

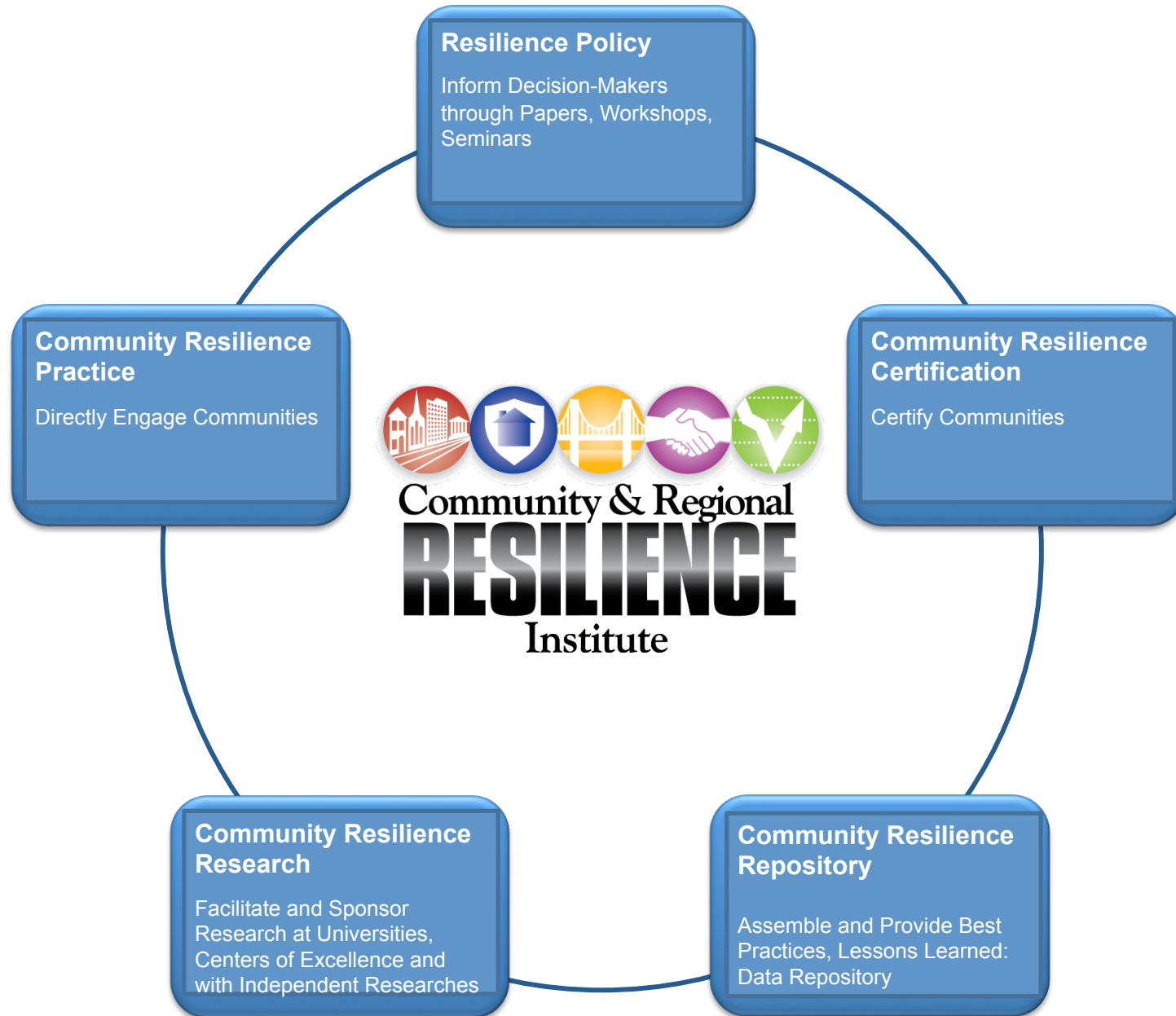


Priorities for Resilience Research: Perspectives from the CARRI Experience

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Applications Workshop 2011**

