Guidance on Climate-related Financial Disclosures 3.0

(TCFD Guidance 3.0)

TCFD

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TCFD Consortium

Foreword

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In Japan, there has been an increase in the momentum to respond to the TCFD Recommendations following the formulation of the TCFD Guidance by the Ministry of Economy, Trade and Industry (METI) in 2018. The TCFD Consortium was established under the initiative of the private sector in May 2019 with the cooperation of the government. Today, the number of TCFD supporting institutions in Japan is the largest in the world at 1,062, representing about 28% of the world's TCFD supporters. This trend has accelerated since the Corporate Governance Code was revised in 2021 to include TCFD disclosure.

At the TCFD Consortium, companies and investors engaged in information disclosure and its utilization activities based on the TCFD Recommendations have accumulated related discussions. Various initiatives have been undertaken to date, including the formulation and revision of Green Investment Guidance, the formulation of TCFD Guidance 2.0, a revised version of the first edition by METI, and co-hosting of the TCFD Summit hosted by METI. As a result, recognition of TCFD in Japan has increased, which led to an improvement in corporate disclosure as well as an increase in constructive engagement based on the information disclosed.

In light of the growing acceptance of TCFD in recent years, we have revised the TCFD Guidance 2.0 to be released as "TCFD Guidance 3.0" with an aim of increasing corporate value and increasing the activity of financial and capital markets through the effective use of TCFD, especially for companies considering disclosure in the future.

In TCFD Guidance 3.0, the commentary on TCFD disclosure has been thoroughly revised based on the results of the TCFD Consortium's discussions and the latest knowledge from publications from TCFD and others. In addition, the latest trends have been included as addendums. In order to improve in content as well as keeping it compact, the sector-specific recommended disclosures section is published in a separate volume. In addition, case examples will be presented separately based on the cases to be published this year.

As TCFD receives increased attention and disclosure standards based on TCFD is considered in the International Sustainability Standards Board (ISSB) , the Consortium, as the world's largest organization of TCFD sponsors, hopes to further support the disclosure and use of climate-related information in collaboration with the world.

Mary L. Schapiro

Vice Chair for Public Policy, Special Advisor to the Founder and Chairman, Bloomberg LP, and Secretariat of TCFD

The recent revision of the Corporate Governance Code in Japan has resulted in a significant increase in TCFD Supporters and Japanese companies committed to implementing TCFD Recommendations. Climate-related disclosure has only become more critical in the two years since the publication of the TCFD Guidance 2.0, particularly in light of continued fast-paced developments on climate and a global emphasis on transition finance and carbon neutrality commitments.

The TCFD Consortium has been at the forefront of helping companies put the TCFD Recommendations into practice. Its TCFD Guidance 3.0 strikes a unique balance between providing easy-to-understand instruction on how to begin the TCFD disclosure journey and describing the latest developments in climate-related disclosure, including the Task Force's recent work on metrics, targets, and transition plans. It is a valuable resource, especially for organizations that are in the process of improving their disclosures and communicating their actions to enhance sustainability and resilience on climate-related issues.

The TCFD Consortium has been exemplary in promoting climate-related disclosure to achieve greater transparency on climate in financial markets, and I would like to once again congratulate the Consortium for its publication.

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Chapter 1 Introduction

A. Background

In response to the Paris Agreement adopted in December 2015, there has been an increase in climate change mitigation and adaption activities worldwide. The financial industry has also been stepping up efforts to assess the potential impacts of climate change on its assets, given the substantial impacts climate change may have on the activities of the companies to which they provide financial solutions. Institutional investors that make long-term investments, such as pension funds and insurance companies, have become more conscious of environment, social and governance (ESG) elements, including climate change, as factors affecting the corporate risks and opportunities to be considered in their financial decisions. Worldwide ESG investments have doubled in the six years between 2014 and 2020[1]. The impact of COVID-19 from 2020 has shed light on social issues affecting employees, other stakeholders, etc., and thus has revealed the growing importance of ESG as a factor in investment decisions. The focus on an environment-friendly recovery has increased considerably and addressing climate change is regarded as a central issue.

On the other hand, the degree of corporate disclosure related to the potential impacts of climate change up to present has been inadequate. Financial institutions found it hard to understand climate-related risks and opportunities (hereinafter referred to as“climate-related issues”) in relation to the strategies and financial planning of companies. As a result, financial institutions were unable to make adequate decisions on investment, lending, and insurance underwriting, and there were concerns about the risk of financial instability in the event when asset values became volatile. Therefore, the G20 Finance Ministers and Central Bank Governors asked the Financial Stability Board (FSB) to review how the financial sector can take account of climate-related issues. At the review held in September 2015, the FSB identified a need for better information from companies to enable financial institutions to properly assess the financial impacts of climate-related issues on companies.

Following this, the FSB established the private sector-led Task Force on Climate-related Financial Disclosures (TCFD) in December 2015. The TCFD is composed of 32 members[2] from data users (mainly financial services companies and organizations), data preparers (mainly non-financial companies) and companies undertaking ESG evaluations such as rating agencies or consulting companies. In June 2017, following a consultation period of about eighteen months, TCFD published its Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures (hereinafter referred to as the “TCFD Recommendations”). The

[1] Global Sustainable Investment Alliance (GSIA) "Global Sustainable Investment Review 2016" (http://www.gsi-alliance.org/members-resources/trends-report-2016/) and “Global Sustainable Investment Review 2020（http://www.gsi-alliance.org/wp-content/uploads/2021/08/GSIR-20201.pdf）

[2] 31 members as of September 2022.

TCFD Recommendations provide a framework for the voluntary disclosure of climate-related risks.

The situation surrounding the disclosure and use of climate-related information has evolved significantly since the publication of the TCFD Recommendations. As of September 2022, more than 3,800 organizations have expressed their support for the TCFD Recommendations, up from 102 organizations at the time of the publication of the TCFD Recommendations. According to the TCFD Status Report released by TCFD in October 2021[3], the average disclosure rate across all 11 recommended disclosures of TCFD in the 2020 corporate reports of TCFD-supporting companies was 32%, a significant increase from 19% in 2018. On the other hand, it was found that there were differences in the degree of disclosure according to disclosure items, sector, and region.

The response to TCFD Recommendations is rapidly progressing in Japan. When the TCFD Recommendations were first published, the United States and United Kingdom were ahead in the number of organizations supporting TCFD. Since then, however, momentum in the number of company responses to the TCFD Recommendations have gradually increased in Japan, leading to the establishment of the TCFD Consortium in May 2019. The number of organizations in Japan supporting the TCFD Recommendations reached 164 when the consortium was established, putting Japan at the forefront in TCFD support. The number of Japanese supporters has steadily increased since. As of present, there are 1,062 Japanese supporters of TCFD Recommendations, making up about 28% of the total number of supporting organizations worldwide. A significant factor is the publication of the revised Corporate Governance Code in June 2021, which stated that companies listed on the Prime Market should "enhance the quality and quantity of disclosure based on the TCFD recommendations...or an equivalent framework".

In addition to supporting TCFD, there has been significant progress in information disclosure through TCFD-related efforts. Many companies have begun disclosing during the period up to 2020[4], and the number of Japanese companies responding to the CDP is 71% in 2021, far above world average (47%). The number of Japanese companies listed on the CDP A list, an index of the most advanced companies in environmental information disclosure and performance, reached 56 among a total of 200, the highest in the world. These confirms that information disclosure has improved in terms of substance.[5]

As described above, quality and quantity of responses to TCFD Recommendations taken by Japanese companies have improved. As of April 2022, there are 1,839 companies listed on the Prime Market. As financial institutions including banks make increased efforts to reduce emissions from assets held or managed, loans, etc., similar efforts are being requested to mid-

[3] Task Force on Climate-related Financial Disclosures: 2021 Status Report

[4] About 80% of the respondents to the TCFD Consortium's FY2020 TCFD Consortium Member Survey (https://tcfd-consortium.jp/en/news_detail/20081202) expressed intention to disclose by 2020.

[5] CDP Climate Change Report Japan (https://japan.cdp.net/)

cap companies, SMEs and unlisted companies. Further progress in corporate climate-related information disclosure is expected in the future, with the IFRS Foundation which establishes the International Financial Reporting Standards (IFRS) considering detailed disclosure requirements based on TCFD.

B. Purpose of Developing this Guidance

(1) History of Developing the Guidance

In order to achieve the goals under the Paris Agreement[6], fostering discontinuous innovation which is not merely an extension of existing efforts will be essential. To that end, it will be necessary to establish a "virtuous cycle of environment and growth" where a) companies visualize their efforts to create innovation in order to make them clear to their investors and other stakeholders[7], b) investors and other stakeholders undertake constructive dialogue (engagement) with companies based on such disclosed information and support their efforts toward decarbonization. c) investors and other stakeholders appropriately provide finances to companies whose efforts towards decarbonization is confirmed through engagement, d) companies achieve growth through realization of innovation, and e) the profits generated are distributed to investors and other stakeholders, and are re-invested in further innovation.

In the early stages, discussions related to climate-related information disclosure have been conducted mainly by the financial authorities and entities within the financial industry, and viewpoints of non-financial companies were not adequately reflected. Considering that many companies are currently affected by climate change, companies must recognize how climate change affects their business activities and will potentially impact them financially, and communicate relevant information to investors and other stakeholders to get them to understand the impacts, if climate change is deemed to have material impacts on their business models. At the same time, by explaining how their production activities, products and services contribute to the resolution of climate change issues, and how that contribution drives their growth, companies can show investors and other stakeholders that they can expand sustainably even while being impacted by climate change.

In order to realize the "virtuous cycle of environment and growth," companies must interact with their investors and other stakeholders not just by responding to their requests, but also by actively communicating their strengths and repeatedly holding constructive dialogues with them to deepen their mutual understanding.

As mentioned above, the TCFD Recommendations are deemed to be a useful set of tools for dialogue between companies and investors and other stakeholders since it is an international framework originated by the G20, and there has been a gradual trend to integrate them into global frameworks for corporate evaluation and national and regional institutions. From the viewpoint of disclosing companies, meanwhile, there are several issues which require further examination, such as ways to determine the medium of disclosure, scenario analysis, and the

[6] In December 2015, nearly 200 governments agreed under the Paris Agreement to step up the global response to the threat of climate change by "Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels."

[7] "investors and other stakeholders" refer to investors, lenders, insurance companies, and other users of climate-related financial disclosures, here and hereinafter in this Guidance

methods for incorporating the characteristics of each business. Hence, some companies have found it difficult to promote disclosures just by referring to the TCFD Recommendations.

Under this backdrop, METI established the "Study Group on Implementing the TCFD Recommendations for Mobilizing Green Finance through Proactive Corporate Disclosures" (hereinafter referred to as the "TCFD Study Group") in August 2018[8]. Following the discussion in the TCFD Study Group, METI has published in December 2018 the first edition of the Guidance on Climate-related Financial Disclosures (hereinafter referred to as "TCFD Guidance", which provided guidance on disclosure aligned with TCFD Recommendations, as well as useful examples and viewpoints which reflected industry-specific efforts. At the time of publication, global implementation of the TCFD Recommendations has only begun. Therefore, it was anticipated that the accrual of company disclosures and investor feedback in response is expected to shed light on the ways forward to better disclosure.

Since the publication of the TCFD Guidance, there has been a significant increase in the number of TCFD supporters in Japan, as well as a considerable improvement in the substance of the information disclosed. Under these circumstances, the importance of reflecting the latest knowledge on TCFD to both companies as well as investors and other stakeholders was reaffirmed, as well as the importance of promoting TCFD disclosure to a wider range of industries in order to foster dialogue with domestic and foreign investors by publicizing the efforts of Japanese companies internationally and to lead to appropriate evaluations. Following these developments, the TCFD Consortium, an entity established in May 2019 which builds upon the activities of the TCFD Study Group, has become a hub for accumulating knowledge through discussions between companies and investors and other stakeholders. In July 2020, the TCFD Consortium published TCFD Guidance 2.0,[9] reflecting the latest knowledge gained since the first edition of the TCFD Guidance, as well as adding industry disclosure recommendations, and expanding disclosure examples in Japan and overseas.

(2) Purpose of revising the Guidance

As mentioned above, support for the TCFD and disclosure of climate-related information in accordance with the TCFD Recommendations have become a global trend, and Japan is in a leading position. On the other hand, the need for climate change measures became even more urgent after then Prime Minister Suga proposed a carbon neutrality target in October 2020. Furthermore, in the revision of the Corporate Governance Code in June 2021,[10] TCFD-aligned

[8] Information on TCFD Study Group can be obtained from https://www.meti.go.jp/policy/energy_environment/global_warming/tcfd_study_group.html (in Japanese)
[9] https://tcfd-consortium.jp/en/news_detail/20081201
[10] The Corporate Governance Code, published by the Tokyo Stock Exchange in 2015, is a set of key principles that contribute to the realization of effective corporate governance. The Corporate Governance Code was first revised in 2018 to include the disclosure of information on ESG factors by companies. In the subsequent revision in 2021, the Supplementary Principles state that companies "enhance the quality and quantity of disclosure based on the TCFD recommendations… or an equivalent framework". (https://www.jpx.co.jp/english/news/1020/20210611-01.html)

disclosure by companies listed on the Prime Market is described in the Supplementary Principle.

