

# ENABLING DATA-DRIVEN ANALYTICS FOR FINANCIAL PROTECTION FROM DISASTERS

## Bridging the gap between data and decision-making

### AT A GLANCE

**Country:** Morocco, Senegal, Tunisia

**Risks:** Disasters (flooding, droughts, earthquakes) and health-related risks (Covid-19, cholera)

**GFDRR Areas of Engagement:** Deepening financial protection

Countries are using innovative analytics tools to unlock risk data and strengthen their financial resilience to disaster.

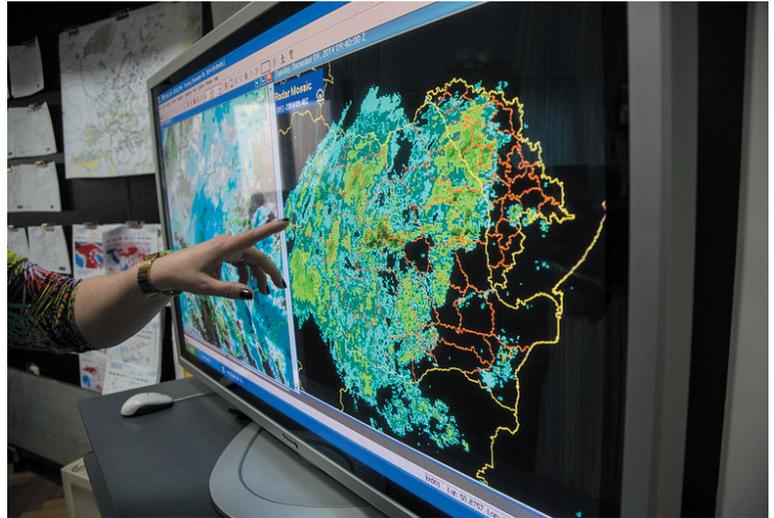


Photo credit: Jutta Benzenberg/World Bank.

### CONTEXT

Low and middle-income countries are bearing an increasing financial burden from the impacts of disasters as both the frequency and intensity of disaster events are rising. In addition to the loss of lives and livelihoods, governments face daunting recovery costs which are often compounded by a weakened economy, destroyed infrastructure, reduced tax revenues, and rising poverty levels.

Countries without financial protection mechanisms are often forced to rely on ad-hoc measures, such as emergency loans or external donor assistance, which do not make recovery truly sustainable and leads to delays and inefficiencies in disaster response.

Despite the increasing availability of disaster data, many countries lack the capability to process, refine and act upon this data. Their ability to make risk-informed decisions about how to finance recovery is critical, and also lays the foundations for long-term financial resilience to disasters.

### APPROACH

To address this challenge, the Disaster Risk Financing (DRF) Analytics project provides technical assistance and capacity-building support for countries to increase their financial resilience to disasters. A key focus for the project is to design and support the adoption of innovative analytics tools which can help countries identify disaster risks and develop options for risk financing. These include:

- 1) A risk assessment tool to estimate financing needs such as emergency response following a disaster and quantify the fiscal funding gap.
- 2) A financing strategy design tool for determining the cost-effective use of DRF instruments in view of identified risks.
- 3) A financing crisis response tool for estimating the potential coverage and cost of a social safety net program.

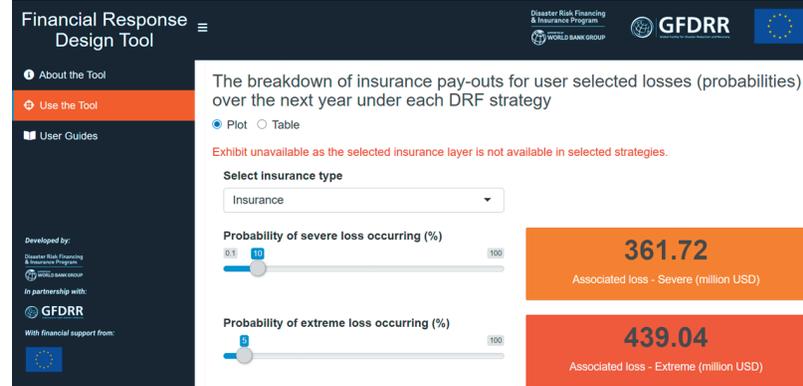
Morocco, Senegal, and Tunisia have used these new tools to gain a detailed understanding of their financial vulnerability to disasters and to develop new risk financing strategies.

These tools are also being used to inform the development of government priorities, addressing questions such as: which risks should be prioritized; which sectors, populations, or geographies should benefit from an ex-ante financial response mechanism; what role should insurance have in this situation; and how much is being saved through the optimal use of DRF instruments. A key feature of these tools is that they support beneficiaries' decision-making process on risk financing by processing complex calculations based on different metrics into more accessible and visual representations of risk

The DRF Analytics project was funded by a €6 million (USD 6.6 million) contribution from the European Union, implemented by the Disaster Risk Financing and Insurance Program (DRFIP) and managed by the Global Facility for Disaster Reduction and Recovery (GFDRR).

## RESULTS

- In Morocco, the Ministry of Finance designed a comprehensive disaster risk financing strategy which was informed by the analytics tools. This strategy ensures financing for 99 percent of disaster scenarios and sets up a public solidarity fund to provide financial compensation to the uninsured and most vulnerable populations.
- In Senegal, the government, through the Ministry of Finance, was able to better understand the financial impact of disasters and get a fuller sense of the appropriate financial response mechanisms, including a potentially scalable safety net against drought and food insecurity. This was made possible through the use of a historical loss data estimation tool that was designed by the DRF Analytics project. This tool made use of satellite-based soil moisture and rainfall data and provided indicative information on the severity of droughts.
- In Tunisia, the analytics tools unlocked insights into financial exposure to disaster for different economic sectors as well as various geographic and topographic features. This contributed to the development of Tunisia's financial exposure database by enhancing the level of detail and the quality of exposure data available to Tunisian DRF stakeholders, many of whom are now analyzing this data using artificial intelligence and machine-learning algorithms. The DRF Analytics tools also supported a financial risk assessment and preliminary cost-benefit analysis of various risk financing options, in direct support for a World Bank lending operation on the integrated management of disaster risks in Tunisia.



Screenshot of DRF Analytics tool

## LESSONS LEARNED

### The importance of an iterative development process

Designing the suite of generic analytical tools required an iterative development process as well as customizable modifications to respond to the specificities of disaster risks in each country. Feedback from countries on the suitability of the proposed applications proved to be very valuable in this process, especially at the applications' feasibility and concept design stages.

*“Because one cannot manage what one cannot quantify, [...] the tools developed by the Disaster Risk Finance team, GFDRR, and with support from the European Union have been an important contribution to our project. The first tool allows us to determine maximum probable loss scenarios. This helps dimension and structure our financial protection scheme, with information on how it should be implemented and what level of financing is required. The second tool informed on the optimal product design to respond to those levels of financial losses we are facing.”*

—**Abderrahim Chaffai**, Director of Morocco's Solidarity Fund against Catastrophe Events (in French, *Fonds de Solidarité Contre les Événements Catastrophiques*)