



OXFORD  
SUSTAINABLE  
FINANCE  
GROUP



# CLIMATE-RELATED FINANCIAL RISK PROGRAMME

*Executive Education at Oxford Sustainable Finance Group,  
University of Oxford | 17 – 19 June 2024*





# WELCOME TO THE CLIMATE-RELATED FINANCIAL RISK PROGRAMME

Measuring and managing climate related financial risks is critical for institutions across the financial system. This has been made clear by the G20 Task Force on Climate-related Financial Disclosures (TCFD), as well as by central banks and financial regulators around the world via the Network for Greening the Financial System (NGFS).

Physical climate change impacts and societal responses to climate change are already stranding assets across sectors of the global economy and this looks set to accelerate. This has very real implications, including in the near-to-mid-term, that need to be appropriately and professionally managed.

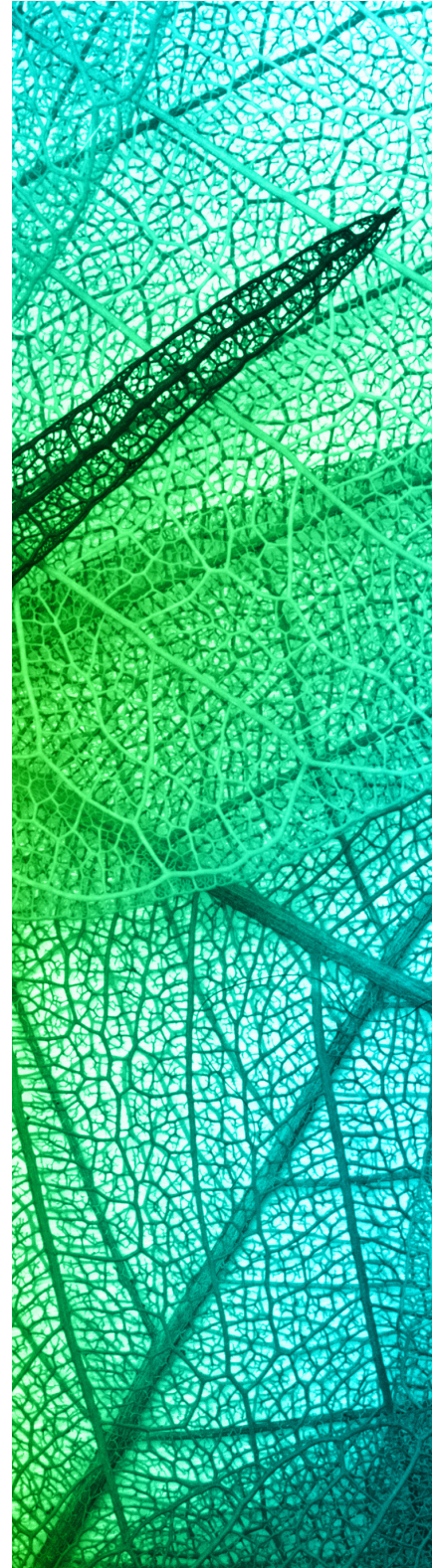
Yet practice has not caught up with the theory and the field is developing quickly. The Climate-related Financial Risk Programme (CFRP) is designed to equip participants with the very latest knowledge on climate-related financial risks, as well as the expertise, networks, and confidence to design and implement practices for measuring and managing these risks.

The programme has been designed and developed by the Oxford Sustainable Finance Group to support individuals working in a range of areas, including: risk officers in financial institutions; analysts and portfolio managers; corporate risk managers and strategists; financial regulators supervising or considering how to supervise firms in relation to climate-related risk; government officials integrating climate-related risk into government decision-making and policy; and NGOs working on climate-related financial risks.

The programme is centred around a three-day residential workshop held at the University of Oxford. Participants will become part of our growing alumni community and receive invitations to our events and conferences. All alumni also receive a 15% discount on all other Oxford Sustainable Finance Group open enrolment executive programmes.

