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COUNCIL

Council

REPORT ON THE IMPLEMENTATION OF THE OECD RECOMMENDATION ON DISASTER RISK FINANCING STRATEGIES

(Note by the Secretary-General)

JT03505238

1. This document presents, in its Annex, a Report by the Insurance and Private Pensions Committee (hereafter, IPPC or "the Committee") on the implementation of the OECD Recommendation on Disaster Risk Financing Strategies [OECD/LEGAL/0436] (hereafter, the "Recommendation"), including on the implementation of its substantive provisions, its dissemination and its continued relevance. The Report also includes conclusions on the need to revise the Recommendation and further actions to support its dissemination and implementation.

2. Following discussions at its meeting on 23 June 2022, the IPPC approved the Report by written procedure on 30 September 2022 and its transmission to Council to be noted and declassified [DAF/AS/WD(2021)15/REV2].

Background

3. The effective management of disaster risks is a key public policy challenge for governments around the world, particularly those faced with significant exposures to such risks and/or limited capacity to manage the impacts of disasters. Disasters generate a broad range of direct and indirect impacts on all parts of society, including loss of life and damage and disruption to public and private property and infrastructure as well as fiscal impacts arising from recovery and reconstruction expenditures and decreased tax revenues.

4. For a number of years, the OECD has been providing support and guidance to Members and non-Members on the critical elements of developing disaster risk financing strategies. The 2010 Recommendation on Good Practices for Mitigating and Financing Catastrophic Risks [OECD/LEGAL/0385] (hereafter, the "2010 Recommendation") articulated a set of principles to be considered by governments, and relevant public and private institutions, in developing efficient strategies to mitigate and financially manage catastrophic risks from large-scale natural and man-made hazards. A report on implementation of the 2010 Recommendation [C(2015)145] (hereafter the "2015 Report") found that the relevance of disaster risk financing issues, particularly in Members that face material exposure to disaster risks, remained significant and that Member practices were consistent with the vast majority of the guidance elaborated in the 2010 Recommendation. Most Members valued the guidance elaborated in the 2010 Recommendation as best practice for managing the financial impacts of disasters and indicated that their frameworks are established based on a similar set of principles. However, important challenges in terms of financial management of disaster risks were identified at the time.

5. As a result of these findings, as well as lessons from the OECD's subsequent work on disaster risk financing with the G20 and APEC, the Committee proposed a substantial revision to the 2010 Recommendation aimed at strengthening policy guidance on the financial management of disaster risks and ensuring the continued relevance of OECD guidance in this area. The Recommendation was adopted by the Council on 23 February 2017 on the proposal of the IPPC. It updates and replaces the 2010 Recommendation.

6. The updates focused on: (i) narrowing the focus of the 2010 Recommendation to issues directly related to the financial management of disaster risks, where international guidance is limited and the IPPC could add most value; and (ii) complementing the OECD Recommendation on the Governance of Critical Risks [OECD/LEGAL/0405]. The updates also aimed to place emphasis on issues that have been challenging to address in OECD Members and partner countries, such as understanding the macro-economic impacts of disasters and measures to ensure comprehensive financial protection against all material disaster risks. The Recommendation recognises the importance of an integrated approach

to disaster risk management and the contribution of risk assessment, risk awareness and risk prevention to the financial management of disaster risks.

7. In this context, the Recommendation provides guidance on the development and implementation of national disaster risk financing strategies for managing the financial impacts of disasters, comprising four building blocks:

- Establishing a strategy for managing the financial impacts of disasters, based on an integrated, multi-hazard approach and cooperation across levels of government and with relevant stakeholders, supported by the necessary resources and expertise;
- Ensuring comprehensive risk assessment by supporting the availability of data and technology necessary for the quantification of disaster risk and the identification of potential financial vulnerabilities - serving as the basis for making effective decisions on risk management and underwriting insurance coverage for disaster perils;
- Supporting the effective management of financial impacts, by building up a financial system and regulatory framework necessary to support the ability and willingness of individuals, businesses and sub-national governments to protect themselves against the financial impacts of disasters, with measures to support risk awareness, risk reduction and the availability of affordable insurance and other financial protection tools; and
- Effectively managing the impacts of disasters on public finances by evaluating the potential risks to public finances posed by disasters and developing an approach to managing those financial demands.

8. Since then, the economic and social impacts of natural hazards and other large-scale risks have continued to increase. A changing climate has been linked to an increase in severity of many types of climate-related hazard, including floods and cyclones. At the same time, increasing reliance on digital technologies has led to greater exposure to cyber attacks while a number of incidents have demonstrated the potential for widespread or even systemic consequences due to common exposures to key information technology infrastructure such as cloud services and operating systems. The COVID-19 pandemic illustrated the potential economic and social vulnerabilities that can result from a large-scale infectious disease outbreak and a significant gap in insurance market coverage that led to a need for large-scale fiscal support to impacted individuals and businesses. This recent experience highlights the continued need for governments to ensure they are prepared to address the financial consequences of disasters and other large-scale risks.

9. The Council instructed the IPPC to monitor the implementation of the Recommendation and to report thereon no later than five years from its adoption, which is the purpose of the Report.

Methodology and process

10. The Report has been developed based on information collected on Adherent practices through past Committee work on disaster risk financing and responses to a questionnaire sent to all Adherents in February 2022.

11. Past Committee work related to managing the financial impacts of catastrophe risks was used to develop a synthesis of lessons learned since the adoption of the Recommendation [DAF/AS/WD(2021)4]. The work partly laid the groundwork for the development of a **preliminary draft Report** [DAF/AS/WD(2021)15] and a draft survey questionnaire that was discussed at the December 2021 meeting of the IPPC.

12. Responses to the questionnaire from 23 out of 38 Adherents[1] and comments received from IPPC delegates were used to develop a **first draft Report**, which was circulated to the IPPC and observers in the IPPC; the secretariats of relevant OECD bodies[2] and the High-Level Advisory Board on the Financial Management of Large-Scale Catastrophes[3] on 15 June 2022 [DAF/AS/WD(2021)15/REV] and discussed at the June 2022 meeting of the IPPC.

13. Additional responses to the questionnaire from two more Adherents[4] and the comments received from IPPC delegates, the secretariats of relevant OECD bodies, and the High-Level Advisory Board on the Financial Management of Large-Scale Catastrophes were incorporated into a **second draft Report** [DAF/AS/WD(2021)15/REV2] that was circulated to the IPPC for approval by written procedure.

14. The IPPC approved the Report on 30 September 2022 as well as its transmission to Council, via the Executive Committee, to be noted and declassified. Thereafter, a link to the Report will be included on the public webpage of the Recommendation on the online Compendium of OECD legal instruments.

Summary and conclusions

Implementation

15. Overall, most respondents have implemented the majority of the elements of the Recommendation, although there are some areas where the implementation of an integrated and comprehensive approach to financial management is limited.

Establishment of a strategy for managing the financial impacts of disasters:

16. Most respondents have indicated that they have developed a strategy - or the components of a strategy - for managing the financial impacts of disasters. Adherents are focused on the financial management of natural hazard risks, including the potential impacts of a changing climate, and many have incorporated catastrophe risks related to digital security and infectious disease outbreaks as well as various types of large-scale industrial and transportation accidents and critical infrastructure failures. Most respondents indicated that they have access to the necessary resources and expertise (including from outside of government) to both quantify risks and implement a mix of policies to manage financial consequences, although most responses focused on insurance-related solutions

[1] Responses to the questionnaire were received from: Australia, Belgium, Canada, Chile, Colombia, Costa Rica, Estonia, Germany, Greece, Hungary, Israel, Japan, Lithuania, Luxembourg, Mexico, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Switzerland and Türkiye.

[2] The first draft Report was shared with the secretariats for the High-Level Risk Forum, Committee of Senior Budget Officials, OECD Network on Fiscal Relations across Levels of Government, Working Party on Security in the Digital Economy, Working Party on Biodiversity, Water and Ecosystems, Working Party on Climate, Investment and Development and Task Force on Climate Change Adaptation.

[3] The High-Level Advisory Board on the Financial Management of Large-Scale Catastrophes is an informal group of experts from public (re)insurance pools covering terrorism and/or natural disaster risks, reinsurance and catastrophe modelling firms, and academics working in relevant fields. Since 2006, the Board has provided advice to the IPPC on its work related to disaster risk financing.

[4] The United Kingdom and the United States.

(which could be due to the nature of the responsibilities of the IPPC delegates that led the responses to the questionnaire for many Adherents).

17. There appear to be some differences in terms of interpretation of the guidance included in the first building block across Adherents and the resulting (self-) assessments of implementation. For example, some Adherents appear to have interpreted the guidance with a more narrow focus on managing fiscal (or public finance) risks while others may have taken a broader approach in assessing disaster risk management, rather than specifically assessing potential financial consequences. Based on the responses received, as well as discussions with various delegations on some of the challenges in responding to the survey, there appear to be some remaining gaps in terms of developing a comprehensive approach to identifying and addressing financial vulnerabilities and fully assessing the relative roles of risk reduction investment, risk financing and risk transfer across segments of society.

Promotion of a comprehensive risk assessment process:

18. Almost all respondents have comprehensive risk assessment processes that consider extreme scenarios, indirect impacts and the potential consequences of future changes in risk (notably in the context of a changing climate). Almost all respondents have established an enabling environment (with few impediments) to the development of risk analytics tools such as catastrophe models and have supported the incorporation of new technologies and innovations into risk and impact assessment as well as other components of disaster risk management. Respondents have also supported the availability of necessary data for risk assessment, through the collection of data on past events as well as by addressing data gaps for new or emerging material risks – although some respondents identified limitations in terms of the comprehensiveness and consistency of data collection practices. In addition, the examples provided by respondents suggest that most risk assessment processes appear to be focused on assessing hazards and impacts (rather than the potential for financial vulnerabilities to emerge) or on particular financial risks, such as fiscal risks or risks to the insurance sector (rather than taking a comprehensive view of financial risks across all segments of society, including households and businesses).

Support for the effective management of the financial impacts across segments of society:

19. Almost all respondents have developed initiatives to raise awareness among households and businesses of their exposure to catastrophe risks and most of these initiatives include information on potential financial losses, limitations to insurance coverage or government financial support as well as information on risk reduction measures that policyholders can implement. However, many respondents noted that behavioural biases as well as challenges related to financial literacy and inclusion are limitations to the effectiveness of these initiatives. Almost all respondents have established insurance regulatory frameworks that enable insurance companies to transfer some of their catastrophe exposure to international markets and provide policyholders with incentives for risk reductions. Most insurance regulators have the necessary tools to ensure that insurance companies provide clarity to policyholders on the extent of coverage for catastrophe perils and make timely payments in response to a covered event.

20. However, significant financial protection gaps remain for many catastrophe perils in many Adherents. Some respondents have taken measures to respond to financial protection gaps, such as by imposing mandatory purchase, mandatory offer, automatic inclusion or mortgage-linked insurance requirements and/or by establishing catastrophe risk insurance programmes to support the availability of affordable insurance coverage. A

few respondents have taken steps recently or are currently considering these types of measures. One respondent (Costa Rica) noted the need to improve the availability of insurance coverage for excluded or vulnerable segments of society, potentially through the development of innovative insurance solutions. Respondents are providing financial assistance and compensation to households and businesses impacted by catastrophe events although few have established conditions that limit the availability of such support to events that are uninsurable.

Management of the financial impacts of disasters on public finances:

21. Many respondents are evaluating potential catastrophe risks to public finances and integrating potential future changes, such as climate change, into those estimates. Many respondents are applying scenario analyses and modelling to the development of these estimates. Some respondents appear to take a more narrow scope in terms of the types of fiscal costs evaluated, with a particular focus on the exposures of catastrophe risk insurance programmes where such programmes have been established. A number of respondents have developed elements of a funding plan for catastrophe-related fiscal costs, although (similar to quantification efforts) many of these plans are focussed on specific aspects such as crisis management, catastrophe response and/or catastrophe risk insurance programme exposure. A variety of disclosures are made in terms of fiscal risks and funding strategies for those risks, through risk assessments, long-term planning and fiscal assessments as well as through the financial reporting of catastrophe risk insurance programmes, although few respondents disclose specific and comprehensive information on catastrophe-related fiscal risks and funding plans.

Dissemination

22. The activities of the Secretariat and the IPPC Chair since the adoption of the Recommendation suggests that there is significant interest in the financial management of catastrophe risks among Adherents, as well as non-Adherents and within the private (re)insurance sector. The Secretariat and the IPPC Chair have capitalised on opportunities to present the Recommendation in forums around the world, targeted to both governments and the (re)insurance sector as well as through a number of relevant OECD committees.

23. Adherents have been less active in promoting the Recommendation internationally, across relevant ministries (national and subnational) and few Adherents have shared the Recommendation with relevant businesses, consumer representatives and/or other civil society organisations. There may be opportunities to increase dissemination and potentially adherence to the Recommendation by non-Members through Adherents' development cooperation activities, given the increased attention that has been given to financial resilience against climate and other disaster risks in developing countries. In addition, Adherents could prepare unofficial translations of the Recommendation into their national languages in order to provide greater accessibility across ministries and at all levels of government.

Continued relevance

24. The financial management of catastrophe risks remains a complex public policy challenge, particularly for countries facing significant exposures to such risks and/or limited capacity to manage the financial impacts. A number of Adherents face remaining financial protection gaps for many types of catastrophe perils which could be exacerbated in the future as a result of a changing climate and various socio-economic developments (e.g. digitalisation, urbanisation, globalisation).

25. Many of the respondents indicated that the Recommendation or (some of) the principles included in the Recommendation have had an impact on their approach to managing the financial impacts of disaster risks or have been used or been considered as part of analysis or decision-making in this area (6 out of 10 respondents). For example, some respondents have made use of the Recommendation and/or its principles to assess national policies, legislation and/or regulation (e.g. Colombia, Costa Rica). Some respondents indicated that the Recommendation contributed to new policy initiatives (e.g. the establishment of a working group in Costa Rica, the development of insurance-based strategies for catastrophe risks in Canada), support for legislative measures (e.g. Spain) and/or encouraging greater policy attention to disaster risk financing (e.g. Lithuania).

26. Almost all respondents indicated that the Recommendation has continued relevance for their efforts to manage the financial impacts of disaster risks (11 out of 14 respondents). Some respondents indicated a need for further guidance for implementation of the Recommendation, either in general (e.g. Canada, Costa Rica) or related to specific issues such as on its implementation in Adherents with decentralised governance and responsibilities (e.g. Australia) or the relationship between physical and financial risks (e.g. Germany).

27. As noted above, the Recommendation is intended to provide guidance for a broad range of catastrophe risks, including natural hazards (including infectious disease outbreaks) as well as man-made and accidental events with catastrophic consequences (such as terrorist attacks, large-scale cyber incidents, industrial accidents). Some (although a minority of) respondents indicated that guidance on the financial management of some emerging (or re-emerging) catastrophe perils, including climate change, pandemics and cyber-attacks, could be better incorporated into the Recommendation (5 out of 18 respondents in the case of climate change, 6 out of 18 respondents in the case of pandemics and cyber-attacks). Some respondents indicated that other risks (e.g. nature/biodiversity, military/defense, migration, disinformation) could also be better incorporated into the Recommendation. One respondent (Portugal) suggested that the definition of "disaster risk" included in the Recommendation should better incorporate accidental man-made catastrophes such as large-scale industrial or transportation accidents.

28. The survey responses and conclusions from the Report show a potential need to update the Recommendation, aiming to ensure that the relevance of the Recommendation for the full range of disaster and large-scale risks is well-understood. That update could include editorial revisions to better reflect the scope, recent developments and practice, as well as some additional concepts and definitions. In the Report, the IPPC agreed to return to Council in 2023 with possible revisions to that effect. The IPPC will start the discussion on possible revisions at its December 2022 meeting.

29. In addition, during the preparations of the Report, the Secretariat looked at other relevant IPPC legal instruments and in particular the OECD Recommendation on the Establishment of a Check-List of Criteria to define Terrorism for the Purpose of Compensation [OECD/LEGAL/0331] (hereafter, the "2004 Recommendation"). It appears that the Recommendation partially covers the scope of the 2004 Recommendation[5] and relevant elements of the 2004 Recommendation could potentially be consolidated with the Recommendation as part of the IPPC's efforts to streamline the stock of OECD legal instruments under its responsibility.

[5] The IPPC Standard-Setting Action Plan [DAF/AS/WD(2016)14] had already concluded with regard to the 2004 Recommendation that it "may not reflect the current practice for terrorism compensation" and that it should "inquire with terrorism risk reinsurance programmes to verify this information, and discuss whether to revise or abrogate this [2004] Recommendation".

Proposed action

30. In light of the preceding, the Secretary-General invites the Council to adopt the following draft conclusions:

THE COUNCIL

a) noted document C(2022)166, in particular the Report set out in its Annex, and agreed to its declassification;

b) encouraged Adherents to the Recommendation to:

   i. address the main findings and challenges identified in the Summary and conclusions section of the Report with the aim of further enhancing financial resilience to disaster risks; and,

   ii. further promote and raise awareness of the Recommendation nationally among relevant ministries and stakeholders.

c) invited the Insurance and Private Pensions Committee to:

   i. support Adherents in addressing the findings and challenges identified in the Summary and conclusions section of the Report by providing analysis and technical assistance in the areas where the level of implementation is low; and,

   ii. develop a proposal for the Council to revise the Recommendation before the end of 2023, including to possibly incorporate relevant elements of the Recommendation on the Establishment of a Check-List of Criteria to define Terrorism for the Purpose of Compensation [OECD/LEGAL/0331].

