



Opportunities For Delivering Risk-Informed Investment: Addressing The Barriers

October 2021

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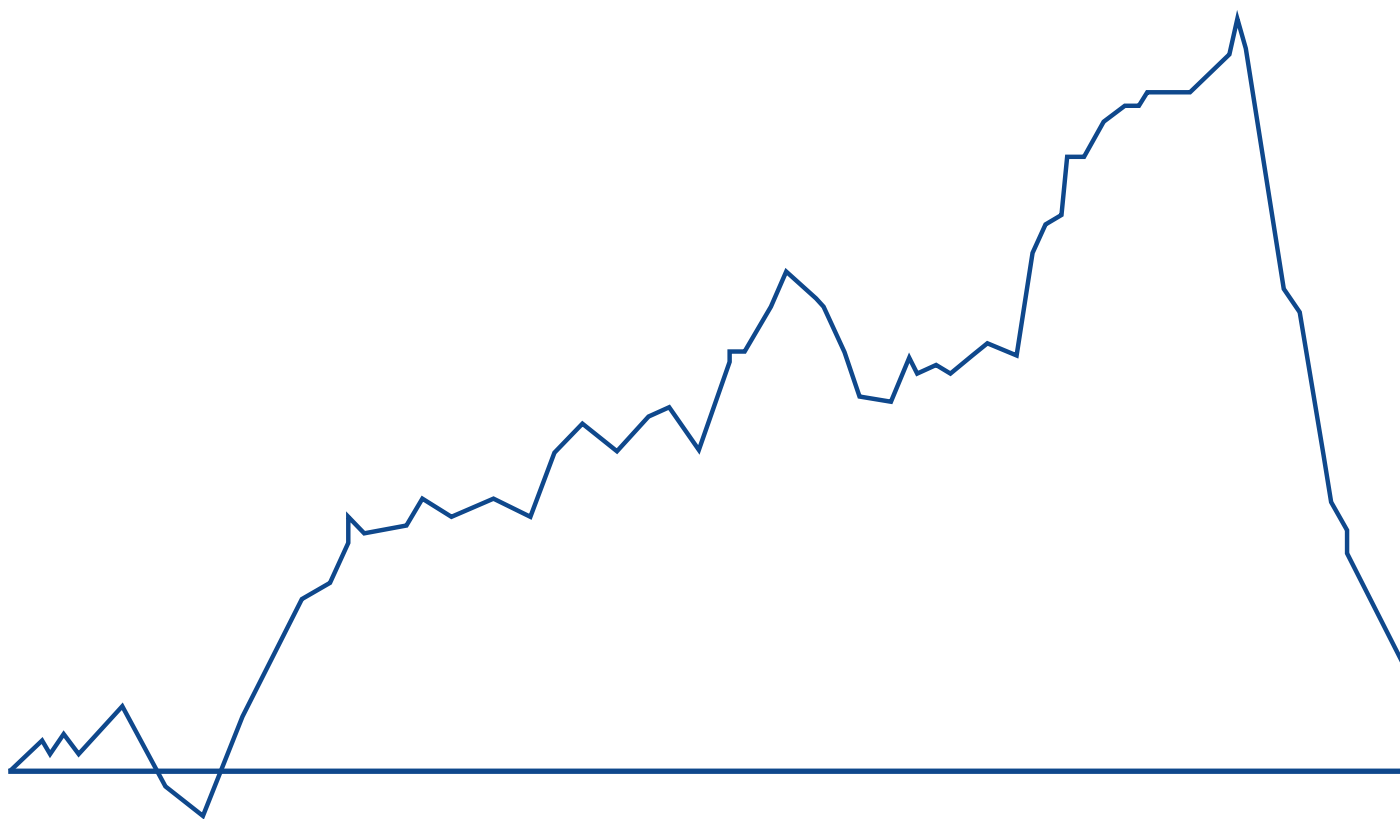
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Executive Summary

The Sendai Framework for Disaster Risk Reduction, a major UN agreement of the post-2015 development agenda, provides a framework of targets with the goal of helping States, local governments, the private sector and all other stakeholders prevent the creation of new and reduce existing disaster risk, thereby strengthening resilience.

Increasing risks from disasters, accelerated by a changing climate, threaten to undermine important progress to the Sustainable Development Goals (SDGs), and the Sendai Framework works alongside the Paris Climate Agreement and other relevant international agreements to support continued progress toward the achievement of the SDGs.

More than 300 hazards¹ have the potential to significantly impact the world's financial services sector.

Large-scale, dynamic, non-linear risks will increasingly dominate the 21st century. Investments that have considered multiple and concurrent sources of risk and the ways they may interact in complex and cascading ways are known as 'risk-informed investments.' At present, most investment decisions are not yet risk-informed.



In order to create a more resilient and thus sustainable world, it is crucial for investment and financial decision making, of both public and private actors, to become better informed of the wide range of hazards, their interconnections and what it takes to address them.

This means that on the one hand, the financial services sector needs to become more resilient to external shocks and stresses, and on the other, to comprehensively incorporate material disaster risk into investment decisions.

Whilst the private sector has begun to take up climate risk analysis at scale, the wider consideration of other risks, such as those triggered by environmental, biological and technological hazards, as well as their systemic nature, lags behind.

As such, many of the Sendai Framework hazards remain external to financial decision-making, resulting in risk-blind allocation of capital which could in turn lead to further systemic risks including financial instability. This is why urgent actions need to be taken to ensure the full internalization of externalities into financial decision-making and investment.

COVID-19 is the textbook example of how risks can cascade throughout value chains, across geographies, and throughout communities and the wider macro-economy.

Recovery from the pandemic may also work to build collective resilience against other risks, including climate risks. As we enter the phase of both response and recovery from COVID-19, it is clear that only if recovery packages and related law and regulatory frameworks integrate long-term resilience aspects, our future will be sustainable. Importantly, while it is not likely that all risks can be addressed concurrently, public and private actors need to work toward the consideration of multiple hazards and risks in financial decision-making, now more than ever, moving beyond dealing with disasters as single events.

Progress toward risk-informed investment has certainly been made in recent years, though much of it involves climate- and environmental, social, governance (ESG) related risks.

Evidence on climate-related hazards and vulnerabilities continues to expand with a wide range of portals and datasets increasingly available on an open-access and commercial basis, as do efforts towards establishing the financial rationale, through initiatives including the Coalition for Climate Resilient Investments (CCRI). Much of the progress toward oversight has also involved climate risks by initiatives under the EU Action Plan on Sustainable Finance or the Task Force on Climate-related Financial Disclosures.

At the same time, UN agencies and development finance institutions have been developing initiatives and activities which advocate for risk-informed development and investment, as multi-hazard risk screening is increasingly becoming a condition of country-level technical assistance. These include the Inter-agency Task Force on Financing for Development's Integrated National Financing Framework (INFF), the IMF's Financial Sector Assessment Program (FSAP), or the country-level budget review undertaken by the UN Office for Disaster Risk Reduction (UNDRR). However, whilst progress has been made toward the consideration of certain, in particular climate, risks in financial decision-making, these efforts still lack a multi-hazard approach and do not incorporate a thorough understanding of the interdependencies that exist between different risk factors.

As part of its mandate to support the implementation, follow-up and review of the Sendai Framework, UNDRR has been working to advocate for and facilitate risk-informed investment.

Building on previous work for risk-informed investment in the European region², **this report aims to support the delivery of risk-informed investment by those who make investment decisions, primarily in the financial services sector**, and also for those who regulate and set policies in this sector. The report documents the progress that has been made and the barriers that need to be overcome for risk-informed decisions to be taken.

A set of opportunities emerged during the consultation process³ which are summarized below:

1 Understanding of risk

Many governments, businesses and financial institutions of all shapes and sizes have a general lack of awareness and knowledge of the wide range of hazards identified in the Sendai Framework, as well as their interconnections. While there have been key advancements in the provision of hazards data

and some loss, exposure and vulnerability data, much of that information does not link up with financial modelling easily. Furthermore, technical capabilities needed to bring hazard, vulnerability and exposure data together are also generally in short supply.

2 Financial rationale

The financial rationale or business case behind the costs of disasters and the value of resilience measures remains to be insufficiently evidenced. We need more proof of concepts and case studies showcasing the benefits arising from resilient investments across a wide range of sectors and geographies as well as the links between economic benefits and preventive action. We need to develop modelling approaches capable of fully displaying both the direct (e.g. avoided losses) and indirect (e.g. stimulation of economic activity thanks to reduced disaster risk and the co-benefits of a specific investment) economic benefits of preventative actions. Equally, the link between hazard, loss, exposure and vulnerability data with financial modelling needs to be demonstrated for a wide range of hazards, in the way it has been demonstrated for physical and transition risks in landmark UNEP FI pilot projects with banks, insurers and investors.⁴

3 Multi-Hazard governance and oversight

We need to enhance the regulatory, supervisory, and voluntary governance of disaster risks, including financial oversight. Mandates for multi-hazard risk analyses or disclosures are scarce and governments are not doing enough to remove or alleviate disincentives to resilience. There is a strong need to support national governments and national financing bodies to internalise current negative externalities from some economic activity. Demonstration of how national ministers, regulators and financial supervisors can incentivise or mandate a multi-hazard approach is needed, as are studies of emerging legal dimensions, including liabilities associated with absence of planning for and prevention of disasters.

4 Advocacy

Promotion of, and advocacy for, DRR and a systemic approach in investment decisions must be strengthened. A short-term outlook prevalent due to structural issues in the financial services and corporate sector, is a major barrier in advocating for DRR and risk-informed investment. Another key barrier is the lack of a positive narrative. While 'Net-Zero' has become a powerful image driving climate action, we need an equivalent message which could allow further action on risk-informed investment. Linking up with current work in the financial services sector to move away from short-termism and consistent advocacy and clear narratives, written in the language used by those who need to be influenced, are vital.

There remains a strong need to further establish the evidence base, bolster the financial rationale, improve governance and oversight, and advocate for risk-informed investment.

The table below summarizes eight proposed actions for a wide range of stakeholders to accelerate the adoption of more risk-informed investment decisions.

Barriers

Actions

RISK UNDERSTANDING

More applicable risk data are needed on hazards, interdependencies and impacts

Develop a programme to enable public and private sectors to better assess base data on a full range of disaster risks

1

Develop evidence to demonstrate the financial rationale for integration of DRR into investment decision-making

2

FINANCIAL RATIONALE

More case studies are needed showcasing the benefits of resilient investments

Develop guidance on how DRR considerations can be included in the supervision of financial decisions

3

Develop thought guidance on the emerging legal liabilities for company directors to disclose disaster risks

4

MULTI-HAZARD OVERSIGHT

More governance of multi-hazard and systemic risk is needed

Expose regulatory obstacles blocking risk-informed investment

5

Investigate potential avenues for increased oversight of disaster risks

6

DRR ADVOCACY

A Sendai Framework version of the 'Net-Zero' rallying cry is needed

Raise awareness among private sector of DRR and the Sendai Framework

7

Advocate for the shared acceptance of the need for the financial sector to integrate DRR into decision making

8

C-Suite Message Board

Large-scale, dynamic, non-linear risks will increasingly dominate the 21st century.

Disaster risk must therefore be integrated into all investment decision-making. To do so, the finance sector needs to better understand these hazards and related risks, their complex and cascading interconnections and probable impacts.

More than 300 hazards⁵ have the potential to significantly impact the world's financial services sector.

COVID-19 and the climate emergency are clarion calls to **urgently address the systemic nature of risk and its cascading impacts.**

Progress in reducing risk has certainly been made in recent years, in particular in the area of climate-related risks. However, most of the action remains at the reporting level, with the result that overall, the majority of capital allocation is still 'risk-blind,' thereby increasing the potential for further systemic shocks.

The **financial services sector needs to become more resilient to external shocks** and stresses.

Working with partners from the finance sector, the UN Office for Disaster Risk Reduction (UNDRR) identified **four thematic barriers** are slowing progress and proposes **eight concrete and tangible actions to accelerate the adoption of more risk-informed investment decisions:**

About UNDRR

VISION

UNDRR's **vision** is of a world where disaster risks no longer threaten the well-being of people and the future of the planet.

MISSION

UNDRR's **mission** is to provide leadership and support to accelerate global efforts in disaster risk reduction to achieve inclusive sustainable development and the goal of the Sendai Framework: The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.

UNDRR’s impact accelerators for its Strategic Framework 2022-2025:

1

Generating robust evidence, innovation, and good practices on risk to inform decision-making processes

UNDRR will support Member States and other stakeholders in development, fragile and humanitarian contexts so that decisions on policies, plans, regulatory frameworks and investments are risk-informed and grounded in an accessible and evidence-based understanding of multi-hazard systemic risk, including those related to climate change.

Integrating the DRR agenda with the climate agenda

UNDRR will build on the global momentum around the climate emergency as a way of fast-tracking action to achieve the Sendai Framework. Accelerated action to address climate change, including scaling up adaptation, will reduce climate related disaster impacts and contribute towards comprehensive risk management. UNDRR will strengthen integrated disaster risk reduction, climate-risk informed development and humanitarian planning, as well as improve results and impact monitoring.

2

Accelerating financing for DRR and de-risking investment

UNDRR will work with Member States and other stakeholders to incentivize accelerated financing for DRR and to contribute to creating the next generation of financial products that more accurately price in the risks we now face. We will support national governments to develop risk-informed investment strategies that leverage public and private financing.

Scaling up communication and public advocacy for building highest political traction and commitment to DRR

UNDRR will deliver evidence-based advocacy initiatives with clear calls to action to invest in prevention, highlighting the additional benefits that accrue through disaster risk reduction initiatives. This will increase the visibility of the political importance of disaster risk reduction and mobilize citizens to demand change. These actions will be achieved through a connected approach to communications across UNDRR, drawing on enhanced risk knowledge and information, amplified through strategic communication partnerships.

3

4

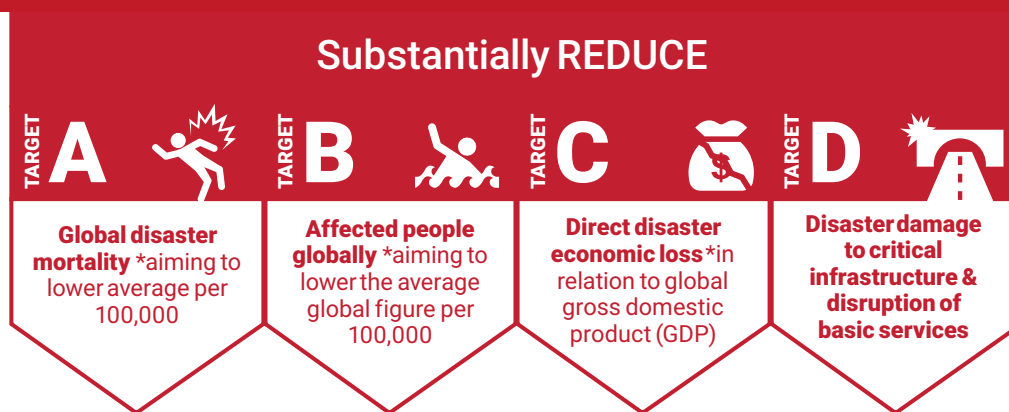
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SEVEN TARGETS TO ACHIEVE BY 2030



Section 1 Introduction

1.1 UNDRR and the Sendai Framework

The Sendai Framework for Disaster Risk Reduction⁶ was adopted in 2015 by the United Nations member states, heralding a shift from managing disasters to managing risk, reducing existing and preventing new risk, and addressing increasing concerns about the complex and cascading nature of risk. UNDRR sits at the center of the UN system's risk reduction efforts and supports the implementation, follow-up and review of the Sendai Framework⁷. The Sendai Framework calls for the need to build long-term resilience against both natural and man-made hazards (including environmental, technological and biological hazards and risks).

Through its mandate, the Sendai Framework supports the implementation of other critical and global agreements⁸, in particular the Paris Climate Agreement⁹, the Sustainable Development Goals (SDGs) and the 2030 Agenda for Sustainable Development, as well as the ongoing discussions on biodiversity, desertification and nature preservation. With its seven global targets and 38 indicators, the Sendai Framework is the roadmap for making communities safer and more resilient to disasters by 2030.

1.2 The Sendai Framework and risk-informed investment

The Sendai Framework identifies risk-informed investment and finance as critical elements for resilient and sustainable development. **Risk-informed investment incorporates an understanding of multiple and concurrent sources of risk, which may interact in complex and cascading ways, in investment decision-making.** If the Sendai Framework is to be successfully implemented, public and private investment and financial decisions must be informed of the wide range of hazards¹⁰ and their interconnections. Risk-informed investments will support the implementation and achievement of the 2030 Agenda for Sustainable Development improving the resilience of our economies.

All 193 UN Member States committed to the Sendai Framework in 2015. Alongside Member States, the Framework calls on the private and financial sector, including its regulators, to engage in effective risk reduction. To date, most Member States have yet to fully establish financial and regulatory support structures to implement their Sendai Framework national commitments or to increase private and financial sector awareness, commitment, or ownership of the Framework. One exception is climate risk; there has been notable momentum toward governance and oversight at both international and national levels (although there is still much to be done). Voluntary and mandatory climate risk analysis and disclosure frameworks, for example, are helping to integrate the consideration of climate risks in investment and lending decisions around the world.

Whilst the private sector has begun to take up climate risk analysis at scale, incorporating wider consideration of other risks lags. This is leading to the risk-blind allocation of capital which could lead to further systemic risks, including financial instability.

1.3 The need for immediate action on risk-informed investment

Out of crisis comes the opportunity for learning and doing things better. The COVID-19 pandemic is no exception. The pandemic, a biological hazard with its numerous cascading effects, has shown how complex, over-optimised, highly sensitive and inflexible systems can be, with effects felt along value chains, across geographies, and throughout communities and the wider macro-economy. COVID-19 has demonstrated that we cannot postpone decision making whilst we wait for 'better' information. Prudent decisions about building resilience to such shocks must be taken today using the best-available intelligence. Waiting for the time with a higher degree of certainty about the location, timing and impact of future threats may never come, and may already be too late.