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CARRI Community Research



National Research Team
<ul style="list-style-type: none">• Universities• Laboratories• Independent Researchers

Local Research Team
Locally Based University Research Teams – Local and Legacy Knowledge

- Research Paper Series
- Research Gap Analysis
- Community Discovery Validation
- Community Research Synthesis

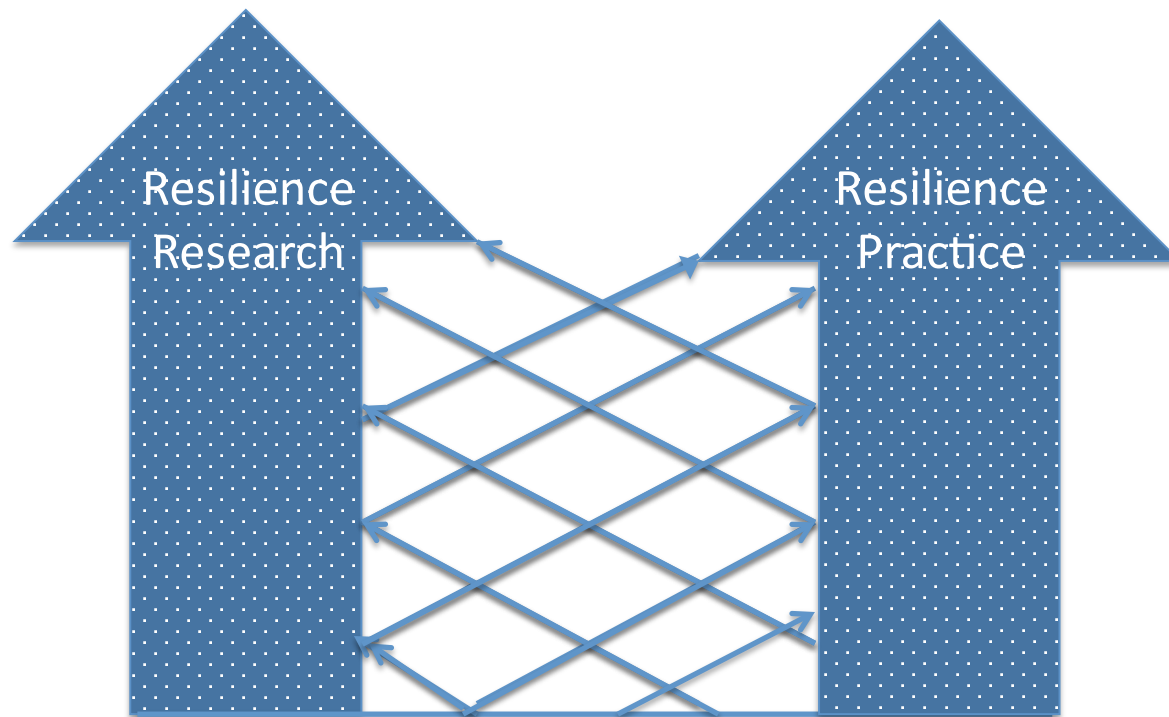


CARRI's Research Component Builds from a Wide Range of Links with Communities of Both Research and Practice:

- **Research links range from the NRC Committee to resilience-related activities of the Intergovernmental Panel on Climate Change (IPCC)**
- **Practice links include CARRI's three community engagement experiences, connections with policymaking in a number of national venues, and – over the past year – development of a Community Resilience System, which after refinements, is intended for use by communities to improve their own resilience**

CARRI's Research Component Builds from a Wide Range of Links with Communities of Both Research and Practice:

- CARRI believes that research and practice not only *can* evolve in parallel, but that they *should* evolve together – enriching each other at every step...



