% per consumer use by 2030 from a 2010 base-year.

Lessons learned

- **Addressing Scope 3 emissions requires a significantly different approach from Scope 1 and 2.** It is helpful to have a detailed inventory or life cycle analysis that allows an understanding of the key drivers of emissions, to understand mitigation levers.
- **It is important to have a target that is sufficiently ambitious to drive large changes in the way the company operates.** Estimates of GHG emissions have large uncertainty, and it can be hard to distinguish small changes from noise in the measurement system. If a target is too narrow in scope, and changes are incremental, it can be hard to demonstrate progress.
- **A target should match the culture of an organization.** Unilever was comfortable leading with ambition; other companies may prefer a detailed strategy before announcing a target.
- **Outreach and buy-in from brands is key to achieving targets.** Over time, the business case for target-setting has become clear: Unilever brands with sustainability at their core have grown faster than others.
- **Reducing downstream consumer emissions is difficult and outside of Unilever's influence.** The company has shifted strategy to give more focus to sources of emissions that it can address and engage in policy advocacy for other sources.

BAYER CROP SCIENCE ENABLING CLIMATE MITIGATION THROUGH CARBON ACCOUNTING

The target-setting process

To reflect its commitment to addressing climate change, Bayer committed to the following:

> A 30%reduction of field greenhouse gas footprint (per kilogram of yield) of the most emitting cropping systems in regions Bayer operates. This includes Bayer helping farmers to use climate-friendly methods, such as reducing plowing, which can release CO_2 sequestered in the soil.

Context:

Bayer is a life science company with a more than 150-year history and core competencies in the areas of health care and agriculture. With its product innovations, Bayer is contributing to finding solutions to some of the major challenges of our time. Bayer Crop Science is leading in addressing climate change in agriculture and is an original signatory of the Natural Climate Solutions Alliance.

Agriculture presents a major potential for carbon removal contributing significantly to a 1.5°C world. While interest and demand in agricultural carbon sequestration is growing rapidly, current economics are a significant barrier to wide-scale adoption on climate smart practices. To address this, in 2016, Bayer along with the National Corn Growers Association and its Soil Health Partnership and several collaborators began work on a Conservation Innovation Grant (CIG) from the USDA-NRCS to help farmers better understand and adopt farming practices that help mitigate climate change impacts. This collaborative is working to deliver a unique and comprehensive program that will place the best practices on the right acres, verify the success and impact of those practices, and ultimately create a replicable framework for corporate carbon insetting. This includes:

- Assembling results from a large, unique set of field trials across the Midwest (USA) to deliver practical information to growers and the general public;
- Using state of the art modeling and data management techniques to create novel soil carbon methodology and to understand broad environmental impacts of land management practices;
- Using advanced data collection methods, including satellite imagery and precision agriculture, to identify successful management techniques and deliver best management practices to the farming community;
- Applying new approaches that reduce transaction costs associated with insetting by making the verification process more efficient.

Lessons learnt

- **Technological advances make scaling possible through metrics.** Digital services are enabling seamless data capture. Specifically, remote sensing reduces monitoring and verification costs. Updated models provide reasonable soil carbon estimates.
- **Farmers want to do the right thing for the environment.** Interest in adopting climate smart practices is high, provided the economics benefit the farmer.
- **Demand in ag-based carbon emissions reductions is high.** Ag supply chain companies will reduce their climate impacts provided a robust, transparent, and credible framework exists for accounting for GHG emissions on working lands.

The creation of a credible, robust carbon accounting framework for agriculture will help farmers mitigate the impacts of climate change and position agriculture as part of the climate solution.

3 Practical guide for companies

③ Practical guide for companies

In the following sections we present decision trees for each CSA pillar based on the company type (input suppliers, producers & traders, brand & retailers, finance providers).

Within each decision tree is a suggested step-by-step process for developing a target based on each decision tree outcome. Answer the questions in the decision tree to find the suggested outcome (for example, A, B or C) and refer to the detailed accompanying guidance.
Figure 2 provides a summary of the target-setting areas covered in the practical guidance section.

Figure 2: Target-setting areas covered in the practical guidance section

PILLAR 1: PRODUCTIVITY	PILLAR 2: RESILIENCE	PILLAR 3: MITIGATION
• Productivity	• Climate risk assessment	• GHG Mitigation
• Food loss and waste	• Climate resilience building*	• Deforestation and other land use change**

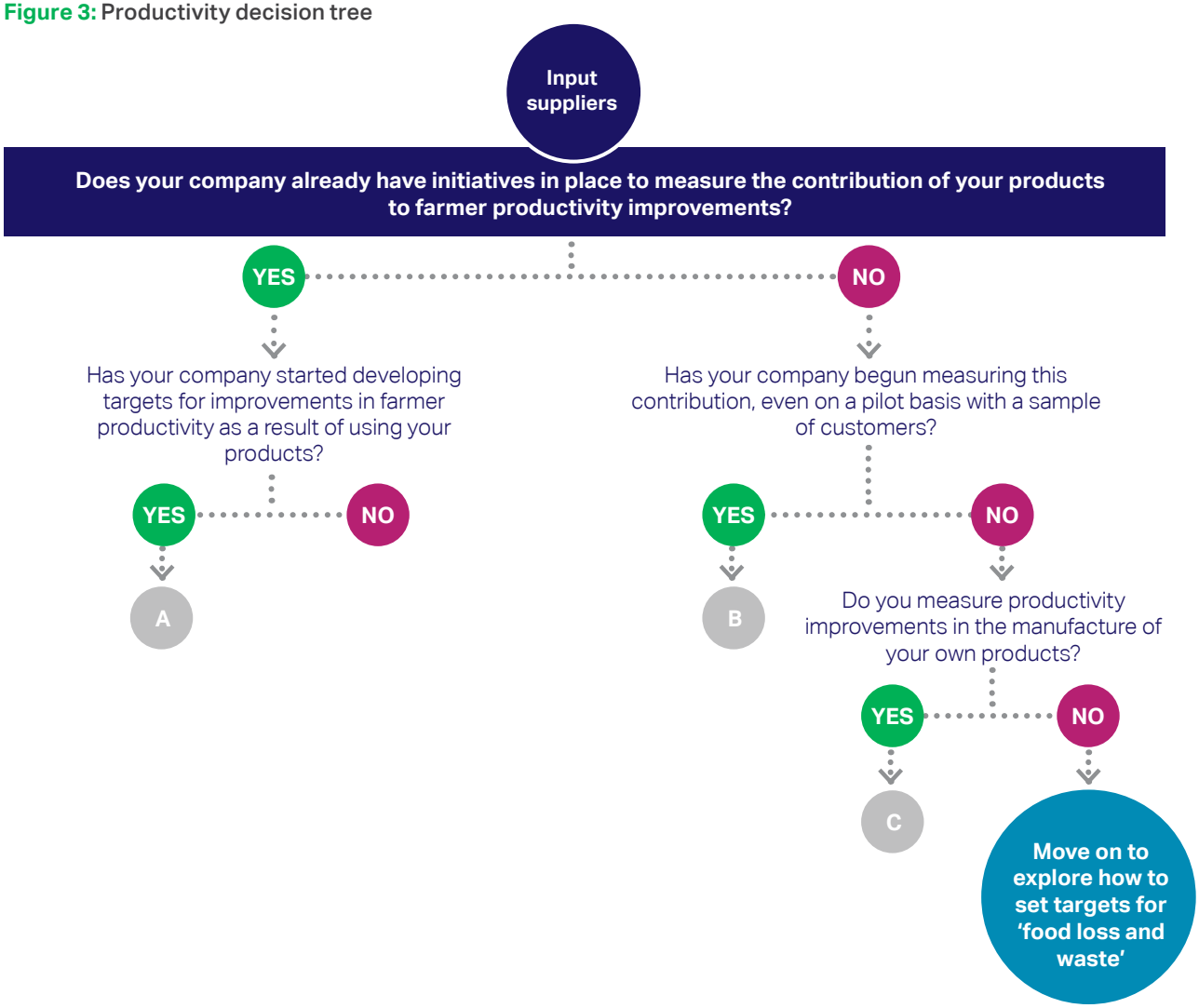
* Climate resilience management for finance providers;

** Out of scope for input providers

INPUT SUPPLIERS

PILLAR 1 - TARGETS FOR PRODUCTIVITY

Figure 3: Productivity decision tree



Setting input supplier productivity targets according to decision tree results

A. Set targets for improvements in farmer productivity as a result of using your products

Step 1 – Assess what is currently measured

If the decision tree has led to this target-setting option, then your company already measures the contribution of your products (or a sample thereof) to farmer productivity. However, for practical reasons this may be confined to a certain geography, product, commodity value chain or group of farmers, as opposed to the entire sales portfolio.

Therefore, the first step is to identify where these contributions are measured across your product portfolio. It could be that this information is assessed in collaboration with third parties (e.g. peer reviewed studies) or solely based on internal research. If this data is just for internal use, determine whether it is confidential or if there is scope for measurement results to eventually be made public.

Step 2 – Analyze results from these measurements to inform a target

Assess the areas where you have this data available, assess the size of the productivity gap between what is achieved on average by farmers/suppliers you purchase from and what could be realistically achieved based on scientific evidence.

Step 3 – Develop a target based on these results

Based on this information, assess what a realistic target could be for a future year (e.g. 2025) based on results to date, on your companies own growth targets and on scientific data on the need for global productivity improvements in the future.

B. Set time-bound targets to implement a farmer-productivity measurement initiative/pilot

Step 1 – Identify product(s) and customer groups for the pilot

Identify the product (or range of products) to focus on for this pilot measurement initiative with a geography and customer grouping where measurement would be most feasible and cost-efficient. This will require a consultation process with your relevant commercial and technical teams, and potential target customer groups.

Step 2 – Develop a timeline for implementing this pilot

Develop the set of steps to start this pilot and, on this basis, calculate a realistic timeframe for using the results to set this target.

C. Set public targets for productivity improvements in the manufacture of your own products

Step 1 – Access and analyze existing production data

Identify and collect datasets on the production processes across your product portfolio, including key metrics on the inputs into the production process (e.g. energy, water, chemical, man-hours, etc.).

Step 2 – Identify priority products

From these datasets, identify which products either use the largest amount of resources to produce and/or entail the least efficient production processes. These could be placed into a shortlist.

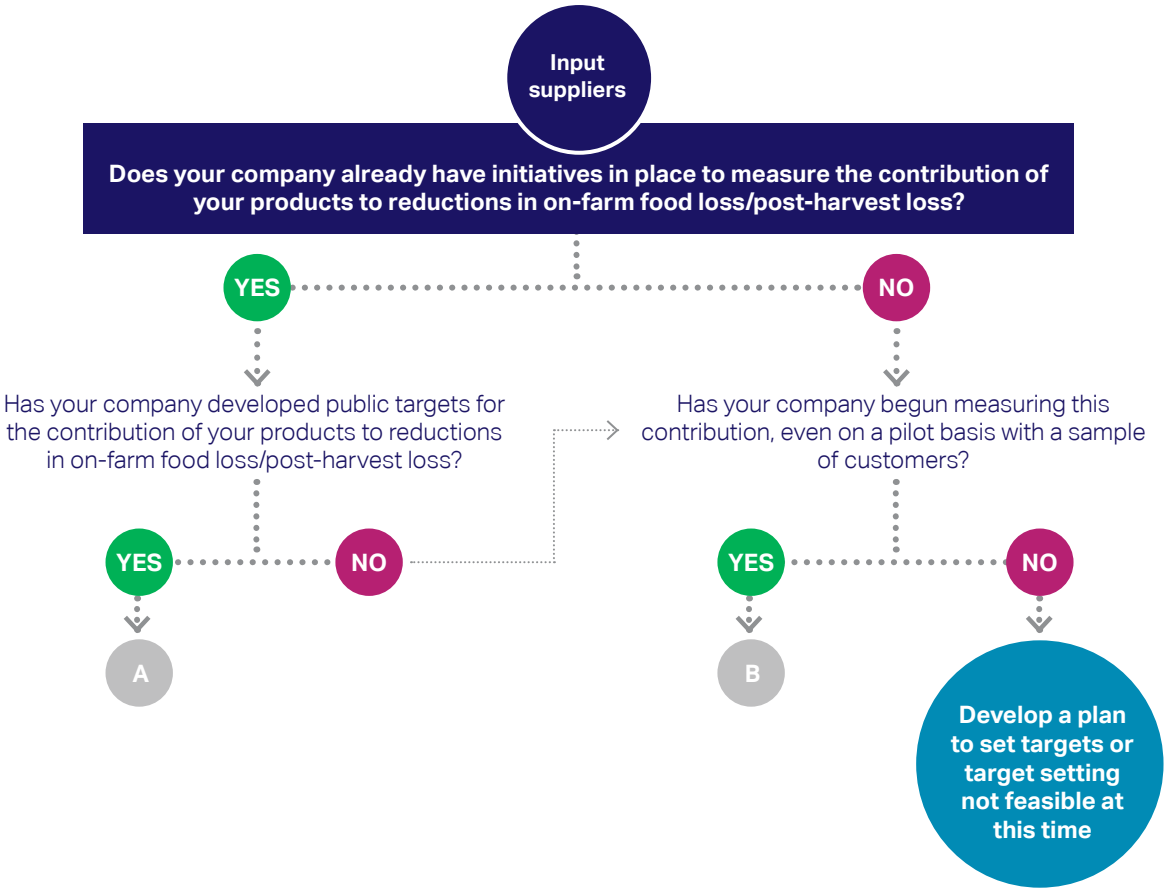
From this shortlist, work with your technical teams to identify which products involve production processes which have the greatest potential for improvements in efficiency.

Step 3 – Calculate potential productivity improvements and set targets

Using the data collected above, calculate what potential productivity improvements could be achieved within an identified timeframe (e.g. 2025), in line with other corporate responsibility targets, for example existing GHG reduction targets.

See Appendix 3 for a list of potential indicators for target-setting in this area.

Figure 4: Food loss and waste decision tree



Setting food loss & waste targets according to decision tree results

A. Set targets for reductions in food loss and waste as a result of using your products

Step 1 – Assess what is currently measured

If the decision tree has led to this target-setting option, then your company already measures the contribution of your products (or a sample thereof) to reductions in food loss and waste. However, for practical reasons this may be confined to a certain geography, product, commodity value chain or group of farmers, as opposed to the entire sales portfolio.

Therefore, the first step is to identify where these contributions are measured across your product portfolio. It could be that this information is assessed in collaboration with third parties (e.g. peer-reviewed studies) or solely based on internal research. If this data is just for internal use, determine whether it is confidential or if there is scope for measurement results to eventually be made public.

Step 2 – Analyze results from these measurements to inform a target

Analyze the results of these measurements from recent years, to identify what average percentage contributions the product(s) in question has made to reductions in food loss and waste across the targeted customer group.

Step 3 – Develop a target based on these results

On the basis of this information, assess what a realistic target could be for a future year (e.g. 2025) based on results to date, your company's own growth targets and scientific data on the need for global food loss and waste reductions in the future.

B. Set time-bound targets for the roll-out of a food loss and waste reduction measurement initiative/pilot

Step 1 – Identify product(s) and customer groups for the pilot

Identify the product (or range of products) to focus on for this pilot measurement initiative, then identify a geography and customer grouping where measurement would be most feasible and cost-efficient. This will require a consultation process with your relevant commercial and technical teams, and potential target customer groups.

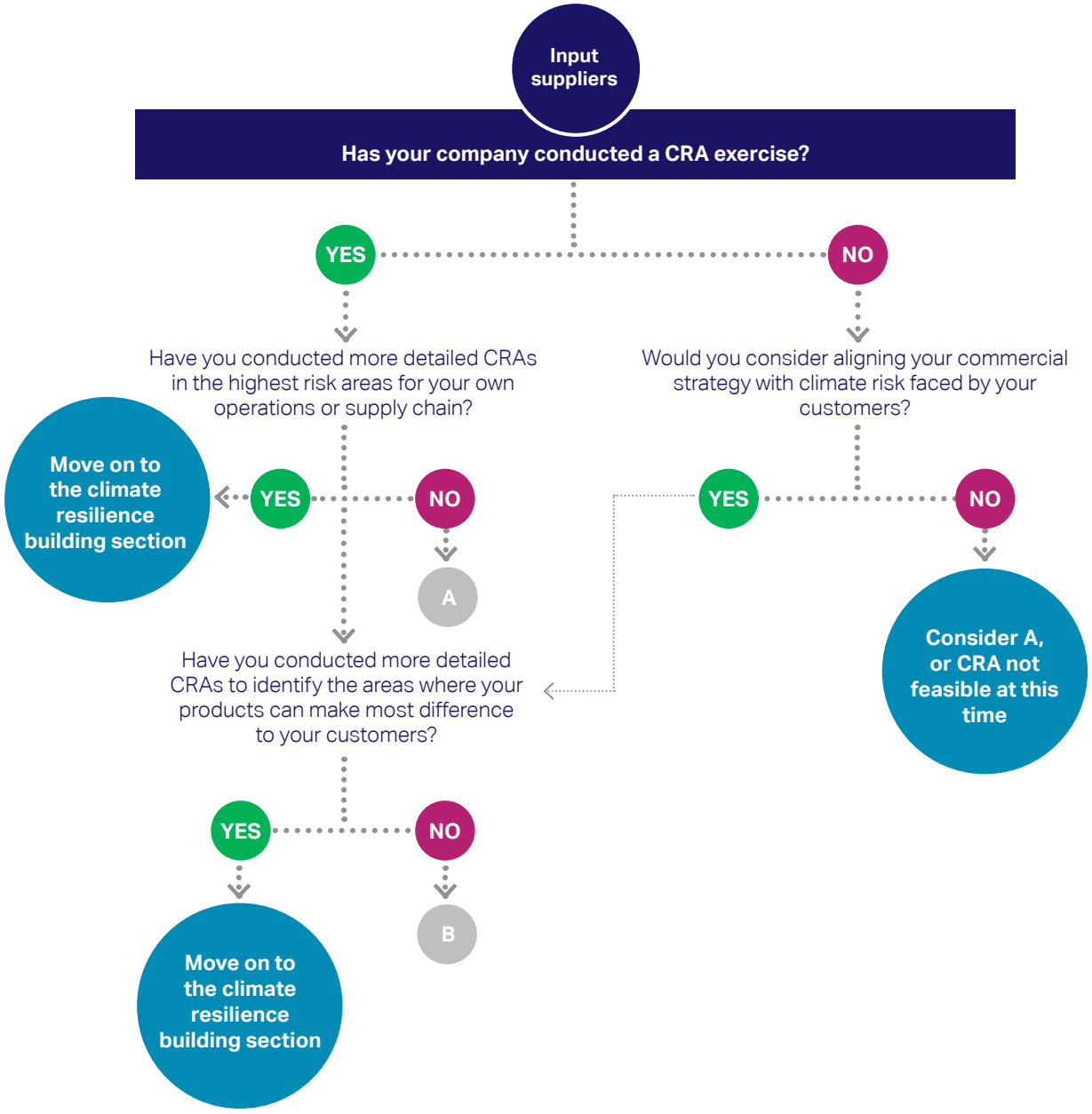
Step 2 – Develop a target timeframe for rolling out this pilot

Develop the set of steps that would be needed to start this pilot up and, on this basis, calculate a realistic timeframe for establishing the pilot. This can then form the basis of this target.

See Appendix 3 for a list of potential indicators for target-setting in this area.

PILLAR 2 - TARGETS FOR RESILIENCE

Figure 5: Climate risk assessment decision tree



Setting input supplier Climate Risk Assessment (CRA) targets according to decision tree results

A. Set CRA targets in high-risk areas your agricultural operations or supply chain

Step 1 – Assess existing data

Connect with your risk management team, assess data used in the company risk management system to minimize the potential harm or losses associated with climate variability and change in your threatened geographies, crops and target farmers, and/or the existing information gap.

If absent, consider starting monitoring risks with a climate risk dashboard – this may include the nature of the risk, its timing, location, and impacts on crop, community and supply chain.