Alongside these lessons, the COVID-19 pandemic also presents a unique opportunity for governments to facilitate and require a multi-hazard approach in public and private investment decisions as part of economic recovery budgets and planning. This opportunity to include a more systemic view of risk must not be missed.

The unfolding concurrent risks from physical climate hazards (e.g., wildfires in the United States and Australia, drought in the Sahel), biological hazards (e.g., the COVID-19 pandemic), or man-made disasters (e.g., the Beirut port explosion) are bringing the nature of systemic risk into sharp relief. As they reverberate across global, regional and national systems, including financial systems, the cascading nature of these risks becomes clear. They demonstrate how past events alone cannot be used as our guide to the future. Investment decision-making will need to consider the interconnections between risks in an increasingly volatile and uncertain world. While it is not likely that all risks can be addressed concurrently, now more than ever public and private actors need to consider multiple hazards and risks in financial decision making, instead of thinking of disasters as single, localized events.

1.4 Report scope: aims, objective and target audience

UNDRR promotes and supports risk-informed investment. In 2019, we released a report titled ‘Opportunities to integrate disaster risk reduction (DRR) and climate resilience into sustainable finance’¹¹. It included a set of 11 recommendations for delivering risk-informed investments in the European context. Building on the 2019 UNDRR publication, **this current report provides an update on progress over the past two years. It assesses the barriers to risk-informed investment and refines the 2019 recommendations.**

This new report primarily focuses on risk-informed investment, rather than financing for disaster risk reduction or disaster risk finance. It does not, therefore, cover the myriad of initiatives that relate to the promotion and further development of finance for specific DRR activities or establishing or scaling up pre-arranged risk financing instruments except when these initiatives have elements relating to risk-informed investment.

This report aims to present a clear set of actions to create tangible change in line with the Sendai Framework. This report has been developed through literature review and an extensive stakeholder consultation process described in Annex A.

1.5 Report themes

This report is structured around four themes, all of which support or relate to the principles of the Sendai Framework:

1. **Evidence** – Data and information on hazards, vulnerability, exposure and their interconnections. This theme supports Priority 1 of the Sendai Framework: Understanding disaster risk.
2. **Financial Rationale** – The financial rationale/evidence or business case behind the costs of disasters and the value of resilience-building measures. This theme supports Priority 3 of the Sendai Framework: Investing in disaster risk reduction for resilience.
3. **Oversight** – The regulatory, supervisory, and voluntary governance of disaster risks, including financial oversight. This theme supports Priority 2 of the Sendai Framework: Strengthening disaster risk governance to manage disaster risk.
4. **Advocacy** – Promotion of and advocacy for DRR and a systemic approach in investment decisions. This theme relates to and supports all Sendai Framework Priorities for action.

Note: These themes also link **up with the 2020 UNDRR and International Science Council (ISC) Hazard Definition and Classification Review Technical Report**¹², which calls for a ‘data revolution, rigorous accountability mechanisms and renewed global partnerships’ to implement comprehensive risk management approaches for sustainable development.

1.7 Key terminology and concepts

This report uses terminology and concepts from the disaster risk reduction community and definitions set out by the United Nations General Assembly¹³, except where another source is cited. While a full glossary of terms is included in section 5.3 several terms are explained below, as a common definition or understanding is not shared across all sectors. (e.g., finance).

Disaster risk

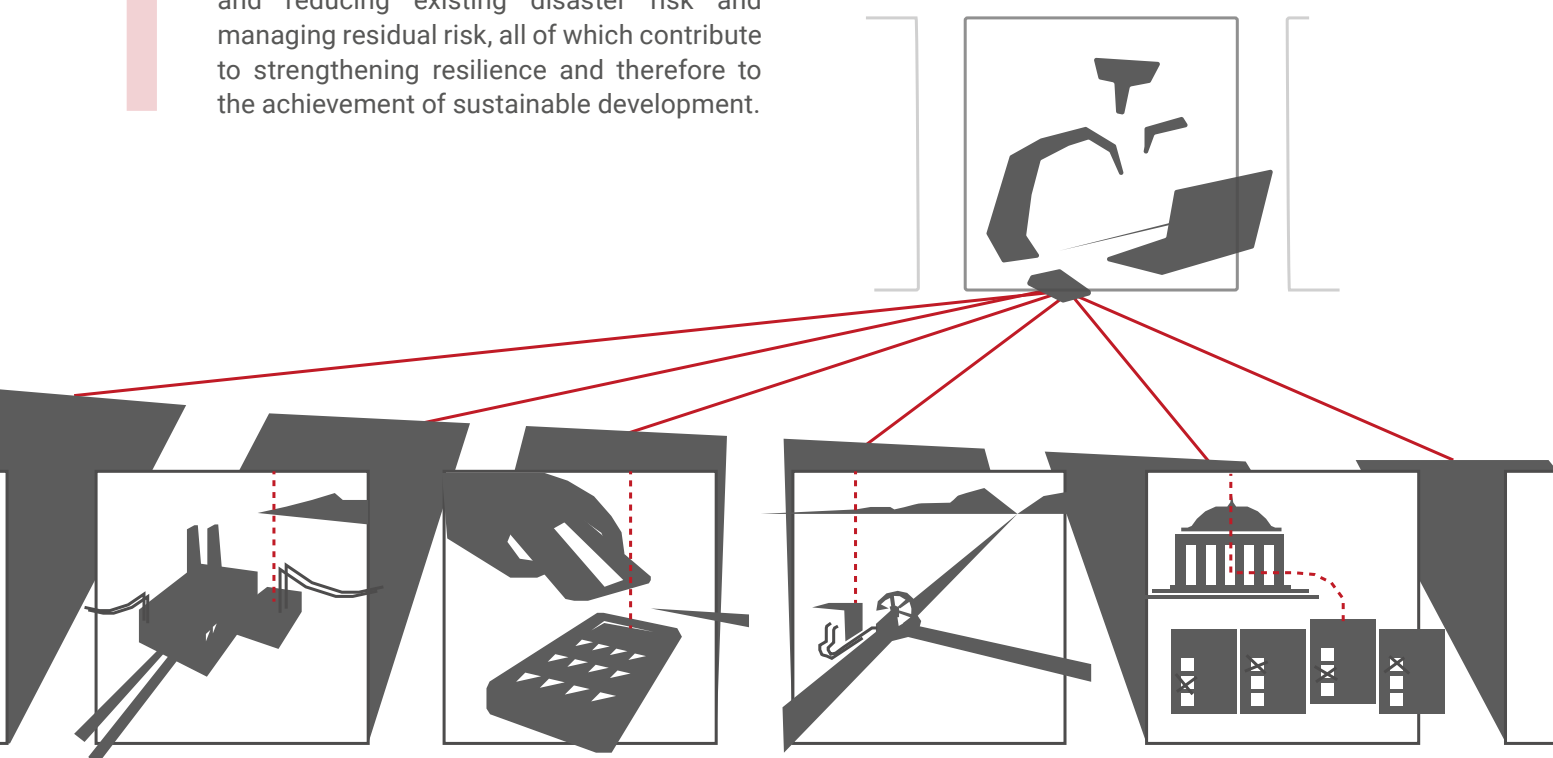
The potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity. Disaster risks are related to the potential for sudden or slow onset events with adverse consequences, which are either natural (e.g. earthquakes, storms, floods) or man-made (e.g. chemical accidents, large-scale cyber incidents or financial shocks, some of which should be considered critical risks¹⁴).

Disaster risk management (DRM)

The application of disaster risk reduction strategies and policies to prevent the creation of new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses.

Disaster risk reduction (DRR)

DRR is aimed at preventing creation of new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development.



Hazard

A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation¹⁵. As mentioned, the 2020 UNDRR and International Science Council Hazard Definition and Classification Review report sets out a list of 302 hazards included within the scope of the Sendai Framework grouped according to eight clusters: meteorological and hydrological hazards, extraterrestrial hazards, geohazards, environmental hazards, chemical hazards, biological hazards, technological hazards, and societal hazards¹⁶. Hazards may be natural, anthropogenic or socio-natural in origin. Natural hazards are predominantly associated with natural processes and phenomena. Anthropogenic hazards, or human-induced hazards, are induced entirely or predominantly by human activities and choices. The broad range of hazards relevant to risk reduction and resilience building, and the increasingly interconnected, cascading and complex nature of natural and human-induced hazards, including their potential impact on health, social, economic, financial, political and other systems, are all interlinked in the discussions on sustainable development and climate change adaptation¹⁷.

Multi-hazard approach

An approach to risk analysis that involves the selection of multiple major hazards that [the entity] faces; and the assessment of the specific contexts where hazardous events may cascade, occur simultaneously or cumulatively over time, taking into account the potential interrelated effects¹⁸.

Risk-informed investment

Investments that incorporate an understanding of multiple and concurrent sources of risk, which may interact in complex and cascading ways¹⁹.

Resilience

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management.

Systemic risk

It is important to note that there is no commonly agreed definition of systemic risk, with different groups having a varying understanding of this term. In DRR communities, systemic risk is a risk that is endogenous to, or embedded in, a system that is not itself considered to be a risk and is therefore not generally tracked or managed, but which is understood through systems analysis to have a latent or cumulative risk potential to negatively impact overall system performance when some characteristics of the system change²⁰. A more financial-services-oriented understanding is that systemic risk is the risk of widespread disruption to the provision of financial services that is caused by an impairment of all or parts of the financial system, which can cause serious negative consequences for the real economy²¹. Systemic risk is the risk of a breakdown of an entire financial system (e.g., in one country, one region, or globally) rather than simply the failure of individual parts (e.g., one bank or one firm). This definition of systemic risk captures the risk of a cascading failure in the financial sector, caused by interlinkages within the financial system, resulting potentially in a severe economic downturn²².

Section 2

Barriers to risk-informed investment decisions

Public actors, such as governments at regional and local levels, and private actors, such as investors, lenders, and corporates face barriers to making investing and finance risk-informed as opposed to risk-blind.²³

It is vital to understand these key barriers in the context of proposing actions to improve risk-informed investment. This section describes the key barriers, categorising them by the report's four themes: **Evidence**, **Oversight**, **Rationale**, and **Advocacy**.



2.1 Barriers relating to evidence on disaster risks

Many governments, businesses and financial institutions of all shapes and sizes do not regularly incorporate the range of hazards identified by the Sendai Framework in their financial decision-making. The COVID-19 pandemic reveals that many are unprepared, particularly for systemic risks, for which no assessment or planning has been undertaken. Where risks are assessed, the requirement is driven either by laws and regulation, guidance from trusted sources, or experience of previous events, e.g., cyber-attacks, wildfires, storms, or flooding. However, even previous events may not provide sufficient motivation to conduct robust analyses – e.g., previous pandemics (Ebola, Zika Virus, SARS or MERS) have failed to motivate many governments and businesses to take meaningful preventative action against future biological hazards. There is still a general lack of awareness and knowledge of the range of hazards identified in the Sendai Framework, as well as their interconnections, which means they are not fully included in public and private investment decision making. As noted in the 2019 UN Global Assessment Report (GAR2019), greater effort is needed to understand impacts more holistically, moving beyond analysis of direct loss and damage²⁴.

The data and evidence to incorporate relevant hazard risk analysis into financial decisions may be limited in certain geographies and for certain hazards and can be difficult to access for non-experts. While the provision of hazards data and some loss, exposure and vulnerability data has improved, e.g. around physical climate hazards²⁵ much of that information does not easily link up with financial modelling easily, and translation into financial metrics (e.g. probability of default, Value-at-Risk, asset valuations, etc.) is still needed²⁶.

Alongside data gaps, it can also be a struggle to locate the correct data needed to understand the extent to which assets and operations are or will be at risk. This is especially the case for information on how risks are interrelated and how they may compound in time and space. Proof of concepts and case studies showcasing the benefit arising from resilient investments across a wide range of sectors and geographies are rare. To ensure global investment flows embed disaster risk considerations on a large scale, investors need to understand the potential costs and benefits arising from doing so. Modelling approaches capable of fully displaying both the direct (e.g., avoided losses) and indirect (e.g., stimulation of economic activity due to reduced disaster risk and the co-benefits of a specific investment) economic benefits of preventative actions are also needed.

The usability of hazard and vulnerability data is also important to note. For example, there may be instances where an organisation is motivated to access and use hazard data, but its end format is not compatible for their purposes. A key example of this is raw climate hazard and vulnerability data, much of which does not easily link up with financial modelling. Climate model outputs were not designed to be used as inputs to cash flow or credit risk models (discussed further in section 2.2). Translation between these hazard data and end-user modelling is still needed.

Better understanding of risk is impeded by the short timescale over which publicly available economic impact assessments are undertaken. Development banks will often publish short-term impact assessments of disasters (c.f. World Bank assessment of economic impact of Zika Virus)²⁷, which leave out the long-term impacts on society (e.g., in the case of Zika Virus, the lost earnings of people with microcephaly who may be unable to join the labor force). Reports on the 2011 Great East Japan earthquake and tsunami which resulted in the Fukushima Daiichi Nuclear Power Plant disaster proliferated in the years following the disaster, typically focused on immediate damages such as loss to industry in the region or on the energy sector²⁸. Analysis on the Fukushima disaster continues to emerge, as the understanding of the impacts of the initial accident and how ‘displacement and continued hardships of the people in Japan will affect the quality of life of survivors and future generations’ unfolds²⁹. An encouraging example is UNDP’s medium-term analysis on the socio-economic impact assessment of the Zika virus, which includes estimates of long-term costs, and lifetime indirect costs³⁰. However, this is not common across all hazards. Much of the readily available ex-ante and impact analysis fails to capture the cascading nature of risks, therefore longer-term analysis around the economic and financial impacts of disasters is needed.

Technical capacities needed to bring hazard, vulnerability and exposure data together are not always present within public or private organisations. Commercial banks, for example, have limited technical, geographic information systems (GIS) skills, which are a fundamental requirement for the spatial analysis needed in location-based risk assessments for many hazards³¹. Government bodies may have more access to GIS and analytical skills through partnership and knowledge sharing between governmental organisations and departments.

In addition, while the appraisal of risk creation in business activities is a mainstay of the business process, many business risk management frameworks do not screen for a comprehensive set of risks or include financial appraisal of risks. A key example of this is seen with climate risks. The Task Force on Climate-related Financial Disclosures (TCFD) was created in 2015, as finance ministers and supervisors around the world began to realise that climate risks, both physical and transition, were not being assessed and disclosed.³² Several years on from the 2017 release of their final recommendations, the TCFD notes that while there is improvement in the quality of disclosures, much of the climate risk information being reported is still not decision-useful³³ i.e. not integrated into business strategy and investment beyond reporting. The TCFD is addressing this through the development of Proposed Guidance on Climate-related Metrics, Targets, and Transition Plans and the associated Measuring Portfolio Alignment: Technical Supplement³⁴.

Furthermore, corporate risk disclosure practices remain fragmented with limited standardisation as there are varying requirements and expectations in different jurisdictions. This makes it difficult for investors to appraise risks in their holdings and determine the quality of risk management practices and governance within companies. The risk information generated through public disclosures also tends to leave those who use it (e.g., asset owners, their managers and investment consultants, lenders, or even regulators) to make decisions. As a result, many in the financial services sector are often justifiably concerned that information being disclosed by firms has limited functionality and does not adequately support the financial risk appraisal of investments and loans.

Actions to address these barriers can be found under [Action 1, section 4.1](#).

2.2 Barriers relating to the financial rationale for disaster risk reduction

While the Sendai Framework states that governments are primarily responsible for risk reduction, it mandates a whole-of-society approach, including the private sector and regulators, to engage. Evidence exists, however, that private sector actors (corporate and financial) can hold expectations that the public sector (governments) has ultimate responsibility for certain types of risk. This is known as a moral hazard, or as disincentives to action, because an organization knows it will be rescued from their mistakes³⁶.

Climate risks stemming from physical climate hazards, such as flood or wildfire, help illustrate moral hazards. For example, in the United States, most residential flood insurance is administered through the federal government³⁷. The US National Flood Insurance Program (NFIP) helps homeowners access vital flood insurance in flood-prone areas, often at below market rates. This effectively incentivises habitation in dangerous locations that are exposed to repetitive flooding events, such as the coastal areas of Texas or Florida³⁸. Lenders continue to operate in disaster-prone areas conscious of the moral hazard and under the assumption that government bodies will underwrite this risk.

A perception that disaster risk prevention and management are the sole responsibility of the public sector and not an issue for the investment community may be caused by limited information on the full and true costs of disasters and preventative measures. The true costs of disasters, therefore, remain external to private sector investment decision-making; and it remains difficult to include these costs and benefits in financial modelling and on balance sheets. At present, much of the policy, regulation, and accounting practices do not mandate consideration or disclosure of the financial impacts of disasters. Though as discussed in section 3.3, this is changing, however, it is primarily limited to climate risks.

Actions to address these barriers can be found under [Action 2](#) and [Action 3](#), section 4.2 and 4.3 respectively.



2.3 Barriers relating to oversight and governance of risk-informed investment

Oversight or governance initiatives that seek to facilitate and enforce risk-informed investment are generally limited, e.g. mandates for multi-hazard risk analyses or disclosures. An important exception is that some central banks and financial supervisors are starting to require stress testing exercises for banks and insurers, which include physical climate or environmental risk elements (as discussed in section 3.3), though their efforts are not without challenges³⁹. This could be due to a lack of awareness of the need to oversee a wider range of risks, and their interconnections. GAR2019 flags that the reduction of risk rarely features high on national political agendas, likely due to high reliance on safety standards, or a predominant focus on economic development.⁴⁰ Lack of capacity among policy-makers is also a key barrier to the development of oversight functions and activities. Risk information generated through assessments is often not translated into policy, including because risk data cannot always be easily used for economic and financial analysis or because of the consistent science-policy gap, which means policymakers are often not aware of how to use such information⁴¹.

