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POLICY BRIEF DISASTER LOSS DATA IN MONITORING THE IMPLEMENTATION OF THE SENDAI FRAMEWORK

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Disaster data archives and loss data collection are fundamental to comprehensive assessment of socially, temporal and spatially disaggregated impact data. Risk interpretation, with standardized loss data, can be used to provide valuable opportunities to acquire better information about the health, economic, ecological and social costs of disasters, and provide risk based information for policy, practice, and investment.

POLICY RECOMMENDATIONS:

1

Improving partnerships between intra-government agencies, academic, private sector, ngos and insurance authorities the global, national and local levels for data sharing and monitoring the sendai framework and its global targets.

2

Capacity building via the use of the Sendai Framework Monitor online tool and updating the tools regularly is essential. National Disaster Management Office (NDMO) may not have sufficient capacity for data collection and uploading data regularly the tools. Regular training and capacity building is essential.

3

Data interoperability is essential to reduce duplications of data. Within UN system there are several several data collection system practice (i.e. KoBo, Rapid Pro, etc.) which need to have interoperability with Sendai Monitoring.

4

Appropriately tagged disaster loss data can help reveal the relationships between exposure, capacity, vulnerability and overall resilience. A systematic approach could generate knowledge on historical vulnerability, hazard and disaster loss data which provides invaluable data for future reference.

5

Appropriately standardized disaster loss data quantification can identify gaps in risk assessment, simultaneously improving disaster risk information which could provide common guidelines on methods of hazard, exposure and vulnerability assessments.

6

A key consideration needs to be resource mobilisation and consistency for improvement of data collection, recording and reporting at all levels. This may require further levels investment in building local and regional data collection capacity and, consequently, supporting IT infrastructure.

7

Comprehensive disaster loss data could be utilized to produce valuable risk information for decision-making authorities.

CONTEXT OF SENDAI MONITORING

Over four years have passed since United Nations member states adopted the Sendai Framework for Disaster Risk Reduction 2015–2030, at the Third United Nations World Conference on Disaster Risk Reduction in Japan in March 2015 (UNDRR 2015). Three other UN landmark agreements linking within the Sendai Framework were made in 2015 and 2016, including the Sustainable Development Goals (SDGs) (United Nations 2015), the Paris Climate Agreement (UNFCC 2015), and the Habitat III New Urban Agenda (United Nations Habitat III 2016).The Sendai Framework has seven global targets which aim to reduce the impact of disasters worldwide:

1. Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rate in the decade 2020–2030 compared to the period 2005–2015;
2. Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020–2030 compared to the period 2005–2015;
3. Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030;

4. 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;
5. Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020;
6. Substantially enhance international cooperation involving developing countries through adequate and sustainable support to complement their national actions for implementation of the present Framework by 2030;
7. Substantially increase the availability of, and access to, multi-hazard early warning systems and disaster risk information and assessments to people by 2030.

As illustrated in Figure 1 the Sendai Framework has a very strong relationship with SDGs. Measuring and following progress in achieving these targets are fundamental in order to enable the identification of priority areas where member states should focus their resources.

Figure 1 - The link between the Sendai Framework and the Sustainable Development Goals. Source (UNDRR, 2017)

