RISK AND RESILIENCE REPORT

Monitoring and Reporting under the Sendai Framework for Disaster Risk Reduction

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Contents

Executive Summary

This report discusses the national coordination of reporting under the Sendai Framework for Disaster Risk Reduction 2015 – 2030 (SFDRR). Specifically, it looks at six case studies: Austria, France, New Zealand, Germany, Sweden, and Switzerland. It finds that there is considerable institutional variety in how the reporting is organized between ministries. Some countries struggle with data availability for some targets – data that is readily available to others, and vice versa. There is no observable universal trend that more centralist countries outperform federalist countries, or that a specific ministerial location improves reporting. However, it is clear that reporting on aggregate disaster effects creates more extensive bureaucratic, ad-hoc work in countries with no national disaster loss database.

Aside from the challenges of data availability and aggregation, common issues that are critical include that data on infrastructure and insurance claims are not shared by the private sector, and that the comparability of data within and between countries is not always given due to different definitions and reporting criteria. The absence of indirect economic costs, and the issue of low probability but high impact risks, further limit the explanatory power of the Sendai Framework Monitor.

In conclusion, the report suggests that actors from civil society and academia might be able to fill in some gaps for countries that have made limited progress in reporting based on publicly available data. However, in order to create sustainably reporting structures, there is a need for political will to share information that go beyond local and departmental silos and truly reflect the multi-hazard approach championed in the SFDRR. Looking beyond the SFDRR, the report recommends to increase the international sharing of data and experiences in areas that can be more directly translated into risk reduction activities. This will help convince more stakeholders of the value of international collaboration in this area.

1   Introduction

The Sendai Framework for Disaster Risk Reduction 2015 – 2030 (SFDRR) is the main contemporary global governance instrument to manage disaster risk. The SFDRR is preceeded by several other initiatives, which since the 1990s have strived to develop and refine international disaster risk reduction (DRR) strategies that coordinate and monitor global disaster preparedness efforts. Within the UN, these efforts started in 1989 with the declaration of an International Decade for Natural Disaster Reduction (1990-1999). This lead to the establishment of the first global DRR strategy – the Yokohama Strategy for a Safer World (UN Department of Humanitarian Affairs, 1994), which defined broad common objectives but few concrete measures. It was followed by the International Strategy for Disaster Reduction of 1999, for which an inter-agency secretariat was created – the UN Office for Disaster Risk Reduction (the official acronym changed in 2019 from UNISDR to UNDRR). Next came the Hyogo Framework for Action 2005 – 2015 (UNDRR, 2005a), which focused on disaster resilience, preparedness and early warning, while also establishing a qualitative reporting system in which states assessed their own efforts.

The SFDRR was adopted by the Third United Nations (UN) World Conference on Disaster Risk Reduction in 2015 and sets out four priorities for action and seven global targets, six of which are to be achieved by 2030 (UNDRR, 2015).

Priorities for action:

1. Understanding disaster risk.
2. Strengthening disaster risk governance to manage disaster risk.
3. Investing in disaster risk reduction for resilience.
4. Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction.

The Sendai Framework recognizes that most disasters have a restricted geographic scope and that it is the primary responsibility of states to reduce the risk of possible disasters. As such, it does not prescribe concrete sectoral instruments, policies, guides or standards on how to manage disaster risk. However, the Sendai Framework does promote international coherence, by providing and promoting high-level goals, common language and reporting standards, as well as national focal points to simplify coordination. It further promotes coherence between sectors and agendas. Specifically, it encourages countries to follow a multi-hazard, all-of-society approach with a designated national platform that brings together all necessary stakeholders. It contains indicators that overlap with specific UN Sustainable Development Goals (SDGs), namely poverty eradication (Goal 1), sustainable cities and communities (Goal 11) and climate action (Goal 13).

Of the seven global targets, the first four aim to substantially decrease:

A. the number of disaster deaths,
B. affected people,
C. the direct economic loss,
D. and damage to critical infrastructure.

While the latter three aspire to substantially increase:

E. the number of DRR strategies,
F. support to developing countries,
G. and multi-hazard early warning systems.

These goals are not legally binding. However, UN member states are committed to the systematic and recurring measurement and reporting of their performance against 38 global indicators associated with the targets (see Section 4.2; United Nations General Assembly, 2016). In addition, there are custom targets and indicators defined by Member States to measure their progress against the four priorities of the Sendai Framework. These are based on the priorities of respective countries and are reflected in their national DRR reports.

This monitoring system aims to build up a global set of quantitative and comparable data, a process implemented through an online-tool. The UNDRR (2020d) is the responsible secretariat.

1.1   Aims and Scope of Report

In this report, we compare how six countries have implemented the Sendai Framework, with a specific focus on reporting. The aim of the report is to identify challenges, limitations, and best-practices with regards to the reporting and monitoring of disaster losses under the Sendai Framework in countries that have some degree of comparability with Switzerland.

1.2   Structure of the Document

The report first provides a brief overview of global DRR governance in general and the SFDRR in particular. This is followed by a detailed introduction to the seven global targets and the current state of Sendai Monitoring and Reporting. The report then presents the specific organization and challenges with regards to the reporting in the select countries. In the discussion section, the report highlights common themes, gaps and weaknesses of the current regime, before concluding with a suggestion on its evolution.

2 Background: The evolution of DRR governance

The establishment of a formal monitoring process as part of the Sendai Framework implementation has been an important, but contentious and difficult step in the global governance of disaster risk reduction. To understand the steps that led to the inclusion of this element in the Sendai Framework, it is necessary to understand the history of global DRR governance. This section outlines the genesis of the Sendai Framework, focusing in particular on the deficiencies of its predecessors, which brought about the need for a formal monitoring process.

2.1 The Yokohama Strategy (1994 -2004)

The historical roots of international disaster risk governance can be traced back to intergovernmental discussions in the mid-1990s. In 1994 governments came together as signatories to the Yokohama Strategy (UN Department of Humanitarian Affairs, 1994) with the desire to fundamentally address growing natural hazard vulnerability and increasing disaster losses. While response remained important under the strategy, effective disaster risk management and reduction were seen to be complemented by the integration of prevention, mitigation and preparedness measures. This opened up the field to a far broader range of stakeholders – from government to the private sector, international organizations, non-government bodies and civil society. In this new atmosphere, multi-stakeholder interaction in decision making (and even policy development) became fundamental.

Reporting and monitoring

As the first international governance arrangement for DRR, the Yokohama Strategy provided a baseline for what would be required to reduce disaster risk globally. While the Strategy did not explicitly set goals for monitoring and reporting progress, the completion review identified key aspects of DRR that would subsequently be included in both the Hyogo and Sendai Frameworks:

1. The necessity for national coordinating bodies
2. National risk assessments
3. Data availability and standardised data collection
4. International coordination of data management and collection.

At the time of review, a key criticism that hindered progress was the inadequate maintenance of national disaster data sets (UNDRR, 2005b, p. 9). Nevertheless, the period when the Strategy was active saw the establishment of well-known global data sets, like the EM-DAT International Disasters Database (since 1988), which proved helpful as a resource for disaster researchers, but mainly provides information on hazard effects, and not specifically on national developments.

2.2 Hyogo Framework for Action (2005-2015)

Ten years after the Yokohama Strategy was established, the devastating consequences of the Indian Ocean earthquake and subsequent tsunami in late 2004 renewed discussion about DRR activities internationally. Held less than one month after the disaster, the World Conference on Disaster Reduction adopted the Hyogo Framework for Action (HFA) 2005-2015 (United Nations, 2005), recognising that the implementation of the Yokohama Strategy was seen to be failing at national and local levels.

When the HFA was signed in 2005, there was strong momentum for waging an ambitious global strategy to support disaster risk reduction. The HFA was complementary to the expiring Yokohama Strategy from 1994, but was designed to go beyond it, especially concerning the above mentioned lack of national and local implementation. To this end, the HFA set out five interlinked, overarching priorities for action to guide DRR policy-making processes at all government levels for the upcoming ten years:

1. Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation
2. Identify, assess and monitor disaster risks and enhance early warning
3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels
4. Reduce the underlying risk factors
5. Strengthen disaster preparedness for effective response at all levels.

Overall, as various review reports and academic analyses have shown, the HFA yielded very mixed results. While in some fields, substantial progress was made after the signing of the HFA, progress in other dimensions of the HFA framework was very slow, especially with respect to assessing international progress against the Framework's priorities.

The role of local and scientific knowledge

By establishing new forums of international knowledge exchange and mutual learning, the HFA made an important contribution to the establishment of a global culture of safety and resilience. For instance, the website PreventionWeb, run by UNDRR (2020h), continues to function as a rich information resource and

networking platform for practitioners and students in the field of disaster management. Moreover, the HFA process triggered the identification of best practices from all parts of the world that allowed mutual and multicultural learning, such as the UNDRR's (2020c) *Making Cities Resilient* campaign.

However, despite such initiatives, the inclusion of local knowledge remained mostly the exception rather than the rule. Also, still largely missing were systematic scientific advisory mechanisms akin to those developed by the Intergovernmental Panel on Climate Change (IPCC), which has established a solid base of key terminologies, established facts and remaining uncertainties in the field of climate change adaptation. As a consequence, the domain of DRR often still suffers from conceptual confusion, rudimentary consensus on the causes and effects of disasters, and few shared methodologies to objectively measure the success of DRR policies. The various efforts to foster social resilience towards disaster were a strong case in point. These efforts were often hampered by unclear conceptions of social resilience, and the lack of applicable processes and standards to measure degrees of resilience and the effects of resilience-building measures.

