This is an extract from the 2021 TCFD report: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures.

4. Assessing Financial Impacts of Climate-Related Risks and Opportunities

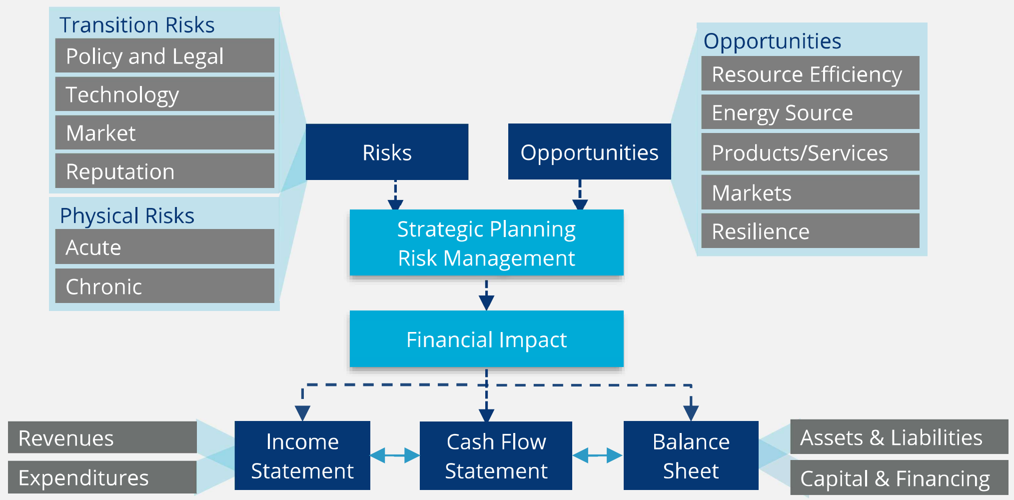
While climate change affects nearly all economic sectors, the level of exposure and the impact of climate-related risks differ by sector, industry, geography, and organization. Furthermore, the financial impacts of climate-related issues on organizations are not always clear or direct, and, for many organizations, identifying the issues, assessing potential impacts, and ensuring the material issues are reflected in financial filings may be challenging. Key reasons for this are likely because of (1) limited knowledge of climate-related issues within organizations, which may inhibit the identification of such risks; (2) the tendency to focus mainly on near-term risks without paying adequate attention to risks that may arise in the longer term; and (3) the difficulty in quantifying climate-related risks.[13]

Better disclosure of the financial impacts of climate-related risks and opportunities on an organization is a key goal of the Task Force's work. In order to make more informed financial decisions, investors, lenders, and insurance underwriters need to understand how climate-related issues affect and are likely to affect an organization's future financial performance and position as reflected in its income statement, cash flow statement, and balance sheet.

Fundamentally, the financial impacts of climate-related issues on an organization are driven by the specific climate-related risks and opportunities to which the organization is exposed and its strategic and risk management decisions on seizing those opportunities and managing those risks (i.e., accept, avoid, pursue, reduce, or share/transfer).[14] Once an organization assesses its climate-related issues and determines its response to those issues, it can then consider actual and potential financial impacts on revenues, expenditures, assets and liabilities, and capital and financing. Figure 3 outlines the main climate-related risks (transition and physical) and opportunities organizations should consider as part of their strategic planning or risk management to determine potential financial implications. In addition, Appendix 1 provides tables with examples of (1) climate-related risks and their potential financial impacts and (2) climate-related opportunities and their potential financial impacts.

Figure 3

Climate-Related Risks, Opportunities, and Financial Impact



Climate-related issues can affect several important aspects of an organization's financial performance and position, both now and in the future. For example, climate-related issues may have implications for an organization's businesses and capital expenditures. In turn, capital expenditures will determine the nature and amount of long-lived assets and the proportion of debt and equity to be funded on an

[13] World Business Council for Sustainable Development, *Sustainability and enterprise risk management: The first step towards integration*, January 18, 2017.

[14] For more information see TCFD, *Guidance on Risk Management Integration and Disclosure*, October 2020.

organization's balance sheet. Climate-related issues may also carry implications for future cash flows (operating, investing, and financing activities). An organization, therefore, should consider how climate-related issues affect its current financial position and may potentially affect its future financial positions in terms of four major categories of financial impact, as described in Figure 4.