Step 2 – Determine climate exposure and vulnerability in the short and longer term for your prioritized geography or crop

Collect and analyze available data on your high priority geography or crop to determine climate exposure, short and longer-term vulnerability and expected impact on of your operations.

Areas of data include meteorological and climate (e.g. extreme weather potential, rising temperature, sea levels, precipitation, water stress, soil erosion and drought) and social (e.g. access to sanitation, food security, political governance and security). Refer to the Appendix 4 for more references.

Step 3 – Identify priority geographies and impact gradients zones

Based on the severity of likely impacts to crop suitability and commercial viability, develop a tiered threat framework[8] to identify the gradient of impact zones, prioritize investments and design tailored resilience building actions to address specific threat levels. These impacts are as follows:

- **Absorption zones:** likely remain suitable for target crop production and where farming communities will need to improve their absorptive capacity to climate change impacts
- **Adaptation zones:** likely remain suitable for target crop production, although suitability will decline and farmers will need adaptive capacity to change their practices to remain
- **Transformation zones:** will no longer be economically viable and where the farming system will need transformative capacity to transition.

Step 4 – Form an appropriate target based on this first experience of CRA implementation

Based on the available data and this first experience in undertaking a CRA focused on a fraction of your operations/supply chain, determine what realistic target could be for extending the completion of CRAs to other segments of your agricultural operations or supply chain.

Assess also whether this gives you enough information to then plan actions to strengthen climate resilience of your farmers and clients.

Time-bound CRA targets may initially be for high risk or priority intermediaries, crops, geographies, supply chains, ingredients, chemicals, communities, etc. For example: "By 2022, conduct Climate Risk Assessments of 25% of high-risk segments of supply chain." The aim is to subsequently take resilience building actions in newly identified priority areas. The following decision tree assists companies in this critical preliminary step.

For further information on the CRA process, see Appendix 4.

B. Set CRA targets for customer's high priority crops and/or geographies

Step 1 – Assess existing data

Assess customers data used in the company risk management and explore the mitigation strategies associated with climate variability and change. If available, characterize the key climate-related threats faced by customers in the short- and long- term.

If absent, consider start monitoring such information– this may include the nature of main climate related risk faced by customers, its timing, location, and impacts on crops, farming communities and agricultural landscapes.

Step 2 – Determine climate exposure and vulnerability in the short and longer term for customers prioritized geographies or crops

Assess and analyze climate exposure, short and longer-term vulnerability of high priority customers' crops and geographies. enhance value for customers and drive innovation through resilience building strategies. Where such synergies exist, they should be aligned.

Step 3 – Identify impact gradients zones/threats

Look into your customer's priority geographies and based on the main climate threats and severity of likely impacts to crop suitability and commercial viability develop a tiered threat framework to identify the gradient of impact zones prioritize R&D investments and/or design tailored resilience building actions or products to address specific climate threat levels. These impact zones include:

- **Absorption zones:** likely remain suitable for target crop production and where farming communities will need to improve their absorptive capacity to climate change impacts
- **Adaptation zones:** likely remain suitable for target crop production, although suitability will decline and farmers will need adaptive capacity to change their practices to remain commercially viable, and
- **Transformation zones:** will no longer be economically viable and where the farming system will need transformative capacity to transition.

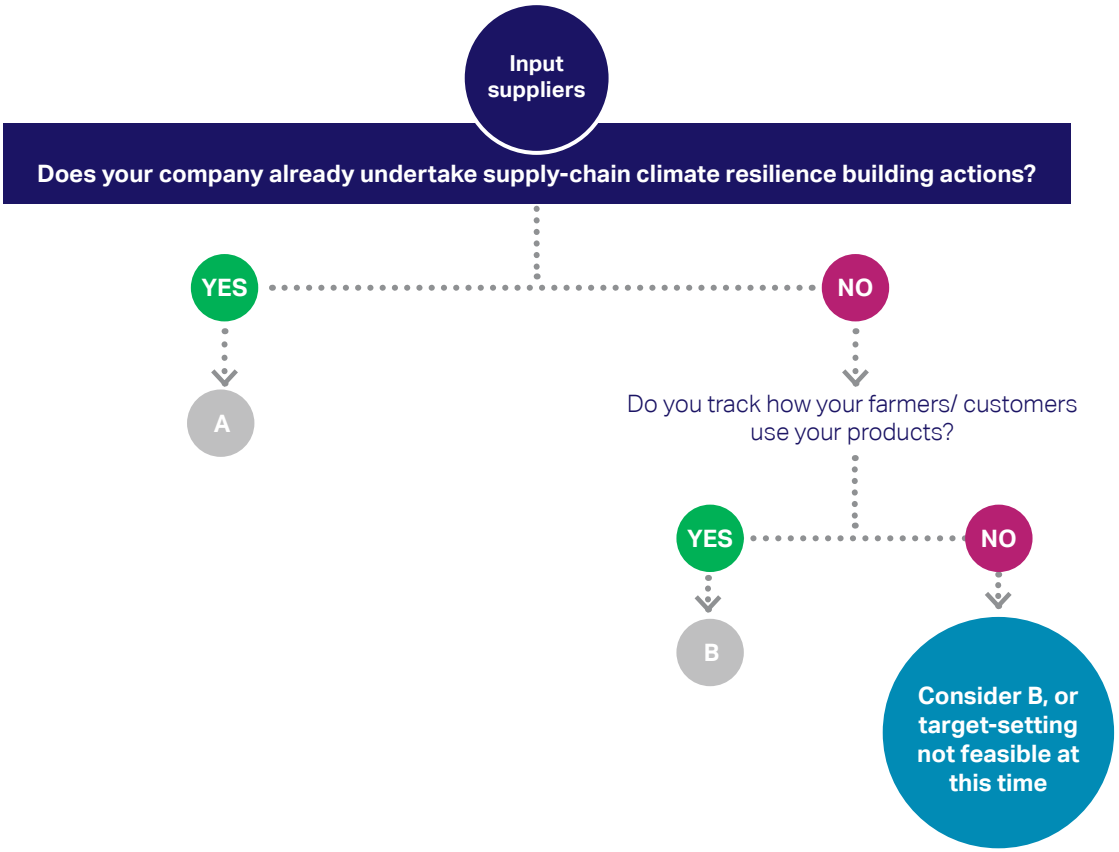
Step 4 – Form an appropriate target based on this first experience of CRA implementation

Based on the available data and this first experience in undertaking a costumers-focused CRA determine what realistic target could be set for extending the completion of CRA to other segments of your costumers and whether this gives you enough information to then customers' mediated actions to strengthen farming and agricultural landscape resilience in the face of climate impacts.

Time-bound CRA targets may initially be for high-risk crops, geographies, etc. For example: By 2022, conduct costumers' focused Climate Risk Assessments for 25% of clients. The aim is to subsequently take resilience building actions e.g. R&D investment on newly identified resilience building products.

For further information on the CRA process, see Appendix 4.

Figure 6: Climate resilience building decision tree



Setting input supplier climate resilience building targets according to decision tree results

A. Set targets for supply-chain focused climate resilience actions

Step 1 – Identify stakeholders and develop a process

Assess existing company or supplier's data (measurement, reporting, initiatives, programs, policies, codes of conduct, standards systems, etc.) related to climate risk management or resilience supporting actions.

Step 2 – Assess the strategic alignment of priority products with the results of the CRA and identify relevant resilience building actions

Your CRA should have revealed priority crops, geographies and opportunities to take action and improve climate risk management across your operations and suppliers. Analyze available measurements/data gathered through monitoring systems in place and assess whether any targets aiming to increase farmers' or agricultural landscape capacities to face climate related impacts, can be established.

Step 3 – Calculate scope of these climate resilience actions and formulate a target

Based on the data collected above and on your analysis about potential scope of climate resilience actions that the company could put in place to improve farmers and/or agricultural landscape resilience within an identified timeframe (e.g. 2025), in line with other corporate responsibility targets, for example sustainability and mitigation targets.

> For further information on climate resilience actions target settings, see resources in Appendix 6.
>
> Companies should set their own unique targets, however, see Appendix 6 for a list of potential farmers or supply-chain mediated resilience-building actions and targets for **input suppliers**.

B. Set targets for customers focused climate resilience actions

Step 1 – Identify existing performance data of your customers' high-risk crops

Assess existing customers or farmers' crop performance data (measurement, reporting, initiatives, programs, etc.) to identify their key climate related threats.

Step 2 – Assess the strategic alignment of your current products to your costumers' main climate resilience challenge

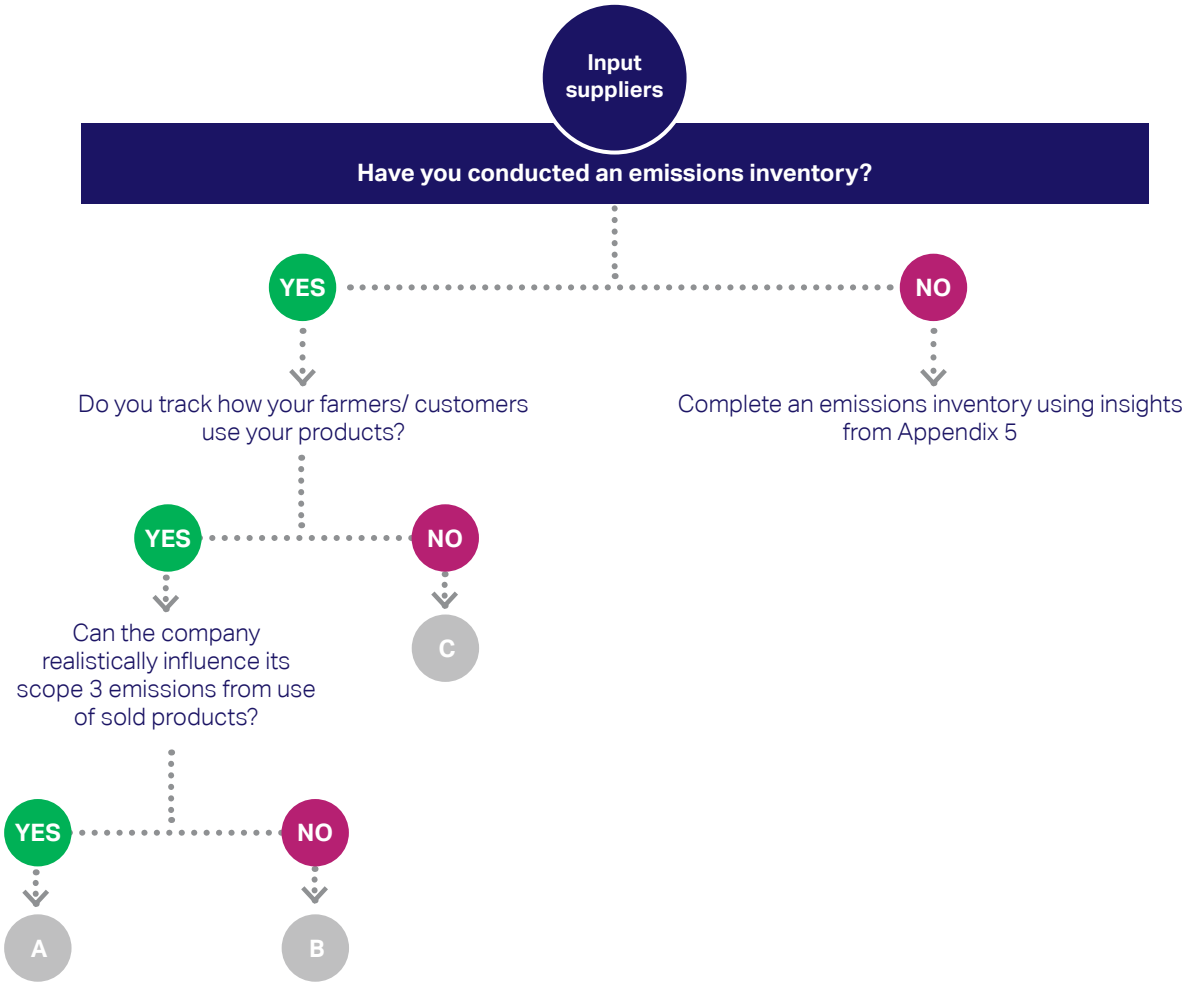
With the results of the CRA and the available customers' data gathered above, identify relevant opportunities for context-specific climate resilience focused R&D or products development.

Step 3 – Calculate scope and formulate a target on climate resilience focused R&D or products development

Analyze the potential scope of the actions or products that the company could put in place to improve farmers' and/or agricultural landscape resilience within an identified timeframe (e.g. 2025). Assess whether the company can set any targets on developing and promoting climate resilient products in line with other corporate responsibility targets. See resources in Appendix 5.

PILLAR 3 - TARGETS FOR MITIGATION

Figure 7: Climate mitigation decision tree



Setting input supplier mitigation targets according to decision tree results

A. Set a mitigation target that includes Scope 3 emissions from use of sold products

Step 1 – Identify stakeholders and develop a process

Identify business units and individuals whose buy-in will be necessary for setting a target. Also identify external stakeholders (such as customers or suppliers) who can help support the target and provide necessary data to inform target-setting. Outline a process for target development, consultation with stakeholders, and obtaining organizational approval. NGOs or consultancies may be able to assist with target-setting.

Step 2 – Assess the organizational and competitive landscape

Examine existing sustainability policies, missions, and values statements at your company, as well as product development opportunities (e.g. slow-release fertilizers) that might enable emission reduction activities. A greenhouse gas mitigation target that becomes part of a cohesive sustainability program is more likely to garner buy-in and support for implementation.

Review targets set by peer companies and sustainability leaders, both to identify potentially innovative practices and ensure that your own target is in line with or more ambitious than competitors. Learn more as part of WBCSD's Reporting matters Initiative and TCFD Preparer Forums.

Step 3 – Develop an emissions inventory

An emissions inventory serves two purposes:

1. Identifies major sources and potential levers for reducing emissions; and
2. Serves as a baseline for calculating targets. The more detail included in an emissions inventory, the more useful it will be for setting and implementing targets. For example, Unilever used an agricultural greenhouse gas calculator (Cool Farm Tool) to estimate company-specific greenhouse gas footprints for all of its sourced products. This allowed the company to identify the major drivers of emissions and potential levers for reducing them.

Use the Greenhouse Gas Protocol[9] guidance for the inventory to set a science-based target, as SBTi requirements are consistent with those of GHG Protocol. Review targets set by peer companies and sustainability leaders, both to identify potentially innovative practices and ensure that your own target is in line with or more ambitious than competitors.

Input suppliers may have substantial emissions in the scope 3 category "use of sold products." While Greenhouse Gas Protocol guidance on land use is in development, some companies have used the Natural Climate Solutions[10] guidance from Quantis and partners to account for land-based emissions and removals.

Step 4 – Select a methodology

There are three general approaches to science-based target setting:[11]

- **Sectoral decarbonization approach:** The global GHG emissions budget is divided by sector. Emissions reductions are then allocated to individual companies based on the budget for its sector. Sectoral decarbonization approaches for the food and beverage sector are under development, for example drawing from the WBCSD's CSA sectoral ambition statement as part of the Low Carbon Technology Partnerships Initiative (LCTPi).
- **Absolute-based approach:** the percent reduction in absolute emissions required by a 1.5 or 2 degree scenario is applied to all companies equally.
- **Economic-based approach:** a greenhouse gas budget is equated to global gross domestic product (GDP) and a company's share of emissions is determined by its gross profit.

Companies may also develop their own approaches based on recognized climate scenarios from IPCC and IEA. Mars is one company that has gone this route, in collaboration with the World Resources Institute.[12]

Step 5 – Set a target

Targets should be set in line with the rate of emission reductions required by climate science. Generally, the most recent year of GHG emissions data should be used as the base year.

If the company has arrived at this point in the decision tree, emissions from use of sold products will be included in the target. Reducing emissions from use of sold products can be uniquely challenging as it involves factors that may be substantially outside of the company's control. Compile the necessary data (such as current emissions, growth scenarios, internal initiatives and competitors' targets) and model several different target options. Consider different scenarios of how the company may design products, engage with customers, and work with policymakers to reduce emissions from use of its products. Review and refine with stakeholders and narrow down to a target that the company considers achievable and sufficiently ambitious.

B. Set a target for reducing emissions from other categories, including seed production operations if relevant

If the decision tree has led here, the company does not consider it feasible to set a mitigation target that includes emissions from use of sold products or use of sold products is not a significant source of emissions. Follow the same steps outlined for (A) above, without including emissions from sold products in the target. Do include upstream emissions from seed production operations and other relevant sources of Scope 3 emissions.

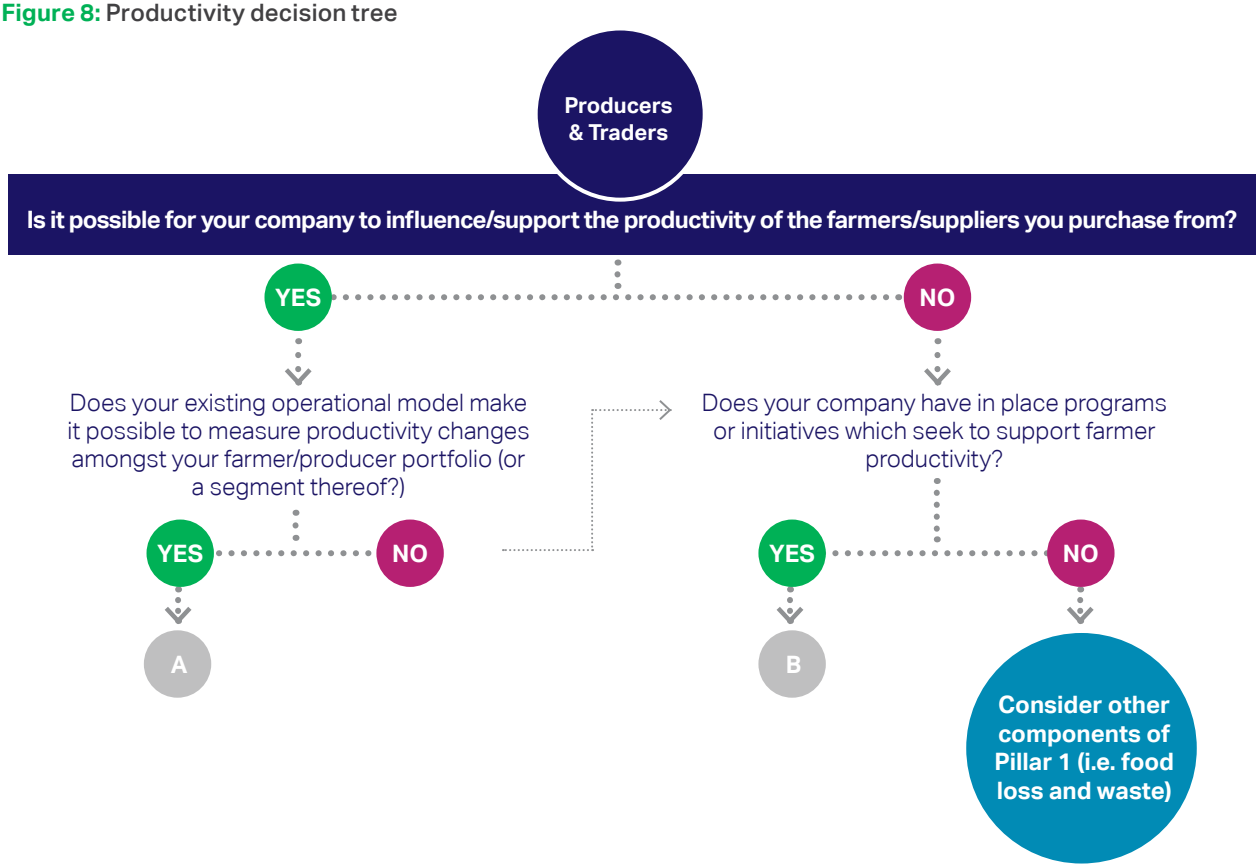
C. Set a target for Scope 1 and 2 emissions and consider setting Scope 3 targets if feasible and aligned with business goals

If the decision tree has led here, Scope 3 emissions are not a significant category for the company. While it is still good practice to include Scope 3 emissions in the mitigation target, the company may consider setting a target only for Scope 1 and 2 emissions, following the process outlined in (A) above.

