



Main findings and recommendations of the midterm review of the implementation of the Sendai Framework for Disaster Risk Reduction 2015–2030

Summary

The present report contains a summary of the findings and recommendations of the midterm review of the implementation of the Sendai Framework for Disaster Risk Reduction 2015–2030. In examining progress made and challenges experienced since 2015 in realizing the expected outcome – the substantial reduction of disaster risk and losses – and goal – prevent new and reduce existing disaster risk, the midterm review explores efforts to integrate risk reduction into decision-making, investment and behaviour that spanned sectors, disciplines, geographies and scales so as to prompt re-examination and redress of our relationship with risk.

The findings and recommendations are the result of inclusive, government-led and multi-stakeholder consultations and review, consistent with the guiding principles of the Sendai Framework for Disaster Risk Reduction 2015–2030 as an “all-of-society” and “all-of-State institutions”¹ undertaking.

The United Nations Office for Disaster Risk Reduction expresses its appreciation to all Member States and non-State stakeholders whose genuine interest in and commitment to the process informed the findings and recommendations of the report. Special gratitude goes to the 75 Member States which conducted national consultations and review and the 25 organizations, funds and programmes of the United Nations system, the 26 constituencies associated with the Stakeholder Engagement Mechanism of the Office and numerous other major groups, organizations and individuals that provided contributions.²

¹ Sendai Framework for Disaster Risk Reduction 2015–2030 (General Assembly resolution 69/283, annex II), para. 19.

² All Member State and non-State stakeholder contributions to the midterm review are available online at <https://sendaiframework-mtr.undrr.org/mtr-sf-submissions-and-reports>.



I. Retrospective review

A. Progress towards realizing the priorities and targets

1. The Sendai Framework for Disaster Risk Reduction 2015–2030 represents a shift from managing disasters to an approach of understanding and managing disaster risks inherent to the decisions and actions within social, economic, political and environmental systems in all geographies and at all scales.

2. The increasing number of countries reporting on Sendai Framework implementation indicates growing commitment to a more nuanced understanding of risk, with 93 per cent of Member States conducting midterm review consultations reporting improvements in risk information and management.

3. While progress has been made toward realizing Sendai Framework priorities, it is not consistent across countries. The unique challenges faced by the least developed countries, landlocked developing countries and small island developing States continue to hinder realization of the Framework outcome and goal.

4. **Global access to disaster data and applicable risk knowledge**, including multi-hazard early warning systems, **remains inadequate**. Increased economic costs of disasters are not matched with financing for disaster risk reduction, and challenges remain in quantifying risk-informed preventive financing embedded in public and private investments. As recovery from the coronavirus disease (COVID-19) pandemic continues, compounded by the impacts of climate change, a dramatic increase in efforts is needed to realize the Sendai Framework expected outcome, goal and priorities for action.

5. To enable Member States to effectively report on progress in implementation, an **online reporting instrument and data portal – the Sendai Framework monitor** – was established in 2018 to enact the 2016 recommendations of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction. As at March 2022, 155 countries were using the monitor – up from 88 countries in 2018.

6. While some progress has been made in reducing disaster impact, national reporting through the Sendai Framework monitor shows that countries are not on track to realize the Framework expected outcome and goal by 2030.

(a) **Target A: Substantially reduce global disaster mortality by 2030.** The average annual mortality during 2015–2021 is 42,833 people. A decrease per 100,000 people from 1.77 in 2005–2014 to 0.84 in 2012–2021, this represents an improvement in the average annual number of deaths and missing persons in the event of a disaster. However, the COVID-19 pandemic offset this improvement, causing 599,239 deaths in 2020 and 237,518 deaths in 2021, as reported by 37 countries in the Sendai Framework monitor. These figures are likely a significant underestimation: the World Health Organization (WHO) estimates 1.9 million deaths in 2020 and 3.5 million deaths in 2021 as a result of the pandemic.³

(b) **Target B: Substantially reduce the number of affected people globally.** The number of persons affected by disasters per 100,000 people has increased from 1,147 in 2005–2014 to 2,066 in 2012–2021. The average annual number of disaster-affected people during the period 2015–2021 was 150,214,597 people per year.

(c) **Target C: Reduce direct disaster economic losses in relation to global gross domestic product (GDP).** The average direct economic losses per year from

³ See <https://covid19.who.int/>.

2015 to 2021 exceed \$330 billion – approximately 1 per cent of total GDP of reporting countries – is estimated to be significantly undervalued. While the economic impact of geophysical disasters has remained stable over recent decades, annual economic loss from climate and weather-related events has risen significantly over the past decade.

(d) **Target D: Reduce disaster damage to critical infrastructure and basic services disruptions.** The number of critical infrastructure units and facilities destroyed or damaged by disasters averaged 142,852 per year from 2015 to 2021. Disasters, including COVID-19, also disrupted more than 363,184 basic services in 2020 and 2021 in 44 reporting countries, including health and educational services.

(e) **Target E: Increase national and local disaster risk reduction strategies.**⁴ The number of countries with national disaster risk reduction strategies increased from 55 in 2015 to 125 in 2021. The number of countries with strategies promoting policy coherence and compliance, notably with the Sustainable Development Goals and the Paris Agreement, has reached 118, compared with only 44 in 2015. A total of 99 countries have reported having local governments with disaster risk reduction strategies.

(f) **Target F: Enhance international cooperation for disaster risk reduction.**⁵ In the past decade, 42 developing countries reported receiving official development assistance (ODA) for national disaster risk reduction actions, and 26 countries have reported providing ODA support.⁶ Of the disaster risk reduction-related ODA made available from 2010 to 2019, 4.1 per cent was spent on disaster prevention and preparedness. There were 1,113 instances of technology transfer and 2,203 examples of capacity development from 2005–2020.

(g) **Target G: Increase availability and access to early warning systems and risk information.** Of 120 countries reporting via the Sendai Framework monitor, 95 reported the existence of multi-hazard early warning systems.⁷

7. The Sendai Framework clearly recognizes that the least-developed countries, landlocked developing countries and small island developing States face numerous resource and capacity challenges. These countries account for approximately 25 per cent of deaths and missing persons despite representing only 11.6 per cent of the total population of reporting countries. Countries with special needs also accounted for 11.3 per cent of reported economic loss although they accounted for only 2.2 per cent of the GDP of countries reporting. From 2012 to 2021, disaster mortality rates averaged 1.28 and 2.54 deaths annually per 100,000 population in reporting least-developed countries and landlocked developing countries, and up to 13 deaths per 100,000 population annually in small island developing States, compared with a global average of 0.84 per 100,000 population.

8. While the **inclusion of COVID-19-related data in the Sendai Framework monitor** is demonstrative of how countries are addressing the broadened scope of the

⁴ United Nations Office for Disaster Risk Reduction, *Status Report on Target E Implementation* (Geneva, 2020) (available at www.undrr.org/publication/status-report-target-e-implementation-2020) and target E report 2022 (forthcoming).