Annex. Report on the Implementation of the OECD Recommendation on Disaster Risk Financing Strategies

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1 Background

1. The effective management of disaster risks is a key public policy challenge for governments around the world, particularly those faced with significant exposures to such risks and/or limited capacity to manage the impacts of disasters. Disasters generate a broad range of direct and indirect impacts on all parts of society, including loss of life and damage and disruption to public and private property and infrastructure as well as fiscal impacts arising from expenditures to support economic recovery and decreased tax revenues. One needs to look no further than the COVID-19 health crisis for evidence of the devastating social, economic and fiscal impacts that can result from a large-scale catastrophe. In the context of a changing climate and continued socio-economic development, the frequency and impact of catastrophe events is expected to rise, exacerbating the challenges to ensuring that individuals, businesses and governments have the capacity to manage the resulting financial impacts.

2. The OECD has been providing support and guidance to Members and non-Members for a number of years on the financial management of disaster risks and has set standards on this issue since 2010. The *OECD Recommendation on Disaster Risk Financing Strategies* [OECD/LEGAL/0436] (hereafter, the "Recommendation") was adopted by the Council in 2017. The Recommendation replaced the *2010 Recommendation on Good Practices for Mitigating and Financing Catastrophic Risks* [OECD/LEGAL/0385], based on the findings of the Report on the implementation of the Recommendation on Good Practices for Mitigating and Financing Catastrophic Risks submitted to Council in December 2015 [C(2015)145][1] which was noted and declassified by Council on 14 December 2015. The Recommendation was developed and discussed by the Insurance and Private Pensions Committee (hereafter, the "IPPC" or "Committee") at its meetings in June and December 2015, shared for consultations with other OECD bodies[2] and stakeholders and released for public consultation through the OECD website from 15 January 2016 to 15 April 2016. The Recommendation was then adopted by the Council on 23 February 2017 on the proposal of the IPPC. While a number of efforts have been made since 2017 to raise awareness of the Recommendation among OECD non-Members (see section 4 below), only OECD Members have adhered to the Recommendation.

3. The Recommendation provides a set of principles for designing a strategy for addressing the financial impacts of disasters on individuals, businesses and sub-national levels of governments, as well as the implications for public finances. The

[1] The Report noted the proliferation of guidance on disaster risk management by other OECD committees (e.g. *Recommendation on the Governance of Critical Risks* [OECD/LEGAL/0405]) and international organisations (e.g. the Sendai Framework for Disaster Risk Reduction: 2015-2030) which impacted the level of awareness and the policy impact of the 2010 Recommendation. As a result, the Recommendation was revised to include a more narrow focus on addressing the *financial* implications of disasters – where the Insurance and Private Pensions Committee could be expected to add more value - while continuing to encourage an integrated approach to disaster risk management.

[2] The High-Level Risk Forum, served by the Public Governance Directorate, as well as the Environment Policy Committee and the Development Assistance Committee, through their respective secretariats, were consulted as part of the review.

Recommendation is structured in four main building blocks, the first provides some overall principles for the development of a disaster risk financing strategy and the three others provide more detailed sets of principles for implementing three core elements for the design of such a strategy: (i) a risk assessment process that allows for the estimation of exposures and the identification of financial vulnerabilities: (ii) an approach to managing the financial impacts of disasters by all segments of the population and economy, including the development of an insurance regulatory framework that supports the availability of affordable insurance coverage for disaster risks; and (iii) an approach to managing the financial impacts of disasters on public finances. It is meant to be relevant for the financial management of all types of disaster risks, including natural catastrophes such as floods or earthquakes, large-scale terrorist or cyber attacks and infectious disease outbreaks with significant regional or global impacts.[3]

Box 1.1. OECD Recommendation on Disaster Risk Financing Strategies

The Recommendation provides a set of principles for designing a strategy for addressing the financial impacts of disasters on individuals, businesses and sub-national levels of governments, as well as the implications for public finances. The Recommendation is structured around four building blocks recommending that Members and non-Members having adhered to it ("Adherents"):

i) Establish **a disaster risk financing strategy** for managing the financial impacts of disasters, based on an integrated, multi-hazard approach and cooperation across levels of government and with relevant stakeholders, supported by the necessary resources and expertise;

ii) Ensure **comprehensive risk assessment** by supporting the availability of data and technology necessary for the quantification of disaster risk and the identification of potential financial vulnerabilities — serving as the basis for making effective decisions on risk management and underwriting insurance coverage for disaster perils;

iii) Support the **effective management of financial impacts**, by building up a financial system and regulatory framework necessary to support the ability and willingness of individuals, businesses and sub-national governments to protect themselves against the financial impacts of disasters, with measures to support risk awareness, risk reduction and the availability of affordable insurance and other financial protection tools; and

iv) Effectively **manage the impacts of disasters on public finances** by evaluating the potential risks to public finances posed by disasters and developing an approach to managing those financial demands.

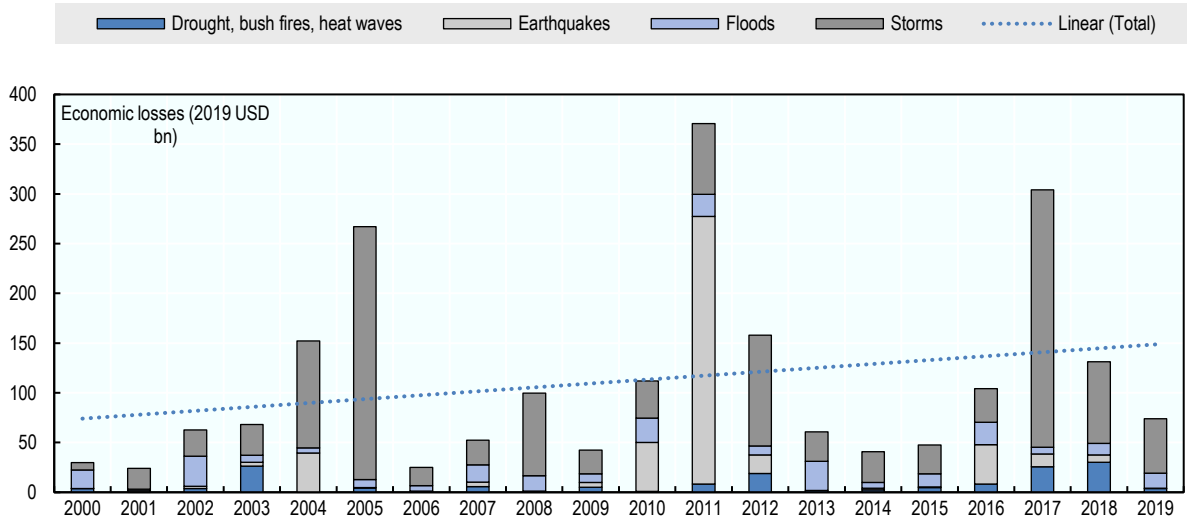
4. Managing the financial impacts of disaster risks remains a significant public policy challenge, highlighted by a number of large-scale catastrophes in recent years. Increasing economic development in risk-prone areas such as flood zones, the wildland urban interface and coastal areas, combined with an increase in the frequency and severity of natural hazards in the context of a changing climate, has led to mounting economic losses from natural catastrophes (see Figure 1.1). Greater reliance on digital technologies has led to an increase in the frequency and severity of cyber/digital security incidents[4] and larger economic losses, including as a result of the recent increase in cybercrime activity such as

[3] "Disaster risk" is a defined term in the Recommendation 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 or man-made (e.g. earthquakes, floods, large-scale cyber incidents, terrorist attacks), some of which should be considered critical risks."

[4] Cyber incidents may be idiosyncratic, affecting a single business or individual, or systemic/catastrophic, affecting multiple businesses/individuals simultaneously, either directly or indirectly as a result of the disruption to the initial victim (e.g. through the impact of a disruption to an important service provider or supplier).

ransomware. The COVID-19 health crisis has demonstrated the significant economic disruption that can result from an infectious disease outbreak – while also exacerbating other potential sources of catastrophe risk such as social unrest. A recent Committee analysis of insurance coverage of catastrophe perils (with a focus on natural catastrophes, cyber risks and infectious disease outbreaks) found that: (i) there remains significant gaps between the economic losses resulting from these perils and the level of insurance coverage of those losses[5] (which means that households, businesses and governments continue to absorb a significant share of catastrophe losses); and (ii) the availability of affordable (and comprehensive) insurance coverage for some of these perils may be declining.

Figure 1.1. Economic losses from natural catastrophes



Note: Part of the overall increase in losses is the result of increases in exposed assets which are not accounted for in the data provided by Swiss Re. In addition, some experts suggest that the actual level of annual economic losses is between USD 300 billion and USD 400 billion which suggests that the figure may underestimate the total level of economic losses.
Source: OECD calculations based on data provided by Swiss Re.

5. The financial management of catastrophe risks has been an important part of the Insurance and Private Pension Committee's work since the 11 September terrorist attacks in 2001, work later complemented by analysis on a broader range of catastrophe risks. The adoption of the first OECD standard in this area in 2010 reinforced the work and helped to frame the analysis, along with the *G20/OECD Methodological Framework on Disaster Risk Assessment and Risk Financing* (2012). The Committee has for instance issued two reports that apply the principles of the Recommendation to the financial management of specific perils (flood [DAF/AS/WD(2015)31/REV2] and earthquake [DAF/AS/WD(2016)12/REV2]).[6] Furthermore, the Committee has extended its analysis beyond physical perils to examine the challenges to the development of the cyber insurance market ([DAF/AS/WD(2017)5], [DAF/AS/WD(2019)21], [DAF/AS/WD(2019)22]) and, in response to the COVID-19 health crisis, to addressing the insurance coverage gaps for pandemic risk [DAF/AS/WD(2020)10/REV2]. The Committee has also undertaken

[5] The analysis [DAF/AS/WD(2020)16/REV2] estimated that approximately 58% of natural catastrophe losses, 85%-90% of cyber losses and over 99% of COVID-19-related business interruption losses were uninsured.

[6] These two reports were developed concurrently with the review of implementation of the 2010 Recommendation and while seeking Committee and Council approval of the 2017 Recommendation.

analyses to support the development of an insurance regulatory framework that leverages international reinsurance and capital market capacity for catastrophe risks [DAF/AS/WD(2017)14/REV3] and enables the integration of emerging technologies and innovation into disaster risk management and financing (in collaboration with the Asian Development Bank) [DAF/AS/WD(2019)20]. Most recently, the Committee examined the contribution of catastrophe risk insurance programmes (i.e. loss-sharing arrangements for catastrophe risks established by the insurance sector and often with governments) in supporting broader insurance coverage for catastrophe risks and reducing public sector exposure to losses [DAF/AS/WD(2020)16/REV2].

6. The financial management of catastrophe risks and role of insurance in supporting catastrophe risk management has also been identified as a key policy issue across a number of other areas of OECD work, including for managing climate change risk and digital security risks. The Recommendation (or selected elements from among the set of principles for the financial management of catastrophe risks) have been included in OECD analysis on climate change adaptation and managing climate change loss and damage as well as workshops and meetings on digital security.

7. When adopting the Recommendation, the Council instructed the Insurance and Private Pensions Committee to monitor the implementation of the Recommendation and to report thereon to the Council no later than five years from its adoption and regularly thereafter. The purpose of this Report is to provide an assessment on the implementation, dissemination and continued relevance of the Recommendation in accordance with Council's instruction.

2 Methodology and process

Methodology

8. The Report has been developed based on information collected on Adherent practices through past Committee work on disaster risk financing and responses to a questionnaire sent to all Adherents in February 2022.

9. As noted above, the OECD has done significant work from which to gather information on Adherent practices. This has included analyses of the implementation of the Recommendation's principles by Adherents in managing the financial impact of specific perils (flood, earthquake), reports on cyber risk and infectious disease outbreaks (COVID-19) as well as examinations of specific opportunities to enhance the financial management of catastrophe risks (risk transfer to reinsurance markets, emerging technologies and innovation and the establishment of catastrophe risk insurance programmes). This analysis was used to develop a synthesis of lessons learned from the committee's work since the adoption of the Recommendation ([DAF/AS/WD(2021)4]), which has partly laid the groundwork for this Report by providing some potential areas of focus and identifying good practices across these selected areas.

10. Given the breadth of the Recommendation and the desire to ensure broad coverage of Adherents' practices, a comprehensive survey questionnaire was developed to assess Adherents' implementation of the Recommendation. Responses to the questionnaire were received from 25 out of 38 Adherents[7]. The information collected from the survey questionnaire was supplemented by some data on insured and economic losses from various types of catastrophe risks, including data on natural catastrophes shared with the secretariat by two private sector data providers (Swiss Re and PCS) and data from various third parties on economic and insured losses from other types of catastrophe perils, included in the Committee's recent report on catastrophe risk insurance programmes [DAF/AS/WD(2020)16/REV2].

11. Given the broad range of catastrophe events that could materialise and the complexities involved in managing those risks (including the various government agencies and private sector actors involved), the implementation of the Recommendation's principles should be seen as an objective towards which Adherents should strive in the development of their financial management approaches.

[7] Responses to the questionnaire were received from: Australia, Belgium, Canada, Chile, Colombia, Costa Rica, Estonia, Germany, Greece, Hungary, Israel, Japan, Lithuania, Luxembourg, Mexico, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Switzerland, Türkiye, the United Kingdom and the United States.

Process

12. A **preliminary draft Report** [DAF/AS/WD(2021)15] was prepared based on existing OECD and IPPC work for discussion at the December 2021 meeting of the Insurance and Private Pensions Committee. It included a set of proposed survey questions for Adherents aimed at gathering additional information for the draft Report as well as Adherents' views on policy impact, relevance and potential need for update. The survey questionnaire was circulated to all Adherents on 3 February 2022 for response by 25 March 2022. Full or partial[8] responses were received from 25 out of 38 Adherents.

13. Following the collection of survey responses, the preliminary draft Report was revised to include comments received from IPPC delegates at - and following - its December 2021 meeting, as well as the 23 responses received from the questionnaire at that point. This **first draft Report** was circulated on 15 June 2022 for comments to:

- the IPPC and observers in the IPPC[9];
- the secretariats of relevant OECD bodies, in particular the High-Level Risk Forum, the Committee on Senior Budget Officials, the Working Party on Climate, Investment, and Development, the Working Party on Biodiversity, Water and Ecosystems, the Task Force on Climate Change Adaptation, the Working Party on Security in the Digital Economy and the OECD Network on Fiscal Relations across Levels of Government, and,
- the OECD High-Level Advisory Board on the Financial Management of Large-Scale Catastrophes[10];

14. Comments received from the secretariats of relevant OECD bodies, the High-Level Advisory Board and IPPC delegates (including during discussions of the report at the June 2022 IPPC meeting) as well as two additional survey responses were incorporated into a **second draft Report** that was circulated to the IPPC in September 2022 for approval by written procedure. The Report, approved on 30 September, was transmitted to Council, via the Executive Committee, to be noted and declassified. Once declassified, a link to the final Report will be included in the public webpage of the Recommendation on the online Compendium of OECD Legal Instruments. A publication of the findings of the final Report will also be prepared by the Secretariat to support the implementation and dissemination of the Recommendation.

[8] Some Adherents provided responses that only covered the elements of the Recommendation within their areas of responsibility.

[9] The International Actuarial Association, International Association of Insurance Supervisors and the International Monetary Fund are observers in the IPPC.

[10] The High-Level Advisory Board on the Financial Management of Large-Scale Catastrophes is an informal group of experts from public (re)insurance pools covering terrorism and/or natural disaster risks, reinsurance and catastrophe modelling firms, and academics working in relevant fields. Since 2006, the Board has provided advice to the IPPC on its work related to disaster risk financing and was instrumental in the development of the *2010 Recommendation on Good Practices for Mitigating and Financing Catastrophic Risks* and the *Recommendation on Disaster Risk Financing Strategies*.

3 Dissemination

15. In the Recommendation, the Council invites the Secretary-General as well as Adherents to disseminate the Recommendation.

16. The Secretariat has had numerous opportunities to raise awareness of the Recommendation since its adoption in 2017, both among Adherents and non-Adherents, although this has not resulted in adherence to the Recommendation by any non-Members. The questionnaire for this review of implementation was circulated to jurisdictions that participate in the IPPC and a response was received from Chinese Taipei.

Box 3.1. Implementation of the Recommendation in Chinese Taipei

Chinese Taipei has been an active invitee to the IPPC for a number of years and was invited to respond to the survey questionnaire on implementation along with other non-Members. Chinese Taipei's response indicated a high-level consistency in practices relative to the guidance included in the Recommendation. Chinese Taipei has established a Central Disaster Prevention and Protection Council responsible for coordinating disaster risk management issues across agencies, including issues related to managing the financial impacts of disasters. A comprehensive risk assessment process has been established to assess a broad range of risks, including natural hazards, climate change, digital security incidents and infectious disease outbreaks as well as a number of types of industrial and transportation accidents. The Executive Yuan collects and publishes data annually on disaster losses. The National Science and Technology Center for Disaster Reduction has been mandated to support scientific research into climate change implications and support the development of strategies for climate change adaptation across government ministries. The insurance regulatory framework supports clarity on coverage for disaster risks and timely claims payments in the aftermath of disaster events. A catastrophe risk insurance programme has been established to support the availability of basic insurance coverage for earthquake risks with public compensation and financial support available for those impacted by disaster events. Fiscal risks are managed through the Central Disaster Prevention and Protection Council and the Executive Yuan has necessary authorities for allocating additional funds to support recovery and reconstruction after major disasters.

Source: Chinese Taipei's response to the *OECD survey for assessing implementation of the OECD Recommendation on Disaster Risk Financing Strategies*.

17. A number of reports have been published on the financial management of catastrophe risks (or specific related policy or regulatory issues) which make reference to the Recommendation. A number of reports led by other OECD policy communities have also made reference to the Recommendation, including reports led by the Public Governance Directorate on a *Policy Evaluation Framework on the Governance of Resilient Critical Infrastructure in Latin America* (2017) and *Fiscal Resilience to Natural Disasters* (2019) and a report led by the Environment Directorate on *Managing Climate Risks, Facing up to Losses and Damages* (2021). Links to the Recommendation have also been integrated

into the OECD's insurance website as well as other relevant OECD websites (e.g. climate change resilience and adaptation).