DRR Monitoring

The HFA provided the conceptual basis for the establishment of mechanisms for the integrated identification and assessment of a broad range of risks. At the same time, the scope of the HFA was restricted to risks stemming from natural hazards, while human-made risks were not considered, mainly for political reasons (Maurice, 2013). Another important limitation of many newly-established early warning and risk assessment mechanisms was that often their findings were discussed by experts, but did not reach the policy-making level (UNDRR, 2013).

Also in the domain of monitoring, the HFA yielded mixed results. On the one hand, the HFA established several monitoring elements that aimed to illustrate how progress was being made at the national level against the Framework's goals. The Global Assessment Reports (GAR) (UNDRR, 2020b) and the HFA Monitor were two important monitoring tools that HFA signatory countries applied in reporting to the UNDRR, which administered the HFA. The GAR aimed to document general risk trends and patterns in order to direct international attention to problems of disaster risk and risk reduction. It was contributed to by stakeholders from government, the private sector, academia and civil society. By contrast, the HFA Monitor was a country-centric online tool designed to capture national progress towards the goals of the HFA. Both monitoring tools responded to the HFA's prioritization of monitoring disaster risk and management processes.

Unfortunately, these monitoring mechanisms did not provide a comprehensive picture of the actions taken on national and sub-national levels. In the lead up to the 2015 GAR, the Latin American Social Science Faculty and UNDRR examined the future of disaster risk reduction. A key point of discussion in this examination was the apparent inconsistency between nations' reported extent of implementation of the HFA's goals on the one hand, and the increasing economic and livelihood losses on the other (Lavell & Maskrey, 2014). One of the main findings was that due to the international nature of the HFA, many of the central concepts upon which the HFA was established (including resilience, vulnerability, preparation) were necessarily interpreted in the contexts of those nations that became signatories to the Framework. In consequence, the different experiences, attitudes, practices and policies resulted in significant conceptual confusion, which ultimately compromised the monitoring processes associated with the Framework's application (Lavell & Maskrey, 2014). At the same time, the data sources for DRR monitoring within countries continued to be fragmented leading to coordination costs and duplications in the data collection and reporting.

DRR Politics

The HFA made progress in promoting DRR and, in particular, in shifting disaster management theory and practice from emergency response planning to more systematic approaches. It cemented the global norms of disaster prevention and preparedness. However, it was often criticized for its lack of binding policy implications (Wahlström, 2013; Lavell & Maskrey, 2014). Critics suggest that this enabled policy-makers to pay lip service to the HFA without having to fear real commitments.

While DRR became a powerful concept in the domain of disaster and emergency management under the HFA, in other closely related fields it remained a side issue. For example, in the realms of global development politics, the link between economic growth and vulnerability to disasters gained little attention as a result of HFA. Also, the high-profile agenda of global environmental politics developed as a side-show to the Hyogo process, in particular with regard to the effects of climate change. This lead to much policy duplication nationally and internationally. For example, aligning the Cancun Adaptation Framework agreed upon at the 2010 United Nations Climate Change Conference (COP 16) and the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts agreed upon at the 2013 conference (COP 19) (United Nations Framework Convention on Climate Change, 2010; 2013) with the HFA could have facilitated interdisciplinary knowledge and collaboration.

Reduction of risk factors

The extent to which the underlying risk factors were addressed was broadly considered one of the least succesful aspects of the HFA. In particular, many countries made little progress in reducing social and economic vulnerabilities to disasters (Roth et al. 2017). A review report of the HFA concluded that "policy frameworks are important, but they do not automatically translate into effective DRR. Principles must be applied, and this application requires organization and resources" (UNDRR, 2013, p. 7). The lack of resources, and particularly a lack of political will to make the reduction of vulnerabilities a top political priority, hampered the implementation of DRR measures in many places. Too often, investments remained restricted to single flagship projects, while many broader, underlying problems remained largely unaddressed.

Interagency coordination and stakeholder integration

As mentioned above, the HFA fostered an increased focus on preparedness in disaster management. A central element that contributed to the framing of the HFA was the recognition, based on reviews of the preceding Yokohama Strategy (UNDRR, 2005b), that actively involving all people in disaster risk reduction at the local level was fundamental to success. One of the priorities for action between 2005 and 2015 was subsequently ensuring that communities and local authorities be empowered to manage and reduce disaster risk. This necessity was formalized in the third priority action of the HFA, which was to "use knowledge, innovation and education to build a culture of safety and resilience at all levels" (UNDRR, 2005a, p. 6).

In recent years, governments in many countries have stepped up their investments in resources, training and education for enhanced disaster preparedness. Under the heading of 'resilience building', the integration of

local disaster prevention and preparedness into overarching strategies received increased attention (Manyena, 2006). It is now conventional wisdom that effective disaster risk reduction requires strong community engagement (UNDRR, 2013). Yet, the local reach of resilience frameworks, primarily designed on the national level, remained limited under the HFA (Maurice, 2013). Efforts were implemented mostly in a top-down fashion, reflecting the continued existence of hierarchical structures of national disaster management systems. As a consequence, social stakeholders were rarely integrated effectively into preparedness-building measures. For example, representatives of private businesses and civil society actors were only lightly involved in decision-making processes at the national level.

2.3 Sendai Framework for Disaster Risk Reduction (2015-2030)

In March 2015, the international community gathered in Sendai, Japan, for the Third World Conference on Disaster Risk Reduction. The purpose was to negotiate a mutually-agreed global framework to guide disaster risk reduction until 2030. On one hand, conference participants were galvanized to reach this goal by the recent 2011 Great East Japan earthquake and the resulting tsunami and Fukushima nuclear meltdown. On the other hand, the timing of the conference provided opportunity to leverage the new global framework for DRR against the synchronization of post-2015 global agendas in development cooperation, environmental sustainability, climate change adaptation, and humanitarian aid. After the mixed experiences of the international DRR community under the HFA, many experts and policymakers held high expectations that the SFDRR would bring a new level of international commitment to DRR, including concrete goals and actions.

Table 1. A selection of observed achievements and challenges of international DRR Governance. Own classification.

Field of Action	Achievements	Observed Challenges
Establishing DRR as a political priority	• normative pressure • new institutions and legislations	• connection with global governance initiatives for development and environmental protection • binding implementation
Risk identification, assessment and monitoring	• multi-hazard • early warning	• social and economic vulnerabilities within societies
Culture of safety and resilience	• growing conceptual consensus (resilience paradigm) • international knowledge management (e.g. UNDRR)	• integration of local knowledge • systematic scientific advisory mechanisms
Reduction of risk factors	• little achieved	• appropriate resourcing • local reach • social and economic vulnerabilities within societies
Disaster preparedness	• focus on preparedness and capacity-development	• inclusion of all relevant stakeholders

Mixed Results

Yet, the conference in Sendai yielded mixed results. On the positive side, the SFDRR outlined several global targets to guide DRR until 2030. It reinforced the key importance of preparedness and preventive actions for reducing vulnerability and for building disaster resilience. On the negative side, overly politicized negotiations curtailed the inclusion of ambitious and concrete indicators that could track the new framework's progress toward its goals (see, e.g., Kelman 2015). It prevented the inclusion of institutional mechanisms to monitor the implementation of the agreement. It was exactly these aspects that were seen to be lacking post-HFA and that initial drafts of the new framework sought to include.

In three particular respects, the SFDRR represents a significant improvement compared to its predecessor. Firstly, compared to the HFA, a better understanding of resilience thinking strengthens its application in DRR strategy-making. The SFDRR highlights that limitations on global cooperation in international disaster relief are unacceptable. It places an even stronger focus on measures of prevention and preparedness. Secondly, the SFDRR more comprehensively considers issues like public health, the role of women in DRR, and the need for local-level actions, all known to strongly influence vulnerability and resilience levels. Thirdly, the SFDRR specifically sought to overcome the deficiencies of the HFA with respect to monitoring and reporting, establishing a set of substantive commitments to be reached by 2030:

1. Reducing the number of people killed or otherwise affected by disasters
2. Lowering damage to critical infrastructures
3. Scaling up international partnerships that support developing countries' DRR efforts.

2.4   Gaps

The global governance of DRR is mired by practical limitations predominantly due to insufficient political will to commit to legally binding instruments. This is particularly pronounced in DRR, as disaster management in many countries is the primary responsibility of local or regional rather than national authorities. Notwithstanding its lack of binding character, it is worth examining some of the issues not covered by the current regime.

Global catastrophic and existential risks

For decades, the increasing global interdependence (supply chains, travel, informationsphere, etc.) has expanded risk boundaries without a corresponding growth in the political boundaries to govern these risks. There is a systematic underinvestment in the reduction of risks that have a transnational and global scope (Bostrom, 2013; Ord, 2020), as most producers of anthropogenic risk sources, only bear a fraction of its costs. Vice versa, the prevention and mitigation of transnational and global risks is a regional or global public good that remains neglected, as there is no cost burden-sharing mechanism despite the benefits being widely shared. For example, Dobson et al. (2020) estimate a global program for the effective prevention of zoonoses with pandemic potential by monitoring wildlife, banning wild meat trade, reducing deforestation, and spillovers via livestock, would cost USD 22 to 31 billion annually, whereas COVID-19 is projected to entail costs of USD 8 to 15 trillion. As such, 500 years of pandemic prevention would cost about as much as the impact of one large pandemic, whilst also creating substantial benefits through reduced carbon emissions.

The current global governance of DRR focuses on the prioritization and build-up of national and local disaster preparedness and resilience. However, in order to address the mismatch between political and risk boundaries for certain hazards, it would be important to also commit towards building stronger transnational and global risk analyses, monitoring, early warning, and prevention efforts.

