Associated British Foods plc

Climate-Related Financial Disclosures (TCFD)

Our TCFD disclosure included in this report has been lifted from the Annual Report and page numbers refer to the Annual Report unless otherwise specified.

Climate-related Financial Disclosures (TCFD)

We recognise that climate change represents a material risk throughout our supply chains and poses challenges to some of our businesses worldwide. We wholly support policies that are aligned with the goals of the 2015 Paris Climate Agreement to limit the rise in global temperatures to well below 2˚C above pre-industrial levels, and to pursue efforts to limit the temperature increase even further to 1.5˚C.

As we consider the impacts of climate change, it is clear that transitioning to a low carbon economy presents opportunities for our businesses, and that TCFD is not simply an exercise in risk mitigation or reporting. We also believe in the pursuit of a just transition that protects the planet as well as the welfare of our employees and people in our value chain.

Our culture favours taking action today, wherever we can make a positive difference, instead of leaning on future promises based on imprecise assumptions. Long-term targets are not a substitute for short and medium-term actions. Our focus is therefore on delivering the 2030 commitments we have made.

The diversified nature of ABF means that targets are decided and set by businesses based on what is appropriate and relevant for them. AB Sugar, Primark and Twinings are our most financially material businesses, accounting for 81% of Group adjusted operating profit and 70% of Scope 1 and 2 greenhouse gas (GHG) emissions. Our analysis also indicates that Primark accounts for a significant proportion of the Group's Scope 3 emissions. Each has set its own emission reduction target. AB Sugar is targeting a 30% absolute reduction in Scope 1 and 2 emissions by 2030. Primark, where GHG emissions arise primarily in Scope 3, has targeted a 50% reduction across its value chain in absolute terms by 2030. Twinings has set a target of carbon neutrality 'from bush to shelf' for tea and herbal infusions by 2030. Both Primark and AB Sugar have committed to set science-based targets in consultation with the Science Based Targets initiative.

We believe we can reach net zero by 2050, if not sooner, and we are committed to doing what we can to go further, faster. However, we cannot do this alone. Much of what is needed will depend on system change at multiple points of the value chain, including a radical reshaping of national energy policies by governments.

Last year we set out our approach to TCFD and our corresponding action plan. This year the Group has complied with the requirements of Listing Rule 9.8.6R by including climate-related financial disclosures consistent with the TCFD recommendations and the 11 recommended disclosures, published in 2017 by the TCFD, including the supplemental guidance for all sectors.

These are set out in the following pages and in the relevant sections of this Annual Report referenced in this section.

We have assessed the impact of climate risks and opportunities, taking into consideration different climate scenarios including <2˚C and 4˚C scenarios to assess the resilience of the Group to climate change. On the basis of our analysis, we believe that in the period to 2030, the risks to the Group are not material. There is less clarity in the data further out to 2050. While there may be risks that will need to be managed by mid-century, these do not appear to be sufficiently substantive to require a material change to our business model or divisional strategies within the time horizons considered. That analysis has, however, confirmed the importance of many of the action plans already underway.

Governance

Oversight by the Board and Audit Committee

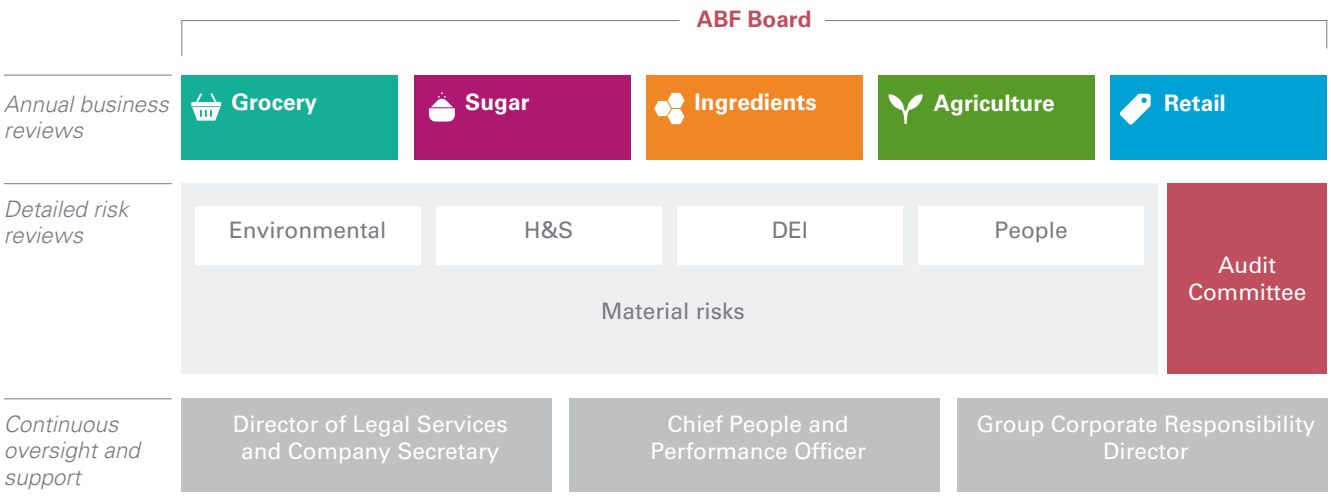
The Board is responsible for overseeing climate-related issues. The governance process is set out in the table below.

The Board reviews each business segment in depth every year, which will include a review of material ESG issues.

For our third investor day, held in May 2022, we included an analysis of the most important environmental factors relevant to our businesses, including an overview of our TCFD analysis to date, which we summarise here together with additional analysis. A recording of the event is available on the ABF website. https://www.abf.co.uk/

As part of an annual standing agenda item, the Board receives updates in February and September from the Group Corporate Responsibility Director and the Chief People and Performance Officer on climate and environmental issues. As we press forward with our sustainability activities, these updates will be expanded

Governance framework



to include progress against climate-related goals and metrics.

In February 2022, the Director of Legal Services and Company Secretary, Group Corporate Responsibility Director and the Finance Project Director for ESG and TCFD Reporting presented an ESG update to the Board. This included:

- a specific focus on climate commitments from our different divisions and businesses;
- an update on the GHG reduction roadmaps for AB Sugar and Primark;
- an example of how AB Sugar assesses project returns at different carbon pricing levels;
- an update on the Primark Sustainable Cotton Programme; and
- a review of climate risks and opportunities identified as part of the risk assessment process.

