

Webinar



UN
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1 Apr 2021 | 3pm CEST

Climate Change & the TCFD recommendations

In-house webinar for the Green Climate Fund



finance
initiative



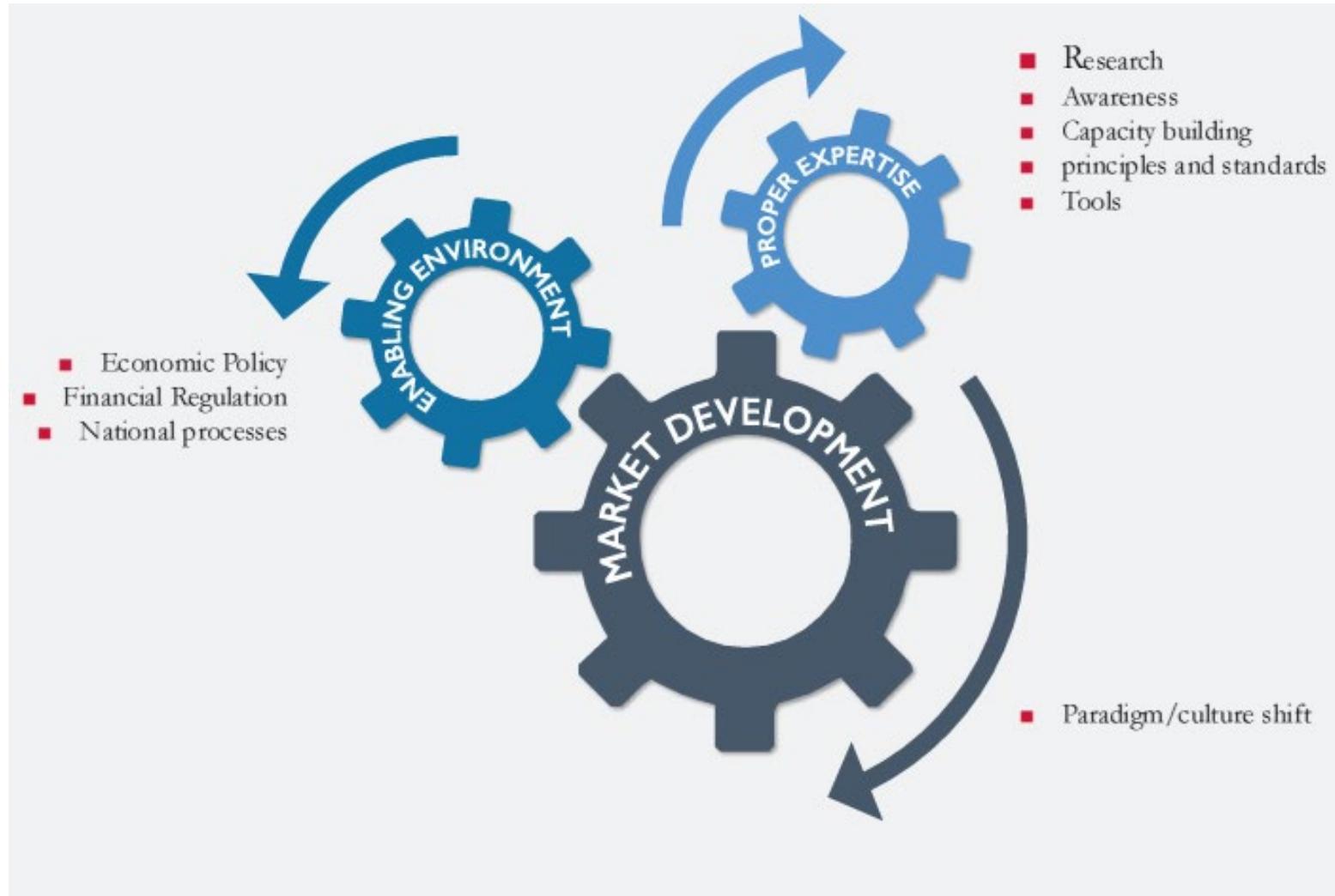
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UN Environment Finance Initiative (UNEP FI): Shaping the sustainable finance agenda since the Rio Earth Summit in 1992

- Global membership of **+350 financial institutions** in the banking, investment and insurance sectors & **+100 supporting institutions**
- UNEP FI double approach:
 - i. Integrate ESG criteria in the traditional financial system, and seize opportunities **(changing finance)**
 - ii. Mobilize finance for a sustainable economy **(financing change)**



CHANGING FINANCE - FINANCING CHANGE



UNEP FI Structure

3 Committees	Bank	Investment	Insurance
4 Thematic Working Groups	Climate Change (incl. Energy Efficiency)	Biodiversity & Social ecosystem services (incl. human rights / REDD)	Positive Impact
5 Regions	Africa & Middle East	Asia Pacific	Europe
			Latin America & the Caribbean
			North America



Sustainable Finance Principles



A dark blue rectangular graphic with a green header and footer. In the center, it features the text "6 PRINCIPLES SHAPING OUR FUTURE" in white and green. To the right is the UNEP Finance Initiative logo and the text "PRINCIPLES FOR RESPONSIBLE BANKING". Below this are six hexagonal icons with corresponding labels: "Alignment" (hexagon with a stylized "F"), "Impact" (hexagon with a green drop), "Clients & customers" (hexagon with two hands shaking), "Stakeholders" (hexagon with a network of circles), "Governance & target setting" (hexagon with a target), and "Transparency & accountability" (hexagon with a magnifying glass).





Sustainable Stock Exchanges Initiative



Since 2009, the **Sustainable Stock Exchange Initiative (SEE)** has been associated with 100 Stock Exchanges, listing 52,925 companies, \$ 88 + trillion in market capitalization.

A United Nations initiative organized by:





THANK YOU!

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TCFD and Public Finance (GCF)
UNEP FI TCFD Programme
April 2021



CONTENTS

1. Climate risks are financial risks
2. Climate disclosures
3. TCFD implementation
4. Climate opportunities-supporting a resilient world
5. UNEP FI: A partner in sustainability