Shared capacities and disaster data

In supporting countries to respond to and learn from disasters, the global governance of DRR could go beyond its current focus of building up national disaster management structures and monitoring disaster outcomes. The first objective could be supported by shared pools of disaster response capacities, as already implemented in Europe with the EU Civil Protection Mechanism (Directorate-General for European Civil Protection and Humanitarian Aid Operations, 2020). The second objective requires that countries more actively share their policies and learn from each others disaster management in order to accelerate improvements in more countries then the immediately affecteds ones. A current example for such an attempt is South Korea, which has shared how the national authorities are using ICT to fight COVID-19 (Government of the Republic of Korea, 2020). Lastly, working towards shared global datasets about hazard-dynamics, could help to enable a better human and algorithmitic understanding of them (Kohler & Scharte, 2020).

3   Methodology

This report aims to provide an overview of possible approaches to organize the implementation of national disaster risk reduction commitments. As identified weak points in the preceeding Yokohama Strategy and Hyogo Framework, the effective monitoring and reporting activities of Sendai signatory countries are important, but also present many challenges. Based on country comparisons, this report identifies central challenges and potential solutions in coordinating national contributions to international DRR mechanisms.

A stepwise process was used to collect data to complete this project:

1. Identify the location of Sendai Reporting Focal Points
2. Country selection
3. Development and distribution of country-specify surveys
4. Comparative analysis of country profiles.

These steps are outlined in greater detail in the following sections.

Focal Points

Identification of the national focal points was undertaken by desktop research and discussion with the UN Office for Disaster Risk Reduction. This element of the work aimed to identify the departmental location of Sendai Focal Points. Once identified, these locations were documented and formed the basis of the survey's distribution.

Country Selection

Sendai reporting is managed by different departments. Given the organization of national governments reflects national governance priorities, the location of individuals and groups responsible for Sendai reporting is quite diverse. The location of Focal Points also has implications for access to disaster-relevant data, styles of reporting, data validation, ability to report on indicators, inter-departmental data flows, and other such challenges. The location of Focal Points is detailed in Section 4.1.

The case studies in this report are all democratic market economies from the OECD. They were chosen to accounts for some of the diversity arising from the departmental location of Focal Points and contains variety with regards to political centralization. While not representative of all Sendai signatories, the selected countries provide the basis for a useful overview of monitoring and reporting activities and challenges.

Survey development and distribution

Following initial contact, country-specific survey questions were forwarded to country Focal Points. The survey was based on a standard set of questions developed by the project team, which were altered as necessary with respect to national specificities. The standard set of questions is provided in Appendix 1.

Following the return of a completed survey, contacted Focal Points were also interviewed by telephone in order to clarify inconsistencies or open questions when necessary.

Comparison

National information is presented in a descriptive manner in Section 5. Information is provided on: the ministerial and departmental location of the focal point, the existence of a national DRR coordinating platform, a national DRR strategy, a national loss database and alternative data sources, overall data readiness for inclusion in the Sendai monitor, the person responsible for coordination, contributing organizations, data validators and observers. Lastly, an overview of country-specific implementation challenges is provided, along with a summary of each country's next steps towards fulfilling their Sendai reporting obligations. General challenges and limitations of the Sendai Monitoring mentioned by the Sendai Focal Points are not listed in the country profiles but have been included in the subsequent discussion section instead.

4 Sendai Framework Implementation
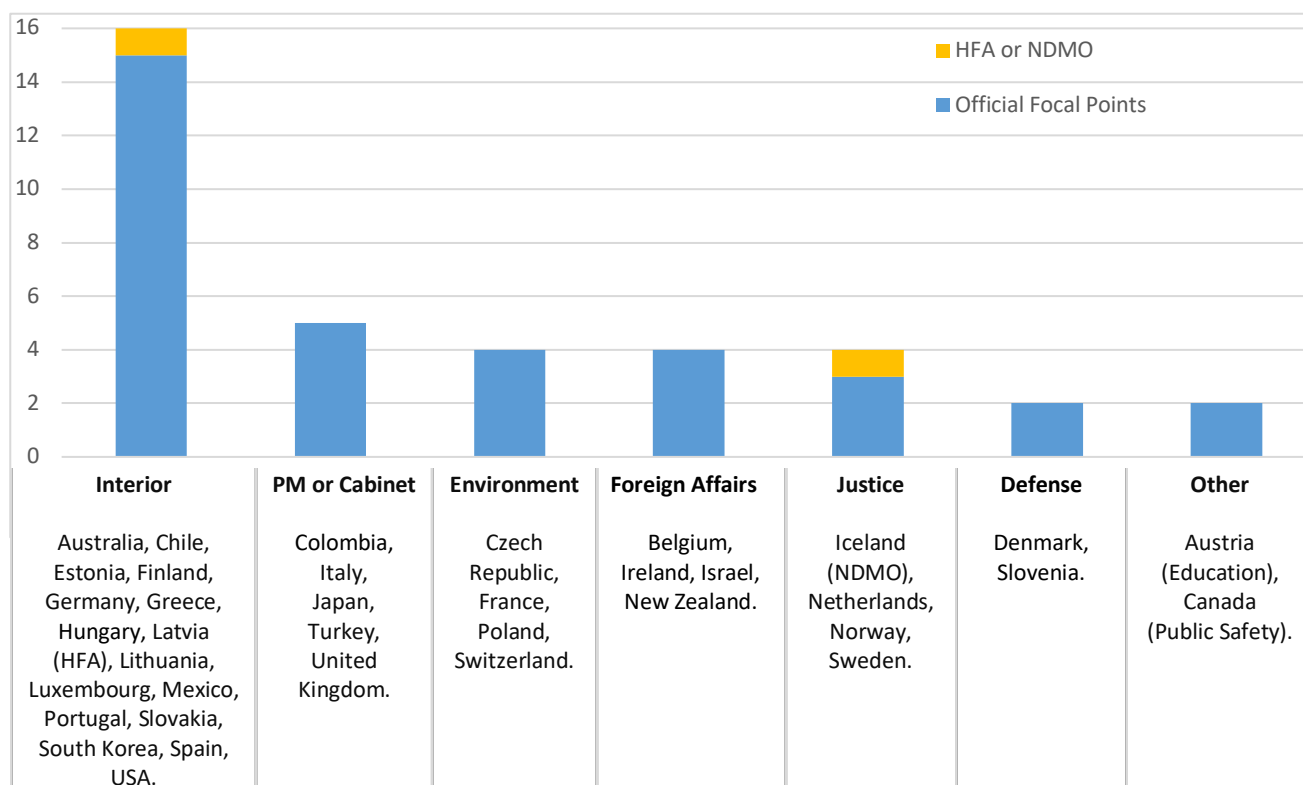
4.1 National Focal Points

The Sendai Focal Points are the national entry points responsible for leading the coordinated implementation of the Framework and reporting on its progress. They also engage in international fora and inform colleagues within the government about agreed international approaches. As of January 2020, a total of 131 countries had a registered Sendai Focal Point on the UNDRR website. Within the OECD, 35 countries have formally designated Sendai Focal Points. For the remaining two countries, we instead looked at the location of the Focal Point for the HFA or the National Disaster Management Organization (NDMO).

As shown in Figure 1, the Ministry of the Interior is the most common ministerial choice for the location of the Sendai Focal Point amongst OECD countries. However, there are also groups of countries that have assigned it to the Cabinet Office, the Ministry of Environment, the Ministry of Foreign Affairs, the Ministry of Justice or the Ministry of Defense. The more specific breakdown for individual countries is shown in Figure 1.

A further interesting question is whether the implementation and reporting is led by the NDMO or by some other part of the government. Slightly more than

two thirds of the 35 OECD countries with an officially designated Sendai Focal Point allocated it to the NDMO. Looking more specifically at the eleven countries that chose their Focal Point outside of the main civil protection organization, four gave it to the Ministry of Environment, four to Foreign Affairs, one to Education (Austria), one to the Cabinet Office (Japan) and one to the Department of the Interior (USA). In other words, those countries that chose the Interior, Cabinet Office, Justice or Defense Department as Sendai Focal Points, almost all also have their NDMO located there. The two groups that split the implementation and reporting duties from the operational civil protection organization appear to perceive Sendai through an environmental or a development aid angle.

Of course, there are limitations to merely looking at ministerial locations of the Sendai Focal points without taking into account the more specific national government and reporting organization. Specifically, national governments have different numbers of ministries and different thematic clusterings within these ministries. Furthermore, the mere location of the Sendai Focal Point within a ministry does not in any way preclude institutional exchanges across ministries. However, the institutional variety is still interesting, insofar as this clearly shows that the multi-hazards nature of the SFDRR makes it a cross-cutting issue that can fall into the responsibility of multiple ministries, largely depending on the national context.

Figure 1: Ministerial Distribution of Sendai Focal Points in OECD Countries. Data sources: UNDRR (2020a) and governmental websites.

4.2 Sendai Framework Indicators

As per Article 50 of the SFDRR (UNDRR, 2015, p. 27), an open-ended intergovernmental expert working group developed the following 38 global indicators, which are used to measure progress on the seven global target (United Nations General Assembly, 2016, pp. 5-9).

Target A

Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared with 2005-2015.

- A-1 Number of deaths and missing persons attributed to disasters, per 100,000 population. (A2-A3)
- A-2 Number of deaths attributed to disasters, per 100,000 population.
- A-3 Number of missing persons attributed to disasters, per 100,000 population.

Target B

Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared with 2005-2015.