Governments are also not doing enough to remove disincentives to resilience-building. For example, forests, which are known to provide a wide range of ecosystem services or nature-based solutions to environmental and social problems, such as carbon sequestration, watershed management, habitats, etc., are routinely undervalued. Speaking at a 2020 high-level panel on the Global Forum on Forest Governance, Lord Zac Goldsmith, Minister of State for the Pacific, International Environment, Climate and Forests, and Animal Welfare, UK, and strong advocate for better inclusion of climate risks into financial decision-making explained that the 'financial incentives that destroy forests outstrip those in favour of their protection by over 40:1'.⁴² Other regulatory barriers exist that make it difficult to invest in resilient infrastructure, including low carbon infrastructure⁴³ (see below).

There is a strong need to support national governments and national financing bodies to develop actions that help internalise current negative externalities (e.g. as suggested by the Stern Review as far back as 2007)⁴⁴. This requires establishing new directives and standards for a multi-hazard approach (e.g. in public procurement). The financial services sector responds to and recognises the value of regulation, as it creates a level-playing field and allows asset pricing to be set on a comparable basis within stable markets. It is essential that actions be taken to improve oversight of risk-informed investment, including actions which highlight regulatory barriers and work to remove disincentives to resilience.

Regulation can act as a barrier or enabler for risk-informed investments. For example, it was reported that there is a 20% cap on impact investment by insurance investors in Canada due to capital requirements for insurance. The Insurance Development Forum (IDF) released an overview of laws, regulations and policies that are relevant to creating an enabling environment for the insurance sector to support, among other, disaster risk reduction and prevention.⁴⁵

A recent study by the European Investment Bank found that uncertainty over regulation continues to hamper climate investments. This is because this uncertainty can delay or cancel investment decisions, as firms try to have the full picture of expected cost benefits before an investment. In addition to this, EU firms are reported to be more likely to face constraints when investing in climate than their US counterparts.⁴⁶ More generally, regulation that is fragmented across geographic or product markets can increase the cost of investing by requiring firms to comply with several sets of regulatory requirements across different jurisdictions⁴⁷.

Actions to address these barriers can be found under [Action 3](#), [Action 4](#), [Action 5](#) and [Action 6](#), shared in sections 4.3, 4.4, 4.5, and 4.6.

2.4 Barriers to promotion and advocacy for disaster risk reduction and risk-informed investment

A short-term outlook, or short-termism is a major barrier to risk-informed investment. As the UN Special Envoy for Climate and Finance and former Bank of England Governor, Mark Carney noted⁴⁸, many societal systems have been structured around short-term decisions and reward cycles; business cycles, political cycles, monetary policies, technocratic posts, and many financial bonuses all occur within a 1-5 year time frame. The drivers of short-termism in the financial services sector are well studied and documented. Recent analysis finds that while investors with long-term liabilities, such as pension funds and insurers, would ideally optimise their return on a 15-30 year horizon, portfolio holding periods are just 21 months on average⁴⁹. In general, the high liquidity of public markets means equities are traded frequently, limiting the amount of time an investor is exposed to risks⁵⁰. The Environmental Audit Committee (EAC) of the UK House of Commons collected evidence from the UK finance sector regarding focus on short-term returns, including:

- The 'fiduciary duty' of pension scheme trustees is misinterpreted as a duty to maximise short-term returns⁵¹.
- The quarterly earnings cycle and structure of remuneration for investment consultants and fund managers encourages the pursuit of short-term returns rather than long-term value creation.
- Investment banks are incentivised to increase short-term market activity. Sell-side analysts rarely produce long-term sustainability-orientated research due to commercial conflicts of interest and pressure from company management/investor relations.

- Credit rating agencies do not sufficiently incorporate long-term considerations into their credit analysis, despite sustainability risks often being of material importance to a company's performance and creditworthiness.
- Stock exchanges are themselves listed companies and are thus incentivised to increase trading volumes to improve their share price. As a consequence, holding periods are getting shorter and listed companies are pressured to focus on short-term returns.

Political short-termism hampers risk-informed public sector investment decisions from being taken, as risk reduction benefits typically accrue over the mid-to long-term and so typically are thought to provide limited financial value or political reward.

Another key barrier is the difficulty in selling a positive narrative about the benefits of risk reduction. In the climate mitigation space, 'net-zero' has become the phrase that distils a powerful image and message driving climate action by public and private actors alike. Developing a similar 'net zero' style narrative equivalent for DRR could help accelerate the delivery of the Sendai Framework and integration into investment decision making. The recently announced 'Race to Resilience' initiative towards COP26, which recognizes the issue of systemic risk, may be an entry point. In order to develop and promote such a positive DRR narrative, there is a critical role for organizations with influence (and for key individuals) to play in advocating for the inclusion of the hazards outlined in the Sendai Framework and a systemic approach to investment decisions. They must use the 'language' of those they are speaking to, namely the investment community, not the language of the DRR community.

Actions to address these barriers can be found under [Action 6](#), [Action 7](#), [Action 8](#) shared in sections 4.6, 4.7, and 4.8.

Section 3

Recent progress toward risk-informed investment

In the last two years, many new partnerships and initiatives, risk disclosure commitments and requirements, and advances in data and analytics have emerged to support sustainable finance that support or could benefit from greater integration of risk reduction considerations. This section shares these developments and the relevant progress toward implementation of the Sendai Framework that has been made in the public and private sector. The developments discussed here were identified in the consultations undertaken to draft this report and in the literature review process. They are not listed in order of impact or chronologically. Rather, they are categorised against this report's four themes: **Evidence**, **Rationale**, **Oversight**, and **Advocacy**.

This section aims to help put into context the actions proposed in section 4, and to ensure the actions build on these developments whilst showing where more progress is needed.



Examples showcasing progress toward risk-informed investment include:

Establishing evidence on disaster risk, including information on:

- Group on Earth Observations (GEO) and their DRR working group
- The Future of Sustainable Data Alliance (FoSDA)
- The Insurance Loss Data Sharing Project for Climate-Resilient Municipalities
- Actuaries Climate Index
- Oasis Hub for hazard and vulnerability data

Improving the financial rationale for DRR measures⁵², including information on:

- Coalition for Climate Resilience Investments (CCRI) and Coalition for Disaster Resilient Infrastructure (CDRI)
- Climate Bonds Initiative (CBI) Climate Resilience Principles framework
- Actions taken by rating agencies
- A new effort by the Resilient Cities Network
- Emerging business cases for Nature-based Solutions (NbS)
- Ongoing efforts by Development Finance Institutions and IMF's Financial Sector Assessment Program (FSAP)
- Commercial provision of climate services which include financial analysis

Better oversight of disaster risk, including information on:

- Disclosure frameworks and standards (e.g., TCFD recommendations, Principles for Responsible Investing (PRI); CDP (Formerly the Carbon Disclosure Project); Principles for Responsible Banking (PRB); International Accounting Standards Board (IASB); TNFD; and engagement campaigns.)
- Regional and national oversight, e.g., NGFS, European Action Plan on Sustainable Finance, EU Taxonomy, Coalition of Finance Ministers for Climate Action, and examples from several countries.)
- Investor engagement; and international standard-setting

Progress toward advocacy for DRR and risk-informed investment, including information on:

- Integrated National Financing Framework (INFF) and actions taken by the Inter-Agency Task Force on Financing for Development
- The Private Sector Alliance for Disaster Resilient Societies (ARISE) network

3.1 Progress toward establishing evidence on disaster risks

Whilst still slow, the collection, provision and dissemination of risk data and information within the finance sector has increasingly aligned with the growing interest in understanding and addressing climate change and other environmental, social and governance (ESG) related issues.

Specifically, there has been a concerted effort to harness the power of Earth Observation (EO) data for the purposes of better disaster risk analysis and management. The Group on Earth Observations (GEO) has historically supported the use of Earth Observation (EO) data in risk management. In March 2020, GEO established a new working group on DRR with over 90 members from around the world. This working group will promote good practice about the sharing of data and knowledge to improve DRR measures. The working group will also promote awareness of relevant global policy frameworks, such as UN-GGIM WG-Disasters Strategic Framework on Geospatial Information and Services. The 2020-2022 GEO Work Programme⁵³ includes roughly 20 activities, a number of which already support better disaster risk management, with examples highlighted in Box 1.



Box 1: Overview of GEO activities that support better disaster risk management

This box highlights elements of the current GEO work programme which are relevant to Sendai Framework implementation and risk-informed investment:

- GEO-DARMA Data Access for Risk Management - which specifically aims to support the implementation of the Sendai Framework.
- Geohazard Supersites and Natural Laboratories (GSNL), as well as the GEO Wildfire Information System (GWIS), contribute to the rapid mapping of damages and impacts during rescue operations following disasters, as well as in forecasting activities.
- The Landslide Hazard Information System for Disaster Risk Financing – Prototype (LHIS-P), funded by the World Bank Disaster Risk Financing and Insurance Program (DRFIP), aims to strengthen the capacity of governments to make informed decisions on disaster risk finance. These decisions are based on sound financial and actuarial analysis to support stakeholders with better risk information for financial resilience. Specifically, the LHIS-P project will develop a monitoring capacity platform focused on landslides, suitable for parametric insurance that can trigger event-based payment based on a landslide-index in case of landslide disasters. LHIS-P is led by a consortium managed by Terranum Sarl Switzerland and involves a range of scientific partners including NASA.
- The Committee on Earth Observation Satellites (CEOS) Working Group Disasters, a GEO Participating Organization, includes a Landslide Demonstrator Team led by NASA. This team supports the consortium by highlighting the utility of earth observations (EO) within this modelling system to elevate and enhance available landslide hazard and risk information and support routine EO use.

Progress toward the meaningful integration of ESG data into decision-making more broadly has also been made in the last twenty-four months. In January 2020, Refinitiv, an American-British global provider of financial market data and infrastructure and a subsidiary of London Stock Exchange Group, launched the **Future of Sustainable Data Alliance (FoSDA)** in conjunction with the World Economic Forum (WEF), the United Nations, and others⁵⁴. FoSDA's goal is to identify and accelerate the availability of reliable data and articulate the future data requirements for investors and governments to integrate ESG data into decision-making processes to help them align to the Sustainable Development Goals.

Aligned to the efforts of the Sendai Framework Monitor⁵⁵, an **Inter-Agency and Expert Group on Disaster-related statistic (IAEG)**, representing the Statistics Division of the Department of Economic and Social Affairs (UNDESA), the Economic and Social Commission for Asia and the Pacific (ESCAP), the Economic Commission for Europe (UNECE), the Economic Commission for Latin America and the Caribbean (ECLAC), the Economic Commission for Africa (ECA), the Economic and Social Commission for West Asia (ESCWA), and the United Nations Office for Disaster Risk Reduction (UNDRR) was established in 2020 as a formal mechanism under the purview of the UN Statistical Commission to advance a common statistical framework on disaster-related statistics involving a network across the expert communities to sustain cooperation, coordination and fundraising for enhancing statistics related to hazardous events and disasters⁵⁶.

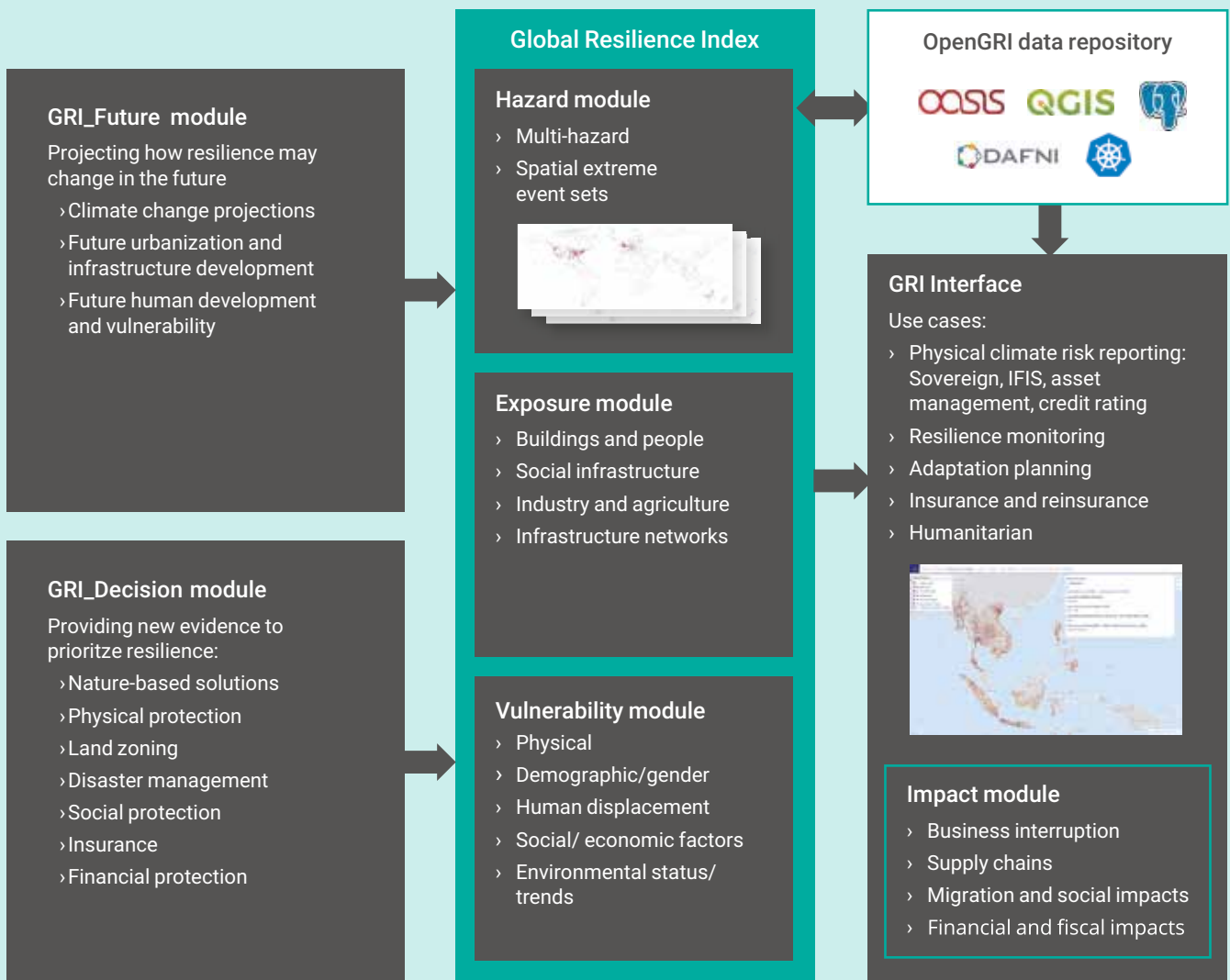
Similarly, the **Disaster-Related Statistics Framework (DRSF)** established by the Expert Group on Disaster-related Statistics in Asia and the Pacific (ESCAP) has gained significant momentum in 2020. The purpose of the DRSF is to ensure concepts and methods comparability for measurement across disaster statistics in different countries, which in turn is expected to benefit multiple target users, including the private sector

The Bureau of the Conference of European Statisticians (CES) endorsed the Recommendations on the role of official statistics in measuring hazardous events and disasters (CES Recommendations) prepared by its Task Force on Measuring Extreme Events and Disasters in June 2019.

There have been multiple initiatives involving the insurance and investment sectors that contribute to the evidence base. In the **Insurance Loss Data Sharing Project for Climate-Resilient Municipalities project**⁵⁷, for example, Finance Norway partnered with ten municipalities, and the Norwegian Directorate for Civil Protection, to develop an insurance loss database to collect all relevant lost data from insurance and other public authorities. The project is a good example of how collaborative efforts can help develop the evidence on hazards and lay the groundwork for the development of the financial rationale for DRR. The project helped demonstrate the value of the lost data for decision-makers (land-use planners and water and sewage sector) in municipalities and the national flood agency (understanding risk / vulnerable areas, to calibrate their flood models, maps/GIS). It also showed the need for collaboration between national authorities/directorates (civil protection, flood agency, environmental agency, metrological institutions) with the insurance industry to build up a common knowledge of climate and disaster risks, and to make use of loss databases as one part of systemic risk management.

Box 1: The Global Resilience Index (GRI)

On risk modelling and information, further progress is made under the Insurance Development Forum (IDF). Aiming to accelerate risk understanding a group of public and private partners have developed two new initiatives, the Global Risk Modelling Alliance (GRMA) and the Global Resilience Index (GRI). These initiatives build on the insurance sectors’ risk management knowledge in support of increased climate finance. For more details see box below. The GRMA aims to address barriers to access risk analytics, and build capacity through collaborative approaches on sub-sovereign risk programmes. Through this, GRMA hopes to help create the conditions for the release of risk capital and support the goals of the InsuResilience Partnership.



Data indices are also proving themselves highly instrumental to further enhance the finance sector's understanding of risks. Climate and weather data indices, for example, can help investors monitor the frequency of certain hazards, such as extreme weather or sea-level rise. A key example of a useful data index that has emerged in recent years is the **Actuaries Climate Index® (ACI)** which is sponsored by the American Academy of Actuaries, the Canadian Institute of Actuaries (CIA), the Casualty Actuarial Society (CAS) and the Society of Actuaries (SOA). The ACI is a tool designed to help inform actuaries in the investment sector, public policymakers, and the general public about climate trends in the United States and Canada, and it covers a range of climate variables.

Portals and datasets providing information on hazards or vulnerabilities have also increased in number significantly in recent years, and organisations, such as the Oasis Hub⁵⁸, a global platform offering free and commercial environmental and risk data, tools and services, have emerged to help end users (e.g., insurance, investors, businesses, government) navigate the wide range of hazard-specific portals and data platforms.

