

WIDE FAULT LINES WITHIN THE GLOBAL CLIMATE RISK INDEX

Relevant for: Environment | Topic: Environmental Degradation - GHGs, Ozone Depletion and Climate Change

The [address by Barbados Prime Minister Mia Mottley](#) at the [26th United Nations Conference of Parties, or COP26](#), in Glasgow, Scotland, attracted global attention with her remark that failure to provide critical adaptation finance as well as measuring the extent of loss caused by climate change with respect to “lives and livelihoods” was immoral. This has again brought the complexity in measuring climate risk to the forefront.

The Intergovernmental Panel on Climate Change (IPCC), under the aegis of the United Nations, defines climate risk as the likelihood of unfavourable impacts occurring as a result of severe climate events interacting with vulnerable environmental, social, economic, political or cultural conditions. Quantitatively, it is the product of the probability of a climate event occurring and its adverse consequences.

Tackling the climate crisis

Recent discussions around climate risk assessment and management have been based on the “Global Climate Risk Index” (GCRI), published annually by GermanWatch, a non-profit organisation. The latest version of the GCRI, published in January 2021, ranked 180 countries based on the impact of extreme weather events and associated socio-economic data from 2000-2019. According to the publishing agency, the rankings are meant to forewarn countries about the possibility of more frequent and/or severe climate-related events in the future. This index uses historical data to provide insights on exposure to extreme events. It cannot be used for linear forecasts about future climate impact. There are deep fault lines in the methodology and interpretation of the country rankings. Recommendations based on this index should be generated with caution.

First, the GCRI ranks countries based on four key indicators: number of deaths; number of deaths per 1,00,000 inhabitants; sum of losses in Purchasing Power Parity (in U.S. dollars); and losses per unit of the Gross Domestic Product (GDP). Of these indicators, two are absolute while the other two are relative. However, the GCRI report does not provide a rationale for the selection of these macro indicators.

Second, the index suffers from exclusion errors and selection bias. Composite indicators are better constructed using micro indicators instead of macro indicators, which measure loss because isolating the effect of the loss of elements on GDP is fraught with errors. Instead, a number of key micro indicators such as the total number of people injured, loss of livestock, loss of public and private infrastructure, crop loss and others are better candidates for assessing the composite loss resulting from climate change events. Third, the index accounts for information on weather-related events like storms, floods, temperature extremes and mass movements. However, it omits geological incidents like earthquakes, volcanic eruptions or tsunamis, which may be potentially triggered by climate change and can have economic and humanitarian impact.

Climate migration predicted to rise in India as extreme weather worsens

Fourth, the ranking under the GCRI is done based on data collected by Munich Re’s NatCatService, which is not validated at the ground-level. The data gaps particularly with regard

to economic losses are based on experience, the prevailing intellectual property of MunichRe and the market value of elements at risk that are at best approximate values of economic losses.

Any discussion on measurement and management of climate risk is incomplete without accounting for issues of uncertainty, scale and delays between action and response to climate change. Therefore, climate change can at best be managed within a comprehensive risk assessment framework, which uses climate information to better cope with the impact of climate change.

In this context, India's latest module on the National Disaster Management Information System (NDMIS) captures damages and losses caused by disasters and monitors the targets of the [Sendai Framework for Disaster Risk Reduction](#). The NDMIS captures details on parameters like death, injury, affected population by categories as well as economic losses in social and infrastructure sectors due to weather and geological events on a daily basis. The data captured by the NDMIS includes all major climatic events.

Deploying effective approaches and principles to foster collaboration among climate risk information users and providers, along with enabling the implementation of effective management actions, will allow India to leapfrog on the targets envisaged in the Sendai Framework.

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