- B-1 Number of directly affected people attributed to disasters, per 100,000 population. (B2-B5)
- B-2 Number of injured or ill people attributed to disasters, per 100,000 population.
- B-3 Number of people whose damaged dwellings were attributed to disasters.
- B-4 Number of people whose destroyed dwellings were attributed to disasters.
- B-5 Number of people whose livelihoods were disrupted or destroyed, attributed to disasters.

Target C

Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030.

- C-1 Direct economic loss attributed to disasters in relation to global gross domestic product. (C2-C6)
- C-2 Direct agricultural loss attributed to disasters.
- C-3 Direct economic loss to all other damaged or destroyed productive assets attributed to disasters.
- C-4 Direct economic loss in the housing sector attributed to disasters.
- C-5 Direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters.
- C-6 Direct economic loss to cultural heritage damaged or destroyed attributed to disasters.

Target D

Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.

- D-1 Damage to critical infrastructure attributed to disasters. (D2-D4)
- D-2 Number of destroyed or damaged health facilities attributed to disasters.
- D-3 Number of destroyed or damaged educational facilities attributed to disasters.
- D-4 Number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters.
- D-5 Number of disruptions to basic services attributed to disasters. (D6 - D8)
- D-6 Number of disruptions to educational services attributed to disasters.
- D-7 Number of disruptions to health services attributed to disasters.
- D-8 Number of disruptions to other basic services attributed to disasters.

Target E

Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020.

- E-1 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030.
- E-2 Percentage of local governments that adopt and implement local disaster risk reduction strategies in line with national strategies.

Target F

Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030.

- F-1 Total official international support, (official development assistance (ODA) plus other official flows), for national disaster risk reduction action
- F-2 Total official international support (ODA plus other official flows) for national disaster risk reduction actions provided by multilateral agencies.
- F-3 Total official international support (ODA plus other official flows) for national disaster risk reduction actions provided bilaterally.
- F-4 Total official international support (ODA plus other official flows) for the transfer and exchange of disaster risk reduction-related technology.
- F-5 Number of international, regional and bilateral programs and initiatives for the transfer and

exchange of science, technology and innovation in disaster risk reduction for developing countries.

- F-6 Total official international support (ODA plus other official flows) for disaster risk reduction capacity-building.
- F-7 Number of international, regional and bilateral programs and initiatives for disaster risk reduction-related capacity-building in developing countries.
- F-8 Number of developing countries supported by international, regional and bilateral initiatives to strengthen their disaster risk reduction-related statistical capacity.

Target G

Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.

- G-1 Number of countries that have multi-hazard G-2 early warning systems. (G2 - G5)
- G-3 Number of countries that have multi-hazard monitoring and forecasting systems.
- G-4 Number of people per 100,000 that are covered by early warning information through local governments or through national dissemination mechanisms.
- G-5 Percentage of local governments having a plan to act on early warnings.
- G-6 Number of countries that have accessible, understandable, usable and relevant disaster risk information and assessment available to the people at the national and local levels.

As these indicators still contain a degree of ambiguity, the UNDRR (2017b) has offered further technical guidance on reporting, such as the recommended use of consistent cut-off periods for reporting deaths and illnesses from disasters.

4.3   Sendai Framework Monitoring Tool

After an initial phase-in, and the collection of baseline data for the period of 2005 to 2015 for Targets A and B, data on all Sendai Framework indicators are supposed to be reported once per year. Data for the previous year for Targets A to E are due on 31 March, whereas Targets F and G are to be reported by 1 October.

There are four roles in the Sendai Monitoring online-tool:

- The *coordinator* is usually also the Sendai Focal Point and is effectively the country administrator for the reporting. This role can only be created by UNDRR, all other roles are assigned by the coordinator. The coordinator is also responsible for adding the country's basic demographic and socioeconomic data, such as population or GDP.

- *Contributors* are responsible for reporting the data on assigned indicators. This could, for example, be a relevant government ministry.
- *Validators* check that the data of assigned indicators has been correctly entered and is not in conflict with the government's dataset. However, they do not have to review empirical evidence and verify the reported data.
- *Observers* can see activity and data that is not public because it has not been validated yet. For example, the Red Cross could be an observer to be able to cross-check data, or the Prime Minister's Office to observe reporting progress.

These roles are not mutually exclusive; any single user can have any combination of these roles. Furthermore, indicators that overlap with SDG reporting are automatically forwarded. Once validated, the data becomes publicly available under the analytics section of the Sendai Framework Monitoring online-tool. Based on this data, the UNDRR creates a biennial Sendai Framework Progress Report that is presented at the Global Platform for Disaster Risk Reduction.

As of 1 October 2019, the UNDRR reported that 152 countries had access to the Sendai Framework Monitoring Tool and on average assigned 1.3 coordinators, 3.4 contributors, 1.5 validators, and 1.2 observers. However, the averages are misleading as some countries aggregate all needed data internally and then enter it, whereas others give almost all data owners direct access to the Sendai Monitoring tool. Hence, whereas New Zealand only had one coordinator, one contributor, and one validator, Germany had one coordinator, seventeen contributors, and one validator. Chile had the overall highest number of assigned roles with no less than two coordinators, 41 contributors, 31 validators, and 58 observers.

4.4   Data Readiness

Initially, no country had all the required data available for the Sendai reporting at the national level. In order to gain an overview over the state of affairs, the open-ended intergovernmental expert working group on indicators and terminology asked countries to report on their data readiness in 2017 and 87 countries followed suit (UNDRR, 2017a).

The survey showed that data collection is typically more established for number of people affected or killed and physical destruction of buildings, and less common for economic losses, disruptions to basic services and damage to specific types of assets, such as cultural heritage. Specifically, Targets A and B have the highest availability with indicators ranging from 66 per cent (B.5) to 83 per cent (A.2), and slightly more than half of all countries being able to compare it to baselines from the

2005 to 2015 period. Data availability for the other targets is more varied and limited. The lowest availability is observed for the indicators on international support (F).

As of 2020, UNDRR states that 104 countries have started reporting on at least one target for the year 2018, with 48 validating at least one target. However, "the extent of the data in the SFM is not yet comprehensive enough to enable derivation of meaningful national, regional or global trends" (UNDRR, 2020f, p. 27). Indeed, UNDRR itself still relied on EM-DAT data to present trends on the human cost of disasters for the International Day for Disaster Risk Reduction on 13 October 2020 (Centre for Research on the Epidemiology of Disasters & UNDRR). The UNDRR (2020f) implementation snapshot also notes that especially those countries that do not already have a well-managed and maintained national disaster loss database as well as systematised methods of data collection, are at a disadvantage in reporting as it requires a lot of effort to gather the required data. Hence, UNDRR has adapted its freely available DesInventar disaster loss database software, to enable countries to record the required disaster loss and damage data in line with Targets A to D.
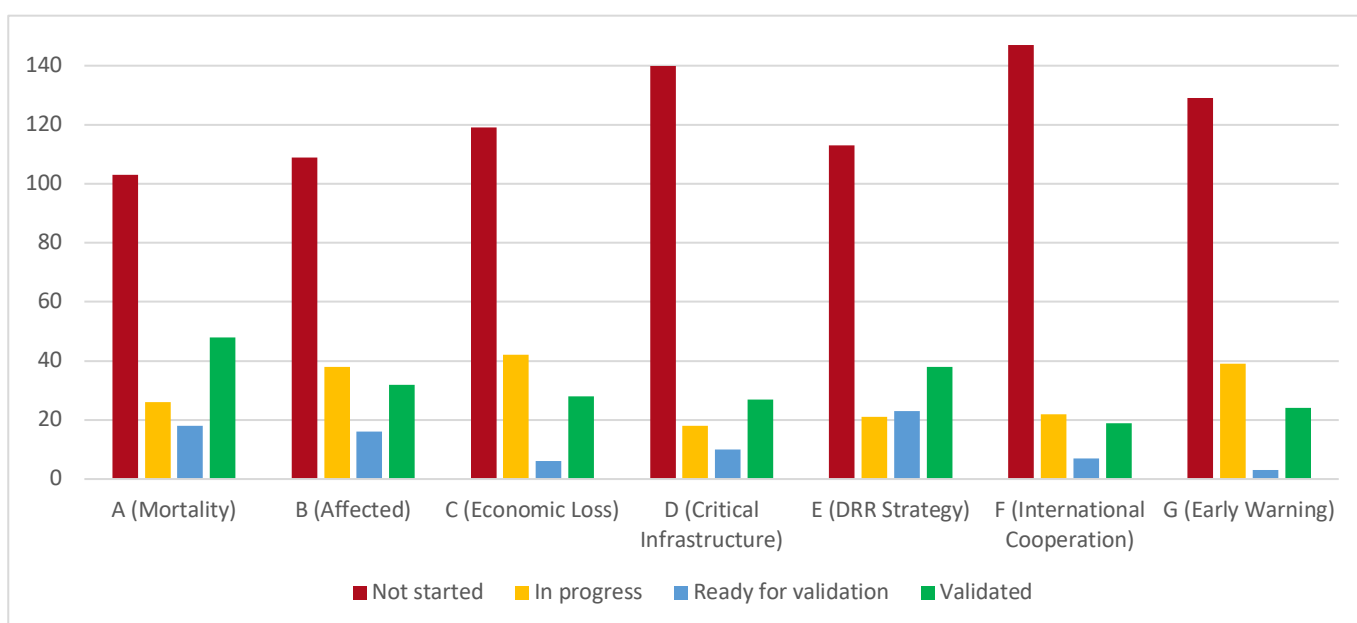

Figure 2. Number of countries that are at a specific stage of progress in reporting SFDRR indicators for the year 2018 as of October 2020. (UNDRR, 2020e)

5 Country Profiles

5.1 Austria

Austria is a federal republic and the avoidance and mitigation of impending or actual catastrophes is predominantly a matter of the federal provinces. However, since 2003, the Federal Ministry of the Interior has been responsible for coordinating national crisis management and disaster management as well as international disaster relief affairs. Within the ministry, it is Department II/13, which is responsible for National Crisis and Disaster Management (SKKM).