18. The Secretariat and the Chair of the Insurance and Private Pensions Committee have delivered presentations on (or with reference to) the Recommendation for government and insurance sector audiences in Africa[11], Asia, Latin America[12] and in a number of OECD Members.[13] There has been a particular focus on disseminating the Recommendation to Non-Members in Asia given the high-level of exposure to disaster risks in the region. This has included a workshop dedicated to presenting Adherents' good practices in the implementation of the Recommendation in Thailand in 2018 (which included a report on conference outcomes)[14] as well as other events in Asia organised by the OECD[15] and other organisations.[16]

19. The Secretariat and/or Chair have also delivered presentations on the Recommendation (or referencing the Recommendation) to relevant insurance industry associations (e.g. International Federation of Terrorism Risk (Re) Insurance Pools (2017) and the World Federation of Insurance Intermediaries (2019)) and international associations of insurance regulators and supervisors (International Association of Insurance Supervisors Emerging Markets and Developing Economies committee (2021), Asian Forum of Insurance Regulators (2019, 2021 and 2022)). A key forum for raising awareness of the Recommendation and related OECD work on the financial management of catastrophe risk has been the APEC Working Group on Disaster Risk Financing and Insurance (and the APEC Finance Ministers' Process more generally) where the OECD has been invited to provide an overview of the Recommendation (2017), develop a report on technology and innovation in disaster risk management and financing (2020) and present OECD work on addressing financial protection gaps related to COVID-19 and on the role of catastrophe risk insurance programmes (2021).

20. The Secretariat has also had a number of opportunities to raise awareness of the Recommendation among Adherents through invitations to present the Recommendation (or specific elements of a disaster risk financing strategy) to other OECD committees and working groups, including the Joint DAC-EPOC Task Team on Climate Change and Development Co-operation (2016), DAC Expert Workshop on Financing Mechanisms available to respond to Disasters in Recently-Graduated High-Income Countries (2018),

[11] Including the RCE-OECD Virtual workshop on Enhancing the role of insurance in providing financial protection (2021).

[12] Including the 2nd Regional Policy Dialogue on Improving the Governance of Critical Infrastructure Resilience in Latin America (Costa Rica, 2017), International Insurance Conference (Argentina, 2019) and the Conferencia International de la Industria Aseguradora (Chile, 2022).

[13] For example, a conference on Insurance and Climate-Related Disasters in Brussels (2017) for the development of the European Union's Adaptation Strategy and Finance Norway's Sustainability Conference (2018).

[14] The workshop on Developing the elements of a disaster risk financing strategy in Asia included sessions related to the three components of a disaster risk financing strategy outlined in the Recommendation (damage and loss data collection and exposure quantification, access to international reinsurance markets and managing disaster related contingent liabilities within public finance frameworks) and informed the development of a conference outcomes report that provided an overview of practices in these three areas across participating Asian countries (https://www.oecd.org/pensions/insurance/Developing-elements-of-disaster-risk-financing-strategy-May-2018-conference-outcomes.pdf).

[15] Disaster risk financing has been a regular topic of the annual Roundtables on Insurance and Retirement Savings in Asia, including a session on financing and insuring disasters in a low penetration environment in 2019 and a session on the role of catastrophe risk insurance programmes for underinsured perils in 2021.

[16] For example, a presentation on developing the elements of a disaster risk financing strategy to the 16th Meeting of the Regional Consultative Committee of the Asian Disaster Preparedness Centre (2021).

the Task Force on Climate Change Adaptation (2019) and the OECD Network on Fiscal Relations across Levels of Government (2022).

21. Some respondents indicated that the Recommendation had been promoted among relevant ministries, different levels of government, and/or other countries (including non-Adherents) (6 of 15 respondents). This promotion has generally occurred through participation in international organisations, such as APEC) or through internal government processes related to Council decisions. One respondent (Lithuania) indicated that the Recommendation had been specifically disseminated to relevant ministries in writing. Only one respondent (Spain) indicated that the Recommendation had been promoted to businesses, consumer representatives and/or other civil society organisations. None of the respondents indicated that the Recommendation has been translated into their domestic language.

Box 3.2. Overall assessment of dissemination by the Secretariat and Adherents

The activities of the Secretariat and the IPPC Chair since the adoption of the Recommendation suggests that there is significant interest in the financial management of catastrophe risks among Adherents, non-Members and within the private (re)insurance sector. The Secretariat and the IPPC Chair have capitalised on opportunities to present the Recommendation or elements of its guidance in forums around the world, targeted to both governments and the (re)insurance sector as well as through a number of relevant OECD committees.

Adherents have been less active in promoting the Recommendation internationally, across relevant ministries (national and subnational) and almost all Adherents have not shared the Recommendation with relevant businesses, consumer representatives and/or other civil society organisations. There may be opportunities to increasing dissemination and potentially adherence to the Recommendation by non-Members through Adherents' development cooperation activities, given the increased attention that has been given to financial resilience against climate and other disaster risks in developing countries. In addition, Adherents could prepare unofficial translations of the Recommendation into their national languages in order to provide greater accessibility across ministries and at all levels of government.

4 Implementation

Establishment of a strategy for managing the financial impacts of disasters

22. The first building block of the Recommendation calls for the development of a strategy (that includes the components outlined below) for managing the financial impacts of disasters under the leadership of Ministers of Finance or another relevant national authority. This section includes some principles related to the overall scope and objectives of the strategy and the need for appropriate resource investment and coordination.

Box 4.1. Establishment of a strategy for managing the financial impacts of disasters (text)

II.RECOMMENDS that Members and non-Members having adhered to the Recommendation (hereafter "the Adherents") establish a strategy, under the leadership of Ministers of Finance or other relevant national authority, for managing the financial impacts of disasters, appropriately respecting differences in the level of national responsibility for disaster risks in different countries, that:

i) Fosters, by implementing the elements of this Recommendation, an integrated approach to the financial management of disaster risks across all levels of government, built on a sound foundation of risk management, which includes a comprehensive, multi-hazard risk assessment, aimed at maximising the overall cost-effectiveness of public and private investment.

ii) Provides the resources necessary to ensure sufficient institutional capacity and expertise for the assessment of disaster risks and the relative costs and benefits of different approaches to managing those risks.

iii) Ensures co-operation and co-ordination across organisations in the public and private sectors, including different levels of government, with responsibilities for, and expertise in, managing the financial impacts of disaster risks and, where relevant, leverages opportunities for international co-operation and information sharing, recognising the potential cross-border drivers and impacts of disaster risks.

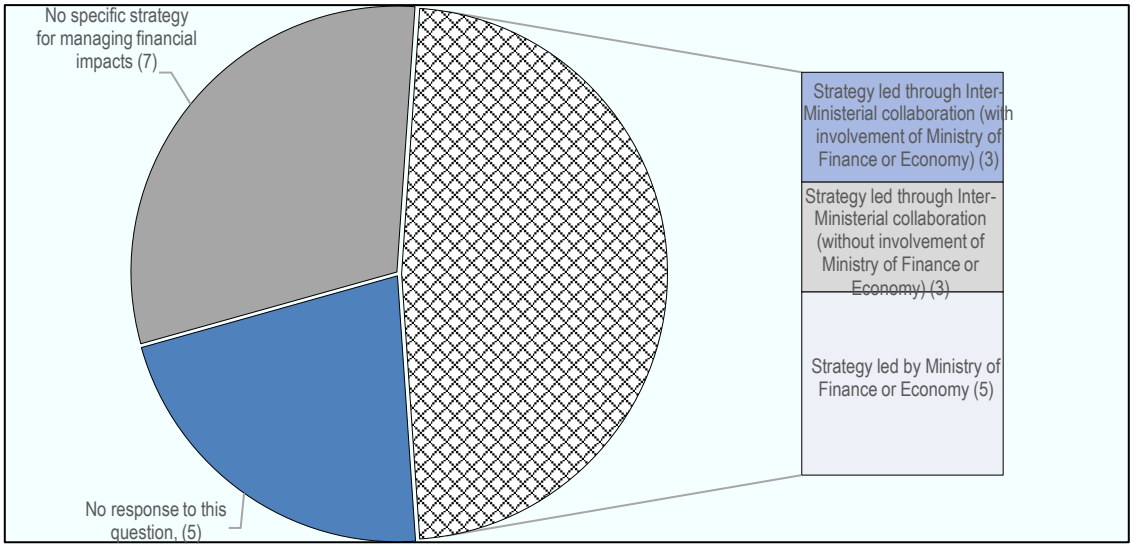
iv) Assesses the appropriate levels of risk retention and risk transfer, taking into account the responsibilities and accountabilities for the financial impacts of disaster risks across the public and private sectors, including different levels of government, and their capacity to manage those financial impacts; and identifies any financial vulnerabilities as a result of exposure to disaster risks.

23. The Recommendation provides a set of principles for the development of a strategy for managing the financial impacts of disaster risks, led by the ministry of finance or another relevant authority. The objective in recommending the preparation of a specific strategy is to encourage the development of an integrated set of policies for financial management that account for all of the elements outlined in the Recommendation.

24. A majority of the respondents indicated that the national government has developed a strategy or framework for managing the financial impacts of disaster risks or certain disasters (see Figure 4.1). In most cases, the strategy is led by - or involves - the ministry

of finance or economy although for some Adherents, the strategy is led by a civil protection/emergency management ministry (e.g. Canada, Hungary, Portugal, Slovak Republic). One respondent (Australia) noted that subnational governments have important responsibilities related to the financial management of disaster risks which reduced the need for the development of a strategy at the national level.

Figure 4.1. Adherents' development of disaster risk financing strategies



Note: In its response, Japan indicated that each governmental authority is responsible for developing strategies for relevant risks depending on their mandate. Portugal indicated that the national government has developed a specific strategy or framework for managing the financial impacts of disaster risks or certain disasters but did not specify the involved ministries.
Source: Responses to the *OECD survey for assessing implementation of the OECD Recommendation on Disaster Risk Financing Strategies*.

25. The following sub-sections of the Recommendation provide more details as to the elements that such strategy should include.

Integrated, multi-hazard approach that considers cost-effectiveness

26. A disaster risk financing strategy should incorporate: (i) an integrated approach that examines all options for managing the financial impacts of disaster risks, including *ex ante* risk reduction measures such as investments in protective measures; (ii) a multi-hazard approach that incorporates all potential sources of catastrophe losses and damages; and (iii) an approach that specifically aims to identify the most cost-effective way to manage the financial implications of the potential risks identified.

27. A disaster risk financing strategy should be comprehensive in terms of the assessment of the full range of hazards with potentially catastrophic impacts and in terms of the possible measures that can be taken to manage the resulting financial consequences - with the ultimate goal of identifying the most cost-effective solution. The most cost-effective approach might be an investment in reducing the risk (such as the relocation of communities exposed to frequent or severe coastal flooding or storm surge or an investment in public health capacity to mitigate the impact an infectious disease outbreak) or a mix of

risk reduction investments and financial protection (such as public financial support for an insurance solution).

28. The implementation of a comprehensive approach as described above should, in practice, be seen as aspirational given the complexities involved in assessing every potential hazard and every possible option for managing the financial consequences. A threshold of materiality or a risk-based approach to implementing a disaster risk financing strategy is likely necessary to make such an approach manageable in practice.

29. All of the respondents have implemented processes to assess the most significant natural risks facing the country or specific regions within the country and most have integrated the potential implications of climate change into assessments on natural hazards (18 out of 21 respondents). A smaller subset of respondents have assessed emerging (or re-emerging) risks such as digital/cyber security (12 out of 19 respondents) and infectious disease outbreaks (13 out of 20 respondents). For example, Colombia has integrated risks related to pandemics and epidemics into its most recent financial protection strategy, Box 4.20). Just under 60% of the respondents include risks related to terrorism and/or social unrest in such assessments (see Box 4.2). A few respondents indicated that other potential catastrophe risks are incorporated into these assessments, including various types of major transportation or industrial accidents (including nuclear accidents) as well as critical infrastructure (energy, telecommunications, transportation) failures and mass migration.

Box 4.2. Adapting national risk assessments to emerging risks in Switzerland

Disasters and Emergencies in Switzerland 2020

The Swiss Federal Office for Civil Protection (FOCP) is responsible for developing periodic analyses of the natural, technological and societal hazards that could occur in Switzerland, including an assessment of the potential frequency/plausibility and impact in terms of overall damages based on scenario analysis. While led by the FOCP, the 2020 analysis involved contributions from across the public and private sectors (including the insurance sector) and academia. The 2020 analysis expanded the set of identified hazards to 44 (from 33 in 2015), including through the addition of a number of new potential terrorist attack vectors such as biological attacks with bacteria and toxins, chemical attacks and attacks on rail or vehicles transporting hazardous materials as well as a scenario related to limited armed conflict. Each of the 44 hazards is assessed through scenario analysis and treated in an integrated risk management framework that aims to improve Switzerland's resilience in the face of the identified hazards.

Source: (Federal Office for Civil Protection, 2020[1])

30. Most respondents indicated that they systematically or periodically examine multiple options for managing the financial consequences of the identified risks (including investment in risk reduction, expansion of financial protection, etc.) (12 out of 18 respondents). Respondents highlighted examinations carried out on the potential role that expanded insurance coverage (including through catastrophe risk insurance programmes) could play in managing the financial (or fiscal) impacts of catastrophe events. In Costa Rica, financial management issues have become an increasingly important focus of the annual national forum of risk which is leading to discussions on the role of insurance and risk reduction investments (see Box 4.3). In Canada, programmes for risk reduction (e.g. Disaster Mitigation and Adaptation Fund) and response (e.g Disaster Financial Assistance Arrangements) are regularly reviewed in order to manage financial risks.

Box 4.3. Incorporating financial management into emergency preparedness and risk reduction: Costa Rica

In Costa Rica, the Comisión Nacional de Emergencias (CNE) is legally mandated to organise an annual national forum and prepare a national risk management plan. The current plan (2021-2025) and recent annual forums have emphasised the importance of financial management issues and have established a set of goals and priority actions for improvement. The annual forums have discussed issues such as the operating conditions of the National Emergency Fund and the measurement of the government's contingent liabilities, with the support of the World Bank. Amongst other initiatives, the CNE will convene a team of public finance experts tasked with encouraging insurance coverage for public assets and establishing budget guidelines to ensure that risk reduction is integrated into public investment decisions.

Source: Costa Rica's response to the *OECD survey for assessing implementation of the OECD Recommendation on Disaster Risk Financing Strategies*.

Sufficient resource investment to ensure necessary expertise

31. The implementation of a disaster risk financing strategy should be supported by a sufficient level of resources to ensure that the expertise necessary for assessing risks and the effectiveness of options for managing those risks is available. The assessment of the financial consequences of potential hazards and the benefits (relative to costs) of different options for managing those consequences is a complex task requiring specific expertise and can benefit from risk analytics tools such as catastrophe modelling.

32. The vast majority of respondents indicated that the national government has access to the necessary expertise for assessing the potential financial consequences of catastrophe risks and the cost-effectiveness of options for managing those risks (17 out of 20 respondents). Some respondents (e.g. Australia, Canada, Lithuania) noted that some of the necessary expertise for these types of assessments was accessible through experts and scientists, including from universities. Australia indicated that at least one insurance company had shared its modelling expertise on assessing insurance affordability in the context of future risk levels as well as forward projections on cost-of-living and income.

Cooperation and coordination with relevant stakeholders, domestically and internationally

33. The implementation of a disaster risk financing strategy requires cooperation and coordination between the public and private sectors, across national and sub-national levels of government and internationally, particularly in the context of risks with cross-border or international implications:

- Through its investment and risk management decisions, the private (corporate) sector is an important determinant of the magnitude of a country's exposure and vulnerability to catastrophe risks.
- Through its decisions on underwriting and risk appetite, the private insurance sector has a significant impact on the availability and cost of financial protection tools to manage the financial consequences of disasters that occur.
- In most Adherents, different levels of government have responsibilities for policy decisions that have important implications for exposure and vulnerability to catastrophe hazards, which may include areas such as land-use planning and building

codes, regulatory oversight of key sectors of the economy and/or the level of investment in public healthcare capacity.

- Many types of hazards can have cross-border implications, whether as a result of physical linkages (such as a shared waterway or international travel connections), supply chain linkages and/or financial market interconnectedness (including in the context of the risks assumed by internationally active insurance and reinsurance companies).

34. Given the breadth of stakeholders that have an impact on the level of disaster risk and the availability of financial protection, effective coordination across sectors, levels of government and internationally is critical.

35. Almost all respondents involve other levels of government in the development of a national disaster risk financing strategy (where applicable) or the implementation of policies related to the financial management of disaster risks (16 out of 19 respondents) as well as private sector stakeholders outside of the insurance sector (13 out of 19 respondents). The involvement of the (re)insurance sector is slightly less common (12 out of 19 respondents) while international partners/counterparts (including multilateral organisations) were involved with strategies or related policy implementation in approximately one half of the responding countries. All of the respondents where the development of a disaster risk financing strategy was led by the ministry of finance or economy (and most of the respondents where the ministry of finance or economy was involved in strategy development) indicated that the (re)insurance sector was involved in strategy development and/or related policy implementation.

Box 4.4. Swiss National Platform for Natural Hazards (PLANAT)

In 1997, the Swiss Federal Council established a national platform for natural hazards (PLANAT) to coordinate efforts related to the management of natural hazards. PLANAT is made up of 18 specialists[1] from federal and cantonal governments, the business sector, insurance sector and from academic institutions who are mandated to undertake strategic analysis on disaster prevention, create awareness of disaster risks and preparedness and coordinate activities both nationally and internationally. While PLANAT's focus is on disaster prevention (rather than financial management), the mandate for national and international coordination and involvement of key stakeholders from the public and private sector (including the insurance sector) might offer a model for coordination in the development and implementation of policy approaches to managing the financial impacts of disaster risks.