Supplementary Principle 3.1.3 Companies should appropriately disclose their initiatives on sustainability when disclosing their management strategies. They should also provide information on investments in human capital and intellectual properties in an understandable and specific manner, while being conscious of the consistency with their own management strategies and issues. In particular, companies listed on the Prime Market should collect and analyze the necessary data on the impact of climate change-related risks and earning opportunities on their business activities and profits, and enhance the quality and quantity of disclosure based on the TCFD recommendations, which are an internationally well-established disclosure framework, or an equivalent framework.

Following these developments, it has become necessary for companies that were previously thought to have little to do with climate change to analyze the impact of climate change, and to disclose the outcome of such analysis according to TCFD Recommendations.

This guidance was revised from the perspective of the disclosing companies. In 2020 and 2021, the TCFD issued a series of new guidance documents[11] that detailed the state-of-the-art issues in disclosure. Therefore, companies that are already well on their way to enhance their TCFD disclosure should refer to such publications. On the other hand, for a large number of companies that are new to disclosure according to TCFD Recommendations, these guidance may contain issues that should be dealt with in the future and not in the initial year of disclosure.

In light of the above, this guidance has been revised to primarily target companies that are in the process of expanding their disclosure efforts in line with TCFD Recommendations. In addition, in order to improve readability by making the entire volume compact, the “Sector-specific Recommended Disclosures” and the collection of case examples are published in separate volumes.[12]

[11] “Guidance on Scenario Analysis for Non-financial Companies, Guidance on Risk Management Integration and Disclosure, Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, and Guidance on Metrics, Targets, and Transition Plans. For these, please refer to the TCFD home page (https://www.fsb-tcfd.org/publications/). The TCFD Consortium and the Sustainability Forum Japan have translated the "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures" and "Guidance on Metrics, Targets, and Transition Plans" into Japanese (https://tcfd-consortium.jp/news_detail/22042801)

[12] A collection of case examples is scheduled for publication by March 2023.

C. Where this Guidance Stands

(1) Overall Picture of the TCFD Recommendations and Annex

The TCFD Recommendations as described in Figure 1 present general recommendations, as well as recommended disclosures and commentaries structured around the four thematic areas of Governance, Strategy, Risk Management, and Metrics and Targets. The TCFD has published the "Final Recommendations" and "Implementing the Recommendations of the Task Force on Climate related Financial Disclosures" (hereinafter Annex). Furthermore, the TCFD has published guidance documents on Risk Management, Scenario Analysis, and Metrics, Targets and Transition Plans.

Figure 1 Core Elements of Recommended Climate-related Financial Disclosures

Source: TCFD, 2021. Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, p. 14.

Supplemental Guidance for Financial Sector and Non-Financial Groups

	Industries and Groups	Governance a)	Governance b)	Strategy a)	Strategy b)	Strategy c)	Risk Management a)	Risk Management b)	Risk Management c)	Metrics and Targets a)	Metrics and Targets b)	Metrics and Targets c)
Financial	Banks			■			■			■	■	
Financial	Insurance Companies				■	■	■	■		■	■	
Financial	Asset Owners				■	■	■	■		■	■	
Financial	Asset Managers				■		■	■		■	■	
Non-Financial	Energy				■	■				■		
Non-Financial	Transportation				■	■				■		
Non-Financial	Materials and Buildings				■	■				■		
Non-Financial	Ag, Food, and Forest Products				■	■				■		

Figure 2 Supplemental Guidance for Financial Sector and Non-Financial Groups

Source: TCFD, 2021. Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, p. 7.

(2) Relationship between this Guidance and the TCFD Recommendations and Annex

This Guidance consists of four chapters. Chapter 1 describes the background leading up to the launch of TCFD's activities, the purpose of developing this Guidance, and the relationship between this Guidance and the TCFD Recommendations as well as its Annex. Chapter 2 analyzes and provides commentaries on questions raised on the TCFD Recommendations and Annex as well as provide concise descriptions relating to the four themes of TCFD, with an aim to support corporate disclosure. In the revised Guidance, a more detailed description on the latest publications by the TCFD is provided in the addendums in chapter 4.

The content of this Guidance is intended to simply describe the content of the TCFD Recommendations and its Annex and does not deviate from or exceed the contents provided in the publications by the TCFD.

Chapter 2 Commentaries on Disclosures in Accordance with the TCFD Recommendations

A. Introduction

In revising the Guidance, the TCFD Consortium identified issues related to information disclosure through questionnaires to Consortium members, activities such as Working Groups, and discussions at Roundtables. This chapter is a commentary on the issues identified as above, including commentary based on the discussions at the time of formulation of the TCFD Recommendations, information required and opinions by financial companies. Commentaries are provided on questions on the following topics in the order described in the TCFD Recommendations:

i) Medium of disclosure (See Section B.)
ii) Four themes of TCFD Recommendations (See Sections C to F.)
iii) Disclosure methods for companies with diverse business models (See Section G.)
iv) Steps for implementing the TCFD Recommendations by mid-cap and small- and medium-sized companies (See Section H.)

B. Medium of Disclosure

The TCFD recommends that "preparers of climate-related financial disclosures provide such disclosures in their mainstream (i.e., public) annual financial filings[13]."

[13] Financial filings refer to the annual reporting packages in which organizations are required to deliver their audited financial results under the corporate, compliance, or securities laws of the jurisdictions in which they operate. (Excerpts from TCFD, 2021, Annex: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures).

3. Application of Recommendations

b. Which recommendations involve an assessment of materiality?

The disclosures related to the Strategy and Metrics and Targets recommendations involve an assessment of materiality, with the exception of Scope 1 and Scope 2 GHG emissions under the Metrics and Targets recommendation. The Task Force believes all organizations should disclose absolute Scope 1 and Scope 2 GHG emissions independent of a materiality assessment. The disclosure of Scope 3 GHG emissions is subject to materiality; however, the Task Force encourages organizations to disclose such emissions.

c. Where should preparers disclose?

Preparers of climate-related financial disclosures should provide such disclosures in their mainstream (i.e., public) annual financial filings.[10] Certain organizations—those in the four non-financial groups that have more than one billion U.S. dollar equivalent (USDE) in annual revenue—should consider disclosing information related to the Strategy and Metrics and Targets recommendations in other reports when the information is not deemed material and not included in financial filings.[11] Other reports include official company reports that are issued at least annually, widely distributed and available to investors and others, and subject to internal governance processes that are the same or substantially similar to those used for financial reporting.

Original footnote 10: Financial filings refer to the annual reporting packages in which organizations are required to deliver their audited financial results under the corporate, compliance, or securities laws of the jurisdictions in which they operate.

Original footnote 11: The Task Force chose a one billion USDE annual revenue threshold because it captures organizations responsible for over 90 percent of Scope 1 and 2 GHG emissions in the industries represented by the four non-financial groups (about 2,250 organizations out of roughly 15,000).

Source: TCFD, 2021. Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, P. 7-8. “Organization” in TCFD recommendation refers to company or group etc. for which consolidated financial statements are prepared.

Among the four thematic areas, the TCFD Recommendations stipulate that it is desirable for all companies to provide disclosures on to Governance and Risk Management in their financial filings, as described above.[14] The reason for recommending disclosure to all companies is because many investors and other stakeholders believe that almost all industries are potentially exposed to the impacts of climate change. Furthermore, TCFD recommends the disclosure to be included in financial filings because financial filings are the information

[14] In 2021, the TCFD updated its Annex to recommend that all companies also disclose Scope 1 and Scope 2 GHG emissions.”

resource most frequently referenced by investors and other stakeholders and subject to internal governance practices.

The TCFD Recommendations also states that organizations should provide information on Strategy and Metrics and Targets in annual financial filings when they are deemed material. Furthermore, it is recommended that large companies[15] disclose such information in other reports even when the information is not deemed material, since these organizations are more likely than others to be financially impacted over time.

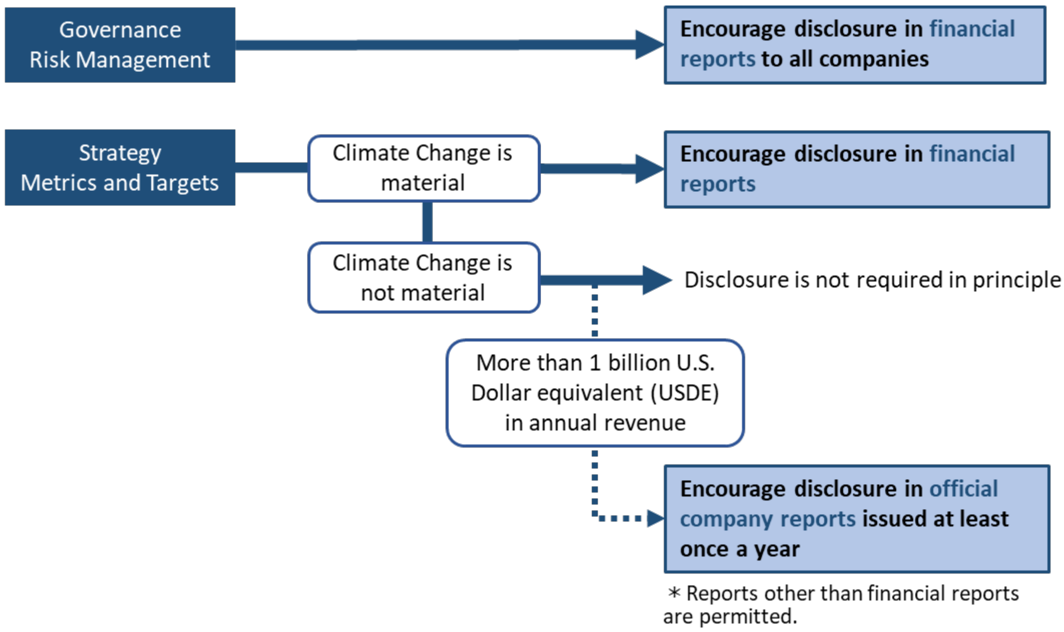

Figure 3 Recommended disclosure medium in the TCFD Recommendations

The Annex states as follows with respect to disclosure medium.

> Certain organizations—those in the four non-financial groups that have more than one billion U.S. dollar equivalent (USDE) in annual revenue—should consider disclosing information related to the Strategy and Metrics and Targets recommendations in other reports when the information is not deemed material and not included in financial filings. Other reports include official company reports that are issued at least annually, widely distributed and available to investors and others, and subject to internal governance processes that are the same or substantially similar to those used for financial reporting.[16]

The above is an explanation of the medium of financial disclosure in the TCFD Recommendations. Note that the scenarios analysis as described in c) under Strategy in the TCFD Recommendations is defined as "process for identifying and assessing a potential range

[15] Companies in the four non-financial groups that have more than one billion U.S. dollar equivalent (USDE)

[16] TCFD, 2021, Annex: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, pp.7-8.

of outcomes of future events under conditions of uncertainty."[17] A major issue yet to be determined is whether such information based on an uncertain and long-term outlook should be included in financial filings. In Japan, financial reports subject to statutory disclosure fall under the category of securities reports. However, since there are penalties for false statements in securities reports, there are views that they are not appropriate as a medium for describing long-term risks and opportunities related to climate change, which involve uncertainty. On the other hand, though the extent of disclosure varies according to items,[18] there is an increasing trend in the number of companies undertaking disclosure in line with TCFD Recommendations in securities reports.[19] Furthermore, following the Working Group on Corporate Disclosure of the Financial System Council,[20] the Financial Services Agency has decided to include in securities reports a place to describe sustainability-related information such as climate change related efforts.

Disclosure in accordance with the TCFD Recommendations is still evolving at this point. Disclosure practices for effective information provision to investors and other stakeholders is expected be refined with the accumulation of case examples. At present, there are various disclosure mediums besides financial filings, such as integrated reports and sustainability reports. For this reason, companies will need to appropriately combine such reports in order to effectively provide information to investors and other stakeholders. Several examples of disclosure mediums other than financial filings are described below.

1. Integrated reports, annual reports[21]

These are reports produced on a voluntary basis which compile both corporate financial information and non-financial information, including sustainability-related information. The available guidelines for integrated reports include the "Guidance for Collaborative Value Creation" developed by METI, and the "International Integrated Reporting Framework" formulated by IIRC.[22]

2. Environmental report, sustainability report, CSR report, etc.

These are reports disclosing of non-financial information, including details on an entity's efforts towards realizing a sustainable society. As sustainability reporting guidelines, a set of GRI Standards developed by GRI are available.