PRODUCERS AND TRADERS

PILLAR 1 - TARGETS FOR PRODUCTIVITY

Figure 8: Productivity decision tree



Setting producer and trader productivity targets according to decision tree results

A. Set productivity targets for your entire farmer/producer portfolio or for a segment

Step 1 – Assess existing data

Assess the current data you receive from farmers/producers regarding productivity, either through reported data or your own information collected by technical teams.

Step 2 – Determine productivity gaps

Assess the areas where you have this data available, assess the size of the productivity gap between what is achieved on average by farmers/suppliers you purchase from and what could be realistically achieved based on scientific evidence.

Step 3 – Form appropriate targets based on the scale of the productivity gap

Based on the analysis carried out in Step 2, determine what a realistic target could be for productivity improvement for the commodities you source, considering the biophysical, resource and technology constraints in place in your sourcing areas. It may be that these targets are developed for geographic areas or commodities where the productivity gap is greatest, should it be too challenging to formulate targets across your sourcing portfolio.

B. Set targets for groups of farmers receiving productivity improvement support

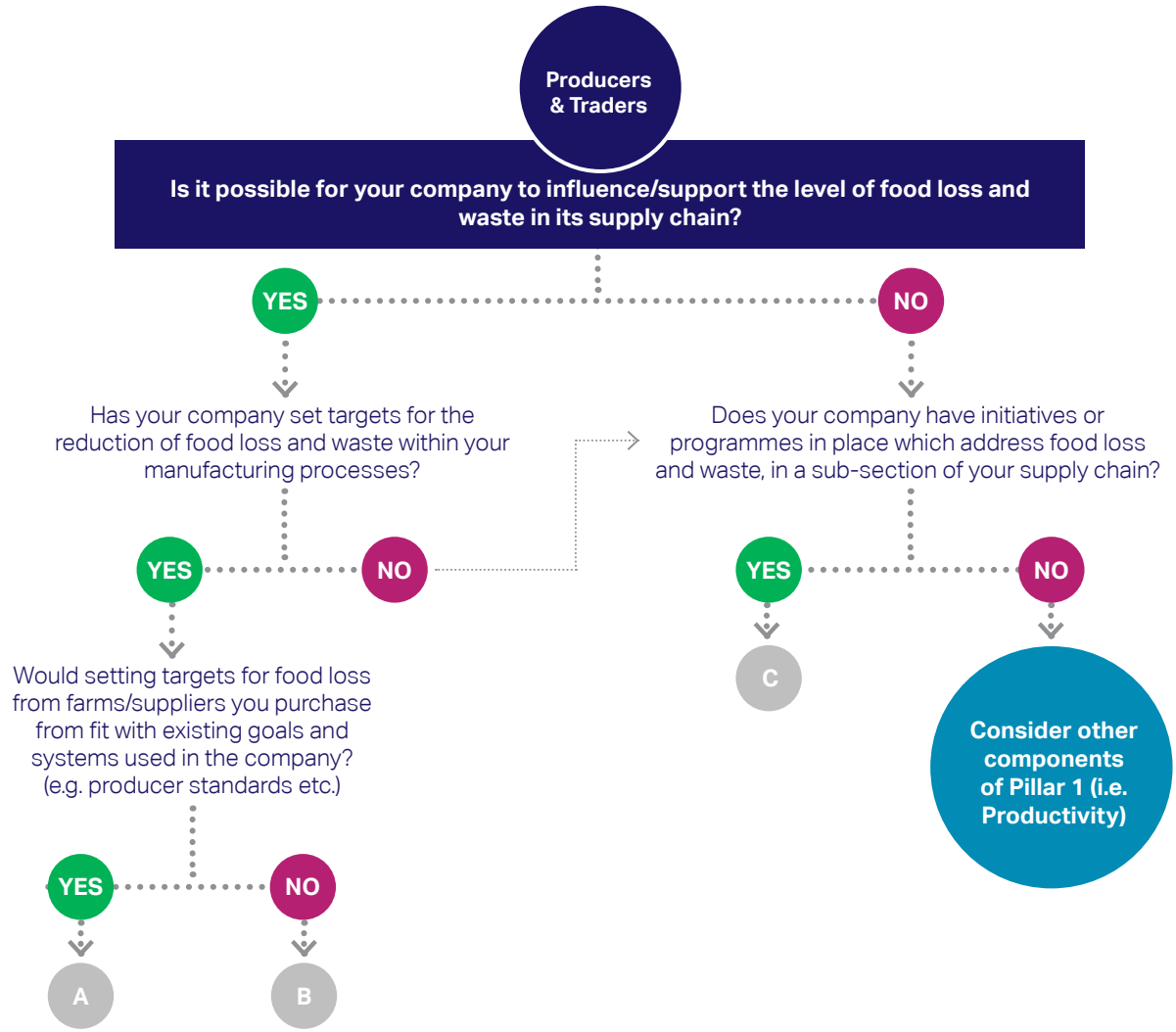
Step 1 – Assess available monitoring data to determine the impact this support is having on productivity

The first step in this process is to verify that the support being provided to farmers does in fact lead to productivity improvements. There may already be monitoring data available to assess this. If not, consider whether a targeted monitoring exercise could be undertaken over the course of at least one harvest cycle, to measure the impact that this support has on farmer productivity. Once a direct and positive relationship can be determined move onto the next step.

Step 2 – Assess what an ambitious but realistic target would be for expanding this support to farmers

In conjunction with the relevant teams in your company, assess what the scope is to expand this program and the potential number of farmers which could be reached by 2030 (or an earlier date as appropriate). This target number (or % increase from existing coverage) can then form the basis for your productivity target.

Figure 9: Food loss and waste decision tree



Setting producer and trader food loss and waste targets according to decision tree results

A. Set food loss and waste targets across your supply chain, either for all products or for a selection of products where the issue is most prominent

Step 1 – Assess existing measurement of food loss in the production process of your farmers and suppliers

Establish whether and how food loss and waste (FLW) is currently measured with farmers/suppliers and in your own manufacturing operations. If Food Loss and Waste is not measured, develop a plan to initiate and implement a measurement pilot in a sub-section of your sourcing portfolio.

Step 2 – Calculate the percentages of volumes of food lost or wasted in your supply chain and determine the baseline

From the data collected in Step 1, calculate the percentage of the food produced (within the segment of the value chain for which data is available) which is lost by the time it is purchased by your company.

Step 3 – Compare this baseline to well-recognized reduction targets and consider whether this would be feasible by 2030 in your sourcing areas

Compare current loss percentage and work with your technical teams/suppliers and other partners to develop plans to reduce FLW in your supply chain in line with global targets (e.g. Champions 12.3). For further information on FLW target setting, see Appendix.

B. Set food loss waste targets for your manufacturing processes

The process for doing this is the same as 'A', though focused on your own manufacturing process only without including Food Loss from farmers and suppliers.

C. Set targets for food loss within specific initiatives/ programs

Step 1 – Assess existing monitoring data from these programs

Ascertain whether data related to FLW are collected within these programs. If they are, assess what results have been to date, in terms of percentage reductions in FLW.

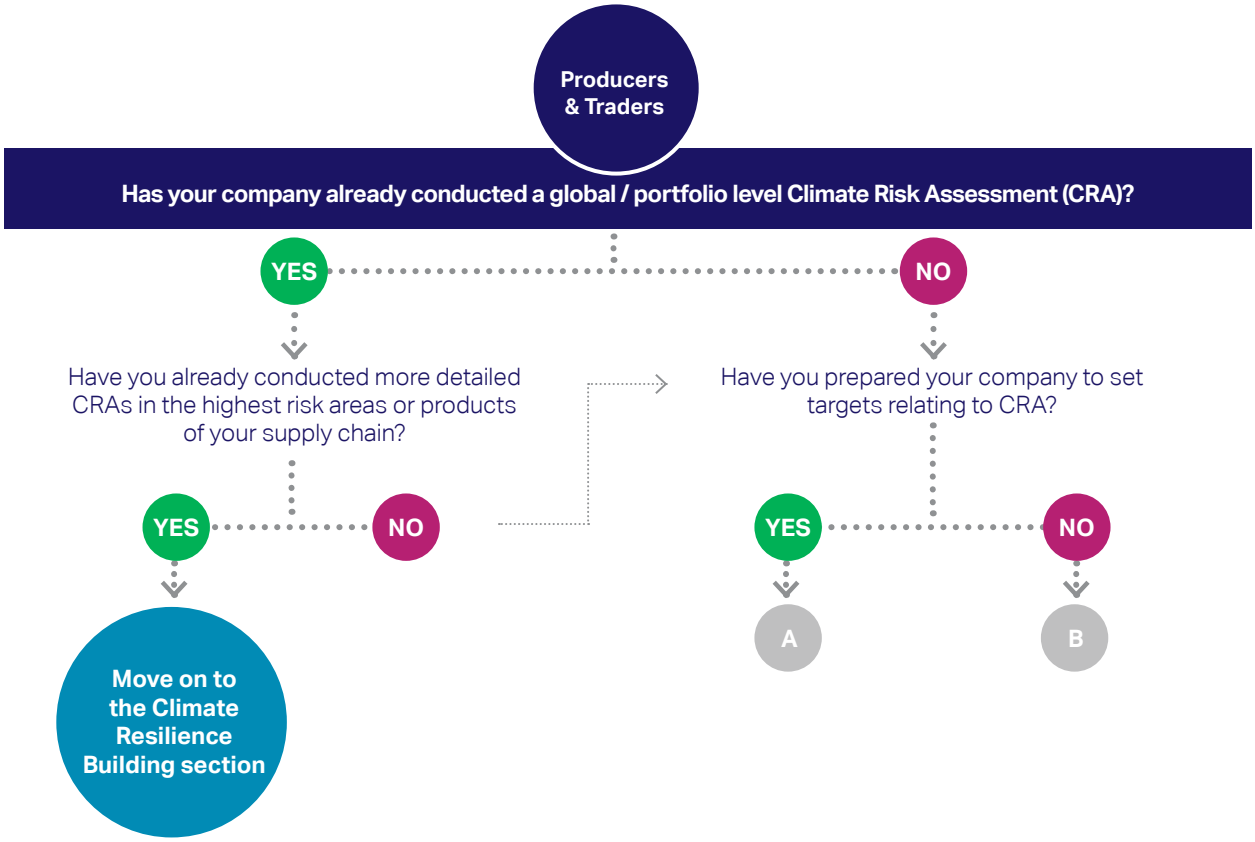
If they are not, work with the team managing these programs to understand how data related to FLW can be measured in the future, and any adjustments that may be needed to do this. Once these measurement systems are in place you can move to the next step. Incorporate co-benefits such as cost savings from material loss reduction and waste hauling reduction.

Step 2 – Develop appropriate FLW targets

Based on the results to date, develop a target for further reductions in FLW considering global target setting initiatives (such as Champions 12.3). See the Appendix 3 for further guidance on FLW target setting.

PILLAR 2 - TARGETS FOR RESILIENCE

Figure 10: Climate Risk Assessment (CRA) decision tree



Setting producer and trader Climate Risk Assessment targets according to decision tree results

A. Set CRA targets at portfolio-level or in a high-risk segment of your supply chain

Step 1 – Assess existing data

Work with your risk management team, and assess data used in the company risk management and mitigation strategies to minimize the potential harm or losses associated with climate variability and change in your threatened geographies and crops. If this data is not collected, start monitoring risks with a climate risk dashboard – this may include the nature of the risk, its timing, location, and impacts on crops, communities and supply chains.

Step 2 – Determine climate exposure and vulnerability in the short and longer term for your portfolio or a prioritized geography or crop

Collect and analyze available data to determine climate exposure and vulnerability in both short- and long- term for priority geographies and cropping systems. Areas of data include meteorological and climate (e.g. extreme weather potential, rising temperature, sea levels, precipitation, water stress, soil erosion and drought) and social (e.g. access to sanitation, food security, political governance and security). Refer to the Appendix 4 for more detailed examples.

Step 3 – Identify priority geographies and impact gradients zones

Look into your priority geographies and based on the severity of likely impacts to crop suitability and commercial viability, develop a tiered threat framework to identify the gradient of impact zones, prioritize investments and design tailored resilience building actions to address specific threat levels. These can be divided into the following zones (see figure X in Appendix 1 for a summary diagram):

- **Absorption zones:** likely remain suitable for target crop production and where farming communities will need to improve their absorptive capacity to climate change impacts
- **Adaptation zones:** likely remain suitable for target crop production, although suitability will decline and farmers will need adaptive capacity to change their practices to remain commercially viable, and
- **Transformation zones:** will no longer be economically viable and where the farming system will need transformative capacity to transition.

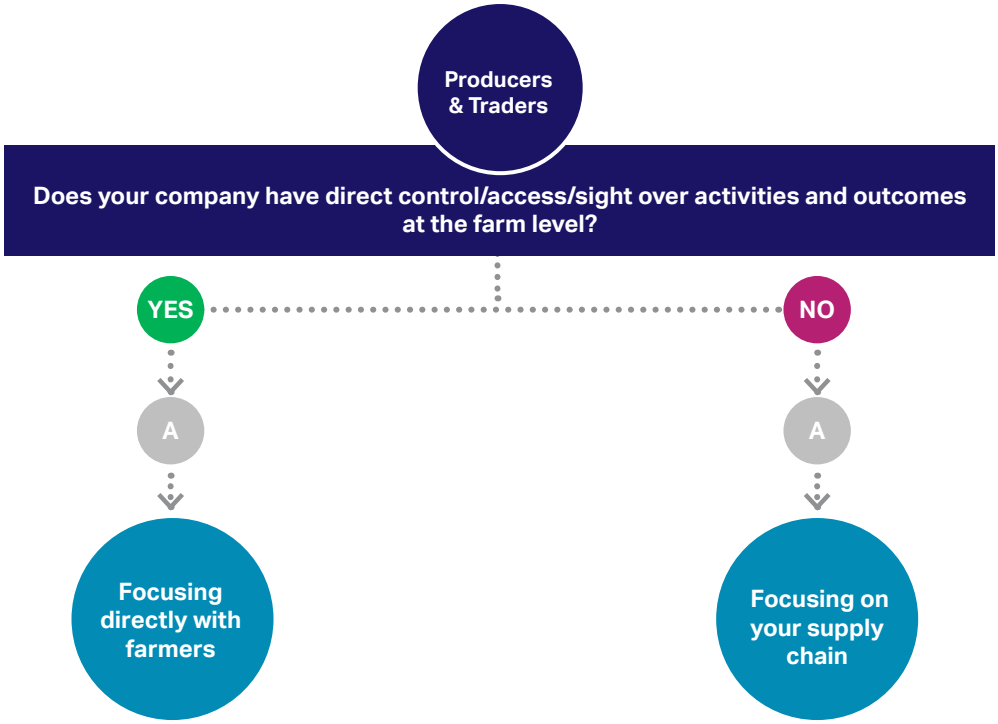
Step 4 – Form an appropriate target based on CRA implementation

Based on the available data and this experience in undertaking a CRA focused on a sample of your operations (for example, a specific geography or crop), determine a realistic target for extending the completion of CRA to other segments of your operations or supply chain. If this has provided sufficient information then plan actions to strengthen climate resilience of your farmers and or suppliers. For further information on the CRA process, see Appendix 4.

B. Development of a CRA target is currently challenging

If development of a CRA target is currently challenging, work with your central risk management function to factor climate risk into enterprise-wide risk management, and together develop a plan for when targets for a CRA of high-risk segments of the supply chain will be developed.

Figure 11: Climate resilience building decision tree



Setting producer and trader climate resilience building targets according to decision tree results

A. Set Climate resilience building targets directly with farmers or for your supply chain

Once your completed CRA reveals resilience-building hot spots (vulnerable areas), set targets for prioritized actions that specifically build resilience or mitigate/manage risk. These actions permit the collection of data required by target setting and reporting by producers on a project-basis. For example, Traders' actions may also take place through contracts with suppliers.

Step 1 – Identify existing programs or practices which qualify for resilience reporting

Work with your risk management team, and assess data used in the company risk management and mitigation strategies to minimize the potential harm or losses associated with climate variability and change in your threatened geographies and crops. If this data is not collected, start monitoring risks with a climate risk dashboard – this may include the nature of the risk, its timing, location, and impacts on crops, communities and supply chains.

Step 2 – Assess the strategic alignment of resilience building actions and select interventions

Use the priorities identified in the CRA (e.g. crops, ingredients, geographies and suppliers in your supply chain) to develop actions which will improve farming and agricultural landscape resilience capacities. Critically analyze if opportunities exist to increase security of supply, reduce costs and risk, enhance value for customers, drive innovation and/or improve reputation through resilience building strategies. Where such synergies exist, they should be aligned.

Step 3 – Formulate a target for the resilience building actions the company can take

Based on your prioritization and analysis, formulate targets to improve resilience over time including coverage of resilience building activities across your portfolio, or the number of supply chain partners (including farmers) benefitting. Develop reporting systems to track progress which may require your suppliers/farmers to adopt simple resilience reporting which can then be aggregated up to track progress against the target. Some targets for farmers can be adopted by traders if their engagement/collaboration with supply chain partners permits.

For further guidance, see Appendix 6 for a list of potential farmers or supply-chain mediated resilience-building actions and targets suitable for producers and traders.

PILLAR 3 - TARGETS FOR MITIGATION

Figure 12: Climate mitigation decision tree

Setting producer and trader GHG emission targets according to decision tree results

A. Set an absolute or intensity-based emissions target that includes Scope 3 emissions from agricultural production and related land use change[7]

Step 1 – Identify stakeholders and develop a process

Work with your risk management Identify business units and individuals whose buy-in will be necessary for setting a target. Also identify external stakeholders (such as customers or suppliers) who can help support the target and provide necessary data to inform target-setting. Outline a process for target development, consultation with stakeholders, and obtaining organizational approval. NGOs or consultancies may be able to assist with target-setting.

Step 2 – Assess the organizational and competitive landscape

Examine existing sustainability policies, missions, and values statements at your company, as well as producer support programs (such as those to support productivity or resilience) that can enable emission reduction activities. A greenhouse gas mitigation target that becomes part of a cohesive sustainability program will have stronger support for implementation.

Review targets set by peer companies and sustainability leaders, both to identify potentially innovative practices and ensure that your own target is in line with or more ambitious than competitors. Learn more as part of WBCSD's Reporting matters Initiative and TCFD Preparer Forums.

Step 3 – Develop an emissions inventory

An emissions inventory serves two purposes:

1. Identifies major sources and potential levers for reducing emissions; and
2. Serves as a baseline for calculating targets. The more detail included in an emissions inventory, the more useful it will be for setting and implementing targets. For example, Unilever used an agricultural greenhouse gas calculator (Cool Farm Tool) to estimate company-specific greenhouse gas footprints for all of its sourced products. This allowed the company to identify the major drivers of emissions and potential levers for reducing them.

Use the Greenhouse Gas Protocol[13] guidance for the inventory to set a science-based target, as SBTi requirements are consistent with those of GHG Protocol. While Greenhouse Gas Protocol guidance on land use is in development, some companies have used the Natural Climate Solutions[14] guidance from Quantis and partners to account for land-based emissions and removals.

Step 4 – Determine whether an absolute or intensity target is most appropriate for Scope 3 emissions[8]

Intensity targets describe emission reductions normalized by a unit of production (e.g. per kilogram of palm oil or liter of beverage). Some companies find it useful to set intensity targets because it aligns with other metrics of growth and efficiency that the company uses internally. It also allows for business growth while still showing emission reductions.

Intensity-based targets can also allow for absolute emission increases, depending on the growth of production by the company. Companies should set intensity-based targets if they have sufficient projections of future growth to ensure that emission intensity targets do not lead to an absolute increase in emissions.

Some companies set both intensity and absolute targets. For example, Olam International committed to reduce Scope 3 greenhouse gas emissions by 50% per ton of agricultural product by 2030 and absolute scope 3 greenhouse gas emissions 67% by 2050 from a 2017 base year.

