

1. About this page

This page is designed to help fund managers quickly familiarise themselves with the topic of climate change mitigation and adaptation, and to help identify potential risks and opportunities they pose to a project or business. It is not intended to be a detailed technical guidance document.

Climate change mitigation is a reduction in emissions of green house gases (GHG) into the atmosphere or absorption of them from the atmosphere.

Climate change adaptation is the process of adjustment through moderating or avoiding harm to actual or expected climate and its effects; resilience is the capacity of a system (natural or human) to cope with a shock, disturbance or hazardous event.

In terms of mitigation, this page identifies tools to help quantify GHG emissions associated with business activities and highlights the opportunities from adopting resource efficiency improvements. In terms of adaptation, this page aims to help fund managers better understand climate change and weather-related risks to an investment and its supply chain to help improve investment resilience.

Sector-specific climate change risks and opportunities are also addressed in the respective [Sector profiles](#) and the [E&S topic: Resource efficiency and the circular economy](#). Given the improving understanding around climate change and its impacts, this page will be updated periodically in light of emerging science. To make suggestions or share tips and advice email esgtoolkit@cdcgroupp.com.

- [Additional considerations](#)

Additional technical guidance and resources are provided at the end of this page and in [Reference materials](#).

This page provides an overview and general guidance. Fund managers should carefully consider each company based on its specific characteristics and circumstances including scale, location, technology, management capacity, and commitment and track record. Risks, impacts and opportunities relating to a particular company or sector can also change over time for a number of reasons (e.g. changes in the applicable laws and regulations or in the type of the company's activities or assets). Fund managers may need to engage external experts in some situations (see 'Advice for fund managers' section below).

2. Introduction

Climate change will continue to have increasingly significant environmental, social and economic impacts. Global temperatures are projected to continue rising, with consequential changes in weather patterns, rising sea levels and increased frequency and intensity of extreme weather events. It will also lead to changes in precipitation and freshwater availability. The impact of climate change is exacerbated in emerging markets due to their reduced capacity to adapt or recover from climate-related shocks.

Climate change is already impacting the competitive context within which all companies operate by affecting the availability and demand for resources, products and services, and the performance of day-to-day business operations, physical assets and supply chains. It also presents opportunities for new low-carbon / resource efficient products and services to help mitigate climate change and through improved understanding of climate change risks to build resilience into business operations. At the global level, industrialised countries have committed to provide \$100 billion per year by 2020 for actions that reduce greenhouse gas emissions and build climate change resilience in developing countries.

Climate change will not only impact a company's own assets but also the natural resources and infrastructure upon which the company depends. Energy, water, transport and communications infrastructure may all be impacted by flooding or extreme events, and the on-going reliability of these services will also be affected, with consequential impacts for company operations.

While some companies are starting to understand the full strategic implications of climate change, most are approaching it at a relatively superficial level. Corporate action tends to be driven primarily by a desire to reduce energy and regulatory compliance costs. The resulting emphasis on tackling direct emissions (mitigation) - and thus on reducing the impacts of business - has detracted from a consideration of the impacts climate change will have on business and their need to adapt over the longer term.

While a number of companies are now looking to the future and predicting more regulation, increasing (and volatile) energy costs, and carbon-pricing - and are looking to future-proof themselves against these trends - these represent only a subset of the risks that climate change poses. Floods, storms, and increasing sea levels will physically impact corporate assets. Brands and reputations will be harmed (and some strengthened) by responses to climate change, and high-emitters may face stranded-asset and / or legal risk over time.

3. Why companies and fund managers should address this topic

- Risks for the business

Failure to understand potential climate change risks can result in a range of direct and indirect negative impacts on businesses, such as:

- Increased regulatory requirements and regulatory costs (potentially as a direct result of a country's commitment to international climate change negotiations).
- Additional capital expenditure associated with asset damage, decreased asset performance or the upgrade of facilities to be more climate-resilient.
- The efficiency and performance of infrastructure may decrease, such as reduced access to water for cooling plants could require operating capacity to be reduced / shut down.
- Disruption to supply chain, particularly from extreme events, especially agricultural supply chains.
- Insurance costs are likely to increase as the cost of climate impacts are better understood, possibly making some activities uninsurable, or prohibitively expensive.
- Stranded asset risk and portfolio risk if there is a high level of exposure to sectors with high climate-related risks, such as carbon intensive energy generation.
- Reputational risk as consumer pressure on 'high-carbon' products / industries grows.
- Exit strategy risk associated with future investors who may be increasingly climate sensitive and investing at a time when climate change risks may have increased further.
- Potential legal challenges against carbon-intensive companies which could be seen to have materially contributed to the impacts of climate change.