According to the TCFD Consortium's questionnaire survey of member companies, financial

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[17] TCFD, 2021, Annex: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, p.83.
[18] See e.g., p.10 of Japan Exchange Group, Inc., 2021. Survey of TCFD Disclosure in Japan (https://www.jpx.co.jp/english/corporate/news/news-releases/0090/b5b4pj000004jllw-att/TCFDsurveyEN.pdf
[19] See e.g., TCFD Consortium, 2021. FY2021 TCFD Consortium Member Survey Result, (https://tcfd-consortium.jp/en/news_detail/20081202) p.4.
[20] An English summary of the report is available at: https://www.fsa.go.jp/singi/singi_kinyu/tosin/20220613/03.pdf.
[21] In Japan, the term "annual report" describes a voluntary disclosure report. Overseas, however, this term sometimes describes statutory disclosure documents, as in the case of the "Annual Report and Accounts" in the U.K.
[22] In June 2021, the International Integrated Reporting Council (IIRC) merged with the Sustainability Accounting Standards Board (SASB) to form the Value Reporting Foundation (VRF) which was later consolidated with the IFRS Foundation.

institutions obtain information from multiple media, such as corporate websites, environmental reports, and sustainability reports, in addition to integrated reports (Figure 4).

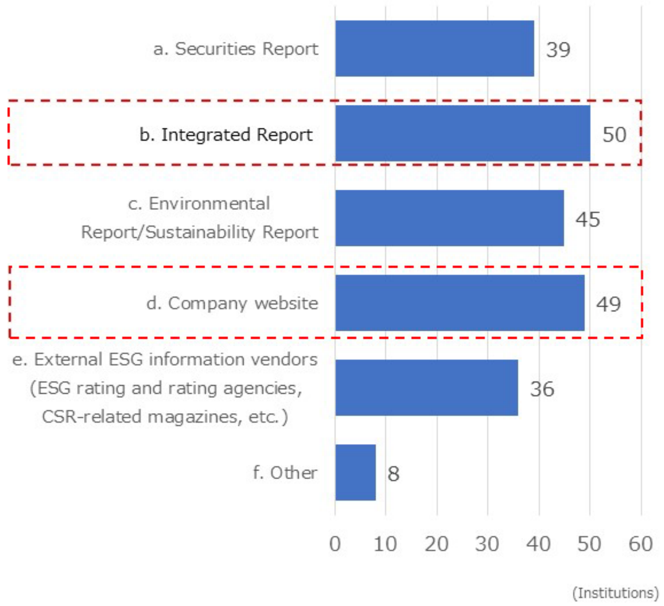

Figure 4 Media Used by Financial Institutions Use to Obtain Information on investee companies (total respondents: 57)

Source: TCFD Consortium, 2021, FY2021 TCFD Consortium Member Survey Result

The TCFD Recommendations do not present a specific format for climate-related disclosure. When a company discloses information in financial filings, integrated reports, sustainability report, or the like, a key step is to demonstrate the relationship between the information disclosed in these reports and the recommended structure of disclosures presented by the TCFD recommendations. According to a survey conducted by the TCFD Consortium in 2021, climate-related information is often disclosed through multiple media (Figure 5). While there is a continuing trend to use integrated reports, sustainability reports, and corporate websites as the primary disclosure medium, the number of non-financial institutions that chose securities reports as the disclosure medium based on the TCFD has increased from 9 to 19.

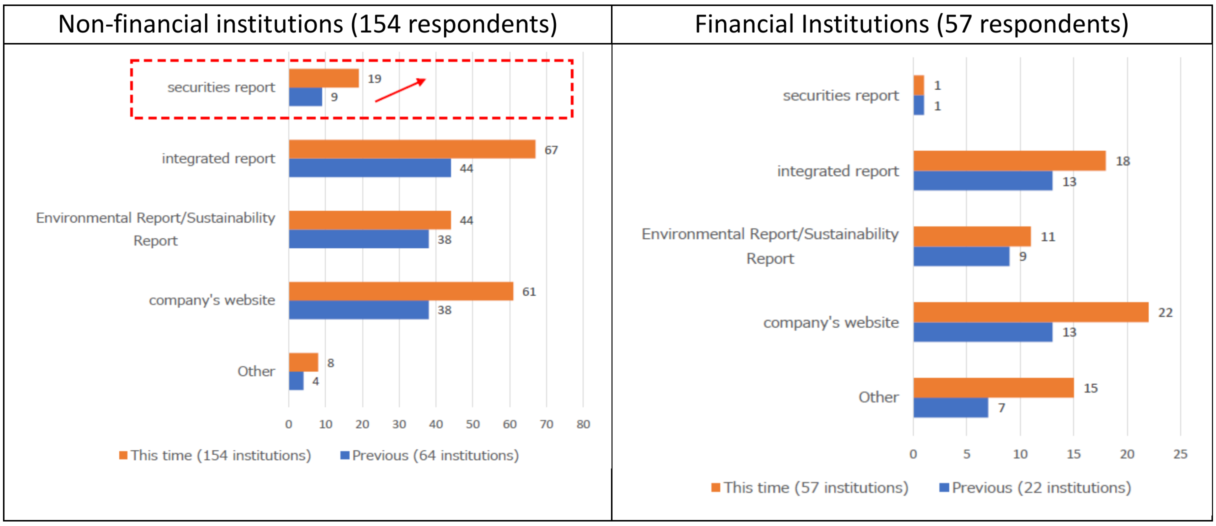

Figure 5 The medium in which the information according to TCFD recommendations are disclosed

Source: TCFD Consortium, 2021, FY2021 TCFD Consortium Member Survey Result

As shown above, the choice of disclosure media is left to the inventiveness of each company. On the other hand, integrated reports and corporate websites are the main sources of obtaining disclosure information by financial institutions (See Figure 4 above). Since disclosure according to TCFD Recommendations is intended to present the future of companies through responses to climate change, the view shared by financial institutions is that disclosure in integrated reports is appropriate.

In the integrated reports, efforts have been made to include a correspondence table with each item of the TCFD Recommendations and to explain the status of the responses according to the structure of the TCFD Recommendations. As other measures, data that are too detailed to be included in the integrated reports may be disclosed in the sustainability reports, and updated data may be disclosed on the website and referred to from the integrated reports.

C. Governance

The TCFD Recommendations recommend the following disclosures under Governance.

Governance: Disclose the organization's governance around climate-related risks and opportunities.	
Recommended Disclosure a) Describe the board's oversight of climate related risks and opportunities.	<u>Guidance for All Sectors</u> In describing the board's oversight of climate-related issues, organizations should consider including a discussion of the following: ・ processes and frequency by which the board and/ or board committees (e.g. audit, risk, or other committees) are informed about climate-related issues. ・ whether the board and / or committees consider climate-related issues when reviewing and guiding strategy, major plans of action, risk management policies, annual budgets, and business plans as well as setting the organization's performance objectives, monitoring implementation and performance, and overseeing major capital expenditures, acquisitions, and divestitures; and ・ how the board monitors and oversees progress against goals and targets for addressing climate-related issues
Recommended Disclosure b) Describe management's role in assessing and managing climate-related risks and opportunities	<u>Guidance for All Sectors</u> In describing management's role related to the assessment and management of climate-related issues, organizations should consider including the following information: ・ whether the organization has assigned climate-related responsibilities to management-level positions or committees; and, if so, whether such management positions or committees report to the board or a committee of the board and whether those responsibilities include assessing and / or managing climate-related issues ・ a description of the associated organizational structure(s) ・ processes by which management is informed about climate-related issues; and ・ how management (through specific positions and / or management committees) monitors climate-related issues

Source: TCFD, 2021, Annex: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, p.17.

As issues of interest to investors and other stakeholders, the TCFD Recommendations mention the role of the board in providing oversight on the response to climate change, and the role of management in assessing and managing the risks and opportunities of climate change. One way to respond is to establish the organizational structure including the positioning and roles of the Environmental Committee and the Sustainability Committee headed by the Board of Directors and the top management, and to disclose them. In addition, it is important to show the effectiveness of the organizational structure through demonstrating how discussions on climate change are conducted and whether such discussions are reflected in management. This can be done by disclosing the climate-specific roles and responsibilities of the constituting bodies and the management, as well as the process on how the discussion is reflected in the management.

These are not only useful as general information on corporate governance, but are also relatively straightforward to establish as disclosures based on TCFD Recommendations. Many companies present a flow diagram of a structure that includes a board of directors, management, and related committees.

D. Strategy

The TCFD Recommendations recommend the following disclosures under Strategy.

Strategy: Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.	
Recommended Disclosure a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	Guidance for All Sectors Organizations should provide the following information: ・ a description of what they consider to be the relevant short-, medium-, and long- term time horizons, taking into consideration the useful life of the organization's assets or infrastructure and the fact climate-relate issues often manifest themselves over the medium and longer terms; ・ a description of the specific climate-related issues potentially arising in each time horizon (short, medium, and long term) that could have a material financial impact on the organization; and ・ a description of the process(es) used to determine which risks and opportunities could have a material financial impact on the organization. Organizations should consider providing a description of their risks and opportunities by sector and/or geography, as appropriate.
Recommended Disclosure b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	Guidance for All Sectors Building on recommended disclosure (a), organizations should discuss how identified climate-related issues have affected their businesses, strategy, and financial planning. Organizations should consider including the impact on their businesses and strategy in the following areas: ・ Products and services ・ Supply chain and/or value chain ・ Adaptation and mitigation activities ・ Investment in research and development ・ Operations (including types of operations and location of facilities) ・ Acquisitions or divestments ・ Access to capital Organizations should describe how climate-related issues serve as an input to their financial planning process, the time period(s) used, and how these risks and opportunities are prioritized.

	Organizations' disclosures should reflect a holistic picture of the interdependencies among the factors that affect their ability to create value over time. Organizations should describe the impact of climate-related issues on their financial performance (e.g., revenues, costs) and financial position (e.g., assets, liabilities).[24] If climate-related scenarios were used to inform the organization's strategy and financial planning, such scenarios should be described. Organizations that have made GHG emissions reduction commitments, operate in jurisdictions that have made such commitments, or have agreed to meet investor expectations regarding GHG emissions reductions should describe their plans for transitioning to a low-carbon economy, which could include GHG emissions targets and specific activities intended to reduce GHG emissions in their operations and value chain or to otherwise support the transition.[25]
Recommended Disclosure c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2 °C or lower scenario.	<u>Guidance for All Sectors</u> Organizations should describe how resilient their strategies are to climate related risks and opportunities, taking into consideration a transition to a lower-carbon economy consistent with a 2 °C or lower scenario and, where relevant to the organization, scenarios consistent with increased physical climate-related risks.[26] Organizations should consider discussing: ・ where they believe their strategies may be affected by climate-related risks and opportunities; ・ how their strategies might change to address such potential risks and opportunities; ・ the potential impact of climate-related issues on financial performance (e.g., revenues, costs) and financial position (e.g., assets, liabilities);[27] and ・ the climate-related scenarios and associated time horizon(s) considered

Original footnote 24: These impacts may be described in qualitative, quantitative, or a combination of both qualitative and quantitative terms. The Task Force encourages organizations to include quantitative information, where data and methodologies allow.

Original footnote 25: Organizations may agree to meet investor expectations regarding GHG emissions reductions for various reasons, including concerns about access to or the cost of capital if they fail to do so.

> Original footnote 26: In interpreting the phrase "2°C or lower," organizations should consider aligning their scenario analysis with Article Two of the 2015 Paris Agreement which commits parties to "holding the increasing in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels."
>
> Original footnote 27: These impacts may be described in qualitative, quantitative, or a combination of both qualitative and quantitative terms. The Task Force encourages organizations to include quantitative information, where data and methodologies allow.
>
> Source: TCFD, 2021, Annex: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, pp. 18-19.

As regards the relationship between a) and b) in the above guidance, recommended disclosure a) requires organizations to identify short-, medium-, and long-term risks and opportunities (regardless of whether or not a scenario analysis is conducted), while recommended disclosure b) requires organizations to explain the impacts of climate-related issues on businesses, strategies, and financial planning based on such risks and opportunities. Also, the scenario analysis in recommended disclosure c) also includes elements of recommended disclosures a) and b).

Important points at issue for recommended disclosures a), b), and c) are respectively explained below.

(1) Recommended disclosure a)

The TCFD's recommended disclosure a) under Strategy encourages organizations to explain specific climate-related issues that would have material financial impacts in short-, medium-, and long-term time frames. For specific context on short-, medium- and long-term time frames, TCFD provides the following guidance.