As this is the first year that we are required to comply with the requirements of TCFD, we held meetings with all members of the Audit Committee to gain feedback on the completeness of identified climate risks and opportunities. The Audit Committee also reviewed this year's TCFD disclosure as part of its responsibility to oversee the integrity of the information we report. See more on this on page 122.

Management's role

Our divisional CEOs are responsible for managing the impacts of climate change in their division, with the Chief Executive responsible for the impacts of climate change across the Group. The divisions and the Chief Executive, Finance Director, members of the Executive Committee and the Financial Controller hold quarterly reviews where any material climate-related matters are raised.

The Director of Legal Services and Company Secretary has overall accountability to the Chief Executive for corporate responsibility issues and acts as the focal point for communications to the Board and shareholders on corporate responsibility matters.

The Group Corporate Responsibility Director, who reports to the Director of Legal Services and Company Secretary, is responsible for monitoring climate-related activities across the Group and for reviewing the robustness of external non-financial targets set by each of our businesses. The Group Corporate Responsibility Director leads the Corporate Responsibility Hub, which supports all our businesses on environmental and human rights issues and brings together all the professionals in our businesses working in these areas to share knowledge and best practice.

The Chief People and Performance Officer, who reports to the Chief Executive, is responsible for measuring and reporting the environmental performance of our own operations.

From 2023, 15% of the Chief Executive and Finance Director's short-term incentive target, equivalent to 30% of their base salary, will be linked to strategic, primarily ESG, measures designed to drive focus in this area. This will include delivery of projects that will lead to progress against our top ESG priorities, including the climate-related metrics on page 93. The remuneration policy is set out on pages 126 to 153.

The Steering Committee, under the sponsorship of the Finance Director, remained in place to oversee the governance of the TCFD programme. Since the risk arising from climate change runs across all businesses and functions, the Steering Committee included senior Group representatives from Corporate Social Responsibility, EHS, Finance and Risk Management, together with senior representation from AB Sugar and Primark. Third-party consultancies were engaged to support our programme.

Risk management

The Board is accountable for effective risk management, for agreeing the principal, including emerging, risks facing the Group and ensuring they are successfully managed.

The process for identifying, assessing and managing climate-related risks is the same as for other risks within the Group and sits with the business where the risk resides.

These risks, including climate risks, are collated and reviewed at both a business and divisional level, and then reported to the Director of Financial Control who reviews the key risks with the Board.

Climate risk is considered a material risk to the Group and is included in the principal risk 'Our use of natural resources and managing our environmental impact', recognising the impact it may have on the business in the short, medium and long term. See page 100. The Board also monitors the Group's exposure to risks as part of performance reviews with each business.

More information on our risk management process is available in the 'Our approach to risk management' section on page 94.

Identifying, assessing, and managing climate-related risks and opportunities

In our 2021 Annual Report and Accounts, we outlined a 2022 action plan for more in-depth assessments on the identification, assessment and management of climate-related risks and opportunities. We have now conducted a comprehensive risk assessment, across the supply chain, focused on climate-related risks and opportunities at a divisional level, aligned with the risk management processes at ABF and our decentralised structure.

1. We conducted a high-level review of potential risks across the Group and, as a result, our TCFD efforts to date have been focused on AB Sugar, Primark and Twinings which account for 81% of the adjusted operating profit for the Group and some 70% of the Group's total Scope 1 and Scope 2 emissions.
2. In these businesses:
   a. Cross-functional business teams worked with third-party experts (South Pole)* to develop an initial list of climate-related physical and transition risks and opportunities that could impact these businesses in line with the TCFD framework and guidance.
   b. We held climate risk/opportunity workshops with key stakeholders to prioritise risks and opportunities for scenario analysis. Selection criteria included the importance of those risks and opportunities to the business, South Pole's judgement on how climate change may potentially change those risks and opportunities and the availability of appropriate models to assess impacts.

* South Pole is a global climate consultancy with expertise in climate projects, TCFD advisory, climate risk and opportunity identification and scenario analysis.

3. We conducted high-level assessments across all our other businesses, involving relevant business segment leaders and third-party experts. These assessments ensured we not only understand the material climate risks and opportunities in those businesses but also identified risks and opportunities that could be material if accumulated across the Group. All identified risks were then reviewed, and those that could have the most significant financial impact on the Group were subject to scenario analyses.
4. Following the scenario analyses and workshops, the most significant climate-related risks were identified and assessed by each business segment and incorporated into relevant risk registers, in line with their existing risk management processes.
5. Our Non-Executive Directors and PwC were then engaged to challenge our approach in identifying material risks and consider if we had missed anything material. We assessed the outcome of these challenges and adjusted our approach as considered appropriate.

While we have considered the principal climate risks, we recognise that there are wider climate impacts that are challenging to model. For example, socio-economic and geopolitical issues directly linked to climate change and other societal challenges that may be exacerbated by climate change. Our businesses will still capture these risks within their risk registers and consider actions they can take to mitigate their impact.

Businesses are responsible for managing risks relevant to them.

Strategy and action, metrics and targets

ABF operates a decentralised business model because we believe in giving the leaders of our businesses the scope and accountability to create and run the best businesses they can. They are therefore responsible for identifying and implementing strategies that both create value and ensure value is protected by taking action to mitigate or adapt to the impacts of climate change. Enabling decision-making by the people closest to these issues, with the closest relationships with the stakeholders affected, provides resilience, agility and flexibility in planning, allowing for quick action on impacts and opportunities.

Climate risks and opportunities

ABF comprises businesses that provide safe, nutritious and affordable food, and clothing that is great value for money. There will be many value creation opportunities which our businesses will be well positioned to take advantage of as the world transitions to a low carbon economy. There will also be physical and transitional climate risks which they may be susceptible to. Many of our businesses rely on agricultural crops with complex supply chains which are spread across the world. Long-term climate change will impact agricultural crops and workers while extreme weather events have the potential to cause disruption across value chains.

The assessment process, as described on page 84, identified potential climate risks and opportunities that may have a significant impact on the Group. These are summarised in the table below.

We identified a range of physical risks as our primary area of focus under TCFD: the impact of climate change on crop yields, flooding and workers. We also considered the transition risks set out in the TCFD guidance, which includes such risks as impact on reputation and the risk of existing and emerging regulations, and concluded that the key transition risk for the Group is potential carbon pricing impacts in future years. Scenario analysis was then used to assess the impact of the climate risks listed in the table below. The results of the scenario analysis, for those risks which we believe are either the most significant or of most interest to shareholders, are disclosed on pages 88 to 92.