⁵ United Nations Office for Disaster Risk Reduction, “International cooperation in disaster risk reduction: Target F” (Geneva, 2021) (available at www.undrr.org/publication/international-cooperation-disaster-risk-reduction-target-f).

⁶ Economic and Social Council and United Nations Office for Disaster Risk Reduction, *Gaps, Challenges and Constraints in Means of Implementing the Sendai Framework for Disaster Risk Reduction in Small Island Developing States* (2022).

⁷ United Nations Office for Disaster Risk Reduction and World Meteorological Organization (WMO), “Global status of multi-hazard early warning systems: target G” (Geneva, 2022). Available at www.undrr.org/publication/global-status-multi-hazard-early-warning-systems-target-g.

Framework (to include biological, environmental and technological, hazards and risks),⁸ more work is needed to represent human-made and natural hazards and risks.

9. Gaps remain in data collection and analysis at the subnational and national levels, with very few countries reporting sex, age and disability disaggregated data to the Sendai Framework monitor. This challenge is not restricted to developing economies. Disaggregation of how hazards and risks, as well as disaster impacts, affect different groups within communities and nations is essential to understand the vulnerabilities and risks that need to be addressed.

10. Nevertheless, the Sendai Framework has contributed to enhancing standards and quality in disaster data collection and analysis. The United Nations Office for Disaster Risk Reduction has led efforts to engage national statistical offices to integrate Sendai Framework monitor data into national statistics and to promote the use of disaster data by all sectors. To achieve this, the Inter-Agency and Expert Group on Disaster-related Statistics was established in October 2020. Custom targets and indicators were developed alongside the 38 global indicators of the Framework and are deployed by countries subject to national priorities.

11. By providing common metrics and data, the Sendai Framework is promoting mutually supportive and streamlined monitoring of progress in different international frameworks and mechanisms, greater coherence of multilateral agendas, reduced reporting burden on countries, integration of agendas and convergent implementation.

B. Progress in implementing the Sendai Framework for Disaster Risk Reduction 2015–2030

1. Priority 1: Understanding disaster risk

12. Risk is better understood since 2015, but more is needed in assessing and addressing core elements of risk – particularly in respect of the drivers of risk creation and vulnerability of people and the ecosystems upon which they depend.

13. The collection and utilization of disaster risk reduction data have improved globally, with notable advances in risk information and management. A total of 110 Member States are using DesInventar,⁹ collecting loss and damage data on the human and socioeconomic consequences of realized risk (disasters).

14. As a result, knowledge of the frequency and intensity of natural hazards, and the exposure of people and assets, has improved. This is less the case for human-made hazards and risks.

15. The number of risk models and risk assessment studies has increased. However, fewer than half of the countries reporting against Sendai Framework targets indicate having fit-for-purpose, accessible and actionable risk information. States in the Economic Community of West African States (ECOWAS) and the Economic Community of Central African States (ECCAS) recognize that the absence of data limits understanding and ability to address the systemic nature of risk. Data ecosystems, including for disaggregated data, need to be strengthened, including through enhanced interoperability across systems, as well as the inclusion of local, traditional and Indigenous knowledge, feedback and expert opinion.

16. Improvements in the comprehensive understanding of the systemic nature of risk in protracted crises have been reported, specifically in the interaction of violence, conflict and disaster risk – notably the numerous ways that structural risk drivers in

⁸ Sendai Framework, para. 15.

⁹ Disaster loss data for the Sustainable Development Goals and the Sendai Framework monitor.

protracted crises interact with and exacerbate vulnerability. Progress in risk reduction in conflict and post-conflict areas remains challenging.¹⁰

17. There are a growing number of useful indices advancing understanding of systemic risks, combining natural hazard-related data with data on pandemic threats, protracted crises, violence and armed conflict, economic insecurity and other measures. The multidimensional vulnerability index measures a country's vulnerability to shocks so that those most in need can define apposite and context-specific solutions to risk information and management.

18. While risk information and sharing are increasingly integrated into national decision-making, improvements are needed in strengthening and mainstreaming monitoring, evaluation and learning processes and underlying knowledge-management platforms. This is essential for better assessing the effectiveness of cross-sector and cross-scale responses and capturing lessons for supporting the transfer or scaling-up of successes.

19. Efforts to better understand disaster risk increasingly encompass aspects of justice, social cohesion and human rights. Consistent with the Sendai Framework guiding principles, efforts continue to operationalize rights-based approaches to disaster risk reduction at the national or international levels. Public trust and public engagement of socially vulnerable groups and an "all-of-society" approach are considered essential. Challenges remain regarding participation, including in data collection, with significant data gaps on women, the elderly, persons with disabilities and children. Without such data, "problems remain invisible and thus are not solved within the policy framework".¹¹ The Commission on the Status of Women raised such concerns, recalling that disaster risk reduction requires "inclusive risk-informed decision-making based on the open exchange and dissemination of disaggregated data, including by sex, age and disability".¹² Member States called for the creation of centralized bodies with adequate budgets and the capacity to conduct consultations with various stakeholders and improved accountabilities.

20. New and emerging technologies present opportunities for overcoming data gaps. The scarcity of quality, interoperable or accessible data remains a roadblock to effective disaster risk reduction. Even when data is available and tools such as weather station networks exist, lack of capacity to interpret data and develop risk information impedes risk-informed decision-making and policy uptake. Increased donor support is needed for capacity-building.

21. Information and guidance on addressing technological hazards are now available and several United Nations organizations are supporting Member States in improving understanding of and reporting on human-made hazards and risks. In 2020, a hazard definition and classification review¹³ was published, together with hazard information profiles which outline a detailed description of each hazard.

22. To respond to the need for expanding our understanding of the systemic nature of risk, the United Nations system¹⁴ has developed knowledge-sharing platforms and

¹⁰ For example, the Arab region identifies the least progress in disaster risk reduction in post-conflict and conflict areas.

¹¹ Submission from Bosnia and Herzegovina.

¹² E/2022/27-E/CN.6/2022/16, para. 56.

¹³ Available at www.undr.org/publication/hazard-definition-and-classification-review-technical-report.

¹⁴ For example, Food and Agriculture Organization of the United Nations (FAO), Economic and Social Commission for Asia and the Pacific (ESCAP), United Nations Educational, Scientific and Cultural Organization (UNESCO) and United Nations University (UNU).

expert networks to exchange technical knowledge and good practices. Initiatives such as the Risk Information Exchange¹⁵ enhance our understanding.

2. Priority 2: Strengthening disaster risk governance to manage disaster risk

23. A total of 123 countries have reported the development of national disaster risk reduction strategies, yet implementation at the local level faces critical gaps.¹⁶ The least-developed countries present less progress, and only 61 per cent have developed national disaster risk reduction strategies.