[7] Some of this process was drawn from the webinar "Setting science-based targets" by EDF+Business. A recording of the webinar can be retrieved from https://supplychain.edf.org/resources/webinar-setting-science-based-targets/

[8] Note: while previous steps provide guidance for both outcomes, this step explains the difference between two distinct types of targets for Scope 3 emissions - absolute emissions targets (i.e. a total amount of carbon for the company) and intensity targets (i.e. a total amount of carbon per unit of output). The company chooses the type of target that is most appropriate.

Step 5 – Select a methodology

There are three general approaches to science-based target setting:[15]

- **Sectoral decarbonization approach:** The global GHG emissions budget is divided by sector. Emissions reductions are then allocated to individual companies based on the budget for its sector. Sectoral decarbonization approaches for the food and beverage sector are under development, for example drawing from the WBCSD's CSA sectoral ambition statement as part of the Low Carbon Technology Partnerships Initiative (LCTPi).
- **Absolute-based approach:** the percent reduction in absolute emissions required by a 1.5 or 2 degree scenario is applied to all companies equally.
- **Economic-based approach:** a greenhouse gas budget is equated to global gross domestic product (GDP) and a company's share of emissions is determined by its gross profit.

Companies may also develop their own approaches based on recognized climate scenarios from IPCC and IEA. Mars is one company that has taken this option, in collaboration with World Resources Institute.[16]

Step 6 – Set a target

Targets should be science-based and the most recent year of GHG emissions data should be used as the base year. The target should include emissions from agricultural production and associated land use change.

Compile the necessary data (such as current emissions, growth scenarios, internal initiatives and competitors' targets) and model several different target options. Review and refine with stakeholders and narrow down to a target that the company considers achievable and sufficiently ambitious.

B. Pilot an emissions reduction effort and develop a time-bound commitment for setting a science-based target for mitigation

A pilot program can give the company insight into its emissions and strengthen organizational confidence in the feasibility of a planned target.

Step 1 – Identify target products, producers or GHG sources for the pilot

The scope of the pilot project may be determined based on the company's largest sources of GHG emissions or the emissions it considers most feasible to mitigate. Pilot GHG mitigation projects may also be designed to be layered on top of existing producer support programs or targeted to specific geographies from which the company sources a particular product.

Step 2 – Get stakeholders on board

Identify business units and individuals whose buy-in will be necessary for the pilot project. Also identify external stakeholders (such as customers or suppliers) who are key to developing the pilot. It may also be useful to reach out to NGOs or consultancies who may be able to support the pilot.

Step 3 – Select GHG mitigation options for testing

Based on the determined project scope, select one or more mitigation options or technologies for testing in the pilot. Producer support programs often seek to impact more than one objective (for example, GHG emissions and water quality), so options may be chosen based on their potential for multiple positive outcomes. Partnering with NGOs and academic institutions may be particularly useful for this step.

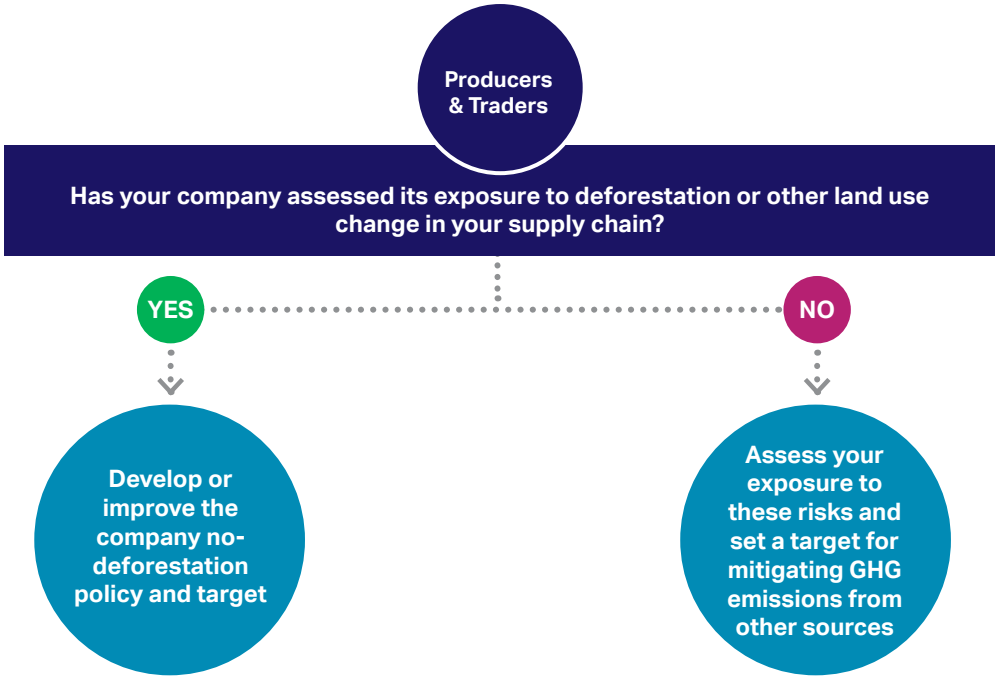
Step 4 – Develop a monitoring system

Develop a baseline estimate of GHG emissions and a system for measuring GHG emission reductions resulting from the pilot project.

Step 5 – Socialize the results and commit to setting a target

Publicize the results of the pilot within the company, and externally if appropriate, and use the pilot results to inform a companywide GHG mitigation target.

Figure 13: Deforestation decision tree



Setting producer and trader deforestation and land use change targets according to decision tree results

Step 1 – Identify stakeholders and develop a process

Identify business units and individuals whose buy-in will be necessary for setting a target. Also identify external stakeholders (such as customers or suppliers) who can help support the target and provide necessary data to inform target-setting. Outline a process for target development, consultation with stakeholders, and obtaining organizational approval. It may also be useful to reach out to NGOs or consultancies who may be able to assist with target-setting.

Step 2 – Identify forest risk commodities in the supply chain

Identify which products the company produces or sources that should be covered by the no-deforestation policy. Beef, soy, palm oil, timber, and pulp and paper are the largest risks. Cocoa, rubber, avocadoes and selected other commodities may also create exposure to deforestation risk.

Step 3 – Draft a no-deforestation policy

In consultation with key stakeholders, draft a no-deforestation policy for your company, including address other forms of land use change such peatlands and native vegetation conversion issues. A robust no-deforestation policy is:

Commodity specific: The policy should include language specific to each deforestation-risk commodity, as the locations and drivers vary greatly for each commodity.

- **Time-bound:** The policy should specify a quantifiable target and a time frame for achieving it.
- **Covers all supply chain members and all geographies**: Consumers and NGOs and in some cases regulators hold companies responsible not only for their direct involvement in deforestation, but also for deforestation caused by indirect suppliers and related parties. To mitigate reputational risk, a no-deforestation policy should apply to all members of a company's supply chain.

Step 4 – Implement the policy

The core elements of implementation include:

- **Traceability:** Traceability to the landscape level is necessary for assuring that the company's supply chain meets its no-deforestation policy standards. Companies without full traceability should consider including a time-bound commitment for achieving traceability as part of their no-deforestation policy.
- **Supplier assurance:** Companies should outline an approach to supplier engagement and support, monitoring and verification, and mechanisms for handling grievances and supplier non-compliance.
- **Disclosure of progress:** Companies should disclose on the percentage of the commodity produced or purchased that complies with the no-deforestation policy and the percentage of suppliers that complies with the policy.[17]

Step 5 – Link progress on no-deforestation to the company's greenhouse gas target

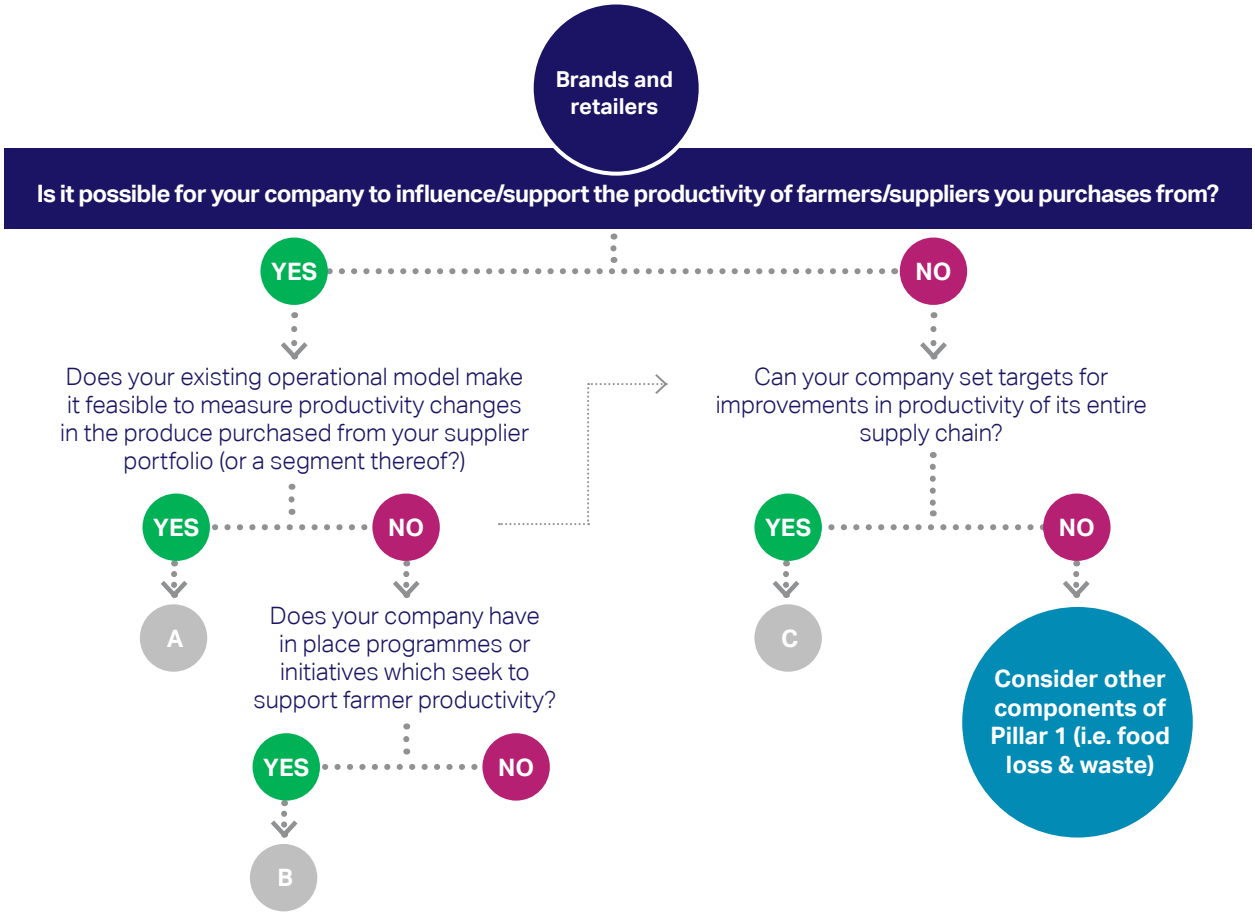
Eliminating deforestation can contribute substantially to reducing the company's greenhouse gas emissions. Greenhouse Gas Protocol Guidance on land use change emissions is forthcoming. In the meantime, the Natural Climate Solutions guidance provides methods for accounting for emission reductions due to eliminating deforestation and other land use change. Some companies have also accounted for avoided deforestation in their greenhouse gas inventories by conducting life cycle assessments for deforestation-free versions of forest-risk commodities that they produce or source.[9]

[9] See, for example, the RSPO palm oil life cycle assessment commissioned by a number of companies producing and sourcing palm oil: https://lca-net.com/projects/show/lca-of-certified-palm-oil/

BRANDS AND RETAILERS

PILLAR 1 - TARGETS FOR PRODUCTIVITY

Figure 14: Productivity decision tree



Setting brands and retailers productivity targets according to decision tree results

See Appendix 3 for a list of potential indicators for target setting in this area.

A. Set targets for the products purchased from suppliers

Step 1 – Assess existing measurement or standard systems for farm/supplier productivity

If you have an existing standards system for farms or suppliers in your supply chain, assess whether this includes any criteria or indicators which already relate to farm productivity. If so, consider whether a target for timebound improvement in these scores could developed, or confirm if this already exists. If not, consider whether criteria on productivity improvement could be included in your standards systems for farmers/suppliers.

Alternatively, if there are any measurement or monitoring systems in place for farmer/supplier productivity, assess whether any targets could be formed using data from these systems.

Step 2 – Identify alternative ways to incentivize farm/supplier productivity and measure progress

If your company does not use measurement systems or apply standards systems with farms or suppliers, consider whether incentive systems could be introduced for farms or suppliers to measure and report on productivity improvements (with second- or third-party verification). For example, this could include improved terms in purchase agreements for suppliers reporting on productivity improvement.

Step 3 – Form a target for farm/supplier productivity

If a statistically significant percentage of your company's suppliers/farm owners adopt productivity reporting, this can then be used to form a target. An interim target could also relate to the percentage of suppliers reporting on productivity improvement, with an actual productivity target adopted in the future.

If none of the above is feasible, **consider the target setting process C – "Set targets for productivity across the supply chain".**

B. Set targets for number of farmers receiving productivity improvement support

Step 1 – Assess available monitoring data to determine the impact this support is having on productivity

The first step in this process is to verify that the support being provided to farmers does in fact lead to productivity improvements. There may already be monitoring data available to assess this. If not, consider whether a targeted monitoring exercise could be undertaken over the course of at least one harvest cycle, to measure the impact that this support has on farmer productivity. Once a direct and positive relationship can be determined move onto the next step.

Step 2 – Assess what an ambitious but realistic target would be for expanding this support to farmers

In conjunction with the relevant teams in your company, assess what the scope is to expand this program and the potential number of farmers which could be reached by 2030 (or an earlier date as appropriate). This target number (or % increase from existing coverage) can then form the basis for your productivity target.

C. Set targets for productivity across the supply chain

Step 1 – Assess existing measurement of supply chain productivity

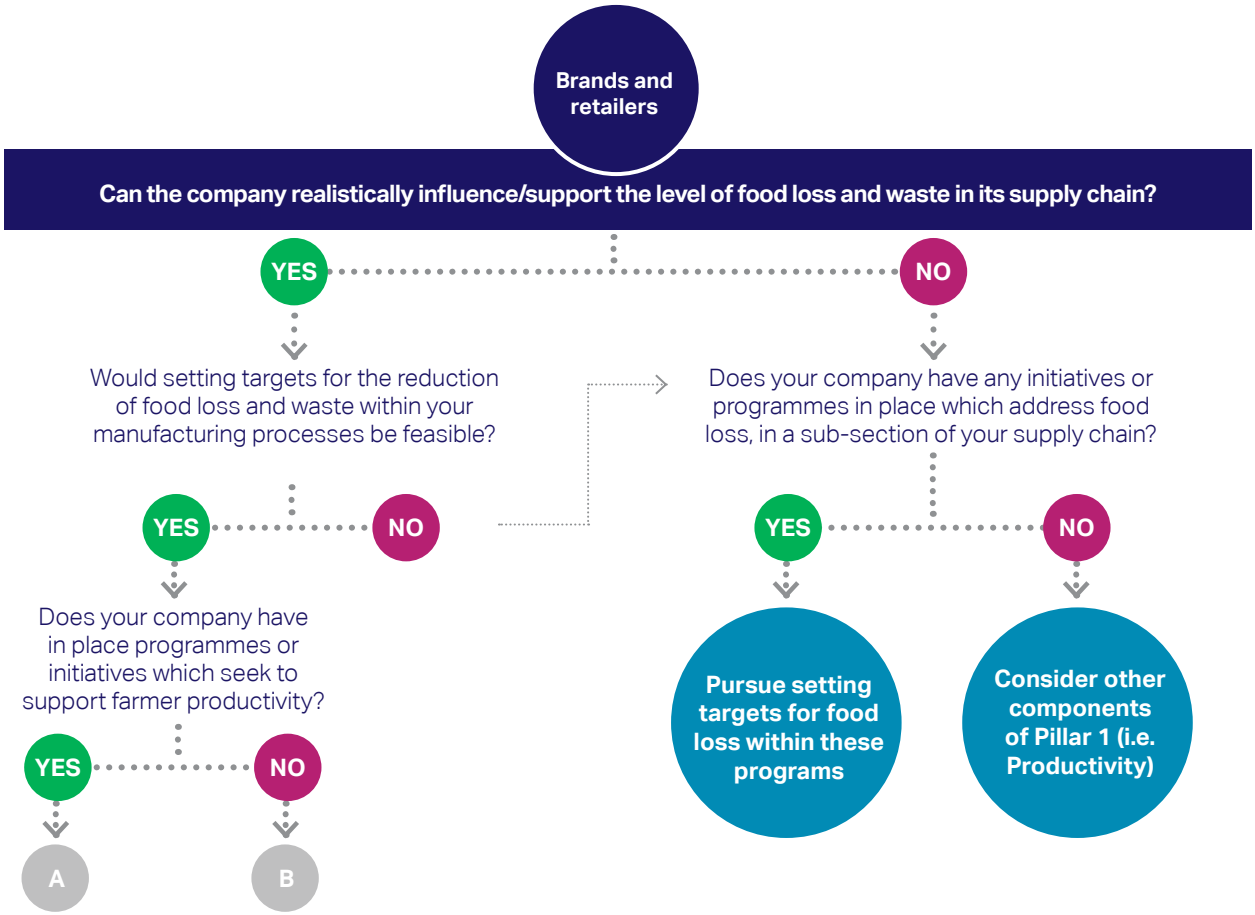
Identify the measurement systems already used to analyze the productivity or efficiency of your company's supply chain for food and beverage products. If these measurement systems are in place, identify the indicators that are used and whether targets already exist.

Step 2 – Calculate baseline supply chain productivity & formulate a target

It should then be possible to calculate the baseline productivity against these indicators for your supply chain based on existing data. From this analysis, it would be possible to formulate reasonable targets for improvements in supply chain productivity over time.

If this is not feasible, move on to consider whether a target can be formed for the alternative target category under Pillar 1: **food loss and waste.**

Figure 14: Food loss and waste decision tree



Setting brands and retailers food loss and waste targets according to decision tree results

A. Setting food loss and waste targets across your supply chain

Step 1 – Assess existing measurement of Food Loss and Waste (FLW)

Establish how FLW is currently measured by your suppliers and within your own manufacturing processes. It may be that if FLW is measured in one of these areas but not the other, select this area to start the target setting process. If FLW is not measured in either case, consider a measurement pilot assess the feasibility of implementing this pilot in a sub-section of your supply chain.

Step 2 – Calculate the percentages of volumes of food lost or wasted in your supply chain and determine the baseline

From the data collected in step 1, calculate the percentage of the food produced (within the segment of the value chain data is available for) which is lost or wasted by the time it is sold by you onto your customer on an annual basis.

Step 3 – Compare this baseline to well-recognized reduction targets and consider whether this would be feasible by 2030 in your supply chain

Compare what this FLW % currently is and work with your technical teams/suppliers and other partners to assess where there may be room to achieve FLW reductions in your supply chain. Consider whether or not it would be feasible to reduce FLW in your supply chain in line with global targets (e.g. Champions 12.3) or if a different target is more suitable. For further information on FLW target setting, see Appendix 3.

B. Setting food loss and waste targets in your manufacturing process only

This follows the same steps A but focuses only on the company's own manufacturing process.

Setting targets for defined programs addressed FLW

Step 1 – Assess existing monitoring data from these programs

Ascertain whether or not data related to FLW are collected within these Programs. If they are, assess what results have been to date, in terms of percentage reductions in FLW.

