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The socioeconomic impacts of the 2004-2008 drought in the Ebro river basin (Spain): A comprehensive and critical assessment

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Water scarcity and drought are particularly relevant phenomena in Spain, a country with a Mediterranean climate and intense pressure on existing water resources. Spain's drought management policies have evolved significantly over time, and today Spain is at the forefront of drought management and mitigation planning in Europe. However, drought management policies are not informed by comprehensive or accurate estimations of the socioeconomic impacts of drought, nor by the efficiency or efficacy of drought management and mitigation measures. Previous studies attempting to estimate on the impacts of drought are based on direct economic users of water, primarily irrigated agriculture and hydropower. Existing analyses do not take into consideration the impacts on other economic sectors, such as recreational uses, which have a growing importance from a socioeconomic perspective. Additionally, the intangible or non-market impacts (on social welfare and wellbeing and on the environment) are not considered or measured, although they can be significant.

This paper presents the mid-point results of the PREEMPT project (Policy relevant assessment of the socioeconomic effects of droughts and floods, ECHO - grant agreement # 070401/2010/579119/SUB/C4), an effort to provide a comprehensive assessment of the socioeconomic impacts of the 2004-2008 drought in the Ebro river basin. The study gathers existing information on direct and indirect economic impacts of drought on different sectors, completing existing gaps and comparing the results of studies that use different methodologies. It also estimates the welfare losses resulting from domestic water use restrictions and environmental degradation as a result of the drought using a value transfer approach from results derived from value choice experiments developed for other Spanish and international river basins.

Results indicate that there is a clear need to improve our knowledge of the direct and indirect impacts of drought and to devise simple methodological and institutional approaches that allow for more effective and harmonized information gathering. We propose more accurate and policy relevant methodological alternatives. In terms of the welfare and environmental impacts of drought, we use different and complementary approaches and discuss possible limitations of existing methodologies. In spite of these limitations, we argue that an improved knowledge of the risks and costs of extreme meteorological events will help inform and improve decision making for effective and cost-efficient risk mitigation practices.

Comparing our results of the Ebro drought 2004-2008 with previous academic and official analyses reveals significant biases, resulting from impacts overestimation and from omitting non-market water uses, indirect effects and intangible effects.