Quantifying agricultural losses and damages from extreme climate events in Uruguay through application of the FAO's Damage and Loss methodology

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Country: Uruguay

Climate hazard: Drought

Specific loss(es) or damage(s) experienced

According to Uruguay's national statistics, agriculture, livestock, forestry and fisheries accounted for, on average, 8.6% of the country's GDP in 2017-2021. If the related manufacturing industries (food, wood, cellulose, leather and wool) are added to the above, this percentage increases to, on average, 19.7% during the same period. Agro-industrial chains sector employed approximately 210,000 people in 2021, representing 13% of the employed population of the country, and contributed around 80% of the total value exported.

Drought is perceived by the productive sector as the most significant risk. In the last 15 years, eight water deficit events generated, on average, direct losses equivalent to 1 percent of the country's value added. The 2022/2023 water deficit alone generated direct losses equivalent to 3 percent of the GDP.

Actions taken and/or planned to holistically manage losses relevant to comprehensive risk management

FAO's Damage and Loss methodology to assess direct loss on agriculture from disasters – developed in partnership with the United Nations Office for Disaster Risk Reduction (UNDRR) – is being used to track progress towards achieving the Sendai Framework Indicator C-2 (Target C) 'Direct agricultural loss attributed to disasters' and SDG Indicator 1.5.2 'Direct economic loss attributed to disasters in relation to global gross domestic product (GDP)'. FAO's tailored tool standardizes disaster impact assessment in the agriculture subsectors (crops, livestock, forestry, fisheries and aquaculture) to ensure that agricultural loss is consistently and representatively reported at the global level. More than 40 countries have already been trained and have adopted the FAO DL assessment for the agriculture sector methodology, covering all regions across the globe.

The potential for applying the methodology to quantify losses and damages caused by climate related hazards is evident in efforts currently underway, for example, in Uruguay, where FAO's Damage and Loss methodology is being used in the context of the National Climate Change Adaptation Plan (NAP) and Nationally Determined Contribution (NDC) to estimate crop loss due to extreme climatic events.

Since 2017, the Office of Agricultural Programming and Policy (OPYPA) of the Ministry of Livestock, Agriculture and Fisheries of Uruguay (MGAP) has worked on a system for assessing losses and damages due to climatic events for the agricultural sector with the support of FAO.

At the national level, in 2016, Uruguay's Climate Change Response System (SNRCC) set up a working group to design a loss and damage evaluation purposes. Since 2021, the National Emergency System (Sinae) has adapted and implemented the existing damage and loss methodologies (Post Disaster Needs Assessments and Damages and Losses Assessment) in the

productive sectors, including agriculture. In 2022, Uruguay established the obligation to report all losses and damages impacted on, people, property or the environment. As a result, for the first time OPYPA and Sinae reported the agricultural losses and damages to Sendai Monitor.

For instance, in the 40 years analysed, the USD value of agricultural damage and loss was highest during drought years (2007–2008, 2012–2013, and 2017–2018), especially for soybean and wheat, although this may be due partly to the expansion of cultivated areas over the past decade. Analysis of historic damage and loss feeds Uruguay's disaster risk assessment and the forecasting of the probabilities of future production system losses due to various threats. This data was used to help design climate risk management and adaptation policies intended to avert or minimize loss and damage, such as the design of financial protection instruments that transfer risk to the insurance market. The data also contributed to the design of cost-benefit analyses of those investments designed to prevent and reduce risks, and to the creation of risk maps illustrating the spatial distribution of risks throughout the country, thereby enabling the informed prioritization of public resources.

One of the main challenges has been the integration of the information systems of relevant actors. It has been tried to implement automated calculations at country level, but this was only possible for some information systems, due to the different levels of technological advancement of the institutions involved. Among other main challenges is the possibility of generating estimates with greater geographical disaggregation, for example, to delimit areas by risk type and exposure levels. On the other hand, it could be useful to integrate information from the private sector (producer organizations, insurers) to improve estimates.

The strength of the approach and system, builds on a long-standing tradition and forms the basis of official data collection on production and monitoring of agroclimatic data in the country, and the existence of an integrated network of institutions linked to the agricultural sector, which can provide validated information, allowing this process to take place.

Supporting link(s) with additional relevant information

Conforti, P., Markova, G., & Tochkov, D. 2020. FAO's methodology for damage and loss assessment in agriculture. FAO Statistics Working Paper 19-17. Rome. https://doi.org/10.4060/ca6990en

FAO. 2023. Loss and damage and agrifood systems – Addressing gaps and challenges. Rome. https://doi.org/10.4060/cc8810en

FAO. 2023. The Impact of Disasters on Agriculture and Food Security 2023 – Avoiding and reducing losses through investment in resilience. Rome. https://doi.org/10.4060/cc7900en

FAO. 2021. The Impact of Disasters and Crises on Agriculture and Food Security 2021. Rome. https://www.fao.org/3/cb3673en/cb3673en.pdf