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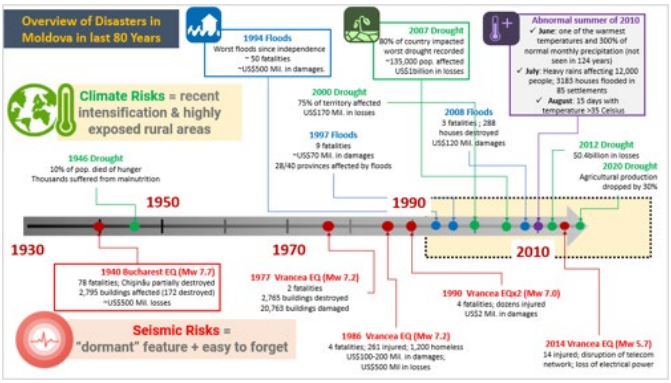
Moldova Special Focus Note: Moldova's Vulnerability to Natural Disasters and Climate Risks

In 2020, Moldova was hit by one of the most severe droughts over the past two decades causing a drop in agricultural production by almost 30 percent with significant spill-over effects throughout Moldova's economy. Other natural hazard events, such as earthquakes and floods, could also significantly impact Moldova's development trajectory and disproportionately affect the poor and vulnerable income groups. Climate change is expected to further intensify the severity and impact of Moldova's hydrometeorological hazards. Moldova has already begun to enhance its disaster and climate resilience institutional frameworks, but more needs to be done to strengthen the country's resilience to the shocks and stresses it faces—including the ongoing COVID-19 pandemic.

Moldova is exposed to an array of natural hazards and climate risks

Moldova is exposed to an array of natural hazards and climate risks, and their impact disproportionately affects the poor and vulnerable income groups. Droughts, floods and severe weather events are the most recurring threats—but earthquakes, though rarer, could also have a devastating effect. Projected rises in temperatures, rainfall volatility, and incidence and severity of drought due to climate change are likely to render the impacts of hydrometeorological disasters worse over the medium term. Natural disasters tend to disproportionately affect the poor and vulnerable income groups, especially in light of their dependence on agricultural production in Moldova (see Figure 1 for timeline of key disaster and climate events). Moldova already has some of the core institutional and legislative structures for disaster risk management (DRM) in place, but—as is common in many countries—the main emphasis is on "reactive" disaster response, and not on "proactive" disaster risk reduction or disaster risk mitigation.

Figure 1: A timeline of key disaster and climate events in Moldova

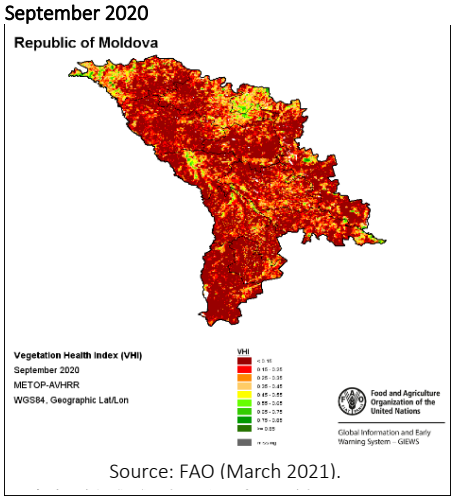


Source: Strengthening Moldova's Disaster Risk Management and Climate Resilience, World Bank (2020)

Droughts can have significant impacts on Moldova's economy

Moldova is at high risk of drought and extreme wheather events, both of which are exacerbated by climate change. Agriculture employs 30 percent of the population and is the backbone of the rural economy. Agriculture is also highly climate sensitive, and the country's agricultural sector has been increasingly affected by droughts and extreme weather events which are being exacberted by global climate trends. For instance, 7 of the 10 warmest years in Moldova's history occurred within the past two decades. Historically, Moldova has experienced droughts once every 3 to 10 years depending on the geographic location in the country. In 2007, Moldova suffered the worst drought in its recent history, affecting 80 percent of the country's territory and roughly 135,000 people, causing estimated losses of about US$1.0 billion. The recent 2020 drought caused a drop of over 26 percent in agricultural production and had a significant socio-economic impact, with almost 20 percent of overall job losses in the agriculture sector, hence compressing household income and consumption, contributing to the overall recession, and putting additional

Figure 2: FAO Vegetation Health Index (VHI) Map - September 2020



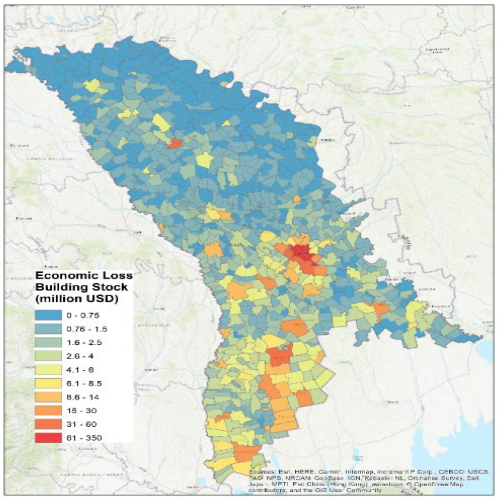
Source: FAO (March 2021).

strains on the budget as the Government of Moldova responded with relief measures.[1] In line with global climate trends, the likelihood of multi-year droughts are projected to increase, and, if not properly managed, the repercussions could be devastating to the economy.