NDMO

SKKM, Ministry of the Interior

Focal Point

Central Institute for Meteorology and Geodynamics (ZAMG), Ministry for Education, Science & Research

National Platform

There is a national platform, established in the form of an administrative agreement between several ministries and led by the ZAMG. It includes the Federal Chancellery, the Foreign Ministry, the Ministry of Sustainability and Tourism, the Ministry of Transport, Innovation and Technology, the Ministry of Health, the Ministry for the Interior, the Ministry of Defense, the Ministry for Education, Science and Research as well as representatives of the federal provinces, the Association of Austrian cities, towns and local authorities, the insurance association and the Red Cross. The platform holds three to four meetings per year.

National Strategy

The work on the Austrian Strategy for Disaster Risk Reduction has begun and a draft of a structure is available. A working group will be set up to further develop the strategy within the national platform.

National Disaster Loss Database

No, but several decentralized databases.

Possible data sources

- Joanneum Research LIFE – Centre for Climate, Energy and Society
- Climate Change Centre Austria
- ZAMG VIOLA database

Data Readiness

(A1), A2, A3, (B1), B2, B3, B4, B5, (C1), C2, C3, C4, C5, C6, (D1), D2, D3, D4, (D5), D6, D7, D8, E1, E2, F1, F2, F3, F4, F5, F6, F7, F8, (G1), G2, G3, G4, G5, G6.

Blue font color means that the data for that indicator is available as per data readiness review (UNDRR, 2017a) but not validated on the Sendai Monitor. Yellow font color means that reporting is in progress as per data readiness review. The indicators in brackets are compositions of other indicators, which do not have to be reported on directly.

Coordinator

ZAMG (director Dr. Michael Staudinger), Ministry for Education, Science & Research

Contributors

- ZAMG, Ministry for Education, Science & Research
- Statistik Austria
- Additional contributors in planning

Validator

ZAMG, Ministry for Education, Science & Research

Observers

- Torrent and Avalanche Control, Federal Ministry for Sustainability and Tourism
- Additional observers in planning

Implementation challenges and next steps as reported by the country

Austria faced numerous challenges in implementing the Sendai Framework. Some of the most important ones were identifying all national data sources and aggregating them, as well as agreeing on common definitions for data collection. For example, this included discussions on how to set common thresholds across provinces for recording buildings as "damaged" or "destroyed". In 2018, Carinthia set the minimum threshold for damages to be registered at 440 EUR, Tyrol at 1,000 EUR, and Burgenland at 2,000 EUR. In Austria, there is currently not a comprehensive National Disaster Loss Database, but for historical and administrative reasons there are several decentralized databases of this kind. ZAMG operates one of them, called VIOLA, on which the Sendai analyses are mainly based at the moment. Over the next two years, the project CESAR will attempt to define and operationalize data flows and processes in two provinces for storm damage, flooding and gravitational mass movements in order to establish a homogenous national database in accordance with international standards. In future, Austria intends to cooperate closely with the Joint Research Centre of the European Commission and international organizations to utilize as much publicly available data as possible. A closer cooperation between the national data providers should also help to optimize data flows and processes.

5.2   France

France is a unitary state whose civil protection structure is organized on three levels: national, zonal and departmental. At the national level, the Ministry of the Interior is responsible for disaster preparedness and coordinating emergency responses. Its General Directorate for Civil Defense and Crisis Management (DGSCGC) is tasked to protect people and property against disasters of all kinds, including environmental threats and threats of aggression by emerging dangers. Its National Operational Centre (CODIG) ensures round-the-clock monitoring of large-scale rescue operations in France and abroad.

NDMO

DGSCGC, Ministry of the Interior

Focal Point

Ministry for the Ecological Transition

National Platform

There is a national platform led by the Ministry for the Ecological Transition (similar to the Ministry of Environment in other countries).

National Strategy

No.

National Disaster Loss Database

Yes, the National Observatory for Natural Hazards (ONRN, Ministry for the Ecological Transition) collects data on losses due to natural hazards, largely bases on data provided by big insurance companies. For industrial accidents, the Bureau for Analysis of Industrial Risks and Pollutions (Ministry for the Ecological Transition) maintains a database called ARIA for accidents and fatalities.

Data Readiness

(A1), A2, A3, (B1), B2, B3, B4, B5, (C1), C2, C3, C4, C5, C6, (D1), D2, D3, D4, (D5), D6, D7, D8, E1, E2, F1, F2, F3, F4, F5, F6, F7, F8, (G1), G2, G3, G4, G5, G6.

Red font color indicates uncertainty as to whether or when data for that indicator will be available based on the data readiness review. It does not necessarily mean reporting efforts have not yet started. Note that the colors always reflect the lower end of possibilities, as progress since the review is not publicly verifiable without validation.

Coordinator

Ministry for the Ecological Transition

Contributors

- Ministry for the Ecological Transition
- Ministry of the Interior
- Ministry of Europe and Foreign Affairs

Validator

Ministry for the Ecological Transition

Observer

Ministry of the Interior

Implementation challenges and next steps as reported by the country

In France, many of the data points needed for the indicators of the Sendai framework were already available, but scattered among numerous agencies and stakeholders, some of which are from the private sector. In addition to organizing lacking data, the main challenge is to bundle this information efficiently and reliably in one place for reporting. The metadata for the reporting are derived from figures provided by the National Institute of Statistics and Economic Studies (INEES). Disaster mortality figures (Target A) are based on data from the Ministry for the Ecological Transition / Directorate General for Risk Prevention. The figures about disaster affected people (Target B) are based on data provided by the French Insurance Federation (FFA). The figures for economic losses (Target C) are based on data from FFA as well as the Caisse Centrale de Réassurance. Figures for international cooperation (Target F) are provided by the Ministry of Europe and Foreign Affairs and the French Development Agency. Stakeholders do not enter the data into the online tool themselves, but send it to the focal point at the Ministry for the Ecological Transition, which then enters them into the Sendai Monitoring tool.

5.3   Germany

Germany is a federal republic. Following Article 30 of the Basic Law (constitution), the protection of the population is the primary responsibility of the 16 constituent States. Nevertheless, following the 11 September 2001 attacks in the United States and the European floods of 2002, the Federal Ministry of the Interior and the States agreed on a joint and coordinated approach for the crisis management of nationally significant disasters. For this purpose the Federal Office of Civil Protection and Disaster Assistance (BBK) was established in 2004. Its competences and tasks at federal level are laid down in the 2009 German Civil Protection and Disaster Assistance Act.

NDMO & Focal Point

The Federal Office of Civil Protection and Disaster Assistance (BBK) at the Federal Ministry of the Interior is the NDMO and contains the National Contact Point for the Sendai Framework (NKS).

National Platform

The temporary inter-ministerial working group on the Sendai process (IMAG Sendai) consists of the Federal Foreign Office (AA), the Federal Ministry for Economic Cooperation and Development (BMZ), the Federal Ministry of the Interior, Building and Community (BMI), the Federal Office of Civil Protection and Disaster Assistance (BBK), the Ministry of Environment, Nature Conservation and Nuclear Safety (BMU), the German Society for International Cooperation (GIZ), aand the German Red Cross (GRC).

National Strategy

IMAG Sendai is working on a national resilience strategy, which is expected to be finalized by 2021 or 2022, after a consultation process with departments and the states.

National Disaster Loss Database

No, but various ideas are being explored.

Possible data sources

Daily situation reports of the Joint Reporting and Situation Centre (GMLZ) of the Federal Government and the States; annual report of the National Meteorological Service (DWD); annual report of the German Farmer's Association; National Forest Inventory; annual report of Inland Fishing & Aquaculture; Natural Hazards report of the German Insurance Association (GDZ); Federal Office for Information Security (BSI) reports, and the Ministry of Education.

Data Readiness

(A1), A2, A3, (B1), B2, B3, B4, B5, (C1), C2, C3, C4, C5, C6, (D1), D2, D3, D4, (D5), D6, D7, D8, E1, E2, F1, F2, F3, F4, F5, F6, F7, F8, (G1), G2, G3, G4, G5, G6.

Coordinator

National Contact Point for the Sendai Framework (NKS) (located at the BBK, but not reflecting the role of the BBK in the process).

Contributors

All members of IMAG Sendai have access to the monitoring system as "contributors", but only a few of them enter data directly. These are:

- NKS (Targets E and G, on the basis of figures supplied by BBK and DWD)
- GIZ (Target F, on the basis of figures supplied by AA, BMZ and BMU)

Validator

- NKS (Targets E, F, G)

Observers

None.

Implementation challenges and next steps as reported by the country

For Germany, the main challenges concern general data availability and timely data supply. None of the data for the 38 indicators of the Sendai Framework is collected at national level in a way that can be used directly for reporting. Where data are collected at national or local levels, this is generally not done in a uniform way (methodically or area-wide). There is no legal obligation for States to provide the federal government with detailed information on damages, etc. Only part of this information is therefore passed on. For Targets E to G, the reporting bodies (NKS, GIZ) prepare data supplied by other governmental bodies. No data is currently available or supplied to the monitoring system for the indicators of Targets A to D. Accordingly, there is no established method for reporting the requested data in Germany today. Current reporting is based on bilateral exchange, workshops and research of official figures. In the medium and long term, a combination of methods should provide a remedy. This includes calculation and estimation of figures based on official statistics, use of existing monitoring systems, and data from the use of remote sensing (BBK project "Cop4Sen" with the EU's Earth Observation Program Copernicus). The NKS will pursue this approach in cooperation with the Federal Statistical Office, the DWD and other authorities. The federal government is also keen that reported data generate added value for the national and local levels. Another challenge for Germany is that official data are only available with a delay of one year. The structure of the National Platform is to be concretized in the course of the consultation process for the national strategy.

