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TAMEST NATURAL HAZARDS SUMMIT

Responding to and Mitigating the Impacts

PART I: VIRTUAL SUMMIT
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#NATURALHAZARDSSUMMIT

Theme Three:

LONG-TERM OUTLOOK, RISK AND MITIGATION FOR CLIMATE CHANGE

Moderated by:

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Panel:

Building Resilience to Mitigate Natural Hazards: Science and Policy

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Addressing Social Challenges to Resilience

- As hazards increase in frequency & intensity, risk extends in scale, space, time
- Compound and cascading hazards multiply disruption, costs of extreme events:
  - In 2020, COVID-19 threatened local, state, national health systems as a global pandemic, and...
  - ...hurricanes, wildfires, floods, earthquakes occurred at regional scales; U.S. alone experienced:
    - August lightning complex fires in Northern California
    - Four major hurricanes strike the Gulf Coast states, TX, LA, FL
    - River flooding in three states, IA, IL, MO
- Climate change exacerbates extreme shifts in weather systems with environmental impacts for longterm management of water, drought, social, economic conditions
- Cumulative losses strain complex systems; resilience requires a systems approach

What have we learned about resilience and communities exposed to hazards?

- A systems approach to building resilience engages multiple actors, interdisciplinary perspectives in a collective learning process
- Knowledge of past events rarely translates into action to reduce future risk
- Interacting dimensions of time, space, and scale challenge communication of risk that leads to action; risk is perceived at different levels of urgency
- Cognition of risk depends upon both social and technical systems to decrease uncertainty and enable timely, informed action
- Resilience: a continuous learning process for interacting groups, agencies, communities

What don't we understand?

- Complexity and interdependence among natural, built, and organizational infrastructures are not well identified
- Impact of varying rates of change in different sub-systems -- energy, water, transportation, economic growth -- on different population groups
- Cumulative cost of failure to take action to reduce escalating climate risk potentially exceeds available resources for managing hazards
- Design of policies and procedures to enable broad, diverse communities to learn and act collectively to reduce risk

What needs to be further integrated into policies and practice?

- Basic science underlying hazards needs to be integrated into policies for allocating resources, time for mitigating impact of climate change
- Advances in monitoring, updating, analyzing information regarding extreme events at local, regional, national, and international scales
- Fundamental values of equity and social justice regarding stewardship of natural resources for communities, regions, nations, and planet
- Timely, robust means of countering disinformation that reduces shared understanding of large-scale, interdisciplinary, ecological risk

How do we advance the science of natural hazards to protect our communities?

- Use science as a mode of inquiry to build a current, valid, interdisciplinary, shared knowledge base of risk in a dynamic world
- Develop models to explore consequences of alternative action strategies, estimate benefits of investment in, as well as costs of, mitigating risk
- Build collaborative teams of researchers, practicing managers, policy makers, and community leaders to design innovative approaches to reduce risk
- Employ advanced technologies to connect diverse networks of actors in achieving a shared goal of sustainable resilience
- Invest in continuing research, education, and broad public engagement to enhance values and culture of managing risk in the public sphere