



Task Force 02

**SUSTAINABLE CLIMATE ACTION AND INCLUSIVE JUST ENERGY TRANSITIONS**

## Mainstreaming Physical Climate Risk Disclosures and Adaptation in ESG Matrices

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## Abstract


The New Delhi Declaration solidifies the G20's commitment to achieving net-zero emissions by around 2050, stressing corporate adherence to Net-zero targets and essential policy and regulatory measures, including climate disclosure. However, the alarming breach of the 1.5°C global warming limit and a projected surge in extreme weather events causing nearly USD 223.8 billion in losses in 2022 alone necessitate urgent attention to climate adaptation and disclosure of physical climate risks within mainstream ESG frameworks. As of 2022, merely 4 per cent of the top 100 companies align fully with the Task Force on Climate-Related Disclosures (TCFD) recommendations, primarily focusing on transitional climate risks<sup>1</sup>. A lack of awareness, the complexity of frameworks, and a dearth of detailed guidelines on physical climate risk on financial metrics pose significant challenges to disclosing this material risk. This limited disclosure impedes investors and lenders from appropriately assessing risks, leading to the misallocation of capital, threatening financial stability, and arresting economic growth.

Amidst the TCFD's transition into the International Sustainability Standards Board (ISSB), we analyse how prepared the corporations of the G20 countries are to disclose physical climate risks. In this paper, we recommend guidelines on how to integrate physical climate risk disclosures into ESG frameworks. This involves developing detailed guidelines on how to conduct these risk assessments, ensuring interoperability of

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<sup>1</sup>Task Force on Climate-related Financial Disclosures. 2023. "Task Force on Climate-related Financial Disclosures 2023 Status Report." TCFD.

<https://www.fsb.org/2023/10/2023-tcfd-status-report-task-force-on-climate-related-financial-disclosures/>.



disclosure frameworks across G20 countries to eliminate the need for reporting from multiple avenues, and developing a climate risk modelling platform for knowledge sharing and capacity building. Additionally, we explore scenarios of outcomes that involve trade-offs of the recommendations and a shift from qualitative to quantitative disclosures of physical climate risk and adaptation strategies through global cooperation. We explore how these strategies can positively impact stakeholders, advocating for a comprehensive approach to climate resilience that generates social, economic, and environmental co-benefits.

**Keywords:** Environmental, Social, and Governance (ESG) disclosures, sustainable finance, physical risks, climate resilience, climate change, disaster risk reduction

## Diagnosis

Environmental, social, and governance (ESG) disclosures are gaining momentum as a means to encourage sustainable business practices through enhanced data transparency. Many countries are now developing their frameworks and mandating them for large corporations to promote responsible corporate behaviour. The New Delhi Declaration highlights the G20's dedication to achieving net-zero emissions by 2050, stressing corporate adherence to NetZero objectives and emissions transparency through sustainability reporting. At the same time, as the breach of the 1.5-degree Celsius global warming threshold looms, the frequency of extreme weather events and climate variability is increasing, disproportionately impacting vulnerable populations and sectors in developing countries (World Meteorological Organization 2023). Given this scenario, a crucial question arises: How prepared are large businesses and Small and Medium-sized Enterprises (SMEs) in G20 countries to disclose and address physical climate risks in their ESG and sustainability reporting?

Within ESG frameworks, the 'Environment' pillar encompasses disclosures across various metrics, such as emission reduction, climate risk mitigation, as well as energy and water consumption, biodiversity, and waste management. Despite increased disclosures on carbon emissions using global ESG frameworks like Global Reporting Initiative (GRI), United Nations Global Compact (UNGC), Carbon Disclosure Project (CDP), and International Sustainability Standards Board (ISSB) (built on Task Force on Climate-Related Financial Disclosures (TCFD) and Sustainability Accounting Standards Board (SASB)) due to regulatory requirements and investor pressure, disclosures and adaptation

to physical climate risks have been slow (Organization for Economic Cooperation and Development 2021).

For businesses, disclosing physical climate risks is imperative on multiple fronts to gain a competitive advantage: inform lenders and investors to take informed decisions, comply with regulatory standards, and develop robust risk management mechanisms to mitigate physical risks. This advantage manifests in two key aspects. Firstly, it involves making proactive decisions that enhance business resilience. Secondly, it entails recognising and capitalising on adaptation opportunities ahead of competitors. A recent report from the G20 advisory body reveals a 26 per cent increase in corporations disclosing climate-related risks and opportunities between 2020 and 2022, based on the Task Force on Climate-related Financial Disclosures (TCFD) recommendations. As of 2023, nearly 58 per cent of the entities disclosed information on at least 5 of the 11 recommended disclosures (TCFD 2023). However, merely 4 per cent of the top 100 corporations fully align with the TCFD recommendations. In climate risk disclosures, the focus is primarily on transitional climate risks. The World Economic Forum's Global Risks Report 2023 identifies failure to adapt to climate change as the second-greatest risk for corporations over the next decade (World Economic Forum 2023).