Reports that help describe and advance understanding of systemic risks in the financial services sector have been published. In 2020, the Bank for International Settlements (BIS) released a study titled 'The green swan: Central banking and financial stability in the age of climate change'. The study reviews how current backward-looking risk assessments and existing climate-economic models cannot accurately anticipate the form that climate-related risks will take. The report, which is useful for both financial regulators and the risk assessment community, coins the term 'green swan', which are potentially extremely financially disruptive events that could be behind the next systemic financial crisis⁵⁹.

3.2 Progress toward improving the financial rationale for disaster risk reduction measures

Proof of concepts and case studies showcasing the benefit arising from resilient investments across a wide range of sectors and geographies remain scarce at present, as discussed in section 2.2. A number of private and public initiatives are, however, paving the way to financial appraisal of certain risks and the benefits that emerge from integrating disaster risk considerations into investment decisions. Environmental, Social, and Governance (ESG) data, collected by third party ESG data providers, is now being rapidly included in investment strategies, and companies are increasingly reporting it to frameworks such as the Global Reporting Initiatives (GRI) and the Sustainability Accounting Standards Board (SASB)⁶⁰. However, ESG data can fail to capture the full impact of companies' activities. They could have limited coverage, as there are limited regulations on ESG data disclosures, especially in large markets such as the United States. ESG data is also lacking for non-publicly traded companies. Even when it is considered, the scope of risks does not reflect the full multi-hazard risk landscape as suggested in the UNDRR-ISC Hazard Definition and Classification Technical Review.

The **Coalition for Climate Resilience Investments (CCRI)**, seeks to transform infrastructure investment by integrating physical climate risk pricing into decision-making. The initiative brings together governments, members of the finance sector, including rating agencies and insurance, and analytics providers. By COP 26 in November 2021, CCRI will develop a framework for cash flow modelling practices and an investment prioritisation tool for governments for physical climate risks.⁶¹

Similarly, the **Coalition for Disaster Resilient Infrastructure (CDRI)** is a partnership of national governments, UN agencies and programmes, multilateral development banks and financing mechanisms, the private sector, and knowledge institutions aimed to promote the resilience of new and existing infrastructure systems to climate and disaster risks,⁶² thereby ensuring sustainable development. CDRI works with the CCRI and other partners through joint working groups, e.g. CCRI Climate Risk Analytics (CRA) and Systemic Risk (SR).

The 2019 **Climate Bonds Initiative (CBI) Climate Resilience Principles framework** provides high-level guidance for investors, banks and governments to determine if projects and assets contribute to a climate-resilient economy.⁶³ The scheme now incorporates screening criteria for climate resilience and aims to provide the green bond market with the trust and assurance to achieve scale. Table 1 shares the 6 CBI resilience principles⁶⁴.

Other initiatives are also indirectly supporting the case for investing in DRR and promoting risk-informed investments. **Rating agencies**, for example, are starting to take early steps to incorporate climate and environmental risks in their evaluations. Moody's, Fitch, and Standard and Poor's have all downgraded South Africa's sovereign credit rating. Most of this downgrading occurred following major droughts in the Cape Town region.⁶⁵ Though not the only factor for the downgraded credit ratings, climate-related factors like drought have compounded other problems in the country. Similarly, following wildfires in California and according to the ratings agency, Moody's analysts downgraded the California State-wide Communities Development Authority bonds, after part of the tax base servicing this debt was almost entirely destroyed by the November 2018 Camp Fire⁶⁶. Though the bonds in question have been given a slight upgrade in recent months⁶⁷ their rating is still downgraded to a Caa3 from the original B1 rating.

Table 1: CBI Climate Resilience Principles

| PRINCIPLE | DESCRIPTION |
|-----------|--|
| 1 | Assets and activities being invested in must have clearly defined boundaries and identify interdependencies for assessing climate risks and resilience impacts |
| 2 | Assessment of physical climate risks for assets and activities being invested in |
| 3 | Risk reduction measures for the identified climate resilience risks |
| 4 | Expected climate resilience benefits assessment undertaken for system focused assets and activities being invested in |
| 5 | Mitigation trade-offs assessed |
| 6 | Ongoing monitoring and evaluation |

These events highlight the need to ensure that the public sector also works toward risk-informed investment. **The Resilient Cities Network** launched the Cities for a Resilient Recovery coalition (titled 'C2R') in 2020, which brings together cities and resilience practitioners committed to taking leadership roles, embedding resilience in recovery from the COVID-19 pandemic. The knowledge-sharing initiative acknowledges the need to address gaps in data, funding and municipal capacity⁶⁸. C2R recognises the great potential of better articulating the business case for disaster risk reduction measures and risk-informed investments.

UNDRR Making Cities Resilient 2030 (MCR2030) is a unique cross-stakeholder initiative for improving local resilience through advocacy, sharing knowledge and experiences, establishing mutually reinforcing city-to-city learning networks, injecting technical expertise, connecting multiple layers of government and building partnerships. Building on the preceding Making Cities Resilient Campaign (2010-2020), MCR2030 is supporting cities on their journey to reduce risk and build resilience. MCR2030 aims to ensure cities become inclusive, safe, resilient, and sustainable by 2030, contributing directly to the achievement of Sustainable Development Goal 11 (SDG11) and other global frameworks, including the Sendai Framework for Disaster Risk Reduction, the Paris Agreement, and the New Urban Agenda.⁶⁹

As a mechanism to increase resilience in assets and infrastructure, **Nature-based Solutions (NbS)** offers synergies between biodiversity and climate investments while optimising the response against multiple hazards⁷⁰. While evidence demonstrating the financial value of a wide range of preventative measures is relatively scarce, initiatives seeking to build the business case for investing in NbS have emerged. The Inter-American Development Bank (IDB), for example, published a major study in 2020 titled 'Nature-based Solutions: Scaling Private Sector Uptake for Climate Resilient Infrastructure in Latin America and the Caribbean', which includes a review of the business case. The 2020 UNEP FI Global Roundtable included a call for further NbS and is also a focus of the UN Platform for Environment and DRR (PEDRR)⁷¹.

Furthermore, important global events in 2021, including COP 26 and the UN Food Systems Summit, will focus on scaling up NbS. Other important initiatives around NbS include the Natural Capital Coalition, the European Investment Bank's (EIB) Natural Capital Financing Facility, the Blue Natural Capital Financing Facility, NatureVest and IDB's Natural Capital Lab. The 2021 "State of Finance for Nature" report⁷² found that investments in NbS will have to triple next 2030 from current investments of US\$ 133 billion to successfully tackle the interlinked climate, biodiversity, and land degradation crises. Important elements are integrating of nature consideration in the COVID-19 recovery, repurposing harmful agricultural and fossil fuel subsidies and creating other economic and regulatory incentives. These are helping to further advance the business case for NbS, demonstrating how NbS investments can simultaneously address multiple sources of risk while generating profits and savings. For example, in the US, in Portland (Oregon), officials dealing with urban stormwater management estimate that US\$9 million in their total NBS investment portfolio has yielded a savings of US\$224 millions.⁷³

Development Finance Institutions (DFIs) have also been working to further the DRR agenda and integrate risk consideration into their operations and investing⁷⁴, leading significant efforts to establish the financial rationale of disaster risks. Though focused mainly on ex-post financing, the Disaster Risk Financing and Insurance (DRFI) Program⁷⁵, a joint effort between the World Bank and the Global Facility for Disaster Reduction and Recovery (GFDRR), is working with developing countries seeking to develop and implement comprehensive financial protection strategies to improve the financial resilience of governments, businesses, and households against natural hazards.

The program brings together sovereign disaster risk financing, agricultural insurance, property catastrophe risk insurance, and scalable social protection programs, including through public-private partnerships. The DRFI has four, mainly response focused areas that aim at strengthening government capacities, policy environment, tools and partnerships to take informed decisions on disaster risk finance. Within this, DRFI analytics such as financial impact analysis and cost-benefit analysis, inter alia, are allowing for evidence-based financial decisions and a clearer understanding of the financial impacts of disasters⁷⁷ (also see the GEO initiative, funded by DRFI, as discussed in Box 1).

The **International Monetary Fund's (IMF) Financial Sector Assessment Program (FSAP)** also provides analysis that could help country-level ministers and regulators understand the systemic risks they face in financial terms. The program provides an in-depth analysis of a country's financial sector. FSAP assessments are the joint responsibility of the IMF and World Bank in developing economies and emerging markets and of the IMF alone in advanced economies. The FSAP includes two major components: a financial stability assessment, which is the responsibility of the IMF, and a financial development assessment, which is the responsibility of the World Bank⁷⁸. Part of an FSAP assessment is about gauging the stability of a country's financial sector.

To assess stability, FSAP teams examine the resilience of the banking and non-bank financial sectors; conduct stress tests and analyze systemic risks. IMF requires that 29 jurisdictions with systemically important financial sectors undergo assessments under the FSAP every five years. It is so far unclear which exact risks are analysed and how they are selected, as the IMF indicates, this may vary from country to country. However, of 12 recent FSAPs, five incorporated climate risks.

Some DFIs are also assessing disaster risk within their lending activities, such as the Inter-American Development Bank (IDB), which published its most recent methodology for disaster and climate risk assessment in December 2018⁷⁹. A more recent Multilateral Development Bank (MDB) development, which helps build the financial rationale for DRR, is the **2019 Framework and Principles for Climate Resilience Metrics in Financing Operations**⁸⁰ where a group of eight MDBs set out principles, core concepts and other characteristics of climate resilience metrics, together with a high-level framework for such metrics in financing operations⁸¹.

Finally, the **commercial provision of climate services**⁸² to the financial services sector has increased in the last eighteen months, and many tools are now providing financial analysis of climate hazards. These tools and services have been reviewed extensively in recent UNEP FI-led projects with investors⁸³ and banks⁸⁴. They are at the cutting edge of translating (climate) hazard data into financial metrics to assist in making climate-informed decisions.

Overall, while much progress has been made toward the consideration of some risks in financial decision-making (i.e., climate risks in particular), these efforts seem to lack a multi-hazard approach. They do not incorporate a thorough understanding of the interdependencies that exist between different risk factors. More work toward developing the financial evidence behind the costs of disasters and / or the value of resilience measures is needed.



3.3 Progress toward better oversight of disaster risks

This section reviews the development of oversight of disaster risks, or governance, regulatory, supervisory, and voluntary frameworks, as well as measures put in place to facilitate disaster risk reduction, including financial oversight.

3.3.1 Disclosure frameworks and standards

Frameworks to promote better disclosure of Environmental Social and Governance (ESG) criteria, specifically climate risks⁸⁵ have consolidated over the last years. These frameworks have also further aligned their disclosure practices, particularly around climate risks and the Recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD). This is thanks to initiatives such as the Better Alignment Project that focused on improving the alignment in the corporate reporting landscape⁸⁶. In June 2021, the G7 backed making climate risk disclosure, as per the recommendations of the TCFD, mandatory. The adoption of regulation and delegated acts on ESG and climate disclosure in Europe is setting the pace for a shift from voluntary to mandatory incorporation of sustainability and climate considerations. However, it is critical to note that these frameworks still only cover a fraction of all disaster risks, as they focus mainly on climate risk. Moreover, their efforts focus on promoting better disclosure of how companies understand risk but are further behind in promoting the adoption of preventative measures.

The **TCFD recommendations** remain the flagship disclosure framework for climate-related risk and has seen steady uptake to over 2000 signatories as of June 2021. Recent TCFD status reports, however, show that decision-useful information for investors and lenders is often lacking in TCFD reports and disclosures⁸⁷. Moreover, as noted in the 2020 TCFD Status Report, only one out of 15 companies' disclosures reviewed disclosed information on vulnerability or resilience of its business strategy to transition or physical risks⁸⁸. This means that the disclosure of companies' understanding of their exposure to risks does not necessarily translate into actions these companies should take to reduce their exposure and increase resilience⁸⁹.

The TCFD recommendations have raised the bar for other reporting frameworks like the **Principles for Responsible Investing (PRI)** and **CDP** (formerly Climate Disclosure Project); both of which have amended their climate risk reporting requirements to be in line with the TCFD framework. As of 2019, PRI signatories now need to report more information about climate risk strategy and governance elements in particular, and corporates reporting under CDP now also face more stringent climate risk reporting requirements⁹⁰. Meanwhile, the **Climate Disclosure Standards Board (CDSB)**, a non-profit organization working to provide material information for investors and financial markets through the integration of climate change-related information into mainstream financial reporting, released an updated disclosure framework in December 2019, which goes beyond climate, and sets out an approach for corporates to report environmental information in mainstream reports⁹¹.



Entirely new reporting frameworks and commitments have emerged since 2019 as well. UNEP FI established The **Principles for Responsible Banking (PRB)** in September 2019 and by now has over 230 leading banks as signatories, representing over a third of global banking. Importantly, the PRB has an expanded scope beyond the TCFD recommendations, as it asks signatories to commit to implement the Paris Agreements, and align with the sustainable development goals (SDGs), in addition to the TCFD. While it is an interesting development, as it indicates that banks are willing to make a public commitment to implementing international agreements such as the Paris Agreement and the SDGs, it does not yet include the Sendai Framework. As it stands, the PRB framework is not yet specific enough to prescribe a look at multiple hazards, at least explicitly. However, the launch of⁹³ to help signatories to take a systematic approach to setting and achieving biodiversity targets in the context of the Principles, and move towards implementing their public commitment to managing their biodiversity impacts as well as exposure to biodiversity-related risk, beyond the scope of PRBs, indicates there could be scope for the PRB to expand out to have signatories commit to Sendai Framework implementation.

Net Zero initiatives have rapidly unfolded, starting in 2016 following the Paris Agreement, and ramping up towards COP26 in Glasgow in November 2021. The UN-convened **Net-Zero Asset Owner Alliance**, has grown to over 40 members managing a combined US\$6.6 trillion in assets, up from 12 members managing US\$2.4 trillion at the launch in 2019⁹⁴. The **Net-Zero Asset Manager Alliance**⁹⁵, launched in 2020, includes 87 asset managers, including Blackrock and Vanguard, totalling US\$37 trillion assets under management, with an ambition to reach net zero emissions by 2050 across all assets under management (AUM)⁹⁶.

A new Net-Zero Banking Alliance launched in April 2021 brings together over 45 banks from 24 countries with over US\$29 trillion in assets, while a **Net Zero Insurance Alliance** is expected to be launched at COP26. The Global Financial Allianz for Net-Zero (GFANZ)⁹⁹, chaired by Mark Carney, UN Special Envoy on Climate Action and Finance, and the proposal by AVIVA Investors¹⁰⁰ for an International Platform for Climate Finance are opportunities to enhance and encourage the incorporation of comprehensive risk reduction and resilience into the financial sector to address the rising systemic risk.

Conventional standard setting is conducted under the auspices of the **International Organization for Standardization (ISO)**. While many ISO standards contribute to the SDGs¹⁰¹, several recent ISO standards and calls for these have emerged, which may help facilitate better oversight of risk-informed investment, particularly at the local level:

- The ISO standard on sustainable cities and communities — Indicators for resilient cities (**ISO 37123:2019**), was developed in 2019, with contributions from UNDRR. It defines and establishes definitions and methodologies for a set of indicators on resilience in cities and applies to any city, municipality or local government that undertakes to measure its performance in a comparable and verifiable manner, irrespective of size or location¹⁰².
- A new ISO standard for urban resilience (**ISO/TC 292**)¹⁰³ is also under development, led by UN Habitat and the United Nations Economic Commission for Europe (UNECE). This standard aims at supporting national and local governments build their capacity to face the new challenges arising from climate change and shifting demographics. It will define a framework for urban resilience, clarify the principles and concepts, and help users to identify, implement and monitor appropriate actions to make their cities more resilient¹⁰⁴.
- Beyond urban resilience standards, a **new standard ISO 14090**, Adaptation to Climate Change Principles, Requirements and Guidelines was released in 2019. The standard is aimed at any organisation, yet there is limited evidence so far of its use in the corporate or financial services sector, and it does not refer to disaster risks beyond climate change¹⁰⁵.
- Analysis of the management systems standards **ISO 9001:2015** (Quality Management System) and **ISO 14001:2015** (Environmental Management System) and corporate sustainability showed that both standards contribute to corporate sustainability, however, they alone do not ensure that all the sustainability requirements (such as for example recommended by the Global Reporting Initiative (GRI) will be reached. Risk management processes, as one of the sustainability requirements, showed a strong relation with both standards¹⁰⁶.
- **ISO 26000:2010** provides guidance on how businesses and organizations can operate in an ethical and transparent way that contributes to sustainable development.
- Other standards which could support both sustainability and resilience include ISO 37101 (on sustainable development objectives), ISO/TC 268 (responsible use of resources, preserving the environment and improving the well-being of citizens); ISO 37120 (indicators for city services and quality of life), ISO 37122 (indicators for smart cities); ISO 22313 (business continuity management systems), ISO 22326 (emergency management), ISO 22395 (guidelines for supporting vulnerable people in emergency situations) and ISO 24526 (water efficiency management systems).
- Within the ISO 14000 family of standards for environmental management systems, ISO 14064 (specifications for the quantification, monitoring and validation/verification of greenhouse gas emissions), ISO/TS 14067 (principles, requirements and guidelines for measuring and quantifying the carbon footprint of products), ISO 14080 (framework to develop consistent, comparable and improved methodologies in the fight against climate change) and ISO Guide 84 for addressing climate change in standards, which is aimed at those involved in standards development, include important elements of disaster risk reduction.

While voluntary frameworks have long since made the case that climate risks should be disclosed in financial reports, e.g., TCFD, international accounting standards have been hesitant to make this a requirement. However, this is also changing.

