



University of Colorado **Boulder**

Closing the Earthquake Science to Public Action Gap



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NSF Awards: #1635593, #2536173, and #1841338



Natural Hazards Center



CONVERGE

Happy 35th
anniversary!





Closing the Earthquake Science to Public Action Gap

@Tom Van Dyke,
Bay Area News
Group Archive, 1989

1. We need **all
disciplines,
working
together, to
close the gap**



Paradigms for Hazards and Disaster Research and Education

Hazards Centered	Resilience Centered	Vulnerability Centered

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• Physical sciences, engineering, architecture, physical geography, computer science, mathematics remote sensing	• Public administration, emergency management, urban planning, social and behavioral sciences, civil engineering	• Social and behavioral sciences, law, humanities, history, public health, public policy

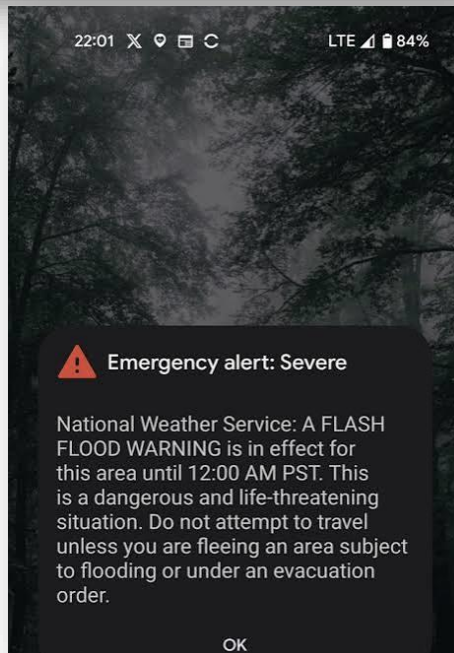
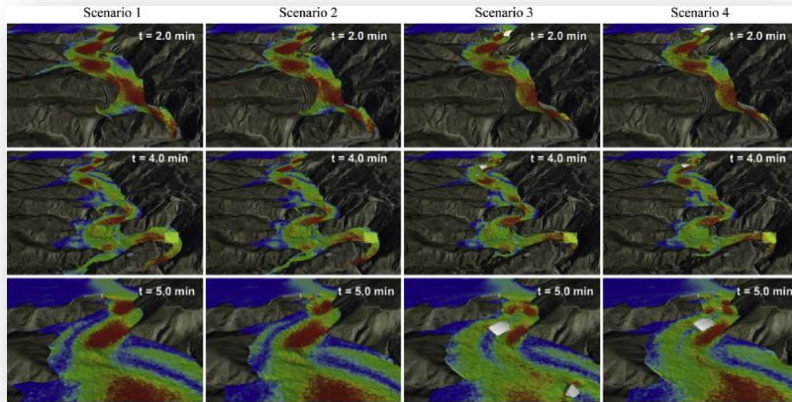
**Hazards
Centered**