Output from the risks and opportunities assessment process		Primark	Sugar	Twinings	Cross divisional
Climate impact on ABF's key agricultural crops	Physical risks	Cotton yields*	Sugar yields (UK, Eswatini, Malawi, Mozambique, South Africa, Tanzania, Zambia)	Tea yields (Argentina, China, India, Indonesia, Kenya, Sri Lanka)	Wheat yields (Australia, UK). Corn yields (US)
Impact of flooding on ABF's end-to-end supply chain including operations	Physical risks	Coastal and river flood risks: Third-party manufacturers (Bangladesh, China) and Primark stores and warehouses			Coastal and river flood risks: Key ABF manufacturing sites
Resilience of workers to mitigate/adapt to climate change	Physical risks	Heat impact on farmers (Bangladesh, India, Pakistan)			
Transition risks as the world reduces its reliance on carbon	Transition risks	Carbon pricing mechanisms	Carbon pricing mechanisms		
Carbon enablement: Providing solutions to reduce carbon	Opportunities		Biofuels, renewable energy		Enzymes, animal feeds, ingredients, on-farm carbon measurement
Efficiency	Opportunities		Fuel substitution, energy efficiency, process optimisation and increased contribution from by-products		

* The focus of the cotton yield analysis was on Primark Sustainable Cotton Programme (PSCP) locations in India and Pakistan.

Scenario analysis

We used our third-party experts, South Pole, to advise us on, and then carry out, scenario analysis. While many scenario models and techniques are advanced, we recognise that knowledge in this area is growing and we should expect models and pathways to evolve with time. Models also have limitations, and there are certain areas which are challenging to model, such as the frequency and severity of extreme weather events. However, our businesses are still able to consider how they would mitigate or adapt to such events. Additionally, in certain situations different models can project contrasting results. In these situations, we have considered how different outcomes would impact our businesses.

The following scenarios have been used:

Warming trajectory by 2100	Transition scenarios ('IEA')[1]	Physical scenarios ('IPCC')[2]
< 2˚C	Net Zero Emissions by 2050 Scenario ('NZE') (1.5˚C) Sustainable Development Scenario ('SDS')	RCP2.6
2-3˚C	Stated Policies Scenario ('STEPS')	RCP4.5
~4˚C		RCP8.5

1. The International Energy Agency's (IEA) scenarios have been used to assess transition impacts with each scenario built on a set of assumptions on how the energy system might evolve. Each scenario has a different temperature outcome. We used scenarios covering 1.5˚C, <2˚C and <3˚C.
2. We used the Intergovernmental Panel on Climate Change's (IPCC) Representative Concentration Pathways (RCP) to assess physical climate risk. RCPs are commonly used by climate scientists to assess physical climate risk, with each pathway representing a different greenhouse gas concentration trajectory which can then be translated into global warming impacts. We used climate data from the World Climate Research Programmes Coupled Model Intercomparison Project – Phase 5 (CMIP 5 adjusted for spatial resolution and bias corrected) to do this translation. RCPs feed into climate, crop and flood models. There are four RCP pathways with RCP8.5 representing the worst case scenario.

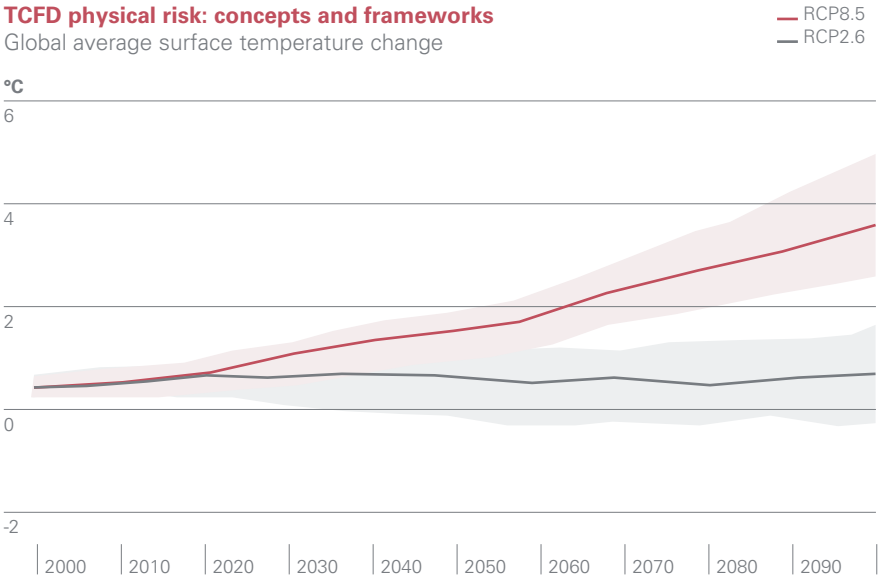
As we look further out, the impact of compounding means that even a small assumption change can lead to a significant range in outcomes projected by climate models and scenarios. We have therefore placed more emphasis on projections to 2030, using them for action planning, and used projections to 2050, where there is more uncertainty, to check our sense of direction and consider the resilience of our businesses should certain hypothetical scenarios take place.

Risks and opportunities have been considered over the following time horizons:

	Years	Rationale
Short-term	2025	Mid-decade
Medium-term	2030	Our most financially material businesses, Primark, AB Sugar and Twinings have set 2030 emission targets. These targets are supported by emission reduction plans.
Long-term	2050	2050 is consistent with many national and industry targets. Primark is aligned with the UNFCCC Fashion Industry Charter goal of net zero emissions across all three Scopes by 2050.

TCFD physical risk: concepts and frameworks

Global average surface temperature change



1. Climate model projections of average global temperature under the RCP2.6 and RCP8.5 scenarios (IPCC Fifth Assessment Report, 2013)

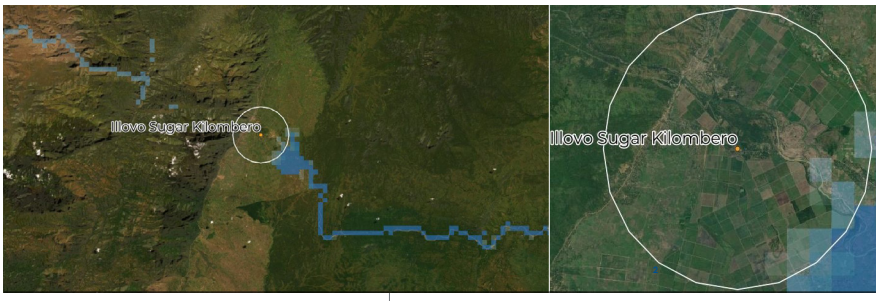
In all physical risk analysis we have used the RCP8.5 scenario, which is widely considered to represent one of the worst-case climate scenarios with temperatures reaching some 4˚C above pre-industrial levels by 2100. This scenario projects an extreme view of physical climate change impacts.