> **How should preparers define short, medium, and long term?**
>
> The Task Force is not specifying time frames for short, medium, and long term given that the timing of climate-related impacts on businesses will vary. Instead, the Task Force recommends preparers define time frames according to the life of their assets, the profile of the climate-related risks they face, and the sectors and geographies in which they operate.[12]
>
> Original footnote 12: 2030 and 2050 have become key target dates for addressing climate change following the publication of the *Special Report on Global Warming of 1.5°C* by the Intergovernmental Panel on Climate Change (IPCC). This report noted that to limit global warming to 1.5°C "global net human-caused emissions of carbon dioxide (CO_2) would need to fall by about 45 percent from 2010 levels by 2030, reaching 'net zero' around 2050."
>
> Source: TCFD, 2021, Annex: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, p.8.

As stated above, what is appropriate time frame depends on the climate-related risks and opportunities that are expected to have impact. The physical risks posed by climate change and the innovations on low-carbon technologies, on the other hand, encompass issues that will take much longer to address than is envisaged within the time frames envisaged in the operating and financial plans or strategic and capital plans.

Against this backdrop, the IPCC Special Report on 1.5 °C indicated the need to reduce global anthropogenic CO_2 emissions to net zero around 2050 in order to prevent future temperature increases from exceeding 1.5 °C. The year 2050 has become a focus of attention as a milestone for long-term climate change measures, and therefore the target year for long-term plans of many countries. Furthermore, many countries including Japan have set 2030 as the target year based on the Paris Agreement, and it is expected that measures that are much more advanced than present levels will be taken to mitigate climate change. In this way, 2030 can be considered as a timeline that shows the midpoint of where the world wants to be in 2050. On the other hand, countries, regions, and industries can take divergent paths toward carbon neutrality in terms of cost and technology. For example, it may be possible to envision a future in which emissions will be substantially reduced after 2030. In such a case, however, it is desirable that the transition from 2030 to 2050 should be described as specifically as possible.

The above are mainly matters regarding transition risks. As the transition to carbon neutrality is expected to bring about major changes in corporate strategies, many Japanese companies currently focus on transition risks. It should be noted, however, that it is desirable for companies that aim to appeal to overseas investors to enhance their descriptions of the physical risks expected to their siting in Japan, due to worldwide perception of the high occurrence of natural disasters. Therefore, it is effective to consider cases where sufficient measures against climate change are not taken, such as the "4 °C scenario". Examples of corporate efforts to reduce physical risk include evaluating impacts on corporate activities and implementing countermeasures by making use of information on natural disasters issued by public institutions (e.g., hazard maps).[23]

Existing publication and data to be referred to in establishing such a long-term time frame may include, for example, information on scenarios such as the International Energy Agency (IEA) for transition risks (See **Reference 1**), or information on physical risks such as those by international organizations that consider the impacts by industry and region (See **Reference 2**).

[23] TCFD Consortium, 2021, Green Investment Guidance 2.0 p.18 footnote 20.

Reference 1: Overview of available IEA scenarios that can be used when assessing transition risk

- IEA World Energy Outlook (WEO): The World Energy Outlook is IEA's annual long-term energy-related forecast and flagship report. WEO 2021, the most recent issue as of the publication of this Guidance, forecasts energy consumption by sector, and energy source through 2050. There are four scenarios: Stated Policies Scenario, Sustainable Development Scenario, Announced Pledges Scenario and Net Zero Scenario. In the Net Zero Scenario, whose emission is the lowest, energy-related CO2 emissions would become net zero in 2050. The IEA has also published Energy Technology Perspectives (ETP), which focus on individual energy technologies. The latest at the time of publication of this guidance was in September 2020.

Reference 2: Information on scenarios that can be used when assessing physical risk

- "Advancing TCFD Guidance on Physical Climate Risks and Opportunities,"24 published by the European Bank for Reconstruction and Development (EBRD) in 2018, examines indicators related to physical risks and resilience (opportunities) and assesses physical risks such as extreme rainfall, floods, and sea level rises at three levels according to industries.

(2) Recommended disclosure b)

The TCFD's recommended disclosure b) under Strategy encourages organizations to explain the implications of climate-related issues for their businesses, strategies, and financial planning. The following seven areas of business and strategy should be considered.[25]

- Products and services
- Supply chain and/or value chain
- Adaptation and mitigation activities
- Investment in research and development
- Operations (including types of operations and location of facilities)
- Acquisitions or divestments
- Access to capital

In addition, the 2021 update to the Annex also includes planning for transition to a low-carbon economy (transition plan) as recommended disclosure item under certain conditions. This section describes the transition plans that have become increasingly important in recent years, as well as R & D-related investments that were of high interest when this guidance was first published.

[24] The document can be downloaded from https://www.physicalclimaterisk.com/index.html.
[25] Of these, "acquisitions or divestments" and "access to capital" were newly included in the 2021 revision of the "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures"

a) Disclosure of transition plans

Many countries have set targets based on the Paris Agreement and have raised their ambitions with targets including carbon neutrality targets. Also, many companies have set emission reduction targets based on their own or existing initiatives such as the Science-Based Targets initiative (SBTi), which are also being raised from 2 °C to 1.5 °C or “net zero” targets. Under these circumstances, it is important for companies to show how they will reach future targets that are often far from the status quo, and to obtain financing as needed.

At the same time, financial institutions are increasingly required to reduce emissions associated with their investment and loan portfolios. Against this backdrop, an increasing number of financial institutions are of the view that conducting dialogue (engagement) with investees and recipients of loans, supporting them to achieve targets while addressing transition risks will lead to an increase in corporate value over the long term. Under these circumstances, companies that made their own GHG emission reduction commitments or operate in countries with emission reduction targets are requested to disclose their plans for transitioning to a low-carbon economy (transition plans), in an effort to effectively utilize such engagement.

As regards ways to disclose transition plans, the Financial Services Agency, the Ministry of Economy, Trade and Industry, and the Ministry of the Environment formulated the “Basic Guidelines on Climate Transition Finance” in May 2021.[26] Furthermore. TCFD has published "Guidance on Metrics, Targets, and Transition Plans" in October 2021.[27] The former describes the elements of recommended disclosure for the purpose of obtaining financing (such as bond issuance, bank loans) for transition, and the latter describes the elements of disclosure for transition plan recommended as part of the company's climate-related information disclosure. Since disclosure of transition strategies, etc. by fund raisers is important in transition finance, it is anticipated that proactive disclosure of information according to the TCFD Recommendations will lead to the acquisition of such funds.

b) Disclosure of investments in research and development

As regards investments in research and development in recommended disclosures b), recent guidance documents indicate that opportunities, as well as risks, are important for climate-related information[28][29]. The “Green Investment Guidance” states that innovation, including R&D is an important part of company efforts to take advantage of climate-related opportunities, and describes the importance of understanding and evaluation of innovation by investors and other stakeholders.

[26] METI website (https://www.meti.go.jp/english/press/2021/0507_001.html)
[27] TCFD, 2021, Guidance on Metrics, Targets, and Transition Plans
[28] "Whilst many investors are considering climate-related issues predominantly through a risk lens, they also want to understand opportunities." (FRC, 2019, Climate-related corporate reporting – Where to next? P.13)
[29] "Companies that invest in reducing their carbon emissions and in capitalizing on opposites presented by the transition will strengthen their position." (WBCSD TCFD Chemical Sector Preparation Forum, 2019, Climate-related financial disclosure by chemical sector companies: Implementing the TCFD recommendations, P.9)

When discussing investment in research and development, companies should describe why such research and development activities are necessary in relation to the future risks and opportunities they have identified. In particular, companies should proactively describe their efforts when investing in research and development activities that contribute significantly to GHG emission reductions, such as efforts for energy-efficiency and the effective utilization of CO_2 emitted. Another important aspect from the perspective of addressing physical risks is research and development focused on issues such as business continuity in times of extreme weather events (e.g., maintaining supply chains, ensuring stable supply of energy), stable procurement of water, stable supply of food, and so on.

When disclosing specific research and development activities, companies should describe the total spending on research and development activities, budget allocations by research topic, outcomes achieved through the commercialization of such technologies (e.g., contribution to revenues, reduction of CO_2 emissions), and the relationships between research and development activities and the outcomes. Disclosing such information will help clarify the significance of research and development in companies, and as a result, investors will be able to understand the long-term strategy of companies and the direction of initiatives geared toward innovation.

For basic research and development efforts, it is desirable to describe on the awareness of issues behind such efforts, as well as areas of technology that will be potentially impacted by the research and development.

Another effective way companies can show their active engagement in innovation related to climate change is to participate in innovation-related initiatives by the government and industry associations, and to actively disseminate information on the same.

(3) Recommended disclosure c)

TCFD's recommended disclosure c) under Strategy encourages organizations to describe the resilience of their strategies under different climate-related scenarios, including a 2°C or lower scenario. This section focuses on scenario analysis, which is useful in describing resilience.

a) What is scenario analysis?

TCFD describes scenario analysis as follows.[30]

Scenario analysis refers to a process for identifying and assessing a potential range of outcomes of future events under conditions of uncertainty. In the case of climate change, for example, scenarios allow an organization to explore and develop an understanding of how the physical and transition risks of climate change may impact its businesses, strategies, and financial performance over time.

[30] TCFD, 2021, Annex: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, p.83.

The TCFD recommends organizations to develop two or more plausible scenarios, assess the potential impacts of each scenario on their businesses, and clarify countermeasures. However, companies with little experience conducting scenario analysis often have little idea of how to develop scenarios or find suitable methods to use for analysis. Many investors, on the other hand, are of the view that scenario analysis is useful even if the results cannot be quantified with a high degree of certainty[31]. Scenario analysis and related dialogue also provide an opportunity for companies to identify their own risks and opportunities, and to review their strategies and business models[32]. It is therefore desirable not only for investors, but also for companies themselves, to engage in scenario analysis.

Guidance on Scenario Analysis for Non-Financial Companies, published by TCFD, lists the followings as key elements and misconceptions of scenarios.

Table 1 Elements and misconceptions of scenarios

Scenarios Are Not:	Scenarios Are:
Predictions	Descriptions of alternative plausible futures
Variations of a single base case	Significantly different views of the future
Snapshots of endpoints	Movies of the evolving dynamics of the future
Generalized views of feared or desired futures	Specific decision-focused views of the future
Products of outside futurists	Products of management insight/perceptions
Normative	Exploratory

Adapted from TCFD, 2020, Guidance on Scenario Analysis for Non-Financial Companies p.16. (Table C1, Figure C1) and p.17

The above description indicates that scenario analysis is not based on a company's commitment or complex modeling, but rather a "story" in which a firm considers the path to its future business model based on its strategy. The primary focus of investor evaluation is not the type of scenario used or the sophistication of the analysis, but how persuasive and valid the analysis results, or "stories," are, and whether the company has taken the necessary countermeasures against them.[33]

b) Applying the scenarios

According to the TCFD Recommendations, companies are free to develop their own scenarios for analysis, and that using existing scenarios are also suitable.[34] In either method,

[31] "Given the uncertainty involved to climate change, scenario analysis is considered important and is one of the key elements of the TCFD. Whilst implementation is developing, investors are supportive of companies evolving their approach." (FRC, 2019, Climate-related corporate reporting – Where to next? P.19)
Investors, however, are of the firm belief that a disclosure may still be helpful and assuring even if the results cannot be quantified with high certainty. (Id. p. 20)

[32] TCFD Consortium, 2021, Guidance on Utilizing Climate Information to Promote Green Investment 2.0 (Green Investment Guidance 2.0), p.12.

[33] For more detailed description, refer to TCFD Consortium, 2021, Guidance on Utilizing Climate Information to Promote Green Investment 2.0 (Green Investment Guidance 2.0), p.11 – 13.

[34] Organizations may decide to use existing external scenarios and models (e.g., those provided by third-party vendors) or

it is important to not apply one single scenario but multiple scenarios from the viewpoint of demonstrating a firm's resilience to an uncertain future.

For the scenarios to be used, the TCFD Recommendations state that "different climate-related scenarios, including those below 2 °C" should be considered. This is consistent with the goals of the Paris Agreement. On the other hand, the temperature target assumed in the "Carbon Neutrality by 2050" which has been stated as a goal by many countries and companies in recent years is equivalent to a 1.5 °C scenario, which imposes on companies a transition risk considerably greater than that of 2 °C scenario. Therefore, the 1.5 °C scenario is useful for visualizing the magnitude of the impact.[35]

With ambitious targets set by both companies and financial institutions, it is likely that consideration of "Net Zero" and "1.5 °C" scenarios will be called for. However, companies that are beginning their scenario analysis may use more conventional scenarios, such as the "2 °C or lower" scenario, for the purpose of first deepening their understanding as well as limiting the disparity between the direction to be aimed and the current situation.

