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## Disaster statistics and risk management: current situation and outlook

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In recent years, environmental and climate trends have pointed to a progressive increase in the frequency, impact, intensity and unpredictability of hazardous events. These changes, combined with the consequences of scientific projections about future scenarios, show that disaster risk represents a structural challenge to sustainable development. Given this reality, disaster risk management has become a strategic priority for protecting human lives, reducing economic losses, guiding investments, strengthening resilience and supporting adaptation to climate change.

Risk management is a continuous process that involves identification, assessment, reduction, transfer and response to disasters, with the aim of reducing vulnerabilities and strengthening institutional, economic and social capacities for the implementation of warning systems and early actions. To achieve this, access to accurate, timely and consistent statistical data for all phases of risk is essential. Disaster-related statistics provide an understanding of the components of risk, enable monitoring and prevention of impacts and guide evidence-based policies for recovery.

These statistics are also essential for monitoring international commitments such as the 2030 Agenda for Sustainable Development, the Sendai Framework for Disaster Risk Reduction and the Paris Agreement on Climate Change. Thus, the growing demand for information on this topic has driven various global initiatives,

including the development of the Global Framework for Disaster-Related Statistics (G-DRSF),<sup>1</sup> which will be presented to the United Nations Statistical Commission in 2026.

From this perspective, this report provides an updated analysis of the status of disaster-related statistics, their progress, challenges and opportunities to strengthen their institutionalization in national statistical systems.

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## 1. Current status: progress, gaps and challenges

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Based on the need for reliable information, significant progress has been made in recent years in the field of disaster-related statistics. These include the growing use of advanced technologies such as remote sensing, geospatial data, options for integrating information from different sources through Geographic Information Systems (GIS) and artificial intelligence, which allow for the collection, compilation, processing and analysis of large volumes of data with greater accuracy and speed.

Likewise, there has been a broader acknowledgement of the strategic value of disaster-related statistics for land use planning, risk management and public policy formulation. These advances are complemented by the development of conceptual and methodological frameworks promoted by regional and international organizations, as well as the consolidation of technical cooperation spaces, such as the forums promoted by the Economic Commission for Latin America and the Caribbean (Statistical Conference of the Americas of ECLAC (SCA-ECLAC)),<sup>2</sup> which encourage the exchange of experiences and the harmonization of practices.

Despite this progress, significant gaps still remain, limiting the efficiency of statistical systems in the context of disasters. Coverage and availability of data are not enough, while the lack of terminological and conceptual harmonization obstructs the comparability of information between different countries and sectors. In addition, the use of administrative records often presents difficulties in terms of consistency and comparability and interoperability between systems remains limited due to the absence of robust data exchange platforms. Insufficient methodological documentation and a lack of complete historical series are some other limitations that affect analytical capacity and evidence-based planning.

Therefore, the structural challenges for strengthening disaster statistics focus on several key areas: technical and technological capacities, full integration into national planning systems, sustainability of resources for production and regional and international cooperation. It is also essential to ensure sustained resources that enable statistical production to be maintained over time and deepen regional cooperation and methodological standardization to improve the quality, comparability and usefulness of the information. Together, overcoming these gaps and challenges will consolidate more robust and effective statistical systems, which are fundamental to territorial resilience and sustainable development.

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<sup>1</sup> <https://www.preventionweb.net/news/global-consultation-draft-global-disaster-related-statistics-framework>

<sup>2</sup> Created in 2000 by ECLAC resolution 580(XXVIII) of ECLAC and resolution 2000/7 of the Economic and Social Council, the Statistical Conference of the Americas of ECLAC (CEA-ECLAC) contributes to the advancement of statistical policies and activities in the countries of the region and promotes international, regional and bilateral cooperation among national statistical institutes and international and regional organizations.

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## 2. The Global Framework for Disaster-Related Statistics (G-DRSF)

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Facing these limitations, the G-DRSF was created in response to the dispersion, terminological inconsistencies and methodological limitations observed in the production of disaster statistics. Although multiple institutions produce data, it is often inconsistent, fragmented and difficult to access. Therefore, the Framework constitutes the first global effort to create a unified conceptual and methodological structure for measuring disasters. Its objective is to harmonize criteria, improve comparability between countries and strengthen the capacity to report on indicators related to international commitments. Recently, the Fifth Global Expert Forum for Producers and Users of Disaster-Related Statistics was held.<sup>3</sup> The forum concluded by reaffirming the global commitment to produce quality statistics that support more effective public policies for disaster risk reduction and it was there that the results of the G-DRSF global consultation in the Latin American and Caribbean region were first presented.