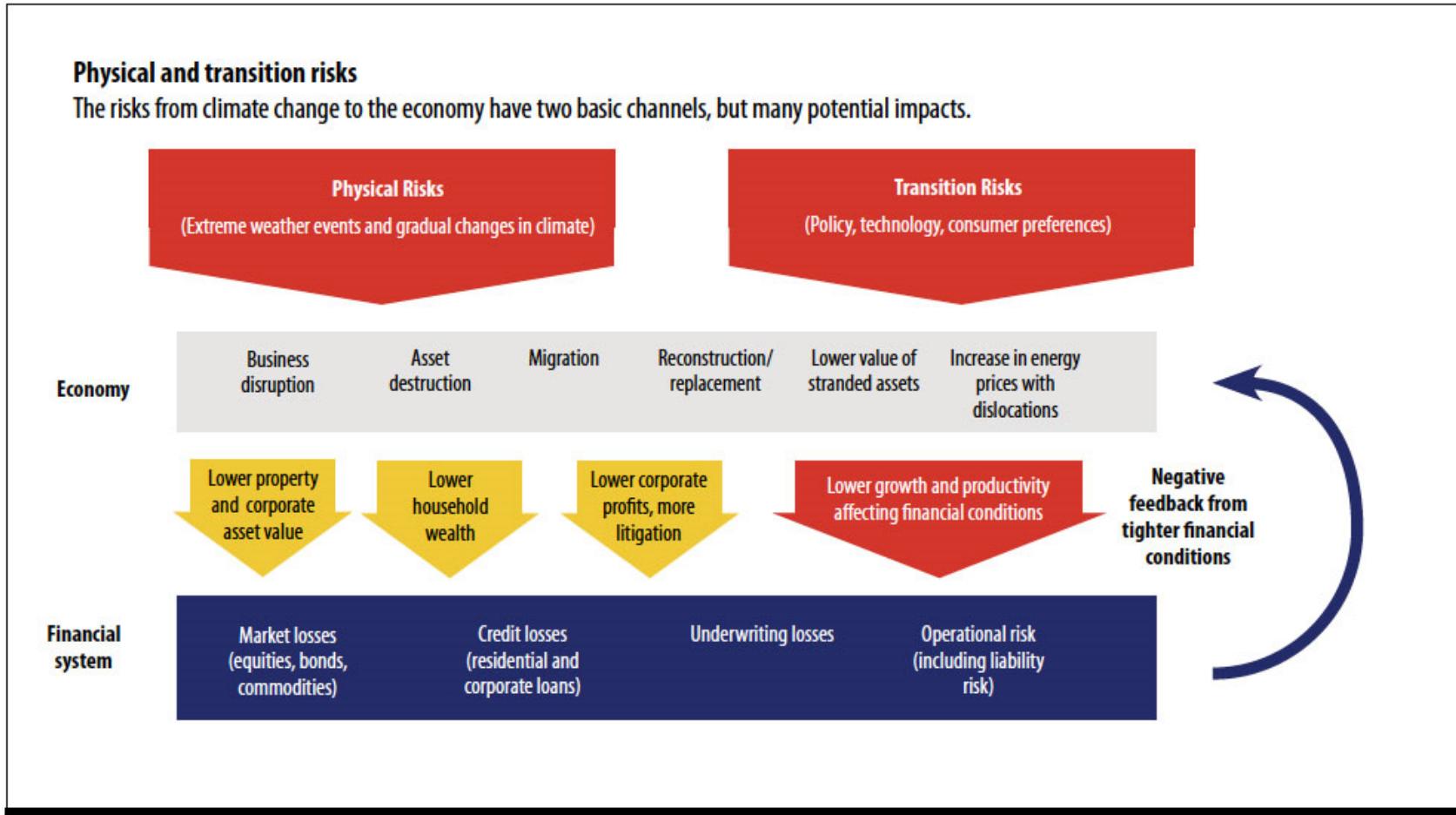
1

CLIMATE RISKS ARE FINANCIAL RISKS

HOW PHYSICAL AND TRANSITION RISKS IMPACT FINANCIAL INSTITUTIONS

PHYSICAL AND TRANSITION RISKS CAN CREATE A CASCADE OF DESTABILIZING FINANCIAL EFFECTS

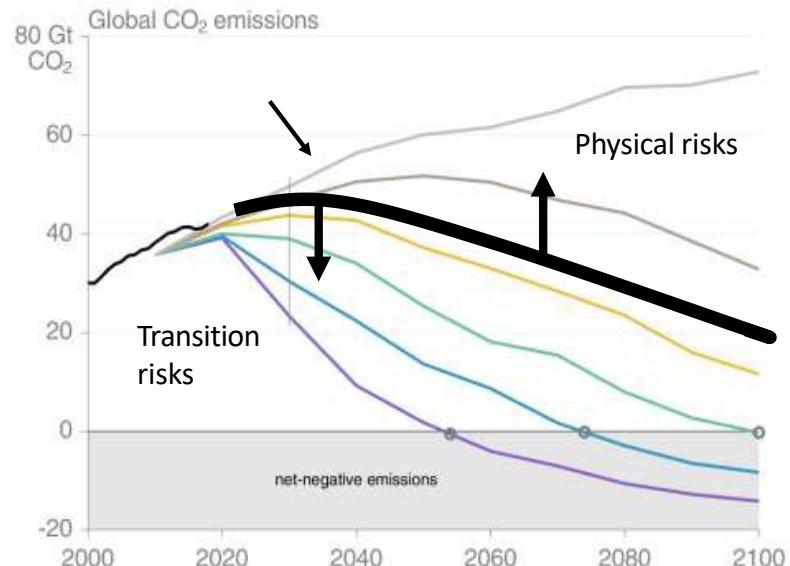
Risk transmission in the financial system¹



THERE IS A TRADE-OFF BETWEEN THE SIZE AND SEVERITY OF PHYSICAL AND TRANSITION RISKS BASED ON THE PATH WE CHOOSE

Transition Risks

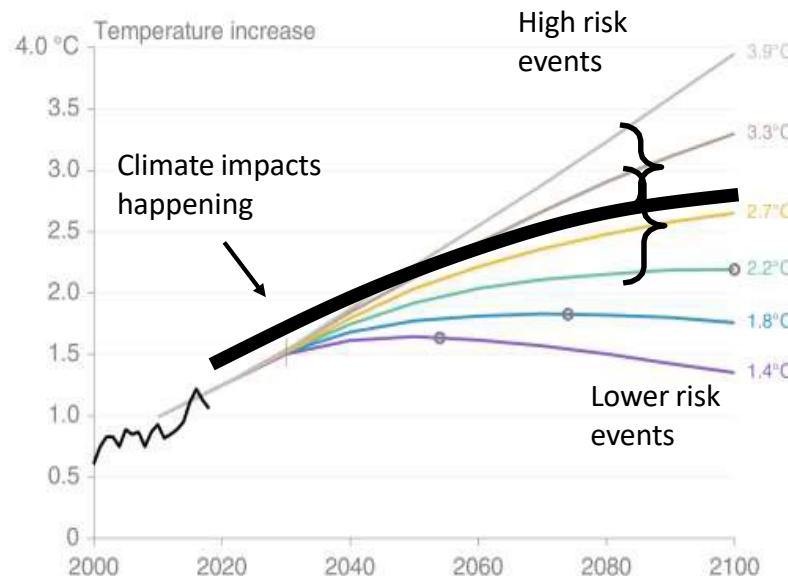
Driven by the transformation of the economy due to climate action: policy, technology and market risks



©Glen Peters • Data: GCP2019, Riahi et al (2017), Rogelj et al (2018), SSP Database (version 2)

Physical Risks

Driven by changes in the physical systems as a result of climate change: incremental risks and extreme events



©Glen Peters • Data: NASA GISS, Riahi et al (2017), Rogelj et al (2018), SSP Database (version 2)

Transition risks are largely moderated by the speed and scale of emissions reductions, while physical risks are more directly related to temperature

CLIMATE RISKS FOR PUBLIC FINANCE INSTITUTIONS

CLIMATE RISKS CAN IMPACT POLICY GOALS, STABILITY, SPENDING AND REVENUE COLLECTION OF PUBLIC INSTITUTIONS

Impact of climate risks on stability₁

- Climate risk impacts main policy goals of central banks
- Financial stability:
 - Physical risks can lead to financial market losses, credit market losses and rising operational and liability risks
 - Policy measures can decrease output and cause capital misallocation
- Monetary stability risk:
 - Monetary policy is impacted by transition policy due to different time horizons
- Climate risks will result in potential financial losses in specific sectors, impacting portfolios of central banks
 - Abrupt transition policies can disrupt assets exposed in central banks portfolios

Impact of climate risks on public finance

- Changes in the demand for goods and services delivered by public entities can become challenging for government spending e.g. public health, disaster relief₃
- Risk to public finance stability due to losses caused by natural disasters₂
- Climate risks for sectors such agriculture and tourism will lead to a decrease in tax revenue collected and increase government expenditure₂
- Government bonds will be impacted as countries' debt levels could rise₁
- Physical hazards could prevent or disrupt public utilities companies to deliver their goods and services (I.e. market paralysis)₄

1. UBS 2019

2. Environmental Modelling & Assessment 2019

3. Bachner & Bednar-Friedl, 2018

3. U.S. Commodity Futures Trading Commission, n.d.

2

CLIMATE DISCLOSURES

WHAT IS THE TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (TCFD)? THE TCFD WAS CREATED TO ENABLE FINANCIAL MARKETS TO BETTER ASSESS AND PRICE CLIMATE RISK

Core Elements of Recommended Climate-Related Financial Disclosures



Governance

The organization's governance around climate-related risks and opportunities

Strategy

The actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning

Risk Management

The processes used by the organization to identify, assess, and manage climate-related risks

Metrics and Targets

The metrics and targets used to assess and manage relevant climate-related risks and opportunities

TCFD DISCLOSURES

THE TCFD RECOMMENDS 11 DISCLOSURES THAT COVER CLIMATE RISKS AND OPPORTUNITIES THROUGHOUT THE ORGANIZATION

11 recommended disclosures

Governance	Strategy	Risk Management	Metrics and Targets
a) Describe the board's oversight of climate-related risks and opportunities	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term	a) Describe the organization's processes for identifying and assessing climate-related risks	a) Disclose the metrics used by the organization to assess climate related risks and opportunities in line with its strategy and risk management process
b) Describe management's role in assessing and managing climate-related risks and opportunities	b) Describe the impact of climate related risks and opportunities on the organization's businesses, strategy, and financial planning	b) Describe the organization's processes for managing climate-related risks	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets

CONTINUING DEVELOPMENT OF THE TCFD

THE TCFD HAS BECOME THE DE FACTO STANDARD FOR CLIMATE RISK DISCLOSURES

2020 progress

- Currently over 1000 supporters with a market capitalization of nearly \$12 trillion
- Consultation on forward-looking metrics issued
- 2020 Status report key conclusions
 - Disclosure of climate-related financial information has increased since 2017, but many institutions are still in the early stages of their disclosure journey
 - Additional quantification and standardization of disclosures is needed
 - Asset manager and asset owner reporting to their clients and beneficiaries, respectively, is likely insufficient

2021 plans

- TCFD will explore forward-looking and alignment metrics based on the results of their public consultation
- TCFD will look to establish a set of metrics for disclosure



The latest TCFD status report describes the progress companies are making in implementing the TCFD recommendations