Globally, extreme weather events incurred losses of nearly USD 223.8 billion in 2022 alone (EM DAT 2022). Studies project that corporations exposed to climate change impacts may face escalating financial costs in the coming decades. Without climate adaptation measures, by the 2050s, these costs could amount to an average of 3.3 to 28 per cent per annum of corporations' real asset value (S&P Global 2023). Moreover, extreme weather events also impact supply chains, as evidenced by the 2020 CDP Global

Supply Chain Report findings, which estimated environmental risk costs for suppliers at USD 1.21 trillion (CDP 2020).

A key obstacle hindering corporations' disclosure of physical climate risks is the perception that such risks are not material issues. Furthermore, despite prioritising climate mitigation strategies, many corporations lack adaptation planning. According to the Global Corporate Sustainability Assessment 2022, only 1 in 5 corporations across sectors have adaptation strategies for climate change impacts (S&P Global 2023). Even in the energy sector, where climate strategy ranks high, less than one-third of corporations have climate adaptation plans. A comprehensive review of physical climate risk disclosures among major corporations reveals a significant gap in effectively mapping the impacts of climate change on business strategies and financial planning. This lack of detailed disclosure hampers the ability of investors and lenders to accurately evaluate risks, potentially resulting in capital misallocation, which could undermine financial stability and economic growth. Additionally, while SMEs are not mandated to provide ESG disclosures in most countries, they are indirectly affected as certain frameworks require disclosures across the value chains of large corporations.

### **Relevance to the G20**

The G20 bears a crucial responsibility in addressing these challenges and gaps. As part of the agenda during the G20 Brazilian Presidency in 2024, the Sustainable Finance Working Group (SFWG) has underscored the importance of analysing the implementation challenges related to sustainability reporting standards, particularly focusing on SMEs and Emerging Market and Developing Economies (EMDEs). Furthermore, one of the key focuses of the working group on Environmental and Climate

Sustainability is on emergency and preventive adaptation, which can enhance global efforts to reduce risks and bolster members' resilience by developing guidelines for assessing vulnerabilities and mitigating the impacts of extreme weather events. This group presents a suitable platform to enhance coordination and cooperation among G20 members for implementing the recommendations.

## Recommendations

In this context, we propose three actionable policy recommendations aimed at guiding the mainstreaming of physical climate risks and adaptation in ESG and sustainability reporting.

### **Recommendation 1: Develop Detailed Guidelines for Mapping the Impacts of Physical Climate Risks on Financial Metric**

The TCFD, one of the most widely used risk disclosure frameworks, recommended incorporating metrics on physical climate risks and opportunities into financial disclosures but didn't offer a specific guidance on suitable metrics. After the United Kingdom implemented mandatory reporting requirements based on the TCFD, the Financial Conduct Authority (FCA) found that 81 per cent of corporations claimed to have adequately disclosed their climate risk; however, there were significant gaps in detail, consistency, and completeness (FCA 2022).

Developing climate risk metrics presents challenges for corporations, especially those with extensive physical assets or supply chains. They must obtain complex and credible climate intelligence about specific assets, portfolios, and business operations. While globally accepted frameworks like the Intergovernmental Panel on Climate Change's (IPCC) AR4 or AR5 exist for mapping physical climate risks, there's a lack of a unified framework to quantify the financial impacts of these risks across diverse businesses and their operations. These frameworks, involving components such as hazard, exposure, and vulnerability, are complex, hampering effective risk assessments.



