LA-UR- 11-00251

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Title:	Disaster: Would Your Community Bounce Back?
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Intended for:	Cafe Scientifique Presentations in Albuquerque, Santa Fe, Los Alamos, and Espanola, NM January 19, 20, 26, 27 2011

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Form 836 (7/06)

Disaster: Would Your Community Bounce Back?

Benjamin Sims, Los Alamos National Laboratory

What makes some communities or organizations able to quickly bounce back from a disaster, while others take a long time to recover? This question has become very important for emergency planners in federal, state, and local government - particularly since the 9/11 attacks and Hurricane Katrina, which nearly destroyed New Orleans five years ago. These events have made people aware that we can't always prevent disasters, but might be able to improve the ability of communities and regions to respond to and bounce back from major disruptions.

Social scientists have found that most communities are, in fact, quite resilient to most disasters. People tend to work together, overcome divisions, identify problems, and develop improvised solutions. This often leads to a greater sense of community and a sense of personal accomplishment. Long-term recovery can be harder, but rebuilding can create jobs and stimulate economies. Communities may even end up better than they were before. But there are some disturbing exceptions to this trend, including Hurricane Katrina. The hurricane killed many people, the federal and local emergency response was not effective, people who could not evacuate were housed in the Superdome and Convention Center in terrible conditions, crime was prevalent, and local government did not appear to have control over the situation. A significant portion of the population was eventually evacuated to other cities. Even five years later, many people have not returned, and large parts of the city have not been rebuilt. Clearly, New Orleans lacked sufficient resilience to overcome a disaster of the magnitude of Katrina.

There are four factors that social scientists are beginning to agree are important for community resilience:

> *A strong, diverse economy:* Stable jobs, good incomes, diversity of industries, personal savings
> *Robust social networks:* Community members know each other, help each other, and have connections outside the community
> *Competent organizations:* Government, health care, community service, and religious organizations are competent and trustworthy, and have resources to handle community needs
> *High-quality infrastructure:* Road, power, and water systems (etc.) are in good condition and are designed to provide service even if some connections are destroyed

To explore how these factors make communities resilient, I will tell two stories of disasters. The first is the Buffalo Creek flood, which wiped out a coal mining community in West Virginia in 1972. This is a classic example of community that was not resilient in the aftermath of a disaster. The second example is the Vietnamese immigrant community in the Versailles neighborhood of New Orleans. In spite of being relatively poor and culturally isolated, this community was one of the first to fully rebound following Hurricane Katrina.

Following the talk, we will have a group activity, where you will have a chance to evaluate the resilience of your own community.

Disaster: Would Your Community Bounce Back?

