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Is climate change to blame for rising climatic disasters mortality in Nepal?

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Human mortality and economic losses due to climatic disasters have been rising globally. Several studies argue that this upward trend is due to rapid growth in the population and wealth exposed to disasters. Others argue that rising extreme weather events due to anthropogenic climate change are responsible for the increase. Hence, the causes of the increase in disaster impacts remain elusive. Disaster impacts are higher in low-income countries, but existing studies are mostly from developed countries or at the cross-country level. This study will assess the attribution of rising climatic disaster mortality to indicators of climatic hazards, exposure, and vulnerability at the subnational scale in a low-income country, using Nepal as a case study.

This empirical study at the scale of 753 local administrative units of Nepal will follow a regression-based approach that will overcome the limitations of the commonly used loss normalization approach in studying the attribution of disaster-induced loss and damage.

In Nepal, landslides and floods account for more than two-thirds of the total climatic disaster mortality. Hence, we will use the past 30 years (1991-2020) landslides and floods mortality data from DesInventar and Nepal's Disaster Risk Reduction portal as the dependent variable. As explanatory variables to represent climatic hazards, we will estimate and use mean and extreme precipitation indices from observational data by the Department of Hydrology and Meteorology Nepal. We will use the local unit's population as a proxy of disaster exposure. Socio-economic and environmental indicators such as annual per capita income, percentage of people with access to mobile phones and internet, land cover distribution, and slope will be used as indicators of vulnerability. Exposure and vulnerability indicators data will be accessed from Nepal's Central Bureau of Statistics and other sources. This study is expected to identify indicators of climatic hazards, exposure, and vulnerability that could explain the spatial and temporal variability of climatic disaster mortality in Nepal. Similarly, it will provide new insights on the role of climate change on rising climatic disaster mortality from the low-income countries' context.