In November 2019, the **International Accounting Standards Board (IASB)** published a paper, the “IFRS Standards and climate-related disclosures”¹⁰⁷ that suggests that they understand the need for companies to potentially disclose climate risks in financial statements, rather than solely in narrative reporting. The paper made a clear case for the inclusion of climate matters within financial reporting and indicates organisations like IASB may be considering how to better include climate risks in accounting standards in the future.

Similarly, both the **International Auditing and Assurance Standards Board (IAASB)** and the **Institute of Chartered Accountants in England and Wales (ICAEW)**, the largest professional body of accountants outside the USA, called for greater understanding by auditors how climate-related risks relate to their responsibilities under professional standards, and applicable law and regulation¹⁰⁸. Disaster risk reduction and resilience aspects are partially covered under the disclosure framework of the **Sustainability Standards Accounting Board (SASB)** as “systemic risk management”, however only for a narrow range of industry sectors.

As standards bodies continue to work towards coherence incorporate climate, sustainability and ESG disclosure protocols and metrics, in particular under the auspices of the **International Financial Reporting Standards (IFRS) Foundation**, the idea of multi-hazard and systemic risk management should be included as an essential component. This includes as it relates to internal practices and the external influence of a corporation on the risk reduction and resilience efforts of its customers, its supply chain, and the communities in which it operates. For example, this could imply that the IFRS’s current efforts toward establishing an International Sustainability Standards Board (ISSB) could be reframed as an International Sustainability and Resilience Standards Board (ISRSB), to better reflect the realities of a post-COVID and multi-hazard world and to raise awareness of the collective benefits to corporate strategic planning, capital allocation and risk management (as in the case of the TCFD).

Impactful engagement programmes are starting to emerge, along the investment chain. The Global Industry Standard on Tailings Management (see section 3.3.4 for more details) illustrates how standards can at times be set by investors.

3.3.1 National oversight of disaster risks

There has also been a wide range of state-level efforts which represent progress toward better oversight of risk-informed investment.

As of July 2021, 118 countries had developed **national DRR strategies** that are aligned with the Sendai Framework which represents an increase of over 100% since 2016. A key example is from the Oceania region, where Samoa has a National Action Plan for Disaster Risk Management 2017-2021¹⁰⁹. Countries are also adopting **joint national action plans (JNAPs)** for disaster risk management and climate change¹¹⁰. In developing these strategies, countries have a further opportunity to regulate or create the incentives for risk-informed investment.

DRR is now also being incorporated into the **United Nations Framework Convention on Climate Change (UNFCCC) Nationally Determined Contributions (NDCs)**. Countries are also generally starting to increase focus on climate adaptation in their climate planning. Along these lines, adaptation and resilience feature as priorities in the discussions towards the **26th Conference of the Parties (COP 26)** in 2021¹¹¹.

Progress is also recorded on the mitigation of the long-term fiscal impact of disaster shocks through **risk-informed financing strategies** that support policy objectives at the national, subnational, and individual levels. The 2017 OECD framework for public-sector actors on the governance of disaster risks could thereby be contributing progress toward better oversight of risk-informed investment, as the guidance includes a high-level policy guidance on the financial management of disaster risk¹¹². The OECD also previously published recommendations on the Governance of Critical Risks, which ‘proposes actions that governments can take at all levels of government, in collaboration with the private sector and with each other, to better assess, prevent, respond to and recover from the effects of extreme events, as well as take measures to build resilience to rebound from unanticipated events’¹¹³.

Building on progress regarding the integration of disaster risk by finance ministries in their wider macro fiscal framework in order to better manage fiscal shocks from disasters¹¹⁴, disaster risk reduction has also been incorporated into the building blocks of Integrated National Financing Frameworks (INFFs) and related guidance documents (see also section 3.4).

In 2020, the **Basel Committee on Banking Supervision** published a stocktake report on its members' existing regulatory and supervisory initiatives on climate-related financial risks, which encouragingly revealed that most of the Basel Committee members (i.e. countries) are, in fact, already implementing regulatory and supervisory initiatives on climate-related financial risks¹¹⁵. These include efforts to measure climate-related financial risks, raising awareness of these risks with the banks they oversee and external stakeholders, and requiring or encouraging banks to disclose information on climate-related financial risks, stress-testing of such risks and/or promoting the growth of sustainable finance¹¹⁶. In 2021, the Basel Committee published several publications related to climate and systemic risk, including 'Principles for operational resilience' to strengthen banks' ability to withstand risk-related events that could cause significant operational failures or wide-scale disruptions in financial markets, such as pandemics, cyber incidents, technology failures or natural hazards¹¹⁷.

Moves to mandate scenario analysis are common, though it is important to note that these scenarios do not yet include a comprehensive set of disaster risks, as they are focused on climate risks (physical and transition).

For example, in June 2021, the **Bank of England** set out its first comprehensive stress test of the ability of the 19 largest banks and insurers to cope with climate change¹¹⁸. The Climate Biennial Exploratory Scenario (CBES) uses three scenarios to explore the two key risks from climate change: transition risks that arise as the economy moves from a carbon-intensive one to net zero emissions; and physical risks associated with the higher global temperatures likely to result from taking no further policy action. All three scenarios explore both transition and physical risks, to a different degree¹¹⁹.

The **Network for Greening the Financial System (NGFS)** is a key effort that is starting to facilitate the integration of physical and transition climate, as well as other environmental risks, into national financial supervision and decision-making. Members of the NGFS, i.e. nearly 70 central banks and supervisors, are seeking to understanding the materiality of climate change risks and the transmission channels of climate impacts from the economy to the financial sector¹²⁰. In 2020 and 2021, the group released a set of standardised climate scenarios¹²¹, and guidance¹²². These standardised scenarios are helping central banks and supervisors to take action in alignment with each other, and they were designed so that other financial institutions could use them as well. Though the NGFS has so far primarily focused on climate change risks, the network is also in the process of embedding broader environmental risk considerations within its agenda,¹²³ including seeking to raise awareness on the importance of environmental risk analysis more broadly¹²⁴.



For example, the joint Study Group on 'Biodiversity and Financial Stability' which was launched by the NGFS and the International Network for Sustainable Financial Policy Insights, Research, and Exchange (INSPIRE)¹²⁵ explored the links between biodiversity loss and the macroeconomic and financial systems.

NGFS's efforts are complemented by the activities of the **Coalition of Finance Ministers for Climate Action**, which brings together fiscal and economic policymakers from over 60 countries and is helping, through the Helsinki Principles, to share best practices and experiences on macro, fiscal, and public financial management policies for a low-carbon and climate resilient future. These principles establish that this Coalition of Finance Ministers, operating within their national frameworks, competencies, and mandates will:

- Align policies and practices with the Paris Agreement commitments.
- Share experience and expertise with each other in order to provide mutual encouragement and promote collective understanding of policies and practices for climate action.
- Work towards measures that result in effective carbon pricing.
- Take climate change into account in macroeconomic policy, fiscal planning, budgeting, public investment management, and procurement practices.
- Mobilize private sources of climate finance by facilitating investments and the development of a financial sector that supports climate mitigation and adaptation.
- Engage actively in the domestic preparation and implementation of Nationally Determined Contributions (NDCs) submitted under the Paris Agreement¹²⁶.

As with the NGFS, the Coalition currently focuses on climate risks. It is important to note that a publication in March 2021 recognized that the interaction of various risks may lead to reinforcing feedback effects that could gradually or abruptly cause high fiscal costs and trigger contingent liabilities of Ministries of Finance with growing climate change and expanded the Coalition's initial focus on transition risks or climate mitigation to also look at adaptation and resilience¹²⁷.

In recent years, several countries have led major advancements on oversight of disaster risk governance, though again typically with a focus on climate risks (physical and transition). France was a leader in this space, releasing its **Energy Transition law** and specifically **Article 173** in 2015. Through this article, France set out a requirement for risk reporting on climate change, inter alia, which pushes for the refinement of methodologies and tools to support physical climate change risk assessments and disclosures. Implementation has been patchy, with around half of large financial services companies in the country falling short of the reporting requirements, upon assessment in 2018¹²⁸.

In 2020, France also presented a first evaluation of its own national budget and set out environmental criteria to be used in future evaluations. Set out by the Ministry of Economy and Finance in the annexes of the 2021 Finance law, France assessed the impact of the budget on the following environmental objectives, inspired by EU Taxonomy Regulation¹²⁹:

- Climate change mitigation.
- Climate change adaptation and prevention of natural risks.
- Water management.
- Circular economy, waste and technological risks.
- Pollution control and reduction.
- Biodiversity and protection of natural, agricultural and forest surfaces.

This new budget tracking, as well as others likely to be carried out under the **Paris Collaborative on Green Budgeting** initiative, launched by OECD, France and Mexico in 2017,¹³⁰ helps to mainstream climate and other considerations into budgetary programmes. The evaluation of environmental impacts of budgetary and fiscal policies helps assess their coherence towards the delivery of national and international commitments. The main link to DRR, apart from climate, is the circular economy, waste and technological risks category. This could be expanded in the future.

The **UK Government** has also taken decisive action by establishing a **2019 Green Finance Strategy** that stresses the importance of ensuring physical climate risks that companies and investments face are assessed and considered. In late 2020, the UK Chancellor made several important announcements, including that the UK will introduce more robust environmental disclosure standards, that TCFD-style disclosures are to be fully mandated across the economy by 2025; and that a new green taxonomy with the scientific metrics of the EU taxonomy as its basis will be implemented¹³¹. These proposals build on the expectation, set out in the UK government's 2019 Green Finance Strategy, that all listed companies and large asset owners should disclose in line with the Task Force on Climate-related Financial Disclosure (TCFD) recommendations by 2022. Initial steps include the introduction by the Financial Conduct Authority (FCA) of a new rule and guidance to promote better climate-related financial disclosures for UK premium-listed commercial companies in January 2021, with regulations outlining climate risk assessment and reporting requirements for pension scheme trustees put before Parliament in June 2021, and expected to become law in October 2021¹³².

It is noteworthy that courts are also taking a position on Government action on climate change. For example, in April 2021, Germany's Federal Constitutional Court declared Germany's climate-change law partly unconstitutional¹³³. Similarly, in February 2021, four environmental groups succeeded against France in what some commentators described as the "case of the century". The claimants accused the French government of failing to fulfil its obligations to decrease greenhouse gas emissions in line with the Paris Climate Agreement and related French laws¹³⁴. In 2018, the Government of Nepal was ordered by the Supreme Court to, inter alia, enact a new climate change law to mitigate and adapt to the effects of climate change. This was after a claimant petitioned that the existing Environmental Protection Act was inadequate because it did not address climate change¹³⁵. In all three cases, the Government was forced to reconsider its approach.

3.3.3 Regional oversight of disaster risks

In the EU, there have been significant developments that support greater investment in disaster resilience. In reaction to the unprecedented economic fallout caused by the COVID-19 pandemic, the European Council agreed in July 2020 on a so-called Recovery and Resilience Facility (RRF) as its economic stimulus package to revive and – at the same time – modernize, reskill and upskill the EU economies in the spirit of 'Building Back Better'¹³⁶. The RRF is part of Next Generation EU (NGEU), an expenditure program of €750 billion based on grants (€390 billion) and capital markets raised loans (€360 billion), which is the front-loaded (2021-2023) recovery package and is structurally embedded into the EU multi-annual budget for 2021-2027 (€1,074 billion). NGEU allocates 30 per cent to tackling climate change, including through the European Green Deal. The total amount of EU spending for NGEU and the multi-annual budget for climate related activities is expected to amount to more than €1.8 trillion in the next seven years.

Within the framework of the European Green Deal¹³⁷, much progress has been made to make investments more disaster resilient. These include the entry into force of the **EU Sustainable Finance Disclosure Regulation (SFDR)** in March 2021¹³⁸, the EU Taxonomy¹³⁹, including its delegated act on climate change adaptation in April 2021, and the Strategy for Financing the Transition to a Sustainable Economy¹⁴⁰ in July 2021. The SFDR requires certain financial market participants and other companies to follow mandatory environmental, social, and governance (ESG) criteria and disclose how and to what extent their activities align with those considered environmentally sustainable. The **EU Taxonomy's delegated act on climate change adaptation** sets out technical screening criteria for determining whether an economic activity contributes substantially to climate change mitigation or climate change adaptation and does no significant harm to any of the environmental objectives. The taxonomy is important for private as well as public finance. The RRF, for example, will use the taxonomy. Lastly, the Strategy for Financing the Transition to a Sustainable Economy comprises an ambitious and comprehensive package of measures to help improve the flow of money towards financing the transition to a sustainable economy.

The EU has foreseen the publication of further policies that will advance more resilient investments. In the second half of 2021, the adoption is expected of delegated acts, specifying the information companies subject to the **non-financial reporting directive (NFRD)**. During the course of 2022, the remaining taxonomy objectives¹⁴¹ as well as the progress towards the adoption of global sustainability and climate disclosure standards under the umbrella of the

International Financial Reporting Standards (IFRS)¹⁴² foundation and Sustainable Accounting Standards Board (SASB)¹⁴³ are anticipated.

These developments set out the next stage of actions, with further opportunities to promote a comprehensive multi-hazard risk approaches within business strategies and operations.

In the **EU Strategy for Financing the Transition to a Sustainable Economy**, there is an emphasis on a systemic approach in the EU and improving the financial sector's resilience and contribution to sustainability. This will be important for disaster risk reduction. In particular, the strategy points to increasing the resilience of the financial system to shocks that requires the identification, measurement and management of risks at the system level. It also plans to consider increasing disaster insurance coverage and initiating a Climate Resilience Dialogue. The next steps the EU will undertake will also have to have a strong emphasis on the international financial architecture. In July 2021, the Commission also announced the adoption of the European Green Bond Standard proposal developed by the by the Technical Expert Group (TEG) on Sustainable Finance¹⁴⁴ for an **EU Green Bond Standard (GBS)**¹⁴⁵, with the aim to create a high-quality voluntary standard for bonds financing sustainable investment¹⁴⁶. The GBS proposal includes a suggestion to align the GBS with the EU Taxonomy, and thus also features a 'do no significant harm' requirement¹⁴⁷.

It is noteworthy that even before disclosure requirements became mandatory, some investors have already started to use the Taxonomy to identify which of their activities are contributing to climate adaptation, among other objectives, and to screen new investments in their due diligence processes¹⁴⁸.



Efforts on the integration of climate and financial risk and decision-making are ongoing in other regions¹⁴⁹.

For example, in November 2020, APEC leaders committed to 'promote economic policies and growth that support global efforts to tackle climate change, extreme weather and natural disasters, and strengthen emergency preparedness¹⁵⁰. Change is supported by industry leaders demands for increased action by policy-makers to comprehensively address disaster risk, resilience and sustainability¹⁵¹ Using trade policy as a tool to accelerate action, APEC has also pushed for collective climate action through tariff reductions on products in APEC's List of Environmental Goods. New Zealand, the APEC Chair for 2021, focuses to bring economic efficiency into the environmental response through the further liberalisation of environmental goods and services¹⁵².

3.3.4 Investor engagement and expectations

Direct engagement between investors and corporates on areas relating to resilience is an emerging area. Though it is not common yet, there is one excellent example of how this engagement is seen in the **Global Industry Standard on Tailings Management**.

Following the tragic tailings facility collapse at Brumadinho, Brazil, on 25 January 2019, which left 270 dead and a trail of destruction, investors from the Church of England Pensions Board and Swedish National Pension Funds understood that they have a role to play in setting expectations for the companies they invest in. In response, a group of 112 investors, controlling \$14 trillion in assets, wrote to 727 mining companies, demanding they publicly disclose their tailings dam failure risks.

Together with the Council of Ethics, the United Nations Environment Programme (UNEP), Principles for Responsible Investment (PRI) and International Council on Mining and Metals (ICMM) convened the Global Tailings Review (GTR), in which 339 companies, including 45 of the top 50 mining companies which represent 83% of the mining industry capitalization, voluntarily disclosed information on their tailing dams.

The GTR then released the Global Industry Standard on Tailings Management in August 2020. To be compliant with the Standard, operators controlling tailings facilities must use specified measures to prevent the catastrophic failure of tailings facilities and to implement best practices in planning, design, construction, operation, maintenance, monitoring, closure and post closure activities. The co-conveners have each endorsed it and called for its broad and effective implementation across the industry:

- UNEP will support governments that wish to incorporate and build upon this Standard into their national or state legislation and policies.
- PRI, representing US\$ 103.4 trillion in assets under management, will work with investors to encourage all mining companies in implementing the Standard.
- ICMM member companies will implement the Standard as a commitment of membership, which includes robust site-level validation and third-party assessments¹⁵³.



This initiative shows a novel and concerted effort between several key stakeholder groups, including the United Nations and other international organisations, to exert pressure on mining companies and establish a global standard on disaster risk management for the sector. Long term investors such as pension funds, with strong commitments to environmental and social sustainability of their investments, may be a critical path to influence corporates on the consideration and disclosure of other disaster risks in the future. For example, the **World Economic Forum (WEF)** convened its insurance and asset management industry community to draw up an **action plan for building resilience to natural and man-made disasters** in 2020. Part of this plan indicates a concerted effort by asset managers and insurers to raise the importance of resiliency on the corporate agenda.

The plan calls for asset managers and insurers to do the following:

- Help to standardise public disclosures about risk exposure¹⁵⁴ and investments in resiliency.
- Encourage and inform the development of reinforcing policy and regulatory frameworks.
- Exert clout as large corporate investors, ensuring resiliency is appropriately prioritised in strategic decision-making, capital allocation and investor conversations¹⁵⁵.

Executive compensation is also now an increasingly important change agent. Recent research shows that incentive plans have proven to be an effective tool to focus management's efforts on key priorities and drive desired outcomes. Approximately 11% of top 350 European companies have CO2 emissions linked to their incentive plans¹⁵⁷.