### Structure of the G-DRSF

The Global Framework for Disaster-Related Statistics (G-DRSF) is organized around three broad areas of measurement: risks, impacts and risk reduction. These components provide a comprehensive overview of the factors that determine the possibility of a disaster occurring, the consequences they generate and the actions taken to mitigate them. In turn, it links these areas to the three key moments in the disaster cycle: the period before the event, the period during the event and the period after the event.

This temporal structure enables the identification of information needs at each stage and ensures a holistic approach to risk management. In addition, the G-DRSF distinguishes between non-event-specific statistics—which include data on exposure, vulnerability and capacity—and event-specific statistics, which cover the measurement of occurrences, damage to assets and economic losses. This distinction allows data production to be organized and strengthens its conceptual and operational consistency.

### Contributions of the G-DRSF

Based on this structure, the G-DRSF introduces some fundamental contributions to improve the quality, comparability and usefulness of disaster-related statistics. First, it defines common statistical terminology and concepts, which is key to ensuring uniform understanding among data producers and users. It also provides harmonized classifications and standardized units of measurement, which promotes methodological consistency across countries and facilitates comparative analysis.

The Framework also promotes the adoption of new data sources, such as remote sensing and other emerging technologies, which expand the possibilities for territorial monitoring and analysis. Another key contribution is the strengthening of interoperability between information systems, allowing for the integration of data produced by different institutions. Finally, the G-DRSF facilitates the integration of disaster statistics into national statistical systems and public policy design, promoting evidence-based decisions for risk reduction.

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<sup>3</sup> <https://www.cepal.org/en/events/fifth-global-expert-forum-producers-and-users-disaster-related-statistics>

## Challenges identified by the Framework

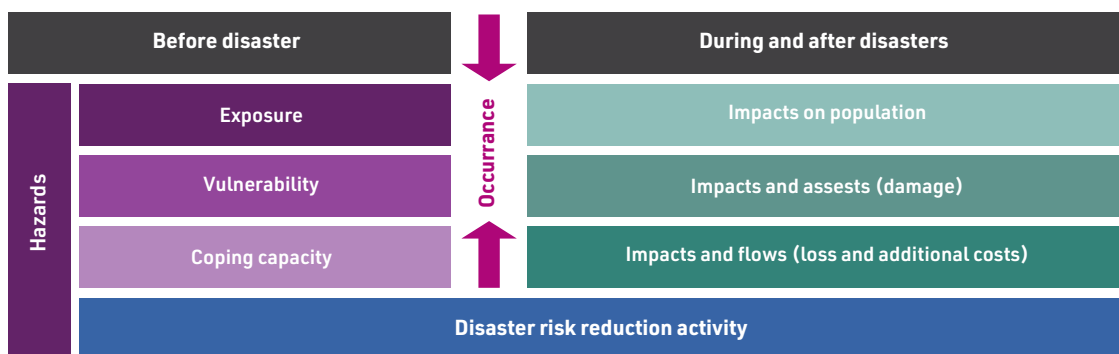
Despite the advances it proposes, the G-DRSF also identifies significant challenges that must be addressed to ensure its full implementation. One of the main challenges is the limited and uneven availability of data across countries and regions, which affects the possibility of building robust and comparable indicators. Likewise, there is a lack of clearly defined statistical units, which makes it difficult to accurately measure key variables related to exposure, vulnerability and impacts.

The Framework also highlights the need to develop standardized methodological sheets to provide uniform guidance on data collection, processing and documentation practices. Other challenges include persistent institutional fragmentation and difficulties in accessing information, as well as a shortage of consistent and sustained historical series, which are essential for identifying trends and modeling future scenarios.

## 3. The role of data in disaster risk management

Based on the G-DRSF structure, risk management involves a continuous cycle consisting of actions before, during and after an event. Statistical information plays an indispensable role at each stage.

### » Diagram 1. Conceptual framework of disaster risk



Source: ESCAP - Disaster Risk Statistics Framework (DRSF). [https://www.unsiap.or.jp/event/2025-03-3\\_E-DIS.html](https://www.unsiap.or.jp/event/2025-03-3_E-DIS.html).

## Pre-event data

Pre-event data includes the description of factors that determine risk and allow threat scenarios to be anticipated. First, exposure refers to the location and characteristics of the population, economic activities, material assets and ecosystems that may be affected by a hazardous event. Second, vulnerability encompasses the physical, social, economic and environmental conditions that increase susceptibility to the impacts of hazardous events.