UNEP FI's Latest TCFD publications

RISING EXPECTATIONS FOR CLIMATE-RELATED DISCLOSURES

A GROWING NUMBER OF JURISDICTIONS HAVE ANNOUNCED PLANS TO MANDATE CLIMATE-RELATED DISCLOSURES

Europe

- **UK** The British Chancellor announced the intention to make TCFD disclosures mandatory across the economy by 2025
- **France** ACPR launched a pilot exercise on the assessment of climate risks in 2020
- **Norway** Norway's central bank announced need to integrate climate into risk assessment
- **Denmark** has declared its support for TCFD, urging companies to incorporate better disclosures
- **EU** ECB Guidelines on climate and environmental risks. New guidance on climate risk disclosures



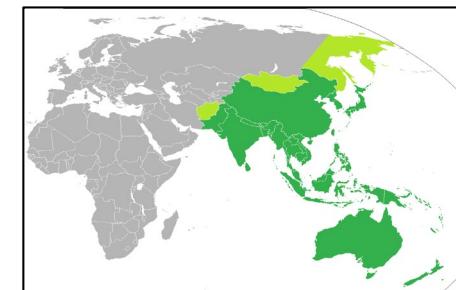
Americas

- **United States**
 - Fed recently joined the NGFS and discussed climate risk in semiannual Financial Stability Report
 - “Climate Change Financial Risk Act” to mandate climate stress testing and “Climate Risk Disclosure Act” to mandate climate-related disclosures introduced in last Congress
 - CFTC report: “Managing Climate Risk in the US Financial System”
- **Canada** Bank of Canada has launched a pilot project for climate-risk scenarios



Asia & Oceania

- **Hong Kong** HK Monetary Authority (HKMA) will require financial institutions to make climate-related financial disclosures no later than 2025
- **Singapore** Monetary Authority of Singapore (MAS) Guidelines on Environmental Risk Management, including expectations for climate disclosures
- **Australia** plans to issue climate risk guidance this year on governance, strategy, risk management, scenario analysis and disclosure
- **New Zealand** Will require financial institutions disclose their climate risks in alignment with TCFD



IMPORTANCE OF CLIMATE-RELATED DISCLOSURES IN PUBLIC FINANCE

CLIMATE-RELATED DISCLOSURES CAN HELP THE PUBLIC SECTOR BETTER UNDERSTAND THEIR EXPOSURES TO CLIMATE RISKS

Public finance and climate change

- Climate risks will have a detrimental impact on public finances as rising costs will result in an increase fiscal spending
- However, opportunities due to climate change in certain sectors can increase fiscal revenues
- Public funds are important for climate action as they can be used to reduce obstacles and provide incentives for private investment for mitigating and adapting climate risks
- The TCFD framework and its recommended processes, such as identifying climate risks and undertaking scenario analysis, are relevant for public finance
- The TCFD framework is also relevant to the non-financial roles and responsibilities of the public sector

Importance of climate-related disclosure in public finance

- Public finance needs to be transparent through its disclosures to ensure effective implementation of climate action by others
- The public sector may want to disclose information on their own exposures to climate risks, as well as their climate strategy and performance
 - This would help set a positive example to assist private financial institutions in developing their own climate disclosure
- Enhancing public finance disclosures can:
 - reduce information asymmetries
 - contribute to research on the impact of climate-related risks on policy and operations
 - improve understanding of the climate risks the public sector is exposed to

1. EcoLogic

2. Nature 2020

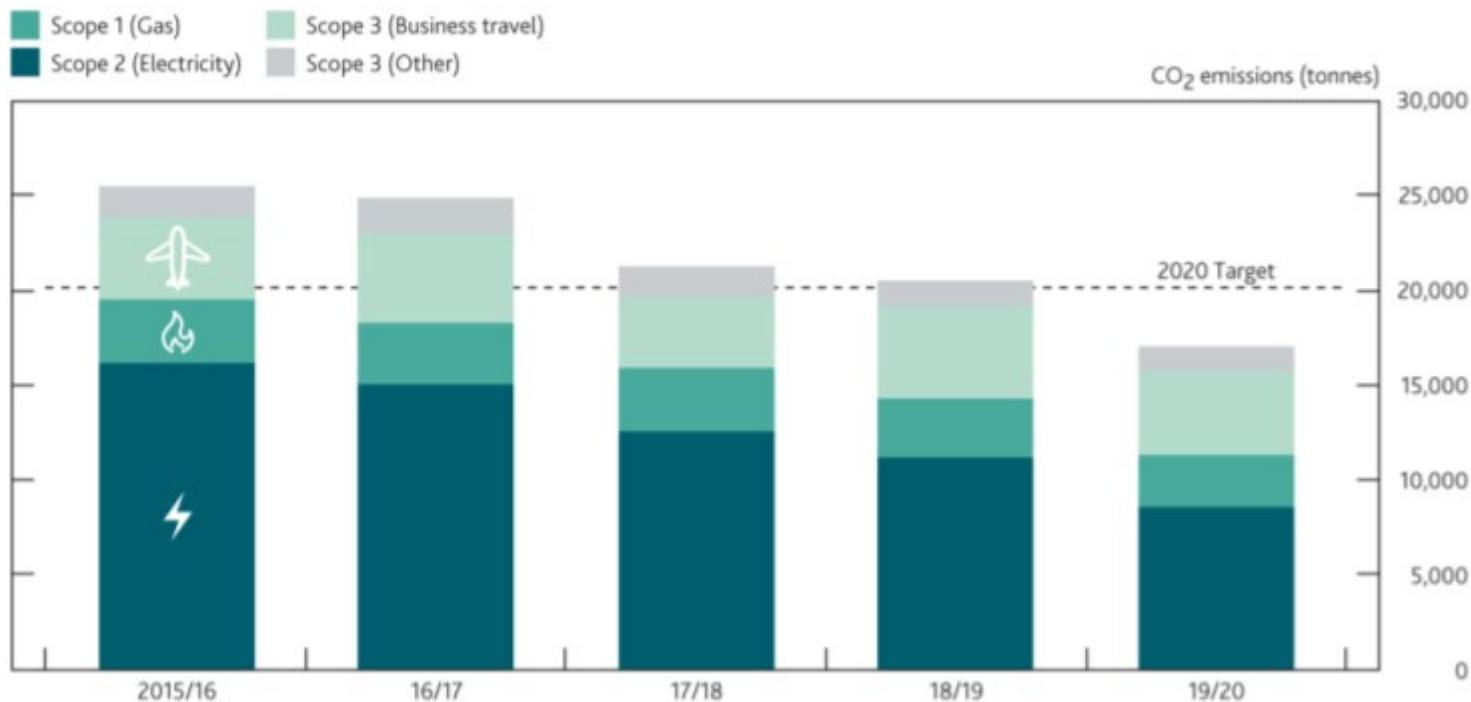
3. NGFS 2021

4. Griffith University 2020

CASE STUDY: BANK OF ENGLAND (BOE)

BOE'S 2020 TCFD DISCLOSURE SETS OUT THE BANK'S APPROACH TO MANAGE CLIMATE RISKS AND IMPROVE ITS UNDERSTANDING OF THESE RISKS

Chart 4.1 Bank emissions against 2020 target



[Bank of England climate-related financial disclosure 2020](#)

CASE STUDY: THE CITY OF VANCOUVER

THE CITY OF VANCOUVER'S TCFD DISCLOSURE WILL PLAY AN IMPORTANT ROLE IN INCORPORATING CLIMATE RISKS INTO THE CITY'S FINANCIAL DECISION-MAKING

TCFD Recommended Disclosures		City of Vancouver Disclosure
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.	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term. b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning. c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	Climate Risk in Vancouver; 2019-2022 Capital Plan, p4, 7, 15 Climate Adaptation in Vancouver; 2018 Budget and Five-Year Financial Plan, p58, 104 Climate Risk in Vancouver
Risk Management		
Disclose how the organization identifies, assesses, and manages climate-related risks.	a) Describe the organization's processes for identifying and assessing climate-related risks. b) Describe the organization's processes for managing climate-related risks. c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	Climate Adaptation in Vancouver; 2019-2022 Capital Plan, p4, 7, 15 Climate Risk in Vancouver Climate Adaptation in Vancouver
Metrics and Targets		
Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process. b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks. c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	Vancouver's Climate Metrics and Targets Vancouver's Climate Metrics and Targets Vancouver's Climate Metrics and Targets

[City of Vancouver's Statement of Financial Information 2019](#)

3

TCFD IMPLEMENTATION GUIDANCE

APPLICATION OF THE TCFD IN THE PUBLIC SECTOR

GOVERNMENTAL ACTION CAN SEND A STRONG SIGNAL TO IMPLEMENT THE TCFD FRAMEWORK ACROSS SECTORS AND INSTITUTIONS

Considerations for the public sector¹

Because the public sector differs from the private sector in its accountability to stakeholders and its scope of action, public actors should take the following steps before applying the TCFD:

- Confirming the alignment of the TCFD disclosures with the objectives of the government's policy on climate change
- Defining and aligning the roles and responsibilities of the administrative functions within the public sector to address climate-related financial risks
- Figuring out implementation requirements e.g. capacity, resourcing, oversight, monitoring and cross-agency collaboration

Examples

- The Belgian Ministry of Finance and the Japanese Ministry of Economy, Trade and Industry have joined the TCFD in 2018
- The city of Vancouver joined in 2017
- Several governments have joined including Sweden, Switzerland, Chile, and the UK

TCFD disclosures from the French government²

Strategy	<i>Alignment between article 173 and TCFD recommendations</i>
a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term	Description of ESG risks for investments and exposure of the activity to these risks Consequences of climate change and extreme weather events The change in availability and price of natural resources and in their exploitation (in accordance with climate and ecological objectives) The coherence of issuer's investment expenditure with a low-carbon strategy (including those involved in the exploitation of fossil fuel reserves) Elements to assess the contribution to compliance with the international objective to limit global warming and to achieve the energy and ecological transition objectives (TEE) Elements to assess exposure to climate change-related risks Link between environmental criteria and climate change-related risks (physical risks and transition risks) Link between environmental criteria and the assessment of the contribution to compliance with the international objective to limit global warming and to achieve the energy and ecological transition objectives (TEE)

1. Griffith university, 2020

2. UN PRI, 2017

GOVERNANCE GOOD PRACTICES - BOARD OVERSIGHT (1/2)

CLIMATE RISK GOVERNANCE MUST INVOLVE THE BOARD

Guidance on board oversight

Playbook guidance

- ▶ Organizational chart that illustrates which board committee(s) are responsible and the frequency (e.g., annually, quarterly, more than quarterly) of those committees

Baseline disclosures

- ▶ Summary of key issues and initiatives discussed with the board during the current reporting period
- ▶ ESG experience of board members in a summary of board credentials and experience and/or individual biographies
- ▶ Acknowledgment of the connection (if any) between management of climate-related risks and board compensation

Advanced considerations

- ▶ Separate committee(s) that report to the board of directors for climate-related matters with clear descriptions of their roles and responsibilities
- ▶ Organizational chart that illustrates how those committee(s) roll up into the board
- ▶ Details of the board member incentives linked to climate initiatives and a description of the criteria for the incentive compensation, including connection to specific metrics
- ▶ Description of interaction among steering groups and committees to facilitate knowledge sharing

Open questions

1. What are the minimum expectations for governance in respect to climate?
2. Is there a minimum frequency with which the board should review climate metrics and targets?
3. What level of detail should be expected when it comes to board level incentives?

GOVERNANCE GOOD PRACTICES - BOARD OVERSIGHT (2/2)

THE EXAMPLE BELOW DEMONSTRATES THE RESPONSIBILITY OF DELEGATING GOVERNANCE TO INSTITUTIONS FOR CITY-WIDE CLIMATE MATTERS

City of Auckland

[Auckland Council Annual Report 2019/2020](#)



STRATEGY GOOD PRACTICES – RISKS AND OPPORTUNITIES : TIME HORIZONS (1/2)

TOP MANAGEMENT SHOULD SET CLEAR TIME HORIZONS FOR MANAGING RISK AND OPPORTUNITIES

Guidance on climate-related risks and opportunities over the short, medium and long term

Time horizons

Playbook guidance

- ▶ Identification of time horizons used (analysis of TCFD disclosures and CDP reports indicate standardization across the below time horizons):
 - ▶ Short-term (0-1 years)
 - ▶ Medium-term (1-5 years)
 - ▶ Long-term (5-40 years)
 - ▶ Clear connection to time horizons throughout risks and opportunity forecasting and scenario analysis
 - ▶ Brief explanation on why an institution has settled on these time frames and context on how they are reasonable in the context of decision-making or risk management
-
- ▶ Clear time horizons for management of risks and opportunities, including detailed milestones to show progress and quantify business impact (Section 3.2)
 - ▶ Scenario analysis results are reflected in resiliency strategy (Section 3.3)
-
- Open questions**
1. Is there agreement on the with time horizons listed above?
 2. How should time horizons be influenced by local regulatory reporting definitions and requirements (e.g., EU stress tests, US CCAR)?

STRATEGY GOOD PRACTICES – RISKS AND OPPORTUNITIES : TIME HORIZONS (2/2)

THE EXAMPLE BELOW INCLUDES SECTORAL EXPECTATIONS OVER VARIOUS TIME HORIZONS

City of Toronto Case Study

Environmental, Social and Governance Performance Report 2020

5A TransformTO

TransformTO¹³ is the City of Toronto's ambitious climate action strategy. TransformTO seeks to reduce greenhouse gas (GHG) emissions community-wide and increase climate resilience while improving social equity, health, and economic prosperity.

In October 2019, City Council declared a **climate emergency**, deepening the City's commitment to addressing climate change. As part of the climate emergency declaration, Toronto's long-term GHG emissions target was revised to achieve **net-zero emissions by 2050 or sooner**. The City's 2030 target of 65% GHG reduction will help put Toronto on that path.

Homes and buildings

- By 2030, all new buildings will be built to produce near-zero GHG emissions.
- By 2050, all existing buildings will have been retrofitted to achieve net-zero emissions.

Energy

- By 2050, at least 30% of total floor space across Toronto will be connected to low-carbon heating and cooling energy.

Achieving net-zero emissions will require transformational changes in how we live, work, build and commute. Everyone will have a role in making Toronto a low-carbon city. To reduce the worst impacts of climate change, TransformTO has set the following goals in these four key areas:

The City's Sustainable Energy Plan Financing (SEPF) program¹⁴ provides City Divisions, Agencies and Corporations, community organizations, and the private sector opportunities to increase energy performance.

Transportation

- By 2050, 100% of vehicles in Toronto will use low-carbon energy; 75% of trips under 5 km will be walked or cycled.

Waste

- By 2050, 95% of waste will be diverted from landfill; and we will have advanced towards a zero waste circular economy.

RISK MANAGEMENT GOOD PRACTICES – IDENTIFYING AND ASSESSING RISKS (1/2)

INSTITUTIONS SHOULD DESCRIBE THE INTERNAL TOOLS AND TECHNOLOGY USED FOR ASSESSING RISKS

Guidance on the process for identifying and assessing risks

Playbook guidance

Baseline disclosures

- ▶ Description of general risk management function and level of integration into business-as-usual capabilities (e.g., risk ID, risk taxonomy, risk inventory, credit rating, underwriting standards, PD/LGD, risk appetite/limits) at a sector level
- ▶ Description of internal tools and technology and external vendors
- ▶ Reference to industry recognized frameworks for identifying risks and explanation of why your firm selected them

Advanced considerations

- ▶ Description of internal taxonomy classification using recognized framework to apply “brown to green” scale by business segment
- 1. What is the minimum level of detail/specificity in the disclosure of climate-related risks/opportunities in the firm's portfolio?
- 2. How should you connect risk metrics for your firm (e.g., RWA, VaR) to science-based metrics (e.g., GHG emissions)?
- 3. How are firms prioritizing portfolios (e.g., credit cards, mortgages, auto) that should be analyzed for climate-change risk?
- 4. For any new models or enhancements, what is the level of governance (e.g., model review, SR 11-7)?