24. There has been considerable progress in regional cooperation and disaster risk reduction governance mechanisms,¹⁷ with improvements in regional disaster risk reduction governance having inter alia reduced barriers in small island developing States and the least-developed countries to implementing disaster risk reduction strategies.

25. There has been limited progress at the local level. Only 99 countries reported having local governments with disaster risk reduction strategies. Numerous least-developed countries, small island developing States and landlocked developing countries identified a near complete absence of local government and community involvement in disaster risk reduction planning.

26. There is minimal evidence of improvement in coordination mechanisms. Siloed disaster risk reduction agencies and policies continue to limit integrated risk-informed decision-making before risk manifests as a shock or disaster. However, since the onset of the COVID-19 pandemic, there has been an increased understanding of the importance of transdisciplinary, intersectoral and multi-scale coordination within countries to enhance disaster risk reduction capacities, reduce duplication of efforts or financing and enable preventive measures that mitigate or avoid reactive approaches to disasters.

27. Nevertheless, a significant number of countries identify that silos within countries continue to limit disaster risk reduction effectiveness.¹⁸ While some countries have made ambitious plans to enhance collaboration, without the transformation of organizational structures and mandates, little change is observed.

28. There remains a lack of coordination between institutions responsible for disaster risk reduction, climate change and development, let alone priority macroeconomic sectors, as noted in the Americas and the Caribbean and Africa. Small island developing States identified that diminishing duplication is essential to reduce disaster risk reduction financing gaps. Greater integration of risk-informed decision-making and investment across sectors and scales is required if the Sendai Framework is to be realized by 2030.

29. While most countries identified the importance of updating legal frameworks to facilitate the implementation of disaster risk reduction plans, risk-informed decision-

¹⁵ <https://rix.undrr.org/>.

¹⁶ See Global Platform for Disaster Risk Reduction 2022 discussions. Available at https://globalplatform.undrr.org/sites/default/files/inline-files/Global%20Platform%202022%20Proceedings_DIGITAL_1.pdf.

¹⁷ For example, the Regional Action Plan for the Implementation of the Sendai Framework for Disaster Risk Reduction 2015–2030 in the Americas and the Caribbean (available at www.undrr.org/publication/regional-action-plan-implementation-sendai-framework-disaster-risk-reduction-2015-0) and the Arab Strategy for Disaster Risk Reduction (available at https://www.preventionweb.net/files/59464_asdrrreportinsidefinalforweb.pdf).

¹⁸ Submissions from: Burkina Faso, Niger, Türkiye; and Economic Community of West African States (ECOWAS).

making and investment, owing to lack of financial resources, organizational capacity or political will, progress is largely confined to high-income countries.

30. Several countries identified that assistance in establishing legal frameworks to support risk reduction strategies and policies across and between multiple sectors and scales is a priority. Among improvements in this area is the passing of legislation to provide a legal basis for addressing new and emerging risks, such as cybersecurity¹⁹ or intensifying impacts of climate change.

3. Priority 3: Investing in disaster risk reduction for resilience

31. Despite increases in direct and indirect economic impacts of disasters, investments in disaster risk reduction and efforts to de-risk investment remain inadequate.

32. In the past 20 years, climate-related disasters have almost doubled. Developing countries need an estimated \$70 billion annually for adaptation.²⁰ The Africa region has suffered the greatest economic impact, with losses equivalent to 12.3 per cent of its total GDP in reporting years. Disaster risk reduction-related ODA has however barely increased, with only 0.5 per cent from 2010 to 2019 dedicated to disaster risk reduction in the pre-disaster phase – a marginal improvement from the 0.4 per cent of the 1990–2010 period.²¹ This financing gap must be addressed.

33. Some 90 per cent of ODA is geared towards recovery, with only 10 per cent for prevention.²² In 2018 and 2019, only 4.1 per cent of total disaster-related ODA was spent on disaster prevention and preparedness, equating to only \$0.50 on pre-emptive actions for every \$100 spent on development aid.²³ Evidence suggests that ODA is not targeted to regions and countries where it is needed most. Several respondents attribute this misallocation of resources to poor measurement. Underreporting and underestimation of losses remain common challenges. Corrective measures will enable better understanding of the financing gap and ensure that sufficient resources are directed to appropriate sectors.

34. Domestic structures and investment are burdened by limitations of international cooperation for disaster risk reduction. Although several countries have established integrated national financing frameworks and disaster risk reduction funds, domestic investment in disaster risk reduction remains challenged. Public sector disaster risk reduction budget allocations and expenditure are significantly lower than for other national development priorities. In many countries, disaster risk reduction accounts for less than 1 per cent of their national budgets.²⁴

35. Several countries lack formal disaster risk reduction financing frameworks, which can lead to an overreliance on donor funding and curbs measures supporting long-term disaster resilience. Challenges in assessing the direct and indirect proportions of disaster risk reduction allocation in budgets remain. **Limitations and lack of interoperability in risk and financial data impede informed decision-making and prioritization of disaster risk reduction budget decisions. To ensure that budget reviews support holistic and financially sustainable management of disaster risks and**

¹⁹ Submission from United States of America.

²⁰ See United Nations Office for Disaster Risk Reduction, “International cooperation in disaster risk reduction: target F” (2021) (see footnote 4).

²¹ Ibid.

²² Natalie Donback, “What we can learn from disaster risk reduction efforts in small islands”, Devex, 12 February 2020.

²³ United Nations Office for Disaster Risk Reduction, “International cooperation in disaster risk reduction: target F” (2021).

²⁴ United Nations Office for Disaster Risk Reduction, “Accelerating financing and de-risking investment”, policy brief, 2021.

are not ad hoc or one-time exercises, specific tagging and tracking systems should be developed, with entities assigned the mandate and responsibility for systematic analysis and review.²⁵

36. The least-developed countries and small island developing States identify technical and human capacity constraints as one of the key missing investments in disaster risk reduction. While some investment in technology transfer and research capacity through regional platforms and south-south cooperation is observed, the least-developed countries and small island developing States recommend prioritization and investment in capacity-building and reducing the complexity of applying for and managing ODA.

37. Areas of disaster risk reduction financing in which investments have increased globally include adaptive social protection²⁶ – which can assist in addressing the multidimensional nature of vulnerability and the systemic nature of risk; and nature-based solutions, which countries increasingly see as scalable and effective in simultaneously addressing the growing challenges of climate change, biodiversity loss and disaster risks²⁷ and increasingly feature within countries' disaster risk reduction strategies.

38. Furthermore, initiatives on financing anticipatory action are growing. These include the Risk-informed Early Action Partnership, the InsuResilience Global Partnership and efforts made under the Grand Bargain to further address the humanitarian financing gap by calling for greater investment in anticipatory finance.²⁸

39. While private sector awareness of the need to invest in resilience has increased,²⁹ Member States report minimal progress in engagement. Without policy and regulatory changes requiring the private sector to incorporate disaster risk reduction in decision-making, little progress is expected.