In addition to RCP8.5, the evaluation of physical risks has been supplemented where useful, with analysis using either RCP2.6 or RCP4.5 scenarios, depending on which climate scenario is most applicable to the risk. In this disclosure we are focusing on the results of RCP8.5 as it is the most challenging scenario from a physical risk perspective, as explained above.

In line with best practice, as advised by our third-party experts, we used a multi-model approach to capture and assess the uncertainty of future climate change projections. The numbers quoted below on pages 89 to 91 represent the median projected result. Where appropriate we have also disclosed ranges in potential outcomes to reflect the uncertainties and variables inherent when using models to assess future climate outcomes. These outcome ranges represent 25th and 75th percentiles. Detailed data was supplied by businesses for the analysis, including individual locations of our own operations, suppliers' factories and the location of the farming communities in Primark's Sustainable Cotton Programme in India and Pakistan.

Our third-party experts advised us which crop models to use to assess climate change impacts on crop yields. In some cases (e.g. for cotton and tea), only one crop model was available that was deemed to be sufficiently robust to use to evaluate future climate impacts on yields. Although in these situations only one crop model was used, the analysis was based on the input of five climate models providing sensitivity to the analysis. For other crops (e.g. sugar cane, wheat and corn), multiple crop models were used.

Example of flood assessment – Kilombero, Tanzania

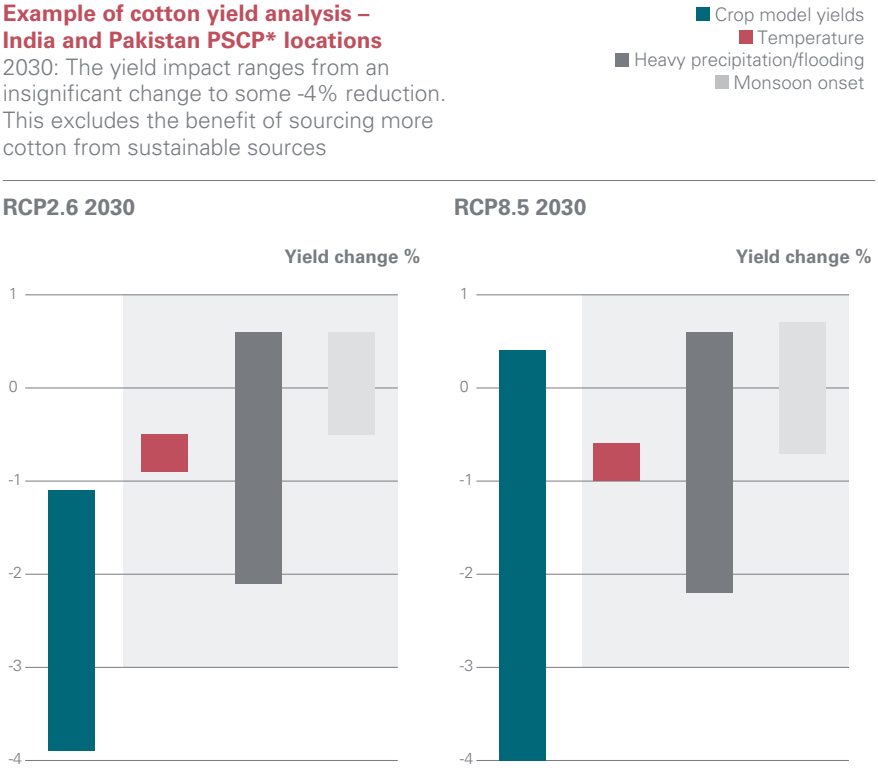


Flood height at the factory			Max flood height within 5km of the factory		
Historical	2030	2050	Historical	2030	2050
0 m	0 m	0 m	2.06m	1.81m	1.71m

The World Resource Institute's Aqueduct Flood Hazard Maps Tool was used to assess potential impacts of flooding. The map to the left is an example of how this tool was used. It shows areas potentially susceptible to a 100-year flood in 2050 under the RCP8.5 scenario within 5km of Illovo's Kilombero site in Tanzania, allowing us to consider whether flooding is projected to either impact the site or critical routes in or out of the site. In this example it was concluded that flooding did not present a significant risk to the factory or the key logistical routes around the site.

Example of cotton yield analysis – India and Pakistan PSCP* locations

2030: The yield impact ranges from an insignificant change to some -4% reduction. This excludes the benefit of sourcing more cotton from sustainable sources



This graph is an example of the output of our scenario analysis on cotton yields. Cotton is critical to Primark, representing some 65% of the total fibre mix in garments sold by Primark. The graph shows the range of yield impacts on cotton sourced from Primark's Sustainable Cotton Programme, in India and Pakistan, projected by the United States Department of Agriculture's Environmental Policy Integrated Climate EPIC** model in 2030, under the RCP2.6 and RCP8.5 scenarios.

The graph also includes the results of an assessment, by our third-party climate consultants, of the impact on cotton yields of individual climate risks including extreme temperatures, heavy rainfall/flooding and the timing of the onset of the monsoon.

The graph shows the projected range of impacts based on the 25th and 75th percentile results, before mitigating actions. A full analysis of this analysis is detailed on page 89.

Data availability meant that the RCP2.6 and RCP8.5 scenarios were used in the crop model analysis whilst the RCP4.5 and RCP8.5 scenarios were used to assess individual climate impacts.

The differences between the impacts of the different RCPs are minimal in 2030 but increase from then until 2050.

* PSCP = Primark Sustainable Cotton Programme.
** The EPIC model was developed between the Texas AgriLifeResearch and the United States Department of Agriculture (USDA). It simulates global and regional crop growth and development in response to external conditions such as the climate. It has a spatial resolution of some 50km x 50km.

Use of scenario results to support strategy and financial planning

Due to the limitations of scenario modelling as mentioned above, there is less clarity in data projecting out as far as 2050. We have therefore placed greater emphasis, in our planning and decision-making, on projections to 2030 as these are more reliable.