**Dr Gireesh Shrimali**

*Head of Transition Finance Research,*  
Oxford Sustainable Finance Group, University of Oxford





## INTRODUCTION

**The programme will be held over three consecutive days and will explore the emerging theories and practice of climate-related financial risks. Through the programme participants will be provided with an understanding of how to navigate and critically analyse the key aspects and developments in climate-risks. Moreover, participants will:**

- Understand how different asset classes, sectors and geographies will need to measure and manage the climate risk equilibrium;
- Explore how different regulatory and supervisory expectations of climate-related risk are evolving in different jurisdictions;
- Review the data required for different kinds of climate-related risk analysis, and learn what data is available and its quality, and the trade-offs associated with different datasets;
- Form a global network of like-minded professionals that are approaching climate-related financial risk from different angles and professional perspectives;
- Learn from, challenge, and engage in conversation with leading Oxford faculty and expert practitioners who blend research with experience;
- Embark on a unique 'Oxford experience' and explore first-hand some of the history and culture that the city has to offer including candlelit college dinners.

Our programmes are designed to equip participants with essential foundational knowledge of core principles and concepts in sustainable finance, as well as an advanced understanding of the very latest developments. They are the ideal preparation for current and emerging professional examinations in sustainable finance and related areas.





# CONTENT

**Content across the programme is structured around the very latest evidence of climate-related risks, the elements of the toolkit required to measure climate-related risks, and how this can be implemented in practice within financial institutions.**

DAY I – EVIDENCE	<ul style="list-style-type: none"><li>• An Introduction to Climate-related Financial Risks</li><li>• Climate-related Physical Risk</li><li>• Climate-related Transition Risk</li><li>• Climate-related Legal Risk</li></ul>
DAY II – THE TOOLKIT	<ul style="list-style-type: none"><li>• Reflections and Introduction</li><li>• Climate and Energy Transition Scenarios</li><li>• Measuring Climate-related Risk</li><li>• Data for Climate-related Risk Analysis</li><li>• Synthesis: Applying the Toolkit in Different Contexts</li></ul>
DAY III – IMPLEMENTATION	<ul style="list-style-type: none"><li>• Reflections and Introduction</li><li>• What is Off-the-Shelf and is it Any Good?</li><li>• Supervisory and Regulatory Developments: From Expectations to Practice</li><li>• Programme Synthesis and Feedback</li></ul>

*“The course was fantastic; with a well curated mix of people and participants which made for very real, and very rich conversations”*

PREVIOUS PROGRAMME PARTICIPANT





## PARTICIPANTS

### Participants on the programme have attended from organisations including:

- Barclays Bank
- Environment Agency
- Bank of England
- Linklaters LLP
- Kresge Foundation
- CBRE Global Investors
- KPMG
- Legal & General

### Job titles of participants on the programme have included:

- Head of Clean Energy Strategy
- Senior ESG Analyst
- Chief Risk Officer
- Senior Credit Analyst
- Policy Advisor
- Credit Risk Manager
- Asset Manager
- Stress Testing Expert

## PROGRAMME DIRECTOR



**Dr Gireesh Shrimali** is the Head of Transition Finance Research at the Oxford Sustainable Finance Group and the Technical Lead in the Secretariat for the UK Transition Plan

Taskforce, established by HM Treasury in 2022. He is also a Visiting Scholar at the Center for Climate Finance and Investment at Imperial College London as well as the Singapore Green Finance Center at Singapore Management University. Previously, he was the Director of Climate Policy Initiative's India Program, and a Research Fellow at the Sustainable Finance Initiative as well as the Steyer-Taylor Center for Energy Policy and Finance at Stanford University. He has taught at Johns Hopkins University, Middlebury Institute of International Studies, Indian School of Business, and Indian Institute of Management.

His research focus is on renewable energy finance and policy, on the catalytic role of finance in getting to net zero, and on pathways for provision of low-cost, long-term capital for clean energy transition. He is also focusing on ESG issues, such as climate financial risk measurement and management, strategies for net zero transitions, and transition bonds as well as Scope 3 emissions. His work has included topics such as analysis of India's renewable policies, the impact of federal and state policy on the development and deployment of renewable energy in the USA, and business models for off-grid energy in developing countries.

He holds a PhD from Stanford University, an MS from the University of Minnesota, Minneapolis, and a BTech from the Indian Institute of Technology, New Delhi. Prior to his academic career, he has over nine years of industry experience designing high-speed networking and computing systems.