Note: [1] At the time of writing, the membership included representatives from the Federal Offices for Agriculture, Environment and Civil Protection, the Swiss Federal Institute for Forest, Snow and Landscape Research, the cantons of Ticino, Bern, Graubünden and Lucerne, the cantonal building insurer in Lucerne, the engineering sector, the national railway company, academics from the Universities of Bern and Lausanne and a number of independent risk experts (with backgrounds in insurance and/or risk management).
Source: (Swiss Confederation, n.d.[2])

Appropriate levels of risk retention and transfer given financial vulnerabilities

36. A disaster risk financing strategy should assess the appropriate levels of risk retention and transfer across different segments of society (households, businesses, governments (national and sub-national)) based on an assessment of financial capacity and the identification of potential financial vulnerabilities (i.e. where potential exposure to risk

is greater than the financial capacity to absorb that risk). The ultimate objective of a disaster risk financing strategy should be to prepare for – and mitigate or manage – the financial vulnerabilities that could arise as a result of plausible (including extreme) catastrophe scenarios. An understanding of the capacity of households with different income levels, businesses of different sizes and governments at different levels to absorb potential losses (including through any resulting insurance payments) is necessary to achieve that objective.

37. Almost two thirds of respondents indicated that the national government has identified and assessed the potential financial vulnerabilities that could materialise for different segments of society as a result of their exposure to catastrophe risk (12 out of 19 respondents). Some respondents (e.g. Lithuania) have identified specific segments of society as particularly vulnerable to catastrophe risks, including seniors, disabled persons and low-income families.

Box 4.5. Overall assessment of implementation: Establishment of a strategy for managing the financial impacts of disasters

Most respondents have indicated that they have developed a strategy - or the components of a strategy - for managing the financial impacts of disasters. Respondents are focused on the financial management of natural hazard risks, including the potential impacts of a changing climate, and many have incorporated catastrophic risks related to digital security and infectious disease outbreaks as well as various types of large-scale industrial and transportation accidents and critical infrastructure failures. Most respondents indicated that they have access to the necessary resources and expertise (including from outside of government) to both quantify risks and implement a mix of policies to manage financial consequences, although most responses focused on insurance-related solutions (which could be due to the nature of the responsibilities of the IPPC delegates (which are focused on insurance markets) that led responses to the questionnaire for many Adherents).

There appear to be some differences in terms of interpretation of the guidance included in the first building block across Adherents and the resulting (self-) assessments of implementation. For example, some respondents appear to have interpreted the guidance with a more narrow focus on managing fiscal (or public finance) risks while others may have taken a broader approach in assessing disaster risk management, rather than specifically assessing potential financial consequences. Based on the responses received, as well as discussions with various delegations on some of the challenges in responding to the survey, there appears to be some remaining gaps in terms of developing a comprehensive approach to identify and address financial vulnerabilities and fully assess the relative role of risk reduction investment, risk financing and risk transfer across segments of society.

Promotion of a comprehensive risk assessment process

38. The second building block of the Recommendation provides some principles for the promotion of a comprehensive risk assessment process. A comprehensive risk assessment process that allows for a quantification of potential exposures to a broad range of plausible catastrophe events and the identification of potential financial vulnerabilities forms the basis of a disaster risk financing strategy. Such an assessment is a prerequisite to evaluating different approaches to mitigating and managing financial impacts and is also critical for the development of an insurance market capable of providing coverage for catastrophe risks.

Box 4.6. Promotion of a comprehensive risk assessment process (text)

III.RECOMMENDS that Adherents promote comprehensive risk assessment processes that allow for the estimation of exposures and the identification of financial vulnerabilities by:

i) Promoting the development of technologies and expertise in monitoring and assessing disaster risks by government, the private sector and non-governmental organisations, including the scientific and academic communities and, where beneficial, by taking advantage of private sector capability and expertise in the development of risk assessment and exposure models.

ii) Ensuring that data on assets, structural vulnerabilities, hazards and past losses necessary for the quantification of potential exposures is produced, collected, shared and made publicly available, subject to applicable confidentiality and privacy requirements. Efforts to harmonise the collection and reporting of data nationally, regionally and internationally should be made. Post-disaster loss assessments should be completed for significant events, undertaken based on a consistent methodology and co-ordinated with the private sector, in order to support the availability of data necessary for evaluating exposures to disaster risk going forward.

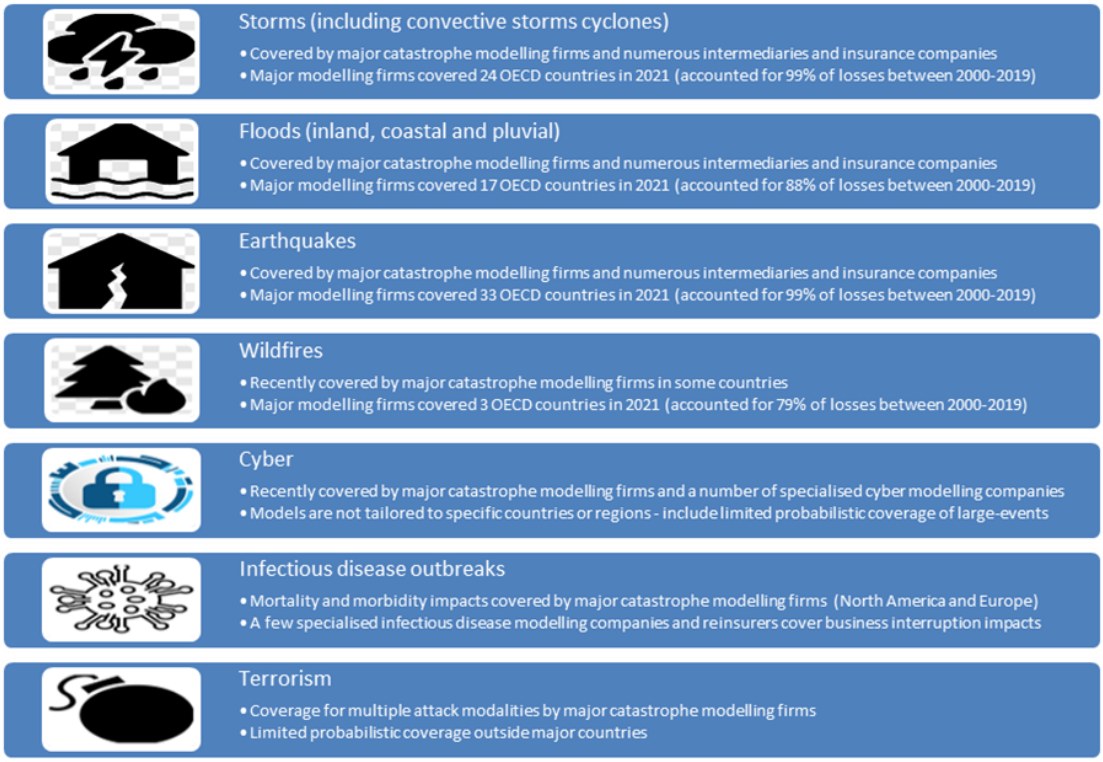
iii) Taking into account both direct and indirect impacts, evaluating both normal and extreme scenarios, anticipating any significant changes in the nature of risk (e.g., as a result of climate change), and accounting for the level of uncertainty inherent in such estimates as well as sectoral, regional and international interdependencies.

Promoting the development of the necessary technology and expertise for risk assessment

39. An assessment of (i) potential hazards; (ii) households, businesses and infrastructure assets exposed to those hazards; and (iii) the vulnerability of those households, businesses and infrastructure to damages and losses, is a complex task. It requires expertise in the natural, societal or technological processes that create hazards to people and property, knowledge of the built environment and societal and economic interlinkages as well as an understanding of the level of resilience of households, businesses and governments including any mitigating factors. As a result, quantifying the potential financial consequences – and the probability of those financial consequences materialising – will usually require complex modelling tools that integrate expertise on hazards with information on asset location, interconnections and vulnerability. These modelling tools can be applied in making risk management decisions (e.g. by supporting the quantification of avoided risk in cost-benefit analysis) and for insurance underwriting and exposure management.

40. For many catastrophe risks, specialised modelling firms, insurance intermediaries and insurance and reinsurance companies as well as governments have developed modelling techniques to estimate the financial consequences of disaster events and attach probabilities to those estimates. For natural catastrophe risks, commercial catastrophe models are available for most Adherents, particularly larger Adherents and those most exposed to a given hazard. For many Adherents (e.g. Spain), governments have also developed modelling tools to support risk assessment and/or risk reduction. For other catastrophe perils (e.g. infectious disease outbreaks, cyber, terrorism), the coverage of Adherents and/or impacts is more limited (see Figure 4.2).

Figure 4.2. Commercial catastrophe model coverage and limitations



Source: (OECD, 2021[3])

41. Technological developments and innovations have greatly enhanced the availability of data for use in risk assessment (for example, through increased availability of earth observation data from satellites and drones or connected devices) as well as the processing and analytical capacities (for example, through the ability to analyse large structured and unstructured data sets with machine learning and other artificial intelligence techniques). Most of the model providers and some governments are increasingly integrating these new data sources and analytical techniques into existing modelling platforms. Most respondents are supporting the use of new technologies and data sources within government (see Box 4.7) and/or are providing funding or support for the development of technologies and expertise by industry, academia and/or non-profit sectors (16 out of 19 respondents).

Box 4.7. Use of new technologies and data sources for risk and impact assessment

Integrating new and emerging technologies in disaster risk management in Japan

New and emerging information and communications technologies offer significant opportunities to enhance the efficiency and reach of disaster risk management measures. In 2020, the Cabinet Office in Japan established a Disaster Prevention x Technology task force mandated to study and promote the use of new technologies for disaster preparedness and response, including artificial intelligence, social media, satellite imagery and sharing economy platforms. The task force held four meetings in 2020 and developed a future vision of technology utilisation and measures to promote the use of these technologies, including support for developing and testing capacities to rapidly collect and share satellite imagery for damage assessment (Cabinet Office Japan, 2021[4]).

Assessing total loss with earth observation tools in Spain

The increasing availability and quality of earth observation imagery attainable from satellites and unmanned aerial vehicles has allowed insurance companies to assess claims quickly in the aftermath of a catastrophe event and make payments to those that have clearly suffered a total loss to their property. In Spain, satellite imagery is being used to settle total loss claims for lava flow damage resulting from the Cumbre Vieja volcanic eruption in La Palma in 2021. The imagery is used to identify buildings that have been completely destroyed by lava flow and to pay claims without further loss adjustment as long as proof of coverage is provided. This approach has greatly accelerated the payment of claims in areas that remain inaccessible weeks after the initial eruption (Pérez López and Galindo Jiménez, 2021[5]).

42. Governments can support the development of necessary expertise for risk assessment directly by investing in the necessary education, research and development and indirectly by supporting the creation of a market for risk assessment and modelling tools. The development of commercial catastrophe models, in particular, is driven by the level of private insurance or reinsurance market exposure to a given risk (i.e. if insurance or reinsurance companies are providing significant coverage for a risk, those companies will create a demand for tools to price that coverage and manage their exposure to the risks that they have assumed). In some Adherents (for various reasons), insurance companies may not be providing significant coverage for some perils which may limit the commercial demand for commercial catastrophe models (and impede their development) (see Box 4.8).

43. The development of innovative risk analytical tools that make use of new data sources and analytical techniques similarly depends on the ability of insurance companies to integrate those tools into insurance underwriting – which could potentially be impeded by regulatory or supervisory requirements.[17] Almost all of the respondents indicated that there are no major impediments to the use catastrophe models or new data sources or analytical techniques for underwriting insurance coverage (20 out of 24 respondents) although some European countries indicated that Solvency II-related requirements could create some impediments.

[17] For example, in some Adherents, insurance companies may be required to set premiums for the coverage that they provide based only on a limited set of criteria (e.g. construction type, occupancy, location relative to an established hazard map) which would not incentivise the development of more sophisticated assessment techniques.

Box 4.8. Development of terrorism risk models

In the aftermath of the September 11th terrorist attacks in the United States, a number of Adherents established terrorism risk insurance programmes to address a gap in insurance coverage that emerged as a result of the widespread application of exclusions for terrorism risk by the (re)insurance market. Prior to September 11th, insurers and reinsurers had (implicitly) included coverage for damages and losses caused by terrorist attacks although did not generally measure their exposure to this risk or charge a specific premium for terrorism as a peril. At the time, there were no probabilistic models available to support quantification of terrorism risk.

With the aim of managing their own exposure – as well as to support the development of private insurance coverage for terrorism – many of the terrorism risk insurance programmes have since worked with the private sector and academia to develop risk models and/or risk assessment scenarios. For example:

- The public terrorism risk reinsurer in Australia (Australia Reinsurance Pool Corporation) has worked with various partners to model the impact of a number of attack types, including a bomb explosion of different magnitudes in an Australian central business district, an explosion involving the release of a dangerous chemical or biological agent, cyber-attacks on laptops and building management systems and attacks disrupting regional power supplies (Matcham, 2012[6]), (CCRS, 2020[7]).
- The public catastrophe (including terrorism) risk reinsurer in France (Caisse centrale de réassurance) has worked with a private sector company to model the impact of a radiological attack in central Paris that integrates weather-related factors that would impact the dispersion of radiation around the city (Montador and Tinard, 2012[8]).
- The terrorism risk reinsurance programme in the United Kingdom (Pool Re - established by industry with government backing) has worked with various partners to develop models for a number of types of cyber-terrorist attacks as well as for the non-damage business interruption losses faced by businesses located in proximity to the location of a terrorist attack (Cambridge Centre for Risk Studies, 2017[9]), (Pool Re, 2020[10]).

Ensuring the availability of quality data for risk assessment

44. Data on potential hazards, assets exposed to those hazards and the vulnerability of those assets if affected is critical for the quantification of potential financial exposures to disaster risks that is necessary for underwriting insurance coverage and making cost-effective decisions on risk management and risk reduction. By incorporating data on hazards, exposure and vulnerability, the expanding coverage of catastrophe models has, to some extent, responded to many of the data needs for risk assessment by insurance companies (where models exist) and could be (better) leveraged to support decisions on risk reduction. It can also be used by governments to develop risk assessment and analytical tools to meet public sector risk management needs.

45. However, the development of accurate models remains (to some extent) dependent on information that has traditionally been collected by governments. For example, governments are often the main source of meteorological and geological data (i.e. hazard) as well as the main source of information on the built environment (i.e. exposure) and any protective measures put in place and their targeted performance level (e.g. flood barriers, public health capacity). In some cases, government data collection for other purposes can have important benefits for assessing losses (and therefore, future loss potential). Some examples are provided in Box 4.9.

Box 4.9. Addressing data gaps with government data: some examples

Flood protection in Ireland

In Ireland, households and small businesses have faced challenges in accessing affordable insurance coverage for flood risks in certain high-risk areas as a result of both rising losses as well as difficulties in assessing the level of flood protection provided by government investments. In order to support insurance companies' ability to assess the effectiveness of flood protection measures in underwriting insurance coverage, the insurance association (Insurance Ireland) and the Office of Public Works (OPW - government agency responsible for flood protection works) entered into a Memorandum of Understanding related to the sharing of information on the design, extent and nature of the protections offered by OPW flood defense investments – with the aim of improving the availability of insurance coverage for those benefitting from such protections (Office of Public Works, 2020[11]).

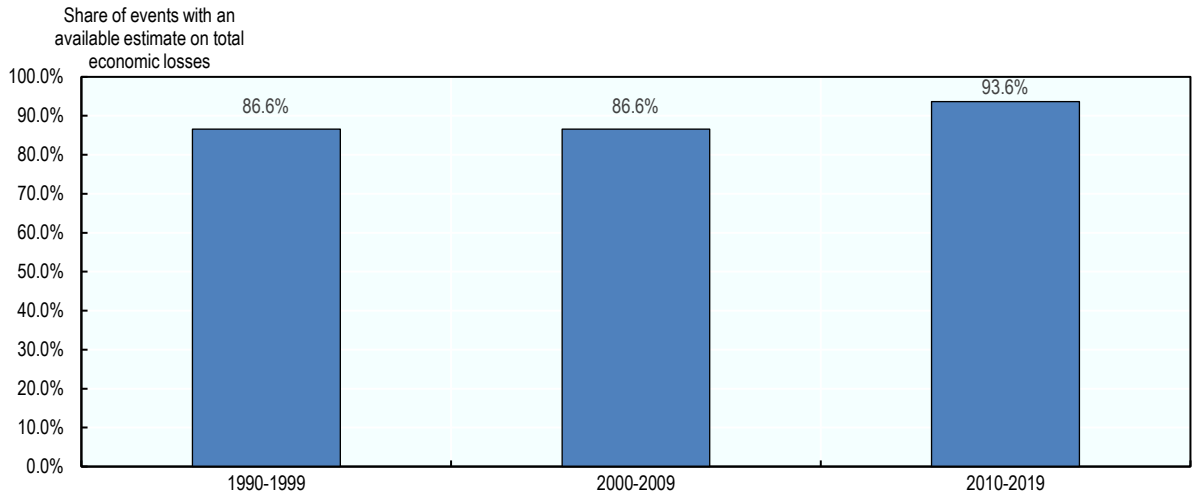
Revenue losses in the context of COVID-19

The COVID-19 health crisis and the measures implemented by governments around the world to contain the spread of the virus led to significant revenue losses for many businesses forced to cease or curtail their operations or impacted by changes in consumer behaviour. In Canada, the quarterly collection of key balance sheet and income statement data from businesses by sector allowed for estimations of the revenue impact of COVID-19 containment measures and changes in consumer behaviour across different sectors and has provided a basis for identifying the potential cost of providing insurance coverage for this type of risk in the future (Statistics Canada, 2020[12]).

