Researchers link climate-induced disasters and food security across time and place

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Image: Wikipedia.

Teams of researchers in the American Southwest and North Atlantic Islands have found that historic and prehistoric peoples in these regions who had created vulnerabilities to food shortfall were especially susceptible to impacts from climate challenges. Their "natural" disasters were human made in conjunction with climate challenges.

Four pre-Columbian regions in arid to semi-arid deserts were compared to three sub-polar North Atlantic islands during Norse occupation. In each case, eight variables - ranging from social to environmental aspects - were applied to quantify vulnerability to food shortage before extreme climate challenges. The cases with lowest vulnerability showed no extreme social change or food shortage following climate disasters.

The researchers discovered that social factors, like limitations on

networks and mobility, were the primary contributors to vulnerability to food shortage.

The research teams were composed of archaeologists at Arizona State University and historians, archaeologists and geographers working in the subarctic islands of Iceland, Greenland and the Faroes. Their findings appear in the December 28 issue of *PNAS*.

"We were drawn to this collaboration because in spite of the different environments, cultures, histories, climates and identities of the two regions, we were asking the same kinds of questions about human capacities to address challenging climate conditions," says lead author Margaret C. Nelson, President's Professor in Arizona State University's School of Human Evolution and Social Change. Understanding human capacities to address climate challenges is as important today as it was in the past.

"Our ability to combine our knowledge has led to understandings of this issue that transcend a single region, climate type, people or tradition."

Nelson stresses that not only does the work identify the role of the past in informing the present but also the importance of exploring diverse conditions for understanding how to meet current challenges related to climate-induced disasters. Her research makes a case for addressing vulnerabilities as part of effective disaster management.

More information: Climate challenges, vulnerabilities, and food security, www.pnas.org/cgi/doi/10.1073/pnas.1506494113

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