

2nd International Conference on

Food Security and Sustainability

June 26-27, 2017 San Diego, USA



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Progress in feeding the earth if there is a global agricultural catastrophe

Several of catastrophes could block the sun, including asteroid/comet impact, super volcanic eruption and nuclear war with the burning of cities (nuclear winter). This represents roughly a 10% probability this century that agriculture would be nearly completely destroyed. The literature also suggests that there is an ~80% chance this century of a 10% global agricultural shortfall due to catastrophes such as a large volcanic eruption, a medium asteroid/comet impact, regional nuclear war, abrupt climate change and extreme weather causing multiple breadbasket failures. Previous work has shown that it is technically feasible to feed everyone in these scenarios by producing alternate food that is not dependent on sunlight but instead on stored biomass and fossil fuels. Previous work has also shown that preparation for this food production would be very low cost, so it would be highly cost-effective and there is great urgency for this preparation. Ongoing work includes estimating the cost of producing the alternate foods during a catastrophe. Further work has been writing response plans at the national, regional and international levels. Several scenario planning exercises have been performed with informative results. An organization has been started to coordinate research and planning work: AllFED. Since this work shows that people have more to gain from cooperation during a catastrophe, this has important implications for peace.

Biography

David Denkenberger has received his BS from Penn State in Engineering Science, MSE from Princeton in Mechanical and Aerospace Engineering and PhD from the University of Colorado at Boulder in the Building Systems Program. His dissertation was on his patent-pending expanded microchannel heat exchanger. He is an Assistant Professor at Tennessee State University in Architectural Engineering. He is also an Associate at the Global Catastrophic Risk Institute. He has received the National Merit Scholarship, the Barry Goldwater Scholarship and The National Science Foundation Graduate Research Fellowship and is a Penn State Distinguished Alumnus. He has authored or co-authored over 60 publications, including the book "Feeding Everyone no Matter What: Managing Food Security after Global Catastrophe". He has given over 80 technical presentations.

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