46. Governments are also an important source of data on the losses incurred as a result of past catastrophes - particularly for the uninsured share of losses that would not otherwise be visible to the insurance sector. This type of data – while imperfect for use in risk assessment – can play an important role in model calibration and verification and also provides some of the data necessary for assessing potential gaps in financial protection and identifying financial vulnerabilities. There is some evidence that the availability of data on economic losses from some types of catastrophes has improved over time (see Figure 4.3). Most respondents collect data on losses (or insured losses) resulting from significant past catastrophe events or for specific types of past events (17 out of 21 respondents). In Japan, the national government publishes an annual white paper on disaster prevention/management that includes a summary and data on major catastrophe events. In Canada, an online disaster database has been established while a disaster database is under development in Portugal. Other countries integrate data on past events into national risk assessments (e.g. Lithuania) and/or publish reports on specific large-scale events (e.g. Costa Rica, Germany). Insurance supervisors, including in countries where catastrophe risk insurance programmes have been established (e.g. New Zealand, Spain, the Republic of Türkiye (Türkiye)), also have access to data on insured losses and some of the programmes publish specific data on insurance payments related to past events. In addition, many of the respondents noted that they are (or are working towards) achieving the Sendai Framework targets[18] related to reporting on disaster impacts, including economic losses. One respondent (Australia) noted challenges for the national government in ensuring consistency where subnational levels of government are primarily responsible for data collection.

[18] The United Nations Office for Disaster Risk Reduction (UNDRR) monitors the implementation of reporting targets linked to the Sendai Framework, including Target Reporting on mortality, people affected and economic losses (amongst other indicators) (see: https://sendaimonitor.undrr.org/).

Figure 4.3. Availability of economic loss estimates for storms, floods and earthquakes



Source: OECD calculations based on data provided by Swiss Re.

47. Many respondents indicated that they have undertaken data collection exercises to address gaps in data necessary for risk assessment (9 out of 16 respondents). In Canada, a number of investments in data collection have been made (including data acquisitions) to underpin probabilistic modelling of wildfire, earthquake and flood risks. In Lithuania, the opening of a new nuclear power plant in neighbouring Belarus required the collection of new data on potential risks for Lithuania of a nuclear accident. Some insurance supervisors noted that they have the necessary authorities to address any data gaps that may emerge (e.g. Mexico) while others noted ongoing work (e.g. through EIOPA) to address data gaps related to catastrophe risks.

Accounting for both direct and indirect impacts and changes in the nature of risk

48. A comprehensive risk assessment process should consider a broad range of scenarios and impacts and be forward looking to account for potential changes in the nature of risk in the future. It should consider not only events that have occurred in the past and should take into account the broad range of potential immediate and longer-term consequences of the event. Almost all respondents indicated that they account for potential changes in the future frequency, severity or implications of catastrophe events (17 out of 20 respondents) and also consider extreme scenarios and their consequences, including potential indirect impacts or spillovers (17 out of 19 respondents). In Canada, multiples of average annual loss estimates are incorporated into risk analysis in order to account for the possibility of extreme events.

49. A changing climate is expected to increase the frequency and intensity of many types of natural hazards in the future, including floods, storms, droughts and wildfires – and will very likely lead to an increase in the financial impacts of natural catastrophes and potentially a reduction in the availability and/or affordability of insurance coverage. Many countries have incorporated climate change into existing national risk assessments (e.g. Lithuania, Switzerland), spatial planning policies (e.g. Portugal) and/or financial protection, disaster risk financing or catastrophe risk insurance strategies and arrangements (e.g. Colombia, New Zealand, Türkiye). In Germany, a Climate Risk and Impact

Assessment has been developed to provide a comprehensive study on current and future risks due to climate change as well as possibilities for adaptation (Box 4.10).

Box 4.10. German Climate Risk and Impact Assessment

In Germany, the Federal Environment Agency (*Umweltbundesamt*) has undertaken a comprehensive assessment of potential climate impacts across the country and possible adaptation options (Climate Risk and Impact Assessment or *Klimawirkungs- und Risikoanalyse für Deutschland 2021*). The study examines 102 potential climate impacts at different horizons (current, mid-century and end-century), using both optimistic and pessimistic scenarios of climate change and integrates projections for socio-economic developments. It also assessed adaptation options for the most significant climate risks and evaluated the potential for these options to reduce future climate risk. The main objective of the study is to inform adaptation decisions and particularly the development of the next generation of Adaptation Actions Plans of the German government.

Source: (Kahlenborn et al., 2021[13])

50. The COVID-19 health crisis also provides a salient illustration of the need for a comprehensive risk assessment process. The potential for a highly-transmissible virus with severe impacts on morbidity and mortality was likely underestimated by most Adherents given the lack of experience with a similar event in recent decades. There is some concern that various economic, societal and environmental trends, including globalisation, urbanisation, habitat encroachment and a changing climate will change the nature of this risk going forward and increase the frequency of similar infectious disease outbreaks in the future. There has also been a wide ranging set of (indirect) impacts beyond the direct health consequences of the outbreak, including the impacts on businesses forced to close or facing changes in consumer demand, labour shortages and potentially longer-term disruptions to global supply chains as well as the indirect health consequences such as deteriorations in mental health.

Box 4.11. Overall assessment of implementation: Promotion of a comprehensive risk assessment process

Almost all respondents have comprehensive risk assessment processes that consider extreme scenarios, indirect impacts and the potential consequences of future changes in risk (notably in the context of a changing climate). Almost all respondents have established an enabling environment (with few impediments) to the development of risk analytics tools such as catastrophe models and have supported the incorporation of new technologies and innovations into risk and impact assessment as well as other components of disaster risk management. Respondents have also supported the availability of necessary data for risk assessment, through the collection of data on past events as well as by addressing data gaps for new or emerging material risks – although some respondents identified limitations in terms of the comprehensiveness and consistency of data collection practices. In addition, the examples provided by respondents suggest that most risk assessment processes appear to be focused on assessing hazards and impacts (rather than the potential for financial vulnerabilities to emerge) or on particular financial risks, such as fiscal risks or risks to the insurance sector (rather than taking a comprehensive view of financial risks across all segments of society, including households and businesses).

Support for the effective management of the financial impacts across segments of society

51. The third building block of the Recommendation sets out some principles ensuring access to financial protection. This includes principles on the elements of an enabling regulatory framework for insurance, measures to address challenges to the availability of affordable insurance for catastrophe risks and principles on financial support programmes to support vulnerable populations unable to access affordable insurance coverage. It also includes overarching principles aimed at supporting the awareness of those exposed to catastrophe risks of the potential for loss and need for financial protection as well as ensuring that any measures to address insurability challenges or provide financial support encourage risk reduction and leverage the capacity of private insurance markets. The principles in this section are focused on access to financial protection for households, businesses and subnational governments through insurance and national government financial support. Financial protection for national governments is covered in the fourth section of the Recommendation.

Box 4.12. Support for the effective management of the financial impacts across segments of society

IV.RECOMMENDS that Adherents support the effective management of the financial impacts of disasters by all segments of the population and economy and encourage the development of risk transfer markets for disaster risks, by:

i) Supporting initiatives to raise individuals', businesses' and, where applicable, subnational governments' awareness of disaster risks, their responsibility for managing those risks, and the scope of financial protection provided by financial institutions and public entities. Information on disaster risks and the scope of financial protection should take into account the behavioural biases of individuals and groups, such as the tendency to underestimate risk as well as the level of financial literacy and inclusion.

ii) Implementing a financial sector regulatory and supervisory framework that:
   a. Ensures a sound, open and efficient financial sector with sufficient financial capacity to absorb disaster risks, including by enabling the use of risk transfer to national and international (re)insurance and capital markets.
   b. Enables pricing, contractual terms and conditions (e.g. premiums, deductibles, coverage limits, co-share, excess of loss) that facilitate risk transfer while encouraging risk reduction.
   c. Requires the use of contractual terms on the scope of financial protection and any exclusions or limitations that are understandable to non-experts.
   d. Ensures that the necessary plans, processes and operational capacity are in place to provide timely and fair payment of claims resulting from insured disaster damages and losses, including, where relevant, time limits for making advance payments on claims incurred.

iii) Evaluating measures to address any challenges to the availability and/or affordability of risk transfer tools for all or certain disaster risks, such as:
   a. Effective land-use and building standards and making targeted investments in prevention;
   b. Regulatory requirements related to the purchase or offer of risk transfer tools;
   c. Financial incentives for private investment in risk reduction; and
   d. Public (re)insurance arrangements and guarantees, which can support the broad availability and affordability of risk transfer tools.

iv) Where necessary, developing public compensation and financial assistance arrangements, co-ordinated across levels of government, to provide timely, targeted, transparent and equitable assistance for uninsurable losses to vulnerable segments of the population and/or economy and financial transfer mechanisms to provide support to sub-national levels of government facing fiscal constraints, with the aim of minimising economic disruptions and facilitating a stable supply of financing to the economy.

v) Ensuring that disaster insurance and compensation arrangements encourage public and private risk reduction and recognise the benefits of utilising the capacity of national and international (re)insurance and capital markets to absorb disaster losses.

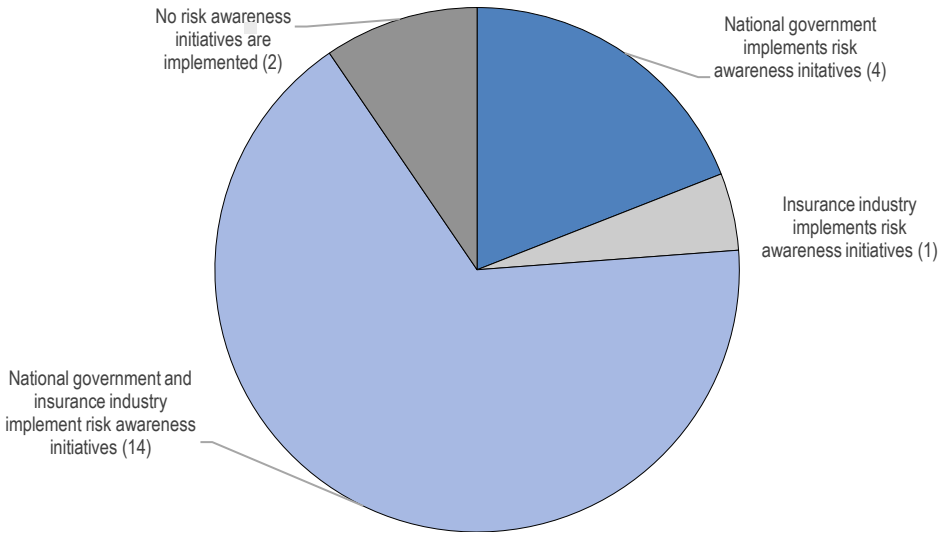
Supporting initiatives to build risk awareness and options for financial protection

52. A critical requirement for the development of a (voluntary) insurance market for catastrophe risk coverage is the existence of sufficient demand from the households and businesses exposed to catastrophe risks. However, for a number of reasons, households and businesses tend to underestimate their exposure to catastrophe risks and will often not acquire sufficient insurance coverage or set aside sufficient savings to absorb the losses that they will face when catastrophe events occur. This may be due to a lack of awareness

of the risks that they face and the potential impacts, a misunderstanding of the applicability of their existing insurance coverage to particular catastrophe perils and/or an expectation that the government (or the national government in the case of subnational levels of government) will provide financial support to those affected by a large-scale catastrophe event.

53. National governments (and the insurance sector) can support the management of the financial exposures of households and businesses to catastrophe risks by building the awareness of that potential exposure. For almost all respondents, national governments, the insurance sector or both have implemented initiatives aimed at enhancing risk awareness (see Figure 4.4).

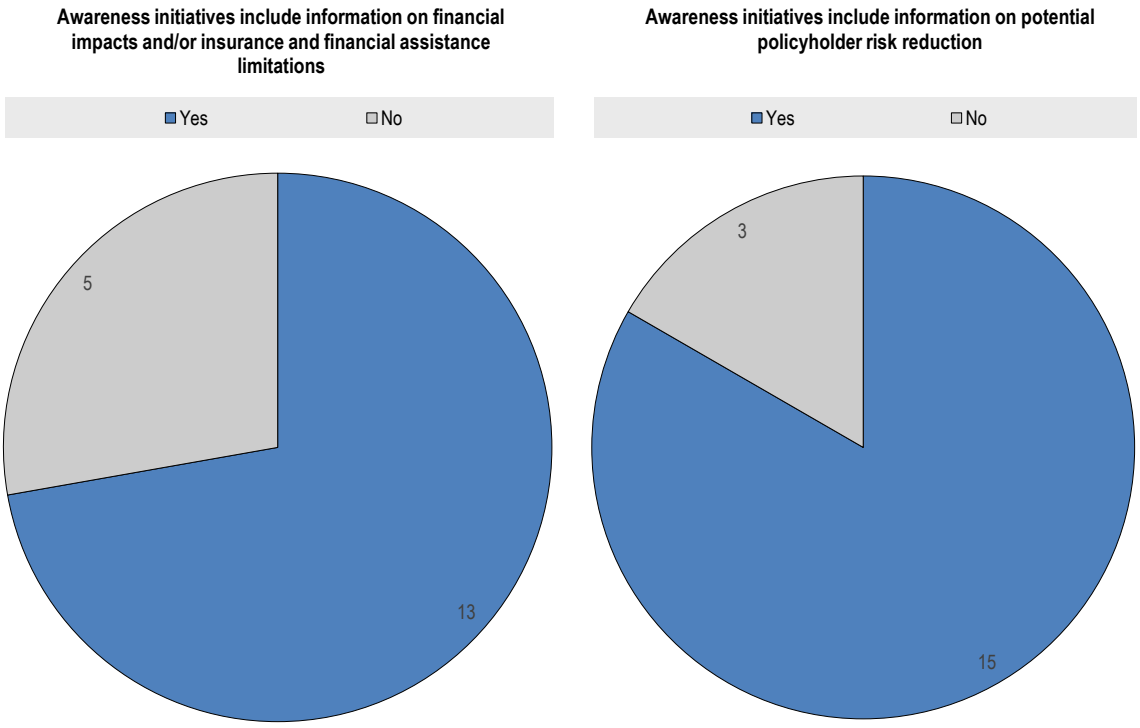
Figure 4.4. Risk awareness initiatives



Source: Responses to the *OECD survey for assessing implementation of the OECD Recommendation on Disaster Risk Financing Strategies*.

54. The effectiveness of risk awareness initiatives can be enhanced by including information on both the level of losses that could materialise should a catastrophe occur and the level of likely financing that will be available to absorb those losses based on the scope of insurance coverage and any relevant government financial support that might be offered in the aftermath of an event (and particularly any limitations of insurance coverage or government financial support programmes). Awareness initiatives can also potentially contribute to limiting the financial impact of catastrophes by providing information to policyholders on potential risk reduction measures that could be implemented. The vast majority of awareness initiatives implemented by respondents (including by the insurance industry) provide information on potential financial implications and risk reduction measures (see Figure 4.5). A number of respondents indicated that the effectiveness of these awareness initiatives have been impacted by behavioural biases of individuals and groups (such as the tendency to underestimate risk) and/or by low levels of financial literacy and inclusion (10 out of 17 respondents).

Figure 4.5. Providing information on financial implications and risk reduction measures



Source: Responses to the *OECD survey for assessing implementation of the OECD Recommendation on Disaster Risk Financing Strategies*.

Implementing an enabling financial sector (and insurance) regulatory framework

55. The financial sector – and particularly insurance sector – regulatory framework has an important impact on the development and operation of an insurance market for catastrophe risks. Insurance sector regulators and supervisors impose a variety of prudential and market conduct requirements on the insurance companies that they oversee which has implications on the nature and cost of insurance coverage that is made available to households and businesses. The Recommendation identifies four areas of prudential and market conduct regulation that are particularly relevant in the context of insurance coverage of catastrophe risks:

- *Market efficiency and openness*: By definition, catastrophe risks can entail large losses that require significant financial capacity to absorb. The insurance business model is underpinned by the ability to diversify risk across a portfolio of policyholders with uncorrelated exposure to the risks assumed. As a result, the ability of insurance companies to assume risks in different regions (or sectors) - or to transfer some of the risk that they assume to reinsurers that have exposures to different regions or sectors – is critical for achieving risk diversification. A more diversified portfolio of risks assumed should lower the cost of capital required to manage those risks – and ultimately lead to more affordable insurance coverage for catastrophe perils for households and businesses. The transfer of some catastrophe risk to international reinsurance markets also provides a means to diversify that risk away from the domestic financial system. In 2017-2018, the Insurance and Private Pensions

Committee developed an analysis that found some evidence that risk transfer to international reinsurance markets is linked to a quicker economic recovery in the aftermath of large catastrophes (OECD, 2018[14]). That report identified four Adherents to the Recommendation that imposed some restrictions or additional requirements on the transfer of risk to international reinsurance markets.[19] A few respondents indicated that there were some impediments to risk transfer to international reinsurance markets, including a requirement for prior regulatory approval for risk transfer to non-EU (and non-equivalent) reinsurers in Luxembourg and a requirement that reinsurers based outside of the EU establish a subsidiary or branch to assume local risks in Greece.[20] In the United States, the jurisdiction of the reinsurer can impact the amount credit for transferred risks that the ceding insurer can receive in some states.