3.4 Progress toward advocacy for DRR and risk-informed investment

This section reviews the promotion of and advocacy for DRR and risk-informed investment decisions since 2019.

The **Integrated National Financing Framework (INFF)** has been developed to implement the Addis Ababa Action Agenda, the global framework for financing, the 2030 Agenda for Sustainable Development and the 17 SDGs, at the country level. INFFs are a planning and delivery that spell out how the national strategies will be financed and implemented, utilizing both public and private financing sources. During the 2019 High-level Dialogue on Financing for Development, 16 countries committed to pioneer the development and implementation of INFFs¹⁵⁸. Importantly, disaster risk reduction has been incorporated into the building blocks of the INFFs and related guidance documents.

In 2020, the Inter-Agency Task Force on Financing for Development published **new guidance materials to support INFF implementation** – an inception phase guide to support countries in starting their INFFs and establishing INFF work structures. In the report titled ‘Integrated national financing frameworks: inception phase’, the Task Force calls for risk assessments which bring together assessments covering various types of risk, including economic risks (e.g., market shocks, debt sustainability, exchange rate volatility) and non-economic risks (e.g., disasters, climate-related risks, and political risks)¹⁵⁹. The guidance is supported by modules on assessments and diagnostics (INFF building block 1); financing strategy (INFF building block 2); monitoring, review, and accountability (INFF building block 3) and governance and coordination (INFF building block 4), all reflecting disaster risk reduction.

The **Inter-Agency Task Force on Financing for Development** also advocates for government action which will lead to strong references to risk-informed investment in its 2021 paper ‘Financing for Sustainable Development Report’.

This was reflected in the Outcome Document of the 2021 ECOSOC Forum on Financing for Development which included the following calls:

- To urgently shift the balance from investing in response to investing in prevention and in disaster risk reduction, including through risk-sensitive public planning. There is a recognition of the need to understand risk, and its complex and systemic nature, across all sectors and at all levels of financial and economic planning.
- For COVID-19 recovery strategies that help reduce the risk of future shocks and a commitment to financing to global public goods, including the implementation of the Sendai Framework. This is supported by an invitation to national and regional development banks and international financial institutions to provide a long-term coordinated response to the crisis and help countries to rebuild better, reduce risks and build resilience.
- To fill the infrastructure financing gap, including through the implementation of the Sendai Framework, and to focus on diagnostics for infrastructure needs in developing countries that takes into account resilience and adaptation to and mitigation of climate change.
- To strengthen the consideration of disaster risk, including climate and environmental risks, in the global financial architecture and for the inclusion of climate and disaster risks in financial sector risk assessments.

In July 2020, Member States affirmed their determination to invest in prevention and resilience as essential components of disaster risk reduction, to increase preparedness and to build back better in the **High-level Political Forum on Sustainable Development (HLPF)**¹⁶⁰. In September 2020, the **High-Level Event on Financing for Development in the Era of COVID-19** and the Forum for Financing for Development meeting on **Financing a Sustainable Recovery from COVID-19** have both also established the importance of aligning to the Sendai Framework and to the principle of building back better as part of COVID-19 recovery plans, encouraging governments to include these principles in their recovery plans.

Reflecting on 2020, the 2021 WEF Global Risk Report highlighted the need for a shift from ex post to preventive, anticipatory approaches, outlining four governance opportunities to strengthen the overall resilience of countries, businesses and the international community in the COVID recovery: (1) formulating analytical frameworks that take a holistic and systems-based view of risk impacts; (2) investing in high-profile “risk champions” to encourage national leadership and international co-operation; (3) improving risk communications and combating misinformation; and (4) exploring new forms of public-private partnerships on risk preparedness¹⁵⁶.

The UNDRR **Private Sector Alliance for Disaster Resilient Societies (ARISE)** network, is continuing its knowledge sharing and promotion of voluntary commitments to support and implement the Sendai Framework. ARISE aligns with the 2030 Agenda for Sustainable Development, the Sustainable Development Goals (SDGs), the Paris Agreement, the New Urban Agenda and the Agenda for Humanity. As a long-standing advocate for private sector risk-informed developments, it supports and encourages the provision of policies and practices to reduce disaster risk and losses. In 2020, ARISE members adopted four new priority areas for its engagement, namely:

- Enhancing the resilience of small and medium enterprises (SMEs);
- Integrating disaster and climate risk into investment decisions by the financial sector;
- Incentivising disaster risk reduction and enhanced data for risk-informed decision-making through engagement, with the insurance industry as global risk manager;
- Supporting resilient infrastructure development.

Finally, the **UNDRR risk sensitive budget reviews (RSBRs)**, carried out in 2018–2019 for 16 African countries, further recommends and advocates for risk-informed investment. This report synthesises trends in DRR investments across the 16 countries and identifies general policy recommendations. In doing so, it advocates for risk-informed investment, stating that ‘risk-informed investment in all thematic areas and sectors is a first step for DRR mainstreaming, which is vital for sustainable development.’¹⁶¹ Further work is ongoing with UNDP and other partners to establish a global methodology on budget reviews¹⁶². The participation of ministries of finance and economic planning in the development of national disaster risk reduction strategies and in risk-informed reviews of public budgets has been beneficial in enhancing policymakers’ understanding of the financing gaps and the need for alignment between national budgets and disaster risk reduction strategies.

Section 4

Recommended actions

This section recommends eight actions to improve the integration of DRR in investment decision making, contributing towards the development of a financial services sector founded on sustainability principles. This set of curated actions was refined from a long list collected during the stakeholder consultation phase.¹⁶³ Actions were screened based on how concrete and specific they are and the degree to which they can be readily implemented. They are not exhaustive but provide an immediate starting point. These actions are designed to catalyze momentum in one or more of the four themes, i.e. evidence, rationale, oversight, advocacy, and should be undertaken concurrently. The actions are numbered, but this does not indicate any priority or a prescribed order.

The proposed actions vary in their complexity. Some proposed actions are relatively straight-forward, involving fewer actors, while others are complex programmes of work. Whether large or small, complex or simple, a concerted effort is needed to advance this work with diverse stakeholders contributing to the effort to realise risk-informed investment.

Careful consideration of which organisations and stakeholder groups are best placed to take the actions forward and be involved in their delivery was given during the drafting of these actions. Recommended organisations, sectors, and groups for each action are included (see Table 2), though this list of actors should be taken as indicative and non-exhaustive. The organisations listed here have emerged as potential leaders, following the consultation process and literature review.

4.1 Action 1 - Develop a work programme which aims to improve access to disaster risk data platforms to enable public and private sectors to better assess base data on a wider range of disaster risks (Build the evidence base)

This work programme would contribute to current efforts to build and establish the evidence base on disaster risks. In order to address both natural and man-made hazards and risks, and their interconnected and systemic nature, it would help to improve access to comprehensive disaster risk data, increase open access, and promote the use of other types of data, e.g., satellite-based data, socio-economic data, economic data, as well as a better integration of community and indigenous people's knowledge and expertise.

The following is a non-exhaustive list of main activities of the work programme:

- A review of existing data platforms and a gap analysis of hazards and locations where there is limited hazard data (e.g., in geographies)
- An exploration of the application of global earth observation (EO) data to ensure usability of EO data for DRR purposes, to measure the cost of disasters, (e.g., to governments or businesses in the real economy)
- Development of a 'go-to-guide' describing where to access disaster risk data, (e.g., a collation of data sets types, including review of applications and limitations, and ways to compare and assess the suitability of data)

While there have been many efforts to collect and provide open access to hazard data, and data on losses caused by disasters associated with natural hazards, there is still room for improvement. The aim of this set of actions would not be to replace existing platforms, but rather to iterate and develop them further. There is a need, for example, for global coverage at the required resolution, coverage of multiple hazards, and better understanding of the relationships between hazards. The rapid expansion, development and potential of earth observation technologies and data collection should be included in this effort, as it will complement historical datasets. Satellite data is a powerful resource and can help illuminate natural resource depletion and disaster risks, often in real-time.

Furthermore, while data portals (e.g., hazard, vulnerability) continue to proliferate, there is a need to provide guidance to end users about the universe of portals, which would allow them to better determine where to access the relevant data¹⁶⁴. As discussed in this report, there is still a strong need to demonstrate how this information can be combined with climate modelling and data, and link up with financial modelling easily. Translation between these data sets and financial metrics (e.g., probability of default, Value-at-Risk, asset valuations, etc.) is still needed – and recommendations relating to this are shared under action 2¹⁶⁵. It should also be noted that there are significant data management, data formatting and data access issues.

It will be important to partner with - or at the very least complement - other initiatives that may be working to improve hazard data and statistics (as discussed in section 3.1). The EO community, including space agencies, national meteorological organisations, intergovernmental EO organisations, development finance institutions and academia, as well as initiatives or groups working with other hazard, vulnerability, or hazard data platforms would also be key participants of this action (e.g., development banks, UN organisations, or national initiatives). Sector/industry associations could be involved to help explore the application of global EO data to measure the cost of disasters to businesses in the real economy. This part of the work programme could also contribute to developing and establishing the financial rationale for DRR, as discussed in section 3.2.

This work programme could also promote the use of the 'Findability, Accessibility, Interoperability, and Reusability (FAIR) Guiding Principles'¹⁶⁶, as there are many other existing platforms for scientific data management and stewardship, which can be used to guide data producers and publishers to improve data sharing and management practices.

This proposed action does not aim to develop one model where all hazards are analyzed together, as this seems - at least for the moment - impossible. Rather, it aims to improve access and uptake of datasets needed by actors who are working to integrate the consideration of a wider range of risks, importantly with a multi-hazard approach. It is not reasonable to expect an integrated risk future can be fully modelled, though it is possible to further develop tools and datasets that are designed to perform better in an uncertain world, and closer to real time data systems that help guide quicker more nimble adjustments.

4.2 Action 2 - Demonstrate the costs of disasters and the value of resilience measures, i.e., 'financial rationale' for DRR (Build the financial rationale)

There is currently limited financial rationale for risk reduction for many hazards, such as a demonstration of the value of resilience-related investment or the cost/benefit of preventative actions. Furthermore, information is rarely presented in a format which is usable by the investment sector.

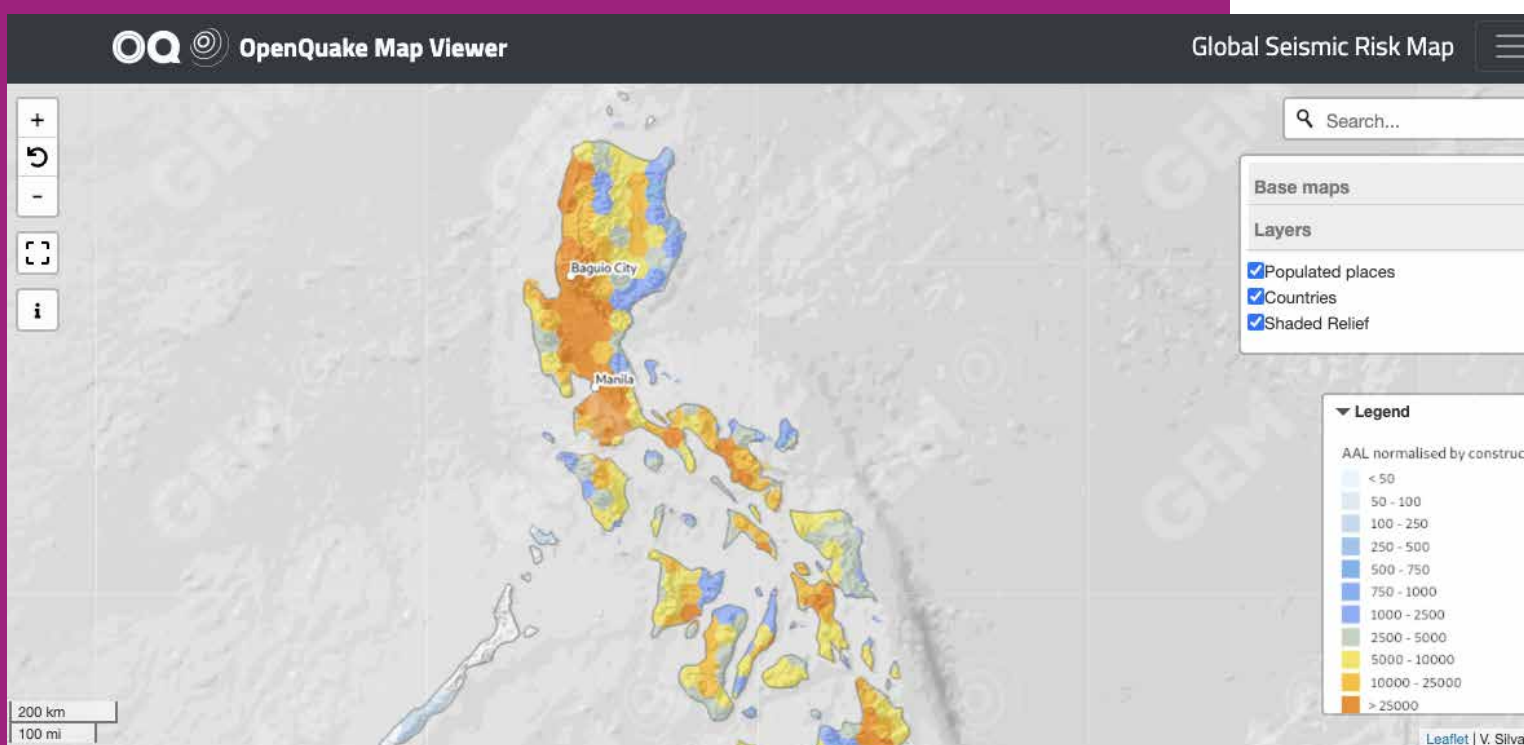
Methodologies, guidance and/or evidence around the following are needed in particular:

- Costs of disaster risks in the real economy, which include wider systemic impacts (expanding on current efforts by development banks or finance institutions)¹⁶⁷.
- The real impacts of climate change on current financial calculation methods, particularly cost benefit analyses, given that with locked-in climate change impacts, baseline disaster probabilities are underestimated in most parts of the globe.
- Long-term macro-economic, business and community financial assessments of disasters over periods of at least 10 years.
- The amount of investment needed to prevent a wide range of disasters (e.g. Value at Risk (VaR) analyses).

- Price modelling that allows for hazard, vulnerability and exposure data to be included in cash flow modelling (building on current efforts to price physical climate risks).
- The impact of risk exposure on sovereign risk ratings.
- Linking advances in geospatial data and socio-economic modelling to potential costs associated with and across hazards; including the costs of small-scale recurrent disasters and larger events with cascading system wide impacts.
- Case studies and cost benefit analyses of successful and less successful resilience measures (in financial terms).
- Ways in which investors and lenders (e.g., in infrastructure and real assets) can include a systemic approach or include DRR considerations into their financial decision-making.
- Guidance on calculating the loss and damage costs to intangible financial assets.

Working to establish a better financial rationale may help in the future oversight of disaster risks: as preventative measures become financially calculable, the likelihood that they will be integrated into risk management processes, disclosures and accounting standards increases greatly. Price modelling that allows for hazard data to be included in cash flow modelling is required. With their core membership drawn from the financial sector, CCRI is making headway in risk pricing, including the provision of guidance for participants and other members of their sector more widely. Their structure and composition should provide a model for the group taking forward this action. ARISE members, for example, could contribute to or lead case studies if the membership is extended to include the financial services sector. Eventually, this could lead to a catalogue of successful and less successful DRR actions, along with financial information. This does not mean the activity should exclusively stay within the sector, as it will be important to include relevant public sector partners and organizations to ensure focus on the global public good.

A wide range of actors would need to be involved to deliver this action and sub-activities. These include multi-stakeholder initiatives which are developing pricing mechanisms for physical climate risks or bringing together stakeholders on climate resilient development, insurers/insurance organizations or forums, research institutions and academics with interest in sustainable/green finance, groups involved in supporting the development of green or sustainable investing or finance to city and national governments, national-level groups advocating green finance, and international groups interested in green/sustainable finance, risk professionals (e.g., actuaries) and their sector associations or groups, investors and lenders (e.g., in real assets or infrastructure), and industry groups and associations, (e.g., sustainable investing forums, rating agencies, development finance institutions - via technical assistance programmes, or through financial sector assessments), and corporates and their sector/industry associations.



4.3 Action 3 - Develop information and guidance materials to demonstrate how DRR considerations can be included in financial decision making and supervision, public spending, and budgets (Improve oversight and build the financial rationale)

This action would contribute to improving the oversight of disaster risks and could contribute to establishing the financial rationale for DRR. Much of this action may rely upon the successful development of pricing and costs and the financial case for DRR (as discussed in action 2, section 4.2).

Guidance on the following is needed in particular:

- How disaster risks could be included in the financial regulation or supervision of corporates, banks, insurance, institutional investors, and asset managers; and
- How government finance ministries and other national and sub-national governments (e.g., municipality, state, federal) can:
- Consider a wider range of hazards in public investment, infrastructure banks, and other funding frameworks for public infrastructure, and
- Ensure that DRR is adequately funded.

To demonstrate how a systemic view of risks could be integrated into current supervision of the private sector (corporates, banks, insurance and investing, etc.), it is necessary to investigate how multiple hazards can be included in mechanisms that supervisors currently use, such as disclosure frameworks, and behind those, scenario analysis and/or stress testing or adjustments. As shown in section 3.3.2, climate risk has started to filter into these frameworks and exercises at a corporate level, but there remains a broad range of hazards that are not yet included in stress testing and risk assessments. This could include actions which help to internalise current negative externalities.

