

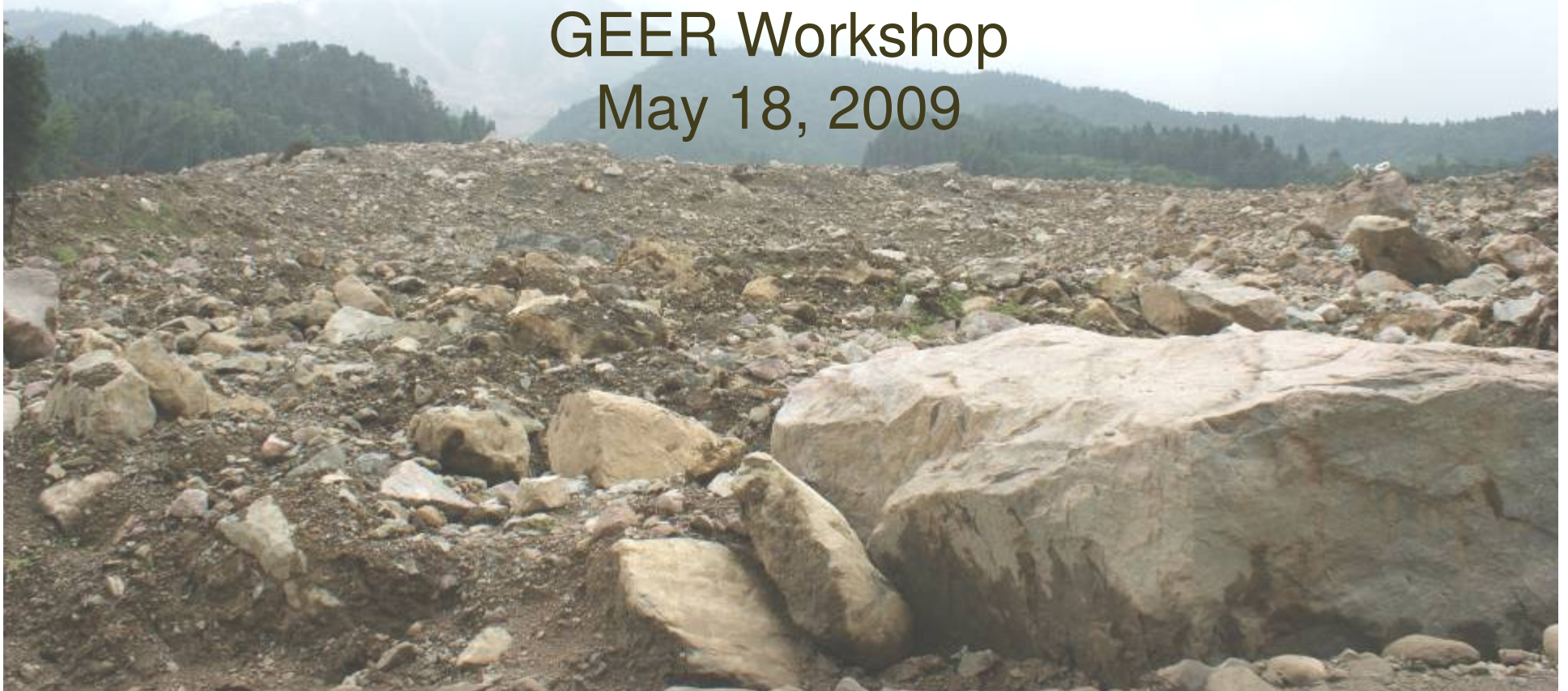
# LAURIE JOHNSON CONSULTING

Urban Planning • Risk Management • Disaster Recovery

## Policy and Planning Issues

GEER Workshop

May 18, 2009



# Policy and Planning Issues in Post-event Reconnaissance