40. Despite paragraph 36 (c) of the Sendai Framework, article 2.1 (c) of the Paris Agreement and calls for the alignment of financial flows with the Convention on Biological Diversity goals and targets, many aspects of the financial system, macroeconomic policy and public and private financing contribute to creating disaster risk. Instead of enhancing the resilience of societies, current investments often exacerbate risks, increasing the exposure and vulnerability of communities, supply chains and ecosystems.

41. Although the Sendai Framework heralds the shift to managing drivers of risk, risk financing remains heavily focused on reactive measures, such as contingency funds, insurance and catastrophe bonds to finance post-disaster response and recovery. This is despite Member States' calls for a shift from investing in response to prevention and disaster risk reduction.³⁰ Investing in addressing the underlying drivers of risk before they manifest as shocks or disasters is seen as the prerogative of Governments and is not a concern for institutional investors.

²⁵ United Nations Office for Disaster Risk Reduction, "Disaster risk reduction investment in Africa: evidence from 16 risk-sensitive budget reviews" (2020).

²⁶ For example, the Sahel Adaptive Social Protection Programme.

²⁷ For example: the Climate Resilient by Nature initiative of the Government of Australia, launched in 2021, seeks to enhance nature-based solutions for disaster resilience in the Indo-Pacific; and the United States integrating nature-based solutions within its critical infrastructure toolkit.

²⁸ Katie Peters, "Evidence of positive progress on disaster risk reduction in the humanitarian-development-peace nexus" (Geneva, 2023).

²⁹ For example, the Private Sector Alliance for Disaster Resilient Societies (ARISE) global network now has over 400 members and 29 networks supporting and implementing the Sendai Framework.

³⁰ See [E/FFDF/2022/L.1](#).

42. While the private sector's engagement in environmental, social and governance factors, sustainability reporting and disclosure standards have improved, beyond climate change the connection to disaster risk reduction remains weak. Institutional investors remain largely unable to articulate a coherent, directed approach to disaster risk reduction.

43. Promising innovations in risk financing lack scale and penetration, despite growing interest in risk financing and risk transfer mechanisms. Innovations include greater use of contingent financing mechanisms, for example catastrophe bonds,³¹ implementing clauses for immediate debt moratoriums following disasters,³² or "resilience bonds".³³ In 2022, the Group of Seven (G7) development ministers committed to strengthening the architecture of global climate and disaster risk financing and insurance,³⁴ including supporting insurance premium subsidies, providing capital support to respond to the impacts of the climate crisis and closing protection gaps.

44. International and national development financing institutions have increased investment both in terms of direct funding and through compliance mechanisms. While focus is often on low and zero-carbon development, many are investing in resilience, adaptation and response, with some considering Sendai Framework priorities. The Asian Development Bank lists key performance indicators for the numbers of people benefiting from strengthened climate and disaster resilience, and the Resilience and Sustainability Trust of the International Monetary Fund (IMF) will assist low-income and vulnerable middle-income countries build resilience to external shocks and longer-term environmental and biological risks, promoting sustainable growth.

45. Donors and the private sector have invested substantially in risk transfer mechanisms, such as the Insurance Development Forum, the Sustainable Insurance Facility, led by the Vulnerable Group of Twenty (V20), the work of the International Cooperative and Mutual Insurance Federation, moving from protection to prevention and incentivizing risk-informed behaviours,³⁵ and the Pacific Catastrophe Risk Assessment and Financing Initiative. However, insurance remains underdeveloped in many regions, for example, insurance as a percentage of GDP sits at 1 per cent in the Arab region, significantly below the global average of 3 per cent.

46. In both developed and developing countries, insurance affordability and availability is a growing concern as risks increase to the point where some become uninsurable, prompting providers to leave those markets.³⁶ While risk-informed investment that prevents risk creation and reduces existing risk remains the priority, an expansion of appropriate and affordable risk transfer mechanisms is required to close the protection gap.

³¹ For example: the \$52.5 million quick payout for the Government of the Philippines in response to Typhoon Odette from the World Bank Capital-at-Risk Notes facility; and submission from Jamaica.

³² Submissions from Barbados, Grenada.

³³ For example, bonds linking project finance for infrastructure with catastrophe bonds. See www.refocuspartners.com/projects/.

³⁴ Zoë Scott, "Finance for early action: tracking commitments, trends, challenges and opportunities" (Risk-informed Early Action Partnership, 2022).

³⁵ See www.icmif.org/undrr-icmif-report/.

³⁶ See Aviva Investors, "Act now: a climate emergency roadmap for the international financial architecture" (15 November 2022).

4. Priority 4: Enhancing disaster preparedness for effective response and to build back better in recovery, rehabilitation and reconstruction

47. Strengthened resilience through disaster risk reduction, enabling the prevention of economic, environmental and human losses in the event of a crisis, is at the heart of the Sendai Framework outcome and goal. This led to wider understanding of the need for enhanced, risk-informed preparedness within disaster risk reduction strategies that include, for example, contingent reconstruction plans, pre-approved contracts and financial arrangements to adequately cover vulnerable populations. Investments in preparedness activities, including training and equipping disaster responders, have followed.³⁷

48. Progress on priority 4 has been limited, owing to a continued overemphasis on reactive disaster risk reduction measures. Prioritizing speed, significant opportunities are missed to build back better, to accelerate development and improve resilience post-disaster.

49. Improvements in cooperation have enhanced the preparedness and effectiveness of responses. Member States cite significant gains in enhanced regional cooperation mechanisms. In the Americas and Caribbean region, the Regional Response Mechanism³⁸ was established to address capacity constraints faced by small island developing States, including through better pre-positioning of emergency supplies, increasing technical expertise and accessing and reducing overlap of anticipatory financing.

50. While there has been progress in the design and implementation of multi-hazard early warning systems, coverage remains inadequate. As at 2022, only 95 countries had reported the existence of multi-hazard early warning systems, with one in three people inadequately covered globally.³⁹ Only 32 per cent of small island developing States, 59 per cent of landlocked developing countries and 41 per cent of countries in the sub-Saharan Africa region reported having multi-hazard early warning systems. In nearly all countries, marginalized groups (e.g., women and girls, persons with disabilities, people in rural areas, Indigenous Peoples, ethnic and linguistic minorities, migrants, displaced people, gender and sexual minorities, youth⁴⁰ and the elderly) are often excluded from early warning and post-disaster recovery.

51. Donor initiatives have often acted as drivers for multi-hazard early warning systems. For example, supporting 60 countries in improving their early warning systems, the Climate Risk and Early Warning Systems initiative was established to close financing gaps for the least-developed countries and small island developing States for risk-informed early warning services.⁴¹ The thorough implementation of multi-hazard early warning systems is a core recommendation of Member States⁴² and is aligned with the Early Warnings for All initiative of the Secretary-General by 2027.

³⁷ The Gambia, Liberia, Malawi, Mauritius, Togo and the United Republic of Tanzania established mandatory budgets for emergency preparedness and response.