Increased action of regulators on DRR is also required (e.g., state or local level and/or central banks and supervisors) and strategic advisors, central banks and supervisors, which should be carefully coordinated. There is a need to demonstrate how scenarios can include consideration of multiple hazards. It might be that financial supervisors could include these in the exercises they set for themselves before requiring this in future stress tests. Members of the Network for Greening the Financial Sector (NGFS), for example, committed to conducting scenario analysis on their respective financial systems first, before setting requirements for the banks and insurers they oversee to do so. The OECD's framework on the governance of disaster risks should be used as the foundation of any further guidance, and can be built upon to provide richer information to help governments take action.

Enhanced evidence and guidance on how to include resilience into public sector procurement processes needs to include how to integrate consideration of multiple hazards in public terms and conditions, public tenders, contract design, and design standards. General guidance could be developed, with subsequent sector-specific guidance for health care, utilities, transport, etc. The reasoning is that if these concepts are included in public tenders (request for proposals, etc.) and contracts, compliant bids will be submitted and agreed. In this way, public sector procurement can be used to set the market. This is also ideal in that these changes would require little cost and no new legislation; they are already within the remit of any national or city government. Ideally, the guidance would be developed with training packages for a) government procurement and legal teams, b) suppliers, contractors, and operators. Guidance on building resilience into public spending also needs to include information on how to screen public investments for their vulnerability to systemic risk, building on the efforts by countries who are developing green budgets and Integrated National Financing Framework (INFFs).

Existing relationships between Development Finance Institutions and national governments should be tapped into. DFIs work closely with national governments and often develop guidance for them and assist in capacity building programmes, to provide financial assessments of the operational and capital impacts of risks on essential infrastructure. The costs/benefits of resilience measures enable consideration of the longer-term implications of decisions. Finance ministers should be approached. The development of INFFs, including guidance modules, can offer another way of encouraging closer collaboration between DFIs and national governments and other partners as relevant.

4.4 Action 4 - Develop thought leadership and guidance on the emerging information on legal liabilities and duties covering risk disclosure by companies and their banks and investors. (Improve oversight)

This action aims to help improve private sector oversight of disaster risks. Guidance for company directors is recommended as evidence from the legal landscape on climate risks shows clear emerging liabilities.

The liabilities for some disaster risks have started to become clear in the last few years, as landmark legal opinions and litigation on climate change have made the case that company directors are responsible to assess and disclose climate risks. Guidance on other risks, beyond climate, is now needed. In Australia, an update to the landmark 2016 Hutley opinion (titled “Climate Change and Directors’ Duties”)¹⁶⁸ was released in March 2019 in Australia¹⁶⁹. The 2016 opinion set out the ways that company directors who do not properly manage climate risk could be held liable for breaching their legal duty of due care and diligence.

The 2019 supplementary opinion provided again by Australian Senior Counsel (SC) Noel Hutley and Sebastian Hartford Davison reinforces and strengthens the original opinion by highlighting the financial and economic significance of climate change and the resulting risks, which should be considered at board-level. It puts an emphasis on five key developments since 2016 that have established the need for directors to take climate risks and opportunities into account and reinforced the urgency of improved governance of climate risk. These are: Coordinated engagement by financial regulators on climate; New reporting frameworks; Investor and community pressure; Advances in scientific knowledge; and Increased litigation risks. While the 2019 opinion is rooted in the Australian context, just as the 2016 opinion, it has much wider applicability, as the developments discussed in the update have been simultaneously happening in jurisdictions outside of Australia, including Canada, the UK, and Europe. The opinion suggests management of climate risks will require engagement with company directors in banking, insurance, asset ownership/management, energy, transport, material/buildings, agriculture, food and forest product industries¹⁷⁰.

The Hutley opinions can be used to develop future guidance, and evidence on ‘failure to disclose’, ‘false or misleading disclosure’ (e.g., shareholder-led) and ‘failure to adapt’. Cases are starting to be tested in courts. For example, in late 2020, an Australian citizen won a case against Australia’s largest super fund, Rest, after suing in 2018 for failing to provide details on how it will minimise the risk of climate change. The landmark case represents the first time a superannuation fund has been sued for failing to consider climate change ¹⁷¹. The fund has agreed to test its investment strategies against various climate change scenarios and commit to net-zero emissions for its investments by 2050, as a result ¹⁷².

Guidance which helps company directors understand how the legal landscape is taking shape in terms of disaster risk assessment and disclosure should illustrate that they also face emerging liabilities to disclose these risks as part of annual reporting. The guidance should improve motivation and awareness of the emerging liability and have the aim of improving the governance of and oversight of disaster risks among corporates. Cases such as the Australian super fund example mentioned above, and others involving failure to address climate and other hazards should be tracked by leading organisations such as the Sabin Center for Climate Change at Columbia University Commonwealth Climate and Law Initiative (CCLI) which develops legal techniques to address climate change, as this can help develop this guidance.

Further guidance is urgently needed, and would ideally draw on skills and capacities from UN agencies, such as the UN Environment Financing Initiative (UNEP-FI), UN Industry Development Organization (UNIDO) or the UN Development Programmes (UNDP) Finance and Private Sector hubs. Participants could include members of the CCLI, leading law firms, e.g., through the Legal Sustainability Alliance, the London School of Economics’ Grantham Research Institute on Climate Change and the Environment Legal Observatory at Columbia’s Sabin Center for Climate Change Law in New York City.



4.5 Action 5 - Build the evidence base and expose regulatory obstacles to risk-informed investments (Improve oversight)

This action would contribute to improving oversight of disaster risks. Throughout the consultation process, consultees referred to the need to address regulatory barriers to risk informed investment, including in resilient infrastructure.

A comprehensive and methodical review and documentation of cases of clear regulatory challenges and obstacles for the financial service sector would be a crucial first step in working to remove these barriers, and therefore allow progress toward improving the oversight of DRR. Close attention would need to be paid to the nuances present within the financial services sector and across geographies and various segments (e.g., lenders, investors, pension funds, private equity investors) and different jurisdictions will face different regulatory contexts.

Stakeholders taking forward this action could conduct a study identifying examples of obstacles directly from the financial services, or associated industry groups on the key barriers they face. This action should likely involve similar actors suggested in as the previous action, (e.g., legal observatories and research organizations), as they will have the requisite familiarity with the legal and regulatory landscape. The study would likely need to be repeated in several years' time, as regulations evolve and change, so consideration of how to create sustainability for this study should be made.



4.6 Action 6 - Strengthen oversight and supervision of disaster risks by reporting frameworks, organisations and standard setters, and through investor engagement (Improve oversight and enable advocacy for DRR)

Without improved regulation and financial supervision of disaster risks, they are unlikely to be integrated into decision-making. Progress toward climate risk governance, driven in part by increasing regulation, indicates that establishing disaster risk regulation and supervision will be complex but essential. Building on the increasing focus on the need for strengthened risk governance driven by the impact of COVID-19, there are important initial steps that can be taken now to advance toward this aim, which involve engagement with key organizations and strong advocacy for DRR (building on existing activities).

The following is a non-exhaustive list of suggested sub-activities of the action:

- Explore the potential for international accounting standards to include reporting on DRR
- Explore ways to use disclosure frameworks to increase disclosure of DRR in investments
- Develop more evidence on how investors can engage with corporates to influence uptake of preventative measures, e.g., working collaboratively to set new standards

Integrating disaster risk and internalizing the externalities into accounting practices and into international accounting standards is a critical step. The International Financial Reporting Standards on accounting (IFRS), issued by the IFRS Foundation and the International Accounting Standards Board (IASB) set the process by which externalities are incorporated into balance sheets. The communication channels available between G7/G20 organizations, the United Nations and the IFRS Foundation should be explored on the inclusion of disaster risks in financial decision-making.

As discussed in section 3.1.1, the Climate Disclosure Standards Board (CDSB) is currently developing guidance for corporates on integrating climate-related matters within financial statements under existing accounting standards. Further work will be needed to guide firms on understanding new accounting standards, should they evolve.

The exploration of ways that voluntary disclosure frameworks can be leveraged to increase disclosure of disaster risks in investments is a further sub-activity. Relevant organizations and business networks engaged or interested in DRR should engage with existing initiatives on global reporting standards (e.g., for non-financial metric reporting), to explore how these could include disaster risks. A considerable amount of progress toward the integration of climate risks in reporting frameworks has been made in recent years, as discussed in section 3. While these existing frameworks, such as the TCFD and CDP, have a clear remit of climate risk disclosure, some are expanding out to include environmental risks, for example in the case of the Climate Disclosure Standards Board (CDSB) framework. It is essential that relationships with these and other reporting frameworks are further developed to advocate for the inclusion of multiple hazards in their work programmes.

Investor engagement is another avenue that can work to influence corporates to manage their risks, and this should not be underestimated. As shown with the example of the recent Global Industry Standard on Tailings Management, investors and lenders may be able to work collectively to set standards for management of certain hazards. More evidence of the potential for this and guidance on how investors can effectively engage with corporates to influence uptake of preventative measures is needed.

Given the COVID-19 pandemic and the climate crisis, both of which represent systemic risks to environment, society and economy, and noting the current emphasis on green economic recovery¹⁷³, it is essential that the systemic risks to financial systems arising from the hazards identified in the Sendai Framework are adequately assessed and managed. At present, a systemic approach to risk assessment, management and disclosure is not included in current risk disclosure frameworks. There should also be more strategic engagement with national governments, (e.g., from the Inter-Agency Task Force on Financing for Development around INFFs), as well as between UN organisations with similar aims.

4.7 Action 7 - Reset the narrative to make clear that risk informed investment and Sendai Framework achievement is central to financial stability in the climate transition for sustainable development (Enable advocacy for DRR)

This action would contribute to the continuing advocacy for DRR and the integration of disaster risks in financial decision-making.

Suggested sub-activities of the action include:

- Establishing a 'net zero'-style narrative 'equivalent' for DRR
- 'Net-zero' has become a buzzword phrase carrying a powerful message
- Delivery of the Sendai Framework and integration into investment decision that can benefit from a similar approach
- Making clear that risk-informed investment is central to the 'net zero' climate transition

- Working with the finance sector and industry groups and organisations to raise awareness and disseminate material on a systemic risk assessment approach, written in the ‘risk language’ of the corporate and financial services sectors, rather than in the ‘risk language’ of the DRR ‘community’, thereby addressing the gap identified in common understanding of risk and risk terms used in both communities such as ‘systemic risk’
- Creating more effective success metrics for measuring action intended to promote a “green” COVID recovery and conduct periodic analysis to assess progress; and Ensuring the cadre of DRR/Sendai Framework advocates in the private sector includes financial services sector members.

Although awareness of climate risks is growing among the business and financial services sector, awareness raising and advocacy for the consideration of wider systemic risks and DRR in financial decision-making is not at the level required to deliver the Sendai Framework’s objectives. A key entry point to the financial services sector for this effort is through finance sector groups and sector associations. These groups and networks could be approached, to raise awareness, and include them (and by extension their members) into the cadre of DRR/Sendai Framework advocates in the private sector. This work can start now, and in the future, these networks will be a critical place to share the financial rationale and case studies developed.

Establishing a positive and optimistic narrative around the primary aims of the Sendai Framework will help enable better advocacy and uptake. The concept of a carbon budget and ‘net-zero’ concept allows actors to rally around and envision what the aim is, which ultimately helps drive action. This same type of narrative does not exist in the DRR space. Consultees suggested that a narrative to match that of ‘net-zero’, as a shorthand reference to the main target for climate change transition efforts, be developed.

Any recovery plan to COVID-19 should reflect commitments to reduce risk enshrined in the Sendai Framework, the Sustainable Development Goals and the Paris Agreement. Whilst COVID-19 impacts will eventually lessen, the hazards identified in the Sendai Framework place an increasing pressure on economic, social and environmental systems. Governments, public and private financial sector actors should regard the current experience with COVID-19 as a warning: failure to ensure the resilience of our systems at large costs and lives devastates economies and can threaten financial and social stability. Organizations working on or interested in DRR could help support and start a push for narrative development and advocacy, e.g., non-governmental organizations or think tanks that have published in this area.

4.8 Action 8 - cultivate the shared understanding and acceptance of the need for the financial sector to integrate DRR into decision making (Enable advocacy for DRR)

This action would enable more and continued advocacy for DRR and the integration of disaster risks in financial decision-making. Throughout the consultation, a group of organizations were consistently flagged as key entry points for the advocacy and dissemination of information around the integration of DRR into financial decision-making.

Relationships between key initiatives on risk and resilience, some of which are listed in this report, should be developed, as should engagement at a global level with G7/G20, UN organizations and other regional organizations in relation to inclusion of DRR considerations into investing and lending decisions, insurance, and corporate and financial supervision and regulation (including scenario analysis and stress testing).

Key organizations could be engaged to explore the potential for them to expand their mandates beyond climate and environmental risks. This includes insurance-related organizations, interested in sustainable development and equitable access to insurance, international organizations which share knowledge and best practice on sustainable/green finance, corporates (e.g., in the technology, transport, construction, manufacturing industries), intergovernmental organizations and other regional organizations working around economic development and sustainability, and NGOs or other DRR advocates, such as think tanks.



Summary table of proposed actions to further risk-informed investment

Table 2 provides a summary of the set of recommended actions, an estimate of the timeframe in which meaningful progress toward the action could be achieved, and who could be involved. These actions are designed to catalyze momentum in one or more of the four themes (evidence, rationale, oversight, advocacy) and should be undertaken concurrently. The actions are numbered, but this does not indicate any priority or a prescribed order.

Table 2: Recommended actions

| No. / Which theme(s) does this action contribute to? | Action and sub-activities | Who could take this forward and be involved? (non-exhaustive) |
|--|---|--|
| 1. / Evidence | <p>Develop a work programme/work stream which aims to provide open-access to disaster risk data platforms (e.g., satellite data-based platforms) to enable public and private sectors to better assess base data on a full range of disaster risks</p> <p>The programme could include the following activities (non-exhaustive):</p> <ul style="list-style-type: none"> • A review of existing data platforms and a gap analysis of hazards and locations missing data. • An exploration of the application of global earth observation (EO) data to ensure usability of EO data for DRR purposes, to measure the cost of disasters, (e.g., to governments or businesses in the real economy). For the latter, sector/industry associations could be involved and this would link to actions under the 'rationale' theme). • Development of a 'go-to-guide' describing where to access disaster risk data, e.g., a collation of data sets types, including review of applications and limitations, etc. | <ul style="list-style-type: none"> • The earth observation (EO) community, including space agencies, national meteorological organisations, intergovernmental EO organisations, development finance institutions and academia. • Sector/industry associations (e.g., for corporates and/or financial institutions). • Alliances and groups working to further access to hazard and related data and statistics. • Initiatives or groups working with other hazard, vulnerability, or hazard data platforms (e.g., development banks, UN organisations, or national initiatives). |

| No. / Which theme(s) does this action contribute to? | Action and sub-activities | Who could take this forward and be involved? (non-exhaustive) |
|--|---|--|
| 2. / Rationale | <p>Develop evidence, tools and guidance materials to demonstrate the costs of disasters and the value of resilience measures, i.e. the 'financial rationale' for integration of DRR into investment decision-making</p> <p>Methodologies and evidence around the following are needed in particular:</p> <ul style="list-style-type: none"> • Costs of disaster risks in the real economy, which include wider systemic impacts (expanding on current efforts by development banks or finance institutions). • The real impacts of climate change on current financial calculation methods particularly cost benefit analyses given that with locked-in climate change impacts, baseline disaster probabilities are underestimated in most parts of the globe. • Long-term macro-economic, business and community financial assessments of disasters over periods of at least 10 years. • The amount of investment needed to prevent a wide range of disasters (e.g. Value at Risk (VaR) analyses); • Price modelling that allows for hazard data to be included in cash flow modelling (building on current efforts to price physical climate risks by the ongoing initiatives doing this for physical climate risk); • Demonstration of the value of resilience-related investment; the cost/benefit of preventative actions; • How sovereign risk ratings are affected by risk exposures; • Link advances in geospatial data, and socio-economic modelling to potential costs associated with and across hazards; including the costs of small-scale recurrent disasters, and larger events with cascading system wide impacts; | <ul style="list-style-type: none"> • Multi-stakeholder initiatives which are developing pricing mechanisms for physical climate risks or bringing together stakeholders on climate resilient development; insurers / insurance organisations or forums. • Research institutions and academics with interest in sustainable/green finance. • Groups involved in supporting the development of green or sustainable investing or finance to city and national governments. • National-level groups advocating green finance, and international groups interested in sustainable/green finance. • Risk professionals (e.g., actuaries) and their sector associations or groups. • Investors and lenders (e.g., in real assets or infrastructure), and industry groups and associations, e.g., sustainable investing forums. • Rating agencies. • Development finance institutions (via technical assistance programmes, or through financial sector assessments). • Corporates and their sector / industry associations. |

| No. / Which theme(s) does this action contribute to? | Action and sub-activities | Who could take this forward and be involved? (non-exhaustive) |
|--|---|--|
| | <ul style="list-style-type: none"> • Case studies and cost benefit analyses of successful and less successful resilience measures (in financial terms); • Enhanced evidence and guidance on how investors and lenders (e.g., in infrastructure and real assets) can include a systemic approach or include DRR considerations into their financial decision-making. • Guidance on calculating the loss and damage costs to intangible financial assets. | |
| 3. / Oversight, Rationale | <p>Develop information and guidance materials to demonstrate how DRR considerations can be included in financial decision making and supervision (including scenario analysis), and public spending and budgets</p> <p>Guidance on the following is needed in particular:</p> <ul style="list-style-type: none"> • How disaster risks could be included in the regulation or supervision of corporates, banks, insurance and investing (this will revolve around inclusion of hazards in scenario analysis / stress testing) • How government finance ministries / departments (at a range of levels, e.g. municipality, state, federal) can start to consider a wider range of hazards in public investment, infrastructure banks, and other funding frameworks for public infrastructure, and that DRR is adequately funded. | <ul style="list-style-type: none"> • A coalition of regulators and central banks, committed to work on DRR (e.g. a group comprised of state or local level and / or central banks and supervisors and ministers); Finance ministers/treasury departments. • Corporates, financial institutions (e.g., real assets or infrastructure investors and lenders). • Insurers, re-insurers, and associated sector associations. • Development finance institutions. • Intergovernmental organisations. |
| 4. / Oversight | <p>Develop thought leadership / guidance on the emerging information on the legal liabilities for company directors to assess and disclose disaster risks to their business, e.g., as part of annual reporting</p> | <ul style="list-style-type: none"> • Leading law firms. • Research institutes or organisations already specialising in climate regulation/legislation. |

