

Addressing adaptation inequalities in climate research

July 17 2023



Credit: CC0 Public Domain

A new study proposes ways to better incorporate adaptation in climate change research, addressing the uneven distribution of adaptation capacities and needs worldwide.

Research on adaptation to the risks posed by climate change has

witnessed significant growth in the past decade, with increasing recognition of its urgency in policy agendas at the international, national, and local levels. Adaptation needs and capacities are not evenly distributed worldwide, with countries in the Global South generally experiencing the highest challenges. Existing climate modeling tools, however, do not account for these differences in adaptive capacities, which may lead to an underestimation of the actual risks.

To help address this challenge, in a new IIASA-led study published in *Nature Climate Change*, researchers proposed ways to better incorporate adaptive capacity into the framework of the Shared Socioeconomic Pathways (SSPs), a scenario set widely used by climate impact and integrated assessment modeling communities. SSPs describe alternative global development trajectories based on factors such as GDP, demographics, governance, and gender equality, and are able to characterize how well or ill-equipped a society is to cope with climate change.

"There has been previous work pointing at the need to better represent adaptation in [climate models](#)," says Marina Andrijevic, a researcher in the IIASA Energy, Climate, and Environment Program and the lead author of the study. "In this study, for the first time we offer concrete ways to quantify adaptive capacity in climate research. Using the approach we are suggesting, our mainstream modeling tools can incorporate the idea that not all societies will be able to adapt to climate change."

The researchers provide an overview on how adaptation is represented in conventional modeling tools and show that the SSP scenario framework can be leveraged to assess different categories of adaptation constraints and enablers. The study also offers guidance on model integration for assessing climate change risk and explores future research directions in global assessments used by the Intergovernmental Panel on Climate

Change.

"In our modeling efforts, adaptation must be regarded in the broader context of socioeconomic development with a focus on societal empowerment, not only in financial terms, but in the form of education, governance, and gender equality," says Carl-Friedrich Schleussner, a researcher at Climate Analytics and a co-author of the study.

The approach detailed in the study can accelerate ongoing efforts to improve the representation of adaptation, account for inequalities, and enable more precise risk estimates and reliable policy advice. To facilitate the integration of adaptive capacity in different research and policy agendas, the researchers also developed a [data explorer](#), visualizing different global futures for indicators that can be used to assess adaptive capacity.

"A better integration of adaptation and adaptive capacity in quantitative risk modeling could show policymakers that we cannot take it for granted that adaptation will simply happen; stringent mitigation must remain the priority for climate risk reduction," concludes Edward Byers, a researcher in the IIASA Energy, Climate, and Environment Program and a co-author of the study.

The new framework will also be used in the IIASA-led SPARCCE project on socioeconomic risks of climate change in Europe, that will start in September 2023. Along with 11 other partners across Europe, including the European Commission's Joint Research Center, the €6.1 million project will develop new and integrated capacities to assess the risks of [climate change](#) and identify synergies between mitigation and adaptation actions.

More information: Andrijevic, M., Towards scenario representation of adaptive capacity for global climate change assessments, *Nature*

Climate Change (2023). [DOI: 10.1038/s41558-023-01725-1](https://doi.org/10.1038/s41558-023-01725-1) ,
www.nature.com/articles/s41558-023-01725-1

Provided by International Institute for Applied Systems Analysis

Citation: Addressing adaptation inequalities in climate research (2023, July 17) retrieved 2 May 2024 from <https://phys.org/news/2023-07-inequalities-climate.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.