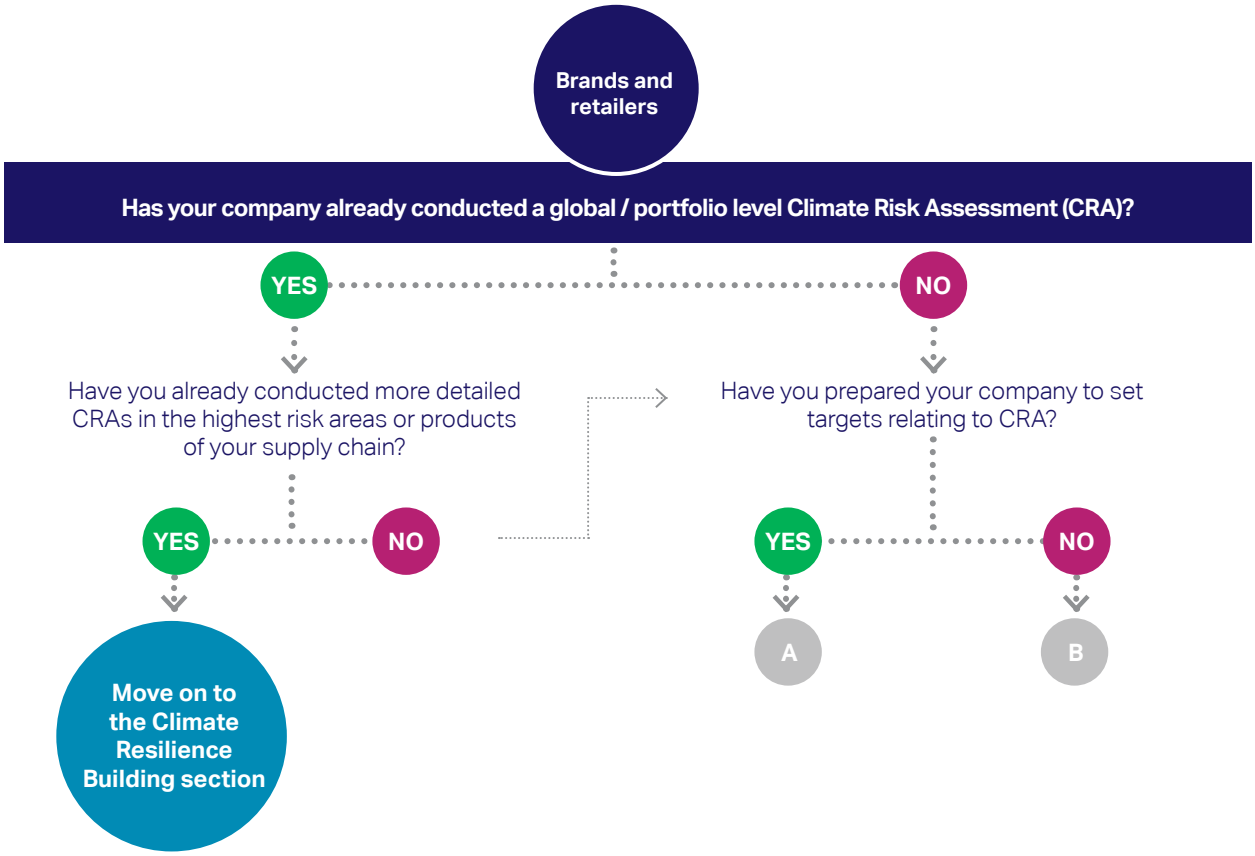
If they are not, work with the team managing these programs to understand whether data related to FLW can be measured in the future, and any adjustments that may be needed to do this. Once these measurement systems are in place you can move to the next step.

Step 2 – Develop appropriate FLW targets

Based on the results to date, consider what a target for further reductions in FLW could be in the future, considering global target setting initiatives (such as Champions 12.3). See Appendix 3 for further guidance on FLW target setting.

PILLAR 2 - TARGETS FOR RESILIENCE

Figure 15: Climate Risk Assessment (CRA) decision tree



Setting brands and retailers Climate Risk Assessment targets according to decision tree results

A. Set CRA targets at portfolio-level or in a high-risk segment of your supply chain

Step 1 – Assess existing data

Connect with your risk management team, assess data used in the company risk management and mitigation strategies to minimize the potential harm or losses associated with climate variability and change in your providers' threatened geographies and crop, and/or the existing information gap.

If absent, consider starting monitoring risks with a climate risk dashboard – this may include the nature of the climate risk, its timing, location, and impacts on crop, community and supply chain actors.

Step 2 – Determine climate exposure and vulnerability in the short and longer term for your portfolio or a prioritized crop/agricultural product in your supply chain

Collect and analyze available data to determine climate exposure, short and longer-term vulnerability of specific cropping areas, associated farmers and suppliers.

Areas of data include meteorological and climate (e.g. extreme weather potential, rising temperature, sea levels, precipitation, water stress, soil erosion and drought) and social (e.g. access to sanitation, food security, political governance and security). Refer to the Appendix 4 for more references.

Step 3 – Identify priority geographies, main climate threats and impact gradients zones

Look into your priority geographies and based on the severity of likely impacts to specific crop/agricultural product suitability and commercial viability develop a tiered threat framework[18] to identify the gradient of impact zones, prioritize investments[19] and design tailored resilience building actions to address specific threat levels. These impact zones are the following:

- **Absorption zones:** likely remain suitable for target crop production and where farming communities will need to improve their absorptive capacity to climate change impacts
- **Adaptation zones:** likely remain suitable for target crop production, although suitability will decline and farmers will need adaptive capacity to change their practices to remain commercially viable, and
- **Transformation zones:** will no longer be economically viable and where the farming system will need transformative capacity to transition.

Step 4 – Form appropriate targets based on this first experience of CRA implementation

Based on the available data and this first experience in undertaking a CRA focused on a fraction of your supply chain (specific geography or crop), determine what a realistic target could be for extending the completion of CRA to other segments of your suppliers 'operations.

Also, assess whether this gives you enough information to plan actions to strengthen farmers and agricultural landscapes climate resilience.

> For further information on the CRA process, see resources in Appendix 4.

B. No CRA targets can be pursued at this time

If no CRA target can be pursued at this time, speak with your central risk management function about whether climate risk is factored into enterprise-wide risk management, and identify how to set targets for a CRA for high risk segments of the supply chain through step (A).

Figure 16: Climate resilience building decision tree

Setting brands and retailers climate resilience building targets according to decision tree results

A. Set farmer or supply chain mediated climate resilience targets

Once your completed CRA reveals resilience-building hot spots (vulnerable areas), you can set targets for prioritized actions that specifically build resilience or mitigate/manage risk. These actions permit the collection of data required by target setting and reporting by producers on a project-basis. For example, actions may also take place through contracts with suppliers.

Step 1 – Identify existing programs or practices, which qualify for Pillar 2 reporting

Review existing company activities which may contribute to resilience building for farmers and/or affected supply chains. Identify any company tracking or monitoring systems which may capture resilience building activities.

Step 2 – Assess the strategic alignment of resilience building actions and select interventions

Your CRA should have revealed priority crops, ingredients, geographies and suppliers in your supply chain, as well as required actions to improve farming and agricultural landscape resilience capacities. Critically analyze if opportunities exist to increase security of supply, improve reputation, reduce costs and risk, enhance value for customers and/or drive innovation through resilience building strategies. Where such synergies exist, they should be aligned.

Step 3 – Formulate a target regarding the resilience building actions the company can take

Based on your prioritization and analysis, formulate reasonable targets for improvements in resilience over time, related to relative coverage of resilience building activities across your portfolio, or the number of supply chain partners (including farmers) benefitting. Reporting systems will need to be set up to track progress, and this may require your suppliers/farmers to adopt resilience reporting which can then be aggregated up to track progress against the target.

For further guidance, see Appendix 6 for a list of potential farmers or supply-chain mediated resilience-building actions and targets suitable brands and retailers.

B. Set targets on the enabling environment for climate resilience at origin through consumers awareness raising campaigns

Awareness raising initiatives on climate change adaptation can increase demand for climate resilient products and thus funding and action. Climate variability and extreme events have shocked communities and landscapes, pushing them beyond parameters where they can self-correct in some cases. As such, it could be part of your strategy to raise this as part of your work.

Step 1 – Identify existing data and climate threats

Review existing company activities which may contribute to resilience building for farmers and/or affected supply chains. Identify any company tracking or monitoring systems which may capture resilience building activities.

Step 2 – Assess the strategic alignment of your commercial strategies or campaigns for products supporting resilience building

Using information gathered in the previous step, examine the extent to which your commercial strategies incorporate elements aiming at raising consumers' awareness on the potential impacts and benefits of your resilience building products.

Step 3 – Identify opportunities for climate resilience awareness campaigns

If current strategies embed climate resilience-oriented awareness campaigns, identify actions to strengthen or extend them to a bigger portion of your portfolio. If absent, identify opportunities for raising awareness campaigns to support the demand for resilience building products.

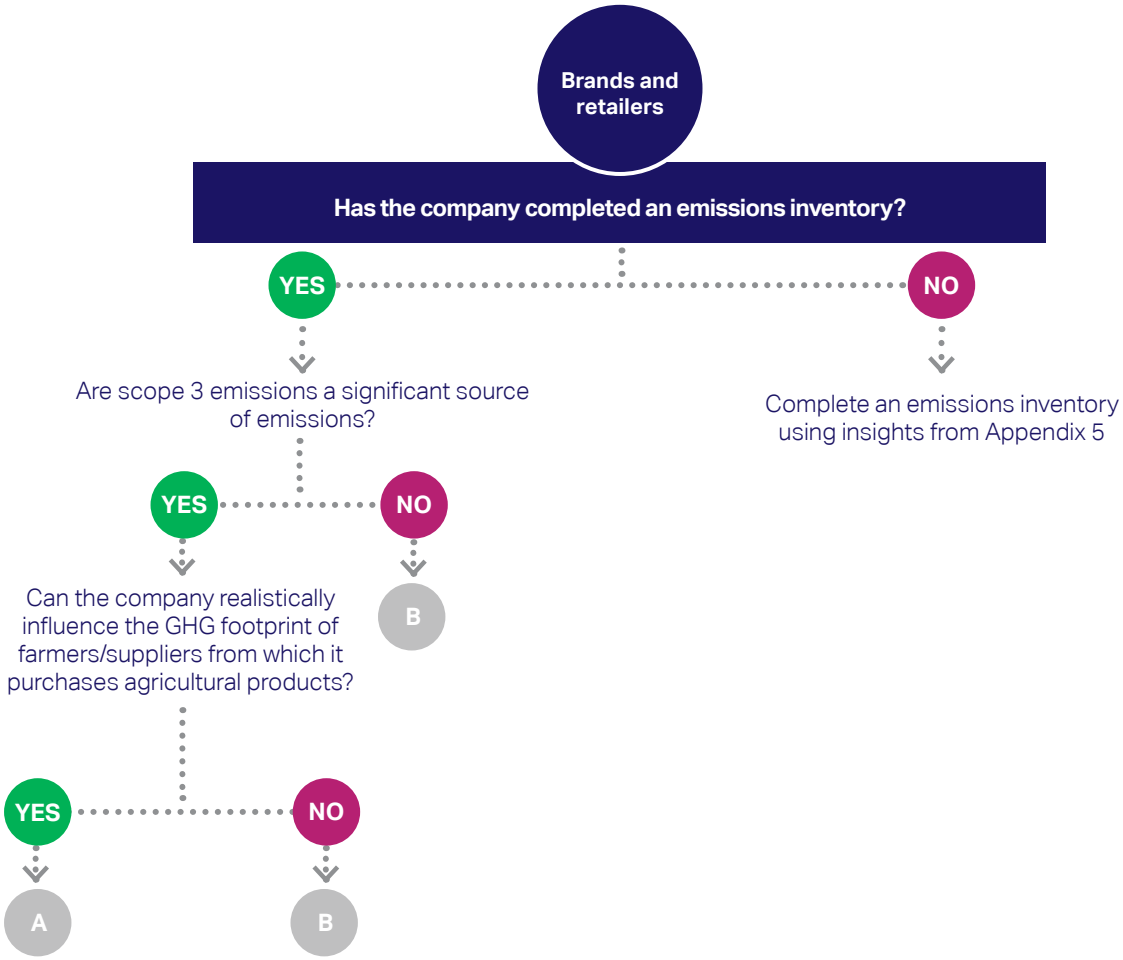
Step 4 – Formulate a realistic target on the enabling environment for climate resilience at origin through consumers

Based on available data and experience from previous campaigns (if available) identify the most strategic and impactful climate resilient crops/products for which awareness raising campaigns can be developed. Then, in line with other corporate responsibilities, set a realistic time-bounded target.

Targets could include things like the number of awareness raising initiatives on climate change adaptation targeting consumers.

PILLAR 3 - TARGETS FOR MITIGATION

Figure 17: Climate mitigation decision tree



Setting brand and retailers mitigation targets according to decision tree results

A. Set an absolute or intensity-based emissions target that includes Scope 3 emissions[10]

Step 1 – Identify stakeholders and develop a process

Identify business units and individuals whose buy-in will be necessary for setting a target. Also identify external stakeholders (such as customers or suppliers) who can help support the target and provide necessary data to inform target-setting. Outline a process for target development, consultation with stakeholders, and obtaining organizational approval. It may also be useful to reach out to NGOs or consultancies who may be able to assist with target-setting.

Step 2 – Assess the organizational and competitive landscape

Examine existing sustainability policies, missions, and values statements at your company, as well as supplier engagement programs that might also enable emission reduction activities. A greenhouse gas mitigation target that becomes part of a cohesive sustainability program is more likely to garner buy-in and support for implementation.

Review targets set by peer companies and sustainability leaders, both to identify potentially innovative practices and ensure that your own target is in line with or more ambitious than competitors. Learn more as part of WBCSD's Reporting matters Initiative and TCFD Preparer Forums.

Step 3 – Develop an emissions inventory

An emissions inventory serves two purposes:

1. It helps identify major sources and potential levers for reducing emissions and
2. It serves as a baseline for calculating targets. The more detail included in an emissions inventory, the more useful it will be for setting and implementing targets. For example, Unilever used an agricultural greenhouse gas calculator (Cool Farm Tool) to estimate company-specific greenhouse gas footprints for all of its sourced products. This allowed them to identify the major drivers of emissions and potential levers for reducing them.

Following the Greenhouse Gas Protocol[20] guidance for the inventory is recommended for setting a science-based target, as SBTi requirements are consistent with those of GHG Protocol. While Greenhouse Gas Protocol guidance on land use is in development, some companies have used the Natural Climate Solutions[21] guidance from Quantis and partners to account for land-based emissions and removals.

Review targets set by peer companies and sustainability leaders, both to identify potentially innovative practices and ensure that your own target is in line with or more ambitious than competitors. Learn more as part of WBCSD's Reporting matters Initiative and TCFD Preparer Forums.

Step 4 – Determine whether an absolute or intensity target is most appropriate for Scope 3 emissions

Intensity targets describe emission reductions normalized by a unit of production (e.g. per kilogram of palm oil or liter of beverage). Some companies find it useful to set intensity targets because it aligns with other metrics of growth and efficiency that the company uses internally. It also allows for business growth while still showing emission reductions.

However, intensity-based targets can also allow for absolute emission increases, depending on growth of the company. Companies should also set intensity-based targets if they have sufficient projections of future growth to ensure that emission intensity targets do not lead to an absolute increase in emissions. Some companies have found it useful to set both intensity and absolute targets. For example, Olam International committed to reduce scope 3 greenhouse gas emissions 50% per ton of agricultural product by 2030 and absolute scope 3 greenhouse gas emissions 67% by 2050 from a 2017 base year.

[10] Some of this process was drawn from the webinar "Setting science-based targets" by EDF+Business. A recording of the webinar can be retrieved from https://supplychain.edf.org/resources/webinar-setting-science-based-targets/

Step 5 – Select a methodology

There are three general approaches to science-based target setting:[22]

- **Sectoral decarbonization approach:** The global GHG emissions budget is divided by sector. Emissions reductions are then allocated to individual companies based on the budget for its sector. Sectoral decarbonization approaches for the food and beverage sector are under development, for example drawing from the WBCSD's CSA sectoral ambition statement as part of the Low Carbon Technology Partnerships Initiative (LCTPi).
- **Absolute-based approach:** the percent reduction in absolute emissions required by a 1.5 or 2- degree scenario is applied to all companies equally.
- **Economic-based approach:** a greenhouse gas budget is equated to global gross domestic product (GDP) and a company's share of emissions is determined by its gross profit.

Companies may also develop their own approaches based on recognized climate scenarios from IPCC and IEA. Mars is one company that has gone this route, in collaboration with World Resources Institute.[23]

Step 6 – Based on these results, set a target

Targets should be set in line with the rate of emission reductions required by climate science. Generally, the most recent year of GHG emissions data should be used as the base year. The target should include emissions from agricultural production and associated land use change.

Compile the necessary data (such as current emissions, growth scenarios, internal initiatives and competitors' targets) and model several different target options. Review and refine with stakeholders and narrow down to a target that the company considers achievable and sufficiently ambitious.

B. Set a supplier engagement target, with the goal of setting an emission reduction target within 5 years

Companies with significant upstream Scope 3 emissions who cannot realistically influence the GHG emissions of their suppliers at the current time may consider setting a supplier engagement target. A supplier engagement target is a target set by the company to drive the adoption of science-based emission reduction targets by their suppliers.

Step 1 – Identify stakeholders and develop a process

Identify business units and individuals whose buy-in will be necessary for setting a target. Also identify external stakeholders (such as customers or suppliers) who can help support the target and provide necessary data to inform target-setting. Outline a process for target development, consultation with stakeholders, and obtaining organizational approval. It may also be useful to reach out to NGOs or consultancies who may be able to assist with target-setting.

Step 2 – Develop an emissions inventory

An emissions inventory serves two purposes: (1) it helps identify major sources of emissions in order to prioritize suppliers for engagement (2) it serves as a baseline for calculating potential future targets.

Following the Greenhouse Gas Protocol[24] guidance for the inventory is recommended for setting a science-based target, as SBTi requirements are consistent with those of GHG Protocol. While Greenhouse Gas Protocol guidance on land use is in development, some companies have used the Natural Climate Solutions[25] guidance from Quantis and partners to account for land-based emissions and removals.

Step 3 – Identify suppliers for engagement

Suppliers with the largest contribution to the company's GHG emissions, are most relevant to meeting GHG reduction goals. However, companies often find that they are most able to influence tier 1 suppliers that comprise the largest portion of their spend and prioritize these companies for engagement. Other factors that may be considered are willingness to cooperate, desire to build a strategic relationship, and location (suppliers in regions with less advanced environmental standards may be less likely to adopt a target).[26]

Step 4 – Select a collaboration method and engage with suppliers

A variety of methods can be used to drive adoption of emission reduction targets by suppliers, ranging from forceful (company-set minimum standards for suppliers) to voluntary (marketing and informing suppliers, providing guidance).

Step 5 – Monitor implementation

Track adoption of targets by suppliers, with the goal of enabling the company to set its own emission reduction target.