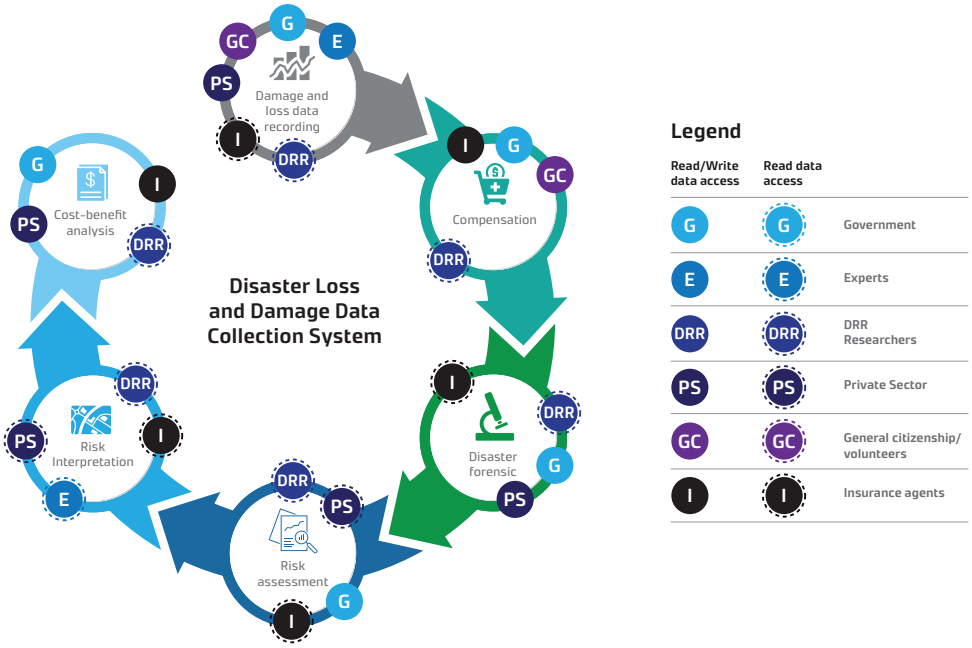
For a larger image, please visit https://tinyurl.com/SendaiFramework

The disaster data landscape is complex, though information on loss data is rapidly growing. When human, monetary or environmental losses occur as a result of a disaster, extensive loss data are often collected and stored by different organizations, but the thoroughness and accuracy of the data vary from country to country and even among local entities. Standardised data is one of the keys to achieving considerably improved loss estimation, risk assessment and, ultimately cost benefits, for hazards.

In March 2018, UNDRR made available the Sendai Framework Monitor and offered an online tool designed to collect disaster data from member states according to the 38 indicators contained in the Sendai Framework. An overview of the Targeting Report demonstrates that, by February 2019, 89 out of 195 nations had started reporting data, but most reports remain incomplete. In the same period, data of only a few countries had either been validated or was ready for validation. This scenario demonstrates that member states have been facing obstacles in the reporting process, data standards and action must be taken in order to improve compliance and enable a reliable monitoring assessment by 2030. The Disaster Loss Data (DATA) project, under the umbrella of the Integrated Research on Disaster Risk (IRDR) programme proposed a standard data collection system (Figure 2) which has been adopted by some countries since 2017.

Figure 2 - Proposed disaster loss and damage data collection system (IRDR, 2017)

Disaster loss data can be collected and recorded by multiple sectors - governments, technical experts, DRR and other researchers, the private sector, the general population, volunteers and insurance authorities. However, it is vital to acquire data using standardised terminology, as well as in a standardized format, to enable effective data sharing. This is enhanced when common data collection protocols are used. Although data sharing is subject to various potential barriers and constraints — such as data ownership, data use provisions and acknowledgment of data sources — overall data sharing reduces data acquisition costs and time (European Commission, 2015).



For a larger image, please visit https://tinyurl.com/DisasterLossData

KEY OPPORTUNITIES FOR ENHANCEMENT

1. IMPROVING PARTNERSHIPS BETWEEN INTRA-GOVERNMENT AGENCIES

The organisation of data ownership within national governments is heterogeneous between different countries. The different focal points responsible for reporting might not be the owners of disaster-related data. This scenario demonstrates an opportunity for engagement of National Statistics Offices and other data curators within the national governments in order to improve data reporting.

BOX 1: THE FAIR PRINCIPLES FOR DATA MANAGEMENT AND STEWARDSHIP

- The FAIR principles for data management and stewardship aim to facilitate knowledge discovery by assisting humans and machines in discovering, accessing, integrating and analysing data of different domains. According to these principles, data must be *findable, accessible, interoperable* and *reusable*. In the context of disasters, the adoption of those principles is of fundamental importance, since the response to an event can involve multiple organisations. However, this is also a challenge, since the various stakeholders might collect data using different methodologies, measured using different units, and recorded using different standards or even in different languages.
- A set of requirements are demanded from datasets to make them FAIR. This includes assigning data and metadata with globally unique and persistent identifiers; assuring that they can be retrieved using standardised communications protocol; and the use of domain-relevant community standards. In this context, acting to increase partnerships between academia, Ministries of Health, National Statistics Offices and inter-government agencies can help member states to produce and report FAIR data on disaster loss in compliance with the Sendai Framework.