Figure 4

Major Categories of Financial Impact

Financial Performance[15]	Financial Position[16]
Revenues. Transition and physical risks may affect demand for products and services. Organizations should consider the potential impact on revenues and identify potential opportunities for enhancing or developing new revenues. In particular, given the emergence and likely growth of carbon pricing as a mechanism to regulate emissions, it is important for affected industries to consider the potential impacts of such pricing on business revenues. **Expenditures.** An organization's response to climate-related risks and opportunities may depend, in part, on the organization's cost structure. Lower-cost suppliers may be more resilient to changes in cost resulting from climate-related issues and more flexible in their ability to address such issues. By providing an indication of their cost structure and flexibility to adapt, organizations can better inform investors about their investment potential. It is also helpful for investors to understand capital expenditure plans and the level of debt or equity needed to fund these plans. The resilience of such plans should be considered bearing in mind organizations' flexibility to shift capital and the willingness of capital markets to fund organizations exposed to significant levels of climate-related risks. Transparency of these plans may provide greater access to capital markets or improved financing terms.	**Assets and Liabilities.** Supply and demand changes from changes in policies, technology, and market dynamics related to climate change could affect the valuation of organizations' assets and liabilities. Use of long-lived assets and, where relevant, reserves may be affected by climate-related issues. It is important for organizations to provide an indication of the potential impact on their assets and liabilities, especially long-lived assets. This should focus on existing and committed future activities and decisions requiring new investment, restructuring, write-downs, or impairment. **Capital and Financing.** Climate-related risks and opportunities may change the profile of an organization's debt and equity structure, either by increasing debt levels to compensate for reduced operating cash flows or for new capital expenditures or research and development (R&D). It may also affect the ability to raise new debt or refinance existing debt, or reduce the tenor of borrowing available to the organization. There could also be changes to capital and reserves from operating losses, asset write-downs, or the need to raise new equity to meet investment.

Whether an individual organization is or may be affected financially by climate-related issues usually depends on:

- the organization's exposure to, and anticipated effects of, specific climate-related risks and opportunities;
- the organization's planned responses to manage (i.e., accept, avoid, pursue, reduce, or share/transfer) its risks or seize opportunities; and
- the implications of the organization's planned responses on its income statement, cash flow statement, and balance sheet.

a. Exposure to Climate-Related Risks and Opportunities

Exposure, in this context, refers to an organization's vulnerability to negative impacts or capability of realizing positive impacts from the transition to a low-carbon economy and/or the physical aspects of

[15] Financial performance refers to an organization's income and expenses as reflected on its income and cashflow statements (actual) or potential income and expenses under different climate-related scenarios.

[16] Financial position refers to an organization's assets, liabilities, and equity as reflected on its balance sheet (actual) or potential assets, liabilities, and equity under different climate-related scenarios.

climate change. When considering its exposure to climate-related risks and opportunities, an organization should consider the exposure of its value chain as well.

The complexity and uncertainty associated with climate change make it difficult to identify the specific touchpoints and time frames in which climate change may affect an organization. As a starting point, an organization should assess its value chain over a reasonable time frame as it relates to the following:[17]

- climate-related risks including (1) transition risks such as policy constraints on emissions, imposition of carbon tax, water restrictions, land use restrictions or incentives, and market demand and supply shifts and (2) physical risks such as the disruption of operations or destruction of property and
- climate-related opportunities such as access to new markets and new technology (e.g., carbon capture and storage technology).

Importantly, an organization should assess its climate-related risks and opportunities within the context of its businesses, operations, and physical locations in order to determine potential financial implications. In making such an assessment, an organization should consider (1) current and anticipated policy constraints and incentives in relevant jurisdictions, technology changes and availability, and market changes and (2) whether an organization's physical locations or suppliers are particularly vulnerable to physical impacts from climate change. For example, an organization may have high emissions, but if anticipated policy in the organization's jurisdiction fails to constrain emissions in a binding manner, the organization may determine financial impacts are minimal over its planning horizon.

b. Responses to Climate-Related Risks and Opportunities

After assessing its exposure to climate-related risks and opportunities, an organization needs to choose how to respond to the identified risks and opportunities, including the following:

- the risk management actions it plans to undertake (i.e., accept, avoid, pursue, reduce, or share/transfer);
- capital expenditures (CapEx) on or financing towards new technology or facilities that may be warranted; and
- R&D expenditures that may be necessary.