- Opportunities for the business

In some cases, companies can generate positive revenue streams and other business benefits from active management of climate change risks, and improving adaptive capacity and resilience:

- Low-carbon energy generation will form a significant part of the global approach to mitigating climate change. Climate finance and carbon market funding may enable an organisation to create market advantage from cleaner energy provision.
- Implementing energy and water efficiency measures to reduce consumption and improve operational efficiencies and resilience to any changes in energy and/or water supply.
- Taking climate change effects into account in the specification and design of new infrastructure (e.g. ports) may reduce the operating costs (including the cost of repair) and also the costs of retrofit.
- Understanding supply chain exposure and taking early action to manage these risks will enable organisations to better withstand climate shocks and ultimately outperform less prepared competitors.
- Opportunities for new energy efficient and lower embodied carbon products will increasingly become a differentiator in the marketplace. Business models such as manufacturing and marketing products where increased demand is related to increased temperatures/changing rainfall patterns (e.g. rainfall harvesting and water storage systems) will also perform better relative to their peers.
- Increased consumer awareness of climate change and lower embodied carbon products and services will create positive brand value for companies that are seen as 'low-carbon' leaders
- Access to additional financing including climate finance and the carbon markets.

4. Advice for fund managers

See [CDC environmental and social checklist](#) as it contains questions and tips to help fund managers to assess the E&S aspects of an investment.

Fund managers should ensure that, at a minimum, companies' management systems are designed to be compliant with local laws and regulations. In many cases, local regulations may not be fully aligned with good international industry practice (GIIP). Fund managers should assess companies' alignment with international standards and, where appropriate, develop action plans to ensure that any gaps are addressed within a reasonable time frame. Where climate change risks and impacts are evident, companies should be able to demonstrate that they have implemented management plans in accordance with GIIP.

Fund managers and companies should understand the main climate change risks facing an organisation, which may include supply chain risks (see [E&S topics: Supply chains](#)). In some instances, an assessment of climate change risks should be conducted. The assessment can be relatively simple (by reviewing the type and frequency of extreme weather events and considering the impact on business performance). However, in sectors and locations exposed to significant climate change risks, a more detailed assessment involving external advisors may be required. Investments in activities which significantly contribute to climate change (e.g. sectors with large GHG emissions) and / or opportunities for climate change mitigation, potential mitigation measures should be assessed and, where appropriate, implemented. In such cases, fund managers should be cognisant of a country's Nationally Determined Contribution (NDC). Monitoring and reporting of GHG emissions generated and avoided may also be required.

- [Climate change mitigation](#)

Sectors and activities that present opportunities for GHG reductions, and energy and water efficiencies include:

- Agriculture and aquaculture (effective water resource management and water efficiency interventions to reduce input).
- Healthcare (water and energy efficiencies to reduce operational costs; deployment of renewable energy technologies).
- Infrastructure (opportunities to set the standards for green buildings and low-carbon construction and reduce water and / or energy costs).

- Financial services (access to climate finance and carbon markets).
- Forestry and plantations (forestry will form a significant part of the global approach to mitigating climate change; carbon market / [UN Reducing Emissions from Deforestation and Forest Degradation](#) (REDD) funding may be available for avoided deforestation and reforestation).
- Power generation, transmission and distribution (energy efficiency improvements reducing input costs and obviating the need for additional infrastructure).

Sectors and activities that are particularly vulnerable to climate change include:

- Agriculture and aquaculture (changes in temperature and increased incidences of extreme weather may change the productivity or viability of crops).
- Healthcare (temperature changes leading to a wider distribution of disease vectors).
- Infrastructure (damage and operational interruption, and higher maintenance costs).
- Financial services (access to insurance and financing).
- Forestry and plantations (impacts on the productivity or viability of plantations and increased incidence of plant / tree diseases).
- Power generation, transmission and distribution (reduced operational efficiencies and increased transmission and distribution line losses).

Fund managers should take into account the following when considering an investment:

- [Climate change policy](#)
Fund managers are encouraged to implement [CDC's Climate Change Strategy](#) in their portfolio companies in order to proactively assess climate change risks and

opportunities and incorporate these factors into investment strategies.

- [Assessing climate change risks - Geography and sector risks](#)

Fund managers should identify potential climate change-related risks. As appropriate, fund managers shall undertake a systematic review of how climate change risks could potentially affect the geographical location of the business and associated business activities, including the supply chain; and whether the business sector and individual business is particularly vulnerable. Climate-related risks should be assessed during due diligence and material risks addressed pre-investment, wherever possible. In some instances, an agreed action plan to avoid (wherever possible), mitigate and / or manage and monitor climate change-related risks should be agreed between the fund manager and the investee company.

