

# Science for Environment Policy

## Droughts and floods slow economic growth

**Droughts and floods** can significantly damage economic growth, recent research has found. A 1% increase in the area affected by drought can slow a country's gross domestic product (GDP) growth by 2.7% per year and a 1% increase in the area experiencing extreme rainfall can reduce GDP growth by 1.8%, according to the study. Investments in water security could help reduce this negative economic impact, say the researchers.

**The repeated impact of climatic extremes**, such as floods and droughts, can have profound direct and indirect effects on a nation's [economy](#). Direct effects, such as damage to agriculture and infrastructure, are more obvious, but indirect effects, such as a reluctance to invest in an at-risk area, can also have a serious economic impact.

Climate change predictions suggest extreme weather events are likely to become more frequent. Unfortunately, previous studies regarding the economic impact of [climate change](#) have typically focused on changes in average conditions. As a result these have not adequately captured the threat to water security caused by extreme events, for example, reduced water availability caused by droughts, and damaged water supply infrastructure and silted-up dams caused by floods.

In this study, researchers investigated the impacts of extreme climate events on the GDP of approximately 180 countries, using temperature and precipitation records spanning the period 1901 to 2003. Results of the study suggest that droughts and floods have a more significant and damaging influence than temperature extremes on a country's economic growth.

In particular, the larger the area affected by drought, the greater the economic damage. The study found that a 1% increase in the area experiencing drought was related to a 2.7% fall in the country's GDP growth in a single year. Excessive rainfall and flooding also caused a reduction in economic growth: for each 1% area affected by excessive rainfall, GDP growth was reduced by 1.8%.

Furthermore, there are also longer-term economic impacts to consider. This is particularly the case for floods, which, due to their more destructive nature, can sweep away infrastructure and property and may lead to disease, especially in poorer nations.

The study's authors highlight the importance of implementing measures to improve [water](#) security, an essential part of protecting economic growth, especially under future climate change. Such investments should be part of a wider strategy for water security. This could include, for example: enabling strong institutions to manage the economic allocation of water in drought-prone areas and enhancing water monitoring and forecasting capabilities to anticipate and mitigate the weather extremes that are more likely to occur under climate change. These measures have particular significance in developing nations, where infrastructure and good institutional management of water resources may be less developed than in wealthier countries.



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