**Resilience
Centered**

**Vulnerability
Centered**

***To reduce disaster risk,
each of these
paradigms is
necessary, but not
sufficient in isolation***

Hazards Centered



Resilience Centered

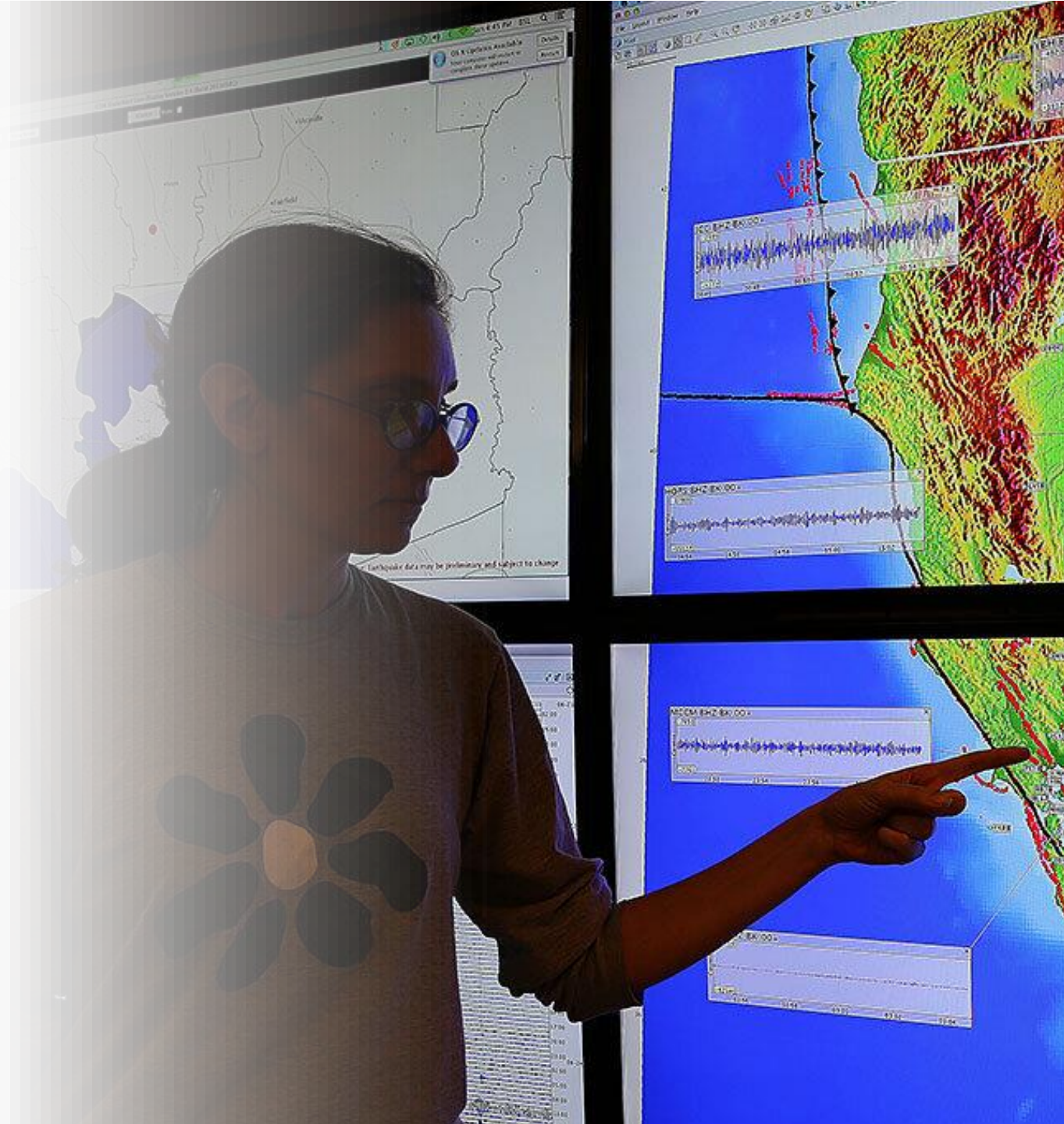


Vulnerability Centered



- If we want to understand why **people** do or don't take recommended actions, we need to **ask them**.
- **Social problems require social solutions.** (Don't just tell people to "turn around" / CLOSE the roads.)

2. We need to invest in the next generation of earthquake experts



Next Generation Earthquake Researchers

- **Transfer Knowledge** from Past Generations
- Provide **Depth *and* Breadth** in **Training *and* Teaming Efforts** (*hazards, resilience, and vulnerability paradigms*)
- Create **Professional and Structural Incentives** for Researchers and Educators to **Focus on Earthquakes**

