Improving local government resilience to climate change

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Why focus on local government resilience ?

- Concept of resilience

  o Refers to 'ability of a system to recover from a shock without changing basic functions; to adapt to sudden change; or transform to a new system while maintaining similar functions when a related system undergoes a change in state'

Challenge of climate change to local services

- Local governments provide the vast majority of public services that citizens receive

- Impact of climate change on services delivered locally (ex: water management, fire, land use, public health, etc.)

- Climate effects will be highly varied by region and localized

- US is an extremely decentralized system

- High degree of variation in local government capacity

Applications to resilience theory

- Business organizations (Hamel, 2003; Coutu, 2002; Starr et. al., 2003)

- Community resilience to disasters (Rose, 2004; Change 2003)

- Economic systems (Franken, 2005; Costanza, 1993)

- Community resilience to ecological change (Folke, et. al. 2009; Olsson et. al., 2004)

- Political systems (Anderson, 1991; Nathan, 2003)

Limitations of current work

- Post-hoc theorizing

- Few predictive models

- Quantitative large-N studies rare

- Conceptual confusion inherent in multi-disciplinary work

- Tendency toward using current condition as baseline - "anchoring" effects among researchers

From resilience as metaphor to measurement

- Rather than organization or system as resilient, refocus on the underlying public good production process

- Resilience conceptualized as ability to maintain (or improve) current levels of public good production in face of climate change

Resilient public goods production

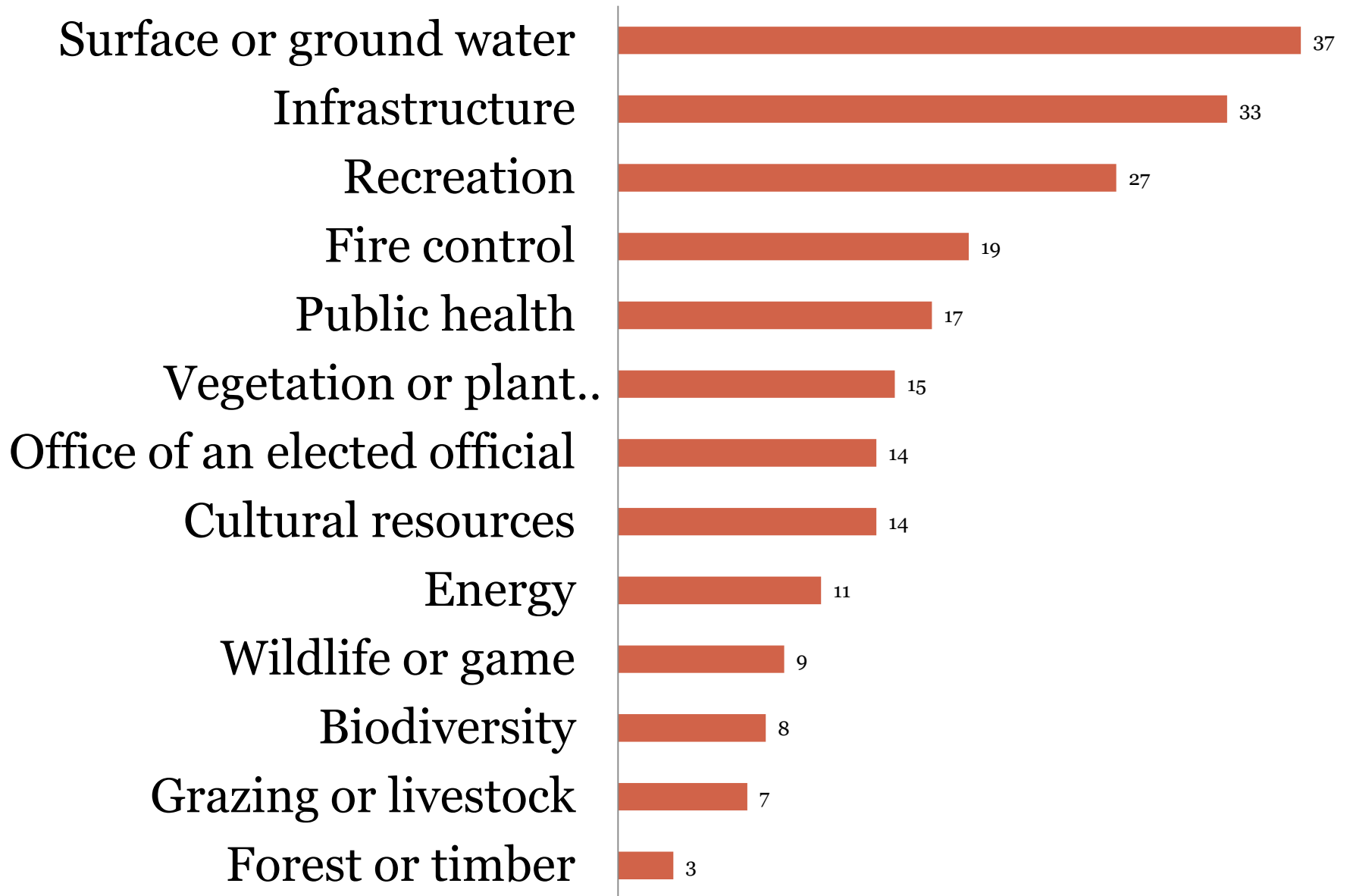**Characteristics of resilient public good production systems**