## SPEAKERS

### Previous speakers on the programme have included:

- Dr Ben Caldecott, Director, Oxford Sustainable Finance Group and the Lombard Odier Associate Professor and Senior Research Fellow
- Bob Litterman, Senior Partner and Chairman of Risk Committee, Kepos Capital and former Head of Risk, Godman Sachs
- Dr Nicole Röttmer, CEO, The CO-Firm
- Dr Friederike Otto, Senior Lecturer in Climate Science, Grantham Institute for Climate Change and the Environment, Imperial College London
- Dr Jakob Thomä, Co-Founder & Research Director, Theia Finance Labs
- Ellie Mulholland, Director, Commonwealth Climate and Law Initiative

Speakers on the 2024 iteration of the programme will include a similar calibre of industry pioneers and academics.

## ACCOMMODATION

Accommodation will be provided at an Oxford College and be made available for three nights. Extensions to accommodation are available on request, but dependent on availability.

## TRAVEL

The most convenient airport to get to Oxford from is London Heathrow which has a good bus connection that operates every 20-30 minutes, with a journey time of roughly 80-90 minutes. London Gatwick is relatively well served with buses to and from Oxford, however the journey time is longer at roughly two and a half hours with coaches running hourly. Birmingham International Airport is connected to Oxford by train with a journey time of 60 minutes for direct routes.



## OXFORD SUSTAINABLE FINANCE GROUP

**The Oxford Sustainable Finance Group, at the University of Oxford Smith School of Enterprise and the Environment, is a multidisciplinary research centre working to be the world's best place for research and teaching on sustainable finance and investment. We were established in 2012 to align the theory and practice of finance and investment with global environmental sustainability.**

We research environment-related risks, impacts, and opportunities across sectors, geographies, and asset classes; how such factors are emerging and how they affect asset values; how this might be correlated; their materiality; who will be affected; and what affected groups can do to manage risk. We have conducted pioneering research on stranded assets and continue to do so. We are in the process of establishing the Environmental Stress Testing and Scenarios Programme (ESTS), which will deliver the next generation of stress tests and scenarios to enhance the resilience of the global financial system to climate and environmental risks.

The production of high-quality research on the materiality of environment-related factors is a necessary, though insufficient, condition for these factors to be successfully integrated into decision-making. Consequently, we develop the data, analytics, frameworks, and models required to enable the integration of this information.

We are pioneers and advocates of 'spatial finance', which brings geo-spatial capabilities into financial analysis. We are developing new asset-level datasets through data science and combining these with new approaches to spatial analysis, scenarios, and stress tests.

We also research barriers to the adoption of practices related to sustainable finance and investment. This includes the role of governance, norms, behaviour, and cognition, as well as policy and financial regulation in shaping investment decisions and capital allocation.

We work with leading practitioners from across the investment chain (including actuaries, asset owners, asset managers, accountants, banks, data providers, investment consultants, lawyers, ratings agencies, stock exchanges), with firms and their management, and with experts from a wide range of related subject areas (including finance, economics, management, geography, data science, anthropology, climate science, law, area studies, psychology).

The Global Sustainable Finance Advisory Council that guides our work contains many of the key individuals and organisations working on sustainable finance. The Council also has a role in helping to informally co-ordinate and share information on sustainable finance and stranded assets work internationally. The Oxford Sustainable Finance Group's founding Director is Dr Ben Caldecott.



## RESEARCH

**Content taught across the Climate-related Financial Risk Programme is underpinned by the research outputs from the Oxford Sustainable Finance Group. Some examples of recent publications by the group in this field include:**

- Shrimali, G. (2022) Scope 3 Emissions: Measurement and Management. *The Journal of Impact and ESG Investing* [Preprint], (Fall 2022).
- Zhou, X.Y. et al. (2022) Bank green lending and credit risk: an empirical analysis of China's Green Credit Policy. *Business Strategy and the Environment*, 31(4), pp. 1623–1640.
- Ranger, N., Mahul, O. and Monasterolo, I. (2021) Managing the financial risks of climate change and pandemics: What we know (and don't know). *One Earth*, 4(10), pp. 1375–1385.
- Caldecott, B. (2020) Climate risk management (CRM) and how it relates to achieving alignment with climate outcomes (ACO). *Journal of Sustainable Finance & Investment*, 12(4), pp. 1167–1170.
- Caldecott, B. (2020) Achieving Alignment In Finance. *UNEP Finance Initiative*, pp. 1–21.
- Barker, S., Mulholland, E. and Caldecott, B.L. (2019) Directors' liability and climate risk: navigating the step change in disclosure and governance expectations. In, Kuilman, M. and Kloosterman, W. (eds.) *Sustainability and Financial Markets*. De Nederlandsche Bank, Amsterdam, Netherlands.
- Caldecott, B.L. and Dericks, G. (2018) Empirical calibration of climate policy using corporate solvency: a case study of the UK's carbon price support. *Climate Policy*, 18(6): 766-780.
- Caldecott, B.L. (ed.) (2018) *Stranded assets and the environment: risk, resilience, and opportunity*. Routledge, London. pp. 340. ISBN: 9781138120600.