³⁸ A harmonized approach led by the Caribbean Disaster Emergency Management Agency, which coordinates Caribbean regional disaster response.

³⁹ United Nations Office for Disaster Risk Reduction and WMO, "Global status of multi-hazard early warning systems: target G" (see footnote 6).

⁴⁰ Youth engagement is observed in the Europe and Central Asia Youth Network for disaster risk reduction.

⁴¹ Climate Risk and Early Warning Systems, "Annual report 2021: rising to the challenge in complex crises" (2022).

⁴² Submissions from Algeria, Austria, Bhutan, Bosnia and Herzegovina, Burundi, Ethiopia, Kyrgyzstan, Mauritius, Morocco, Philippines, Slovenia, Sudan, Sweden, United Republic of Tanzania, Thailand, Togo, Türkiye, Viet Nam.

52. Increased focus on disaster preparedness is apparent across regions; however, women's inclusion and diversity are not yet recognized as integral components of equitable solutions in recovery, rehabilitation and reconstruction. Improvements in inclusion and diversity are considered critical throughout all aspects of risk management, but the contribution of women and girls' skills and capacities to prepare for disasters and ensure community resilience is under-utilized. This was evident in the COVID-19 response, where women comprised less than a quarter of all national-level COVID-19 committees.

53. Community participation in a bottom-up co-creation process is essential in recovery planning. Efforts towards disability-inclusive disaster recovery have been made, and include identifying principles, data requirements, enabling policies, institutional mechanisms and financing. Such efforts are considered essential for effective, equitable and sustainable disaster resilience. However, the establishment and implementation of "inclusive" disaster response mechanisms have been limited.

54. Post-disaster needs assessments are increasingly risk-informed and more integrated. Methodologies and guidance for creating post-disaster needs assessments continue to be developed, including the COVID-19 recovery needs assessment,⁴³ the global rapid post-disaster damage estimation,⁴⁴ the disaster rapid assessment⁴⁵ and the damage assessment operations manual of the Federal Emergency Management Agency of the United States of America. Post-disaster needs assessments are valued tools for supporting physical reconstruction, resilient recovery linked to longer-term development and the building of institutional expertise. Challenges remain in estimating infrastructure damages and service disruptions, with data gaps frequently resulting in non-estimation of losses.

55. Coordination within the United Nations system on disaster risk reduction is stronger. The United Nations Plan of Action on Disaster Risk Reduction for Resilience "Towards a Risk-informed and Integrated Approach to Sustainable Development" has guided the United Nations system's joint efforts in supporting Member States' implementation of the Sendai Framework and related aspects of the 2030 Agenda for Sustainable Development and other international agreements. Revised in 2016, the Plan of Action has become an effective mechanism helping United Nations organizations identify trends, gaps and opportunities. The establishment of the United Nations Senior Leadership Group on Disaster Risk Reduction for Resilience in 2017⁴⁶ created further momentum for stronger inter-agency cooperation.

II. Prospective review

56. This prospective review provides an overview of key issues and measures to accelerate and amplify Sendai Framework implementation in the years to 2030. It builds from the retrospective review and integrates assessment of context shifts and emerging issues, informed by the forward-looking analysis of Member States and non-State stakeholders, to propose high-level recommendations for effective risk reduction and risk management.

⁴³ <https://recovery.preventionweb.net/build-back-better/post-disaster-needs-assessments/covid-19-recovery-needs-assessment>.

⁴⁴ See www.gfdrr.org/en/publication/methodology-note-global-rapid-post-disaster-damage-estimation-grade-approach.

⁴⁵ See www.unescap.org/publications/innovations-disaster-rapid-assessment-framework-early-recovery-asean-countries.

⁴⁶ See A/72/259.

57. Reducing risks is one of the central components of safeguarding human existence and security.⁴⁷ Current conventional crisis response and risk management can no longer cope with interconnected disruptions – as seen for example in vulnerabilities in food, health or energy systems.⁴⁸ Collective action is needed to address risks that we may not yet foresee entirely.⁴⁹ Anticipating, preventing and addressing risks to our planet must be part of every decision, policy, investment and budget, with “a revitalized, comprehensive and overarching prevention agenda front and centre in all that we do”.⁵⁰

58. With growing uncertainties and increasingly complex risks, amplified by increasing disaster impacts and losses, belief in our collective ability to achieve the 2030 Agenda appears to be waning.⁵¹ Human insecurity is on the rise, with disasters as one of the main drivers.⁵² Disaster risks are amplified by uncertainties which hinder our ability to anticipate and prepare for major shocks. In addition, we face unsustainable levels of risk that transcend national and generational boundaries.⁵³

59. The biggest transformations needed for achieving the 2030 Agenda and other internationally agreed frameworks and agreements require a systemic approach that manages interdependencies and interactions between goals and targets. Governments need to shift priorities to policy convergence, overcoming sectoral silos and developing new integrated approaches that take into account systemic interactions and focus on causal relationships between goals and policies.⁵⁴

60. The complexity of global catastrophic risk is overwhelming conventional governance systems, which were designed to address incremental environmental and social changes, rather than non-linear processes and complex interactions between drivers of risk and the irreversible impacts of breaching planetary boundaries.

A. Recommendations for action

61. Reiterated commitment and efforts of traditional disaster risk reduction stakeholders, as well as novel collaborations with other stakeholders, are needed to correct course and ensure that the Sendai Framework is fully realized by 2030.

62. The midterm review of the implementation of the Sendai Framework for Disaster Risk Reduction 2015–2030 reveals commitment to the realization of the guiding principles of the Framework, in particular, the importance of governing and managing risk in a manner that develops “all-of-society engagement and partnership”⁵⁵ for the effectiveness and equity of disaster risk reduction actions with “all State institutions of an executive and legislative nature” at the national and subnational levels⁵⁶ at the core of actions to achieve the Framework by 2030.

⁴⁷ United Nations, *Our Common Agenda: Report of the Secretary-General* (2021) (A/75/982).

⁴⁸ United Nations, *Global Sustainable Development Report 2019: The Future is Now – Science for Achieving Sustainable Development* (New York, 2019).

⁴⁹ *Our Common Agenda*.

⁵⁰ *Ibid.*

⁵¹ United Nations Development Programme (UNDP), *Human Development Report 2021–2022: Uncertain Times, Unsettled Lives – Shaping our Future in a Transforming World* (New York, 2022), p. 49.

⁵² UNDP, *New Threats to Human Security in the Anthropocene: Demanding Greater Solidarity* (New York, 2022).

⁵³ UNDP, *Human Development Report 2021–2022*.

⁵⁴ United Nations, *Global Sustainable Development Report 2019*.

⁵⁵ Sendai Framework, para. 19 (d).

⁵⁶ *Ibid.*, para. 19 (e).