Scenario analysis has increased our understanding of the potential impacts of climate change. It has helped our businesses confirm the actions they need to take to mitigate and adapt to its risks, and to take advantage of its opportunities. In addition, by furthering their understanding of climate change and helping them understand the relative importance of these actions compared to other business priorities, climate change risks and opportunities can be better considered within their decision-making and planning processes.

Mitigating actions are managed by the relevant business. For instance, AB Sugar considers capital projects which reduce carbon emissions within its capital decision-making process. In 2023 we will be formalising transition plans for AB Sugar and Primark which will describe their plans to transition to a low carbon economy.

We understand that strategic decision-making around climate change can be complex. Decisions in this area must be taken carefully and should be flexible enough for adaptation if events or knowledge change. Care must also be taken to ensure that problems are not simply transferred elsewhere or lead to unintended social consequences.

Impact assessment

Determining the potential impact of climate risks and the size of climate opportunities is challenging. Climate models include several fixed assumptions and there is significant uncertainty around the impacts of climate change and how governments will respond to its threats.

We have taken several factors into consideration when assessing our confidence in mitigating actions:

1. Greater reliance has been placed on actions that are already underway and we have seen evidence around the success of those actions. For example, the yield benefit generated by moving to more sustainable cotton in Primark or pest control in British Sugar.
2. Physical risks from a changing climate are already present, growing and being managed by our businesses. In many cases, risks will get worse but there is time to find innovative solutions to adapt to its impacts.
3. A key learning from COVID-19 is that we must not underestimate the ability of our businesses to respond quickly to emerging threats and mitigate impacts.

Impact assessment	Description
Low	Projected impacts from scenario analysis are positive or not significant
Medium	Impacts judged not to be significant once mitigating actions are considered
High	Impacts judged to be significant even after mitigating actions have been considered

Note 1: Significance assessed by considering the impact of climate risks and opportunities on the Group's financial performance and position.

Results of the climate-related risks and opportunities assessment

Having evaluated, using scenario analysis, all physical and transition risks in the table on page 85, we have disclosed below the risks which we believe are potentially the most financially significant and/or of the most interest to stakeholders:

Climate impact on cotton yields

Impact assessment

Low	2030
Medium	2050

Based on RCP8.5

Median cotton yield impact is -2% in 2030 with a range of 0 to -4%.

In 2050 median cotton yield impact is -14% with a range of -12% to -15%.

Why this potential risk is important: Cotton represents some 65% of the total fibre mix in garments sold by Primark.

The key climate-related physical risks for cotton production are extreme temperatures, heavy rainfall and the timing and duration of the monsoon season. Our work on climate change scenarios to 2030 shows that the effects on cotton yields are minimal. The outcomes range from virtually no impact to a reduction of some 4%.

These projections are well within the bounds of the year-on-year yield variations that we have already experienced, and even then the capability is in place to work with smallholders to mitigate these effects. For example, training helps farmers make better seed selections and understand planting patterns to maximise yields.

In 2050, the yield impact is projected to decline by 14% under RCP8.5 and 4% under RCP2.6, before mitigating actions. Based on yield uplifts we have seen historically, the majority of this impact would be offset by sourcing all cotton from sustainable programmes.

Scenarios assessed

RCP2.6**/RCP8.5

Key analysis and assumptions

- Analysis focused on PSCP* locations in India and Pakistan which represent some 97% of Primark's PSCP* programme.
- USDA's EPIC crop model was used to assess the climate impact on cotton yields compared to 2021. This analysis did not take account of mitigating actions.
- Individual cotton impacts such as extreme temperatures, heavy rainfall, and timing of the onset of the monsoon were assessed.
- The above was supplemented by a high-level study of climate impacts on global cotton yields. This highlighted new territories that might be suitable for cotton in the future.
- Switching to more sustainable cotton is assumed to lead to a 14% increase in yields in line with the results of Primark's 2013-2019 study of the yields (kg/acre) of Indian PSCP* farmers compared to control farmers.
- Our calculations assume that no additional costs are passed on to customers through increased prices.
- Percentage yield impacts reflect changes in annual cotton yields for an average year, based on the median projected changes from the different climate models. While these yield impacts may include some consideration of extreme events in a given year (partly represented by the uncertainty span of the 25th to 75th percentile), the magnitude of impact associated with individual events, and the frequency of such extreme events, is not directly represented by an annual average. Additional analysis was undertaken to evaluate the potential impact of increased frequency of heavy rain events on cotton yields, to further support mitigation and adaptation.

Mitigation

Current mitigations

- 40% of Primark's cotton clothing sales (units) contain cotton that is organic, recycled or is sourced from Primark's Sustainable Cotton Programme.
- Cotton sourced through our PSCP is grown using more natural and regenerative farming methods, including reducing water, pesticide and chemical fertiliser use and training farmers in these methods. Our 2013-2019 study concluded that switching to more sustainable farming leads to increased yields which would help mitigate negative yield impacts caused by climate change.
- To date, some 250,000 farmers have received training*** in our Sustainable Cotton Programme.

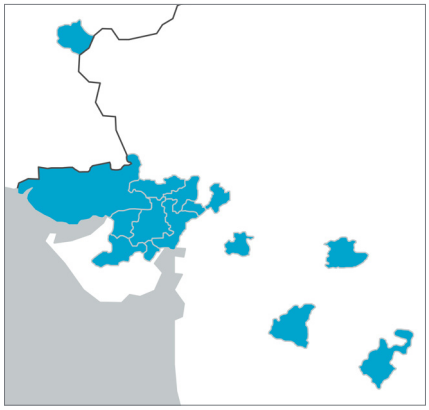
Future mitigating actions

- Increase the proportion of cotton which is grown through sustainable programmes so that all cotton clothing sales contain cotton that is organic, recycled or sourced from Primark's Sustainable Cotton Programme by 2027.
- Use more resilient cotton varieties and recycled/new fibres.
- Diversification of cotton supply. Sourcing cotton from new locations/ geographies which are less susceptible to climate impacts.
- Increase farmers trained*** in Primark's Sustainable Cotton Programme to 275,000 by the end of 2023.

Metrics and targets

- Proportion of cotton clothing sales (units) that contains cotton that is organic, recycled or sourced from Primark's Sustainable Cotton Programme (%): 100% by 2027.
- Number of farmers trained*** in Primark's Sustainable Cotton Programme: 275,000 by end of 2023.