As described above, existing external scenarios can be used in scenario analysis. The outline and usage of these scenarios are described in detail in the "Practical Guide for Scenario Analysis in Line with the TCFD Recommendations"[36] whose first edition was published in 2019 by the Ministry of the Environment (MOE). The guide provides a detailed explanation of the scenario analyses of companies, and lists the following scenarios as being applicable. Parameters related to transition risk and physical risk are also listed in the Appendices of the guide.

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develop their own, in-house modeling capabilities. (TCFD, 2017, Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures" (June 2017), p.29.)

[35] For example, in the Net Zero Emissions scenario (NZE) of IEA which assumes net zero CO2 emissions from energy consumption in 2050 with a temperature increase of 1.5 °C or less, anticipates carbon pricing of $200/t-CO2 in 2040, whereas its Sustainable Development Scenario (SDS) with a temperature rise slightly above 1.5 °C, anticipates $140/t-CO2. (IEA, 2021, Net Zero by 2050 A Roadmap for the Global Energy Sector)

[36] Based on examples of support provided by the Ministry of the Environment, the document explains ways to improve as well as practical points for scenario analysis for both companies that have started analysis and those that have already done so. As steps for scenario analysis, preparation (company-wide involvement, setting the scope and time horizon for scenario analysis), assessment of risk materiality, definition of scenario groups, business impact evaluation, definition of countermeasures, documentation and disclosure. The document can be downloaded from: https://www.env.go.jp/policy/policy/tcfd/TCFDguide_3rd_EN.pdf

Table 2 Examples of Applicable Scenarios

Target	Applicable scenarios
Transition risk	・ IEA WEO NZE2050, IRENA 1.5℃, PRI 1.5℃ RPS, NGFS Net Zero (Net zero / 1.5℃ scenarios) ・ IEA WEO SDS, PRI FPS, NGFS below 2℃ (scenarios which aim to achieve 2℃ targets) ・ IEA WEO STEPS, NGFS Current Policies (scenarios which do not achieve 2℃ targets) ・ Deep Decarbonization Pathways Project (2°C target achieved) ・ IRENA REmap (Double the renewable energy ratio by 2030) ・ Greenpeace Advanced Energy [R] evolution (2°C target achieved)
Physical risk	・ IPCC RCP (representative concentration pathway) scenarios: RCP 8.5, RCP 6.0, RCP 4.5, and RCP 2.6[37]

Source: Ministry of the Environment, 2021, Practical guide for Scenario Analysis in line with the TCFD recommendations: 2021 edition. In addition to the above scenario groups, the guide also identifies migration risk and physical risk parameters from key scenario tools that can be used as a reference when conducting corporate scenario analysis.

Furthermore, "Guidance on Risk Management Integration and Disclosure" published by TCFD in 2020 provides a list of effects of physical risks and migration risks typical to various temperature rise scenarios, which can be useful for a preliminary examination of these risks.

Table 3 Possible Implications of Different Temperature Increases

Temperature scenarios	1.5℃	2℃	3℃	5℃
Physical impacts				
Sea level rise	0.3〜0.6m	0.4〜0.8m	0.4〜0.9m	0.5〜1.7m
Chance of ice-free Arctic summer	1/30	1/6	63%	100%
Frequency of extreme rainfall	+17%	+36%	+70%	+150%
Increase in wildfire extent	X 1.4	X 1.6	X 2.0	X 2.6
People facing extreme heatwaves	X 22	X 27	X 80	X 300
Land area hospitable to malaria	+12%	+18%	+29%	+40%
Economic impacts				
Global GDP impact	-10%	-13%	-23%	-45%
Stranded assets	Transition: fossil fuel assets (supply, power, transport, industry)		Mixed: some fossil fuel assets and some physical stranding	Physical: uninhabitable zones, agriculture, water-intense industry, lost tourism
Food supply	Changing diets, yield loss in tropics		24% yield loss	60% yield loss, 60% demand increase

Adapted from TCFD, 2020, Guidance on Risk Management Integration and Disclosure

[37] The Working Group 3 Report of the IPCC Sixth Assessment Report published in April 2022 (https://www.ipcc.ch/report/sixth-assessment-report-working-group-3/) currently under review by the IPCC uses a new set of scenarios, the Illustrative Mitigation Pathways (IMP).

c) Quantitative aspects of scenario analysis

One of the major challenges in scenario analysis for companies, especially those in the early stages of disclosure, is quantification. In addition to the difficulty of the analysis itself, the time horizon for the scenario analysis is long, such as until 2050. This results in a wide disparity of values according to the framing of scenarios, which makes scenario analysis difficult. In light of these circumstances, the TCFD Recommendations do not consider quantification essential in scenario analysis, and sees the value of qualitative disclosure.[38] Furthermore, the TCFD maintains that scenario analysis should begin with a qualitative understanding of climate-related risks and opportunities, and that hasty quantification will undermine the robustness of scenarios and their role as communication tools. As regards disclosure of quantification, the TCFD is of the view that it is a necessary goal, albeit one that companies should proceed in steps.[39]

Financial institutions typically do not require an elaborate scenario analysis from the start, but use the analysis to check how organizations see risks and opportunities of climate change and manage their businesses accordingly. In disclosing a scenario analysis, it is desirable that organizations explain the underlying assumptions, as well as the reasons for the scenario selection.

When conducting a qualitative scenario analysis, one possible way is to describe the impacts of climate change not in absolute values but on a relative scale, applying designations such as large, medium, and small. In such a case, it is desirable to be able to explain their meaning in a consistent manner.

[38] "Task Force recognizes that, for many organizations, scenario analysis is or would be a largely qualitative exercise. However, organizations with more significant exposure to transition risk and/or physical risk should undertake more rigorous qualitative and, if relevant, quantitative scenario analysis with respect to key drivers and trends that affect their operations.", " For an organization in the initial stages of implementing scenario analysis or with limited exposure to climate-related issues, the Task Force recommends disclosing how resilient, qualitatively or directionally, the organization's strategy and financial plans may be to a range of relevant climate change scenarios" (Excerpted from TCFD, 2017, Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures, pp.27-28.

[39] TCFD, 2020, Guidance on Scenario Analysis for Non-Financial Companies, pp.30-31

E. Risk Management

Risk Management: Disclose how the organization identifies, assesses, and manages climate-related risks.	
Recommended Disclosure a) Describe the organization's processes for identifying and assessing climate-related risks	Guidance for All Sectors Organizations should describe their risk management processes for identifying and assessing climate-related risks. An important aspect of this description is how organizations determine the relative significance of climate-related risks in relation to other risks. Organizations should describe whether they consider existing and emerging regulatory requirements related to climate change (e.g. limits on emissions) as well as other relevant factors considered. Organizations should also consider disclosing the following: ・ processes for assessing the potential size and scope of identified climate-related risks and ・ definitions of risk terminology used or references to existing risk classification frameworks used
Recommended Disclosure b) Describe the organization's processes for managing climate-related risks	Guidance for All Sectors Organizations should describe their processes for managing climate-related risks, including how they make decisions to mitigate, transfer, accept, or control those risks. In addition, organizations should describe their processes for prioritizing climate-related risks, including how materiality determinations are made within their organizations.
Recommended Disclosure c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	Guidance for All Sectors Organizations should describe how their processes for identifying, assessing, and managing climate-related risks are integrated into their overall risk management.

Source: TCFD, 2021, Annex: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, p. 20.

A "Risk Management" disclosure in the TCFD Recommendations is interpreted as a disclosure of processes for identifying, assessing and managing climate-related risks. The financial impact of risks identified as a result of "Risk Management" is classified into the items disclosed in "Strategy," and the organizational structure of the supervision/implementation of risk management in the management of the entire organization is classified into the items disclosed in "Governance." One of the major concerns of investors is how climate-related risk management is integrated into company-wide risk management. TCFD proposes the following steps.

Table 4 Initial steps for integrating climate-related risks into risk management

Step	Guidance
1	Ensure there is a general understanding across the company of climate change concepts and its potential impacts.
2	Identify the specific risk management processes and elements that may need to be adjusted for the integration of climate-related risk as well as the functions and departments responsible for those processes and elements
3	Incorporate climate-related risks into the existing risk taxonomy and risk inventory used in the company. This includes mapping climate-related risks to existing risk categories and types.
4	Adapt existing risk management processes and key elements based on information gained in the previous steps and the characteristics of climate-related risk

Adapted from TCFD, 2020, Guidance on Risk Management Integration and Disclosure.

F. Metrics and Targets

The TCFD recommends the following disclosures under Metrics and Targets.

Metrics and Targets: Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities, where such information is material.	
Recommended Disclosure a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process	Guidance for All Sectors Organizations should provide the key metrics used to measure and manage climate-related risks and opportunities, as well as metrics consistent with the cross-industry, climate-related metric categories.[30] Organizations should consider including metrics on climate-related risks associated with water, energy, land use, and waste management where relevant and applicable. Where climate-related issues are material, organizations should consider describing whether and how related performance metrics are incorporated into remuneration policies. Where relevant, organizations should provide their internal carbon prices as well as climate-related opportunity metrics such as revenue from products and services designed for a low-carbon economy. Metrics should be provided for historical periods to allow for trend analysis. Where appropriate, organizations should consider providing forward-looking metrics for the cross-industry, climate-related metric categories consistent with their business or strategic planning time horizons. In addition, where not apparent, organizations should provide a description of the methodologies used to calculate or estimate climate-related metrics.
Recommended Disclosure b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	Guidance for All Sectors Organizations should provide their Scope 1 and Scope 2 GHG emissions independent of a materiality assessment, and, if appropriate, Scope 3 GHG emissions and the related risks.[31] All organizations should consider disclosing Scope 3 GHG emissions.[32][33] GHG emissions should be calculated in line with the GHG Protocol methodology to allow for aggregation and comparability across organizations and jurisdictions.[34] As

	appropriate, organizations should consider providing related, generally accepted industry-specific GHG efficiency ratios.[35] GHG emissions and associated metrics should be provided for historical periods to allow for trend analysis. In addition, where not apparent, organizations should provide a description of the methodologies used to calculate or estimate the metrics.
Recommended Disclosure c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	<u>Guidance for All Sectors</u> Organizations should describe their key climate-related targets such as those related to GHG emissions, water usage, energy usage, etc., consistent with the cross-industry, climate-related metric categories, where relevant, and in line with anticipated regulatory requirements or market constraints or other goals. Other goals may include efficiency or financial goals, financial loss tolerances, avoided GHG emissions through the entire product life cycle, or net revenue goals for products and services designed for a low-carbon economy. In describing their targets, organizations should consider including the following: ・ whether the target is absolute or intensity based; ・ time frames over which the target applies; ・ base year from which progress is measured; and ・ key performance indicators used to assess progress against targets. Organizations disclosing medium-term or long-term targets should also disclose associated interim targets in aggregate or by business line, where available. Where not apparent, organizations should provide a description of the methodologies used to calculate targets and measures.

Original footnote 30: Financial organizations may find it more difficult to quantify exposure to climate-related risks because of challenges related to portfolio aggregation and data availability. The Task Force suggests financial organizations provide qualitative and quantitative information, where data and methodologies allow.

Original footnote 31: Emissions are a prime driver of rising global temperatures and, as such, are a key focal point of policy, regulatory, market, and technology responses to limit climate change. As a result, organizations with significant emissions are likely to be impacted more significantly by transition risk than other organizations. In addition, current or future constraints on emissions, either directly by emission restrictions or indirectly through carbon budgets, may impact organizations financially.

Original footnote 32: The Task Force strongly encourages all organizations to disclose Scope 3 GHG emissions. While the Task Force recognizes the data and methodological challenges associated with calculating Scope 3 GHG emissions, it believes such emissions are an important metric reflecting an organization's exposure to climate-related risks and opportunities. For guidance on reporting Scope 3 GHG emissions, see the GHG Protocol's The Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

Original footnote 33: When considering whether to disclose Scope 3 GHG emissions, organizations should consider whether such emissions are a significant portion of their total GHG emissions. For example, see discussion of 40% threshold in the Science Based Targets initiative's (SBTi's) paper SBTi Criteria and Recommendations, Version 4.2, April 2021, Section V, p. 10.

Original footnote 34: While challenges remain, the GHG Protocol methodology is the most widely recognized and used international standard for calculating GHG emissions. Organizations may use national reporting methodologies if they are consistent with the GHG Protocol methodology.

Original footnote 35: For industries with high energy consumption, metrics related to emission intensity are important to provide. For example, emissions per unit of economic output (e.g., unit of production, number of employees, or value-added) is widely used.

Adapted from TCFD, 2021, Annex: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, pp.21-22.

The term "metrics" refers to the type of indicators used, and "targets" refer to the value of such indicator to be achieved. For example, "Scope 1 and Scope 2 greenhouse gas emissions" are metrics, and "emissions to be achieved in 2030 and 2050" are targets. These are discussed below.