Based on This Experience, We Would Suggest Three Especially High Priorities for Resilience Research:

- Developing valid indicators of community resilience
- Understanding how resilience can be rewarded before/in the absence of disruptions
- Understanding what resilience means, and how it can be achieved, if threats imply that sustainability can only be assured by *transformational* actions

Developing valid indicators of community resilience (I):

- It is difficult to motivate and sustain efforts to improve levels of community resilience if a community cannot determine where it stands:
 - More or less resilient than others?
 - More or less resilient than before?
 - Success in reaching a target level?
- Indicators of community resilience have been a topic of research, and progress has been made: e.g., Cutter, Norris, Peacock
- But most of the current indicators work backward from what data are readily available (e.g., in Census reports) rather than forward from what one would really like to know:
 - Community leaders suggest that current indicators describe community well-being, not community resilience
 - Resilience is rooted in a social dynamic that promotes collaborative problem-solving
 - But measures of levels of such “social capital” for all communities are lacking



Developing valid indicators of community resilience (II):

- The highest priority seems to be to develop indicators of social capital that can be applied across a variety of communities:
 - Addressing such issues as social engagement, connectivity, and inclusiveness, along with community resourcefulness: its capacity for collective action in the face of threat
 - Proxy variables? Ways to estimate reliably where direct measurements are difficult to find?
 - Ways to incorporate community data gathering, utilizing a template that assures comparability?
- But recognizing that no one set of indicators is ideal for all purposes – and none is valid until it has been tested:
 - Open to the development of a number of sets related to a taxonomy of uses – e.g., diagnosis vs. evaluation
 - Testing and refining approaches before advocating them



Understanding how resilience can be rewarded before/in the absence of disruptions (I):

- It is difficult to initiate and sustain investments of time and money in reductions of vulnerabilities to long-term threats shrouded by uncertainties
- In most cases, such investments need to deliver other benefits in the nearer-term (“co-benefits”), e.g. two views:
 - Community leaders see benefits in greater community cohesion from improvements in the social dynamic
 - If a higher level of resilience means reduced risks of impacts from possible disruptions, that risk reduction should have value: e.g., in reducing insurance premiums for urban infrastructure, improving bond ratings, or attracting job-creating new businesses and industries
- In either case, benefits are hard to determine without *measures* of resilience...
- In the latter case, CARRI has invited the insurance and financial industries to tell us what indicators *they* would find persuasive – work backward from user perspectives?