Primark Sustainable Cotton Programme (PSCP) locations in India and Pakistan



* PSCP = Primark Sustainable Cotton Programme.
** RCP4.5 used where RCP2.6 data was unavailable.
*** This includes farmers that are currently being trained and those that have completed training under the programme.

Impact of climate on Illovo's sugar yields (Eswatini, Malawi, Mozambique, South Africa, Tanzania, Zambia)*

Impact assessment

Low	2030
Medium	2050

Based on RCP8.5

The climate impact on sugar yields is projected to be different in each country within Illovo. In 2030 USDA's EPIC crop model indicates a range of impacts which vary by country, from no change to a 10% decline in sugar yields. In 2050 it indicates a range of impacts from a 5% yield gain, predominantly as a consequence of carbon fertilisation where crops benefit from a higher concentration of CO_2, to a 29% decline in sugar yields. Potsdam's Lund-Potsdam-Jena managed Land (LPJmL)** crop model projected increased sugar yields in 2030 and 2050 across all countries.

Why this potential risk is important: Illovo is the largest sugar producer in Africa and a significant business within AB Sugar and ABF.

Illovo is already managing the impacts of climate change, particularly significant weather volatility. Looking ahead we expect weather to become even more unpredictable along with a higher risk of drought and wildfires.

Two established crop models have been used to assess climate impacts in 2030 and 2050 before mitigations. These give widely different results. Potsdam's LPJmL model predicts yields will increase significantly while the EPIC model predicts yields are likely to decline, with average country yield changes ranging from 0 to -10% in 2030 to +5% to -29% in 2050. However, even conservatively taking the outputs from the EPIC model, impacts net of mitigations are not significant for the Group. Mitigating actions are already well underway including implementing enhanced farm practices and irrigation programmes.

Scenarios assessed

RCP2.6/RCP8.5

Key analysis and assumptions

- Yield impacts quoted are compared to 2021. The analysis did not take account of mitigating actions.
- Two crop models were used to assess climate impacts on yield. This was supplemented by an analysis of how climate change will impact drought conditions in southern Africa.
- Numbers quoted are median projected results.
- Climate impacts on countries within the Illovo group were considered individually.
- Our calculations assume that no additional costs are passed on to customers through increased prices.

Mitigation

Current mitigations

- Illovo already experiences and manages significant climate variability so its responses to weather events are well developed.
- Improving irrigation efficiency to reduce the risk of drought, including investing in drip irrigation and river defences to reduce storm damage.

Future mitigating actions

- Increase the frequency of replanting sugar cane which results in higher yields.
- Use of more drought-resilient crop varieties.
- Potential for pricing pass-through to customers, if required, to offset any increased costs.

Metrics and targets

- Sugar production (tonnes).
- Volume of water abstracted.
- AB Sugar has a target to reduce its end-to-end supply chain water by 30% vs 2017/2018.

Climate impact on tea yields

Impact assessment

Low	2030
Low	2050

Median yield impacts by tea region vary from 0 to +5% by 2030 and +5% to +19% by 2050. There is less certainty in yield impacts in Indonesia and Kenya where ranges in potential outcomes are significant.

Why this potential risk is important: Twinings is a significant business within ABF.

Tea is sourced by Twinings from third-party suppliers in multiple tea regions. The crop model projects that changing chronic climate change should have a positive impact on tea yields in 2030 and 2050 across all tea growing regions assessed. However, due to the crop model's under-representation of acute climate risks, these gains could be limited by the impacts of extreme temperatures, heavy rainfall and droughts, which are expected to increase in both frequency and magnitude, particularly in the long term. The company has experience in dealing with volatility in regional tea yields as a result of weather events and has developed deep knowledge of the world's tea growing regions. This capability ensures there is a degree of flexibility in the origin of tea purchased and that master blending expertise can be used to produce tea to a high and consistent standard year after year. There are some single origin blends that would be harder to source if a particular region had a negative climate-related impact, but they are not material to the business.

Scenarios assessed

RCP8.5. Given impacts were assessed as low under RCP8.5, the worst case RCP scenario, impacts under other RCP scenarios were not assessed.

Key analysis and assumptions

- Yield impacts are compared to 2021. The analysis did not take account of mitigating actions.
- Fourteen tea growing regions, within six countries, were selected for analysis based on current sourcing volumes, uniqueness of tea produced and significance of the regions at a global level.
- Tea growing regions assessed made up around three quarters of Twinings' sourced tea in 2021/2022.
- Potsdam's LPJmL crop model was used to assess impacts supplemented by third-party research on individual climate effects on tea yields.

Mitigation

Current mitigations

- Twinings sourcing capability coupled with its blending capability enables the business to manage localised yield issues.

Future mitigating actions

- Continued focus on enhancing farming practices, particularly irrigation.

* Our scenario analysis projects that the impact of climate change on British Sugar's sugar beet crop is positive and hence the results of this analysis have not been included in this disclosure.

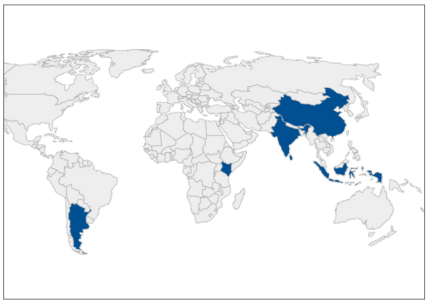
** The Potsdam model is known to estimate higher CO_2 fertilisation impacts than the EPIC model and takes into account availability of water from dams and reservoirs. The EPIC model also considers more climate stress factors.

- Tea is a profitable crop that, after some higher-than-average start-up costs, can be harvested for decades. There should be incentive to replant in new regions if climate changes locally.

Metrics and targets

- Given the impact of climate change on tea yields was assessed as low, no metrics are disclosed.

Fourteen tea regions within six countries below were selected for analysis



Impact of flooding risk on Primark's third-party manufacturers

Impact assessment

Low	2030
Medium	2050

Why this potential risk is important: Bangladesh and China represent the top two countries from which Primark products are sourced. Our analysis focuses on the proportion of orders impacted calculated as a percentage of Primark's current total global orders based on estimated retail values.

Bangladesh

Percentage of Primark orders significantly impacted by flooding in Bangladesh under a 100-year return period and RCP8.5:

Coastal flooding: Baseline (1979-2014) -1.3%, 2030 -1.4%, 2050 -2.5%.

River flooding: Baseline (1960-1999) -2.3%, 2030 -2.6%, 2050 -5.3%.