(1) Recommended disclosure a)

As stated above, the TCFD recommends disclosure of metrics in line with their strategy and risk management process. However, the followings are recommended as cross-industry metrics to be disclosed.

Table 5 Cross-industry metrics recommended by TCFD to be disclosed.

Item	Overview of item	Unit
GHG Emissions	Absolute Scope 1, Scope 2, and Scope 3; emissions intensity	MT of CO_2e
Transition Risk	Amount and extent of assets or business activities vulnerable to transition risks	Amount or percentage
Physical Risk	Amount and extent of assets or business activities vulnerable to physical risks	Amount or percentage
Climate-Related Opportunities	Proportion of revenue, assets, or other business activities aligned with climate-related opportunities	Amount or percentage
Capital Deployment	Amount of capital expenditure, financing, or investment deployed toward climate-related risks and opportunities	Reporting currency
Internal Carbon Prices	Price on each ton of GHG emissions used internally by an organization	Price in reporting currency, per MT of CO_2e
Remuneration	Proportion of executive management remuneration linked to climate considerations	Percentage, weighting, description, or amount in reporting currency

Adapted from TCFD, 2021, Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures pp.79-80 (Table A2.1).

The TCFD states that a company's choice of any of the above metrics basically depends on what the company considers important (i.e. material).[40] These metrics are not required to be fully disclosed from the first year; time may be needed, especially if disclosure of climate-related financial information is in the early stages, or methodologies to calculate the metrics are under development.

Of the metrics mentioned above, GHG emissions and transition risks are central topics of disclosure for many companies. With respect to the other items, physical risk is of high interest to non-Japanese investors, as mentioned above. In addition, items such as internal carbon price and remuneration are considered by investors as a measure to assess the degree of whether companies consider climate change mitigation as being important.

For disclosures of Metrics and Targets, the TCFD recommends organizations not to limit

[40] However, Scope 1 and Scope 2 emissions are recommended to be disclosed for all organizations.

disclosures to items recommended for disclosure, but to use narratives to help investors and other stakeholders understand how such metrics and targets are linked to the organization's value creation, and how such metrics are aligned to the organization's strategy. A company making a disclosure can deliver information more effectively to investors and other stakeholders by clarifying the preconditions used in establishing the metrics and setting the targets. The disclosure of any changes to a method for calculating metrics is also recommended[41], along with reasons for doing so.

(2) Recommended disclosure b)

GHG emissions can be said to be the most typical metric recommended for disclosure. TCFD recommends organizations to disclose Scope 1, Scope 2 regardless of the quantity or materiality. On the other hand, TCFD maintains that the disclosure of Scope 3 GHG emissions is subject to materiality though its disclosure is encouraged for all organizations. Therefore, of the 15 categories, emphasis on disclosure should be placed on those that are deemed as important.[42] In addition, it should be noted that the boundaries defined by each company with respect to assessment when calculating Scope 3 emissions are not identical. Hence, simple comparison between companies is not possible.[43] TCFD recognizes the data and methodological challenges associated with calculating Scope 3 emissions. Furthermore, it is desirable that assumptions are presented upon disclosure of emissions.

(3) Recommended disclosure c)

Companies are requested to set targets and track progress with respect to the metrics whose disclosures are recommended. The targets should be consistent with company-wide performance targets such as production and sales. In this context, it may be difficult for many companies to show a reduction in GHG emissions because their future performance targets are likely to show an increase in comparison with current performance targets. In such cases, the target may be expressed as GHG emissions per unit of production.

One of the metrics included in the TCFD Recommendations as an illustrative example is "avoided GHG emissions through the entire product life cycle." Disclosing GHG emission

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[41] "An approach is to ... explain changes in calculations, changes from the previous year and scope and boundary" (FRC, 2019, Climate-related corporate reporting – Where to next? P.23)

[42] Which category is material depends on the sector; category 1 (purchased goods and services) may be of importance to food industry, whereas category 11 (use of sold products) may be relevant for equipment manufacturers.

[43] "Corporate Value Chain (Scope3) Accounting and Reporting Standard" includes the following information.
1.5 Scope of the standard
(…)
"Use of this standard is intended to enable comparisons of a company's GHG emissions over time. <u>It is not designed to support comparisons between companies based on their scope 3 emissions.</u> Differences in reported emissions may be a result of differences in inventory methodology of differences in company size or structure. Additional measures are necessary to enable valid comparisons across companies. Such measures include consistency in methodology and data used to calculate the inventory, and reporting additional information such as intensity ratios or performance metrics."
(Source) Greenhouse Gas Protocol "Corporate Value Chain (Scope 3) Accounting and Reporting Standard"

reductions in the use phase of products and services, not GHG emissions as a single company, allows a company to demonstrate the degree to which it contributes to GHG emission reductions globally through its products and services. The Green Investment Guidance 2.0, meanwhile, cites examples of the viewpoints of investors and other stakeholders. One investor, for example, considers it important to take into account contribution to the entire value chain, i.e., not only greenhouse gas emissions but also incorporating addressing emission reductions, while another investor considers that information on GHG emission reductions in society as a whole is useful for duly evaluating a company that is making an effort to reduce GHG emissions, even if the company's business expansion would increase emissions. Examples of methods to evaluate and disclose the amount of reduction contribution in the entire value chain are "Guidelines for Quantifying GHG emission reductions of goods or services through Global Value Chain" by the Ministry of Economy, Trade and Industry[44] and "Contributing to Avoided Emissions through the Global Value Chain - A new approach to climate change measures by private actors - (GVC Concept Book)" by Keidanren.[45]

It should be noted that it is important to describe the preconditions for the calculation, because the value of the reduction contribution varies greatly depending on how the reductions are achieved. It is also desirable that reduction contribution is described separately from GHG emissions, since they are separate concepts.

[44] This document presents the basic concept and framework for quantifying the reduction effects of efforts by organizations to reduce greenhouse gas emissions from their products and services throughout their life cycles (Each stage from raw material procurement to manufacturing, use, and disposal). (https://warp.da.ndl.go.jp/info:ndljp/pid/11402477/www.meti.go.jp/english/press/2018/pdf/0330_002.pdf)

[45] The document introduces the concept and importance of making reduction contributions through the global value chain (GVC) and provides examples of "visualization" of reduction contributions by various industries and companies (http://www.keidanren.or.jp/en/policy/vape/gvc2018.pdf)

G. Disclosure Methods for Companies with Diverse Business Models

A company with diverse business models has multiple business domains with different characteristics. In such a company, the materiality of climate change and business strategies differ from business to business. In addition, the ability to establish, track, and disclose climate-related targets may vary according to jurisdiction, sector, and business models.[46] The point at issue when implementing company-wide disclosure, is therefore to determine the business which strategies, metrics and targets should be disclosed, as well as the extent of description. Investors and other stakeholders also request disclosure of information about the strategies of individual business models.[47]

The fundamental approach is to start by identifying climate-related risks and opportunities for individual business models, and then to examine the potential impacts on the company as a whole based on the current or future revenues and the magnitude of the materiality of climate change. TCFD Recommendations do not provide a specific definition of which business models of a company are considered important, but focus should be placed on business models that present and present significant physical and transition risks or opportunities. In many cases, this should correspond to businesses which currently account for a significant proportion of the revenues of companies. However, if companies expect the future expansion of a business domains which are currently small, it is desirable that they disclose according to their expected future business portfolios by e.g., focusing their explanation on that business.

[46] TCFD, 2021, Guidance on Metrics, Targets, and Transition Plans.

[47] "Investors acknowledged that disclosure is evolving, and that they want to understand the effects on the specific business model and strategy, including on an asset-by-asset basis." (FRC, 2019, Climate-related corporate reporting – Where to next?) P.23)

H. Steps for Implementing the TCFD Recommendations by Mid-cap and Small- and Medium-sized Companies

The TCFD Recommendations suggest that all companies, regardless of size, implement disclosure related to Governance and Risk Management in their financial filings. As regards disclosures related to Strategy as well as Metrics and Targets, TCFD recommends that non-financial companies with more than one billion U.S. dollar equivalent (USDE) in annual revenue consider disclosing such information in reports other than financial filings when the information is not deemed material.

The series of climate-related financial initiatives established recently aim to align asset owners, asset managers, banks, and insurance companies' holdings, managed assets, investments and loans, and underwriting portfolios with emissions paths that aim to reach net zero by 2050. Major Japanese financial institutions are also participating in such initiatives.[48] In response to this trend, mid-cap and small- and medium-sized companies as well as unlisted companies are also being requested to respond to the TCFD Recommendations.

Implementing disclosure in accordance with the TCFD Recommendations, however, is a considerable burden for mid-cap and small- and medium-sized companies. Requiring them to implement disclosure on all recommended disclosure items immediately would be problematic. Therefore, it is preferrable to have small- and medium-sized companies begin by disclosing information that is manageable, and then to expand the coverage of disclosure in stages. Of the four themes of the TCFD Recommendations, "Governance" and "Risk Management," which are recommended to be disclosed in financial reports by all companies, are considered to be relatively straightforward to disclose at the initial stage since they add consideration of climate change to existing corporate governance and risk management systems.

In recent years, TCFD has recommended disclosure of Scope 3 emissions.[49] There are cases in which large corporate customers seek to reduce GHG emissions throughout their supply chains by requiring mid-cap and small- and medium-sized companies to disclose their GHG emissions. By disclosing their own efforts towards reducing GHG emissions, mid-cap and small- and medium-sized companies can draw attention from large companies that seek to reduce GHG emissions throughout their supply chains, and thereby increase their business opportunities.[50] In this sense, it is desirable for mid-cap and small- and medium-sized

[48] See e.g., TCFD Consortium, 2021, "Green Investment Guidance 2.0" Addendum 3 "Initiatives for Investors and other Stakeholders on Climate Change" (https://tcfd-consortium.jp/en/news_detail/20081201)

[49] "The Task Force strongly encourages all organizations to disclose Scope 3 GHG emissions. While the Task Force recognizes the data and methodological challenges associated with calculating Scope 3 GHG emissions, it believes such emissions are an important metric reflecting an organization's exposure to climate-related risks and opportunities." (TCFD, 2021, Annex: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures)

[50] The Japan Chamber of Commerce and Industry (JCCI) has drawn up a Global Warming Action Declaration for member companies to publicize their environmental efforts. For details, refer to the website of the Japan Chamber of Commerce and Industry (https://eco.jcci.or.jp/declaration in Japanese)

companies to first calculate their Scope 1 and Scope 2 emissions based on fuel and electricity consumption, along with disclosure of Governance and Risk Management.

Chapter 3 Increasing Corporate Value through TCFD Disclosure

A. Increasing Corporate Value through TCFD Disclosure

In recent years, investors and other stakeholders have emphasized the effectiveness of engagement as a measure to combat climate change.[51] The Green Investment Guidance originally published by the TCFD Consortium in October 2019 and revised in October 2021 states, “As a practice of investors and other stakeholders, it is more important to be engaged in dialogue with companies to facilitate their climate actions than to simply divest based on superficial criteria; engagement can lead to the enhancement of corporate value through improved efforts, thus increasing opportunities for investment.”

As these engagement efforts become more active, it will be important for companies to actively engage in disclosure in line with TCFD Recommendations and deepen their engagement with investors and other stakeholders through disclosure in order to enhance their future corporate value. In order to foster such relationship between companies and investors and other stakeholders, it is desirable that information disclosure be conducted in a voluntary and flexible manner. There is a concern that excessive standardization of disclosure content can have a negative impact on the decision-making of investors and other stakeholders. The TCFD Consortium has called on policymakers and other stakeholders in Japan and abroad on the above points.[52]

B. Importance of Getting Started in Disclosure

As mentioned above, there has been an increased effort to respond to TCFD Recommendations. On the other hand, disclosure in accordance with the TCFD Recommendations requires careful consideration of many information, including in particular scenario analysis, before a company can begin to provide the information when it starts the disclosure. As such, there may be cases where a company hesitates to disclose or to support the TCFD Recommendations. In view of this, the TCFD has presented an illustrative roadmap to encourage companies to initially make disclosures on the types of information they can manage, such as their Governance and Risk Management, and then to gradually move on to disclosures related to Strategy and Metrics and Targets.[53] As seen above, disclosure in accordance with the TCFD Recommendations should not necessarily be thorough from the start. It is important for a company to first begin the disclosure process, and improve and

[51] "Engagement takes time and effort, but might be the most effective way to accelerate the transit to a low-carbon economy while avoiding the situation of stranded workers and communities.” (Investor Leadership Network, 2019, TCFD Implementation: Practical Insights and Perspectives from Behind the Scenes for Institutional Investors, p. 18),

[52] “Towards a More Decision-Useful TCFD Disclosure” (https://tcfd-consortium.jp/en/news_detail/20081201)

[53] TCFD, 2020, 2020 Status Report, p.33.

expand its disclosures gradually, as well as to demonstrate its commitment to do so in the first year of disclosure.