- *Pricing and contractual terms that support risk transfer and risk reduction*: Insurance regulators and supervisors may impose a variety of requirements on the terms and conditions of insurance policies made available to households and businesses and possibly also the pricing – with the aim of ensuring fair treatment of consumers. In some Adherents, premium prices are set by the insurance regulator or supervisor (potentially based on a set of policyholder or construction characteristics). In others, pricing approaches as well as product terms and conditions must be specifically approved by the regulator or supervisor. In others, insurance regulators or supervisors have established a set of principles for insurance product development that insurance companies must implement, subject to supervisory review and/or enforcement action. While these different approaches have different implications for insurance companies and policyholders, a key objective supported in the Recommendation is the need to ensure that pricing and contractual terms (no matter the oversight regime) support the availability and affordability of insurance coverage (i.e. support risk transfer) and provide incentives for risk reduction by offering lower premium pricing or deductibles or higher insured limits for policyholders that implement measures that reduce their exposure to risk (which also depends on policyholders' capacity to implement effective risk reduction measures). Almost all respondents (23 out of 25 respondents) indicated that there are no restrictions that would prohibit insurance companies from offering incentives to policyholders for implementing risk reduction measures.
- *Clarity on scope of cover*: As noted above, there are often misunderstandings among policyholders regarding the scope of coverage provided in common insurance policies issued by insurers in different jurisdictions. Household and/or business policyholders may not be aware that their policy might exclude damages to property as a result of a flood or earthquake. The IPPC's examinations of the financial management of flood and earthquake risks found that some types of flood and/or earthquake coverage is offered only as an optional coverage (and without a mandatory offer or mortgage-related requirement) in at least 15 Adherents[21] which could create misunderstanding

[19] At the time that the report was developed, Australia, Canada, Mexico and Norway imposed additional requirements on insurers transferring risks to international reinsurance markets or reinsurers assuming risk from domestic reinsurers. A number European Union Member countries and the states in the United States also imposed additional requirements although most of those restrictions were expected to be removed as a result of the implementation of the US-EU Covered Agreement (see Box 4.13).

[20] Poland also indicated that there are restrictions that prohibit or limit the transfer of risk to foreign reinsurers based on regulatory requirements under Solvency II.

[21] Coverage for some or all flood risks is an optional addition to standard property insurance in Australia, Canada, Chile, Colombia, Czech Republic, Germany, Greece, Italy, Mexico, Netherlands, New Zealand, Portugal and Türkiye. Coverage for earthquake risk

about the coverage for these risks for some policyholders. The Insurance and Private Pensions Committee's work on cyber risks found that the development of the cyber insurance market has likely been impeded by confusion over whether damage, loss or liability resulting from digital security incidents is included in traditional property, business interruption, crime and liability insurance policies (as opposed to only being available in a stand-alone cyber insurance policy or endorsement) (OECD, 2017[15]), (OECD, 2020[16]). The denial of claims by insurance companies for losses due to COVID-19 business closures has led to numerous disputes and ongoing litigation due to misunderstandings between insurance companies and business policyholders about whether such losses are covered (OECD, 2021[17]). Policyholder misunderstanding of the insurance coverage they have acquired is likely a significant impediment to achieving broad financial protection against catastrophe risks. Almost all respondents (22 out of 24 respondents) indicated that insurance companies are required to provide clarity on the inclusion or exclusion of catastrophe perils across relevant lines of business. Almost all respondents indicated that there is legislation or regulations that requires that insurance policies provide clarity in terms of the risks/perils that are covered or excluded (including at the European Union level through requirements established in the *Insurance Distribution Directive*). In some jurisdictions, standard or model policy language has been developed for some lines of business where coverage for catastrophe perils is included, such as commercial fire policies. In Australia, policyholders must be provided with specific information on whether certain events (including natural catastrophe perils such as fire, flood, storm, earthquake and actions of the sea) are covered, not covered, or are optional with examples of specific conditions, exclusions, or limits and insurers must make it clear in writing if the cover provided deviates from a standard cover.

- *Timely claims payment*: Catastrophe events lead to simultaneous losses for a large number of policyholders which creates challenges for insurance companies' ability to assess and pay eligible claims in a timely manner. Traditional indemnity-based insurance (i.e. insurance that provides payments for the actual losses incurred) normally involves a time-consuming process of examining the damage inflicted and calculating the cost of repairing that damage – which can be particularly challenging to implement in areas that may be difficult to access in the aftermath of a large event. Delays in assessing and paying claims can create significant hardship for those impacted by a catastrophe event and significantly slow the economic recovery. Most respondents have tools to ensure that insurance companies assess and settle claims in a timely manner. Some jurisdictions have specific time limits included in legislation or regulation (e.g. Canada (some provinces), Chile, Costa Rica, Estonia, Luxembourg, Mexico, Spain, Slovak Republic, United States (state-level)), most commonly established at approximately 30 days after the receipt of all necessary documentation. Some jurisdictions (e.g. Japan) do not have legislation or regulation with time limits but the authority to approve policy terms and conditions and require insurers to specify time-related conditions for claims payment. Almost all respondents have some enforcement powers (either as the insurance supervisor or through a consumer protection authority) to ensure that insurers make timely claims payments (20 out of 22 respondents).

is an optional addition to standard property insurance in Canada, Germany, Greece, Italy, Japan, Mexico and the United States (outside California).

Box 4.13. Regulatory or supervisory measures that support the availability and take-up of insurance coverage for catastrophe risks: selected examples

Enabling risk transfer to international reinsurance markets: US-EU and US-UK covered agreements

Insurance regulators or supervisors may be concerned that the transfer of risk to foreign reinsurance companies that they do not supervise could create risks for the ceding domestic insurance company (and ultimately to policyholders) if the reinsurer becomes insolvent or is otherwise unable to honour their commitments to the ceding insurer. As a result, insurance regulators or supervisors may impose limits or conditions on transferring risk to foreign reinsurers which could reduce risk of loss for domestic insurers but ultimately reduces some of the efficiency and diversification benefits of accessing international reinsurance markets. To address the prudential concerns of domestic supervisors while allowing domestic insurers to leverage the benefits of international reinsurance markets, the United States and the European Union, and the United States and the United Kingdom have entered into covered agreements that provide for the sharing of information on reinsurer financial and claims payment capacity as well as recognition of the jurisdiction of the other parties' courts in the case of dispute or insolvency in exchange for the elimination of prudential measures in relation to risk transfer to reinsurers that comply with the conditions of the agreement (local presence and collateral requirements).

Requiring clarity on coverage for cyber risks across lines of business

The development of specific insurance coverage for cyber risk has arisen – in part – due to the application of exclusions for cyber risks across other lines of business (e.g. exclusion of privacy breaches as a covered cause of liability in general liability/professional indemnity policies). As a result, there continues to be some confusion among potential policyholders on which policies provide coverage for cyber risks as property, liability, crime and kidnap and ransom insurance policies continue to differ in terms of how they treat losses caused as a result of a digital security incident. Insurers may also face unexpected losses if a digital security incident leads to damage, loss or liability claims that were not affirmatively included in coverage intentions but also not specifically excluded (often referred to as silent or non-affirmative cyber cover). To address this risk, the Bank of England Prudential Regulation Authority issued a supervisory statement in 2017 that encourages insurance companies to explicitly provide or exclude coverage for cyber risks in the insurance coverage that they provide (Bank of England Prudential Regulation Authority, 2017[18]) which has led to a review of relevant policy wordings by a number of insurance companies around the world with the aim of eliminating non-affirmative cyber risk coverage across lines of business (OECD, 2020[16]).

Evaluating measures to address challenges to insurance availability/affordability

56. The level of risk for some catastrophe perils (or for some catastrophe perils in specific regions) may limit the ability of the private insurance sector to offer coverage at a premium that is affordable for most policyholders. If significant portions of the population are unable to afford insurance coverage for risks to which they are exposed, significant financial protection gaps may emerge.

57. For many catastrophe perils in many Adherents, significant financial protection gaps appear to already exist based on the level of uninsured losses (although it is possible, if unlikely, that some of these protection gaps are mitigated by household or business savings that can be used to absorb catastrophe losses). In 2021, the Insurance and Private Pensions Committee undertook an analysis of the level of insured and uninsured losses from past natural catastrophes (floods, storm, earthquakes and wildfires), cyber-attacks and infectious disease outbreaks (based on the experience of COVID-19) (OECD, 2021[3]):

- In the case of natural catastrophes, there is a relatively higher level of insurance coverage (i.e. above 50% of losses are insured) for storms (including cyclones) in most Adherents and wildfires in some Adherents. The share of flood and earthquake losses insured is significantly lower (below 50% in most Adherents in the case of floods and below 30% in most Adherents in the case of earthquakes).
- In the case of cyber risks, while subject to data limitations, the share of losses insured is likely to be close to 15%, meaning the vast majority of losses are absorbed by businesses impacted by cyber attacks.
- Based on the experience of COVID-19, and while subject to ongoing disputes and litigation, the share of business revenue losses incurred as a result of COVID-19 related business closures or changes in consumer preference that were covered by insurance was likely below 1%.

58. While low levels of insurance coverage for cyber risks and infectious disease outbreaks (business interruption losses) are common across many Adherents (and result partly from some specific challenges to insurability[22]), some Adherents have faced larger gaps in insurance coverage for natural catastrophe perils than others (see Table 4.1).

Table 4.1. Adherents with significant levels of uninsured natural catastrophe losses

	Estimated share of losses uninsured (1990-2019)	Existing measures	Considered measures
Australia	High (flood)	Automatic inclusion (rainfall flooding) Catastrophe risk insurance programme (cyclone – implemented in 2022)	
Canada	High (flood)		Insurance-based measures[1]
Chile	High (flood) Very High (wildfire) High (earthquake)	Mortgage-related mandatory purchase (earthquake)	
Colombia	Very High (flood) Very High (earthquake)		Increased risk reduction investments Mandatory purchase or offer requirements Catastrophe risk insurance programme
Costa Rica	Extremely High (earthquake)	Mortgage-related mandatory purchase (earthquake)	Increased risk reduction investments
Czech Republic	High (flood)		
Germany	High (flood)		Increased risk reduction investments Mandatory purchase or offer requirements
Greece	Extremely High (flood) Extremely High (earthquake) Extremely High (storm) Extremely High (wildfire)		
Hungary	Extremely High (flood)		
Israel	Extremely High (wildfire)		
Italy	Extremely High (flood)		

[22] IPPC work has identified a number of challenges to achieving high levels of insurance coverage for cyber risk and infectious disease outbreaks (business interruption losses). In the case of cyber risk, there are challenges to quantifying cyber risk and a high potential for accumulated loss that cannot be diversified by assuming risk in different countries or sectors (which has impacted the availability of reinsurance coverage for catastrophic losses (excess-of-loss reinsurance)). There are also challenges related to the awareness of businesses of their exposure to cyber risks and understanding of coverage for these risks in existing policies (as discussed in Box 4.13). In the case of infectious disease outbreaks, there are also significant challenges related to risk quantification and correlation across countries and sectors, especially in the context of a truly global pandemic such as COVID-19 which has led to losses that are significantly beyond the capacity of the insurance sector to absorb alone.

	Extremely High (earthquake) Very High (storm)		
Japan	Very High (earthquake) High (flood)	Mandatory offer requirement (earthquake) Catastrophe risk insurance programme (earthquake)	Increased risk reduction investments
Korea	Very High (earthquake) Very High (storm) High (flood)		
Mexico	High (flood) Very High (earthquake) Very High (storm)		Mandatory purchase or offer requirements Catastrophe risk insurance programme
New Zealand	High (flood)	Catastrophe risk insurance programme (earthquake and flood (land only))	
Poland	Very High (flood) Very High (storm)	Automatic inclusion (flood, storm)	Catastrophe risk insurance programme
Portugal	Very High (flood) High (storm) Extremely High (wildfire)		Mandatory purchase or offer requirements (earthquake)
Slovak Republic	Extremely High (flood) Extremely High (storm)		
Slovenia	Extremely High (flood)		
Spain	High (wildfire)	Catastrophe risk insurance programme (does not cover wildfire)	
Sweden	High (wildfire)		
Türkiye	High (flood) Extremely High (earthquake)	Catastrophe risk insurance programme (earthquake)	Increased risk reduction investments Catastrophe risk insurance programme (potential expansion to flood and landslide)
United States	High (flood) High (earthquake)	Catastrophe risk insurance programme (earthquake (California) and flood (national))	

Note: For the purposes of this table: a **high** level of uninsured losses refers to uninsured losses estimated to be 50%-75% of economic losses; a **very high** level of uninsured losses refers to uninsured losses estimated to be 75%-90% of economic losses; and an **extremely high** level of uninsured losses refers to uninsured losses estimated to be above 90% of economic losses. [1] Canada indicated in their response that "Canada's Economic and Fiscal Snapshot (2020) announced that Finance Canada would consider insurance-based strategies for addressing broader natural disaster protection gaps, including for earthquakes; leverage Canada's robust private insurance market; and respond to evolving protection gaps and insurance issues as climate related perils intensify over time."

Source: OECD calculations based on data provided by Swiss Re and PCS. The data for Japan includes both Japanese private and mutual insurers although data from mutual insurers for individual events (particularly smaller events) is not always available. As a result, some underestimation of insured losses in Japan is possible. Information on existing measures is from (OECD, 2021[3]). Information on considered measures is from responses to the *OECD survey for assessing implementation of the OECD Recommendation on Disaster Risk Financing Strategies*.

59. The Recommendation identifies four key approaches that could be considered as ways to address challenges related to the availability of affordable insurance coverage for catastrophe perils:

- *Investments in risk reduction and effective land use:* Investments and proper zoning to reduce the level of risk at the national or community level should result in more affordable insurance coverage and potentially lead to higher take-up of insurance and reduced gaps in financial protection. The identification of communities faced with unaffordable premium costs due to high levels of risk can provide a signal of where investments in risk reduction are most needed. Some respondents have indicated that they have considered further investments in risk reduction as a potential approach to addressing financial protection gaps (7 out of 14 respondents).

- *Regulatory requirements related to the purchase or offer of insurance coverage for catastrophe perils:* Measures that require insurance companies to make coverage available or that require households and businesses to acquire insurance coverage should lead to broader insurance coverage and reduce financial protection gaps. Mandatory offer[23] or purchase[24] requirements (including automatic inclusion[25] and mortgage-related requirements[26]) are in place for earthquake risks in 9 Adherents and for flood risks in 10 Adherents.[27] A number of Adherents that do not have mandatory offer or purchase requirements have considered this approach as a means for reducing financial protection gaps (including Colombia, Germany, Lithuania, Mexico, Norway and Portugal (for earthquake risk)). However, a requirement to offer coverage (particularly if combined with limits on premium pricing) could potentially lead to insurer withdrawals from the market. A requirement to purchase insurance might be perceived by households and businesses as a tax and would favour acquiring insurance coverage over other forms of financial protection (such as savings).
- *Financial incentives for investment in risk reduction by households and businesses:* Grant or loan programmes – as well as reduced premium costs – can encourage households and businesses to undertake risk reduction investments. It is critical to ensure that any supported investments are effective in reducing the level of risk and recognised as such in premium pricing. A few respondents indicated that they have considered providing financial incentives to policyholders to encourage investments in risk reduction as a potential approach to addressing financial protection gaps (4 out of 14 respondents). Currently, financial incentives appear to be most common in agriculture insurance, particularly as premium subsidies or tax reductions. In Türkiye, the agricultural insurance system (TARSIM) provides financial incentives through premium reductions to farmers that implement effective risk reduction measures against wind, hail and frost risks to crops.
- *Public (re)insurance arrangements or guarantees*: Catastrophe risk insurance programmes that provide insurers or reinsurers with protection against catastrophic losses through government reinsurance, retrocession or guarantees can lead to more affordable insurance for households and businesses, which should increase take-up and reduce financial protection gaps. These types of arrangements provide coverage for terrorism risk in 12 Adherents, flood risk in 9 Adherents and earthquake risk in 10

[23] Mandatory offer refers to an obligation imposed on insurance companies to include coverage for the given catastrophe peril with property (fire) insurance (although policyholders may choose not to acquire that coverage).

[24] Mandatory purchase requirements refer to an obligation imposed on policyholders to purchase coverage for the given catastrophe peril.

[25] Automatic inclusion refers to an obligation or practice where insurance companies automatically include coverage for the given catastrophe peril with property (fire) insurance (with no option for policyholders to opt-out although they may choose not to acquire property insurance at all).

[26] Mortgage-related requirements refer to requirements imposed by lenders (and, potentially, by the lender's regulator) on policyholders to ensure adequate insurance for the given catastrophe peril applied to properties on which there is an outstanding mortgage provided by the lender.

[27] Mandatory offer or purchase requirements (including automatic inclusion and mortgage-related requirements) are in place for earthquake risks in Belgium, Chile, Costa Rica, France, Japan (mandatory offer of separate earthquake policy with optional purchase by policyholder), New Zealand, Spain, Türkiye and United States (California) and for flood risks in Australia (rainfall flooding), Belgium, Denmark, France, Ireland, Japan, Poland, Spain, Switzerland, United Kingdom and the United States.

Adherents.[28] In Türkiye, consideration is being given to expanding the earthquake insurance programme to include other perils. In Australia, a cyclone reinsurance programme has been established and is managed by the terrorism risk reinsurer (see Box 4.14). In Belgium, consideration is being given to expanding a mechanism to assume high-risk policies and limit tail risks from flood and earthquake risks to droughts and subsidence. No programmes have been established to provide (or expanded to include) coverage for large-scale cyber attacks[29] or infectious disease outbreaks.

Box 4.14. Expanding the coverage of catastrophe risk insurance programmes in Australia and Türkiye

Australia cyclone reinsurance pool

The Australian government has established a reinsurance pool for cyclone and related flooding damage in order to address affordability and accessibility of insurance in cyclone-prone areas. The reinsurance pool is operated by the Australian Reinsurance Pool Corporation (the terrorism risk reinsurance programme) and is backed by an AUD 10 billion government guarantee. The government-backed reinsurance is available for household, strata (unit), and small business property insurance policies and will offer discounts for properties that have undertaken cyclone and flood mitigation activities.

Türkiye compulsory catastrophe insurance policy

In September 2021, the Insurance and Private Pension Regulation and Supervision Authority (IPRSA) and the Turkish Catastrophe Insurance Pool (TCIP) began a study on potentially expanding the Compulsory Earthquake Insurance policy coverage into a Compulsory Cat Insurance policy including, but not limited to, flood and landslide, which are the most significant natural hazards in Türkiye after earthquake risk.