## ■ Emergency and Societal Response

- Hazard/risk assessment
- Warnings and evacuations

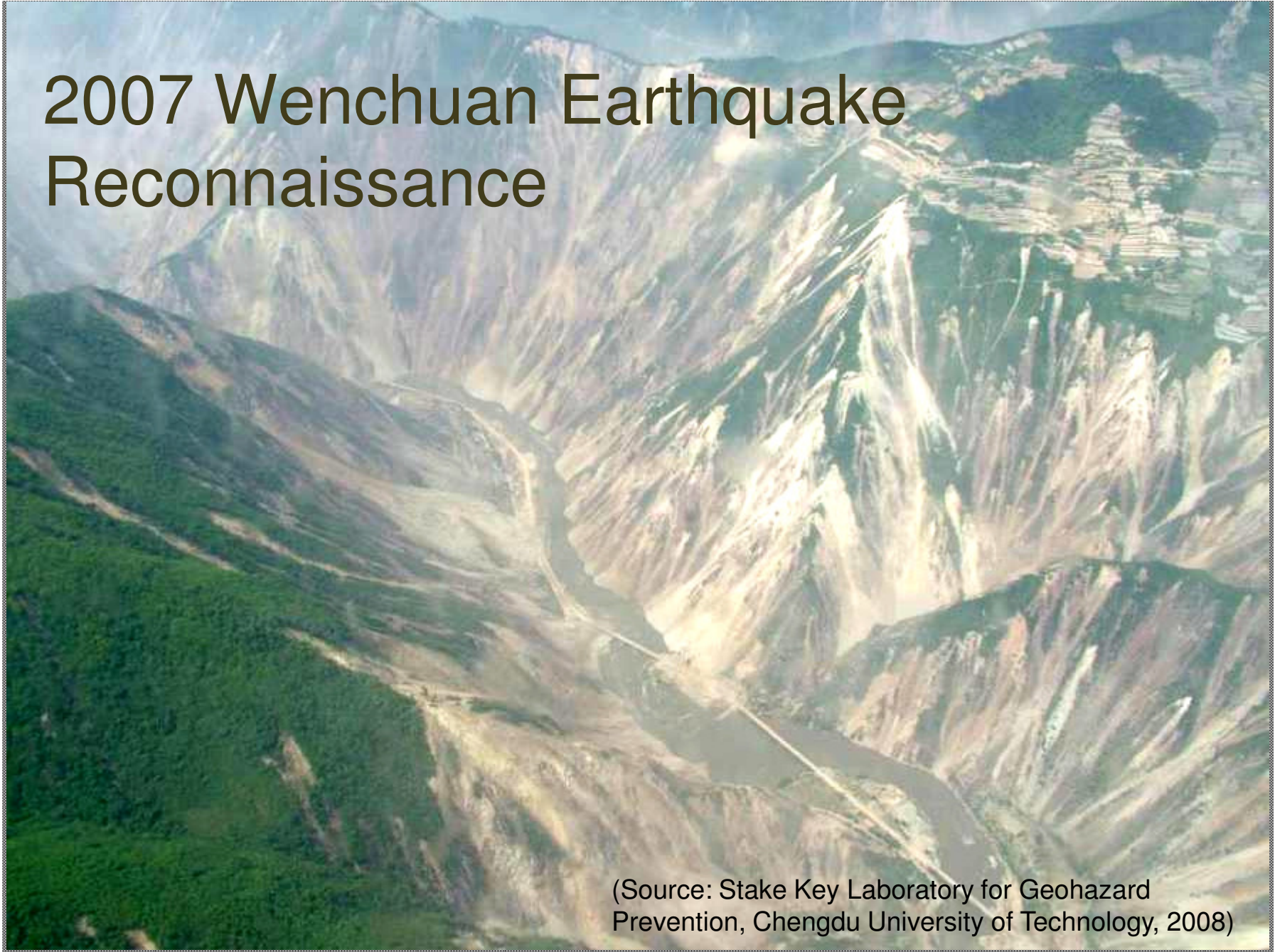
## ■ Early Recovery

- Prioritizing repairs, temporary/permanent measures
- Siting temporary facilities

