

## **Building socioeconomic scenarios for the analysis of climate impact vulnerability**

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Vulnerability to climate impacts depends on both climate exposure and underlying social and economic conditions. In the analysis of climate impact vulnerability, there is a great need to look at climate scenarios in conjunction with socioeconomic scenarios. Although there are many sophisticated and rigorous climate exposure scenarios, socioeconomic scenarios are limited and inadequate. In general, socioeconomic scenarios reflect a world that exhibits normal and predictive behavior, has low temporal and spatial variation, covers a small range, and is deterministic. Some common themes are steadily increasing incomes without the occurrence of a recession, and a consistent trend towards peace. Furthermore, most socioeconomic scenarios lack a probability distribution, suggesting that all are equally likely. We explored a method of simulating plausible socioeconomic scenarios that are likely to affect a country's ability to cope with climate change impacts. Using Microsoft Office Excel 2007, we simulated regional income scenarios, and country level income, government type (democratic or not), and the instance of internal armed conflict scenarios. We have the ability to run these simulations thousands of times. Our simulations include random number effects, which result in scenarios with more spatial and temporal variation, and allow them to be non-deterministic. At the same time, our scenarios are based in history, and reflect historical relationships established by the literature between income, type of government, and conflict. Furthermore, our scenarios allow countries with divergent historical income trends to follow dissimilar income trends into the future. To understand vulnerability, this difference between countries is crucial. Overall, these improvements permit more effective climate change vulnerability assessment.