63. Recommended activities encompass all sectors of society and levels of government, connecting areas as diverse as food and energy systems, water security, poverty, climate change and conflict,⁵⁷ with the Sendai Framework seen as an opportunity to promote convergence, enhance inclusion and create equitable outcomes across societies.

1. Priority 1: Understanding disaster risk

64. **The production of high-quality data on disaster risk is a priority for disaster risk reduction practitioners. Member States must improve the standard of official risk data and broaden the application of risk assessments.**

65. **With advances in computing power, data availability and use of artificial intelligence, a priority for Member States is the circulation and interoperability of data and risk information across domains and data systems, within and among government agencies, and to and from non-State actors,⁵⁸ including through developing data-sharing platforms and related data-sharing agreements, and in respect of transboundary risks and cross-border comparability.**

66. **The ultimate goal of such measures is to ensure that risk data can be located, is accessible, interoperable, reusable and integrated into decision-making at all levels.**

67. **Focus is required on the distribution and analysis of data on disaster risk, with specific government entities to be identified and supported to act as clear focal points for disaster risk data collection and analysis at the national and subnational levels, and coordinating regionally and globally.**

68. **Investment is required in training and education for entities beyond those traditionally or commonly mandated to lead disaster risk reduction, to include all sectors and domains, including in capacity development for data collection and analysis at the local level.**

69. **To support enhanced interoperability, crowd-sourcing and complex analytics, Member States and stakeholders should invest in data-sharing infrastructure in the information technology sector, and ensure better digital field data collection, online reporting, historical records digitization, loss accounting and risk mapping at all administrative levels.**

70. **Member States must further implement and improve disaster loss databases and disaster risk mapping at the national level. This must involve integrating exposure and vulnerability data into existing platforms and decision-support mechanisms.**

71. **Crucial to ensuring and improving data quality, Member States and stakeholders must invest and support capacity development for systematic reporting against the Sendai Framework and related agreements and frameworks.**

72. **Member States to enhance official statistics on disaster risk, including through standardizing risk taxonomies, risk data generation, risk assessment methodologies (including nature loss) and developing tools to assess systems change and impact on disaster risk and resilience. Collaboration between statisticians⁵⁹ and disaster risk reduction practitioners will improve and sustain quality in disaster risk-related data collection and analysis. Engaging national**

⁵⁷ Submissions from: Austria, Bosnia and Herzegovina, Burundi, Canada, Liberia, Morocco, Zimbabwe; and non-State stakeholder submissions including the science and technology major group.

⁵⁸ Submissions from Norway, United States, Viet Nam.

⁵⁹ Including the Inter-Agency and Expert Group on Disaster-related Statistics.

statistical offices to integrate Sendai Framework monitor data into national statistics promotes reporting and use of disaster risk-related data by all sectors, thereby promoting risk-informed decision-making among “all State institutions”.

73. Member States and stakeholders must shift the focus of risk assessments from single hazards to better understanding vulnerability and exposure of communities.⁶⁰

74. Member States must enhance commitment and capacity to develop disaggregated datasets that capture the differential experiences of disaster risk and disaster impacts across multiple indicators.⁶¹ Such data are central to understanding risk creation, its prevention, mitigation and impacts in the context of intersecting vulnerabilities.

75. The development of mandates, capacity and subsequent fiscal and policy accountabilities at the local level will help to strengthen disaggregated data collection. Comprehensive and integrated monitoring and assessment of vulnerability is essential.

76. The production of data and risk assessment that promotes participation and leadership of women, girls⁶² and persons with disabilities⁶³ is a priority. Member States should integrate considerations of gender and disability into the mandates of agencies responsible for collecting and analysing disaster risk data and developing risk information.

77. Member States to ensure that disaster risk data and information are systematically used to inform decision-making.⁶⁴ Multi-hazard, vulnerability and exposure analyses must be used to inform high-level, multi-year socioeconomic planning,⁶⁵ as well as planning, budgeting and financing for disaster risk reduction.

78. Relevant government institutions to integrate data, information and perspectives from all sectors into risk databases and/or registers and risk assessments.⁶⁶ Adopting intersectoral approaches to data management allows the development of sophisticated and robust disaster risk information that integrates knowledge from across disciplines and domains and produces insights relevant to multiple sectors. Scientific and academic partnerships are important in this, as are the standardization and circulation of data among government agencies in different sectors.

79. Member States must ensure adequate risk understanding in local and municipal governance and maintain dialogue between national, regional and global risk governance entities. Improving disaster risk management entities' capacity is a must, requiring financial investment, development of expertise and use of technological innovations.

80. Member States must develop comprehensive risk assessments and make better use of emerging technologies and scenario-planning activities to specify

⁶⁰ Submissions from Bhutan, Burundi, Cambodia, Guatemala, Mauritius.

⁶¹ Submissions from Bhutan, Guatemala, New Zealand, Trinidad and Tobago, Viet Nam.

⁶² Submissions from New Zealand; and major group on science and technology.

⁶³ Submissions from Cambodia, Viet Nam.

⁶⁴ Submissions from Philippines, United States.

⁶⁵ Submissions from: Australia, Ethiopia, Thailand, Viet Nam; local authorities; and urban practitioners network.

⁶⁶ Submissions from Liberia, Morocco, Slovenia, Switzerland.

and assess complex risks. This includes developing flexible and adaptive risk governance mechanisms integrating actors from multiple sectors and scales.

2. Priority 2: Strengthening disaster risk governance to manage disaster risk

81. The **creation of governance arrangements that support integrated understanding and management of risks across all sectors, scales and domains, and are reflective of the broadened scope of hazards and risks, is key to accelerating Sendai Framework implementation.** This requires a shift in the locus of responsibility and accountability for preventing risk creation and reducing existing risk, **away from a single centralized agency, to coordinated, risk-informed decision-making and investment by “all State institutions” and “all-of-society”.**

82. Essentially, no longer treating disaster risk reduction as a sector, but as an outcome.

83. Governments need to **recommit to ensuring that multisectoral, multi-scalar and multi-stakeholder mechanisms and strategies for risk management are implemented at the national and subnational levels.**

84. Member States must ensure that such **mechanisms and approaches are recognizant of the systemic nature of risk (its creation, propagation and impacts when realized) and are supported by legislative and regulatory frameworks that reflect shared responsibility for risk-informed decision-making and investment.** Clear, defined governance arrangements, in which multiple authorities take responsibility for preventing and reducing disaster risk are essential.

85. Member States and non-State actors must remove disaster risk reduction from the exclusive realm of technical and accrued expertise into multidimensional, even territorial⁶⁷ governance. In renovating risk governance frameworks, Member States should explicitly target and integrate those responsible for sectors or domains primarily responsible for driving risk creation, and its prevention and reduction.

86. Member States and stakeholders should **pursue adaptive, vertically and horizontally integrated risk governance within socioeconomic and development planning that allows prospective risk reduction able to deal with uncertainties and surprises inherent in transforming social, technological and ecological systems and address vulnerabilities, exposures and contextual factors.** Adaptive governance relies on iterative learning, planning, policymaking, implementation and evaluation over time⁶⁸ and requires a process of systematic coordination at global to national scales, and national to subnational scales, and back up the chain.