Open questions

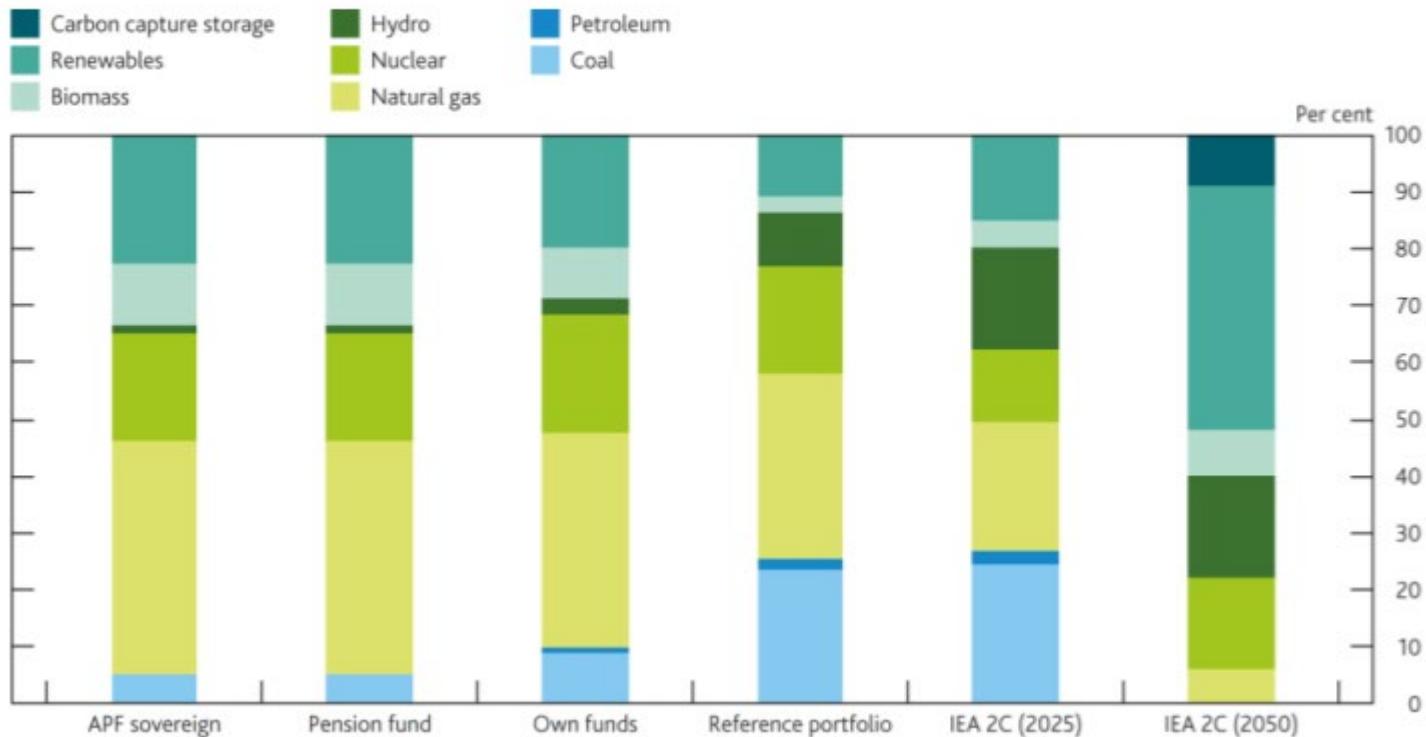
RISK MANAGEMENT GOOD PRACTICES – IDENTIFYING AND ASSESSING RISKS (2/2)

THE EXAMPLE SHOWS THE USE OF RISK MANAGEMENT PRACTICES TO DETERMINE SOVEREIGN ASSET EXPOSURE TO TRANSITION RISK IN THE SHORT AND LONG-TERM

BOE Case Study

[BOE Climate-related Financial Disclosure 2020](#)

Chart 4.3 Power generation profile of the Bank's sovereign asset holdings compared with estimated IEA 2°C scenarios in 2025 and 2050



METRICS AND TARGETS GOOD PRACTICES – KEY RISK METRICS (1/2)

A STANDARD SET OF METRICS SHOULD BE PROVIDED ALONG WITH THE METHODOLOGY FOR ASSESSING COMPLEX METRICS

Guidance on metrics

Playbook guidance

	<ul style="list-style-type: none">▶ Key risk metrics<ul style="list-style-type: none">▶ Metrics used to assess the impact of (transition and physical) climate-related risks on their lending and other financial intermediary business activities in the short, medium, and long term, including<ul style="list-style-type: none">▶ Balance sheet – credit exposure, equity and debt holdings, trading positions▶ % of total portfolio, % by sector▶ \$ of financing provided and revenue earned over a specified horizon▶ \$ of capital commitments▶ Break down by: industry, geography, credit quality, tenor▶ Amount and percentage of carbon-related (or climate sensitive) assets relative to total assets▶ Additional risk metrics are outlined in sections 2 and 3 of this document.
Baseline disclosures	<ul style="list-style-type: none">▶ Key alignment metrics<ul style="list-style-type: none">▶ Amount of lending and other financing connected with climate-related opportunities.▶ Common Own Operations metrics<ul style="list-style-type: none">▶ Scope I carbon emissions<ul style="list-style-type: none">▶ Total emissions▶ Air travel per employee▶ Energy use<ul style="list-style-type: none">▶ Total electricity consumption▶ Share of renewable energy▶ Waste, water, and materials consumption▶ Real estate footprint<ul style="list-style-type: none">▶ Share of office space in LEED-certified buildings
Advanced considerations	<ul style="list-style-type: none">▶ List of selected metrics and rationale, linked to strategic initiatives tracking progress to-date
Open questions	<ol style="list-style-type: none">1. What is the interval and time series to disclose data to demonstrate comparability (e.g., YoY – three-year time series)?2. How do you integrate metrics reporting for other frameworks?3. What specific TCFD recommended metrics should be consistently disclosed by banks?

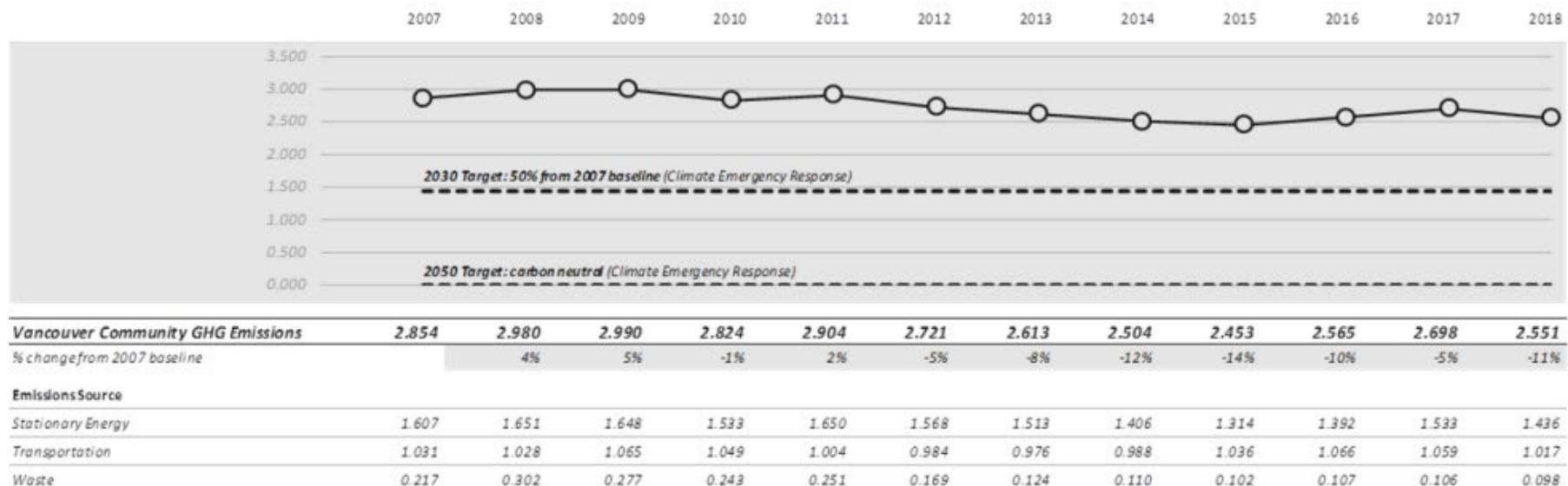
METRICS AND TARGETS GOOD PRACTICES – KEY RISK METRICS (1/2)

THE EXAMPLE BELOW PROVIDES A SET OF METRICS OVER MULTIPLE YEARS TO AID IN COMPARISON AND SHOW PROGRESS

City of Vancouver Case Study

[City of Vancouver's Statement of Financial Information 2019](#)

VANCOUVER COMMUNITY GREENHOUSE GAS EMISSIONS million tonnes CO₂e



GHG emissions inventory compiled according to the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC), "BASIC"