2. IMPROVING PARTNERSHIPS WITH ACADEMIA AND INTER-GOVERNMENT AGENCIES

The delay of many countries in reporting data on the Sendai indicators also reflects the need for capacity building in data collection and stewardship. Countries cannot report on indicators without having solid programmes for monitoring and collecting data on disaster loss. Stronger research collaborations between academia and the public sector can also provide evidence to support countries in the decision-making process of prioritising resources. Similarly, the sharing of best practices between inter-government agencies can improve the quality of the data collection process. Additionally, by supporting the reporting of data in accordance with the FAIR principles (i.e. FAIR data are data which meet standards of findability, accessibility, interoperability, and reusability) for data management and stewardship (Box 1).

3. DISASTER LOSS DATABASE BASELINE SELECTION

The spatial and temporal scale of information is especially important for loss database baseline selection. Mixing different time scales may result in significant inconsistencies, particularly when damage is related to the same category of items and assets. Sometimes only one type of baseline is available, typically crisis data, while more consolidated data are never produced. It is important to know the time when the data has been declared (inserted in the system), the time when the data has been produced (crisis/recovery; emergency/consolidated), the time when the data has become available, i.e. the damage can be detected (mould, health, indirect), and the damage duration (this is essential, particularly for functional damage).

INITIATIVES CONTRIBUTING TO THE SOLUTIONS

1. IRDR DATA PROJECT

The Disaster Loss Data (DATA) project under the umbrella of the Integrated Research on Disaster Risk (IRDR) programme brings together stakeholders from different disciplines and sectors to study issues related to the collection, storage, and dissemination of disaster loss data. Among the desirable outcomes for the project are the production of unified standards on disaster loss assessment, and an integrated methodology for disaster loss assessment. These two outputs will provide important support in improving the monitoring process of the Sendai Framework targets. IRDR in conjunction with ISC's Committee on Data (CODATA), United Nations Sustainable Development Solutions Network Thematic Research Network on Data and Statistics (TReNDS), Tonkin and Taylor and Public Health England publish a monthly Disaster Risk Reduction and Open Data Newsletter: the link to the May 2019 Edition is here.

2. INTERNATIONAL SCIENCE COUNCIL AND CODATA

The vision of the International Science Council (ISC) is to advance science as a global public good. The Council acts as the international voice of science; it convenes the scientific expertise and resources needed to lead on catalysing, incubating and coordinating impactful international action on issues of major scientific and public importance. ISC has recently identified the 2030 Agenda for Sustainable Development as a key challenge domain where cross-discipline integrated knowledge must be used to achieve the challenges in delivering the proposed targets. In this context, ISC's Committee on Data (CODATA) has been playing a major role in promoting global collaboration to advance Open Science and to improve the availability and usability of data for all areas of research.

3. DEVELOPMENT OF CONTROLLED VOCABULARIES AND TERMINOLOGY

The absence of standardised hazards definitions is a critical issue that affects the identification, assessment, and analysis of hazards. The lack of homogeneity can also hamper the interpretation of what is reported by member states. In this context, the UN is working in partnership with international organisations to develop and disseminate a UN system resource for member states to standardise their hazard definitions. This will support the entire process of data collection, analysis, and reporting, as well as facilitate the development and implementation of national and local disaster risk reduction strategies. A UNDRR/ISC technical working group on the review of Sendai Hazard Terminology and Classification will report in November 2019.