| No. / Which theme(s) does this action contribute to? | Action and sub-activities | Who could take this forward and be involved? (non-exhaustive) |
|--|--|---|
| 5. / Oversight | <p>Build evidence base and expose regulatory obstacles to risk-informed investments, e.g., cases of clear regulatory blockage for sustainable and resilient infrastructure investing.</p> | <ul style="list-style-type: none"> • Research institutes or organisations already specialising in climate regulation/legislation. • Financial services industry groups. • Other legal research centres with interest in sustainable/ green finance. |
| 6. / Advocacy, Oversight | <p>Strengthen oversight and supervision of disaster risks by reporting frameworks, organisations and standard setters, and through investor engagement</p> <p>Activities can include:</p> <ul style="list-style-type: none"> • Explore the potential for international accounting standards to include reporting on disaster risks. • Explore ways to use voluntary disclosure frameworks to increase disclosure of disaster risks in investments, etc. • Develop more evidence on how investors can engage with corporates to influence uptake of preventative measures, e.g., working collaboratively to set new standards | <ul style="list-style-type: none"> • Organisations involved in setting corporate and financial reporting standards (e.g., inter-governmental organisations). • Corporates and financial institutions and associated industry groups. • Government ministers (e.g., finance); central banks and supervisors already interested in climate and environmental risk reporting. |

| No. / Which theme(s) does this action contribute to? | Action and sub-activities | Who could take this forward and be involved? (non-exhaustive) |
|--|--|---|
| 7. / Advocacy | <p>Establish alternative narratives around the main targets of DRR, and for resilient investments and raise awareness among private sector of DRR and the Sendai Framework.</p> <ul style="list-style-type: none"> • Establish a 'net zero' style narrative for DRR • Make clear that risk-informed investment is central to the 'net zero' climate transition • Work with sector /industry groups and organisations to provide awareness-raising material on systemic risk written in business/financial sector language • Create more effective success metrics for measuring action intended to promote a “green” COVID recovery and conduct periodic analysis to assess progress • Ensure the cadre of DRR / Sendai Framework advocates in the private sector includes financial services sector members | <ul style="list-style-type: none"> • Corporates (e.g., in the technology, transport, construction, manufacturing industries, etc.) and finance industry associations and sector groups (national and international). • Intergovernmental organisations. • NGOs or other DRR advocates, such as think tanks who have published in this area. |
| 8. / Advocacy | <p>Advocate for the shared understanding and acceptance of the need for the financial sector to integrate DRR into decision making.</p> <ul style="list-style-type: none"> • Develop and maintain relationships between key initiatives at a global level with G7/G20, UN organisations and other regional organisations in relation to inclusion of DRR considerations into investing and lending decisions, insurance, and corporate and financial supervision and regulation (including scenario analysis and stress testing). | <ul style="list-style-type: none"> • Insurance-related organisations interested in sustainable development and equitable access to insurance. • International organisations which share knowledge and best practice on sustainable / green finance. • Corporates (e.g., in the technology, transport, construction, manufacturing industries). • Intergovernmental organizations and other regional organizations working around economic development and sustainable development and cooperation. • NGOs or other DRR advocates, such as think tanks. |

Section 5 - Further information, glossary, and abbreviations

5.1 Background on the Sendai Framework

The Sendai Framework for Disaster Risk Reduction, the first of the world's post-2015 development agreements, was adopted in March 2015. With its focus on reducing risk and building resilience as a means to safeguard development gains, the Sendai Framework is the connecting tissue between all other 2030 agreements, namely:

- The July 2015 Addis Ababa Action Agenda on financing for development;
- Transforming our World: the 2030 Agenda for Sustainable Development, adopted in September 2015;
- The December 2015 Paris Climate Agreement;
- The December 2016 New Urban Agenda.

The Sendai Framework is a 15-year, voluntary, non-binding agreement which recognizes that the State has the primary role to reduce disaster risk but that responsibility should be shared with other stakeholders including local government, the private sector and other stakeholders. It aims for the following outcome:

'The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.'

The Sendai Framework is the successor instrument to the Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters. It is the outcome of stakeholder consultations initiated in March 2012 and inter-governmental negotiations held from July 2014 to March 2015, which were supported by the UNDRR upon the request of the UN General Assembly.

On 1 January 2016, the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development – adopted by world leaders in September 2015 at an historic UN Summit – officially came into force. Over the next fifteen years, with these new Goals that universally apply, countries will mobilize efforts to end all forms of poverty, fight inequalities and tackle climate change, while ensuring that no one is left behind.

5.2 The recommendations of the 2019 UNDRR report ‘Opportunities to integrate disaster risk reduction (DRR) and climate resilience into sustainable finance’ in Europe

Table 3: 2019 UNDRR report recommendations

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| 1 | <p>Public sector strategies: Encouraging European Member States and regions to create national and local level strategies for disaster reduction risk and climate change adaptation, which are linked to national investment strategies and priorities. Investments in adaptation and resilience could be tracked by a European Finance Observatory.</p> |
| 2 | <p>Private sector strategies: Supporting European companies to put in place comprehensive and wide-ranging long-term disaster risk and climate change adaptation strategies, which address physical climate change risk across their businesses, including through their supply chains, and to work with local and national authorities to create a shared approach to risk.</p> |
| 3 | <p>Assessing strategies against scenarios: Promoting the consistent use of accurate and useful disaster risk and climate risk scenarios by governments, public institutions and financial regulators as well as private sector firms (both financial and non-financial) and exploring how existing data can be used to support investors and citizens.</p> |
| 4 | <p>A resilient taxonomy: Developing a European taxonomy of “sustainable” and by extension “unsustainable” economic activities, which includes those that are not resilient to disaster/climate change risk or which would lead to maladaptation or building in risk.</p> |
| 5 | <p>‘Think Resilience’ for Investment: Ensuring that the categorization of climate change adaptation as an environmental objective in the context of green financial products and services does not distract from the wider need to make all financial investment resilient to disaster risk and physical climate risk. This could be achieved by using a ‘Think Resilience’ test to make disaster risk reduction, climate change adaptation and resilience a baseline requirement for all European finance instruments.</p> |

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| 6 | <p>Budgeting for resilient infrastructure: Implementing measures to improve the impact and sustainability of all infrastructure investments in the next 2021-2027 EU multiannual financial framework and a screening process to ensure that those investments are resilient to future disaster and climate risk.</p> |
| 7 | <p>Defining resilient infrastructure: Create and broaden a definition of high-quality sustainable resilient infrastructure, to include digital, distributed and natural forms of infrastructure, which includes appropriate allocation of disaster and climate-related risk.</p> |
| 8 | <p>Resilient credit ratings: Mandating credit rating agencies to explicitly integrate sustainability factors into their assessments, including corporate resilience to physical climate change and natural disaster risk.</p> |
| 9 | <p>Responsibility for risk: Explicitly requiring institutional investors and asset managers, as well as company directors, to integrate disaster risk reduction, climate change adaptation and resilience into their decisions. Working within ECOFIN to apply the same principles to national budgeting and fiscal resilience.</p> |
| 10 | <p>An inclusive and equitable approach to risk: Undertaking increased efforts within Europe to understand and address the social and economic impacts of insurance coverage gaps and withdrawal of credit from activities, sectors or communities which are exposed to physical climate risk and natural disaster risk.</p> |
| 11 | <p>Ensuring risk disclosure: Ensuring that financial and non-financial companies report on material climate risk issues in line with the recommendations of the Task Force on Climate-Related Financial Disclosure (TCFD), by amending the Non-Financial Reporting Directive.</p> |

5.3 Glossary

This document uses definitions drawn from the United Nations General Assembly¹⁷⁴, except where stated.

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| Climate change adaptation | <p>The process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate harm or exploit beneficial opportunities. In natural systems, human intervention may facilitate adjustment to expected climate and its effects (IPCC WGII AR5).</p> |
| Climate-related risk | <p>Potential negative impacts of climate change on an organization. Physical risks emanating from climate change can be event-driven (acute) such as increased severity of extreme weather events (e.g., cyclones, droughts, floods, and fires). They can also relate to longer-term shifts (chronic) in precipitation and temperature and increased variability in weather patterns (e.g., sea level rise). Climate-related risks can also be associated with the transition to a lower-carbon global economy, the most common of which relate to policy and legal actions, technology changes, market responses, and reputational considerations (TCFD 2017).</p> |
| Disaster | <p>A serious disruption of the functioning of a community or a society at any scale due to hazardous events, interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.</p> |
| Risk-informed investment | <p>Investments that incorporate an understanding of multiple and concurrent sources of risk, which may interact in complex and cascading ways.</p> |
| Disaster risk | <p>The potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity.</p> <p>Disaster risks are related to the potential for sudden or slow onset events with adverse consequences which are either natural or man-made (e.g. earthquakes, floods, large-scale cyber incidents, terrorist attacks), some of which should be considered critical risks.</p> |
| Disaster risk management (DRM) | <p>The application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses.</p> |

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| Disaster risk reduction (DRR) | Actions aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development. |
| Exposure | The situation of people, infrastructure, housing, production capacities and other tangible human assets located in hazard-prone areas. |
| Financial interconnectivity | Relationships among economic agents that arise as a result of financial transactions and legal arrangements. In a highly interconnected financial system, distress in one entity can be transmitted to other entities in the network, and bank stresses or failures are more likely to occur at the same time. Understanding the nature of these relationships is essential for tracking the buildup of systemic risk along a structural dimension, identifying the fault lines along which financial shocks may propagate, and enhancing macroprudential surveillance and risk management (Corbacho and Peiris 2018). |
| Hazard | A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation. |
| Multi-hazard approach | The selection of multiple major hazards that the [entity] faces; and the assessment of the specific contexts where hazardous events may cascade, occur simultaneously or cumulatively over time, and taking into account the potential interrelated effects. |
| Preparedness | The knowledge and capacities developed by governments, response and recovery organizations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current disasters. |
| Prevention | Activities and measures to avoid existing and new disaster risks. |
| Residual risk | Disaster risk that remains even when effective disaster risk reduction measures are in place, and for which emergency response and recovery capacities must be maintained. The presence of residual risk implies a continuing need to develop and support effective capacities for emergency services, preparedness, response and recovery, together with socioeconomic policies such as safety nets and risk transfer mechanisms, as part of a holistic approach. |

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| Resilience | The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management. |
| Scenario analysis | 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 organisation 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. |
| Systemic Risk | <p>Risk that is endogenous to, or embedded in, a system that is not itself considered to be a risk and is therefore not generally tracked or managed, but which is understood through systems analysis to have a latent or cumulative risk potential to negatively impact overall system performance when some characteristics of the system change.</p> <p>A more financial-services oriented understanding is that systemic risk is the risk of a breakdown of an entire system rather than simply the failure of individual parts. In a financial context, it captures the risk of a cascading failure in the financial sector, caused by interlinkages within the financial system, resulting in a severe economic downturn.</p> |
| Value at Risk (VaR) | Measure of the risk of investment loss. |
| Vulnerability | The conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards. |

5.4 Acronyms

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| A2II | Access 2 Insurance Initiative |
| A4S | Accounting for Sustainability |
| ABI | Association of British Insurers |
| AIGCC | Asia Investor Group on Climate Change |
| ASAP | Adaptation Small and medium enterprise Accelerator Project |
| BIS | Bank for International Settlements |
| BoE | Bank of England |
| CARICOM | Caribbean Community |
| CBI | Climate Bonds Initiative |
| CDSB | Climate Disclosure Standards Board |
| CCLI | Commonwealth Climate and Law Initiative |
| CCRI | Coalition for Climate Resilient Investments |
| CDRI | Coalition for Disaster Resilient Infrastructure |
| CDSB | Climate Disclosure Standards Board |
| CFRF | Climate Financial Risk Forum |
| CISL | Cambridge Institute for Sustainability Leadership |
| COP | UNFCCC Conference of the Parties |
| DFI | Development Finance Institution |

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| DRR | Disaster Risk Reduction |
| DRSF | Disaster-Related Statistics Framework |
| EIB | European Investment Bank |
| ESG | Environmental, Social and Governance |
| ESMA | European Securities and Markets Authority |
| EU | European Union |
| EU-MACS | European Market for Climate Services [EU Horizon 2020 research and innovation project] |
| FSAP | IMF Financial Sector Assessment Program |
| FSB | Financial Stability Board |
| GAR | Global Assessment Report on Disaster Risk Reduction |
| GARP | Global Association of Risk Professionals |
| GBS | EU Green Bond Standard |
| GEO | Group on Earth Observations |
| GFDRR | Global Facility for Disaster Reduction and Recovery |
| GIS | Geographic Information Systems |
| HLPF | High-Level Political Forum on Sustainable Development |
| IAEG | Inter-Agency and Expert Group |

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| IAIS | International Association of Insurance Supervisors |
| IASB | International Accounting Standards Board |
| ICMM | International Council on Mining and Metals |
| IDB | Inter-American Development Bank |
| IFoA | Institute and Faculty of Actuaries |
| IFRS | International Financial Reporting Standards |
| IGCC | Investor Group on Climate Change (Australia and New Zealand) |
| IIF | Institute of International Finance |
| IIGCC | Institutional Investor Group on Climate Change (Europe) |
| IIRC | International Integrated Reporting Council |
| IMF | International Monetary Fund |
| ISC | International Science Council |
| ISO | International Organization for Standardization |
| LSE | London School of Economics and Political Science |
| MDB | Multilateral Development Bank |
| NbS | Nature-based Solutions |
| NFRD | EU Non-Financial Reporting Directive |

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| NGFS | Network for Greening the Financial System |
| OAS | Organization of American States |
| PD | Probability of Default |
| PRA | Bank of England Prudential Regulation Authority |
| PRB | Principles for Responsible Banking |
| PRI | Principles for Responsible Investment |
| SDG | Sustainable Development Goal |
| SME | Small to Medium Enterprise |
| TEG | EU's Technical Expert Group on sustainable finance |
| TCFD | Taskforce on Climate-related Financial Disclosures |
| UNDRR | United Nations Office for Disaster Risk Reduction |
| UNEPFI | United Nations Environment Programme Financial Initiative |
| UNECE | United Nations Economic Commission for Europe |
| UNFCCC | United Nations Framework Convention on Climate Change |
| UN-GGIM | United Nations Committee of Experts on Global Geospatial Information Management |
| WBCSD | World Business Council for Sustainable Development |
| VaR | Value at Risk |

Annex A

Stakeholder consultation process

Table 4: Stakeholder Consultation Process

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| <p>Step 1</p> | <p>Desk-based review</p> <p>This review mapped key initiatives and activities that have emerged since the release of the 2019 UNDRR report Opportunities to integrate disaster risk reduction and climate resilience into sustainable finance and identified those which have helped progress the delivery of the 11 Recommendations.</p> |
| <p>Step 2</p> | <p>Stakeholder engagement - Phase 1</p> <p>Four working groups were formed around the different Recommendations in the UNDRR (2019) report Opportunities to integrate disaster risk reduction and climate resilience into sustainable finance, to help cluster stakeholders around key themes that can guide the development of risk-informed investments. Virtual meetings with the four working groups were held at the end of July 2020 (see Annex 1 for a full list of individuals and organizations consulted). The meetings focused on how to unpack the 11 Recommendations, through a guided discussion on:</p> <p>Key processes and initiatives to unpack the Recommendations;</p> <p>Gaps to their implementation;</p> <p>Steps needed to develop a systemic and systemic view of risks;</p> <p>Actors to engage.</p> |
| <p>Step 3</p> | <p>Stakeholder engagement - Phase 2</p> <p>A consultation working paper was developed based on Steps 1 and 2, providing the State of Play of relevant initiatives for each of the working group themes and in which stakeholders were requested to identify:</p> <ul style="list-style-type: none"> • Further initiatives/processes to unpack each Recommendation; • Tangible and implementable actions and how these can be delivered; • Actors that could lead or support the actions identified. <p>The consultation working paper was handed to all stakeholders consulted in Phase 1 via email.</p> |
| <p>Step 4</p> | <p>Stakeholder engagement - Phase 3</p> <p>Following a review of the responses received on the consultation document (N=15 responses), bilateral calls were arranged with a limited number of consultees (N=8) to dig deeper on some of their responses, corroborate their answers, and further refine the list of tangible actions.</p> |

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- ² C.f. 2019 UNDRR Regional Office for Europe report, 'Opportunities to integrate disaster risk reduction and climate resilience into sustainable finance'. Available here: <https://www.undrr.org/publication/opportunities-integrate-disaster-reduction-risk-and-climate-resilience-sustainable>
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- ¹⁶ Note: As to UN General Assembly Resolution 69/284, the term ‘anthropogenic’ or ‘human-induced’ hazards in the Sendai Framework, does not include societal hazards including the occurrence or risk of armed conflicts and other situations of social instability or tension which are subject to international humanitarian law and national legislation. As such, the report authors recognize that hazard terms related to violence and conflict included in this Technical Report are outside the scope of the Sendai Framework. In view of the calls for stronger coherence across the disaster risk reduction, development, climate change and humanitarian agendas, all of which have risk and resilience as underlying concepts, societal hazards. They were included as part of all-hazard considerations and ensure commonly agreed definitions for any hazard and risk., regardless of the subsequent action that might result from different policy frameworks, including the SDGs or Paris Climate Agreement.
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