C. Refining for Better Disclosure

As many companies begin to work on disclosure, the expertise of the disclosure preparers and best practices of disclosure will accumulate. As a result, there will be more questions that need to be explained in Chapter 2 of this Guidance, and more case examples of disclosures to clarify those questions.

If more non-financial companies disclose, it will be possible to improve the sector-specific recommended disclosures which will be presented in a separate volume, and to consider expanding the industrial sectors. On a global level, the SASB has presented sector-specific sustainability metrics which are being incorporated in Climate-related Disclosures by the IFRS Foundation, while WBCSD is undertaking activities to address TCFD Recommendations on a sectoral basis. As seen above, there have already been moves to work on sector-specific disclosure, and Japan is ready to actively contribute to such moves.

A. Overview of related guidance

Various guidance documents that are useful to refer to in conjunction with this guidance are described below.

(1) Guidance for Utilizing Climate-related Information to Promote Green Investment (Green Investment Guidance)[54]

The "Guidance for Utilizing Climate-related Information to Promote Green Investment (Green Investment Guidance)", initially published by the TCFD Consortium in October 2019 provides a set of guidance to investors and other users of information. This can be regarded as a counterpart to this guidance. The Green Investment Guidance lists three elements necessary to realize a "virtuous cycle of environment and growth": promote constructive dialogue (engagement) to enhance corporate value; identify and assess the risks and opportunities posed by climate change; promote innovation for decarbonization and create mechanisms for the appropriate flow of funds. In line with the TCFD Recommendations, investors and other stakeholders should understand the following perspectives a) Governance, b) Strategies and Business models, c) Risks and Opportunities, and d) Performance and Key Performance Indicators (KPIs). It was revised in October 2021 as "Green Investment Guidance 2.0", which provided addendums on the followings: a) Paris Agreement and Carbon Neutrality, b) Transition Finance, c) Initiatives for Investors and other Stakeholders on Climate Change, d) Evaluation on Participation in External Climate Initiatives, e) Carbon Pricing, and f) Climate Change Risk Management for Investors and other Stakeholders, and the Role of NGFS.

(2) Guidance for Integrated Corporate Disclosure and Company-Investor Dialogue for Collaborative Value Creation (Guidance for Collaborative Value Creation)[55]

METI published its "Guidance for Integrated Corporate Disclosure and Company-Investor Dialogue for Collaborative Value Creation: ESG Integration, Non-Financial Information Disclosure, and Intangible Assets into Investment" (hereinafter referred to as the "Guidance for Collaborative Value Creation") in May 2017 and subsequently revised in August 2022 as Guidance for Collaborative Value Creation 2.0. Its aims were to help deepen mutual understanding between companies and investors through information disclosure and dialogue and to encourage companies and investors to take action toward sustainable value creation. The Guidance for Collaborative Value Creation was expected to serve as a set of guidelines for

[54] https://tcfd-consortium.jp/en/news_detail/21100501
[55] https://www.meti.go.jp/english/press/2022/0831_003.html

business owners / managers seeking to manage their companies in ways that create corporate value, and to convey that information to investors. It is also designed as a guidance for investors that will enable them to grasp the information necessary to make investment decisions, etc. and assess companies from a medium- to long-term perspective, and to serve as reference for dialogue between investors and companies. The TCFD Guidance is positioned as an itemized discussion of the Guidance for Collaborative Value Creation focused on climate change.

B. Institutional background on climate-related disclosure in Japan

(1) Corporate Governance Code

The Corporate Governance Code is a set of key principles that contribute to the realization of effective corporate governance, and is issued by the Tokyo Stock Exchange, Inc.. The first edition of the Corporate Governance Code was issued in June 2015, which was subsequently revised in 2018 and 2021. The latest Corporate Governance Code at the time of the revision of this guidance was revised in June 2021 and contains general principles, principles and supplementary principles on the following five issues: (1) Securing the rights and equal treatment of shareholders; (2) Appropriate cooperation with stakeholders other than shareholders; (3) Ensuring appropriate information disclosure and transparency; (4) Responsibilities of the board, and (5) Dialogue with shareholders. Companies listed on the Prime Market are required to explain all principles of the Code including principles for Prime Market. Companies listed on the Standard Market are required to explain all principles of the Code, and companies on the Growth market are required to explain on the general principles, including explanation on the reasons of not implementing them, if such a case arises (the principle of comply or explain).

The Corporate Governance Code has increased its emphasis on ESG issues during the course of its past revisions. In the 2021 revision, disclosure in line with TCFD Recommendations by companies listed on the Prime Market is described in the Supplementary Principle (see Chapter 2).

(2) Other regulatory measures

Japan has several institutional systems for disclosing climate-related information other than the Corporate Governance Code. Some of the key legislations are listed below.

Table 6 Examples of legislations on climate-related information disclosure

Legislation (year of establishment)	Summary
Act on Promotion of Global Warming Countermeasures (1998)	Since the 2005 revision of this Act, companies that emit above a certain amount of GHG are required to calculate their own GHG emissions and report them to the government. The Act on the Rational Use of Energy (Energy Conservation Law of 1979) also requires certain business operators to submit reports on energy consumption.
Law Concerning the Promotion of Business Activities with Environmental Consideration by Specified Corporations, etc., by Facilitating Access to Environmental Information, and Other Measures. (2004)	An institutional framework has been established to promote the publication of environmental reports in order to promote the voluntary environmental efforts of business operators. In addition, major companies are obliged to make efforts to publish environmental reports.
Cabinet Office Ordinance on Disclosure of Corporate Affairs, etc. (2019)	Revisions of descriptions in securities reports to enhance financial and descriptive information. The revised descriptions include the impact of a risk on the business, the nature of the risk, the measures to be taken, the likelihood of materialization, and the extent and timing.

C. Measures related to TCFD Recommendations in other frameworks and standards

(1) CDP

CDP is an international NGO formerly known as the Carbon Disclosure Project, which is an initiative established in 2000. CDP sends questionnaires to companies to collect information outlining their corporate efforts related to the three environmental issues of climate change, water, and forests, and evaluates and analyzes the companies based on the responses obtained.

In 2018, CDP revised the questionnaire items to align them with the TCFD Recommendations. In 2022, CDP began forwarding its questionnaire to all companies listed in the Prime Market.

(2) Climate Disclosure Standards Board (CDSB)

CDSB is an organization whose purpose was to promote the disclosure of environmental, including climate change information in financial reports through the development of the CDSB Framework for reporting environmental and climate change information, which aims to standardize corporate environmental and climate change information disclosure. In April 2018, a revised version of the CDSB Framework was released to improve consistency with TCFD Recommendations. In 2020, a guidance document was published on how to respond to the TCFD Recommendations by utilizing CDP data and the CDSB Framework[56]. In January 2022, CDSB was consolidated into the IFRS Foundation (see below).

(3) Global Reporting Initiative (GRI)

An organization established to promote a wider understanding of the impacts of sustainability issues globally, and to help disseminate opinions about those impacts. The GRI Guidelines, published in 2000, are widely acknowledged as guidelines for sustainability reporting.

(4) International Financial Reporting Standards (IFRS)

IFRS refers to the international financial accounting standards developed by the International Accounting Standards Board (IASB) established under the IFRS Foundation. In November 2021, the IFRS Foundation announced the establishment of the International Sustainability Standards Board (ISSB) and began formulating sustainability disclosure standards (see Addendum D).[57]

[56] CDSB, CDP, 2020, The building blocks: Connecting CDP data with the CDSB Framework to successfully fulfil the TCFD recommendations (https://www.cdsb.net/buildingblocks)
[57] IFRS Foundation website (https://www.ifrs.org/projects/work-plan/general-sustainability-related-disclosures/exposure-

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(5) International Integrated Reporting Council (IIRC)

IIRC was established in 2010 with the aims of improving the quality of the information received by providers of financial capital and establishing an approach for efficient information dissemination. The International Integrated Reporting Framework was published in 2013 to present an approach to preparing integrated reports. Since its publication, companies in Japan and elsewhere in the world have been transforming their annual reports into integrated reports. In 2021, IIRC was consolidated with SASB (see below) to form Value Reporting Foundation (VRF),[58] which was further consolidated with the IFRS Foundation (see above) in August 2022.

(6) Sustainability Accounting Standards Board (SASB)

SASB presented metrics (SASB Standards) on environmental and other issues such as social and human capital metrics that can measure the long-term value creation capacity of companies in a total of 77 sectors. In November 2018, SASB published new standards consistent with the TCFD Recommendations which include industry-specific metrics and targets that can provide actionable information on climate risks.

SASB, in collaboration with CDSB mentioned above, published the "TCFD Implementation Guide"[59] providing commentary on TCFD, and the "TCFD Good Practice Handbook," a compilation of notable case examples of disclosure with explanatory commentary.[60] In June 2021, SASB was consolidated with IIRC (see above) to form VRF, which was subsequently consolidated with the IFRS Foundation (see above).

(7) World Business Council for Sustainable Development (WBCSD)

WBCSD is a CEO-led organization of approximately 200 companies working toward sustainable development. Participating companies share their efforts and experiences on issues related to sustainable development, in cooperation with governments and NGOs.

WBCSD has established sector-specific "Preparer Forums" to explore ways to respond to the TCFD Recommendations. Reporting guidance has been published for the oil and gas, chemical, electric utilities, food, agriculture and forest products, construction and building materials, and automobile sectors.[61]

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draft-and-comment-letters and https://www.ifrs.org/projects/work-plan/climate-related-disclosures/#published-documents)

58 Value Reporting Foundation （https://www.valuereportingfoundation.org/）

59 Available for download from the CDSB website (https://www.cdsb.net/sites/default/files/sasb_cdsb-tcfd-implementation-guide-a4-size-cdsb.pdf) and from the SASB website (https://www.sasb.org/knowledge-hub/tcfd-implementation-guide/)

60 Available for download from the CDSB website (https://www.cdsb.net/tcfd-good-practice-handbook) and from the SASB website (https://www.sasb.org/knowledge-hub/tcfd-good-practice-handbook/).

61 Can be downloaded from WBCSD website (https://www.wbcsd.org/Programs/Redefining-Value/TCFD/Resources).

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D. IFRS Sustainability Disclosure Standards[62]

In November 2021, the IFRS Foundation (see above) announced the establishment of the International Sustainability Standards Board (ISSB) to establish corporate sustainability disclosure standards. In the same month, it released a prototype of sustainability disclosure standards, which was followed by a series of Exposure Drafts in March 2022. The Exposure Drafts consist of the following 3 parts. Comments were received until July 29, 2022, with the goal of releasing the final version by the end of 2022.

Table 7 Overview of IFRS Sustainability Disclosure Standards published to date

General requirements[63]	A set of requirements covering all aspects of sustainability disclosure, including materiality, frequency of reporting, and location of information.
Climate-related disclosures[64]	A set of requirements for climate-related disclosure based on the four themes of the TCFD Recommendations.
Industry-based disclosure requirements	Formulated as an Appendix to Climate-related disclosures, these constitute a set of sustainability indicators and activity indicators to be disclosed in 68 industries in 11 industries, drawing upon SASB Standards.

Source: IFRS Foundation website (see footnote)

The IFRS Sustainability Disclosure Standards require that information be disclosed as “part of (a company's) general purpose financial reporting." In order to prevent conflicts with the regulatory requirements of a particular jurisdiction regarding general purpose financial reporting, cross-references in other documents are permitted, but it states that these are subject to the same responsibilities as the information contained in general purpose financial reporting.[65]

The disclosure items stipulated in the "General Requirements" and "Climate-related Disclosures" are in accordance with the framework envisaged in the TCFD Recommendations, and require disclosure according to the four themes of "Governance," "Strategy," "Risk Management," and "Metrics and Targets." On the other hand, many items whose disclosure is encouraged by TCFD such as Scope 3 emissions due to data and methodological issues are listed as items that entities “shall disclose”. In addition, the "Industry-based disclosure requirements" stipulate the disclosure of both sustainability-related metrics (Examples: GHG emissions and energy consumption during production, environmental performance of products) and activity metrics (production, sales, etc.) for many industries.

[62] At the time of publication of this guidance, the exposure draft subjected to public comments is the latest version. The descriptions were based on it.
[63] Documents can be downloaded from IFRS Foundation website (https://www.ifrs.org/projects/work-plan/general-sustainability-related-disclosures/#published-documents).
[64] Documents can be downloaded from IFRS Foundation website (https://www.ifrs.org/projects/work-plan/climate-related-disclosures/#published-documents).
[65] The reasons for this are given in Question 10 to the respondents of exposure draft, not in the standard itself.