87. Governments should map and assess the institutional and policy architecture for risk governance in relation to the risk landscape, assigning roles and responsibilities for addressing complex risks, with pre-agreed **standard operating procedures or guidelines for collaboration.**

88. **Governments must develop institutional structures to engage and mobilize the expertise of scientific, academic, private sector, civil society and local stakeholders, creating platforms and spaces for such stakeholders to be listened**

⁶⁷ Major group on science and technology, “Midterm review of the Sendai Framework” (forthcoming).

⁶⁸ United States Global Change Research Program, 2018; European Environment Agency, *Perspectives on Transitions to Sustainability*, report No. 25/2017 (Luxembourg, 2018). Available at www.eea.europa.eu/publications/perspectives-on-transitions-to-sustainability/file.

to and exert a meaningful influence over risk-informed decision-making processes.

89. Such structures and processes must be centred around the engagement and needs of marginalized populations, including women, youth and persons with disabilities, ensuring more systematic engagement with existing and emerging networks mobilizing disaster risk reduction stakeholders. National disaster risk reduction platforms are considered key to facilitating broad-based participation.

90. Member States must ensure that local-level risk governance structures are supported with the authority and resources required to meet these expectations. National-level authorities must build human resources, clear strategies and action plans and financial capacity at the local level where these do not already exist, ensuring coherence of disaster risk reduction planning with broader municipal and local planning processes.

91. Disaster risk reduction governance must include and apply local, traditional and Indigenous knowledge. To facilitate engagement of local, traditional and Indigenous knowledge holders, national disaster risk reduction protocols should be translated into local and Indigenous languages, existing risk knowledge should be shared in an appropriate manner and institutional spaces should be created for collaboration. Mechanisms to scale local insights and successes to the national and international level are crucial, including the creation of legislative and regulatory arrangements that include local, traditional and Indigenous knowledge perspectives.

92. Member States and regional (including intergovernmental) bodies must further develop structures of risk governance at the regional and global levels that interface with and support national and local-level risk reduction. This might include mapping existing strategies and action plans to the range of hazards and risks of the Sendai Framework.

93. Strategic foresight activities are gaining ground in multiple strategic planning and policy-making contexts at the national, regional and global levels, and should be considered by Member States. These explore different plausible futures to identify trends and emerging issues, visions and associated pathways to make better decisions and act in the present to shape a desirable future.⁶⁹ Strengthened strategic foresight enables long-term thinking, anticipatory action and more forward-looking policies and programmes.⁷⁰

3. Priority 3: Investing in disaster risk reduction for resilience

94. Several areas related to financing for disaster risk reduction and de-risking investments allow a reimagining of the fundamental relationship between the economy, the environment and society. Momentum for systemic reform of the financial system exists, of the governing rules, its structures and processes – most recently captured in the Sharm El Sheikh Implementation Plan⁷¹ and the Glasgow Financial Alliance for Net Zero.⁷² There is an opportunity to make supporting disaster risk reduction a core duty.

⁶⁹ Angela Wilkinson, *Strategic Foresight Primer* (European Commission, European Political Strategy Center, 2017).

⁷⁰ *Our Common Agenda*.

⁷¹ Available at <https://unfccc.int/documents/624441>.

⁷² www.gfanzero.com/.

95. Member States must address market short-termism and failures that impact efficient pricing and proper consideration of disaster risks, using fiscal and market-based measures and other incentives.

96. Member States should reassess the approach taken by credit rating agencies, which play an important role in capital markets and the ratings of which are used in many jurisdictions for regulatory purposes. For instance, they could request lengthening of the credit rating agency time horizon beyond the traditional three years and the creation of long-term ratings to better account for risks. Countries should also not be penalized by credit rating agencies for seeking debt assistance after disasters strike.⁷³ Instead, credit rating agencies could assist Member States in better understanding how disaster risk reduction investment may improve their ratings.

97. The financial sector needs to better account for and accurately price disaster risks, while also being more transparent on its exposure and management of disaster-related risks. To this end, Member States could integrate disaster risk reduction into the mandates and decisions of central banks and other financial and regulatory authorities to incentivize investments in risk reduction and resilience. This includes requesting commercial banks to disclose risks and embed disaster risk reduction assessments in credit decisions, lowering risk capital requirements for insurers investing in risk prevention and reduction and reviewing the reporting obligations of financial institutions to avoid threats to long-term financial stability and financial market integrity.

98. International collaboration can identify good practices and devise common approaches to amend financial regulations for resilience, by leveraging existing platforms, for example, the Network for Greening the Financial System,⁷⁴ the Coalition of Finance Ministers for Climate Action,⁷⁵ the Financial Stability Board⁷⁶ and accounting bodies. This entails updating their mandates and work programmes to explicitly consider a broader range of risks beyond climate and the environment.

99. Supporting the Bridgetown Initiative,⁷⁷ Member States should pursue reform of institutions such as IMF, the World Bank and other development financing institutions, to further integrate disaster risk reduction into their work and better use their balance sheets for this purpose, including through lending, debt support, sustainable development and adaptation financing streams and grants.

100. Member States need to engage with the private sector to enhance incentives and mechanisms to scale up private sector investment in disaster risk reduction. This could involve Member States collaborating with financial institutions to better integrate multi-hazard, long-term risk analysis in private investment decisions, or committing to develop financial structures dedicated to disaster risk reduction, such as blended finance, resilience bonds⁷⁸ or impact investing funds. For example, the international community could consider mechanisms, such as guarantees, to reduce the cost of borrowing for countries issuing debt for investment in disaster resilience.

⁷³ United Nations, Department of Economic and Social Affairs, policy brief No. 131, 21 March 2022.

⁷⁴ www.ngfs.net/en.

⁷⁵ www.financeministersforclimate.org/.

⁷⁶ www.fsb.org/.

⁷⁷ www.foreign.gov.bb/the-2022-barbados-agenda/.

⁷⁸ See, for example, www.ebrd.com/news/2019/worlds-first-dedicated-climate-resilience-bond-for-us-700m-is-issued-by-ebd-.html.

101. With an increased supply of investable instruments for disaster risk reduction, large institutional investors can use their capital to create more resilient societies. In particular, insurance companies could be incentivized to allocate capital to purpose-built disaster risk reduction investment vehicles aimed at market-rate returns. These have the co-benefits of preventing and mitigating the risks that their underwriting businesses insure.

102. Mobilizing private investment requires improving companies' disclosure related to disaster risks and revising accounting practices, building on progress made on environmental, social and governance and sustainability reporting, such as the Task Force on Climate-related Financial Disclosures,⁷⁹ the Taskforce on Nature-related Financial Disclosures⁸⁰ and the International Sustainability Standards Board.⁸¹ Understanding whether companies are managing their exposure to disaster risks, and whether they are positively contributing to prevention, mitigation and resilience through business practices, products and services is important. Member States must ensure that disaster risk reduction considerations are captured in emerging disclosure standards.