Earthquakes are also a significant risk for Moldova

While earthquakes are more infrequent, their impact could also be devastating and could significantly alter Moldova's socioeconomic trajectory. Moldova is situated in a high-seismicity area due to its proximity to Vrancea, one of the most active seismic areas of Europe. Moldova has suffered 16 major earthquakes of magnitude 7-8 over the past 200 years. If an earthquake with the same magnitude as the 1940 earthquake (magnitude Mw 7.7), the country's worst earthquake in recent history, would occur today, it could lead to close to 200 deaths and close to 4,200 light injuries. The total reconstruction costs for the building sector alone would amount to US$ 5.8 billion out of US$62 billion in economic exposure (see Figure 3)[2]. Chisinau, which generates 50 percent of the country's GDP and is home to close to a quarter of the population, would be particularly impacted. Over 324,000 people, or about one in every two inhabitants of Chisinau, reside in the high-risk buildings which are prone to causing the most fatalities in the event of a severe earthquake.[3] Reconstruction cost would put a large strain on the government budget, the resources and capacity of local authorities, and the socioeconomic situation of affected households.

Figure 3. 1940 Earthquake scenario: economic losses to current Building Stock equivalent to US$ 5.8 billion

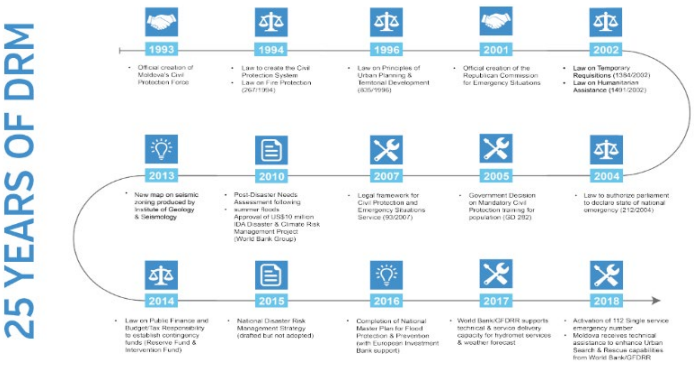


Source: Daniell, James et al.; background paper for Strengthening Moldova's Disaster Risk Management and Climate Resilience (World Bank, 2020).

Moldova has already been strengthening its disaster risk management (DRM) capabilities

The Government of Moldova has been strengthening its institutions to better prepare for, and respond to, disasters in recent years. Moldova has improved its ability to forecast severe weather, including at the local level, through improved hydrometeorological services[4]; it has reduced the agricultural sector's vulnerability to climate change by improving irrigation services, strengthening the existing agriculture insurance scheme, and promoting climate-smart agriculture practices; it has also strengthened its emergency response; and—importantly in light of the small size of the country—it has strengthened regional collaboration and knowledge sharing on DRM. However, much remains to be done, and the social and economic costs of disasters cannot be underestimated: over the past decade alone, floods and droughts caused US$1.2 billion in damage; a major earthquake today could affect 60 percent of the country's gross domestic product (GDP).

Figure 4: Key Milestones in Moldova's DRM institutional framework



Source: Strengthening Moldova's Disaster Risk Management and Climate Resilience, World Bank (2020).

[1] According to the FAO, the above-average temperatures and poor rainfall during the 2020 season severely affected wheat and maize crops (see September 2020 TAO VHI map in Figure 2).
[2] Strengthening Moldova's Disaster Risk Management and Climate Resilience (World Bank, 2020).
[3] Earthquake Risk in Multifamily Residential Buildings: Europe and Central Asia Region (World Bank, 2020).
[4] Better weather forecasting and warnings save lives and property – Insights from Moldova (blog Daniel Kull, 2019).

However, a significant reform agenda remains to further strengthen Moldova's resilience

Moldova needs to implement a comprehensive reform program focused on strengthening disaster risk preparedness, investing in risk reduction, and further strengthening disaster response. A comprehensive DRM and climate resilience agenda would need to comprise multiple short- to medium-term reform and investment programs, including improving Moldova's risk identification, investing in better risk reduction – both in terms of structural and non-structural interventions, enhancing disaster preparedness and providing stronger financial protection mechanisms and upgrading resilient recovery and reconstruction policies. Such a framework would need to gradually move the focus of DRM from "reactive", ex-post responses to "proactive", ex-ante risk management. Given the limited financial resources, it would also need to ensure that risk mitigation priorities are adequately mainstreamed within the existing national programs (agriculture, infrastructure, urban planning, flood risk management, among others) and include financial protection measures for those risks that cannot be fully mitigated.

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