5.4   New Zealand

New Zealand is a unitary state. The Civil Defence & Emergency Management (CDEM) Act of 2002 and the National CDEM Plan of 2015 established specific roles and responsibility in civil protection. The Ministry of Civil Defence & Emergency Management (MCDEM) is the responsible department for providing leadership and support around national, local, and regional emergencies. Under the CDEM Act, the MCDEM can declare a national state of emergency that is led by an official with extraordinary powers. Local events are managed by CDEM Groups that are based in regional areas. Each CDEM Group prepares a plan outlining arrangements for managing the specific risks and potential emergencies within its area, involving critical lifeline utilities and NGOs, amongst others.

NDMO

Ministry of Civil Defence and Emergency Management (MCDEM), Department of the Prime Minister and Cabinet

Focal Point

- Ministry of Civil Defence & Emergency Management
- Ministry of Foreign Affairs & Trade

National Platform

No, but MCDEM aspires to establish a national platform at some stage. However, this may not happen for some time due to resourcing and priorisation issues.

National Strategy

The National Disaster Resilience Strategy came into effect in 2019.

National Disaster Loss Database

No, but MCDEM has begun the establishment of a national database using DesInventar, which was on hold in 2019 due to software issues.

Possible data sources

No information provided.

Data Readiness

(A1), A2, A3, (B1), B2, B3, B4, B5, (C1), C2, C3, C4, C5, C6, (D1), D2, D3, D4, (D5), D6, D7, D8, E1, E2, F1, F2, F3, F4, F5, F6, F7, F8, (G1), G2, G3, G4, G5, G6.

Green font color indicates that the data has been validated for at least one year and is publicly available on the Sendai Monitor.

Coordinator

Ministry of Civil Defence & Emergency Management

Contributors

- New Zealand Police (Target A)
- Ministry of Civil Defence & Emergency Management (Targets B, C, D, E and G)
- Earthquake Commission of New Zealand (Targets B and C)
- Insurance Council of New Zealand (Target C)
- Ministry of Health (Target D)
- Ministry of Education (Target D)
- Ministry of Foreign Affairs & Trade (Target F)

Validators

- Ministry of Civil Defence & Emergency Management (Director Sarah Stuart-Black)

Observers

None.

Implementation challenges and next steps as reported by the country

For New Zealand, the main challenges in implementing the Sendai framework are related to data readiness and definition. For example, comprehensive data for 2005-2015 for most domestic indicators is not possible to source, as this type of data was not collected by many agencies in an intentional way. The country finds it particularly difficult to source comprehensive data for some sub-indicators of Target B (disaster affected people), as there are many variables on why livelihood might be affected. In addition, they consider reporting on damage to critical infrastructure (Target D) to be tricky as the metrics are unclear in terms of whether the population is really affected by it or not. For Target F (international cooperation), the Ministry of Foreign Affairs & Trade uses the OECD marker for disaster risk reduction, but as it is in early stages, they are still working through checking and cleaning the data. Other, more general challenges in implementing the Sendai Framework, include there being no national coordinating body in New Zealand, and provided software not being fit for purpose. At the time of this research, other agencies supply data to MCDEM, which then imports them into the online monitor tool. For the future, it is planned to adjust the processes in a way that other agencies can enter their data directly, using DesInventar.

5.5   Sweden

Sweden's political system has aspects of both a unitary and decentralized state. In peacetime the Swedish emergency preparedness system is based on the principles of responsibility, equality, and proximity. This means that whoever is responsible for an activity under normal conditions maintains responsibility in an emergency, and that disaster situations should be handled at the lowest political level at which it can be done effectively. However, the central government and in particular the Swedish Civil Contingencies Agency (MSB) is still involved in strategic matters, civil emergency planning, and co-ordination.

NDMO & Focal Point

Swedish Civil Contingencies Agency (MSB), Ministry of Justice

National Platform

The Swedish National Platform was restructured in 2017 to include more stakeholders. The platform is coordinated by the MSB. Its inter alia, uses the process for the National Risk and Capability Assessment as a way of pinpointing areas in need of further efforts.

National Strategy

No, but a national strategy has been planned for adoption in 2020.

National Disaster Loss Database

Yes.

Possible data sources

No information provided.

Data Readiness

(A1), A2, A3, (B1), B2, B3, B4, B5, (C1), C2, C3, C4, C5, C6, (D1), D2, D3, D4, (D5), D6, D7, D8, E1, E2, F1, F2, F3, F4, F5, F6, F7, F8, (G1), G2, G3, G4, G5, G6.

Coordinator

MSB (Robust Society and Geographic Information Section, Crisis Preparedness Department)

Contributors

- MSB
- Statistics, Sweden (SCB)
- Swedish International Development Cooperation Agency (Sida)

Validator

MSB

Observers

- Universities
- Research institutes

Implementation challenges and next steps as reported by the country

For Sweden, data access and definition are the main implementation challenges. For example, insurance companies already have the necessary data for Target C (economic loss), but the authorities do not have access to it. The same applies to some data for Target D (damage to critical infrastructure), which is largely in the hands of private operators and thus hard to access for authorities. Sweden is also still examining how to better report on Target G (early warning systems) with all municipalities being equipped with sirens and most having risk information on their websites. For Target F (international cooperation) the country uses the OECD marker for disaster risk reduction. In total, over 50 government agencies in Sweden supply data for the Agenda 2030 indicators, some of which are related to the Sendai Framework. In order to manage the information flow efficiently, these agencies report to Statistics Sweden, which has a coordinating role. In the near future, Sweden intends to improve its natural hazards database and its major accident database in order to meet the necessary reporting requirements. To achieve this goal, an increase in the number of staff is being considered.

5.6 Switzerland

Switzerland is a federal republic composed of 26 cantons. Civil protection is organized through the collaboration of the partner organizations, consisting of the police, fire departments, health services, technical operations and civil defense. The cantons regulate the management and the deployment of the partner organizations. However, in agreement with the cantons, the federal level may take over the coordination. This also applies, if necessary, to the management of hazardous, civil protection relevant events affecting several cantons, the whole of Switzerland and/or neighbouring countries. The Federal Office for Civil Protection (FOCP) has a coordinating and supporting function, and is inter alia responsible for civil protection strategy, risk-oriented planning, early warning, and research. In addition to the FOCP, there are other bodies at federal level that deal with the topic of hazardous events in the broader sense, such as the National Platform for Natural Hazards (PLANAT).

NDMO

FOCP

Sendai Focal Point & National Platform

National Platform for Natural Hazards (PLANAT)

National Strategy

Switzerland does not have a national DRR strategy that covers all risks. However, individual sectors have strategies, including for natural hazards (PLANAT, 2018), climate change adaption (Federal Council, 2020), sustainable development (Federal Council, 2016), critical infrastructure protection (Federal Council, 2017), civil protection and civil defense (Federal Council, 2012) as well as an influenza pandemic (FOPH, 2018).

National Disaster Loss Database

No.

Possible data sources

Websites of the cantonal administrations (Target E)

Data Readiness

(A1), A2, A3, (B1), B2, B3, B4, B5, (C1), C2, C3, C4, C5, C6, (D1), D2, D3, D4, (D5), D6, D7, D8, E1, E2, F1, F2, F3, F4, F5, F6, F7, F8, (G1), G2, G3, G4, G5, G6

Coordinator

PLANAT

Contributors

- FOCP (Targets A to D)
- PLANAT (Target E)

- Swiss Agency for Development and Cooperation (Target F)
- Steering Committee Intervention Natural Hazards (LAINAT) (Target G)

Validators

PLANAT

Observers

None.

Implementation challenges and next steps as reported by the country

For Switzerland, the broad hazard spectrum and the wide range of indicators corresponds to a large number of data owners. Contributors have to actively look and ask for data from the responsible authorities at federal and cantonal levels as well as from the private sector. Furthermore, data owners are not always willing to share data, either due to data protection issues or because they feel Switzerland is already well-prepared to deal with disasters and emergencies and has little to gain from tracking disaster outcomes at this level of granularity. Consequently, the effort required to identify the data, coordinate with data owners, and check the quality of data with regards to usability, is substantial. For example, as Switzerland does not have a national DRR strategy covering all risks, more effort is required for analysis and evaluation to look at the various relevant strategies for Target E.

The number of missing persons (A3) is not reported as this data is not collected. Instead, missing people are generally declared dead after a certain time. Switzerland also maintains that damaged and destroyed houses and dwellings (B4) cannot be meaningfully distinguished, and are not needed, as monetary losses are provided. For Target F, the Swiss Agency for Development and Cooperation introduced a policy marker for DRR-related projects in 2019, which is set to be adopted by the State Secretariat for Economic Affairs as well.

Switzerland has not yet validated its reported data in the Sendai Monitoring Tool, in part due to concerns that it might lead to misleading comparisons between countries if data sources and underlying methodology are not clearly stated as well. In order to address this issue, Switzerland sent a letter co-signed by Germany and supported by several other countries, to UNDRR in April 2020. Subsequently, UNDRR has promised certain adjustments to the monitoring tool (see Section 6). Switzerland will confirm such contextual information with data providers before validating its entries. Starting in autumn 2020, the working group on the implementation and reporting of the SFDRR will examine where gaps still exist in Switzerland, whether and how these should be filled by 2030, and identify who is responsible.