Finally, coping capacity refers to the ability of people, organizations and systems, using available resources and skills, to respond to and manage risks and disasters. These resources may include, for example, early warning systems, critical infrastructure and coordination mechanisms. Taken together, these preliminary data can guide territorial planning, design mitigation measures, strengthen resilience and reduce the generation of new risks in the future.

## Data during the event

The information collected during the event is essential for immediate monitoring and operational decision-making. This includes, among other aspects, measuring the intensity of the event and tracking its spatial and temporal evolution, which allows for the identification of dynamics of its spread and areas of greatest exposure. Data on the affected and displaced population are also recorded, which is essential for organizing humanitarian assistance and prioritizing interventions.

Likewise, damage to critical infrastructure —such as hospitals, bridges, educational centers and energy networks— is documented, together with interruptions to basic services such as drinking water, electricity, transportation and communications. The timely availability of this information is key to coordinating emergency responses and minimizing human and material losses.

## Post-event data

Once the event is over, post-event data allows for assessing its magnitude and planning for the comprehensive recovery of the territory. This includes damage to assets such as homes, road and service infrastructure and affected ecological systems. Economic losses and additional costs resulting from the interruption of productive activities or the deterioration of public and private property are also assessed.

In the social sphere, the impacts on health, education, employment conditions and livelihoods are considered, as well as changes in population dynamics. This information represents the basis for identifying reconstruction needs, defining rehabilitation strategies and guiding the allocation of resources toward sustainable, safe and resilient recovery.

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## 4. Conceptual framework of disaster risk and its statistical implications

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Adding to the above, risk is understood as the dynamic interaction between hazards, exposure, vulnerability and coping capacity. Therefore, its statistical analysis requires multidimensional information from various disciplines and institutional sectors sustained over time, based on the understanding that the elements that determine risk are complex and interrelated.

In the pre-disaster phase, the dimensions of exposure, vulnerability and coping capacity are combined to estimate the level of risk, providing a basis for planning and prevention. After the event occurs, the impacts on the population, infrastructure, ecosystems and economy allow for the evaluation of both direct and indirect effects, offering a comprehensive overview of the consequences. Throughout the management cycle, risk reduction measures act as a cross-cutting axis that influences each stage, modulating vulnerability and strengthening territorial resilience.

Effective risk measurement requires georeferenced data that allows for the precise location of exposed and vulnerable elements, as well as the integration of environmental and socioeconomic variables that reflect its multidimensional nature. In addition, temporal consistency in data series is essential for identifying trends and changes over time. All of this must be grounded on harmonized methodologies that clearly differentiate between real trend patterns and random variability, thus ensuring the comparability and quality of statistical analyses.

In this context, high-quality historical data series are essential for developing risk maps, early warning systems, prospective analyses and reliable predictive models. Given that risk is cross-cutting, it is necessary to combine multiple sources of information. Traditional sources include population and housing censuses, economic and agricultural censuses, household and establishment surveys, as well as administrative records of various types and monitoring stations (meteorological).

At the same time, new data sources are transforming the way risks are monitored and analyzed. Meteorological and earth observation satellites allow us to track hydrometeorological events, changes in land cover and territorial impacts. GIS and thematic mapping facilitate the integration and visualization of spatial information, while atmospheric, hydrological and edaphic monitoring stations provide real-time data on environmental conditions.

However, despite the availability of these sources, significant methodological challenges remain. These include the standardization of units of measurement in their physical, economic and qualitative dimensions; the development of metadata and comprehensive documentation to ensure transparency and replicability; the consistency and representativeness of time series; and the need to overcome institutional fragmentation to strengthen interoperability between systems. Only through the effective integration of these information sources will it be possible to support risk planning and management in a robust and sustainable manner.

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## 5. Strategic role of National Statistical Offices and National Statistical Systems

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National Statistical Offices (NSOs) are independent and technically specialized institutions that play a central role in the production and coordination of National Statistical Systems (NSSs). Their work includes promoting good statistical practices, guaranteeing data quality and ensuring that the methodologies used are transparent, consistent and comparable over time and across territories.

In the specific area of disasters, NSOs perform fundamental functions such as providing methodological support to sectoral institutions, coordinating the integration of information from multiple sources and ensuring data protection and confidentiality. They also promote open access to reliable and disaggregated information, which is necessary for evidence-based decision-making and establish common standards and harmonized terminology that facilitate data interoperability and comparability.