## ■ Long-term Recovery and Rebuilding

- Recovery planning
- Rebuilding policies

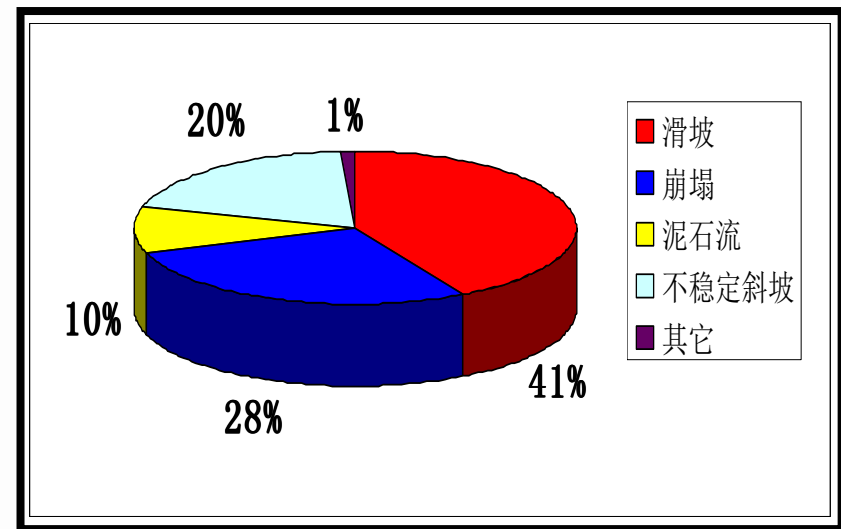
# 2007 Wenchuan Earthquake Reconnaissance



(Source: State Key Laboratory for Geohazard  
Prevention, Chengdu University of Technology, 2008)

# State Key Laboratory for Geohazard Prevention: Types of Earthquake-induced Geological Disasters

- Up to July 20, 9,671 additional geological disaster spots in 44 severe disaster counties
- Mainly includes 4 kinds of hazards:
  - Landslide: 3627 spots, 41%
  - Avalanche: 2383 spots, 28%
  - Debris flow: 837 spots, 10%
  - Unstable slopes and shattered hill body: 1694 spots, 20%
  - Others: 86 spots
- These directly threaten the lives of 804,945 persons



# Wenchuan Earthquake 3-month Reconstruction Planning Effort

- Special reconstruction planning team: National agencies, disaster-affected provinces, 100s of planners and academic institutions
- For all 3 disaster-impacted provinces, prepared a general reconstruction plan, as well as 10 specific plans:
  - urban systems                      rural development
  - urban-rural housing                infrastructure
  - public service facilities            productivity distribution
  - industrial restructuring            ecological rehabilitation
  - land utilization                      disaster prevention and mitigation
- Incorporated into comprehensive reconstruction plan released for public review on August 12