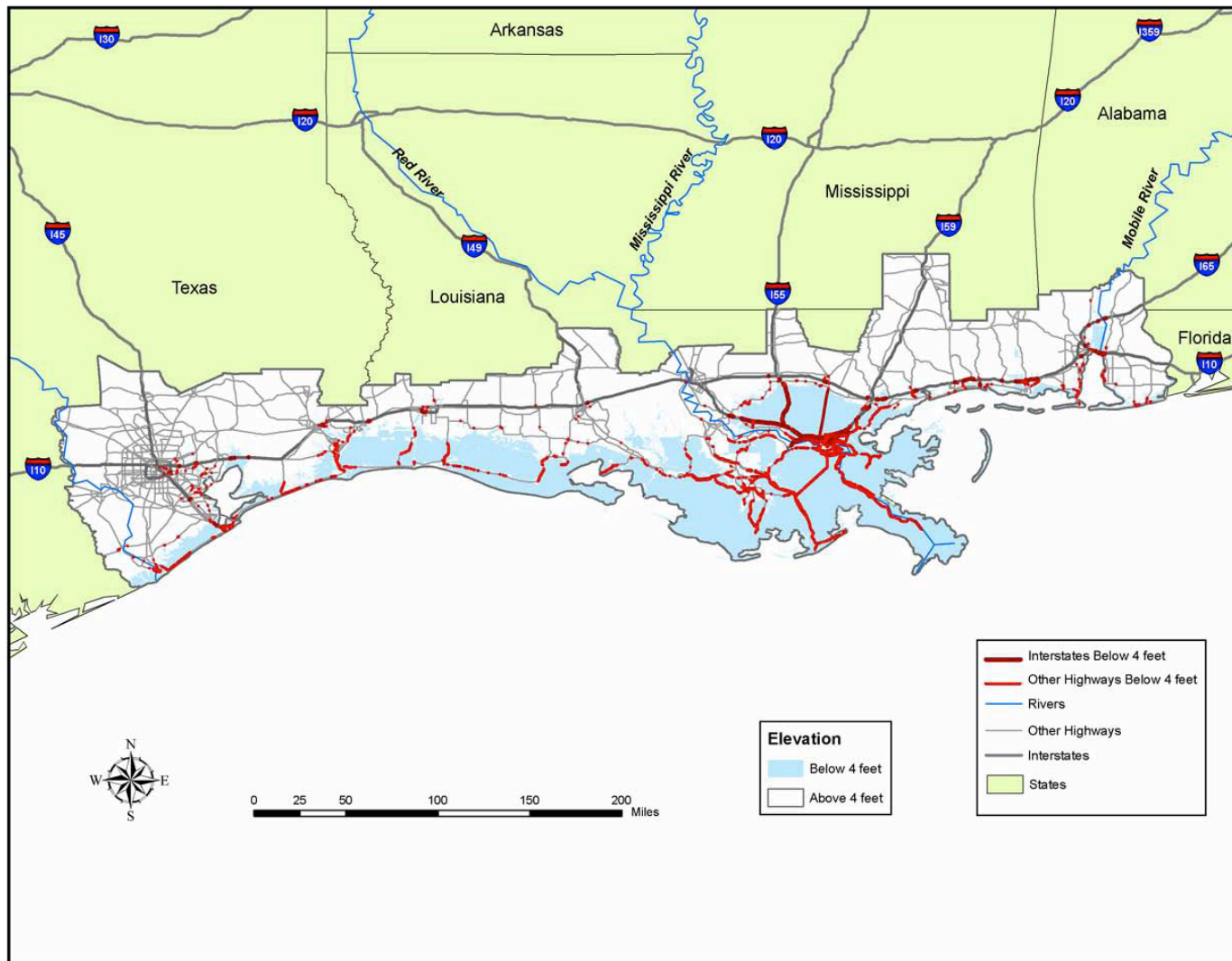
Understanding how resilience can be rewarded before/in the absence of disruptions (II):

- Seems to call for more research on resilience placed in broader contexts: related to multiple drivers, multiple hazards, multiple benefits – (a) rooted in community visions, goals, and aspirations, beyond avoiding disasters alone – and (b) in how external parties view risks associated with community characteristics
- As CARRI is doing, also seems to reinforce the need to consider different *uses* of resilience indicators and different *users* of such indicators and what they consider valid and persuasive metrics (...a user-oriented approach that is not quite the same proceeding, as the research community normally does, from theories and disciplinary paradigms...)

Understanding how resilience can be assured if transformational actions are required (I):

- In some places, for some systems, vulnerabilities and risks may be so sizeable that resilience can only be assured by significant changes in systems in place or in their locations
- Transformational adaptations are classic reactions to catastrophes: e.g., histories of settlement abandonment and transformational human-ecological change, *coping* with disruptive impacts *after* the fact
- An important research question is potentials for anticipatory transformational adaptations in advance of threats that would otherwise pose serious risks of very painful impacts, thereby avoiding that pain, which calls for research attention to:
 - Drivers of such transformational adaptations
 - Barriers to such transformational adaptations
 - Facilitating such transformational adaptations

Highways At Risk From A Relative Sea Level Rise Of 122 Cm (4 Ft)



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In Closing, a Few Other Research Needs:

- **Scale interactions in shaping resilience**
 - E.g., supportive relationships between parties at different scales, but proceeding bottom-up rather than top-down, because there is growing evidence that this is how resilience really works...
- **Institutional settings for supporting and sustaining resilience practices**
 - E.g., feasible funding models for long-term support structures, nested in institutions offering continuity
- **Resilience for natural systems as well as human systems**
 - E.g., connecting resilience research with biodiversity issues



THANK YOU !

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