



## Data-driven assessment of drought impacts – exploring sectoral impacts at a subnational scale: a case study for Romania.

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Drought hazards have intensified in many world regions during the recent century, exposing multiple environmental and socio-economic systems to increased risks. Nevertheless, estimating drought risk is still challenging due to the complex links between drought hazards and their potentially disastrous impacts. The recently published JRC European drought risk atlas, an outcome of the European Drought Observatory for Resilience and Adaptation (EDORA) project, has utilized a data-driven approach, linking drought's hazard, vulnerability, and exposure with observed sectoral impacts. This project links theoretical causal impact chains and quantitative outcome-oriented drought risk assessment, resulting in a high-resolution assessment of drought-driven sectoral impacts, which can support drought management, and adaptation policies and actions.

At the European level, long time series of observed impacts may be limited in terms of spatial or sectoral coverage, relevance, or granularity. However, specific countries often collect and compile sub-national resolution impact data relevant to drought risk assessment that can inform management and adaptation policies and actions. Implementation at a subnational scale using customized country specific data can be a valuable tool to assess drought risk and impact. However, ensuring valid and reliable results would require following a standard procedure. We explore this potential and delve one step deeper by conducting a national data-driven drought risk assessment in Romania.

We use data from various Romanian government agencies to examine drought-associated impacts on water supply, hydroelectricity energy production, and cultivated crop production. These spatially explicit national data provide larger coverage (cultivated crops), higher spatial resolution (hydroelectricity generation), and country-relevant data (drinking water supply to households) as compared to using Eurostat data for a Europe-wide approach. Data is not restricted only to these sectors; instead, it allows extending the sectoral coverage beyond that of the European drought risk atlas and exploring drought impacts on livestock productivity, water-dependent tourism, and forestry productivity, which are sectors of specific interest to the country. A preliminary

assessment suggests a range of sectoral impacts associated with droughts in Romania. The livestock productivity suffers an average annual loss (AAL) of 1 -2%, the forestry sector presents 3% of AAL, and the tourism sector has the highest AAL, at around 6%.

This proposed talk will focus on the potential of applying the Pan-European data-driven drought risk assessment method with nationally derived and diverse datasets, highlighting its flexibility in incorporating additional sectors. Specifically, we will present results for sectors not accounted for before. Finally, we will provide insights into the opportunities and limitations of standardizing the data-driven approach to conduct country-specific, sub-national drought risk assessments.