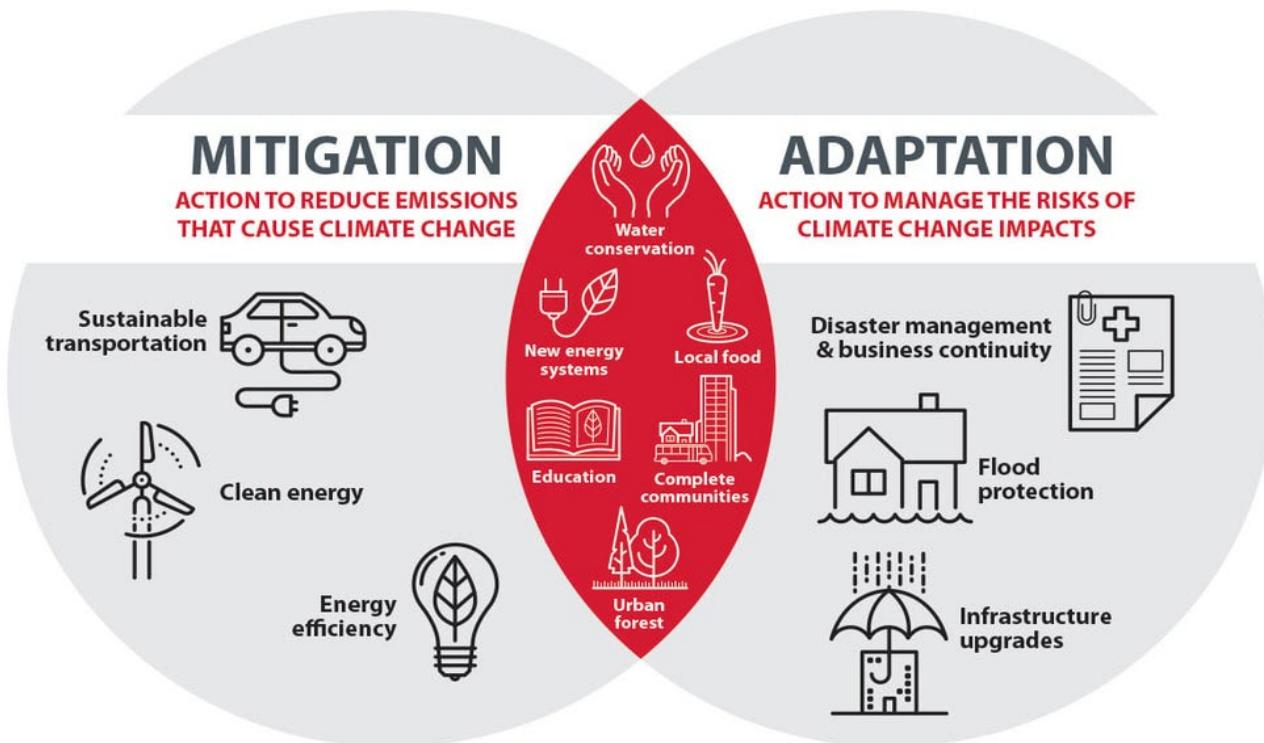
4

CLIMATE OPPORTUNITIES-SUPPORTING A RESILIENT WORLD

MITIGATION AND ADAPTATION TO CLIMATE CHANGE

RESPONDING TO CLIMATE CHANGE SHOULD INVOLVE SUPPORTING EMISSIONS REDUCTIONS (MITIGATION) AND RESILIENCY TO CLIMATE IMPACTS (ADAPTATION)

Building Climate Resilience



1. Calgary Climate Program, n.d.

MITIGATION FINANCE OPPORTUNITIES

INVESTMENTS BY FINANCIAL INSTITUTIONS CAN PROMOTE ENERGY EFFICIENCY AND LOWER CARBON EMISSIONS TO MITIGATE CLIMATE CHANGE

Climate mitigation opportunities

- Financial institutions play an important role in helping mitigate climate-related financial risks and help transition to a low carbon economy
- Climate mitigation finance can promote investment in renewables and energy efficiency
- Financing can take place in the following categories:
 - Renewable energy
 - Lower-carbon and efficient energy generation
 - Energy efficiency
 - Agriculture, forestry and land use (e.g. restorative farming)
 - Non-energy GHG reductions
 - Transport
 - Low carbon technology (e.g. hydrogen technology and carbon capture and storage)

Climate mitigation actions financial institutions can take

- Detailed due diligence and implementation of an exclusion policy for industries with high exposure of climate risks
- Providing incentives for customers to mitigate climate risks
- The use of metrics to trace firm's exposure to climate risks
- Integrating climate risks into assessments of credit risk
- Implementation of microprudential and macroprudential policies by financial authorities to encourage financial institutions to mitigate climate risks

Financial institutions need to implement policies and undertake risk assessments for climate mitigation

EXAMPLE OF PUBLIC FINANCE FOR MITIGATION

THE PUBLIC SECTOR PLAYS A CRITICAL ROLE IN FINANCING CLIMATE MITIGATION EFFORTS

- The Abu Dhabi Fund for Development (ADFD) and the International Renewable Energy Agency (IRENA) have invested US\$350 million into a renewable energy development facility
- The European Commission Life Programme has supported:
 - A project to develop affordable low-carbon solution to be implemented on new building construction in the EU to reduce the carbon footprint of new buildings. The project beneficiary, ecoXia, will develop and demonstrate its solution on Smart Building Envelope (SBE) on new buildings in France.
 - A project to promote a low-carbon agricultural system to enhance the capacity of soil as a carbon sink. The project assessed the impact of different conservation agriculture practices and quantified the mitigative capacity of soil management systems in the Mediterranean Basin. The project aimed to develop a method for calculating the carbon footprint at different crop cultivation stages, in line with international standards.



ADAPTATION FINANCE OPPORTUNITIES

AN EVOLVING LANDSCAPE OF ADAPTATION INVESTMENT OPPORTUNITIES ARE EMERGING ALLOWING FOR BOTH A SOCIETAL IMPACT AND FINANCIAL RETURNS

Climate adaptation opportunities

- By 2050, adaptation to climate change in developing countries could cost between \$280 and \$500 billion yearly¹
- A variety of new instruments has emerged mobilizing greater private capital for adaptation projects
 - Social impact bonds can provide a lower lending rate for ESG performance thus promoting investments in adaptation²
 - The market for green bonds has been growing and in 2018 topped US\$167 billion
 - Resilience bonds quantify and protect against climate risks and in the process can lower the cost of financing infrastructure potentially at risk

Examples of adaptation finance

- HSBC maps risks from expected climate impacts in terms of food losses, water stress and healthcare costs.
- Swiss Re, the World Bank and the government of Uruguay partnered to complete a US\$450 million hydroelectricity insurance transaction
- Allianz issues a catastrophe bond, offers micro-insurance products against climate impacts and launches crop insurance.
- The goal of the Water Environmental Impact Bond issued by the District of Columbia in 2017 was twofold:
 - Funding a system for managing stormwater runoff that mimics natural processes
 - Integrating new performance-based terms that reduce interest paid to bondholders if stormwater management attains certain thresholds of success

1. UNEP FI, 2017

2. UNEP FI, 2019

EXAMPLES OF PUBLIC FINANCE FOR ADAPTATION

THE PUBLIC SECTOR PLAYS A CRITICAL ROLE IN FINANCING THE ADAPTATION TO CLIMATE CHANGE

- The German Corporation for International Cooperation (GIZ) has funded several projects in Latin America to promote climate resilience₁:
 - The investment management scheme INVIERTE.PE came into force in February 2017
 - It supported the research of a local university to draw lessons from El Niño events on how infrastructure (road, bridges) can become climate resilient
- The European Commission Life Program has supported₂:
 - France, Hungary, Germany and Austria to adapt vineyard management practices (I.e. resource-efficient fertilization and demand-orientated drip irrigation): €2,8M
 - The development of ventilated and permeable roofs (VPRs) in Italy to allow the roofs to breathe and disperse the accumulated solar heat: €3M
 - A tree-oriented management approach in the Dutch forests to increase the resilience of these ecosystems and develop capacity-building in other European countries: €5,3M
- The Clean Technology Fund supported the development of a solar plant the size of around 3,500 football fields in Morocco. This facility produces 580 MW.₃

1. GIZ, 2019

2. European Commission, 2021

3. Climate Investments Fund, 2018

5

UNEP FI: A PARTNER IN SUSTAINABILITY

SINCE 2017, UNEP FI'S TCFD PROGRAMS HAVE HELPED DOZENS OF FINANCIAL INSTITUTIONS TO IMPLEMENT THE TCFD'S RECOMMENDATIONS



TCFD BANKING PHASE I: PROGRAM OVERVIEW

UNEP FI AND 16 MEMBER BANKS WORKED WITH OLIVER WYMAN AND ACCLIMATISE TO DEVELOP APPROACHES TO QUANTIFYING CLIMATE-RELATED RISKS

UNEP FI consortium

- Following the publication of the TCFD recommendations, UNEP FI convened a consortium of **16 international banks** to pilot climate scenario analysis
- UNEP FI and the consortium collaborated with Oliver Wyman and Acclimatise to develop a **methodology for assessing climate change-related risks and opportunities**



Key outcomes

- Increased the amount of **reliable information** on exposure to climate
- Promoted **consistency and comparability** in climate change assessments
- Developed a methodology that is **adaptable and flexible** for banks in all geographies
- Enhanced the ability to **implement the TCFD recommendations**

TCFD BANKING PHASE II: PROGRAM OVERVIEW

39 GLOBAL BANKS FROM 6 CONTINENTS WORKED TO EXPAND THEIR CLIMATE RISK TOOLKITS



Climate scenarios

- Explore the spectrum of climate scenarios
- Identify scenario differences and key assumptions
- Learn how to use scenarios to assess risks and opportunities
- Identify relevant internal and comparable reference scenarios