# State Key Laboratory for Geohazard Prevention: Post-earthquake Land Suitability Evaluation

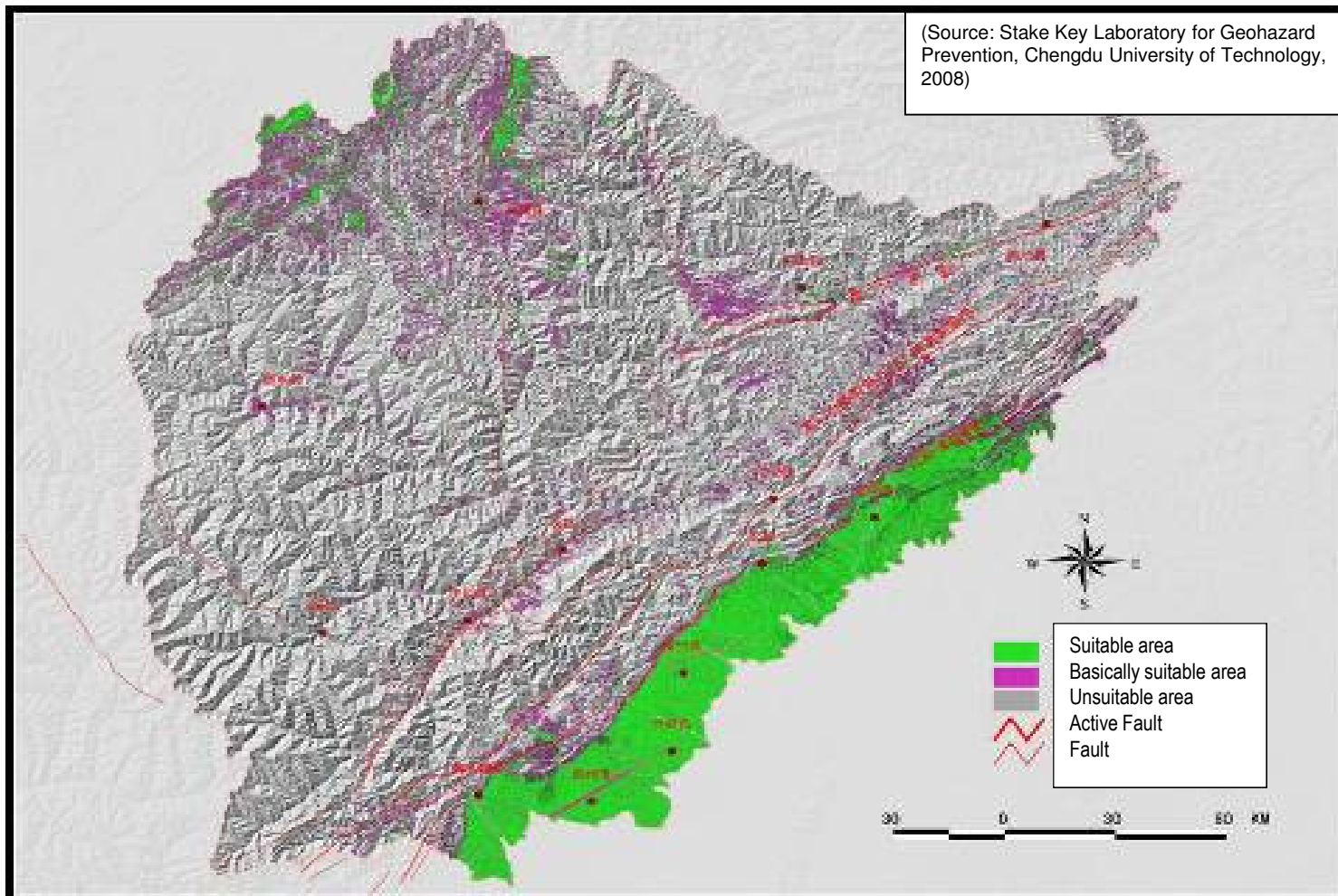
		Suitable area	Basically suitable area	Unsuitable area
Gradient	地形坡度 (度)	<15°	15° - 25°	>25°
Elevation	海拔高程 (m)	<1500	1500-2000	>2000
Distance to fault	距发震断裂带距离 (m)	>1500 (县级城镇) >800 (乡镇驻地) >500 (其它区域)	1000-1500 (县级城镇) 500-800 (乡镇驻地) 200-500 (其它区域)	<1000 (县级城镇) <500 (乡镇驻地) <200 (其它区域)
Distance to landslide & landslide control	地质灾害点 距离 (m)	>80	50-80, 灾害能有效控制情形, 适宜性上调一级	<50, 灾害能有效控制情形, 适宜性上调一级

# State Overall Planning for Post-Wenchuan Earthquake Restoration and Reconstruction

- Disaster-affected counties grouped into 3 categories:
  - Areas suitable for reconstruction
  - Areas suitable for appropriate reconstruction
  - Ecological reconstruction areas (with future growth limitations)
- Sets the rebuilding and funding guidelines for each

	Area (sq. km)	Proportion of Land in Planning Area	Population	Proportion of Population in Planning Area
Area suitable for reconstruction	10,077	7.6%	7,728,000	38.9%
Area suitable for appropriate reconstruction	38,320	28.9%	11,801,000	59.4%
Ecological reconstruction area	84,199	63.5%	338,000	1.7%