As described above, the sustainability disclosure standards by IFRS Foundation gives the impression of being more detailed than those by TCFD and that their disclosure is mandatory. On the other hand, it is stated in the General Requirements that "An entity need not provide a specific disclosure that would otherwise be required by an IFRS Sustainability Disclosure Standard if the information resulting from that disclosure is not material. This is the case even if the IFRS Sustainability Disclosure Standard contains a list of specific requirements or describes them as minimum requirements."[66] which means that the necessity of disclosure is left to the materiality assessment of the company, and it can be interpreted that disclosure is not necessarily required when it is determined to be immaterial. This suggests that disclosure based on the standards developed by IFRS Foundation inquires what a company considers as material.

[66] IFRS S1 General Requirements (Exposure Draft) paragraph 60.

E. Overview of discussion on transition

In order to achieve an ambitious goal such as "carbon neutrality," it is necessary to undergo a transition from a long-term perspective, including various facility upgrades as well as research and development, in sectors where emission reductions are hard to achieve. The role of investors in evaluating and providing funds for such transitions is important, and information disclosure by companies is required in order to facilitate the provision of such funds.

Substantive discussion on the ideal way of the information disclosure in the transition finance started around 2019. In order to share an internationally unified view based on the trends of each country, the International Capital Markets Association (ICMA) published in December 2020 the "Climate Transition Finance Handbook".[67] Based on this, the Financial Services Agency, the Ministry of Economy, Trade and Industry, and the Ministry of the Environment formulated the Basic Guidelines on Climate Transition Finance in May 2021 (hereinafter Basic Guidelines),[68] from the perspective of companies that intend to benefit from transition finance (mainly bonds). The Basic Guidelines specify the following four disclosure elements necessary for issuance:

- Element 1: Fundraiser’s Climate Transition Strategy and Governance
- Element 2: Business Model Environmental Materiality
- Element 3: Climate Transition Strategy to be Science-based Including Targets and Pathways
- Element 4: Implementation Transparency

The "Climate Transition Finance Model Project," which was launched in FY 2021, aims to promote the spread of transition finance by selecting financing cases that are consistent with the Basic Guidelines as model projects and disseminating information. In FY 2021, bonds and loans were selected from 12 companies.[69]

In addition, the "Guidance on Metrics, Targets, and Transition Plans" published by the TCFD in October 2021, lists the following seven elements as characteristics of a transition plan as part of a company's disclosure: (1) aligned with strategy; (2) anchored in quantitative elements, including climate-related metrics and targets; (3) subject to effective governance processes; (4) actionable, specific initiatives; (5) credible; (6) periodically reviewed and updated; and (7) reported annually to stakeholders. The guidance lists the followings as elements of transition plans, in line with the four themes of TCFD Recommendations.

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67 https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/climate-transition-finance-handbook/

68 https://www.meti.go.jp/english/press/2021/0507_001.html

69 See the Ministry of Economy, Trade and Industry, Model Financing Committee for Climate Transition Finance (https://www.meti.go.jp/shingikai/energy_environment/climate_transition/index.html) (in Japanese).

Governance	Strategy
● **Approval** by the board or appropriate committees of the board ● **Oversight** by the board or appropriate committees of the board ● **Accountability** by senior management ● **Incentives** such as remuneration aligned with targets ● **Reporting** to the board or appropriate committees of the board ● **Review** and periodical update of plans, activities, metrics, and targets ● Ensuring **transparency** through reporting to external stakeholders ● Independent review or third-party **Assurance**	● **Alignment with strategy** of activities and temperature goal ● **Plan assumptions,** such as transition pathway uncertainties and implementation challenges ● **Prioritized opportunities** during transition to low-carbon economy ● Short-term and medium-term **action plans** ● Supporting **financial plans**, budgets and related financial targets ● **Scenario analysis** of multiple climate-related scenarios
Risk Management	**Indicators and Targets**
● Description **of risks** facing the transition to a low-carbon economy ● Planning **challenges and uncertainties** facing organizations to successfully executing its transition plan	● **Metrics** that are monitored to track progress against plans and targets ● Quantitative and qualitative **targets** based on sound climate science, such as GHG emissions targets ● Transparent **methodology** ● **Dates** on which the targets are intended to be reached ● Contribution of **GHG emissions reductions**, removals, and offsets

Figure 6 Elements of Transition Plan recommended by TCFD

Source: Created by TCFD Consortium based on TCFD, 2021, Guidance on Metrics, Targets, and Transition Plans

F. Recent publications from TCFD

Since the publication of the TCFD Recommendations in 2017, the TCFD has continuously published guidance on climate-related information disclosure. Of these, key publications are described below.[70]

(1) Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures (Originally published in 2017 and revised in 2021)

"Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures" supplements the TCFD Recommendations and provides practical guidance for implementing the TCFD Recommendations. Specifically, supplementary explanations are provided for the four themes of the TCFD Recommendations. In particular, sector-specific guidance is provided for the financial sector and four non-financial groups (energy group, transportation group, materials and buildings group, and agriculture, food and forest products group) with regard to Strategy, Risk Management, and Metrics and Targets.

The first edition was published as an annex to the 2017 TCFD Recommendations, which was subsequently revised in 2021 to reflect the contents of the "Guidance on Metrics, Targets and Transition Plans" published simultaneously. The 2021 revision added more specific disclosure recommendations based on the latest developments in "Strategy" and "Metrics and Targets" among the 4 themes of TCFD Recommendations and included cross-industry climate-related metrics to be disclosed.

(2) Status Reports (published annually since 2018)

The Status Report is a survey on the progress of disclosure in line with TCFD Recommendations as well as examples of disclosure, and has been published annually by TCFD since 2018. Specifically, AI reviews of financial reports and integrated reports are conducted to analyze the disclosure status. The 2021 Status Report concludes that, although information disclosure has progressed year by year as a whole, disclosure of governance item b) (management's role) and strategy item c) (resilience) are particularly low among recommended disclosure items. The reasons for the lack of disclosure of information on financial impact was analyzed through interviews and consultation. As a result, it was found that only about 20% of companies disclosed their financial impact, citing difficulties in obtaining relevant data and selecting and applying evaluation methodologies.

The Status Report describes TCFD-related initiatives in various countries. In Japan, along with the release of the Basic Guidelines on Climate Transition Finance in May 2021 and the revision of the Corporate Governance Code in June, the report introduces the activities of the TCFD Consortium, including the revision of Green Investment Guidance 2.0, the activities of

[70] These articles are available from the TCFD home page (https://www.fsb-tcfd.org/publications/).

the GIG Supporters, and the holding of the TCFD Summit 2020, as "measurable success".

(3) Guidance on Scenario Analysis for Non-financial Companies (published in 2020)

This publication provides guidance on the use of scenario analysis in non-financial companies for the purpose of assessing climate-related risks and opportunities. It describes what needs to be prepared for the analysis (supporting by the management, securing corporate resources, etc.), strategic management using scenarios, and disclosure practices. Scenario analysis is positioned to understand the performance of a company in a projected future state. Notably, it states that in the assessment of climate risks and opportunities, exploratory scenarios (which describes a diverse set of plausible future states) are used, as opposed to normative scenarios which starts with a preferred or desired future outcome and then back-casts plausible pathways (see section D(3) in Chapter 2).

(4) Guidance on Risk Management Integration and Disclosure (published in 2020)

This document aims to promote understanding of " Risk Management " in the TCFD Recommendations. Its publication stems from the finding that 75% of companies surveyed by the TCFD indicated the risk management recommendation is somewhat or very difficult to implement, and that disclosure of risk management was lower than most other recommended disclosures. It describes the characteristics of climate change risks, integration of climate-related risk management with corporate risk management processes, and provides examples of effective risk management disclosures. In addition, two international risk management frameworks, COSO ERM and ISO 31000, are outlined.

(5) Guidance on Metrics, Targets and Transition Plans (Issued in 2021)

This publication was prepared in conjunction with the revision of the "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures" and draws upon the discussion on forward-looking metrics conducted during the latter half of 2020 as well as the survey results indicating the difficulties in implementing the TCFD Recommendations. This guidance sets out the principles of effective disclosure, metrics, targets and transition planning, as well as cross-industry metrics and elements to be included in transition plans.

Appendix

Appendix 1：
Members of the TCFD Consortium Steering Committee and Number of TCFD Consortium Members

(1) Members of the TCFD Consortium Steering Committee

*In alphabetical order

[Chair]	
Kunio Ito	Director of Hitotsubashi CFO Education and Research Center
[Steering Committee member]	
Takao Aiba	Project General Manager, Environmental Affairs Div., Advanced R&D and Engineering Company, Toyota Motor Corporation
Koji Hora	General Manager Corporate Sustainability and CSR Department, Mitsubishi Corporation)
Yasunori Iwanaga	Chief Responsible Investment Officer, Amundi Japan Ltd.
Masaaki Izumiyama	General Manager, Environment Division, Nippon Steel Corporation
Mitsuru Miyasaka	Managing Director, Head of Sustainability Office, Corporate Planning Division, MUFG Bank Limited
Masaaki Nagamura	Fellow, General Manager, International Initiatives, Corporate Planning Department, Tokio Marine & Nichido Fire Insurance Co., Ltd.
Daisuke Oomura	Line Manager, Limited Corporate Planning Dept. Sustainability Div., The Dai-ichi Life Insurance Company
Manabu Shibata	Director, ESG Promotion, Kao Corporation
Kazunori Takahashi	Deputy General Manager, Sustainability Promotion Division, Hitachi Ltd.
Keisuke Takegahara	Executive Officer, Deputy Chief Research Officer, Chief Manager of Sustainability Management Office, Corporate Planning & Coordination Department, Development Bank of Japan Inc. [Chair of the Information Utilization Working Group]
Toru Terasawa	Executive ESG Advisor, Investment Div. Responsible Investment Grp. Asset Management One Co., Ltd.
Hiroyuki Tezuka	Fellow & General Manager, Climate Change Policy Group, Technology Planning Department., JFE Steel Corporation [Chair of the Information Disclosure Working Group]
Masaharu Tounai	Environment General Manager, ESG Office, Corporate Management & Planning Unit, Tokyo Electric Power Company Holdings Corporation
Toshihiro Yamauchi	Executive Officer, Accounting Dept., Sumitomo Chemical Co., Ltd.

(Note) Affiliation and position as of September 9, 2022.

(2) Number of TCFD Consortium Members

Total of 694 organizations (as of September 22, 2022)

Appendix 2：
List of Key Relevant Literatures Reviewed During the TCFD Guidance Revision

European Bank for Reconstruction and Development, 2018, Advancing TCFD Guidance on Physical Climate Risks and Opportunities

Financial Reporting Council, 2019, Climate-related corporate reporting Where to next?

ICMA, 2020, Climate Transition Finance Handbook

International Energy Agency, 2020, Energy Technology Perspectives

International Energy Agency, 2021, Net Zero by 2050 A Roadmap for the Global Energy Sector

International Energy Agency, 2021, World Energy Outlook 2021

Investor Leadership Network, 2019, TCFD Implementation: Practical Insights and Perspectives from Behind the Scenes for Institutional Investors

IPCC, 2022, Climate Change 2022: Mitigation of Climate Change

Japan Exchange Group, 2021、Survey of TCFD Disclosure in Japan

Ministry of Economy, Trade and Industry, 2017, Guidance for Integrated Corporate Disclosure and Company-Investor Dialogues for Collaborative Value Creation: ESG Integration, Non-financial Information Disclosure and Intangible Assets into Investment (Guidance for Collaborative Value Creation)

Ministry of Economy, Trade and Industry, 2021, Basic Guidelines on Climate Transition Finance

Ministry of the Environment, 2022, Climate Change Adaptation Guide for Private Sector -Preparing for Climate Risk and Surviving-

Ministry of the Environment, 2022, Practical guide for Scenario Analysis in line with the TCFD recommendations

Network for Greening the Financial System, 2021, NGFS Climate Scenarios for central banks and supervisors

TCFD, 2017, Recommendations of the Task Force on Climate-related Financial Disclosures

TCFD, 2020, Guidance on Scenario Analysis for Non-Financial Companies

TCFD, 2020, Guidance on Risk Management Integration and Disclosure

TCFD, 2021, Annex: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures

TCFD、2021、Guidance on Metrics, Targets and Transition Plans

TCFD, 2019, 2020, 2021, Status Report

TCFD Consortium, 2021, Guidance for Utilizing Climate-related Information to Promote Green Investment 2.0 (Green Investment Guidance 2.0)

TCFD Consortium, 2021, FY2021 TCFD Consortium Member Survey Result

WBCSD TCFD Chemical Sector Preparer Forum, 2019, Climate-related financial disclosure by chemical sector companies: Implementing the TCFD recommendations