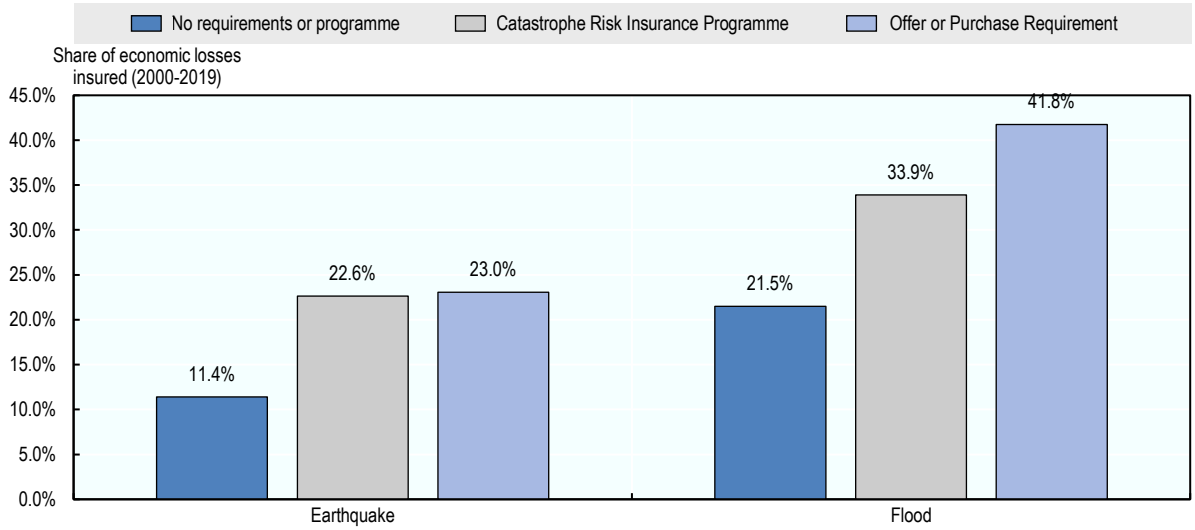
Source: (ARPC, 2022[19]) and Responses to the *OECD survey for assessing implementation of the OECD Recommendation on Disaster Risk Financing Strategies*.

60. The IPPC's work on the financial management of flood and earthquake risk and on the role of catastrophe risk insurance programmes in supporting broader insurance coverage has found some evidence that requirements related to insurance offer or purchase (including automatic inclusion and requirements linked to mortgage lending) and government (re)insurance support and guarantees has resulted in broader levels of insurance coverage for natural catastrophe risks (see Figure 4.6).

[28] Catastrophe risk insurance programmes covering terrorism risk are in place in Australia, Austria, Belgium, Denmark, Finland, France, Germany, Netherlands, Spain, Switzerland, United Kingdom and the United States; flood risk in Belgium, Denmark, France, Iceland, Norway, Spain, Switzerland, United Kingdom and the United States; and earthquake risk in Belgium, France, Iceland, Japan, New Zealand, Norway, Spain, Switzerland (in some cantons), Türkiye and the United States (California).The catastrophe risk insurance programme in New Zealand also covers some flood risk, although not damage to buildings. Only some of these programmes benefit from a public backstop or guarantee.

[29] Some of the terrorism risk programme provide some coverage for cyber-terrorism.

Figure 4.6. Impact of insurance offer or purchase and catastrophe risk insurance programmes on insurance coverage of flood and earthquake losses



Note: Mandatory offer/purchase requirements include mandatory purchase, mandatory offer, automatic inclusion and mortgage-related requirements. In the case earthquake: no requirements includes Greece, Italy, Mexico and the United States (outside California); mandatory offer/purchase requirements includes Chile, Costa Rica, France, Japan (mandatory offer with optional purchase), New Zealand, Spain, Türkiye and United States (California); and catastrophe risk insurance programmes include France, Japan, New Zealand, Spain, Türkiye and United States (California). In the case flood: no requirements includes Australia (storm surge), Canada, Chile, Colombia, Czech Republic, Germany, Greece, Italy, Mexico, New Zealand, Portugal and Türkiye; mandatory offer/purchase requirements includes Australia (rainfall flooding), Belgium, Denmark, France, Ireland, Japan, Poland, Spain, Switzerland, United Kingdom and the United States; and catastrophe risk insurance programmes include Denmark, France, Spain, Switzerland, United Kingdom (after 2016) and the United States.
Source: OECD calculations based on data provided by Swiss Re and PCS. Information on insurance offer and purchase requirements is from (OECD, 2016[20]), (OECD, 2018[21]). Information on catastrophe risk insurance programmes is from (OECD, 2021[3]).

Establishing programmes to provide financial assistance for uninsurable losses

61. Some catastrophe perils may be uninsurable by private insurance markets (generally or in some high-risk regions) – leaving households and businesses with no option other than to absorb any losses that occur. Significant events could lead to large losses that are beyond the capacity of many households and businesses to absorb and will likely require that government provide some form of financial assistance to reduce the resulting financial hardship and impacts for the broader economy. Catastrophe events will also have implications for sub-national levels of government that may face damages to (and reconstruction costs for) publicly-owned infrastructure as well as losses in revenue as a result of any disruption to economic activity. The ability of sub-national governments to absorb these losses will depend on existing fiscal relations between levels of government and may also require additional financial transfers from the national government to subnational governments to address financial vulnerabilities. Some respondents identified some perils or risks that could be considered uninsurable such as terrorism (Germany), energy shortages, nuclear accidents, pandemics (Switzerland – see Box 4.15) and natural damages to roads (Norway). Many Adherents indicated that public compensation or financial assistance arrangements or programmes have been established to provide public financial support to households, businesses or subnational governments.

62. The Recommendation identifies a number of principles that should be applied to the provision of public financial assistance for those affected by uninsurable catastrophe losses, including that such assistance is provided in a timely way, targeted towards those in need, transparent and equitable. Developing a financial assistance programme consistent with these principles is likely to require *ex ante* planning to ensure that the programme is quickly able to identify vulnerable populations and provide quick payments in an equitable way. Most respondents indicated that government financial support programmes do not (or do not always) limit financial support or compensation to perils that are uninsurable (11 out of 12 respondents). For example, in Germany, federal financial assistance was provided in response to COVID-19 (see Box 4.15 – although whether COVID-19-related business revenue losses are insurable remains an open question) and in the aftermath of devastating floods in 2021. In addition, a framework for providing state aid to the agricultural sector has been developed that takes into account the availability, affordability and take-up of relevant insurance coverage.

Box 4.15. Fiscal support for businesses in response to COVID-19

The COVID-19 pandemic led to significant economic disruption and losses of revenue for business facing workplace closures and other mobility restrictions imposed to contain the spread of the virus. For a number of reasons, most property damage and business interruption insurance policies did not provide coverage for the resulting losses in revenues that businesses faced. As a result, governments provided significant monetary and fiscal support to businesses to address liquidity risks and avoid large-scale insolvencies. This included funding and asset purchases by central banks, a variety of tax deferrals and reductions, job retention schemes and direct financing through the provision of equity, loans and particularly guarantees on bank lending.

Source: (Wolfrom, 2022[22])

Ensuring that insurance and compensation arrangements provide appropriate incentives for risk reduction and for utilising available private market capacity

63. The final element of this section of the Recommendation aims to emphasise the importance of ensuring that the overall approach to ensuring that households, businesses and subnational governments are sufficiently protected again the financial impacts of catastrophe risks provides: (i) incentives for risk reduction; and (ii) recognises the benefits of utilising private market insurance capacity. Reducing exposure to damages and losses from catastrophe events is critical for building financial resilience and maintaining the availability of affordable insurance coverage. Incorporating private market insurance into managing the financial impacts of catastrophes reduces the exposure of public finances to catastrophe losses, supports the development of risk assessment tools such as catastrophe modelling and – through risk-based premium pricing – can provide incentives for risk reduction by exposed households and businesses.

64. Some of the elements of an approach to ensuring financial protection involve trade-offs between different objectives. For example, the establishment of a catastrophe risk insurance programme or financial assistance programme for some risks – depending on the scope of the programme and its role in providing coverage – can provide significant benefits in terms of reducing financial vulnerabilities but could also limit the contribution of private insurance markets to covering risks for which they might have appetite and capacity to assume (although in some markets or for some perils, private insurers may not have significant appetite to assume catastrophe risks). The existence of such programmes

might also create an expectation that financial support from a publicly-backed insurance or financial assistance programme will be both available and sufficient to absorb future catastrophe losses – reducing the need for private insurance or other forms of financial protection. Programmes might also be designed to support solidarity across different segments of the population or regions of the country – and affordability of coverage – through premiums that do not vary based on risk, which can reduce incentives for household, business or subnational government actions to reduce that risk (if there is scope for such groups to effectively reduce risk exposures).

65. Just over half of the respondents that have established catastrophe risk insurance programmes or compensation arrangements for catastrophe risks indicated that these programmes have been designed to incentivise risk reduction and maximise the role of private insurance markets (12 out of 20 respondents). For example, in the United Kingdom, the catastrophe risk insurance programme for flood risk (Flood Re) supports risk reduction by limiting eligibility for its reinsurance coverage to homes built before 2009 (to discourage new construction in high-risk areas) and by providing impacted households with funding for resilient reinstatement ("build back better") in the aftermath of a flood claim. Some examples of how these programmes have aimed to maximise private sector capacity are provided in Box 4.16.

Box 4.16. Increasing the private insurance sector assumption of catastrophe risks: Australia, Japan, United Kingdom and the United States

Most catastrophe risk insurance programmes involve some form of cost-sharing between the (re)insurance sector and the government:

- programmes that provide reinsurance coverage will usually only reimburse costs if damages or losses exceed a given threshold (often referred to as an insurer deductible or retention);
- programmes that provide either direct insurance (or reinsurance) often transfer some of the risk that they assume to private reinsurance (or retrocession) markets; and
- programmes that provide co-insurance will apply a cost-sharing ratio between insurers and the government (often with a deductible applied before the government will provide co-insurance).

A number of catastrophe risk insurance programmes have made adjustments to the level of insurer deductibles, risk transfer to reinsurance or retrocession markets or co-insurance arrangements to account for changes in private market capacity. The terrorism risk insurance programmes in Australia and the United Kingdom have increased individual insurer deductibles, per event deductibles and/or annual deductibles and have also increased risk transfer to retrocession markets. The US terrorism risk insurance programme has also increased individual insurer deductibles and the industry-wide loss threshold that applies before government co-insurance is provided. The US National Flood Insurance Program has transferred increasing risk to reinsurance and capital markets. In Japan, the level of earthquake reserves accumulated by private insurers and the earthquake reinsurance programme are assessed annually and the co-insurance allocation is adjusted accordingly.

Source: (OECD, 2021[3])

Box 4.17. Overall assessment of implementation: Support for the effective management of the financial impacts across segments of society

Almost all respondents have developed initiatives to raise awareness among households and businesses of their exposure to catastrophe risks and most of these initiatives include information on potential financial losses, limitations to insurance coverage or government financial support as well as information on risk reduction measures that policyholders can implement. However, many respondents noted that behavioural biases as well as challenges related to financial literacy and inclusion are limitations to the effectiveness of these initiatives. Almost all respondents have established insurance regulatory frameworks that enable insurance companies to transfer some of their catastrophe exposure to international markets and provide policyholders with incentives for risk reductions. Most insurance regulators have the necessary tools to ensure that insurance companies provide clarity to policyholders on the extent of coverage for catastrophe perils and make timely payments in response to a covered event.

However, significant financial protection gaps remain for many catastrophe perils in many Adherent countries. Some respondents have taken measures to respond to financial protection gaps, such as by imposing mandatory purchase, mandatory offer, automatic inclusion or mortgage-linked insurance requirements and/or by establishing catastrophe risk insurance programmes to support the availability of affordable insurance coverage. A few respondents have taken steps recently or are currently considering these types of measures. One respondent (Costa Rica) noted the need to improve the availability of insurance coverage for excluded or vulnerable segments of society, potentially through the development of innovative insurance solutions. Respondents are providing financial assistance and compensation to households and businesses impacted by catastrophe events although few have established conditions that limit the availability of such support to events that were uninsurable.

Management of the financial impacts of disasters on public finances

66. The fourth building block of the Recommendation provides a set of principles for the management of the impacts of catastrophe risks on public finances at the national level. Large-scale catastrophes will inevitably lead to costs for governments related to publicly-owned assets that are damaged and as a result of the national government's role in addressing financial vulnerabilities, for instance through financial assistance and compensation programmes and related disbursements. These principles encourage governments to evaluate these costs, develop a plan in advance for how to manage these costs and disclose their plans as a means to build confidence in financial markets. The section also encourages governments to take an integrated approach to assessing the most cost effective way to manage risks to public finances, including by evaluating the potential benefits of increasing investment in reducing the overall level of risk.

Box 4.18. Management of the financial impacts of disasters on public finances (text)

V.RECOMMENDS that Adherents effectively manage the financial impacts of disasters on public finances by:

i) Evaluating the potential financial exposures of government to disaster risks, taking into account, where applicable:
   a. The expected costs of relief and recovery as well as reconstruction of public infrastructure;
   b. Exposures to losses as a result of public (re)insurance arrangements or guarantees;
   c. Estimated payments under public compensation and financial assistance arrangements to segments of society and the economy that are vulnerable to disaster risks and/or sub-national levels of government facing fiscal constraints, including the possibility of unanticipated financial assistance; and
   d. The potential impact of a deterioration in macro-economic conditions, such as a decline in economic activity, government revenues or a deterioration in the balance of payments.

ii) Developing an ex ante plan or plans for managing the financial impacts of disasters on public finances, considering the potential contribution of budget reallocations, temporary taxation, debt financing, reserves, insurance, and capital market instruments, taking into account financial capacity, desired risk retention and transfer levels, as well as the cost, timing and availability of the various financing options.

iii) Publicly disclosing, where permissible, that plan or plans (or portions thereof) with the aim of building confidence in the government's capacity to manage the financial impacts of disasters.

iv) Assessing the benefit of risk retention or risk transfer relative to ex ante investments in risk prevention, taking into account appropriate discount rates.

Evaluating potential financial exposures of government

67. The first step in managing the potential exposure of public finances to catastrophe risk is assessing the various types of costs that national governments might face in the aftermath of a catastrophic event. The Recommendation identifies four main types of costs that are likely to be borne (at least in part) by national governments: (i) costs of relief and recovery (such as emergency supplies, rescue efforts, temporary housing and sustenance for those affected, clearing of debris etc.) as well as the cost of repairing or reconstructing buildings and infrastructure owned by the national government; (ii) losses as a result of any national government guarantees or reinsurance coverage provided to catastrophe risk insurance programmes (where losses exceed the capacity of the programme or any threshold established for government co-insurance or reinsurance); (iii) payments or transfers to affected households, businesses and/or subnational governments as a result of any *ex ante* financial support programmes or arrangements as well as *ad hoc* payments or transfers not specifically provided for under *ex ante* arrangements (sometimes referred to as implicit contingent liabilities); and (iv) costs related to a deterioration in macro-economic conditions leading to a decline in economic activity and government revenue or a deterioration in the balance of payments.

68. A slight majority of respondents indicated that the national government estimates potential exposures of public finances to catastrophe risks, including costs related to relief and recovery, reconstruction of public buildings and infrastructure, exposures to catastrophe risk insurance programmes (if applicable), expected payments or transfers to affected households, businesses and subnational governments and declines in economic activity and government revenues (10 out of 18 respondents). Most of the respondents indicated that this type of analysis is undertaken using experience from past events although

some Adherents have integrated scenario analysis and/or modelling to account for events that could occur in the future (Canada, Colombia, Israel, Lithuania, New Zealand (see Box 4.19), Türkiye (in the context of exposures assumed through the earthquake risk insurance programme) and the United Kingdom).

Box 4.19. Integrating earthquake risk into long-term fiscal planning: New Zealand

The New Zealand Treasury releases periodic Investment Statements (focused on valuing public assets and liabilities and potential future changes in value) and statements on the government's Long-term Fiscal Position (focused on identifying potential pressures on spending, revenues and/or the fiscal operating balance over the longer-term (up to 40 years)). In 2018, the Treasury included a set of scenario analyses for potential risks to the value of assets and liabilities in its Investment Statement, including the impact of a major earthquake in Wellington on the government balance sheet (along with direct and indirect fiscal costs) (New Zealand Treasury, 2018[23]). In 2021, the Treasury released a combined Statement on the Long-term Fiscal Position and a Long-term Insights Briefing, including an examination of the potential impact of a severe earthquake on the economy and public finances. This assessment included estimates of the losses in capital stock, productivity, and government revenues as well as increases in public investment and spending, including both transfers to New Zealand's catastrophe risk insurance programme (Earthquake Commission) for claims payments beyond its capacity as well as increases in government spending related to automatic fiscal stabilisers (New Zealand Treasury, 2021[24]).

69. Among the respondents that are quantifying potential public finance exposures to catastrophe risks, just over half indicated that they are accounting for potential changes in future risk, such as a changing climate, in these estimates (4 out of 7 respondents). For example, the potential for climate change to increase future public finance exposure has been taken into account in Colombia's financial protection strategy (see Box 4.20), in the risk assessment scenario analysis in Lithuania (for relevant hazards) and in New Zealand's long-term fiscal statements.

Developing an ex ante plan for managing the identified financial exposures

70. The Recommendation encourages Adherents to develop a plan (*ex ante*) for managing (and funding) potential public finance exposures to catastrophe risks, based on an assessment of the different potential costs. Governments can use a variety of approaches for funding these costs, including the establishment of a contingency/reserve fund (for catastrophes only or for a broader set of contingencies), new budget appropriations (or reallocations), increased taxation, borrowing from financial markets as well as risk transfer instruments such as (re)insurance or catastrophe bonds.

