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The tradeoffs between protecting against man-made and natural disasters

BY KELLY KLINE

According to START researcher [Jun Zhuang](#), society is faced with a growing amount of property damage and casualties from man-made and natural disasters. Zhuang addressed consortium headquarters this month with a discussion of "Strategic Interactions in Disaster Preparedness and Relief in the Face of Man-Made and Natural Disasters."



An assistant professor of industrial and systems engineering at the University at Buffalo, the State University of New York (SUNY-Buffalo), Zhuang examines the tradeoffs between protecting against disasters, specifically between preparedness and relief, efficiency and equity, and between private and public investment.

"Developing societal resilience to those disasters is critical but challenging," Zhuang said. "In particular, societal resilience is jointly determined by federal and local governments, private citizens, and private and non-profit sectors."

His research presents a sequence of games among players such as private citizens, adaptive adversaries –a person, group or force that opposes or attacks– and federal, local and foreign governments, where the governments and private citizens seek to protect lives, property and critical infrastructure from both adaptive terrorists and non-adaptive natural disasters.

So, how do we protect against man-made and natural disasters? According to Zhuang, the federal government can provide grants to local governments and foreign aid to foreign governments, as well as provide pre-disaster preparation and post-disaster relief to private citizens. Private citizens can prepare by making their own defensive investments that deal with their lives, property and culture through strategy and thinking, as well as investing in the proper insurance and health care systems.

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