

Herrenhausen Conference October 9-11, 2019 EXTREME EVENTS – BUILDING CLIMATE RESILIENT SOCIETIES.

Report of session 2 “Extreme Weather Events and Systemic Risks for Food Security”

Synthesis research & action agenda

Title	Extreme Weather Events and Systemic Risks for Food Security
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Context, Motivation, Urgency	<p>Agriculture, fisheries, and hunting and foraging require suitable weather to be productive. Extreme weather can drastically impact on this productivity, threatening subsistence, raising prices, forcing migration, conflict, and leading to reductions in the availability and access to healthy and nutritious food. Climate change is increasing the frequency of extreme weather. This poses important risks for our food systems and the people that depend on them.</p> <p>While some of the risks posed by extreme weather on our food systems are extensions of existing conditions others are beyond the bounds of cultural memory. These emerging risks are forcing people to adapt to conditions which they, and their recent ancestors have little experience. These changes stress the social fabric of our food systems. They set limits to what we can learn from the past, and test our ability to adapt. Underpinning these new challenges is the need to build resilient societies that are agile and exhibit strength to respond in cohesive and transformative ways. At the same time the pace at which inequality is being reduced is not fast enough to keep a pace with the rising population. This is creating a burgeoning number of exposed people across the world who are particularly vulnerable to the onset of food system shocks triggered by extreme weather events. The rate of progress in infrastructure for buffering and against shocks and responding to disasters in many parts of the developing world has is also inadequate to deal with the size of this challenge the world currently faces.</p> <p>In the backdrop of these challenges the ecological systems which support our food systems are under pressure, biodiversity continues to decline, our rivers and coastal waters are loaded with pollutants, and water scarcity remains a major challenge. So too, are our social structures showing signs of fragility, divisive political rhetoric is on the rise, trust in our institutions is declining, fake news and animosity is widespread, and securement of national interests, over that of the global community, remain the only constant in models of governance. These conditions all act to exacerbate the challenges posed by extreme weather on food security.</p>
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Key research questions incl. expected methodologies and disciplines involved	<p>The unique set of challenges faced by food systems in face of extreme events call for a unique set of interventions, actions, science, and methods for decision making under uncertainty. In our session we identified a set of key issues and areas where we thought the urgency for new knowledge was particularly high. The top ten of these emerging issues, and the respective questions they raise are included below:</p> <ul style="list-style-type: none"> • How can we best prepare for losses to crop production from recurring heat waves and droughts in sub-Saharan Africa?
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	<ul style="list-style-type: none">• What is the risk posed to food security by co-occurring heat waves on the land and in the sea?• How long will it take for food systems to respond to damage to critical infrastructure and public utility systems, and how can we reduce the correlated risk of extreme events throughout production, stocking, transport and retail?• How can multiple breadbasket failure from co-occurring extreme weather be best mitigated against? How can we govern to maintain asynchrony in the food system?• How can we reduce the risk of biodiversity loss leading to abrupt ecosystem change at the same time that extreme weather impacts food systems, particularly for those that depend on natural systems for livelihoods. <p>We recognize this list is limited to our workshop outputs, and to the experts that engaged with our session remotely, but hopefully this list can be used for as a guide for some of the most pressing issues.</p>
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<p>Priorities for action items & implementation</p>	<p>In addition to identifying these issues we discussed a number of obstacles and key priority policy actions:</p> <ul style="list-style-type: none">• Implementation of effective climate policies in industrialized countries in particular.• Need to build a strong scientific evidence base and political strategy for building societies with higher levels of trust, love and cohesion that can effectively respond to and cope with unpredictable food system outcomes.• Need to learn from stronger communications channels between academics and policy makers so effective high leverage solutions can be deployed rapidly and are given priority.• Assessments and responses to vulnerable geographies and populations require more 'boots on the ground' for effective management of and early warning preparedness for extreme weather events.• International, national and local mechanisms are needed for embedding redundancy in our food systems under shock in the most efficient way with minimal loss.
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<p>How to cite</p>	<p>Delzeit R., Mehrabi Z. (2019) Report of session 2 “Extreme Weather Events and Systemic Risks for Food Security”: Synthesis research & action agenda. Herrenhausen Conference October 9-11, 2019 Extreme Events – Building Climate Resilient Societies. doi: 10.17871/HK-report-session-2</p> <p>© Author(s) 2019. This work is distributed under the Creative Commons Attribution 4.0 License.</p> 
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