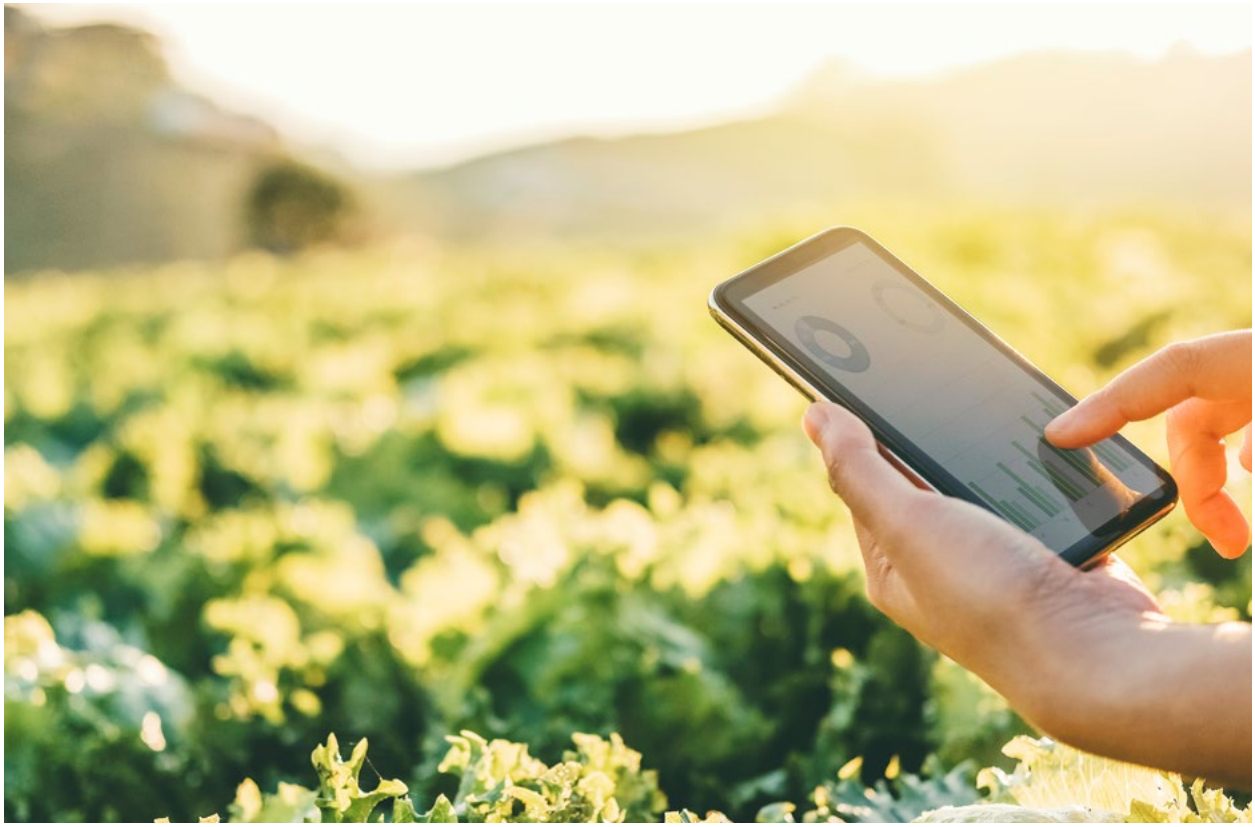
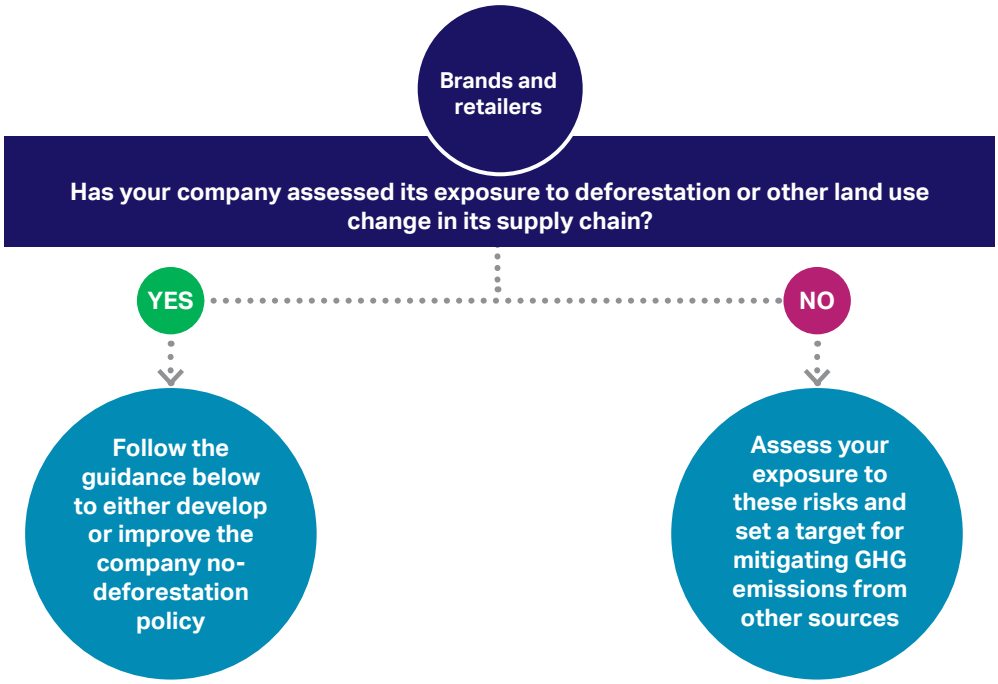


Figure 18: Deforestation decision tree



Setting brand and retailer deforestation and land use change targets according to decision tree results

Step 1 – Identify stakeholders and develop a process

Identify business units and individuals whose buy-in will be necessary for setting a target. Also identify external stakeholders (such as customers or suppliers) who can help support the target and provide necessary data to inform target-setting. Outline a process for target development, consultation with stakeholders, and obtaining organizational approval. It may also be useful to reach out to NGOs or consultancies who may be able to assist with target-setting.

Step 2 – Identify forest risk commodities in the supply chain

Identify which products the company produces or sources that should be covered by the no-deforestation policy, including addressing other forms of land use change such peatlands and native vegetation conversion issues. Beef, soy, palm oil, timber, and pulp and paper are the largest risks. Cocoa, rubber, avocadoes and select other commodities may also create exposure to deforestation risk.

Step 3 – Draft a no-deforestation policy

In consultation with key stakeholders, draft a no-deforestation policy for your company. A robust no-deforestation policy is:

- **Commodity specific:** The policy should include language specific to each deforestation-risk commodity, as the locations and drivers vary greatly for each commodity.
- **Time-bound:** The policy should specify a quantifiable target and a time frame for achieving it.
- **Covers all supply chain members and all geographies:** Consumers and NGOs hold companies responsible not only for their direct involvement in deforestation, but also for deforestation caused by indirect suppliers and related parties. To mitigate reputational risk, a no-deforestation policy should apply to all members of a company's supply chain.

Step 4 – Implement the policy

The core elements of implementation include:

Traceability. Traceability to the landscape level is necessary for assuring that the company's supply chain meets its no-deforestation policy standards. Companies without full traceability should consider including a time-bound commitment for achieving traceability as part of their no-deforestation policy.

Supplier assurance. Companies should outline an approach to supplier engagement and support, monitoring and verification, and mechanisms for handling grievances and supplier non-compliance.

Disclosure of progress. Companies should disclose on the percentage of the commodity produced or purchased that complies with the no-deforestation policy and the percentage of suppliers that is in compliance with the policy.[27]

Step 5 – Link progress on no-deforestation to the company's greenhouse gas target

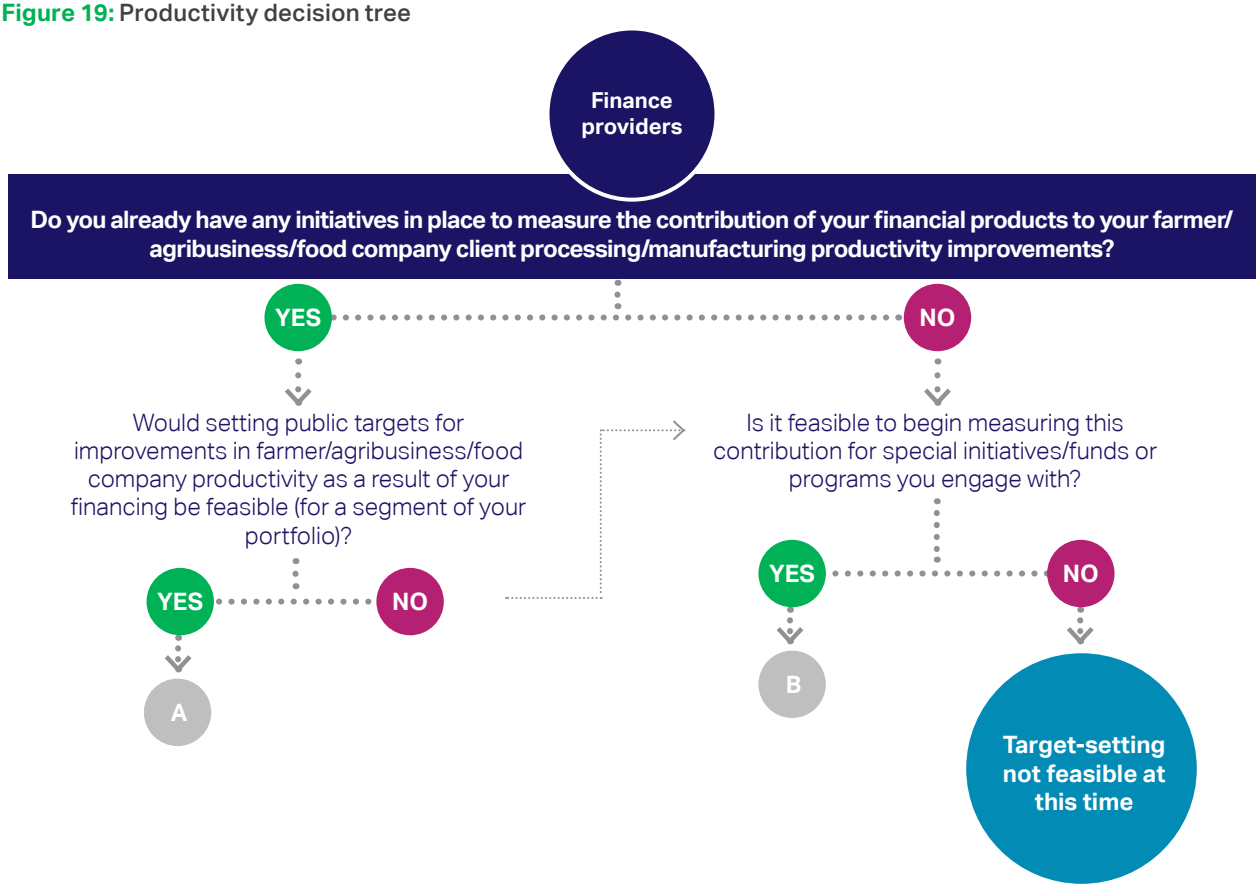
Eliminating deforestation can contribute substantially to reducing the company's greenhouse gas emissions. Greenhouse Gas Protocol Guidance on land use change emissions is forthcoming. In the meantime, the Natural Climate Solutions guidance (see previous section for reference) provides methods for accounting for emission reductions due to eliminating deforestation and other land use change. Some companies have also accounted for avoided deforestation in their greenhouse gas inventories by conducting life cycle assessments for deforestation-free versions of forest-risk commodities that they produce or source.[11]

[11] See, for example, the RSPO palm oil life cycle assessment commissioned by a number of companies producing and sourcing palm oil: https://lca-net.com/projects/show/lca-of-certified-palm-oil/

FINANCE PROVIDERS

PILLAR 1 - TARGETS FOR PRODUCTIVITY[12]

Figure 19: Productivity decision tree



[12] Please note no decision tree or steps are included for finance providers regarding food loss & waste, as no examples of this were encountered in our research, and this appears to go beyond the scope of special initiatives or programs put in place by finance providers.

Setting finance providers productivity according to decision tree results

A. Set targets for improvements in farmer/agribusiness/food company productivity as a result of your financing, for a targeted segment of your portfolio

Step 1 – Assess what is currently measured

If the decision tree has led to this target-setting option, then your company already measures the contribution of your financial products (or a sample thereof) to the productivity of your farmer/agribusiness and/or food company clients. However, for practical reasons this may be confined to a certain geography, product, commodity value chain or group of clients, as opposed to the entire sales portfolio.

Identify where these contributions are measured across your product portfolio. It could be that this information is assessed in collaboration with third parties (e.g. peer reviewed studies) or solely based on internal research. If this data is just for internal use, determine whether it is confidential or if there is scope for measurement results to eventually be made public.

Step 2 – Analyze results from these measurements to inform a target

Analyze the results of these measurements from recent years, to identify what average percentage contributions the financial product(s) in question has made to productivity improvements across the targeted customer group.

Step 3 – Develop a target based on these results

Based on this information, assess what a realistic target could be for a future year (e.g. 2025). This can be based on results to date, your companies own growth targets and scientific data on the need for global productivity improvements in the future.

B. Set time-bound targets for improvements in farmer/agribusiness/food company productivity as a result of special initiatives/funds

Step 1 – Assess available monitoring data to determine the impact this finance is having on productivity

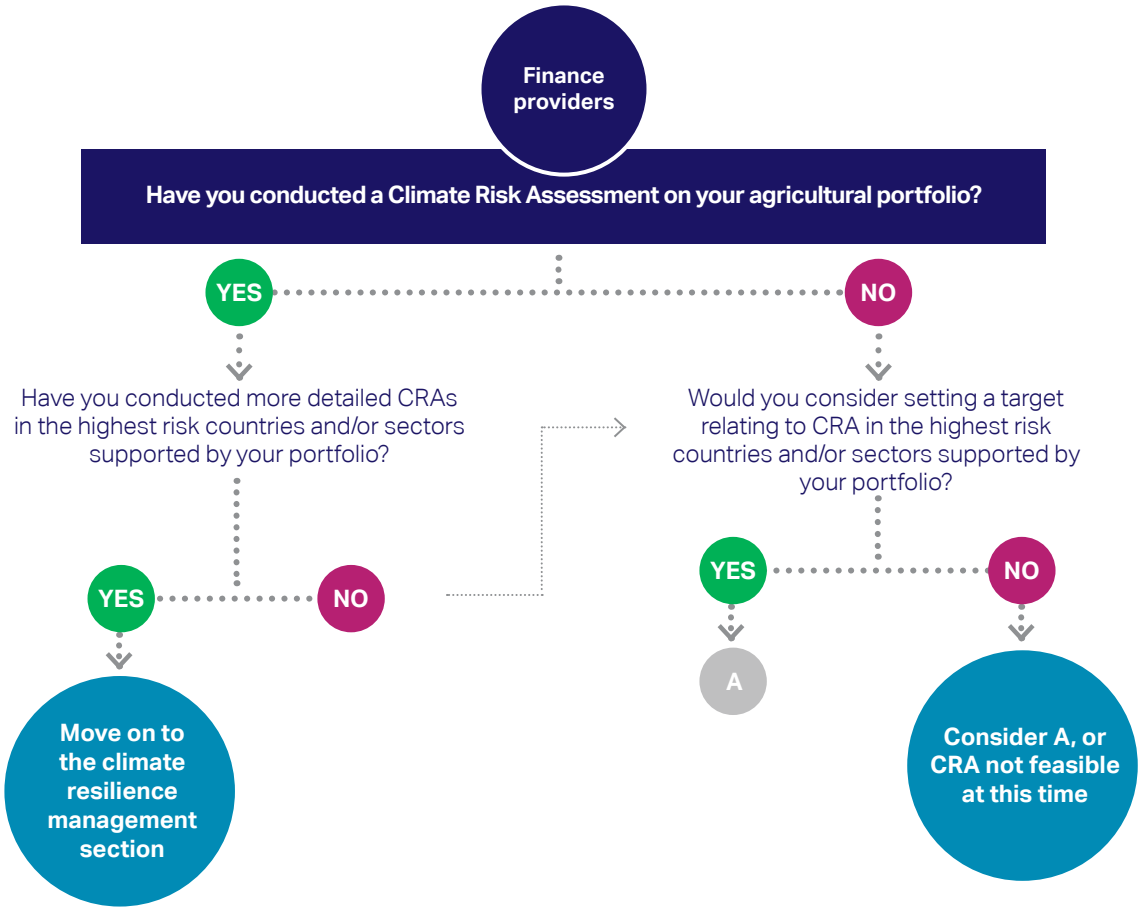
Verify that the financing support being provided to farmers/agribusinesses/food companies does in fact lead to productivity improvements. There may already be monitoring data available to assess this. If not, consider whether a targeted monitoring exercise could be undertaken over the course of at least one harvest cycle, to measure the impact that this support has on farmer/agribusiness/food company productivity. Once a direct and positive relationship can be determined move onto the next step.

Step 2 – Assess what an ambitious but realistic target would be for expanding this support to farmers

In conjunction with the relevant teams in your company, assess what the scope is to expand this program and the potential number of farmers or other beneficiaries which could be reached by 2030 (or an earlier date as appropriate). This target number (or % increase from existing coverage) can then form the basis for your productivity target.

PILLAR 2 - TARGETS FOR RESILIENCE

Figure 20: Climate Risk Assessment decision tree



Setting targets for Climate Risk Assessment according to decision tree results

A. Set CRA targets in the highest risk countries and/or sectors supported by your portfolio

Step 1 – Assess existing data

Connect with your risk management team, assess data used in the company design of agricultural based financial products aiming to minimize the potential harm or losses of your agribusiness clients associated with climate variability and change, for threatened geographies and crop, and/or the existing information gaps. Prioritize country/sector operations facing greatest climate related risks.

If this data is absent, consider starting monitoring climate related risks in your target countries/sectors – this may include the nature of the climate risk, its timing, location, and impacts on crop, community and supply chain actors.

Step 2 – Determine climate exposure and vulnerability in the short and longer term for your agricultural portfolio or a segment of it

Collect and analyze available data to determine climate exposure, short and longer-term vulnerability of specific high-risk cropping areas, associated with your client's operations.

Areas of data include meteorological and climate (e.g. extreme weather potential, rising temperature, sea levels, precipitation, water stress, soil erosion and drought) and social (e.g. access to sanitation, food security, political governance and security). Refer to Appendix 4 for more detailed references.

Step 3 – Identify priority geographies, main climate threats and financial services types to be developed for distinct impact gradients zones

Look into your priority geographies and based on the severity of likely climate impacts to the suitability and commercial viability of specific crop/agricultural commodities develop a threat framework to identify gradients of impact zones, prioritize investments and design tailored resilience building products (e.g. loans versus weather-based insurance).

Step 4 – Identify priority geographies, main climate threats and financial services types to be developed for distinct impact gradients zones

Based on the available data and previous experience identify the most strategic and impactful financial product(s) to be developed and/or promoted and determine what realistic target could be for extending your climate-resilience focused agricultural portfolio.

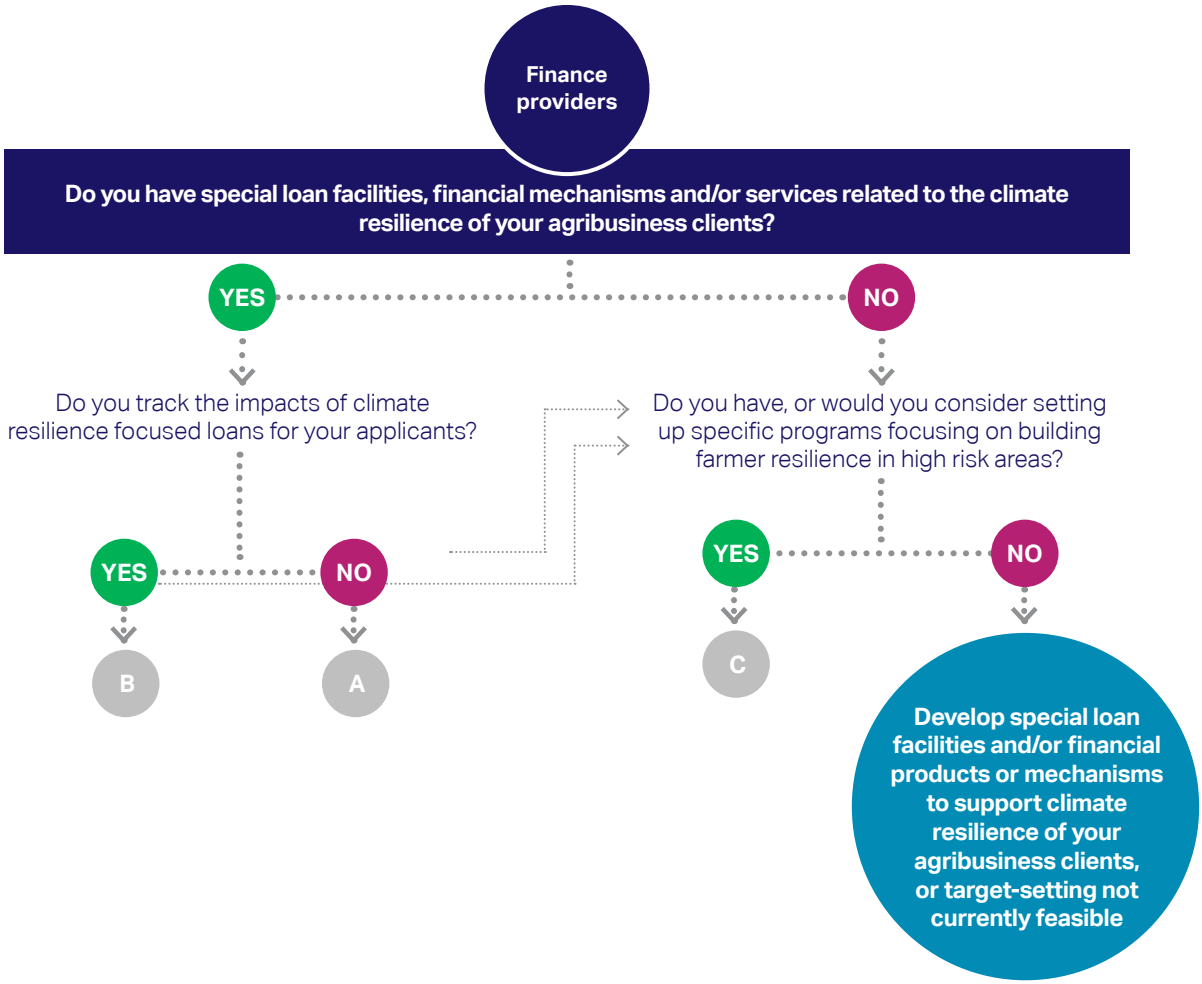
Time-bound CRA targets may initially be for mainstreaming risk assessment into company operations and financial transactions. For example: By 2022, conduct Climate Risk Assessments of 25% of high-risk segments of the financial portfolio --- with the aim being to subsequently take resilience building actions in newly identified priority areas. The following decision tree assists Retailers and Brands in this critical preliminary step.