6 Challenges and Limitations

The country profiles show that there are many different, viable ways to distribute roles and organise the reporting process for the Sendai Framework at the national level. The national organisation of the reporting, e.g. where the focal point is located or which data sources are used, depends strongly on the political system of each state and its historically evolved structures and processes. This history largely determines which bodies, and what levels, are entrusted with disaster management, and which bodies have relevant data at their disposal. None of the surveyed countries intends to fundamentally change their current approach or the basic responsibilities of the bodies involved, in response to the Sendai Framework.

With regard to the implementation of the Sendai Framework, future adjustments and improvements in the surveyed countries mainly concern data collection and coordination issues. The former is primarily about extending the data set by including additional sources, possibly from the private sector as well. The latter concerns the development of a national consensus concerning the required data to be collected. Most countries intend to coordinate their national processes for data supply more efficiently. For example via the direct input of data by the various sources, and to achieve certain required standards, e.g. by setting up national platforms and databases to which all relevant national data-generating organisations can contribute information. Finally, the intention to better balance the burden-sharing between the bodies involved is common.

As different as the reporting processes are from country to country, so too are the encountered challenges. A comparison of the country profiles shows that, due to the variability in data availability, there is not one indicator or target that poses a challenge for all countries. Nevertheless, the discussion with, and the responses o,f the surveyed Sendai Focal Points revealed three key challenges in implementing the Sendai Monitoring as well as three limitations of its results, as follows.

Patchy data availability

The first challenge concerns data availability in general. None of the surveyed countries currently has all of the necessary data available at national level. According to the countries' feedback, there are two main reasons for this. The first is simply that certain data required for the Sendai Framework was not collected in the past. Missing data can, at least in theory, be made available for future reporting by additional data collection. However, for historical data the issue will persist, making it hard to

establish the baseline data needed for meaningful comparisons and reporting of progress in future. The second reason is that for some indicators, countries find it difficult to define how they should be measured and thus what data to collect. This is partly due to the fairly open definitions for some of the indicators. However, the particular indicators that are challenging to define also vary from country to country. Although Target F (international cooperation for support) has the lowest data availability of all targets (see Section 3.4), it is regarded as non-problematic by most surveyed countries, as the raw data are usually available but have not been processed. Target C (economic loss), on the other hand, is considered challenging by some countries, as "economic loss" is a rather broad term and difficult to measure in some of the areas required. The same is true for the indicators of Target B (disaster-affected people), which include, amongst others, the number of people whose dwellings were damaged or destroyed or whose livelihoods were disrupted or destroyed by disaster.

Some countries have reported that they find it challenging to work with such broad terms because the threshold between "damaged" and "destroyed" can be difficult to draw. The numerous possibilities also make it difficult to measure whether or not the livelihood of people has been "disrupted" by a disaster. Depending on the definitions used, affected dwellings may appear in one or the other category or may not be included in the statistics at all because the event was not labelled as a disaster. Also, the collection of data for Target D (damage to critical infrastructure) is regarded as difficult because the indicators do not provide for scaling with regard to the effects (only affected or not affected). It is therefore unclear whether or not to count cases where critical infrastructure has been damaged or destroyed, but no emergency situation has arisen as a result. Many countries also tend to regard this target as being too narrowly defined to be useful, as it measures only the failure of health and education systems, but not any other critical infrastructure. This can have an adverse effect on the motivation to take the necessary steps to make these data available.

Difficult data aggregation

The second challenge concerns cross-agency data aggregation. Even if data for an indicator is available in a country, it is often scattered across many different sources. The data can be spread laterally across government agencies, vertically across subnational databases, as well as across NGOs and the private sector, such as insurance companies or critical infrastructure operators. This fragmentation of data sources constitutes a considerable challenge for the countries surveyed, as it requires reliable aggregation of data across different agencies and actors. This substantially increases the need for coordination. To

make matters worse, in numerous countries the Sendai Focal Point ultimately consists of one person with many other responsibilities and a corresponding workload. Given such limited personnel resources, the need to aggregate data from various public and private sources and subsequently enter them into an online tool, complicates the reporting processes significantly. Another challenge arising from the reliance on many different sub-national data sources is that data from such sources are sometimes only available for certain regions, but not the whole country. In some instances, sub-national data sources, like federal states, also do not have a legal obligation to report data systematically "upwards", only doing so in part or in a tardy fashion. Furthermore, many regional governments are not (yet) convinced of the value of the necessary, and possibly additional, data collection for the Sendai Framework, and are thus unwilling to invest in the processes.

Private sector data owners

The third challenge is connected to the second challenge, concerning the integration of data from non-official sources. In some of the countries surveyed certain necessary data are readily available, but are in the hands of private sector actors such as operators of critical infrastructures or insurance companies. This is particularly the case for data for Target D (damage to critical infrastructure). However, insurance companies might be hesitant to share their data as they view it as competition-sensitive information. Due to this and other national legislation and data protection reasons, it is currently difficult or impossible for some of the countries surveyed to access and utilize these data.

Cross-country comparability

The issue of standardizing data in a way that allows apple-to-apple comparisons is both a challenge and a limitation. As many countries obtain data for certain indicators or targets from different sources, it is likely that different methodologies have been used for their collection, which may negatively affect data consistency. Definitions for the data required, agreed with all national stakeholders, can help to resolve this challenge. However, this still does not remedy the issue of the sometimes starkly different definitions of the individual indicators between countries. An illustrative example is the inclusion of traffic fatalities in the casualty numbers attributed to disasters under Target A (disaster mortality) in Switzerland (Figures 3-5). The way Switzerland officially counts disaster deaths (Figure 3) overstates the number of disaster related deaths significantly compared to most other countries due to the inclusion of traffic fatalities. It also overstates the degree to which the data shows a trend towards an absolute reduction of disaster deaths.
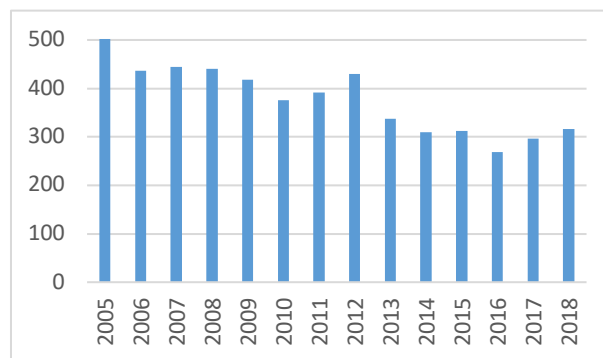

Figure 3. Number of deaths and missing persons attributed to disasters in Switzerland (UN Statistics Division, 2020).
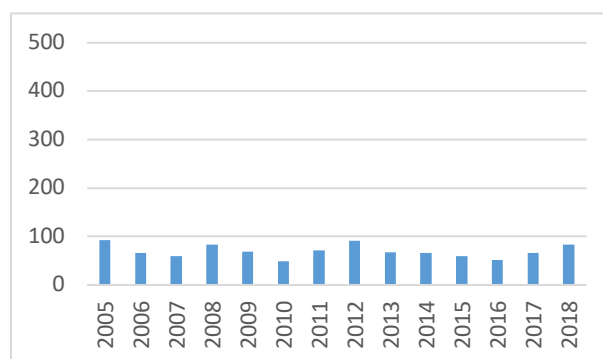

Figure 4. Number of deaths and missing persons attributed to disasters in Switzerland (UN Statistics Division, 2020) minus deaths from road accidents (Federal Statistical Office, 2020).
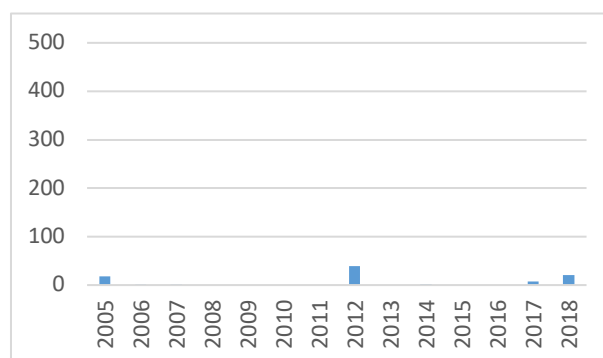

Figure 5. Number of deaths attributed to disasters in Switzerland based on EM-DAT (Centre for Research on the Epidemiology of Disasters, 2020).

The flexibility in defining indicators creates a need for more clarification at the national level, which, in turn, increases the need for coordination between data sources and roles. It also impairs the comparability of the results between countries and increases the manipulability of the data, depending on which results are desired by the reporting country.

Currently, the analytics module of the Sendai Monitoring Tool allows country comparisons without the possibility of including contextual information on data collection methods. Consequently, country comparisons can be misleading, which is why some countries are hesitant to validate their data in the tool, which makes it public. After a request by Switzerland

and Germany, UNDRR has promised to create a context box and other improvements to the tool to improve cross-country comparability.

Indirect economic costs

The COVID-19 pandemic has highlighted the difficulties and limitations in attributing economic costs to disasters. Pandemics and other biological risks are part of the SFDRR. However, their costs cannot be recorded directly, or only to a limited extent. Specifically, Target C focuses on direct economic costs arising from physical damages to buildings, production facilities, and infrastructure. Yet, it does not include indirect economic costs, such as absences from work due to illness or reduced economic activities due to social distancing or lockdown measures. The monitoring of indirect economic costs would make it even harder to ensure cross-country comparability. At the same time, the COVID-19 pandemic is costing the global economy trillions of USD, making it one of, if not the most economically costly disaster in recorded history. As such, it seems unsatisfying and even paradoxical that such economic costs are hardly registered in the Sendai Monitoring.