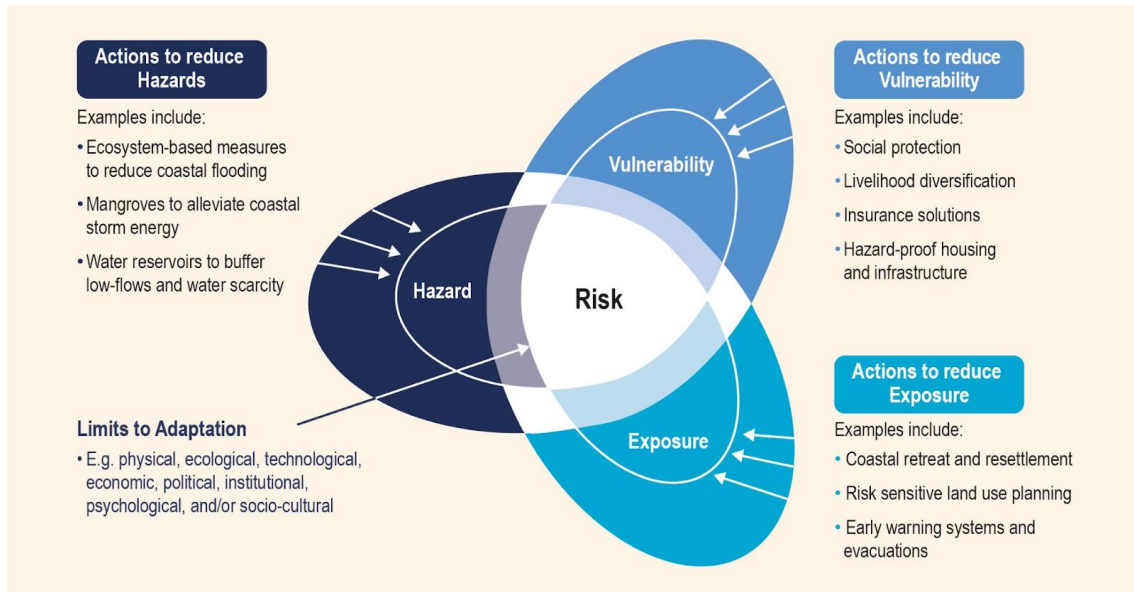


FIGURE 1. The conceptual IPCC AR5 risk assessment framework

Source: Authors' adaption from the Special Report on the Ocean and Cryosphere in a Changing Climate 2019

For example, studies conducted in a developing G20 country, India, highlighted barriers to adopting TCFD recommendations, including high analysis costs, insufficient in-house capacity for assessments, and a lack of guidelines for climate scenario analysis based on physical risks (Willis Tower Watson 2022; Shakti Sustainable Energy Foundation 2020).

As the TCFD transitions into the International Sustainability Standards Board (ISSB) in 2024, it's crucial for the G20 to leverage its scientific expertise and collaborative network to develop detailed guidelines for evaluating physical climate risks. These guidelines should be sector-specific, offering clear indicators for assessing both acute and chronic climatic risks. We suggest adopting a standardised framework initially, which can later be customised and tailored to suit individual needs. This approach will facilitate

corporations, including SMEs, in analysing and disclosing their physical climate risks with ease.

## **Recommendation 2: Ensure Interoperability of Disclosure Frameworks Across G20 Countries**

The existence of multiple disclosure frameworks within G20 nations presents a significant challenge: ensuring interoperability among these frameworks. Interoperability is crucial as it enables investors to compare company performance across countries, thereby facilitating better investment decisions. Despite the detailed guidelines provided by the TCFD framework for physical risk disclosure, not all G20 countries have mandated alignment with it. As of October 2023, eight countries have either implemented the TCFD framework or a TCFD-aligned disclosure framework (TCFD 2023).

TABLE 1: TCFD Alignment in G20 countries

TCFD alignment	Asia Pacific	North America	Latin America	Europe	South African and Middle Eastern
In effect	Japan	-	Brazil	France, Germany, Italy, United Kingdom, European Union	African Union ( <i>Egypt and Kenya</i> )
Not in effect	-	Canada	-	-	-
Proposed	Australia	USA	-	-	South Africa, African Union ( <i>except Egypt and Kenya</i> ), Saudi Arabia
None	India, China, Indonesia, Republic of Korea	-	Argentina, Mexico	Russia	Turkey

Source: Authors’ adaption from TCFD 2023

Moreover, reporting requirements vary drastically among G20 countries. For example, the mandatory European Sustainability Reporting Standards (ESRS) framework for corporations in the European Union asks for an extremely detailed disclosure of material climate-related impact, risks and opportunities. This entails corporations’ reporting details of the physical impacts of hazards to their assets and the supply chain over different time horizons linked with corresponding strategic plans and capital expenditure plans over time to mitigate these impacts. On the contrary, the Business Responsibility


and Sustainability Reporting (BRSR) framework of India asks corporations to disclose their business continuity and disaster management plans in 100 words without explicitly mentioning physical climate risk. However, several G20 countries are now shifting towards the TCFD guidelines for disclosures, setting them on a collaborative glide path toward better transparency in their climate-related financial reporting practices.