Broadly, fund managers should assess whether a business is located or has activities in areas likely to experience and be vulnerable to:

- Extreme weather events (heatwaves, droughts, storms etc.).
- Changes in precipitation and freshwater availability.
- Changes in temperature.
- Sea level rise.

For example, is a potential agricultural investment located in an area expected to experience reduced precipitation that could result in reduced yields? Or an infrastructure investment located in an area likely to experience sea level rise and increased flood risk?

Local, regional or national meteorological agencies may be able to provide historical weather information to help identify particular risks. A media review may also help identify past weather events experienced in a particular geography. Country-level National Communications and [Intended Nationally Determined Contributions](#) (INDC) provide information on existing and anticipated climate change, including information by region in some cases.

At a country scale, the University of [Notre Dame Global Adaptation Initiative Index](#) (ND-GAIN Index) provides data sets that summarise a country's

vulnerability to climate change and its readiness to improve resilience; and provides a useful tool to assess portfolio risk. Whilst this information is high level, it can be used to help identify if a particular location where a business may operate is likely to be increasingly exposed to climate change risk.

The KfW Development Bank and the Climate Service Centre Germany (GERICS) have also developed country level [Climate-Fact-Sheets](#) which present projected climate change in a condensed manner.

Sector specific resources are provided at the end of this page (see ‘Further resources’).

- [Business specific risks](#)

In terms of climate change adaptation at an individual business level, it is helpful to identify if a business could:

- Be at risk of flooding or contribute to flood risk to neighbouring communities?
- Compromise supply of water to external users or be at risk of water shortages?
- Affect the ability of local communities, and the supply chains on which they depend, to adapt to climate change?

And, if so:

- What are the opportunities to address these?

Fund managers may wish to engage external consultants to support such assessments.

- [Exploring climate change mitigation opportunities](#)

Climate change mitigation options to be explored by companies and investors may include, but are not limited to, alternative project locations, adoption of renewable or low-carbon energy sources, climate-smart agricultural, forestry and livestock management practices, the reduction of fugitive emissions and the reduction of gas flaring.

Monitoring an investment's GHG emissions helps identify emissions reductions opportunities and consequently operational cost savings through reduced inputs. Reporting and verifying monitored data is also becoming increasingly important to international lenders, and in an increasingly carbon-sensitive world proactively reducing GHG reductions may also facilitate access to climate and carbon-finance markets.

Fund managers can commission energy and water audits to identify resource efficiencies and also help increase business resilience to potential future changes in water or energy availability. Requiring certifications, such as IFC EDGE, will help deliver operational energy and water savings, and reduce embodied energy (and inputs) in construction.

For further information refer to [E&S topics: Resource efficiency and the circular economy](#).

- [Exploring climate change adaptation opportunities](#)

It is impossible to predict what climate change or weather-related events will occur at any particular time or location. However, within a fund's investment timeframe it is prudent to assume that the most likely risks will relate to existing vulnerabilities and those business systems that are sensitive to climatic factors. Fund managers should also recognise that climate change risk will change over time and periodic re-assessment of risks and vulnerabilities of an investment should be undertaken, in particular, with a view to understanding and mitigating risks to improve exit valuations.

- [Legislation and regulatory change](#)

Fund managers should ensure that companies actively monitor relevant environmental legislation related to climate change. While some countries currently have some climate change legislation, the Paris Agreement (2015), a new universal climate agreement, has provided an increased focus on the need for more prescriptive regulatory environments. The Paris Agreement requires all parties to the United Nations Framework Convention on Climate Change (UNFCCC) to agree to a long-term goal of keeping the increase in global average temperature to well below 2°C above pre-industrial levels and aim to limit the increase to 1.5°C. To achieve this, each party has prepared an Intended Nationally Determined Contribution (INDC), which sets out details of emission reductions the country will undertake and can include other action

plans covering areas such as adaptation to climate change. A country's INDC will become its first nationally determined contribution (NDC) when it ratifies the Paris Agreement.

5. Further resources

- [Further information and guidance](#)
 - International Finance Corporation (IFC) 2012 [Performance Standard 3: Resource Efficiency and Pollution Prevention](#).
 - IFC [Enabling Environment for Private Sector Adaptation](#).
 - IFC [Climate Risk and Financial Institutions: Challenges and Opportunities](#).
 - IFC [Climate Risk and Business: Practical Methods for Assessing Risk](#).
 - IFC [Greenhouse Gas Reduction Accounting Guidance For Climate-Related Projects](#).
 - [ISO 14064-1 Greenhouse gases: Specification with guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removals](#).
 - [Greenhouse Gas Protocol](#).
 - [Platform Carbon Accounting Financials Carbon Accounting Methodology](#).