# Land Suitability Map Developed for Reconstruction Planning Process

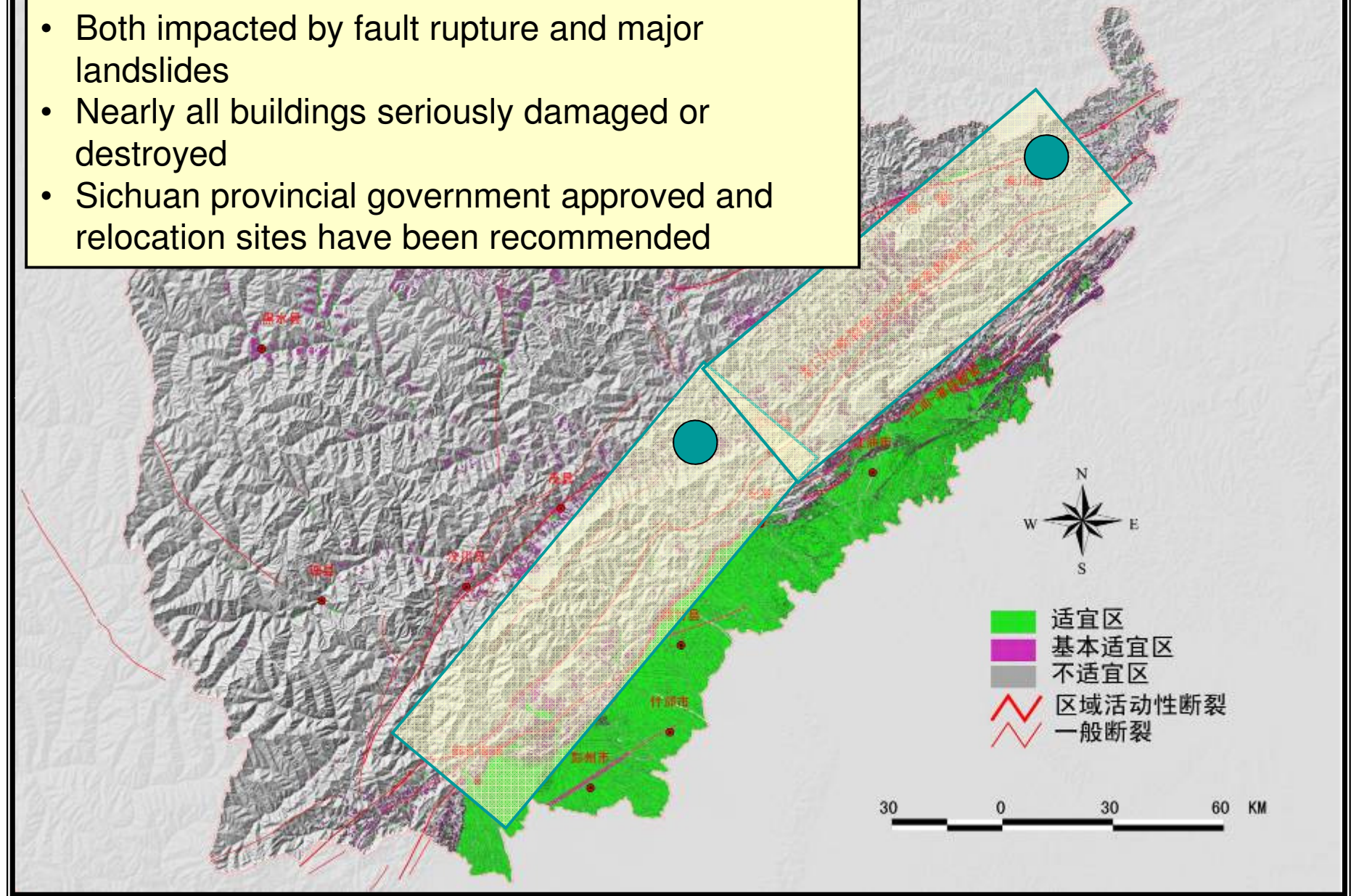




## 2 Towns – Beichuan and Qingchuan – Recommended for Relocation

- Both impacted by fault rupture and major landslides
- Nearly all buildings seriously damaged or destroyed
- Sichuan provincial government approved and relocation sites have been recommended