4. INTEROPERABILITY OF METADATA STANDARDS IN CROSS-DOMAIN SCIENCE, HEALTH, AND SOCIAL SCIENCE APPLICATIONS

This event took place in October 2018 at the Schloss Dagstuhl in Wadern, Germany as part of a larger programme of activity to improve data-driven interdisciplinary research. The workshop was convened by the CODATA and the DDI Alliance (the main social sciences data standard). It aimed to investigate and advance alignment between the use of cross-disciplinary and domain-specific metadata standards to support data integration and analysis. A group was formed to discuss the challenges and opportunities in the use of Data Science to support the implementation of the Sendai Framework for disaster risk reduction. The discussions at the workshop led to a collaboration with CODATA to support the development of standardised hazards definitions and identifiers as a way of promoting data interoperability. It also produced a paper discussing the challenges and opportunities of using different data science tools to leverage the implementation of the Sendai Framework.

5. UN SUSTAINABLE DEVELOPMENT SOLUTIONS NETWORK THEMATIC RESEARCH NETWORK ON DATA AND STATISTICS (TRENDS) AND GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT DATA (GPSDD)

TReNDS is part of the United Nations Sustainable Development Solutions Network (SDSN). TReNDS supports a range of projects at global, national, and sub-national levels that explore and document issues relating to SDGs monitoring, evolving data governance, and new data-sharing policy and practice standards. The Global Partnership for Sustainable Development Data is a global network bringing together governments, the private sector, and civil society organizations dedicated to using the data revolution to achieve the Sustainable Development Goals. It drives action at the local, national, and global level to ensure the new opportunities of the data revolution are used to achieve the SDGs.

6. UN WORLD DATA FORUM 2018

The UN World Data Forum 2018 took place in October 2018 in Dubai, United Arab Emirates, hosted by the Federal Competitiveness and Statistics Authority of United Arab Emirates with support from the Statistics Division of the UN Department of Economic and Social Affairs. Two important outputs of the Forum can leverage the improvement of data monitoring for the Sendai Framework. The meeting finished with the launch of a Dubai Declaration to increase financing for better data and statistics for sustainable development, calling for the establishment of an innovative funding mechanism open to all stakeholders, to strengthen the capacity of national data and statistical systems. It also launched a data interoperability guide which identifies practical steps to help countries and development partners on the pathway towards integration of data from multiple sources for better monitoring and policy making to achieve the 2030 Agenda.

7. WORLD DATA SYSTEM

The World Data System (WDS) is an Interdisciplinary Body of the International Science Council. It brings together key national, regional, and international, disciplinary and multidisciplinary scientific data repositories and services to coordinate activities, and thus create the strong network needed to support international research and assessment programmes with quality-assessed scientific and operational data. Over the years, WDS has been engaged in a series of initiatives that fosters the sustainability, trust in, and quality of open data. For example, in 2017 WDS launched the CoreTrustSeal certification, which is now internationally recognized as the universal catalogue of core requirements for trustworthy data repositories. This initiative is an important component in addressing the challenges of data quality faced by member states in monitoring disaster loss data.

8. WHO TECHNICAL GUIDANCE NOTES ON SENDAI FRAMEWORK REPORTING FOR MINISTRIES OF HEALTH

The WHO is working in partnership with other organisations in order to develop guidance documents to support Ministries of Health in the process of data collection and analysis of indicators. These documents will cover each of the different global targets contained in the Sendai Framework in order to clarify issues with definitions, methodology, and bring clarity to the expected Ministries of Health responsibilities in the reporting process.

Cover image
Haiti. A rescuer and a search dog look for survivors in the rubble.

Photo: Phong Tran / IRIN
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The International Science Council (ISC) is a non-governmental organization with a unique global membership that brings together 40 international scientific Unions and Associations and over 140 national and regional scientific organizations including Academies and Research Councils. It is the only international non-governmental organization bringing together the natural and social sciences and is the largest global science organization of its type. The ISC and its programme, Integrated Research on Disaster Risk (IRDR), are working towards identifying, assessing and reducing the risks of disaster in partnership with the United Nations office for Disaster Risk Reduction (UNDRR). The ISC has a leading role on the newly created Technical Working Group on Sendai Hazard Definitions.

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