Ben Sims

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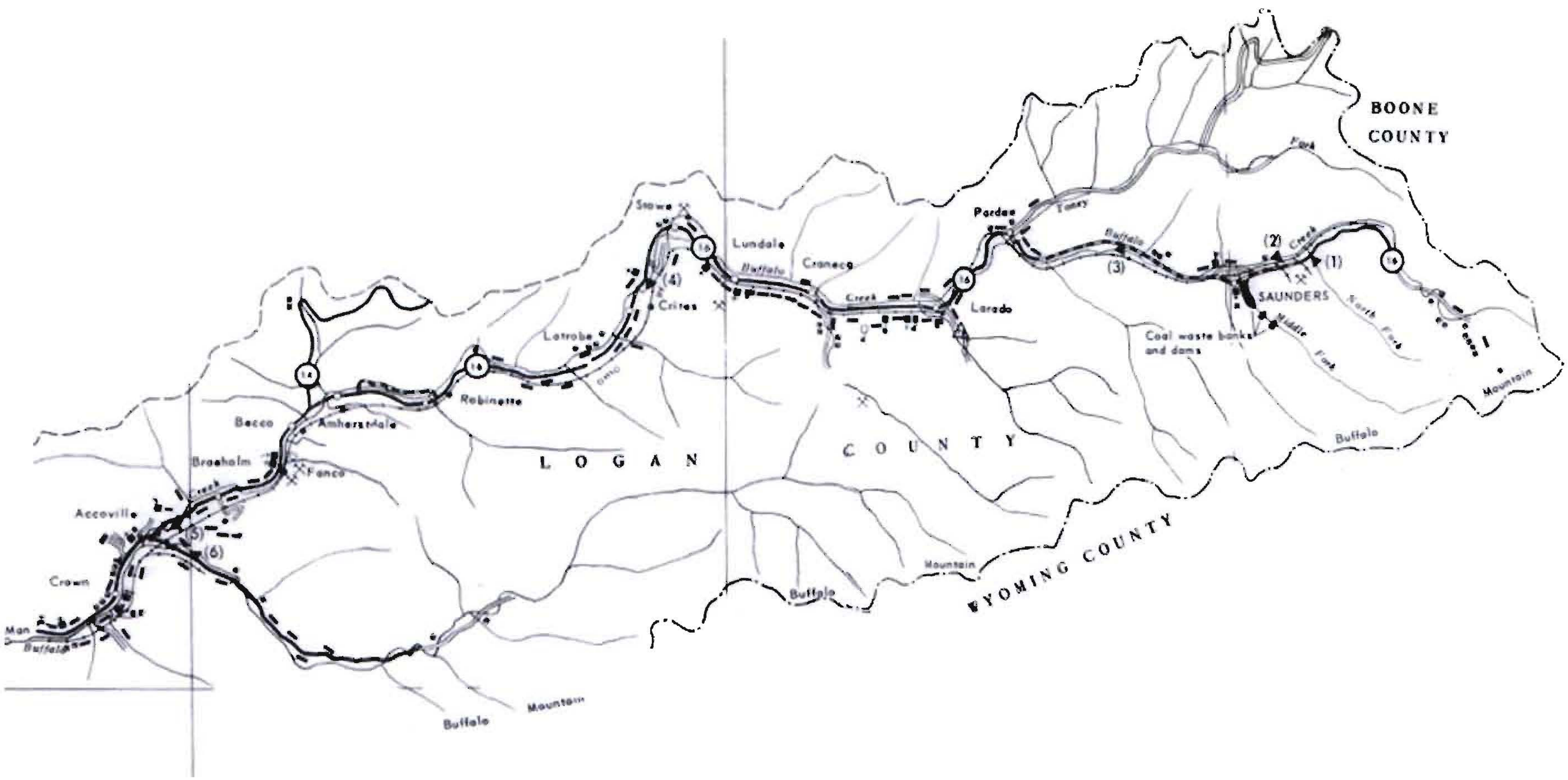
Community Resilience

- Bounce back = resilient
- What does a non-resilient response look like?
- What does a resilient response look like?
- What makes one community more resilient than another?

Buffalo Creek Flood, West Virginia, 1972

- Coal mining "slurry impoundment dam" broke
- Released 132,000,000 gallons of waste water
- Wave 30 feet high
- Struck 16 communities along Buffalo Creek
- Out of 5000 people,
  - 125 died
  - 1,121 injured
  - 4,000 homeless


← Remnants of dam no. 3
Site of no. 2 dam →
← Site of dam no. 1
Middle Fork
Refuse bank
Haul road to mine # 5 →
Buffalo Creek