Many of our suppliers' factories are located in the greater Dhaka region. This is a low-lying, densely populated area on the Ganges Delta that is exposed to both coastal and river flooding. We estimate that flood risk will increase minimally by 2030 with a more marked increase by 2050. In 2050, under RCP8.5 and considering a 100-year return period, it is projected that less than 3% of Primark's global orders would be exposed to a severe coastal flooding event, while less than 6% of Primark's global orders would be exposed to a severe river flooding event.

China

Percentage of Primark orders significantly impacted by flooding, in China, under a 100-year return period and RCP8.5:

Coastal flooding: Baseline (1979-2014) -1.1%, 2030 -1.1%, 2050 -1.6%.

River flooding: Baseline (1960-1999) -5.4% 2030 -4.5%, 2050 -4.9%.

A proportion of Primark's third-party factories in China are at risk of being disrupted by flooding. This risk only changes minimally by 2030 and 2050. Given the geographical spread of Primark's third-party factories in China, the river flood impacts disclosed above would require a number of rivers across China to flood simultaneously.

The analysis we have undertaken in Bangladesh and China has identified the individual sites at risk from flooding. This information, combined with insight gained locally, will assist Primark as it works with suppliers to mitigate impacts. Mitigating actions are already well underway.

Scenarios assessed

RCP4.5/RCP8.5

China RCP8.5 only

Key analysis and assumptions

- Coastal and river flooding impacts considered.
- Factories supplying some 98% of orders in Bangladesh and 66% of orders from China evaluated. The results from the 66% of Chinese orders assessed were extrapolated across all Chinese orders to derive an overall impact.
- Key export consolidation and freight centres also reviewed along with ports in Bangladesh.
- The World Resource Institute's Aqueduct Flood Hazard Maps tool used to assess the impact of flooding. The analysis did not consider mitigating actions.
- Factories assumed to be significantly impacted if flood heights are greater than 0.5m*. At this flood height factories assumed to have serious and sustained flood impacts.
- Impacts calculated as a proportion of Primark's current total global orders based on the estimated retail value of orders purchased.

Mitigation

Current mitigations

- The majority of Primark's Bangladesh suppliers are located in areas of Dhaka which are less susceptible to flooding.
- The local Dhaka community regularly deals with flooding and has adapted processes to mitigate its impacts.
- Geographical spread of factories across China.
- Primark's Sourcing Strategy has existed for two years with a focus on geographical diversification for sourcing product, creating a more balanced global footprint and developing risk mitigation strategies to increase flexibility and agility when unexpected events occur.

Future mitigating actions

- Primark will consider flood risk as part of its rigorous factory audit programme and will work closely with its suppliers/partners to mitigate flood risk.
- Bangladesh's National Determined Contribution plan includes a focus on infrastructure and risk management.
- Primark will continue to consider how best to diversify the sourcing of product in line with its Sourcing Strategy.

Metrics and targets

- In 2022/2023 we will develop metrics to monitor this risk.

* 0.5m was advised by South Pole based on their research of scientific literature.

Impact of carbon pricing mechanisms on AB Sugar and Primark

Impact assessment

Medium 2030

Why this potential risk is important: carbon prices are likely to increase as governments take action to decarbonise. AB Sugar represents some 65% of ABF's Scope 1 and 2 emissions and Primark has significant Scope 3 upstream emissions. Impacts quantified below are based on carbon prices assumed in IEA's hypothetical scenarios. The NZE and SDS scenarios assume a significant increase in global carbon prices.

AB Sugar
Incremental impact ranges from £0m to £48m in 2030.

AB Sugar has developed a detailed plan to reduce absolute Scope 1 and 2 carbon emissions by 30%, from 2017/18, by 2030 through a range of fuel substitution and energy-efficiency programmes that are both affordable and commercially attractive with an estimated average ROI above 15%. Beyond that, technologies exist, but are as yet not commercially viable, to reach net zero emissions.

Primark
Incremental impact ranges from £55m to £155m in 2030.

This impact is driven by hypothetical carbon taxes on Scope 3 upstream emissions. Scope 1 and 2 make up less than 2% of Primark's total emissions.

Primark has quantified its Scope 3 emissions for the last four years and has a detailed Scope 3 calculation methodology.

There is the potential for an increase in carbon prices as countries align policy with Nationally Determined Contributions and emissions reduction trajectories. It is also possible in the shorter term that governments will seek to offset the impacts of any such increase through allowances and transition reliefs in light of macroeconomic pressure on all businesses.

Primark's decarbonisation programme is managed as an integral part of the Primark Cares strategy and there is a worked-up plan to reduce absolute emissions by 50% by 2030 and mitigate the company against significant potential exposure to increased carbon taxation. The plan focuses on our top five sourcing markets and seeks to support suppliers implement energy efficient measures and switch to renewable sources. The plan does not assume the purchase of offsets. Actions are already underway to reduce Scope 3 emissions in the Primark supply chain.

Primark is also aligned with the UNFCCC Fashion Industry Charter goal of net zero emissions across all three Scopes by 2050.

Scenarios assessed
International Energy Agency's Net Zero Emissions by 2050 Scenario ('NZE'), Sustainable Development Scenario ('SDS') and Stated Policies Scenario ('STEPS').

Key analysis and assumptions
- Sugar and apparel are not within the initial scope of the EU's proposed Cross Border Adjustment Mechanism ('CBAM'). Implementation of CBAMs by 2030 has therefore not been assumed in this analysis.
- Carbon prices are based on the three IEA scenarios: STEPS, SDS and NZE. The lowest number quoted is based on IEA's STEPS scenario. The highest number quoted is based on IEA's NZE. Carbon prices are quoted in US dollars in the scenarios. They have been translated into sterling based on average exchange rates, see note 26.
- The scenarios assume the implementation of new and/or more stringent carbon prices on carbon emissions within the sugar and textiles value chains in multiple countries.
- Carbon taxes applied to Scope 1, 2 and upstream Scope 3 emissions for Primark.
- Carbon taxes applied to Scope 1 and 2 emissions for AB Sugar. This represents some 65% of ABF's Scope 1 and 2 emissions.
- No growth assumed.
- Results assume delivery of both Primark's and AB Sugar's carbon commitments.
- No significant reduction in Emission Trading Scheme Allowances assumed.
- Our calculations assume that additional costs are not passed on to customers through price changes.