1. Networked production systems
2. Multiple nodes of decision-making within the system
3. Independence within decision nodes
4. Coordination mechanisms across nodes
5. Redundancy in functional capacity
6. Information diffusion within network
7. Capacity to use new information
8. Tolerance for experimentation
9. Presence of constraining institutions
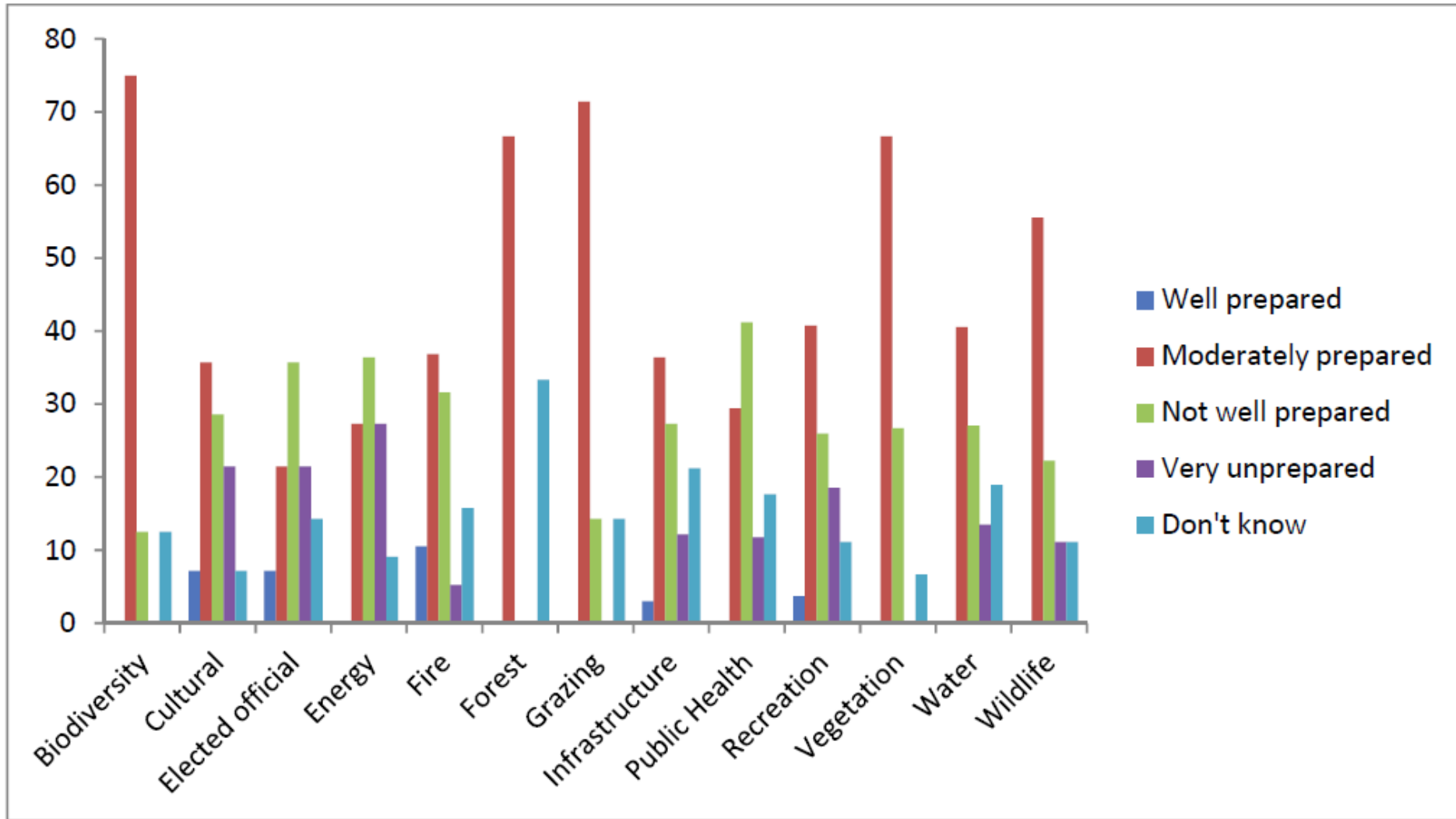10. Capacity for institutional change

The study

- Data collection: Mix of online and paper survey instrument

- Population: local implementation organizations in local policy networks across multiple resource systems

- Targeted management and planning officials within organization

- 240 organizations identified, 60 completed, 29.4% response rate

Type of impacted resource

Resource	Value
Surface or ground water	37
Infrastructure	33
Recreation	27
Fire control	19
Public health	17
Vegetation or plant..	15
Office of an elected official	14
Cultural resources	14
Energy	11
Wildlife or game	9
Biodiversity	8
Grazing or livestock	7
Forest or timber	3

Question text: "How prepared is your organization to manage the potential impacts of climate change?"

Legend:
- Well prepared
- Moderately prepared
- Not well prepared
- Very unprepared
- Don't know

Directions forward

- Create an index that measures the characteristics outlined at the level of production system

- Increase sample beyond single a state

- Test index by focusing on production networks surrounding a specific public good - water supply

- Develop a model that can address institutional change within a production system – focused on water rights

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Nevada Climate Change Survey of Public Organizations: Executive Summary

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