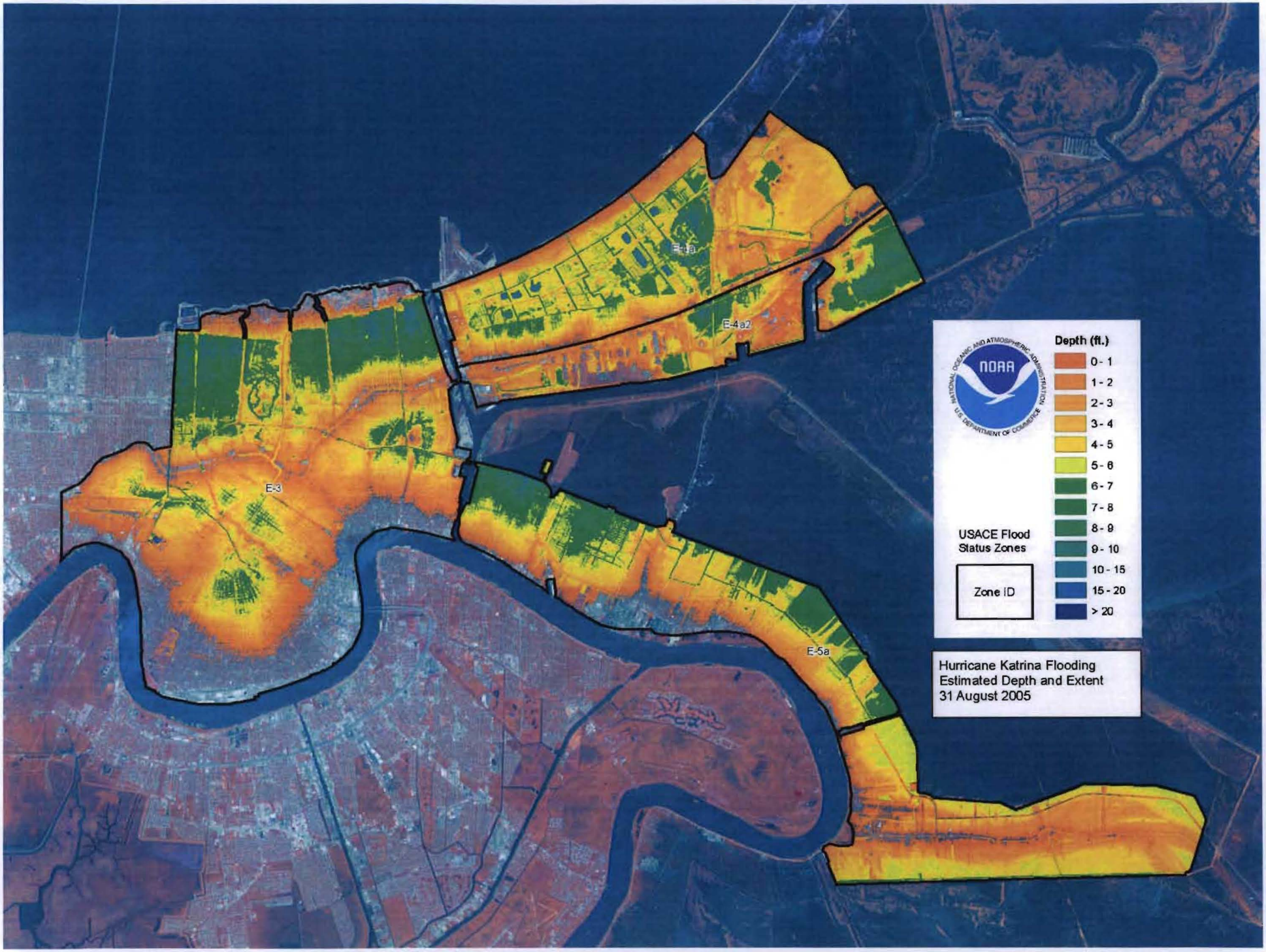

BOONE
COUNTY
WYOMING COUNTY
L O G A N
C O U N T Y
Man
Buffalo
Crown
Accoville
(5)
(6)
Braeholm
Becco
Amherstdale
Fanco
Robinette
Latrobe
Crites
(4)
Stowe
Lundale
Buffalo
Craneco
Creek
Lorado
Pardee
(3)
(2)
(1)
SAUNDERS
Coal waste banks
and dams
Middle Fork
North Fork
Mountain
Buffalo
Mountain
Buffalo
Mountain

Outcome

- "Disaster Syndrome" – widespread psychological problems
  - Depression, apathy, loss of feeling of community
- Residents successfully sued the coal company and won a large settlement
- Rebuilding plans never completed
- Many residents moved away, area never fully recovered
- Not a resilient response to disaster

Versailles (New Orleans)
Hurricane Katrina, 2005

- Home to large Vietnamese immigrant community
- Flooded with up to 4 feet of water – enough to seriously damage homes and infrastructure
- Less severe impact than some areas
- Population evacuated to Houston and elsewhere after storm


E-4a1
E-4a2
E-3
E-5a
Depth (ft.)
0 - 1
1 - 2
2 - 3
3 - 4
4 - 5
5 - 6
6 - 7
7 - 8
8 - 9
9 - 10
10 - 15
15 - 20
> 20
USACE Flood Status Zones
Zone ID
Hurricane Katrina Flooding
Estimated Depth and Extent
31 August 2005