> For further information on the CRA process, see resources in Appendix 4.

B. No CRA targets can be pursued at this time

If no CRA target can be pursued at this time, we suggest speaking with your central risk management function about whether climate risk is factored into enterprise-wide risk management, and explore whether targets for a CRA for high risk segments of the supply chain could be explored in the future.

Figure 21: Climate risk management decision tree



Setting targets for climate risk management according to decision tree results

A. Set targets on your climate-resilience focused financial products/services

Step 1 – Assess available data

Analyze available data to determine the scope and extent of climate-resilience focused financial products/services available in your current agricultural portfolio. For practical reasons this may be confined to a certain geography, product, commodity value chain or group of clients, as opposed to the entire sales portfolio.

Step 2 – Analyze future trends of climate related risk and assess new opportunities to extend or develop new resilience-focused products

Analyze scientific information of expected location specific crop/commodity-based climate impacts and identify new opportunities for either, reaching new clients with your existing (and relevant) resilience-focused products or for designing new financial services or infrastructure for a prioritized customer group.

Step 3 – Develop a target based on these results

Based on this information, assess what a realistic target could be for a future year (e.g. 2025). This can be based on results to date, your companies own growth targets and scientific data on the need for decreasing climate-related production losses in the agricultural sector/sub-sector.

B. Set targets on impacts of your resilience focused products

Step 1 – Assess what is currently measured

If the decision tree has led to this target-setting option, then your company already considers impacts of CSA/climate resilience focused loans on your clients (or a sample thereof). However, for practical reasons this may be confined to a certain geography, product, commodity value chain or group of clients, as opposed to the entire agricultural sales portfolio.

Identify where these impacts are measured. It could be that this information is assessed in collaboration with third parties or solely based on internal research. If this data is just for internal use, determine whether it is confidential or if there is scope for measurement results to eventually be made public.

Step 2 – Analyze results from these measurements to inform a target

Analyze the results of these measurements from recent years, to identify what average percentage contributions the climate-resilience-focused financial product(s) in question has made to crop/commodity- based production stability (by decreasing crop losses) across the targeted customer group.

Step 3 – Develop a target based on these results

Based on this information, assess what a realistic target could be for a future year (e.g. 2025). This can be based on results to date, your companies own growth targets and scientific data on the need for global decrease in climate-related production losses.

C. Set targets on specific climate-resilience focused programs

Step 1 – Assess available monitoring data to determine the impact this finance is having on building farmers resilience in high risk areas

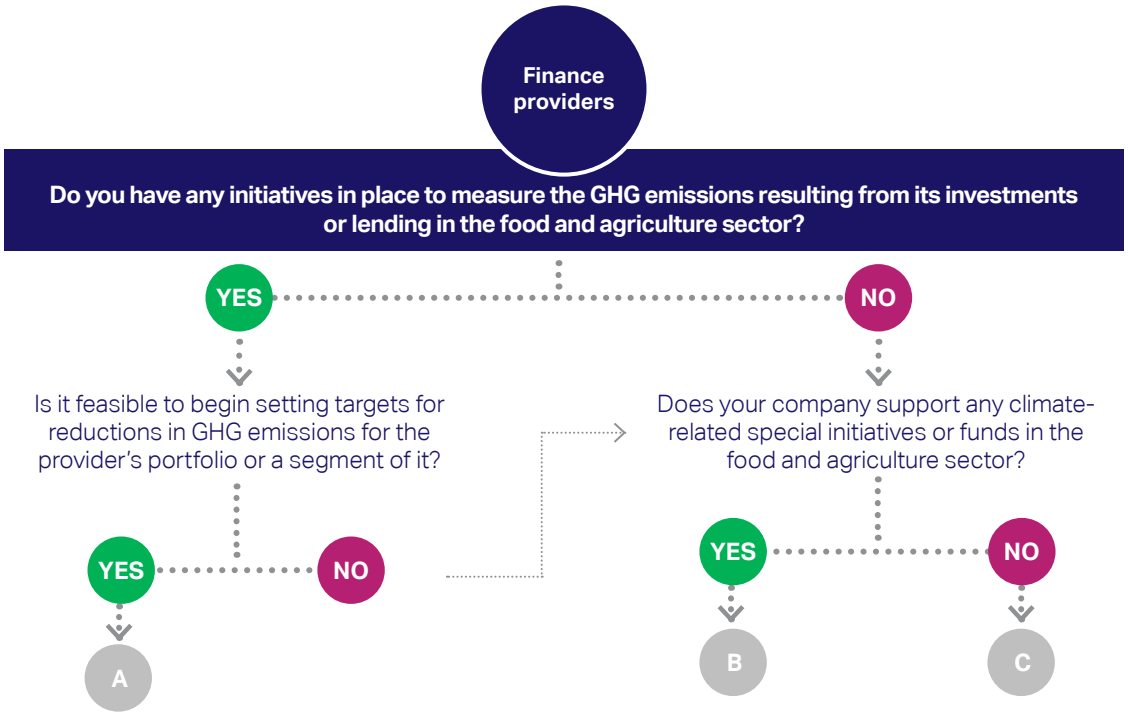
Verify that the special financial supporting programs (or philanthropic approaches) in place or provided to farmers/agribusinesses/food companies do in fact lead to increasing their climate resilience. There may already be monitoring data available to assess this. If not, consider whether a targeted monitoring exercise could be undertaken over the course of at least one harvest cycle, to measure the impact that this support has. Once a direct and positive relationship can be determined move onto the next step.

Step 2 – Assess what an ambitious but realistic target would be for expanding this support to farmers

In conjunction with the relevant teams in your company, assess what the scope is to expand these supporting or philanthropic programs and the potential number of farmers or other beneficiaries, which could be reach by 2030 (or an earlier date as appropriate). This time-bounded target number (or % increase from existing coverage) can then form the basis for your climate resilience action target.

PILLAR 3 - TARGETS FOR MITIGATION

Figure 22: GHG emissions decision tree



Setting finance providers GHG emissions targets according to decision tree results

A. Set a target for reductions in GHG emissions from investments or lending in the food and agriculture sector

Step 1 – Identify stakeholders and develop a process

Identify teams and individuals whose buy-in will be necessary for setting a target. It is particularly important to involve ESG or risk teams as well, plus portfolio managers directly responsible for investment and lending decisions, and engagement specialists. Also identify external stakeholders (such as clients and investees) who can help support the target and provide necessary data to inform target-setting. Outline a process for target development, consultation with stakeholders and obtaining organizational approval. It may also be useful to reach out to NGOs or consultancies who may be able to assist with target-setting.

Step 2 – Conduct a GHG accounting exercise

Conduct an accounting of GHG emissions associated with investments or lending in the food and agriculture sector. The GHG Protocol Scope 3 Guidance[28] provides guidelines for accounting for emissions related to investments. Where insufficient data are available to estimate emissions, institutions may consider using other metrics in line with TCFD recommendations[29] for agriculture, food and forests products.

Step 3 – Identify climate change mitigation activities

Identify current and future potential activities that the institution may undertake to reduce the climate impact of its investments or lending. Examples include negative or positive screens, preferential financing terms (such as sustainability linked loans), specific projects or initiatives, engagement to encourage investee GHG emission reductions, engagement on investee operations and disclosure, or using indicators of carbon intensity in portfolio construction ("tilting").[30]

Step 4 – Identify climate change mitigation activities

Set a target for GHG emissions associated with investments or lending in the food and agriculture sector, based on current and potential future efforts to decarbonize this sector of the institution's portfolio. The target should specify, at minimum, the boundary for the target, the timeframe for its achievement, and the reduction to be achieved. As methods are developed for financial institutions to set science-based targets, financial institutions should use these guidelines to pursue science-based GHG emission targets.[31]

B. Set a target for GHG emission reductions as a result of special initiatives/funds in the food and agriculture sector

Financial institutions that are not prepared to set portfolio-wide targets for GHG mitigation in the food and agriculture sector may consider setting targets for specific initiatives, such as specific projects or lending facilities.

Step 1 – Identify stakeholders and develop a process

Identify teams and individuals whose buy-in will be necessary for setting a target. In this case, the teams and individuals involved may be limited to those involved with the special initiative or fund, as well as others whose buy-in may be required. Also, identify external stakeholders (such as clients and investees, and fund partners) who can help support the target and provide necessary data to inform target-setting. Outline a process for target development, consultation with stakeholders, and obtaining organizational approval.

Step 2 – Assess available data

Assess what data are currently available to estimate the baseline condition and measure the impact of the initiative. This could include metrics such as adoption of GHG mitigation targets by investees or lending clients, or funding of GHG mitigation technologies or practices.

Step 3 – Select metrics

Select metrics to measure impact based on currently available data or what else could be collected. Depending on the type of initiative, a baseline a post-project GHG accounting may be incorporated into the lending criteria, allowing for a direct assessment of emission reductions.

Step 4 – Set a target

Establish a boundary for the likely impact of the initiative and a baseline condition for the chosen metric. Develop scenarios of likely change in the metric due to the initiative or fund. Review scenarios with stakeholders and choose the most ambitious feasible scenario for the target.

C. Incorporate climate change into risk assessment and engagement objectives for investments/lending in the food, agriculture, and forest products sector

If the decision tree has led here, it is not feasible for the finance provider to measure progress against GHG emission targets or closely related metrics. This may be due to a lack of data, metrics suitable to the food and agriculture sector, or monitoring methods. As a first step, consider incorporating climate change into risk analysis and ESG engagement objectives.

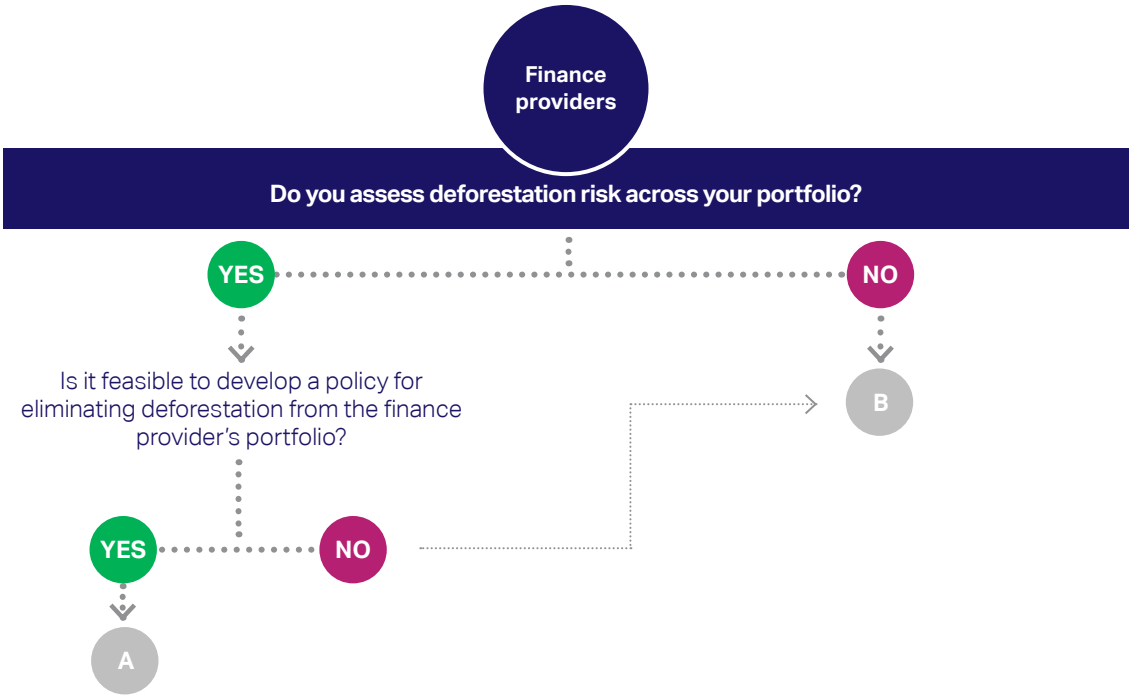
Step 1 – Identify stakeholders and develop a process

Identify teams and individuals whose activities would be appropriate for beginning to incorporate climate risk. These might include ESG or risk teams as well, portfolio managers, and engagement specialists. Outline a process for developing tools and procedures for addressing climate risk, consultation with stakeholders, and obtaining organizational approval.

Step 2 – Develop tools and procedures for assessing climate risk of investments and lending decisions

In collaboration with key stakeholders within the organization, develop climate risk management criteria for different types of investments and clients. Draft policies and procedures for implementing the criteria and incorporating climate change into investee engagements. Review and validate these criteria with key internal and external stakeholders.

Figure 23: Deforestation decision tree



Setting finance providers deforestation and land use change targets according to decision tree results

A. Develop a time-bound policy to eliminate deforestation from the portfolio

Step 1 – Identify stakeholders and develop a process

Identify teams and individuals whose buy-in will be necessary for developing the no-deforestation policy. It is particularly important to involve ESG or risk teams as well, portfolio managers directly responsible for investment and lending decisions, and engagement specialists.[32] Also identify external stakeholders (such as clients and investees) who can help support the policy and provide necessary data to inform development. Outline a process for policy development, consultation with stakeholders, and obtaining organizational approval. It may also be useful to reach out to NGOs or consultancies who may be able to assist with drafting the policy.

Step 2 – Assess exposure

Assess the institution's exposure to deforestation risk (as well as other forms of land use change such peatlands and native vegetation conversion issues) from a physical, regulatory, legal and reputational perspective. Exposure to deforestation risk may come from in investments in and lending to producers, traders, manufacturers, and retailers of forest-risk commodities such as soy, beef, palm oil, pulp and paper, and timber products.[33]

Step 3 – Develop a target

Examine current ESG policies at the institution and improve upon their no-deforestation requirements. A robust no-deforestation policy should:

- cover all forest-risk commodities,
- require the protection of primary forests,
- apply to all the institution's financial products, and
- apply to all the supply chain.[34]

Additionally, it should require companies to meet the criteria outlined previously in this guide for corporate no-deforestation commitments, such as: (1) a commodity-specific, time-bound policy that applies to all members of the supply chain, (2) traceability, (3) a supplier assurance policy, and (4) disclosure of progress. The policy should establish a time frame for all investees and lending clients to complies with the policy and describe actions to be taken if they are not.

B. Incorporate deforestation into risk assessment and engagement objectives for investments/lending in the food, agriculture, and forest products sector

If the decision tree has led here, the financial institution is not yet prepared to implement a comprehensive no-deforestation policy but would like to begin incorporating deforestation into its risk analysis and ESG engagement objectives. This may serve as a first step towards implementing a comprehensive no-deforestation policy in the future.

Step 1 – Identify stakeholders and develop a process

Identify teams and individuals whose activities would be appropriate for beginning to incorporate deforestation risk. These might include ESG or risk teams as well, portfolio managers, and engagement specialists. Outline a process for developing tools and procedures for addressing deforestation risk, consultation with stakeholders, and obtaining organizational approval.

Step 2 – Assess exposure

Assess deforestation risks within the portfolio. Exposure to deforestation may exist in investments in and lending to producers, traders, manufacturers, and retailers of products involving forest risk commodities such as soy, beef, palm oil, cocoa, pulp and paper and timber products.

Step 3 – Develop tools and procedures

In collaboration with key stakeholders within the organization, develop deforestation-specific risk management criteria for different types of investments and clients. Draft policies and procedures for implementing the criteria and incorporating deforestation into investee engagements. Review and validate these criteria with key internal and external stakeholders. Once the institution has a handle on how to address deforestation risk, consider developing a comprehensive no-deforestation policy.

4 Additional resources

④ Additional resources

APPENDIX 1: Glossary of technical definitions

Pillar 1: Key definitions

Productivity: this is traditionally considered in terms of agricultural productivity, such as increases in yield. However Total Factor Productivity (TFP) can also be applied to the productivity of the whole supply chain as well. Productivity targets cover % increases in productivity per unit of land/product over a set period of time. The USDA's Economic Research Service (ERS) tracks agricultural productivity trends in the United States and world-wide using "total factor productivity," or simply "TFP." TFP is a ratio of the total output of crop and livestock products to the total inputs of land, labor, capital, and materials used to produce that output.[35]

Food loss and waste: this covers time-bound targets for percentage reductions in food loss and waste across a company's supply chain. Food loss is defined as "the decrease in quantity or quality of food". Food waste is part of food loss and refers to discarding or alternative (non-food) use of food that is safe and nutritious for human consumption along the entire food supply chain, from primary production to end household consumer level. Food waste is recognized as a distinct part of food loss because the drivers that generate it and the solutions to it are different from those of food losses.[36]

Pillar 2: Key definitions

Climate resilience: this is the dynamic capacity of agricultural systems, farmers and agri-business to prepare for, manage, adjust and recover from the physical, societal and economic impacts of climate related changes. These capacities can be strengthened by providing farmers/agricultural enterprises (cooperatives, processors etc.) with the knowledge, supporting services and tools (e.g. financial services, incentive mechanisms) needed to increase adoption of improved climate-smart agricultural practices/technologies or climate information services.

Climate adaptation: is the process of undertaking actions to adjust to actual and/or expected climate and its effects[37] with the aim to reduce vulnerability and increase resilience. Increasingly, climate variability, extreme events and longer-term changes impact on both agricultural production systems and farmers' livelihoods, causing disruptions along supply chains. As the degree of climate change impact increases different but overlapping types of adaptation[5] and associated resilience-building capacities are required.

Climate risk assessments (CRA): standard risk assessments that embed climate considerations and can help companies to prioritize needed measures to support climate resilience.

Climate resilience building: actual management and adaptation actions for farming communities and agricultural landscapes.

Time-bound CRA targets: this covers time-bound targets to conduct portfolio level or risk-based CRA focused on known high-risk geographies, crops or products for the companies' supply chain and/or customers. For example: "By 2022, conduct Climate Risk Assessments of 25% of high-risk segments of supply chain --- with the aim being to subsequently take resilience-building actions in identified priority areas or products".

Farming communities and agricultural landscapes resilience targets: this covers time-bound targets to implement climate risk management actions aiming at improving the climate resilience of farming communities and landscapes. Entry points for these actions include acting across or in a specific segment of the supply chain or providing customers with context-specific climate resilience building products or services.

