

Science for Environment Policy

Climate adaptation: can vulnerable countries cope with the costs of extreme weather?

Following extreme weather events, many countries are unable to afford the costs of providing relief to communities and repairing infrastructure, a new study suggests. The researchers estimate that providing relief on a global scale for events which recur every 10 to 50 years would cost US\$3.3 billion (€2.37 billion) annually.

Extreme flooding or drought can cause substantial damage to communities and infrastructure, with severe consequences for a nation's economy.

To understand how countries meet the costs of responding to extreme weather events, this study first calculated the direct risks and public-sector liability for losses. Events considered by the researchers included storms, flooding or drought, which may occur at intervals of 10 to 500 years, in 161 countries around the world. Extreme events that occur relatively often tend to be less destructive, and therefore less costly to recover from, compared with events that are much less frequent.

They also calculated the financial vulnerability of the countries included in the study and identified the gap between their available funding and the amount required for recovery from events with different recurrence periods, termed the 'resource gap'.

According to the calculations, developed nations experience resource gaps for more destructive, less frequent events but they are generally able to meet the costs of relief for less destructive, more frequent events. However, 70 countries assessed were financially vulnerable to events that occur every 50 years. Of those, 57 would also experience a resource gap for once-every-30-year events. Small Island Developing States and countries already in debt are the most financially vulnerable.

Globally, it would cost US\$3.3 billion (€2.37 billion) annually to cover those resource gaps for 10-to-50-year events, the study proposes. Including events up to a 250-year return period would increase annual costs to around US\$22 billion (€15.8 billion).

These estimates were based on current weather events and at present the results represent the upper limit of costs. This is because the public dataset used may overestimate some losses as it is based on estimates made immediately following an extreme event, rather than later more considered estimates, which tend to be lower.

However, if extreme events increase in frequency or severity due to climate change, as predicted, then costs will rise. In addition, the researchers highlight that their findings may be interpreted as a baseline estimate for what may be to come, if emission reductions and adaptation to climatic risks are not better managed.



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