Outcome

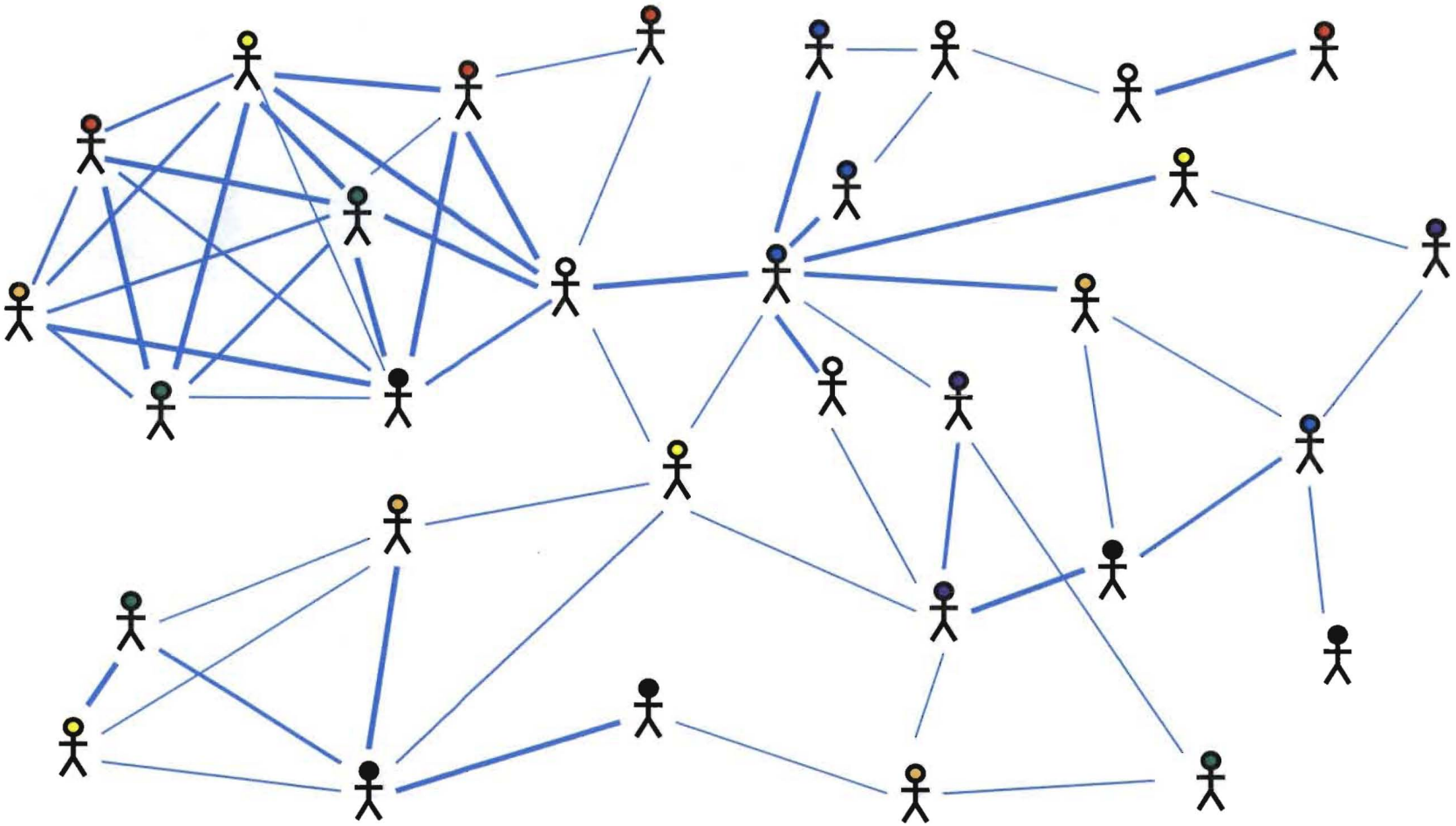
- Two years after the storm, 90% of Vietnamese community had returned
- Only 50% of population had returned in nearby areas
- Community organized to oppose landfill for hurricane debris in the neighborhood
- Now a major force in New Orleans politics, previously had not been
- A resilient response to disaster

What Makes a Community Resilient?