103. Residual risk will remain, and thus the need to expand uptake and access to insurance mechanisms. Member States should continue investment in insurance premium subsidies expanding access for vulnerable groups and exploring options for regulatory changes to enforce risk-pooling through mandatory disaster insurance.

104. The midterm review insists on greater public investment in disaster risk reduction in the second half of the Sendai Framework. Member States should ensure that all public investment and procurement incorporates disaster risk considerations and disaster risk management practices in decision-making processes.

105. Member States must commit to creating specific sectoral disaster risk reduction budget allocations through government institutions at all appropriate scales and create legal structures supporting risk-informed investment.⁸² Allocations must emphasize a shift away from investment in disaster response towards preventing and reducing risks and building resilience.

106. Governments must expand access to finance and prioritize the integration of disaster risk reduction with development and climate finance, potentially aligned with integrated national financing frameworks. Enhanced coordination between donors is required, with greater support to States lacking the capacity to access finance, manage funding applications and monitor projects.

107. To identify gaps in public spending, Member States should tag and track disaster risk reduction-related expenditures based on a taxonomy of qualifying end uses and improve understanding and communication of cost-benefit of investing in risk prevention and reduction, including accurately pricing risk in investment decisions.

108. Governments and stakeholders must create knowledge and regulatory environments that incentivize mobilization of public and private investment in resilient infrastructure. This requires quantification of the multisectoral benefits of such investment, drawing on the expertise and insights of diverse stakeholders, including private institutions.

⁷⁹ www.fsb-tcfd.org/.

⁸⁰ <https://tnfd.global/>.

⁸¹ www.ifrs.org/groups/international-sustainability-standards-board/.

⁸² Submissions from Belgium, Bosnia and Herzegovina, Kyrgyzstan, Thailand.

4. **Priority 4: Enhancing disaster preparedness for effective response and to build back better in recovery, rehabilitation and reconstruction**

109. **Disaster risk management and recovery should be deployed to bridge the divide between humanitarian, development and peace activities.** By embedding disaster risk reduction within humanitarian activities, **interventions push beyond the time frame of immediate emergency** to build long-term resilience. Funding mechanisms for disaster risk reduction in humanitarian settings should be reviewed and resource mobilization guidance developed for different contexts.

110. Member States must continue to mobilize resources, technology and capacity to implement and extend the reach of multi-hazard early warning systems, **developing guiding strategies and governance arrangements across all four phases of multi-hazard early warning systems implementation: risk knowledge, monitoring and forecasting, dissemination and communication and preparedness and response capability.**

111. Closer work with communities⁸³ and across national boundaries is required to **develop multi-hazard early warning systems that are integrated with both local, traditional and Indigenous knowledge and regional data on disaster risks integrating and investing in perspectives of women-led organizations, persons with disabilities and local, traditional and Indigenous knowledge holders.**

112. Member States should develop governance arrangements and methodologies that **enable: the integration of vulnerability data into multi-hazard early warning systems, including information on human health, ecosystem health and gender; data sharing; and the coherent use of existing data at the national level.** Linking multi-hazard early warning systems to social protection can support countries in addressing vulnerability to natural hazard and climate change impacts.

113. Member States and stakeholders must place principles of resilience at the heart of developing infrastructure systems,⁸⁴ **both in upgrading existing systems and integrating risk assessments and data into future projects.** This requires: assessment of the resilience, exposure and performance of existing critical infrastructure (e.g., through **stress-testing**); taking resilience as a core value in infrastructure planning and implementation (e.g., building on the principles for resilient infrastructure) and **investment in national and local-level capacity to operate and maintain infrastructure systems.**

114. Disaster recovery plans at the national and local levels must systematically include build back better principles and be accompanied by legal frameworks that require and guide the application of principles of equity and inclusion of vulnerable populations. **These frameworks should be operationalized by practical guidelines on resilient recovery, developed by diverse stakeholders at the national level that are informed by analysis of limitations in operationalizing build back better principles to date.**

⁸³ Submissions from Canada, Philippines, Trinidad and Tobago, Viet Nam.

⁸⁴ Submissions from Australia, Bhutan, Bosnia and Herzegovina, Morocco, New Zealand, Norway, Philippines, Tunisia, Viet Nam; and Partnership for Environment and Disaster Risk Reduction of the International Organization for Migration (IOM), United Nations Conference on Trade and Development (UNCTAD), UNDP, World Health Organization (WHO).

B. Conclusion

115. Through a concerted global effort, considerable progress has been made in the implementation of the Sendai Framework. Governments and stakeholders are better able to understand the risks with which they are confronted; with this understanding, they are better placed to bring about the transformations required to prevent, reduce or manage those risks. However, the socioeconomic and ecological impact of unattended risks that have manifested as disasters have often compromised efforts, and significantly offset progress. Progress, while evident, remains unequal across geographical scales and income levels.

116. As populations continue to grow, and consequences of climate breakdown manifest in socioecological and technological systems, societies are tasked with ever-increasing challenges. **The interconnections and interdependencies that exist between water, energy, food, health, trade and financial systems are both displaying vulnerabilities and generating risks that, when left unaddressed, can manifest as shocks characterized by local to global to local contagion, with impacts that can cascade and compound through time and space.**

117. Natural resources such as water, soil and energy are becoming scarcer, lands and marine ecosystems are being rapidly degraded, biodiversity is declining, and income and gender inequities are intensifying, with gaps more acute in the world's most vulnerable countries and regions. **Eight years after the adoption of the Sendai Framework, we are not where we need to be, not least as we slowly come to terms with the existential threat of climate change.**

118. Nonetheless, where there is knowledge, courage and solidarity in the face of shared threats, there is opportunity. As disaster risk is a social construct – a function of incomplete and unsustainable development processes – **transdisciplinary, prospective risk reduction provides the means to reduce vulnerabilities, exposure and inequality.** In seeking to define risk-informed, sustainable and regenerative pathways forward, the midterm review – together with other stock-taking and review exercises – is broaching some of the most challenging issues of our time. 2023 presents a critical inflection point, a unique opportunity for States and non-State stakeholders to course correct, to realize the expected outcome and goal of the Sendai Framework, and inculcate risk-informed decision-making, investment and behaviour to 2030 and beyond.

119. Such course corrections are deeply challenging: whether in respect of the transformations to global to local risk governance, accountability and responsibility; or to how risk is treated in the global financial system; or to **reconfiguring metrics of growth to be compatible with planetary boundaries and human well-being, as opposed to wealth concentration and risk accumulation; or shifting the temporal frame – from short-term to long-term thinking** in decision-making. They are, however, fundamental to realizing the outcomes and goals of any of the agendas, frameworks, agreements and conventions struck in 2015 or prior.