Inter-institutional coordination is an essential component of disaster risk management, as it involves the contribution of multiple actors linked to sectors such as meteorology, environment, health, infrastructure, agriculture, civil defense, public services, education, planning and cartography, among others. Within this institutional framework, the NSO acts as a key coordinating hub to ensure consistency between the various sources of information and promote the integration of data into a unified system.

Among the most relevant coordination mechanisms are the formulation of National Statistical Plans, the creation of multisectoral technical committees, the establishment of data exchange protocols and the signing of inter-institutional agreements. In addition, there is participation in regional harmonization forums, such as those promoted by the CEA-ECLAC, as well as training and technical assistance activities aimed at strengthening the capacities of data producers.

In terms of their contribution to the different phases of the disaster cycle, the NSOs and NSSs play a strategic and cross-cutting role. In the pre-event stage, they collaborate in the development of indicators that measure

levels of exposure and vulnerability, which are essential for anticipating risk scenarios and guiding preventive planning. During the event, they support monitoring systems and information management, assisting in the timely collection, verification and dissemination of data relevant to the immediate response. In the post-event phase, they contribute to the measurement of damage, losses and recovery processes, which is essential information for assessing the magnitude of the impact and designing sustainable reconstruction strategies.

Overall, strengthening NSSs is becoming a necessary condition for promoting territorial resilience, improving risk governance and advancing toward evidence-based sustainable development.

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## 6. Conclusions

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The availability of accurate, timely and consistent data is essential for understanding risks, monitoring impacts and guiding evidence-based policies, contributing to sustainable development and the fulfillment of international commitments such as the 2030 Agenda and the Sendai Framework.

Statistical information is critical at all stages: before the event to anticipate risks and strengthen resilience; during the event to support immediate response; and after the event to assess damage, plan recovery and guide sustainable reconstruction.

The implementation of conceptual frameworks such as the G-DRSF and the use of advanced technologies such as remote sensing, GIS and artificial intelligence have improved the accuracy, coverage and usefulness of data, facilitating risk planning and management. Despite these advances, limitations remain, such as institutional fragmentation, lack of interoperability, scarcity of historical series and insufficient methodological standardization, which hinder the comparability and effective use of information.

National Statistical Offices and National Statistical Systems play a strategic role in ensuring data quality, coordination and integration, promoting interoperability and facilitating evidence-based decision-making.

Strengthening technical, institutional and technological capacities, ensuring sustainable resources and fostering regional and international cooperation will consolidate robust statistical systems, improve territorial resilience and advance toward more secure and disaster-resilient sustainable development.

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## Bibliography

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Economic Commission for Latin America and the Caribbean. (2022). *Institutional and methodological recommendations for the measurement of disaster-related SDG indicators and the Sendai Framework for Disaster Risk Reduction*. <https://repositorio.cepal.org/server/api/core/bitstreams/75b967f5-4cb1-422c-a934-32bf5e54fc4a/content>

United Nations Economic and Social Commission for Asia and the Pacific. (2019). *Disaster-related Statistics Framework (DRSF)*. [https://www.unescap.org/sites/default/files/ESCAP.CST\\_.2018.CRP\\_.2\\_Disaster-related\\_Statistics\\_Framework.pdf](https://www.unescap.org/sites/default/files/ESCAP.CST_.2018.CRP_.2_Disaster-related_Statistics_Framework.pdf)

United Nations Office for Disaster Risk Reduction. (2015). *Sendai Framework for Disaster Risk Reduction 2015–2030*. <https://www.undrr.org/media/16176/download?startDownload=20251218>

United Nations. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development*. <https://sdgs.un.org/2030agenda>

United Nations Framework Convention on Climate Change. (2015). *Paris Agreement*. <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

United Nations Statistics Division. (2018). *Handbook on management and organization of national statistical systems*. <https://projects.officialstatistics.org/hb-mgnt-org-nss/handbook/intro.html>

United Nations Economic Commission for Europe. (2020). *Recommendations on the role of official statistics in measuring hazardous events and disasters*. <https://unece.org/sites/default/files/2021-03/ECECESSTAT20193.pdf>

United Nations Office for Disaster Risk Reduction & United Nations Economic and Social Commission for Asia and the Pacific. (2025). *Global consultation of the draft Global disaster-related statistics framework (draft)*. <https://www.undrr.org/news/global-consultation-draft-global-disaster-related-statistics-framework>



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