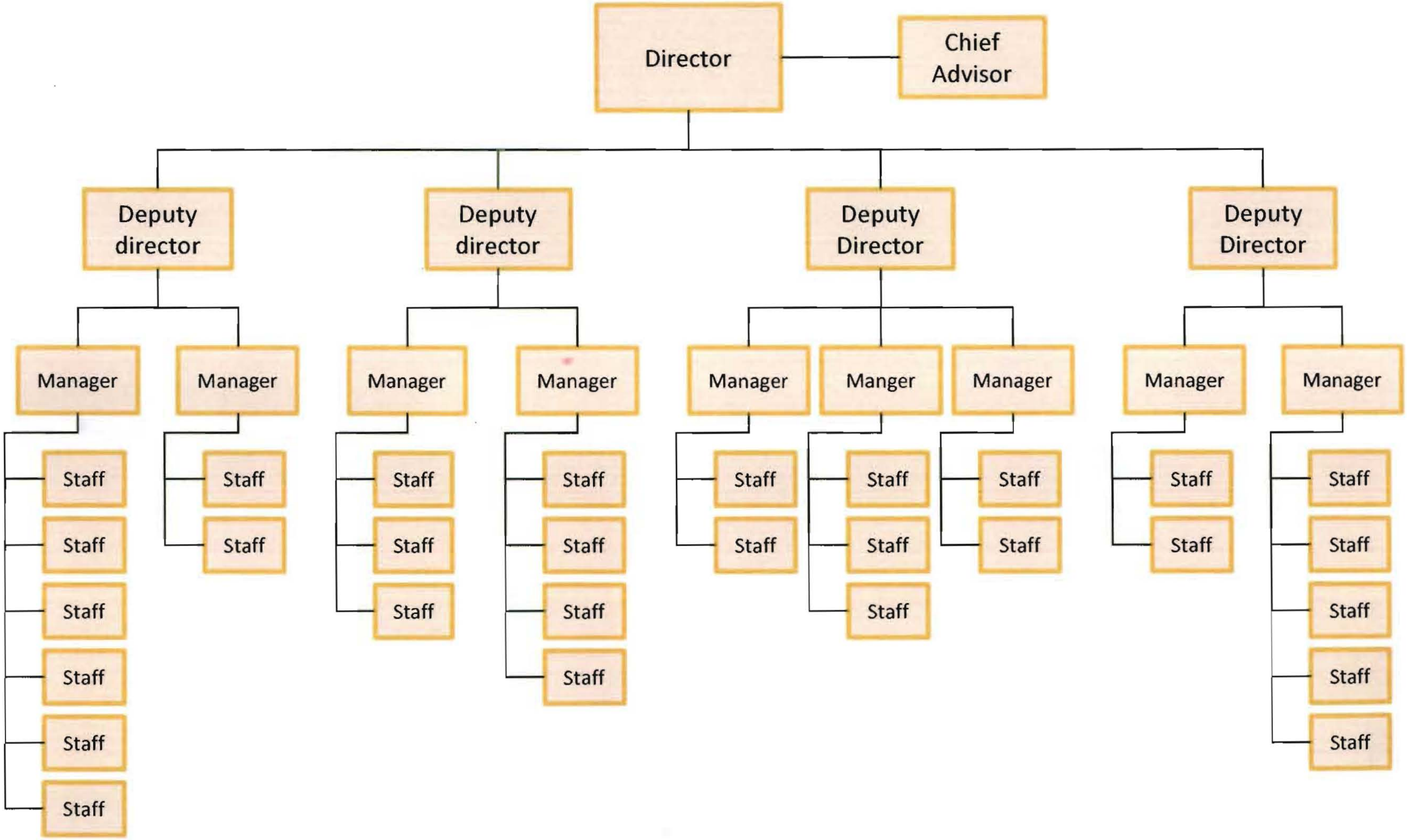
- Social networks
- Organizations
- Infrastructure
- Economic resources