Mitigation
Current mitigations
- AB Sugar has a detailed plan to achieve its 30% absolute reduction, which it manages through its robust profit improvement system. Some 12%* reduction has already been delivered vs its 2017/18 baseline.
- Primark has a fully worked-up plan to achieve a significant reduction in supplier emissions by the end of the decade and is aligned with the UNFCCC Fashion Industry Charter goal of net zero emissions across all three Scopes by 2050.

Future mitigating actions
- Delivery of detailed decarbonisation plans for AB Sugar/Primark.
- Potential carbon tax impacts are small when considering the size and scale of both businesses. Both Primark and AB Sugar continually manage inflationary pressures. In the event that carbon prices were to increase or be applied to goods that are currently not in scope, these would be managed and offset as required as with any other cost input.

Metrics and targets
- Primark: GHG emissions: Scope 1, 2 and 3 emissions vs target of 50% absolute reduction in emissions by 2030 vs 2018/19 baseline.
- AB Sugar: GHG emissions: Scope 1 and 2 emissions vs target of 30% absolute reduction in Scope 1 and 2 emissions by 2030 vs 2017/18 baseline.

Climate opportunities
We have split our major opportunities into two categories: carbon enablement to help other companies and customers reduce their emissions; and increased efficiency within our own businesses.

Carbon enablement
Carbon enablement has always been integral to our businesses and a key focus for investment and innovation. Many of our businesses are advantageously positioned to supply products and services to help customers and companies reduce their emissions. Products and services include bioethanol, animal feeds and enzymes which support carbon reduction.

Example – AB Enzymes
AB Enzymes is an industrial biotech company that specialises in the development of enzymes used by companies in multiple industries for various applications. Enzymes have the potential to avert significant quantities of carbon and can also be used to reduce energy, water and waste, while improving quality. For example AB Enzymes supplies enzymes which:

- enable clothes to be washed at lower temperatures reducing energy consumption;
- reduce temperatures required to biopolish cotton textiles; and
- reduce the energy, raw materials and chemical additives required whilst achieving better end-product quality in the paper industry.

Efficiency
Efficiency has always been part of our DNA. There are many efficiency opportunities within ABF's portfolio, for instance maximising renewable energy generated from natural biomass products in southern Africa.

Examples of these opportunities can be seen on https://www.abf.co.uk/

* 12% reduction is based on AB Sugar's, Scope 1 and 2 emissions. Vivergo was excluded from the calculation since it was being recommissioned in 2021/22.

Metrics and targets

The high level of diversity across our businesses means that we have established key climate-related metrics at both a groupwide and divisional level. In line with our strategy and risk management process, our businesses are responsible for identifying their own key metrics as well as opportunities and targets relevant to their material climate-related risks.

We have summarised the material metrics and, where applicable, targets used by ABF to assess climate-related risks and opportunities in the table below. A full list of our non-financial metrics, along with definitions and historic trends, can be found in our ESG Insights.

This includes targets set, where applicable, and progress against these targets. GHG emissions, reported in the 'Responsibility – Our operations' section of our Annual Report on page 74, have been calculated in accordance with the GHG reporting protocol methodology.

TCFD metric category	Group/ division	FY22 metrics	Target set	Linkage to climate risk/ opportunity	Metric
Physical risks	AB Sugar	• Total sugar production (tonnes)	No	Climate impacts on sugar yields	3.1mt See ESG Insights
	Group	• Volume of water abstracted[Δ]	AB Sugar represents some 96% of the Group's water abstracted. It has a target to reduce its end-to-end supply chain water by 30% by 2030 vs a 2017/18 baseline	Climate impacts on sugar yields	See pages 13, 76
	Primark	• Proportion of cotton clothing sales (units) that contain cotton that is organic, recycled or sourced from Primark's Sustainable Cotton Programme (%)	Target 100% by 2027	Climate impacts on cotton yields	See pages 53, 89
	Primark	• Number of farmers trained in the Primark Sustainable Cotton Programme	275,000 farmers to be trained by the end of 2023. This includes farmers that are currently being trained and those that have completed training under the programme.	Climate impacts on cotton yields	See pages 13, 56
Transition risks	Group	• Percentage of renewable energy (%)[Δ] • Energy consumed[Δ]	No	Impacts of carbon pricing mechanisms on AB Sugar and Primark	See pages 13, 75
GHG emissions	Group	• Scope 1 and 2 emissions: absolute emissions[Δ] (000 tCO_2e) and tonnes of CO_2e per £1m of revenue	No	Impacts of carbon pricing mechanisms on AB Sugar and Primark	See pages 13, 74
	AB Sugar	• GHG emissions: absolute Scope 1 and 2 emissions (000t CO_2e)[Δ]	Target to reduce Scope 1 and 2 absolute emissions by 30% by 2030 vs a 2017/18 baseline	Impacts of carbon pricing mechanisms on AB Sugar	2,014 (000t CO_2e) See ESG Insights and page 92
	Primark	• GHG emissions: Scope 1, 2 and 3 emissions (000t CO_2e)[Δ]	Primark is aligned with the UNFCCC Fashion Industry Charter goal of net zero emissions across all three Scopes by 2050. It also has an interim target to halve its absolute carbon footprint across all three Scopes by 2030 against a 2018/19 baseline	Impacts of carbon pricing mechanisms on Primark	See pages 13, 53
Climate-related opportunities	Primark	• Proportion of clothing sales (units) containing recycled or more sustainably sourced materials (%)	Target to ensure 100% of clothing sales contain recycled or more sustainably sourced materials by 2030		See pages 13, 53

Δ EY has provided limited independent assurance over this metric. See the ABF Responsibility Report 2022, page 56, for EY's assurance statement.

Actions we will take in 2023

- Disclose in line with the Financial Conduct Authority's additional guidance applicable to years beginning on or after 1 January 2022, including new guidance on metrics, targets and transition plans and an updated TCFD implementation annex (released October 2021).
- Undertake further work to understand the impact of climate change on people and productivity. We have completed analysis which considers how Wet Bulb Globe Temperature, a heat index taking into account humidity, temperature and solar radiation, could impact farmers in Bangladesh, India and Pakistan. The analysis suggests that excluding mitigating actions, heat stress impacts could be potentially significant, particularly under more extreme climate scenarios to 2050. Next year we will consider how to integrate local understanding into this analysis to enable us to report in more detail on risks and mitigation.
- Track and report on progress against external targets.

Other information

Please refer to ABF's 2022 website, Responsibility Report or ESG Insights for further detail on our approach to climate and other ESG issues.