Tail risks

COVID-19 is also a reminder of the inherent probabilistic limitations of measuring and comparing disaster outcomes over short periods of time. Annual and even decadal disaster outcomes do not necessarily accurately reflect the level of risk over a prolonged period of time. This is particularly the case for hazard types with a heavy-tailed probability distribution of disaster events, such as pandemics, large earthquakes, or volcanic eruptions, where a small number of low probability but high impact events are responsible for a large share of overall deaths and costs over a long period of time.
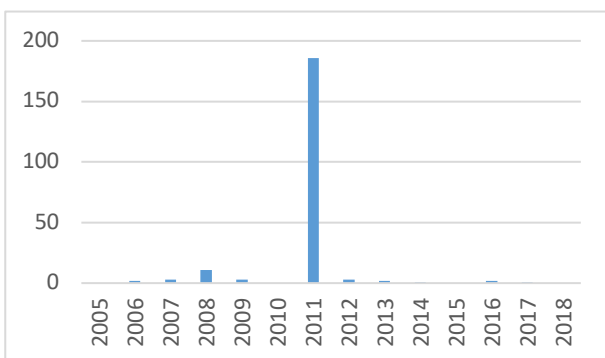

Figure 6. Number of deaths attributed to disasters in New Zealand (UNDRR, 2020g).

As a concrete example, the reporting on disaster deaths and missing persons by New Zealand (Figure 6) is dominated by one single event, the 2011 Christchurch earthquake. Furthermore, 115 of the 185 deaths caused by the earthquake occurred due to the collapse of one particular six-story building.

7 Conclusion and Outlook

On the basis of the country profiles compiled for this report, the feedback from the third Global Platform on Disaster Risk Reduction in May 2019, and the Technical Forum on Sendai in November 2019, this report was not able to identify a "one size fits all" institutional solution that solves the discussed challenges with regard to coordination and data reporting under the Sendai Framework for Disaster Risk Reduction. Approaches adopted at the national level are strongly influenced by the respective historically-grown political systems. They all come with individual challenges, which strongly depend on the design, the genesis and the lived bureaucratic realities of the different government structures. For this reason, an analysis of the detailed challenges that the various national approaches encounter remains limited by their transferability to other countries. However, the broad challenges encountered were remarkably similar in our case studies.

The limitations of tail risks and indirect economic costs are difficult to fully address within the monitoring and reporting framework. However, gathering more historical data can at least contribute to a better understanding of the long-term distribution of hazard events and provide important context to short-term trends (Mizutori, 2020, p. 147). Similarly, the issue of privately-owned infrastructures and insurance companies that are hesitant to share data is likely to persist. The issue of cross-country comparability is already in the process of being improved by UNDRR through the option of providing additional context. Lastly, while the issues of patchy data availability and difficult data aggregation often require country-specific solutions, we are able to provide some general ideas on how they might be tackled in the following paragraphs.

Utilise existing knowledge in civil society and academia

Over the past 30 years, disaster risk reduction at the international level has strongly shifted to a people-centred approach, recognizing that this is a task that has to be undertaken jointly by a variety of national and international stakeholders. While this change is a crucial one, it also leads to difficulties with regards to the measuring of progress on national levels. In today's diverse risk environment, certain risk reductions may well be provided by single governmental agencies, while the reduction of other risks inherently requires coordination and cooperation between multiple agencies, and with civil society. Data availability for the Sendai Framework could thus benefit from greater use of local knowledge from civil society actors, as it is already being done in some countries.

This could be translated into practice, for example, by integrating more participatory approaches, such as crowdsourcing. For instance, the "observer" role in the Sendai Monitoring, or an equivalent in a national disaster loss database, could be opened up more freely to organizations or interested individuals. It could also be expanded to include the possibility of data submissions based on publicly available sources separate from the data submissions by officially appointed contributors. There are local media reports and Wikipedia pages for almost any disaster event, indicating that members of the public could potentially be willing and capable to assist in gathering data that is principally available, yet widely scattered. This might be particularly useful with regards to countries that have not yet managed to report on fairly available indicators, such as disaster deaths. Part of the reason why it is hard to integrate this knowledge from civil society is that Sendai Targets A to D refer to the aggregate effects of separate disaster events, with distinct locally affected communities. Hence, unless global Sendai Reporting were refocused to include individual disaster events similar to EM-DAT, it might also be fruitful to include these actors in the data collecting for national disaster loss databases, which gather the effects of individual disaster events. This could then be aggregated to report on the Sendai indicators.

A targeted broadening of the database, including an expansion of the role of scientific institutions, could provide a more comprehensive picture of progress in disaster risk reduction under the Sendai Framework. At the same time, the risk of greater openness towards civil society and academia is that participatory approaches can dilute and diffuse responsibilities, thereby reducing the pressure on governments to act. Furthermore, it could increase the amount of work required to validate data.

A related general issue is how to publicize the data from the Sendai Monitor. While it is natural and fully understandable that countries do not want to help create misleading comparisons with unvalidated data, it would arguably also inhibit progress if a large part of the results of the Sendai Reporting and Monitoring would remain available only to a small set of stakeholders. As the available Sendai dataset grows, it could and arguably should be shared in an open and re-usable fashion to improve the awareness and mainstreaming of disaster risk reduction and the SFDRR. As an example, the popular data aggregation and visualization website *Our World in Data,* situated at the University of Oxford, offers a useful overview of data on natural disasters (Ritchie & Roser, 2019), and provides a separate tracker for the Sustainable Deveeopment Goals (Ritchie et al., 2020). However, at the time of writing it does not track progress on the (non-overlapping) global targets of the SFDRR. Hence, it might be beneficial for UNDRR to pro-actively collaborate with such actors to ensure that the

(future) results of the Sendai Monitoring are distributed widely in the public and academic sphere.

"Good" institutions for good data

Greater participation of non-governmental actors in reporting might help to mitigate some of the issues surrounding data availability and aggregation. However, it cannot address the more fundamental issue of horizontal and vertical data silos within the reporting government structures. As argued by the Head of the UNDRR: "Political will to overcome intra-governmental silos has emerged as a key driver of success not just in reporting data, but also in implementing risk-informed DRR plans." (Mizutori, 2020, p. 150). In many Western societies, the political structures in disaster risk reduction date back to the Cold War era. It is only since the early 2000s that they have been refurbished to also deal with additional tasks, such as natural hazards, terrorism etc., and integrated into an multi- or all-hazard approach. Still, the political (and financial) weight of the actors newly responsible for multi- or all-hazard risk management has remained comparatively limited in the domestic context. It is therefore hardly surprising that such large, widely ramified administrative systems are struggling to provide wide-ranging, comprehensive data sets in order to report on the status of overall progress in the area of disaster risk reduction.

In order to provide country-wide, coherent, and timely data for the Sendai Framework, "good" national institutions and processes are required, based on clear, efficient structures, coordinated with all the national bodies involved. Countries can decide whether to design proactive reporting of relevant data centered on the national statistical office or specific disaster risk reduction structures. However, it is clear that the status quo in which Sendai Focal Points generally need to search and ask for relevant data is not a sustainable long-term solution. The problem is that establishing the relevant structures and processes for shared awareness and learning, such as a national disaster loss database, is not always viewed as a purely technical issue. It can also be (mis)perceived as a centralization of decision-making, which can create institutional resistance. Hence, establishing the necessary institutional mechanisms for information flows that truly reflect a multi-hazard, all-of-society approach can take time.

Thinking beyond Sendai

On the international and global level, DRR is limited by the lack of political will to commit to transnational and global agreements and resources. As such, the current focus on increasing systemic awareness and reporting disaster effects, is also a result of limited means. However, the downside of this approach is that it can generate administrative efforts that do not have clearly visible short-term benefits, which in turn can adversely impact perceptions of the usefulness of investing in

stronger global governance of DRR. Instead of measuring damage that has already occurred (i.e. retrospectively), and thus does not provide actionable insights that help to manage and reduce risks going forward, future initiatives could focus more strongly on bringing together and enabling countries that are willing to share more actionable disaster-related data about hazards and policies.

Furthermore, as discussed in Section 2.4, the exclusive focus of the SFDRR on local disasters and national DRR structures, neglects transnational and global risks. As Mizutori (2020) notes: "Emergent risks are multidimensional, and in a globalized world, harder to contain within national borders. Effective risk reduction will need both systems thinking, and localized vulnerability analysis and mitigation" (p. 149). Hence, interested countries could be invited to participate in select joint initiatives to reduce global catastrophic risk and increase global resilience, for example, in the form of better global risk analyses, joint prevention programs, or research and development.

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9   Appendix 1: Survey Questions

1) How are the institutional roles allocated for in your country in the online tool of the UNDRR?
- Who is the "Coordinator"?
- Which institutions are "contributors" for which indicators?
- Which institutions are "validators" for which indicators?
- Are there institutions with "Observer" status?
2) Do you use the OECD Marker for DRR to track DRR-related ODA flows?
3) Is your country planning to form a National Platform for Sendai? Is the national disaster loss database already operational?
4) How does the data flow between ministries work? Do ministries supply Sendai-related data to the national statistical office, a national database or directly to the Sendai online tool?
5) What are the remaining challenges in implementing Sendai reporting?
6) What are the next planned steps? Are there countries whose Sendai implementation would be particularly interesting or helpful case studies?

Additional, country-specific questions have been added on a case-by-case basis.

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