- Resilience depends on:
  - How strong these are
  - How hard they are hit

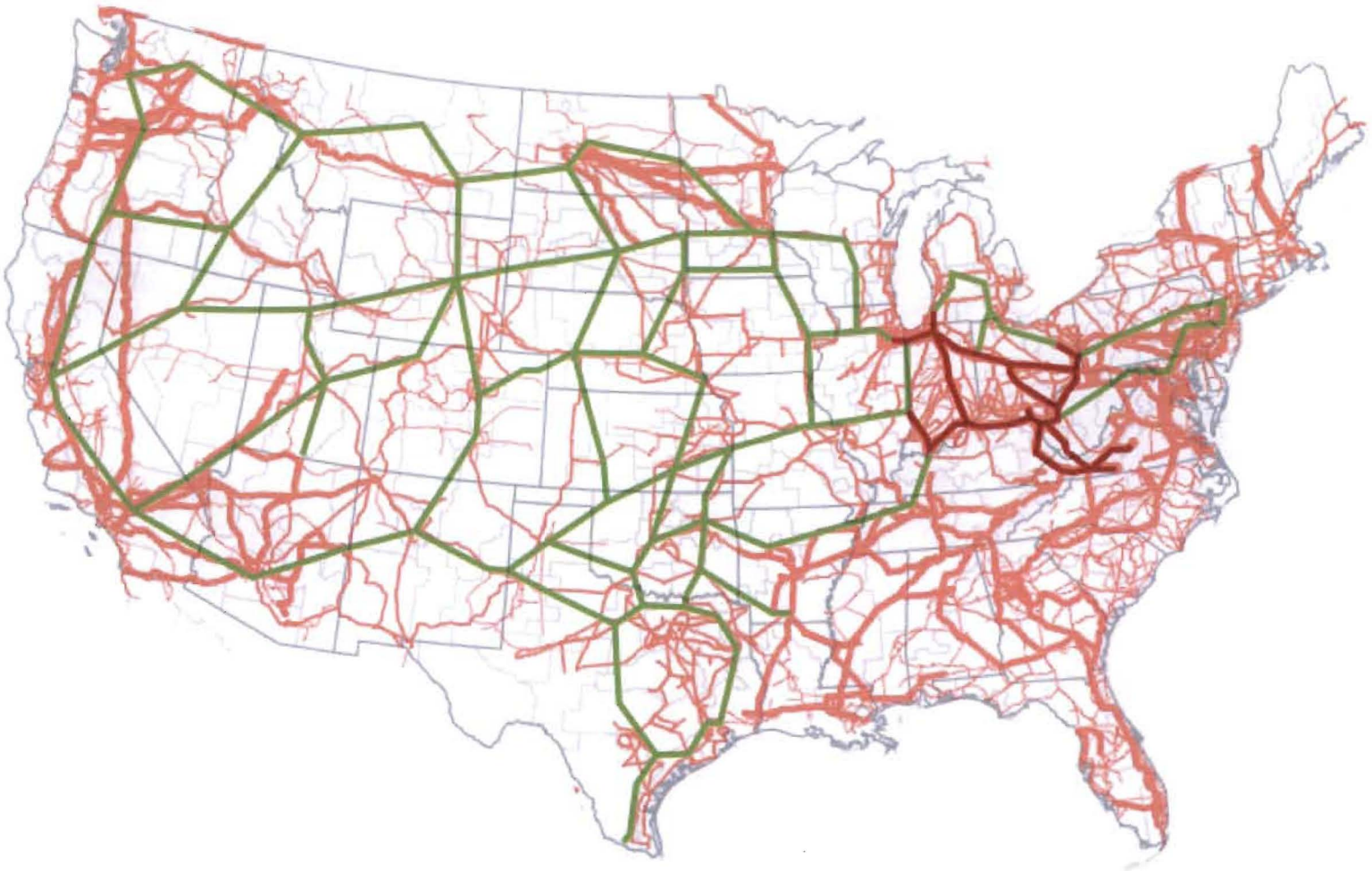
Social networks



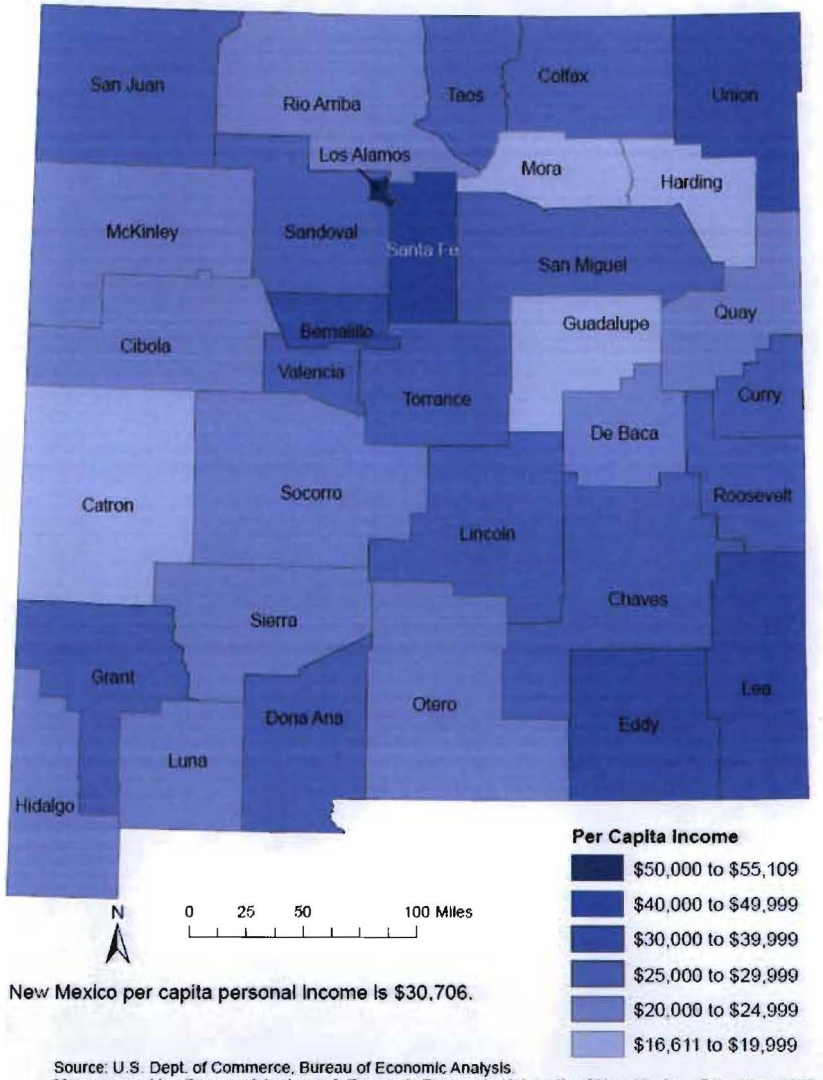
Organizations



Infrastructure



Economic Resources



New Mexico per capita personal income is $30,706.

Source: U.S. Dept. of Commerce, Bureau of Economic Analysis.
Map prepared by: Bureau of Business & Economic Research, University of New Mexico, December 2009.

Organizations

Buffalo Creek

- Dependent on mining company
- Few independent community organizations
- Mining company focused on not getting sued

Versailles

- Catholic church coordinated initial settlement
- Church was center for community self-organization
- Strong church leadership played key role in bringing community back

Social Networks

Buffalo Creek

- More individualistic culture
- Strong social ties with close neighbors
- Networks disrupted by random assignment to trailers

Versailles

- Community-oriented culture
- Immigration led to strong social networks across community
- Community returned to neighborhood

Economic Resources

Buffalo Creek

- Relatively poor
- Isolated
- One-industry economy (mining)

Versailles

- Relatively poor, but better off than some
- Part of large city
- Diverse economy
- Many owned homes

Infrastructure

Buffalo Creek

- Concentrated along narrow canyon bottom
- Completely wiped out
- Reconstruction took years
- Houses destroyed

Versailles

- Part of large urban infrastructure grid
- Mostly intact
- Power on within 2 months
- Gutting required, but houses intact

Resilience of Your Community

Social networks

Organizations

Infrastructure

Economic resources