Data and methodology

- Determine availability of climate relevant asset-level data
- Advance and refine phase I methodologies for risk and opportunity assessment
- Create a comprehensive risk taxonomy across sectors and geographies
- Develop best-practices around sector/geographical assessments



Reporting and governance

- Understand expectations around TCFD disclosures
- Develop approaches to standardize disclosures
- Develop practices for creating an internal climate risk program
- Draft TCFD disclosures

TCFD BANKING PHASE II: OUTPUTS

THESE DELIVERABLES PROVIDE INDUSTRY PERSPECTIVES ON SCENARIOS, METHODOLOGIES, AND DISCLOSURES

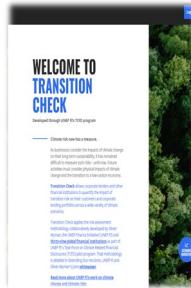
Physical risk blueprint

- Developed with Acclimatise
- Assessment of existing data portals
- Piloting of physical risk tools
- Piloting of correlation analysis
- Exploration of opportunities



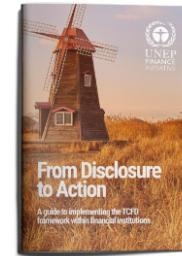
Transition risk webtool

- Developed with Oliver Wyman
- Open to all UNEP FI members
- Publicly available scenario visualizer
- Can incorporate most IAM scenarios



Transition risk perspective papers

- Financial sector use of climate scenarios
- Evaluating a disorderly transition
- Extending the phase I methodology
 - Transition risk heatmaps
 - Expansion to new sectors
- Climate risk governance and application



TCFD template and database

- Collaboration with IIF
- Guide to best practices on disclosure
 - Illustrative examples
 - Specific details for each disclosure
- Database to assess existing disclosures
 - Evaluation of methodologies used
 - Opportunity for peer benchmarking

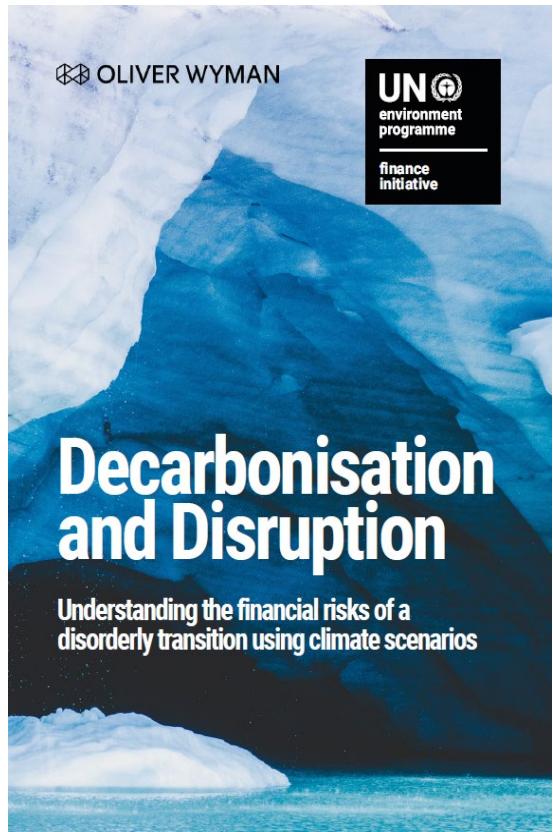


RECENT UNEP FI TCFD REPORT RELEASES

UNEP FI'S REPORTS PROVIDE ACTIONABLE GUIDANCE ON CLIMATE RISK TOPICS FOR PRACTITIONERS TO ADVANCE INDUSTRY GOOD PRACTICES

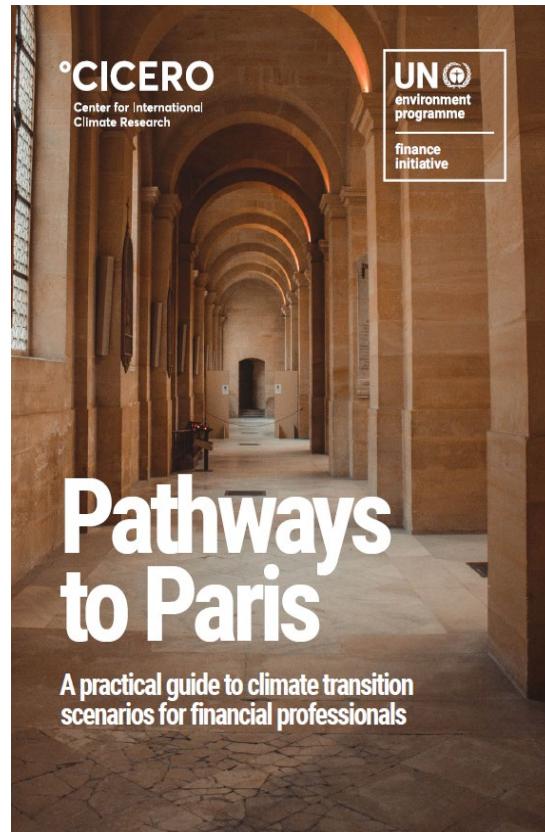
Decarbonisation and Disruption

Sectoral effects of disorderly transition



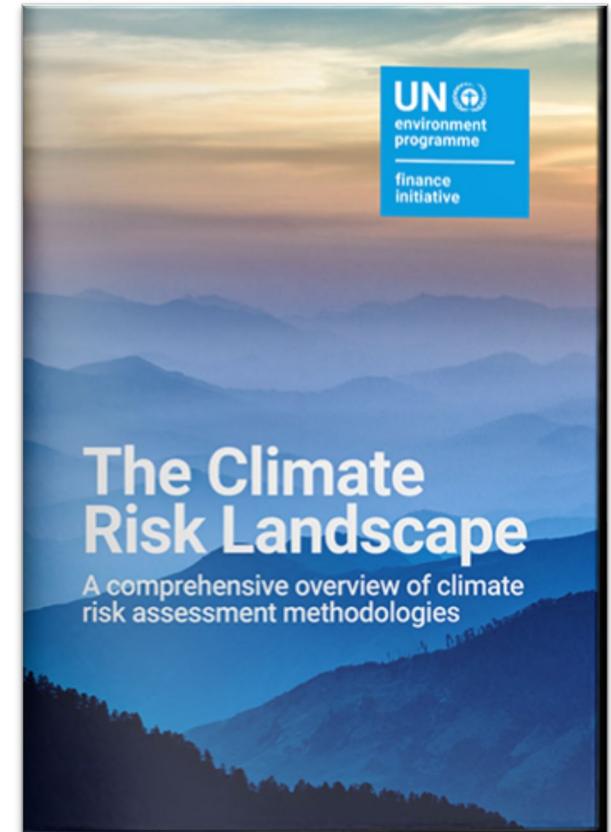
Pathways to Paris

Primer on transition pathways



The Climate Risk Landscape

Tool and methodology perspectives



TCFD PROGRAM OBJECTIVES

PROVIDE FINANCIAL INSTITUTIONS WITH INDUSTRY LEADING APPROACHES FOR ASSESSING CLIMATE RISKS AND OPPORTUNITIES

Identify

Climate Risks and Opportunities



- Firms learn about the diverse set of climate risks and how they are exposed
- Firms consider the implications of climate change on specific sectors

Measure

Climate Risks and Opportunities



- Firms can assess the impacts of a wide range of climate scenarios
- Firms gain an institutional perspective of climate risks (both physical and transition)

Manage

Climate Risks and Opportunities



- Firms understand the active measures needed to mitigate their climate risks and support the low-carbon transition
- Firms integrate climate insights throughout their operations and overall strategy