Pillar 3: Key definitions

Greenhouse gas emissions: this covers timebound, science-based targets for reducing a company's greenhouse gas emissions, including those associated with agricultural production and agriculturally driven land use change. Emissions from agriculture may fall under different emission scopes for different companies. Some companies may find it more relevant to set targets specific to particular sources or scopes of emissions, while others may find a combined target for Scope 1, 2, and 3 emissions across the entire company to be most useful in driving ambition. Wherever possible, targets should be validated by the Science Based Targets Initiative.

Deforestation and other land use change: land use change is a major source of emissions, contributing approximately 12% of global annual anthropogenic greenhouse gas emissions.[38] Commodities such as beef, soybean, palm oil, and timber are the primary drivers of deforestation. Palm plantations and logging for timber are also responsible for clearing and drainage of peatlands, a large source of greenhouse gas emissions. For companies producing or sourcing products with high deforestation risks, eliminating deforestation in their supply chains is a necessary and effective way to reduce emissions and meet mitigation targets.

APPENDIX 2:
Metrics assessed in the Reporting Matters CSA Analysis

Productivity	Resilience	Mitigation
Production: e.g. increases in food production	**General resilience:** e.g. setting targets to improve climate resilience/ adaptation across the supply chain.	**Scope 1 & 2:** GHG reductions against a set baseline.
Productivity: e.g. training aimed at improving farmers' yields per hectare.	**Farmer resilience:** e.g. setting targets to improve climate resilience/ adaptation of farmers in the supply chain.	**Scope 3:** GHG reductions against a set baseline for emissions from agriculture.
Nutrition: e.g. improving nutritional value of food produced.	**Adaptation action:** Undertaking specific company-wide actions to adapt to climate change	**Paris Agreement:** e.g. Alignment with the goal to limit global warming to 1.5-2°C.
Food Loss & Waste: reducing food loss and waste across the value chain.		**Science-based targets:** alignment with a science-based approach to targets.
Degraded Land & Deforestation: contributions to the restoration of degraded land or zero-deforestation targets.		**Sequestration:** carbon sequestration i.e. to absorb GHGs in the supply chain to produce negative emissions.

APPENDIX 3:
Resources used for Pillar 1

PRODUCTIVITY

FAO (2018). Guidelines for the measurement of productivity and efficiency in agriculture. http://gsars.org/wp-content/uploads/2018/10/GS-PRODUCTIVITY-AND-EFFICIENCY-IN-AGRICULTURE-GUIDELINES-ENG.pdf

Cornell University (2007). Crop Yield/Agricultural Productivity. Available online: http://blogs.cornell.edu/lmrc/2007/11/03/crop-productivity/)

USAID (2013). Feed the Future Agriculture Indicators Guide. Available online: https://www.fsnnetwork.org/feed-future-agricultural-indicators-guide

FOOD LOSS & WASTE

Champions 12.3 (2017). Guidance on interpreting target 12.3. Available online: https://champions123.org/wp-content/uploads/2017/10/champions-12-3-guidance-on-interpreting-sdg-target-12-3.pdf

WRI, WBCSD, CGF, FAO, UNEP, WRAP, FUSIONS Project. Food Loss & Waste Protocol: https://www.flwprotocol.org/

Antithesis Group. Food Waste Setting Goals And Practical Advice to Achieve Them. https://blog.anthesisgroup.com/food-waste-setting-goals-advice-achieve-webinar-recording

APPENDIX 4: Resources for Pillar 2

CLIMATE RISK ASSESSMENT (CRA)

A framework and methodology for CRA

Daniels, S., Teague, E., and Sloan, K. 2018. An Introduction to Assessing Climate Resilience in Smallholder Supply Chains. USAID Feed the Future Learning Community for Supply Chain Resilience, Sustainable Food Lab and Root Capital. Cali, Colombia: 44p Available online at: https://sustainablefoodlab.org/wp-content/uploads/2018/04/IntroductiontoAssessing_ClimateResilience_static_-1.pdf

Sustainable Food Lab and WBCSD (2018). Integrating Climate Resilience in Value Chains: practical examples. Available online: https://ccafs.cgiar.org/publications/integrating-climate-resilience-value-chains-practical-examples#.XYFBDS3MzOQ

- Practical application: Bunn, C., Lundy, M., Läderach, P., Girvetz, E., Castro, F. (2018). Climate Smart coffee in Honduras. International Center for Tropical Agriculture (CIAT), United States Agency for International Development (USAID). Cali. CO. 27 p. Available online at: http://hdl.handle.net/10568/97530

University[BO(1] of Cambridge Institute for Sustainability Leadership (CISL). 2016, December. Investing for Resilience. Cambridge, UK: Cambridge Institute for Sustainability Leadership. Available at: https://www.cisl.cam.ac.uk/resources/publication-pdfs/Investing-for-resilience.pdf

Latest draft of DFIs on measuring resilience (open to revision). September 2019] A Framework for Climate Resilience Metrics in Financing Operations. Consultation Draft for presentation at UNCAS. Joint MDB IDFC technical paper: https://www.ebrd.com/documents/climate-finance/a-framework-for-climate-resilience-metrics-in-financing-operations.pdf

Leading initiative on setting targets to measure resilience (strong private sector focus)

Global Adaptation & Resilience Investment Working Group (2016). Bridging the Adaptation Gap: Approaches to Measurement of Physical Climate Risk and Examples of Investment in Climate Adaptation and Resilience. Retrieved from http://427mt.com/wp-content/uploads/2016/11/GARI-2016-Bridging-the-Adaptation-Gap.pdf

Economic case and investment prioritization for climate action

Bunn C, Schreyer F, Castro F. 2018. The economic case for climate action in West-African cocoa production. Cali, Colombia: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Available online: https://ccafs.cgiar.org/publications/economic-case-climate-action-west-african-cocoa-production-adapting-cocoa-production#.XYFAYC3MzOQ

A framework for CRA for Financial Providers

UNEP and Acclimatise (2018). NAVIGATING A NEW CLIMATE - Assessing credit risk and opportunity in a changing climate: Outputs of a working group of 16 banks piloting the TCFD Recommendations. PART 2: Physical risks and opportunities. Available online: https://www.unepfi.org/wordpress/wp-content/uploads/2018/07/NAVIGATING-A-NEW-CLIMATE.pdf

RESILIENCE-BUILDING ACTIONS

How private-sector actors across the supply chain manage Climate Smart Agriculture

Sloan K. et al. 2019. One Size Does Not Fit All: Private-Sector Perspectives on Climate Change, Agriculture and Adaptation. In: Rosenstock T., Nowak A., Girvetz E. (eds) The Climate-Smart Agriculture Papers. Springer, Cham. Available at: https://link.springer.com/chapter/10.1007/978-3- 319-92798-5_19

Climate change challenges and solutions in the agricultural sectors

Sova et al. 2018. Bringing the Concept of Climate-Smart Agriculture to Life: Insights from CSA Country Profiles Across Africa, Asia, and Latin America (English). Washington, D.C.: World Bank Group. Retrieved from: http://documents.worldbank.org/curated/en/917051543938012931/Bringing-the-Concept-of-Climate-Smart-Agriculture-to-Life-Insights-from-CSA-Country-Profiles-Across-Africa-Asia-and-Latin-America

Campbell et al. 2014. Sustainable intensification: What is its role in Climate Smart Agriculture? Current Opinion in Environmental Sustainability (8), 39-43. Retrieved from https://www.sciencedirect.com/science/article/pii/S1877343514000359

Dinesh D, Vermeulen SJ. 2016. Climate change adaptation in agriculture: practices and technologies. Opportunities for climate action in agricultural systems. CCAFS Info Note. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Retrieved from https://cgspace.cgiar.org/handle/10568/71051

Vermeulen SJ, Dinesh D. 2016. Measures for climate change adaptation in agriculture. Opportunities for climate action in agricultural systems. CCAFS Info Note. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Retrieved from https://hdl.handle.net/10568/71052

Lessons learned and actionable guidance on advancing social, environmental and economic resilience through responsible corporate adaptation

Frey, B. et al. 2015. The Business Case for Responsible Corporate Adaptation: Strengthening Private Sector and Community Resilience. A Caring for Climate Report. UN Global Compact. Available online at: https://orbit.dtu.dk/ws/files/122137085/Adaptation_2015.pdf

Business for Social Responsibility (2015). Business Action for Climate-Resilient Supply Chains - A Practical Framework from Identifying Priorities to Evaluating Impact. Available online at: https://www.bsr.org/reports/BSR_Report_Climate_Resilient_Supply_Chains.pdf

Business Cases for Climate Resilience Action

Wei, D and Marshall, C. 2018. "Climate and Supply Chain: The Business Case for Action." Report. BSR, San Francisco. Available at: https://www.bsr.org/reports/BSR_Climate_and_Supply_Chain_Management.pdf

Harris, Samantha, and Abbott, Katie. 2018. "Climate and Women: The Business Case for Action." Report. BSR, San Francisco. (Incl. Mondelēz's Cocoa Life program promotes women's empowerment to create more sustainable cocoa-growing communities). Available at: https://www.bsr.org/reports/BSR_Climate_Nexus_Women.pdf

WBCSD (2018). The Business Case for Investing in Soil Health. Available online at: https://docs.wbcsd.org/2018/12/The_Business_Case_for_Investing_in_Soil_Health.pdf

Illustration of finance and investment initiatives:

(Blogpost) Why Clif Bar Created a Multimillion-dollar Fund to Help Farmers Invest in Resilience : https://sustainablebrands.com/read/finance-investment/clif-bar-ag-fund-to-help-organic-farmers-weather-economic-challenges

Other tools

COSA. 2017. Simpler Resilience Measurement: Tools to Diagnose and Improve How Households Fare in Difficult Circumstances from Conflict to Climate Change. Philadelphia, PA: The Committee on Sustainability Assessment © COSA 2017. Available at: https://thecosa.org/simpler-resilience-measurement/

Ulrichs M. Cannon T, Newsham A, Naess LO, Marshall M. 2015. CCAFS Working Paper no. 108. Climate Change & Food Security Vulnerability Assessment. Toolkit for assessing community-level potential for adaptation to climate change. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Available at: https://hdl.handle.net/10568/66566

Hills T, Pramova E, Neufeldt H, Ericksen P, Thornton P, Noble A, Weight E, Campbell B, McCartney M. 2015. A Monitoring Instrument for Resilience. CCAFS Working Paper no. 96. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Available at: https://hdl.handle.net/10568/56757

APPENDIX 5:
Resources used for Pillar 3

GREENHOUSE GAS EMISSION TARGETS

- Science-based targets initiative https://sciencebasedtargets.org
- GHG Protocol resources http://ghgprotocol.org
- Ceres (2017) Measure the Chain https://www.ceres.org/news-center/press-releases/measure-chain-managing-ghg-emissions-agricultural-supply-chains
- SBTi. 2016. Science Based Targets Case Study: Kellogg Company. Science Based Targets Initiative. https://sciencebasedtargets.org/wp-content/uploads/2016/06/Case-study_Kellogg_6-6-16.pdf
- EDF. Identify pilot projects: agriculture. Supply Chain Solutions Center. https://supplychain.edf.org/resources/identify-pilot-projects-agriculture/
- EDF. Identify key stakeholders: agriculture. Supply Chain Solutions Center. https://supplychain.edf.org/resources/identify-stakeholders-agriculture/
- Natural Climate Solutions Guidance. https://quantis-intl.com/metrics/initiatives/ncs-guidance/
- "Setting science-based targets" by EDF+Business. https://supplychain.edf.org/resources/webinar-setting-science-based-targets/
- LCA of certified palm oil https://lca-net.com/projects/show/lca-of-certified-palm-oil/
- Greenhouse Gas Protocol, World Resources Institute, WBCSD. 2019. Greenhouse gas protocol guidance on carbon removals and land use. http://ghgprotocol.org/sites/default/files/GHG%20Protocol%20Carbon%20Removals%20%20Land%20Sector%20Project%20Overview%20FINAL.pdf
- GHG Protocol Corporate Value Chain Accounting and Reporting Standard.
- https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf
- Farsan, A. et al. 2018. Value Change in the Value Chain: Best Practices in Scope 3 Greenhouse Gas Management. Science Based Targets Initiative, Gold Standard, and Navigant. https://sciencebasedtargets.org/wp-content/uploads/2018/12/SBT_Value_Chain_Report-1.pdf
- WRI, UNEP-FI and 2° Investing Initiative Portfolio Carbon Initiative. Climate strategies and metrics: exploring options for institutional investors. https://ghgprotocol.org/sites/default/files/standards/Climate%20targets_FINAL_med.pdf
- WRI, UNEP-FI and 2° Investing Initiative Portfolio Carbon Initiative. Exploring metrics to measure the climate progress of banks https://ghgprotocol.org/sites/default/files/standards/Climate%20targets_FINAL_med.pdf
- TCFD guidance. https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Annex-062817.pdf
- SBTs for Financial Institutions. Road testing feedback summary. https://sciencebasedtargets.org/wp-content/uploads/2019/10/SBT-FI-roadtester-feedback-webinar-10.10.19_website.pdf

DEFORESTATION TARGETS

- Accountability Framework Initiative https://accountability-framework.org/
- Ceres (2017). Engage the Chain https://engagethechain.org/deforestation-and-land-use-change
- Collins, S. 2019. Out on a Limb: The State of Corporate No-Deforestation Commitments and Reporting Indicators that Count. Ceres. www.ceres.org/resources/reports/out-on-a-limb
- Merino, C. 2019. Investor Primer on Non-Compliance Protocols: Ending Deforestation at the Source. Ceres. https://www.ceres.org/resources/reports/investor-primer-non-compliance-protocols-ending-deforestation-source
- TFA Roadmap to Financing Deforestation-Free Commodities. https://www.tfa2020.org/wp-content/uploads/2018/06/The-Roadmap-to-Financing-Deforestation-Free-Commodities.pdf

APPENDIX 6: ACTIONS FOR PILLAR 2 (RESILIENCE)[13]

Examples of potential farmers (*) or supply-chain mediated (**) resilience-building actions and targets suitable for producers and traders (both ***).

Resilience building-actions	Time-bounded resilience targets
Use of risk maps and data for adaptation planning by suppliers e.g. crop diversification in transform zones	% of farmers or suppliers using risk maps and data for adaptation planning by 2025***
	Action taken to strengthen the climate resilience of farming communities in XX% of topmost climate vulnerable sourcing countries by …***
	X% annual damage decrease to agricultural assets and infrastructure*
Supply and farmer codes of conduct that embed resilience in their terms [See Unilever's Sustainable Agriculture Code (SAC) Implementation Guide]	# or % of farmers adopting supplier code of conduct with resilience embedded by …***
Embedding climate resilience in risk management e.g. functioning of standard operating procedures for linking early warning systems or climate information services	% of commodity purchased or spend derived from farmers receiving climate information services**
	# of standard operating procedures linking early warning or climate information systems to early actions by…*
	# or % farmers/suppliers with access to early warning system***
Farmer/supplier water, soil and natural resource management plans or such multi-stakeholder initiatives (see Unilever's SAC as a potential input)	% of sourcing from farmers who have adopted resilience measures**
	# or % of suppliers adopting management plans which embed resilience**
Climate-smart oriented capacity building, technical assistance or agro-climatic advice e.g. adjustments in varieties or breeds	% of farmers with climate-smart farm management plans developed by…*
	% Change in water use efficiency in irrigated agriculture by …*
Access to and incentives (incl. certification schemes) for climate smart practices and technologies, renovation/ rehabilitation of perennials etc. …	% of suppliers covered under microcredit schemes/financial services ***
	% suppliers certified in climate-smart agriculture by …**
	# or % of farmers/suppliers in high-risk crops/geographies receiving assistance in adaptation practices by ..***
	# farmers trained in conservation agriculture by …*
Insurance bundled with a set of adaptation practices (cover crops, permanent shade, genetic improvements, mulch, intercropping, windbreaks, soil health, compost, weather forecasts, etc.)	% of suppliers covered by CSA-bounded climate risk insurance ***
	>30% cover crops implemented on insured farms by …*
	% or hectares of insured farms under climate-smart agricultural practices/ technologies or changing to agro-ecological practices by …*
Off-farm income or livelihood diversification	# or % of farmers (by risk zone: absorb, adapt, transform) receiving livelihood diversification training by …***
	# farms diversifying crop production and/or accessing new markets by…***

[13] Note: Input providers also may find the resilience building actions of Producers and Traders to suit them on a project-basis.

Examples of potential farmers (*) or supply-chain mediated (**) resilience-building actions and targets for Inputs (both ***).

Resilience building-actions	Time-bounded resilience targets
R&D of climate-proofed inputs e.g. drought-tolerant maize	# of varieties released with quantified climate adaptation traits by 2025* # or % of products in portfolio advertised/marketed with quantified climate-smart attributes by …
Weather forecast services, climate information for farmers - Accompanying (bundling) inputs	% of product portfolio (or sales) provided to farmer customer with accompanying climate information services*** % (high priority) farmers in early warning text notification program by 2025 (in priority geographies, crops, supply chains, communities, etc.)***
Irrigation	Improvement by X% water use efficiency in irrigated agriculture (USD/m3; Water used to per unit product or land)*
Capacity building and climate-smart oriented agricultural extension, water and resources use efficiency, conservation agriculture, erosion prevention, cover crops, etc.	Increased fertilizer nutrient use efficiency on …. by 2025* % farmers implementing cover crops or conservation tillage by 2025 (in priority geographies, crops, supply chains, communities, etc.)* % farmers trained in GAP, sustainable or conservation agriculture by 2025*
External climate informed sustainable certifications e.g. Fairtrade	X% farmers certified in climate-smart agriculture schemes by …***
Responsible sourcing	# or % of (high priority) farmers under sustainable agriculture code or responsible sourcing by 2025** Commitment to take action in X% of sourcing countries/in the top 3 most climate vulnerable sourcing countries, to strengthen the climate resilience of farming communities **
Intermediaries and supply chain partners reporting on resilience (incl. participation in multi-stakeholder landscape partnerships e.g. water stewardship)	% of intermediaries and supply chain partners reporting on (resilience) by…***
Farmer/supplier water, soil and natural resource management plans	# or % of farmers or suppliers adopting water, natural resource or soil management plans (in priority geographies, crops, supply chains, communities, etc.) by…*** % of total procurement spend from sustainable suppliers or suppliers with water, natural resource management, or soil fertility plans by …**
Biodiversity initiatives e.g. bee health, habitat restoration	Erosion losses reduced (t soil/ha/year)***

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DISCLAIMER

ABOUT THE WBCSD CLIMATE SMART AGRICULTURE PROJECT

The Climate Smart Agriculture (CSA) project develops scalable low-carbon business solutions for food and agriculture, under the ambition of making 50% more food available by 2030 while producing 50% less GHG emissions. Led by the World Business Council for Sustainable Development (WBCSD), CSA is designed to achieve sustainable agricultural development for food, feed, fiber, fuel, and ecosystem services while addressing the risks and challenges presented by climate change.

Borne out of the Low Carbon Technology Partnerships initiative (LCTPi), CSA is a value-chain project that includes all players across the agrifood value chain, with the aim of scaling up sustainable business solutions that can achieve the ambition and enhance the resilience of both landscapes and communities. Find out more at https:// www.wbcsd.org/Programs/Food-LandWater/Food-Land-Use/Climate-SmartAgriculture

ABOUT THE WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT (WBCSD)

WBCSD is a global, CEO-led organization of over 200 leading businesses working together to accelerate the transition to a sustainable world. We help make our member companies more successful and sustainable by focusing on the maximum positive impact for shareholders, the environment and societies.

Our member companies come from all business sectors and all major economies, representing a combined revenue of more than USD $8.5 trillion and 19 million employees. Our global network of almost 70 national business councils gives our members unparalleled reach across the globe. WBCSD is uniquely positioned to work with member companies along and across value chains to deliver impactful business solutions to the most challenging sustainability issues.

Together, we are the leading voice of business for sustainability: united by our vision of a world where more than 9 billion people are all living well and within the boundaries of our planet, by 2050.

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