Disclosing information on physical risk metrics across the value chain can be time and cost-intensive. Moreover, MSEs along the value chains may not even have the means to collect the information on the required metrics. Such varying levels of disclosure compliance in different countries can lead to trade barriers in the supply chain across countries. Hence, there is a pressing need to identify a standardised set of metrics for disclosing information on physical climate risks by corporations across all G20 countries. These metrics should offer sufficient information while remaining cost-effective and easy to comply with.

### **Recommendation 3: Develop a Climate Risk Modelling Platform for Knowledge Sharing and Capacity Building**

Physical climate and meteorological data, in its raw form, pose a significant challenge for non-scientists to interpret and assess. Understanding the financial impacts of climatic hazards, particularly on business performance, asset value, and value chains, can be an immensely complex task for both SMEs and large businesses.

Moreover, developing scenario analyses—essentially exploring how different climate scenarios under various emission, socio-economic pathways, and global warming levels



might damage assets and disrupt business operations across different timeframes—is a highly sophisticated and intricate task. This complexity has been identified as a major gap in many reviews of disclosures (WTW 2022; SSEF 2020; FCA 2022). While we advocated for the development of detailed guidelines based on a standardised framework in the previous recommendation, ensuring the availability of data and enhancing the capacity of stakeholders to analyse and undertake climate risk assessments is equally crucial.

We propose that the G20 establish a 'physical climate risk modelling platform' as a part of the G20 SFWG TAAP, composed of experts, including climate scientists, academia, and civil society organisations, to improve on the physical climate models, enhance risk assessment frameworks, and facilitate knowledge sharing and capacity building. Some partnerships in recent years, such as the collaboration between the meteorological agencies of the Ministry of Earth Sciences in India and the United Kingdom Meteorological Office, have already demonstrated promising outcomes, such as the development of a 12 km spatially fine-resolution IMDAA reanalysis data for South Asia. Such collaborations between nodal agencies of G20 countries are crucial as they pave the way for the generation of open-access, fine-resolution climate data. Such data will be invaluable for companies aiming to disclose their risks effectively, especially the SMEs, who do not have the financial resources to purchase fine resolution climate data. It is imperative to scale up such partnerships among other G20 countries.

While the G20 has already initiated the development of tools like the G20 climate risk atlas for all countries, its current iteration provides a macro-level view of risks. We propose that this platform further enhances the atlas by downscaling it to a much more granular level and making the data/information openly accessible. This approach will not

only assist large businesses in their immediate need to disclose risks but also benefit SMEs, who will inevitably need to undertake physical climate risk disclosures in the near future. This platform will also enable them to better prepare to adapt to these climate-induced risks.

## Scenarios

In light of the rising frequency of extreme weather events and projections indicating further escalation in the future, it's imperative for businesses to safeguard their assets and value chains against climate hazards. This policy brief calls upon G20 leadership to take decisive actions to integrate physical climate risks into mainstream ESG disclosures. However, the implementation of these recommendations requires careful consideration of certain trade-offs and checkpoints.

Firstly, while climate risk disclosures would impose costs on companies, in certain cases, investors may hesitate to invest in companies with assets and value chains exposed to physical risks. Unlike disclosures concerning carbon emissions or other environmental risks, where detailed reporting is typically welcomed by investors; however, they could shy away from companies facing significant physical risks. This evasive behaviour of investors might deter corporations from disclosing such risks unless stringent regulatory mechanisms are in place.

Secondly, some disclosure frameworks only require information on corporations' exposure to physical climatic hazards. However, it's equally crucial to disclose the risk mitigation and adaptation strategies adopted by corporations. Merely disclosing exposure without detailing risk management efforts could trigger investor biases.

To address this, frameworks and guidelines for physical climate risk disclosures should eventually transition from merely disclosing risks to disclosing resilience in the future, once there is progress in G20 countries on corporate risk disclosures. The mapping of nature-related data, as recommended by the G20 SFWG 2023, can facilitate the identification of synergies between nature data disclosures and physical risk disclosures

through adaptation strategies like Nature-based Solutions (NbS). These disclosures should also cover risks and the resilience of communities and societies surrounding corporate assets, enabling governments to leverage them in building holistic climate resilience. Moreover, while central financial regulatory entities typically oversee the development and implementation of disclosures, G20 countries could involve key ministries such as Environment and Climate Change Ministries and disaster management authorities to foster more synergies and effectively for a comprehensive approach to climate resilience that generates social, economic, and environmental co-benefits.



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