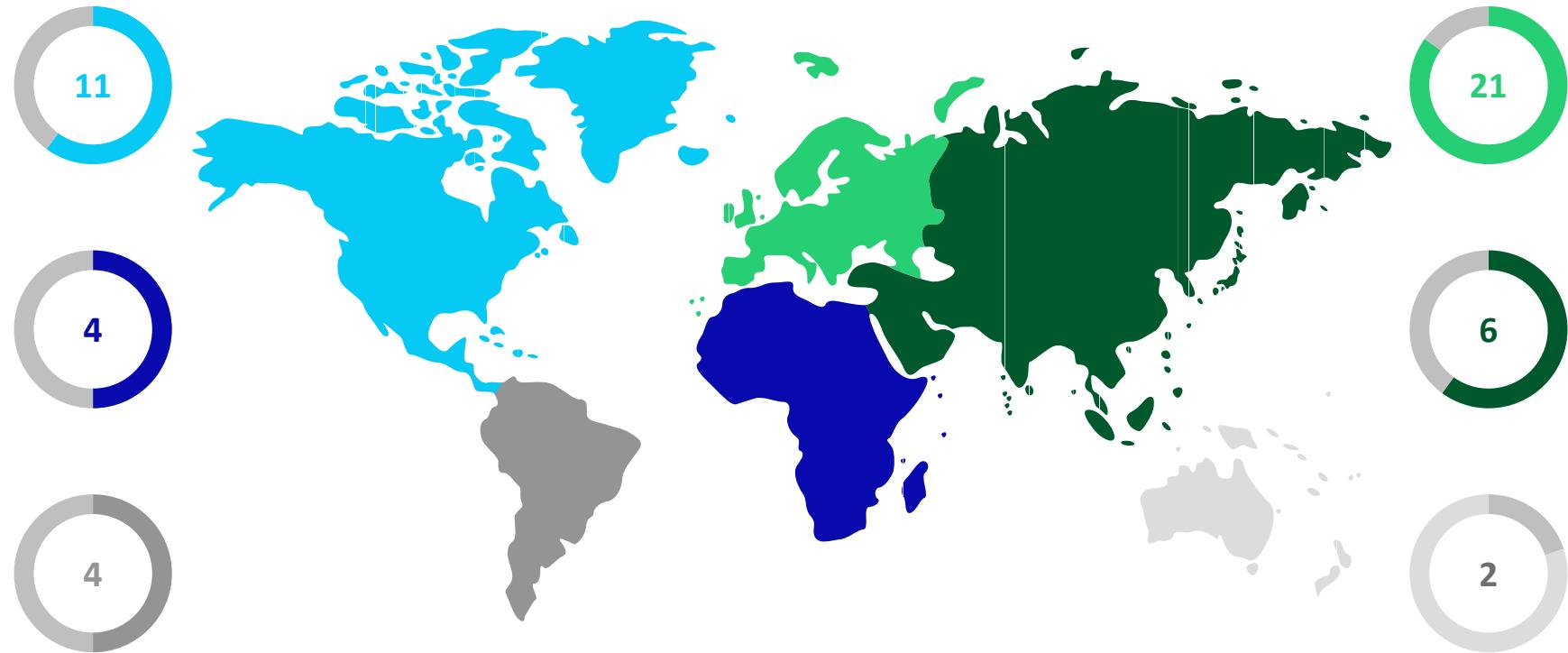
Overall Goal: Through this program, firms will be able disclose the quantitative and qualitative results of their climate practices in a comprehensive TCFD report

PHASE III CURRENT SIGN-UPS

FORTY-EIGHT BANKS AND INVESTORS HAVE ALREADY SIGNED UP WITH OVER A DOZEN OTHERS INDICATING INTEREST

Current sign-ups by region

Number reflects confirmations



The program will provide diverse perspectives on regional, sectoral, and regulatory topics

CURRENT MODULES (ADDITIONAL MODULES MAY BE ADDED PENDING CAPACITY)

MODULES ARE HANDS ON OPPORTUNITIES FOR PARTICIPANTS TO WORK ON SPECIFIC TOPICS IN CLIMATE RISK

Q1 2021 Modules

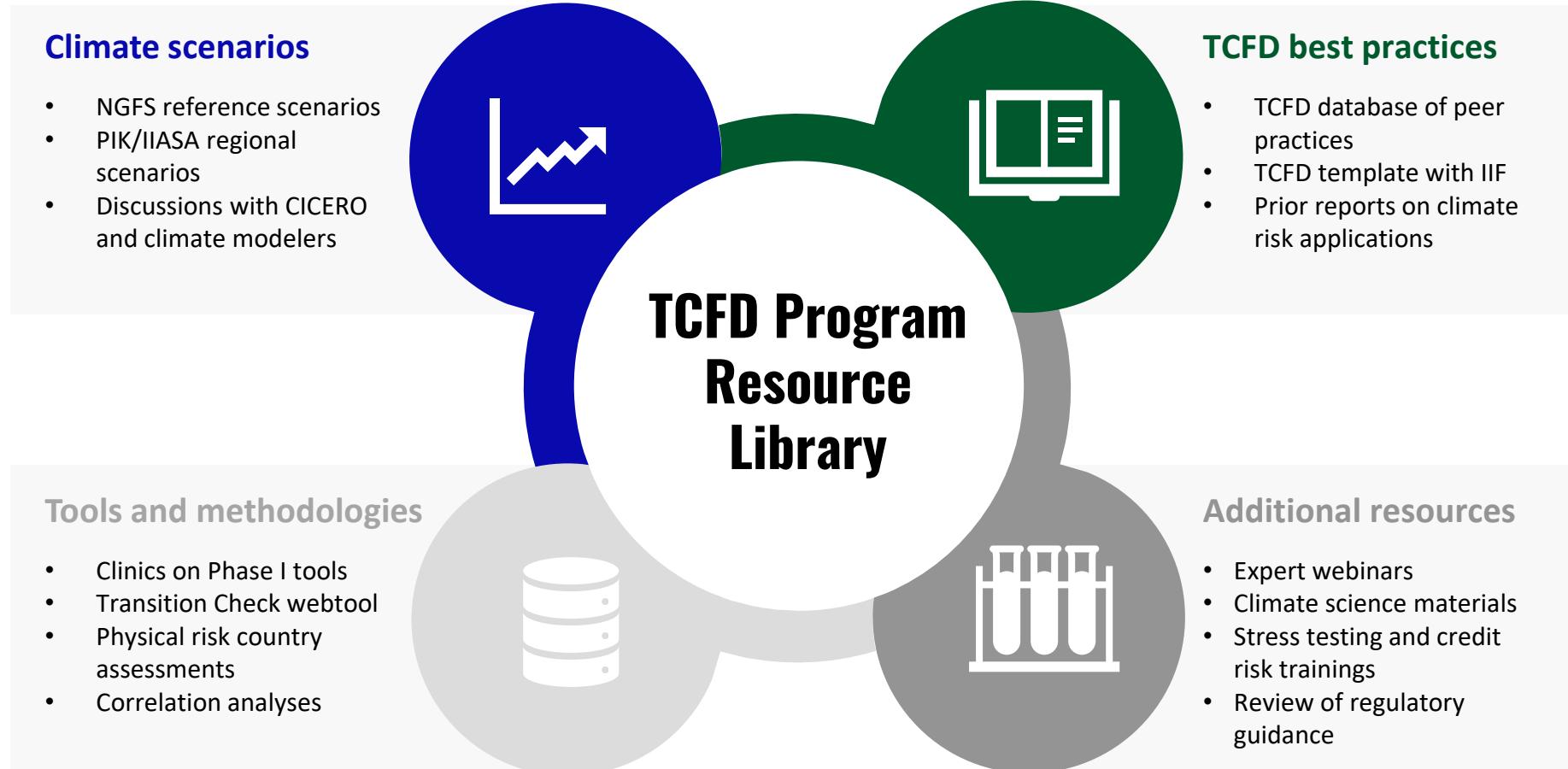
Module	Activities
Sectoral Climate Risks	<ul style="list-style-type: none"> Create sectoral working groups Identify relevant sectoral and regional risk drivers with support from experts Provide feedback to NGFS and climate modelers on incorporating risk drivers into new scenarios Explore a broader range of transition scenarios with CICERO
Landscape Review of Physical and Transition Risk Assessment Methodologies	<ul style="list-style-type: none"> ETH to provide a view on their research into transition and physical risk tools Conduct a demo of a specific tool Identify use cases and compare tools
Real Estate Assessment Best Practices	<ul style="list-style-type: none"> Extend CRREM to North America and Asia Training using CRREM and conducting risk assessments
Climate Stress Testing	<ul style="list-style-type: none"> Examine existing climate stress tests Develop practices for executing climate stress tests Create a short-term macroeconomic scenario for assessment

Q2 2021 Modules

Module	Activities
Economic impacts of Climate Change	<ul style="list-style-type: none"> Training on latest economic damage models for physical and transition risks Identify causal relationships between climate events and economic harms Discuss how economic factors can inform climate scenario modeling
Climate Risk Management and Disclosure Best Practices	<ul style="list-style-type: none"> Determine the appropriate set of metrics for TCFD disclosures Create a board-level dashboard
Supporting Client Transitions and Climate Risk Underwriting	<ul style="list-style-type: none"> Use CISL client engagement tool Produce guidance for client engagement and underwriting Develop approach for assessing scenario impacts on borrowers
Portfolio-Implied Temperatures	<ul style="list-style-type: none"> Training on the SBTi approach to implied temperatures Exploration of carbon accounting methodologies

UNEP FI RESOURCES

ALL PARTICIPANTS HAVE FULL ACCESS TO THE WIDE RANGE OF PAPERS, WEBINARS, FRAMEWORKS, AND TOOLS IN THE TCFD PROGRAM LIBRARY



THANK YOU!

PLEASE FEEL FREE TO REACH OUT WITH ANY QUESTIONS



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