**3. For knowledge to
be actionable, we
must move from
pipelines to cyclical
processes**



Knowledge to Action: The Science Push / Pipeline Model

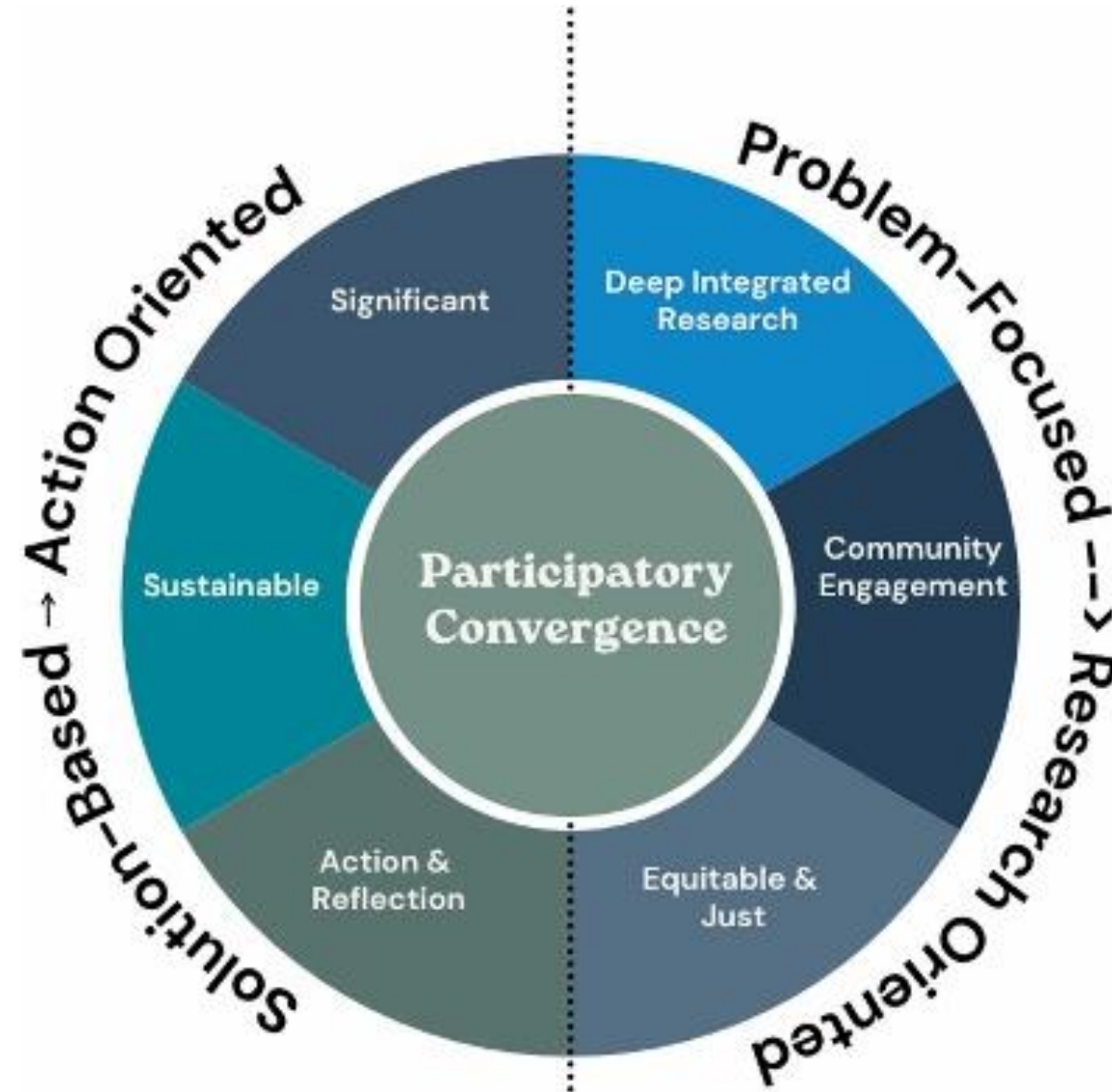


Assumption that knowledge will flow seamlessly to (and be used by) **policymakers and practitioners**

Over time, a recognized need for “**knowledge translators**” to play a role in **disseminating** the models, forecasts, technologies, etc.

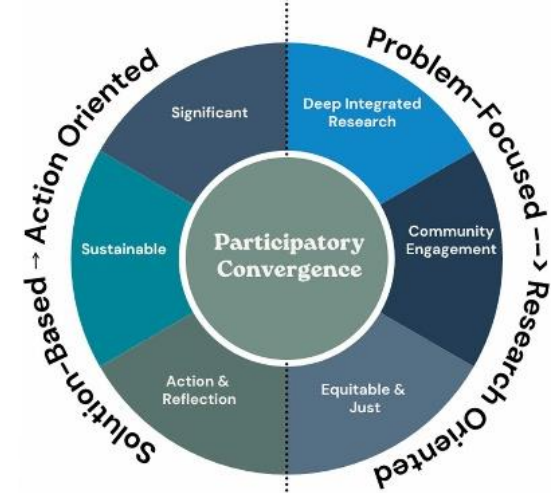
Science and engineering as the foundation: Define the problems, conduct the research, develop the solutions

Knowledge to Action: Participatory, Convergent, Cyclical Models



Source: Castro-Diaz
et al., 2026

Participatory Convergence in Action: Learning to Build Earthquake Resistant Schools in Nepal



THANK YOU



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