- Caldecott, B., Dericks, G., Bouveret, G., Schumacher, K., Pfeiffer, A., Tulloch, D.J., Kruitwagen, L. and McCarten, M. (2018) *Asset - level data and the Energy Transition: Findings from ET Risk Work Package 2*. Smith School of Enterprise and the Environment, University of Oxford, Oxford, UK.
- Caldecott, B., Kruitwagen, L., McCarten, M., Zhou, X., Lunsford, D., Marchand, O., Hadjikyriakou, P., Bickel, V., Sachs, T. and Bohn, N. (2018) *Climate risk analysis from space: remote sensing, machine learning, and the future of measuring climate-related risk*.
- Caldecott, B.L. (2018) *Water infrastructure for climate adaptation: the opportunity to scale up funding and financing*. World Water Council (Marseille, France) and Global Water Partnership (Stockholm, Sweden).
- Kruitwagen, L., Madani, K., Caldecott, B. and Workman, M.H.W. (2018) *Game theory and corporate governance: conditions for effective stewardship of companies exposed to climate change risks*. Chapter 7 in, *Stranded Assets: Developments in Finance and Investment*. Routledge.

## WHAT IS RATIONALE BEHIND THE PROGRAMME?

*“Climate change, and the impacts of climate are reshaping sectors of the global economy. Physical climate impacts are already having a pronounced effect on the value of assets, and on livelihoods around the world. There is a growing risk of litigation and liability associated with climate change, how societies react to tackle climate change through policy, through regulation, through technological change, social norms and so on and so forth is also significant. These factors are really significant to your risk list, and they look set to grow. This is one of the biggest issues facing economies, corporations, financial institutions, and so the programme is all about that, and understanding that and then turning that into something that will make a difference in your institutions, and primarily it is focused on the measurement and management and disclosure.”*

Dr Ben Caldecott, Director, Oxford Sustainable Finance Group and the Lombard Odier Associate Professor and Senior Research Fellow

## WHO IS THE PROGRAMME FOR?

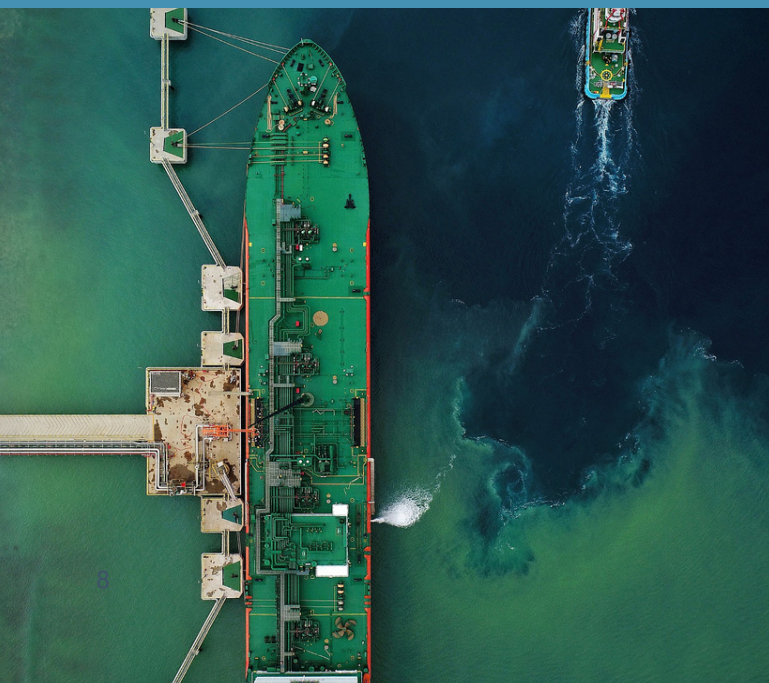
*“The climate-related financial risk programme is designed for people working in organisations who are looking to integrate climate-related financial risk into strategy and into management in their institutions. It’s also meant for people that are working closely on the Taskforce for Climate-related Financial Disclosures, and for people responding to increased regulatory supervision on climate change. If you are in an institution thinking about climate-related financial risk in terms of how do you measure it, how do you manage it, how should you disclose it, how should you report it, or how should you systematically integrate it into a whole variety of different functions then this is the programme for you.”*