71. These different approaches involve different implications in terms of the timely availability and the ultimate cost of funding and therefore could be applied to different components of the government's funding needs. For example, funding for relief and recovery will be required immediately and therefore may best be funded by an existing budget allocation (such as a contingency fund) or budget appropriations or reallocations that can be accessed quickly. More significant funding needs – such as for the reconstruction of damaged public buildings or infrastructure or to respond to any government obligations to a catastrophe risk insurance programme – might only be necessary in the months following an event and therefore might best be funded by debt issuance (potentially for more frequent events) or risk transfer approaches (which would be more cost effective for funding needs related to low frequency, high severity events). Other considerations – such as cost of borrowing and access to international capital markets

– should also be taken into account in the development of a funding plan for catastrophe risks to public finances.

72. Most respondents indicated that the national government has established a plan for ensuring adequate funding to meet the potential public financial costs of catastrophe risks. A number of respondents indicated that national budgets allocate resources for crisis management and catastrophe response (e.g. Costa Rica, Lithuania, Mexico, Slovak Republic). Portugal has established a Municipal Emergency Fund meant to provide funding for addressing losses to public assets. Respondents with catastrophe risk insurance programmes covering significant hazards also regularly assess the adequacy of funding collected through premiums (e.g. New Zealand, Spain, Türkiye). Colombia has developed a financial protection strategy that includes a specific plan for managing fiscal risks through a mix of savings, debt financing and risk transfer (see Box 4.20).

Box 4.20. Colombia's Estrategia Nacional de Protección Financiera del Riesgo de Desastres, Epidemias y Pandemias 2.0

In Colombia, the Ministry of Finance and Public Credit (*Ministerio de Hacienda y Crédito Público*) worked with the World Bank to develop a set of policy objectives for assessing, reducing and managing fiscal risks due to natural disasters (published in 2013). The strategy outlined three objectives for managing fiscal risks: (i) identification and understanding of fiscal risks through the quantification of potential damages to public assets; (ii) the financial management of fiscal risks through a mix of savings, contingent credit and risk transfer; and (iii) the acquisition of insurance coverage for public assets. Consistent with the Recommendation, the strategy involves an assessment of different options for addressing financial impacts, ranging from investments in risk reduction to risk transfer to insurance markets, based on a quantification of the level of risk and the relative cost of the different options – although, thus far, the scope of the strategy is limited to the explicit contingent liabilities to public finances that are incurred as a result of damages to publicly-owned assets. In December 2021, an update of the strategy reflecting lessons learned across levels of government since 2013 and incorporating risk related to epidemics and pandemics based on the experience of COVID-19 was released, with the support of the World Bank and the Swiss State Secretariat for Economic Affairs.

Source: (World Bank, 2013[25]), (Ministerio de Hacienda y Crédito Público, 2021[26])

Disclosing financial (or fiscal) management plans

73. Public disclosure of plans for managing public finance exposures to catastrophe risks can build market confidence in the capacity of Adherents to manage the impacts of such events. This will be particularly important in Adherents that face high levels of exposure to catastrophe risks, where debt levels are high or access to international capital markets for borrowing is more precarious. It may also be more critical to disclose funding plans to address the more extreme catastrophe events that could have a material impact on public finances. The credit rating agencies that establish sovereign credit ratings (and therefore impact cost of borrowing) are increasingly considering government exposure to catastrophe risks, particularly in the context of a changing climate that could lead to more frequent and/or more severe catastrophe events, which suggests that public disclosure of funding plans could have an impact on borrowing costs and access to capital markets.[30]

[30] At least two of the major credit ratings agencies have undertaken analyses of the potential impacts of physical climate risks on sovereign credit ratings (Standard & Poor's Ratings Service, 2015[32]), (Moody's, 2021[33]).

74. Many respondents disclose different types of information related to funding plans for catastrophe-related fiscal costs (9 out of 16 respondents). Some respondents integrate information on funding plans into risk assessments (e.g. Hungary) or longer-term statements on national planning, such as the government of Lithuania's National Progress Plan which includes plans related to building climate change resilience. Respondents with catastrophe risk insurance programmes also disclose information related to the programme's funding adequacy. As noted above, Colombia's financial protection strategy includes information on funding plans and is publicly disclosed.

Assessing relative costs and benefits of risk retention and risk transfer relative to investments in risk reduction

75. Similar to the other sections of the Recommendation, the section on managing the financial impacts of disasters on public finances includes a final element to emphasise the importance of taking an integrated approach that considers the relative costs and benefits of different approaches to funding losses that do materialise relative to increasing public investment in risk reduction that would reduce the level of public financial exposures to catastrophe risks. When assessing the relative cost of different approaches to managing public financial exposures, Adherents are encouraged to explicitly evaluate those costs relative to risk reduction investments that would reduce public financial exposure. Two thirds of respondents indicated that additional investments in risk reduction are considered as an option when developing plans for managing the financial impacts of catastrophe risk on public finances (7 out of 11 respondents).

Box 4.21. Overall assessment of implementation: Management of the financial impacts of disasters on public finances

Many respondents are evaluating potential catastrophe risks to public finances and integrating potential future changes, such as climate change, into those estimates. Many respondents are applying scenario analyses and modelling to the development of these estimates. Some respondents appear to take a more narrow scope in terms of the types of fiscal costs evaluated, with a particular focus on the exposures of catastrophe risk insurance programmes where such programmes have been established. A number of respondents have developed elements of a funding plan for catastrophe-related fiscal costs, although (similar to quantification efforts) many of these plans are focussed on specific aspects such as crisis management, catastrophe response and/or catastrophe risk insurance programme exposure. A variety of disclosures are made in terms of fiscal risks and funding strategies for those risks, through risk assessments, long-term planning and fiscal assessments as well as through the financial reporting of catastrophe risk insurance programmes although few respondents disclose specific and comprehensive information on catastrophe-related fiscal risks and funding plans.

Summary and conclusions

Implementation

76. Overall, most respondents have implemented the majority of the elements of the Recommendation although there are some areas where the implementation of an integrated and comprehensive approach to financial management is limited:

Establishment of a strategy for managing the financial impacts of disasters:

77. Most respondents have indicated that they have developed a strategy - or the components of a strategy - for managing the financial impacts of disasters. Respondents are focused on the financial management of natural hazard risks, including the potential impacts of a changing climate, and many have incorporated catastrophic risks related to digital security and infectious disease outbreaks as well as various types of large-scale industrial and transportation accidents and critical infrastructure failures. Most respondents indicated that they have access to the necessary resources and expertise (including from outside of government) to both quantify risks and implement a mix of policies to manage financial consequences, although most responses focused on insurance-related solutions (which could be due to the nature of the responsibilities of the IPPC delegates (which are focused on insurance markets) that led responses to the questionnaire for many Adherents).

78. There appear to be some differences in terms of interpretation of the guidance included in the first building block across Adherents and the resulting (self-) assessments of implementation. For example, some respondents appear to have interpreted the guidance with a more narrow focus on managing fiscal (or public finance) risks while others may have taken a broader approach in assessing disaster risk management, rather than specifically assessing potential financial consequences. Based on the responses received, as well as discussions with various delegations on some of the challenges in responding to the survey, there appears to be some remaining gaps in terms of developing a comprehensive approach to identify and address financial vulnerabilities and fully assess the relative role of risk reduction investment, risk financing and risk transfer across segments of society.

Promotion of a comprehensive risk assessment process:

79. Almost all respondents have comprehensive risk assessment processes that consider extreme scenarios, indirect impacts and the potential consequences of future changes in risk (notably in the context of a changing climate). Almost all respondents have established an enabling environment (with few impediments) to the development of risk analytics tools such as catastrophe models and have supported the incorporation of new technologies and innovations into risk and impact assessment as well as other components of disaster risk management. Respondents have also supported the availability of necessary data for risk assessment, through the collection of data on past events as well as by addressing data gaps for new or emerging material risks – although some respondents identified limitations in terms of the comprehensiveness and consistency of data collection practices. In addition, the examples provided by respondents suggest that most risk assessment processes appear to be focused on assessing hazards and impacts (rather than the potential for financial vulnerabilities to emerge) or on particular financial risks, such as fiscal risks or risks to the insurance sector (rather than taking a comprehensive view of financial risks across all segments of society, including households and businesses).

Support for the effective management of the financial impacts across segments of society:

80. Almost all respondents have developed initiatives to raise awareness among households and businesses of their exposure to catastrophe risks and most of these initiatives include information on potential financial losses, limitations to insurance coverage or government financial support as well as information on risk reduction measures that policyholders can implement. However, many respondents noted that behavioural biases as well as challenges related to financial literacy and inclusion are limitations to the effectiveness of these initiatives. Almost all respondents have established insurance

regulatory frameworks that enable insurance companies to transfer some of their catastrophe exposure to international markets and provide policyholders with incentives for risk reductions. Most insurance regulators have the necessary tools to ensure that insurance companies provide clarity to policyholders on the extent of coverage for catastrophe perils and make timely payments in response to a covered event.

81. However, significant financial protection gaps remain for many catastrophe perils in many Adherent countries. Some respondents have taken measures to respond to financial protection gaps, such as by imposing mandatory purchase, mandatory offer, automatic inclusion or mortgage-linked insurance requirements and/or by establishing catastrophe risk insurance programmes to support the availability of affordable insurance coverage. A few respondents have taken steps recently or are currently considering these types of measures. One respondent (Costa Rica) noted the need to improve the availability of insurance coverage for excluded or vulnerable segments of society, potentially through the development of innovative insurance solutions. Respondents are providing financial assistance and compensation to households and businesses impacted by catastrophe events although few have established conditions that limit the availability of such support to events that were uninsurable.

Management of the financial impacts of disasters on public finances:

82. Many respondents are evaluating potential catastrophe risks to public finances and integrating potential future changes, such as climate change, into those estimates. Many respondents are applying scenario analyses and modelling to the development of these estimates. Some respondents appear to take a more narrow scope in terms of the types of fiscal costs evaluated, with a particular focus on the exposures of catastrophe risk insurance programmes where such programmes have been established. A number of respondents have developed elements of a funding plan for catastrophe-related fiscal costs, although (similar to quantification efforts) many of these plans are focussed on specific aspects such as crisis management, catastrophe response and/or catastrophe risk insurance programme exposure. A variety of disclosures are made in terms of fiscal risks and funding strategies for those risks, through risk assessments, long-term planning and fiscal assessments as well as through the financial reporting of catastrophe risk insurance programmes although few respondents disclose specific and comprehensive information on catastrophe-related fiscal risks and funding plans.

Dissemination

83. The activities of the Secretariat and the IPPC Chair since the adoption of the Recommendation suggests that there is significant interest in the financial management of catastrophe risks among Adherents, non-Members and within the private (re)insurance sector. The Secretariat and the IPPC Chair have capitalised on opportunities to present the Recommendation or elements of its guidance in forums around the world, targeted to both governments and the (re)insurance sector as well as through a number of relevant OECD committees. Adherents have been less active in promoting the Recommendation internationally, across relevant ministries (national and subnational) and few Adherents have shared the Recommendation with relevant businesses, consumer representatives and/or other civil society organisations. There may be opportunities to increasing dissemination and potentially adherence to the Recommendation by non-Members through Adherents' development cooperation activities, given the increased attention that has been given to financial resilience against climate and other disaster risks in developing countries. In addition, Adherents could make greater efforts to offer translations of the

Recommendation into national languages in order to provide greater accessibility to its guidance.

Continued relevance

84. The financial management of catastrophe risks remains a complex public policy challenge, particularly for countries facing significant exposures to such risks and/or limited capacity to manage the financial impacts. A number of Adherents face remaining financial protection gaps for many types of catastrophe perils which could be exacerbated in the future as a result of a changing climate and various socio-economic developments (e.g. digitalisation, urbanisation, globalisation).

85. Many of the respondents indicated that the Recommendation or (some of) the principles included in the Recommendation have had an impact on their approach to managing the financial impacts of disaster risks or have been used or been considered as part of analysis or decision-making in this area (6 out of 10 respondents). For example, some respondents have made use of the Recommendation and/or its principles to assess national policies, legislation and/or regulation (e.g. Colombia, Costa Rica). Some respondents indicated that the Recommendation contributed to new policy initiatives (e.g. the establishment of a working group in Costa Rica, the development of insurance-based strategies for catastrophe risks in Canada), support for legislative measures (e.g. Spain) and/or encouraging greater policy attention to disaster risk financing (e.g. Lithuania).

86. Almost all respondents indicated that the Recommendation has continued relevance for their efforts to manage the financial impacts of disaster risks (11 out of 14 respondents). Some respondents indicated a need for further guidance for implementation of the Recommendation, either in general (e.g. Canada, Costa Rica) or related to specific issues such as on the implementation in Adherents with decentralised governance and responsibilities (e.g. Australia) or the relationship between physical and financial risks (e.g. Germany).

87. As noted above, the Recommendation is intended to provide guidance for a broad range of catastrophe risks, including natural hazards (including infectious disease outbreaks) as well as man-made and accidental events with catastrophic consequences (such as terrorist attacks, large-scale cyber incidents, industrial accidents). Some respondents indicated that guidance on the financial management of some emerging (or re-emerging) catastrophe perils, including climate change, pandemics and cyber-attacks, could be better incorporated into the Recommendation (6 out of 19 respondents in the case of climate change, 7 out of 19 respondents in the case of pandemics and cyber-attacks). Some respondents indicated that other risks (e.g. nature/biodiversity, military/defense, migration, disinformation) could also be better incorporated into the Recommendation. One respondent (Portugal) suggested that the definition of "disaster risk" included in the Recommendation should better incorporate accidental man-made catastrophes such as large-scale industrial or transportation accidents. Another respondent (United Kingdom) suggested that a greater focus on the impact of catastrophes on vulnerable groups should be included.

88. The survey responses and conclusions from the Report show a potential need to update the Recommendation, aiming to ensure that the relevance of the Recommendation for the full range of disaster and large-scale risks is well-understood. That update could include editorial revisions to better reflect the scope, recent developments and practice, as well as some additional concepts and definitions. It is proposed that the IPPC return to Council in 2023 with possible revisions to that effect. The IPPC will start the discussion on possible substantive revisions at its December 2022 meeting.

89. In addition, during the preparations of the Report, the Secretariat looked at other relevant IPPC legal instruments and in particular the OECD Recommendation on the Establishment of a Check-List of Criteria to define Terrorism for the Purpose of Compensation [OECD/LEGAL/0331] (hereafter, the "2004 Recommendation"). It appears that the Recommendation partially covers the scope of the 2004 Recommendation and could potentially be consolidated with the Recommendation as part of the IPPC's efforts to streamline its stock of legal instruments (see Box 4.22). The IPPC's Standard-Setting Action Plan [DAF/AS/WD(2016)14] had already concluded with regard to the 2004 Recommendation that it "may not reflect the current practice for terrorism compensation" and that it should "inquire with terrorism risk reinsurance programmes to verify this information, and discuss whether to revise or abrogate this [2004] Recommendation". It is proposed to examine the possible inclusion of relevant elements of the 2004 Recommendation in the Recommendation in order to ensure that the OECD legal instruments under the responsibility of the IPPC are comprehensive.

Box 4.22. Streamlining IPPC instruments related to terrorism risk

The OECD Recommendation on the Establishment of a Check-List of Criteria to define Terrorism for the Purpose of Compensation [OECD/LEGAL/0331] was adopted by the Council on 9 December 2004 on the proposal of the Insurance Committee (now IPPC). It was developed in the aftermath of the events of 11 September 2001 and in response to application of terrorism exclusions by the (re)insurance sector in commercial property insurance policies and reinsurance treaties. The lack of insurance coverage for this risk (and the perceived likelihood of further attacks) led to significant challenges in commercial real estate markets as financial institutions were reluctant to provide financing for properties with uninsured exposure to terrorism risk.

In response, many OECD countries established terrorism risk insurance programmes that were generally focussed on supporting the availability of terrorism insurance coverage for damages and losses to commercial buildings. The OECD, at the request of the Council [DAFFE/AS/WD(2002)9], played a significant role in providing policy analysis and recommendations to support the establishment of these programmes, and ultimately adopted the 2004 Recommendation, which supported the development of definitions of terrorism for the purposes of the insurance coverage and/or compensation provided by these programmes. The 2004 Recommendation defines the concept of terrorism for the purpose of compensation by providing a checklist in its Appendix of key elements which Adherents could take into consideration. This checklist is illustrative, and can be adapted by the various parties concerned to meet the needs of their specific market and regulatory frameworks as well as their policy objectives.

While preparing the Report, it became clear that the 2004 Recommendation provides similar (although more detailed) guidance on elements related to the financial management of terrorism risk which is covered by the Recommendation, specifically in terms of when government financial support for the availability of affordable insurance coverage may be necessary to address insurability challenges that emerge for any type of disaster or large-scale risk. As a result, there may be an opportunity to streamline the set of OECD legal instruments related to the financial management of terrorism risk by consolidating relevant elements from the 2004 Recommendation with the Recommendation on Disaster Risk Financing Strategies - and potentially developing separate but complementary guidance or a toolkit specific to the financial management of the terrorism risk. This streamlining exercise would support the implementation of the IPPC's Standard-Setting Action Plan [DAF/AS/WD(2016)14] and the broader OECD-wide Standard Setting Review.

Next steps

90. In light of the above and in order to strengthen the content of the Recommendation and its implementation, the Report proposes that:

- Adherents address the main findings and challenges identified in the Summary and conclusions section of the Report with the aim of further enhancing financial resilience to disaster risks and further promote and raise awareness of the Recommendation nationally among relevant ministries and stakeholders;
- the Insurance and Private Pensions Committee:
  - support Adherents in addressing the findings and challenges identified in the Summary and conclusions section of the Report by providing analysis and technical assistance in the areas where the level of implementation is low; and,
  - develop a proposal for the Council to revise the Recommendation before the end of 2023, including to possibly incorporate relevant elements of the Recommendation on the Establishment of a Check-List of Criteria to define Terrorism for the Purpose of Compensation [OECD/LEGAL/0331].

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