These are largely strategic and financial planning decisions around the operating and capital expenditures or financing the organization plans to undertake in response to climate-related risks and opportunities. In some cases, these responses may be directly motivated by specific climate-related issues, and in other cases, climate-related issues may be an additional, but not exclusive, motivational factor around other business drivers. It is important for an organization to recognize that accepting climate-related risks (i.e., "no response") may also carry potential financial implications, such as a loss in revenue, reduced asset valuations or write-offs, or increased costs.

c. Effectiveness of Reponses

Financial impacts associated with climate-related risks and opportunities depend on not only an organization's level of exposure and planned responses, but also on how effective its responses are in realizing opportunities and mitigating or otherwise managing risks. An organization, therefore, should monitor implementation of its responses against both internal targets and external factors to assess their effectiveness. For example, an organization that has made investments in new products to take

[17] An important aspect for organizations to consider is the time horizon for assessing exposures. While the common perception is that climate-related risks are "long term," arising in 10, 20, or 30 years, this may not be the case. Policies, technology innovation, and markets are likely to adjust and shift in advance of many foreseeable climate trends. Likewise, more frequent and severe storms, floods, and droughts are occurring today. Organizations, therefore, should carefully consider the time horizon they use to evaluate their exposures and possibly assess them over a range of time horizons to capture potential exposures arising in the short, medium, and longer term.

advantage of climate-related opportunities may establish an internal target for revenues associated with sales of the new products to gauge effectiveness.

d. Linking It All Together

Determining the financial impacts of climate-related risks and opportunities generally involves an organization assessing (1) its exposures, (2) its planned responses, and (3) its response effectiveness. Analyses should focus on the following:

- the exposure and potential financial impact if no action is undertaken and
- the financial implications of managing risks and maximizing opportunities in the context of an organization's overall business strategy and environment.

Forward-looking analyses are especially important, but challenging. Efforts to mitigate and adapt to climate change are without historical precedent, and many aspects about the timing and magnitude of climate change in specific contexts are uncertain. For these reasons, the Task Force believes scenario analysis is an important tool for organizations to use in their strategic planning processes. Scenario analysis and other strategic planning tools can help organizations consider a broader range of assumptions, uncertainties, and potential future states when assessing financial implications of climate change.

A.
Introduction

B.
Recommendations

C.
Guidance for All Sectors

D.
Supplemental Guidance for the Financial Sector

E.
Supplemental Guidance for Non-Financial Groups

F.
Fundamental Principles for Effective Disclosure

Appendices

5. Summary of Additional Supporting Materials

Since the Task Force issued its final recommendations in June 2017, it has monitored climate-related financial disclosure practices and sought to identify and address implementation challenges raised by preparers. In this regard, the Task Force has published guidance on specific topics intended to help address identified challenges and better support implementation, as described below.

The Use of Scenario Analysis in Disclosure of Climate-Related Risks and Opportunities (2017) provides information on types of climate-related scenarios, the application of scenario analysis, and the key challenges in implementing scenario analysis to support an organization's disclosure of the resilience of its strategy, taking into consideration different climate-related scenarios.[18]

Guidance on Scenario Analysis for Non-Financial Companies (2020) provides practical, process-oriented ways for organizations to use climate-related scenario analysis and ideas for disclosing the resilience of their strategies under different climate-related scenarios.[19]

Guidance on Risk Management Integration and Disclosure (2020) describes considerations for organizations interested in integrating climate-related risks into their existing risk management processes and disclosing information on their risk management processes in alignment with the Task Force's recommendations.[20]

Guidance on Metrics, Targets, and Transition Plans (2021) describes recent developments around climate-related metrics and users' increasing focus on information describing organizations' plans for transitioning to a low-carbon economy. The guidance also describes a set of cross-industry, climate-related metric categories (described in Appendix 2: Cross-Industry, Climate-Related Metric Categories) that the Task Force believes are applicable to all organizations.[21]

[18] TCFD, *The Use of Scenario Analysis in Disclosure of Climate-Related Risks and Opportunities*, June 29, 2017.
[19] TCFD, *Guidance on Scenario Analysis for Non-Financial Companies*, October 29, 2020.
[20] TCFD, *Guidance on Risk Management Integration and Disclosure*, October 29, 2020.
[21] TCFD, *Guidance on Metrics, Targets, and Transition Plans*, October 14, 2021.