Dr Ben Caldecott, Director, Oxford Sustainable Finance Group and the Lombard Odier Associate Professor and Senior Research Fellow

## WHY DO WE PROVIDE EXECUTIVE EDUCATION?

*“In the end this is all about people and getting people from companies to learn what is happening at the cutting edge of environmental thinking at a University has the potential to create considerable impact.”*

Sir Martin Smith, Founder, Smith School of Enterprise and the Environment





## FEES

The fee for the Climate-related Financial Risk Programme is £4,500. There is a discretionary discounted rate of £3,500 for participants whose proven primary employment is in the public and third sectors. We define the public and third sectors as:

- central or local government
- regulatory agencies
- supervisory authorities
- central banks
- multilateral institutions
- non-profit civil society organisations
- registered charities
- philanthropic organisations

State-backed companies, including public financial institutions, operating to make a commercial return are not eligible for discretionary discounts. Nor are consultants serving public and third sector clients.

We apply the discretionary discount on a case-by-case basis and will prioritise those from emerging markets and developing countries. At the same time as considering a discretionary discount we will consider eligibility for bursaries based on merit and need. We may request further information from you and your employer before we can process a discount or bursary

The programme fee includes all teaching costs, en-suite accommodation in Oxford for three nights, breakfast, lunch and a dinner. It does not include the cost of travel to and from Oxford, visas, insurance or any personal expenses.

## APPLICATIONS

Applications are reviewed on an ongoing basis, and candidates are considered until the Programme reaches capacity. Applicants will be expected to demonstrate their suitability for the Programme in terms of:

- The relevance of the Programme to their occupation and organisation'
- Their experience and potential, particularly in areas related to Programme content'

Candidates should apply online at:

**[www.smithschool.ox.ac.uk/course/climate-related-financial-risk-course](http://www.smithschool.ox.ac.uk/course/climate-related-financial-risk-course)**



*“The programme provided excellent content and insights on upcoming developments and uncertainties which strengthened my understanding of the issues at hand”*

PREVIOUS PROGRAMME PARTICIPANT

# SUSTAINABLE FINANCE EDUCATION AT OXFORD

Training current and future leaders is one of our theories of change. We offer a full range of programmes, including both open-enrolment executive and customised programmes delivered in-person, online, and blended, as well as undergraduate and graduate teaching and supervision for students enrolled at the University of Oxford.

## Open-enrolment Programmes:

- [Stewardship and Engagement Leadership Programme](#)
- [Sustainable Finance Executive Programme](#)
- [Climate-related Financial Risk Programme](#)
- [Oxford Programme on Net Zero Aligned Offsetting](#)

## Online Programmes:

- [Sustainable Finance: ESG and the Future of Finance](#)

## Customised Programmes:

- Customised programmes are individually tailored for organisations to enable them to engage critically with systems and theories in sustainable finance and investment.

## Public and Third Sector Academy for Sustainable Finance (P3S Academy):

- The P3S Academy is a global centre of learning and capacity building focused on enabling the public and third sectors to grasp the opportunities associated with sustainable finance. Established in 2021, the P3S Academy supports central and local government, regulators, supervisory authorities, multilateral institutions, campaigning NGOs, charities, and philanthropy with access to significantly subsidised and free training on sustainable finance topics.

## Degree Awarding:

- The DPhil is the University of Oxford's premier research degree, awarded to candidates who have successfully completed a major piece of original research. The course provides support and an intellectual environment to pursue your own independent research.

## Oxford Sustainable Finance Group

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