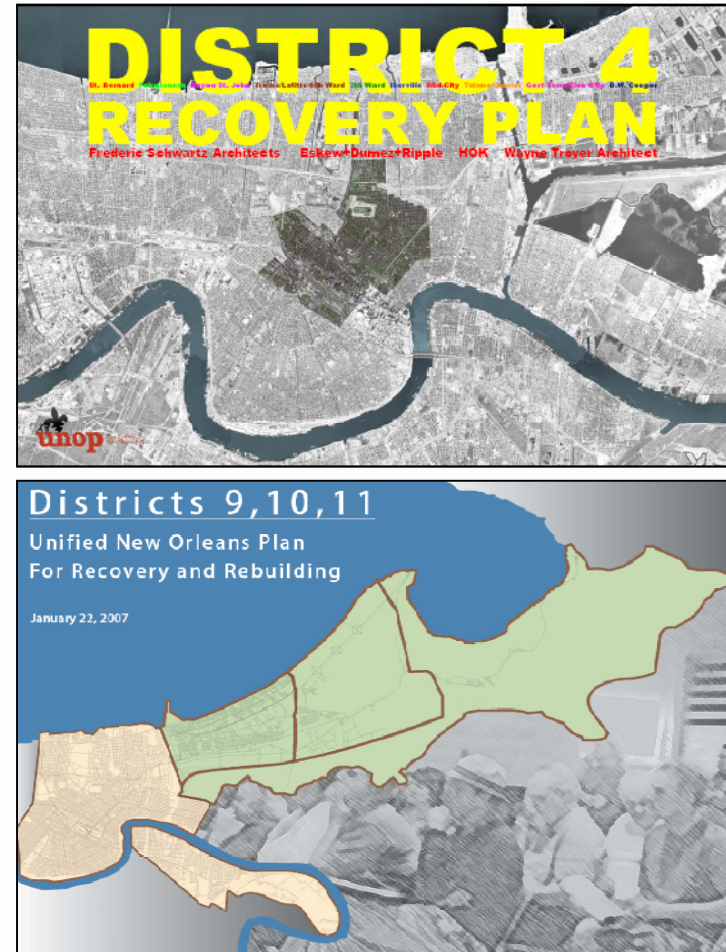
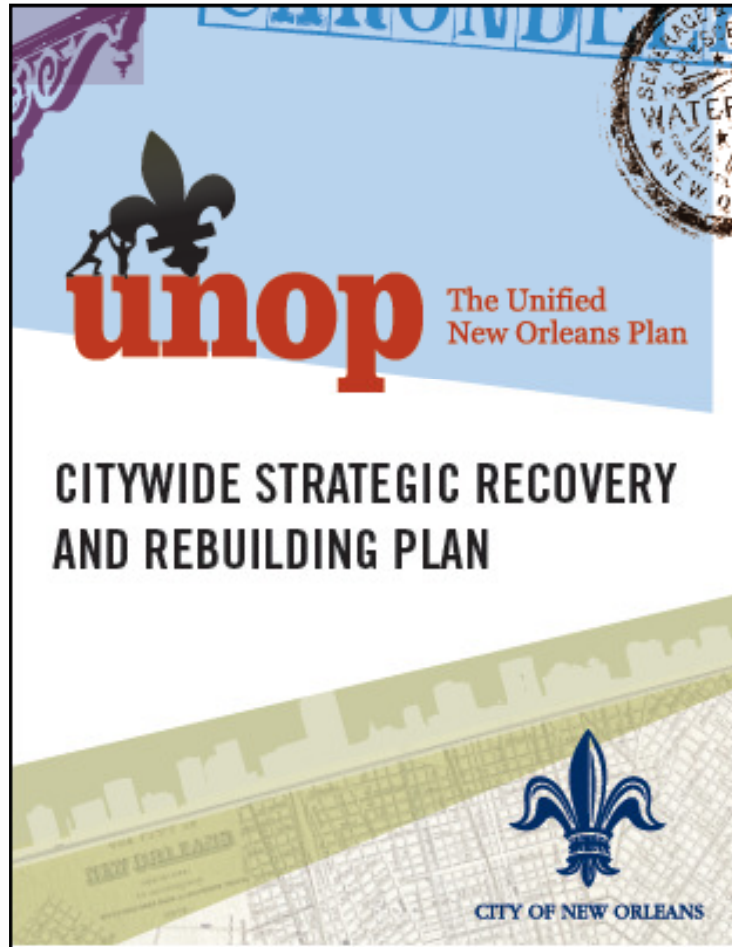
(Source: State Key Laboratory for  
Geohazard Prevention, Chengdu  
University of Technology, 2008)



# 2005 Hurricane Katrina



# Unified New Orleans Plan (Aug 2006 – Jan 2007): Citywide Strategic Recovery and Rebuilding Plan and 13 District Plans



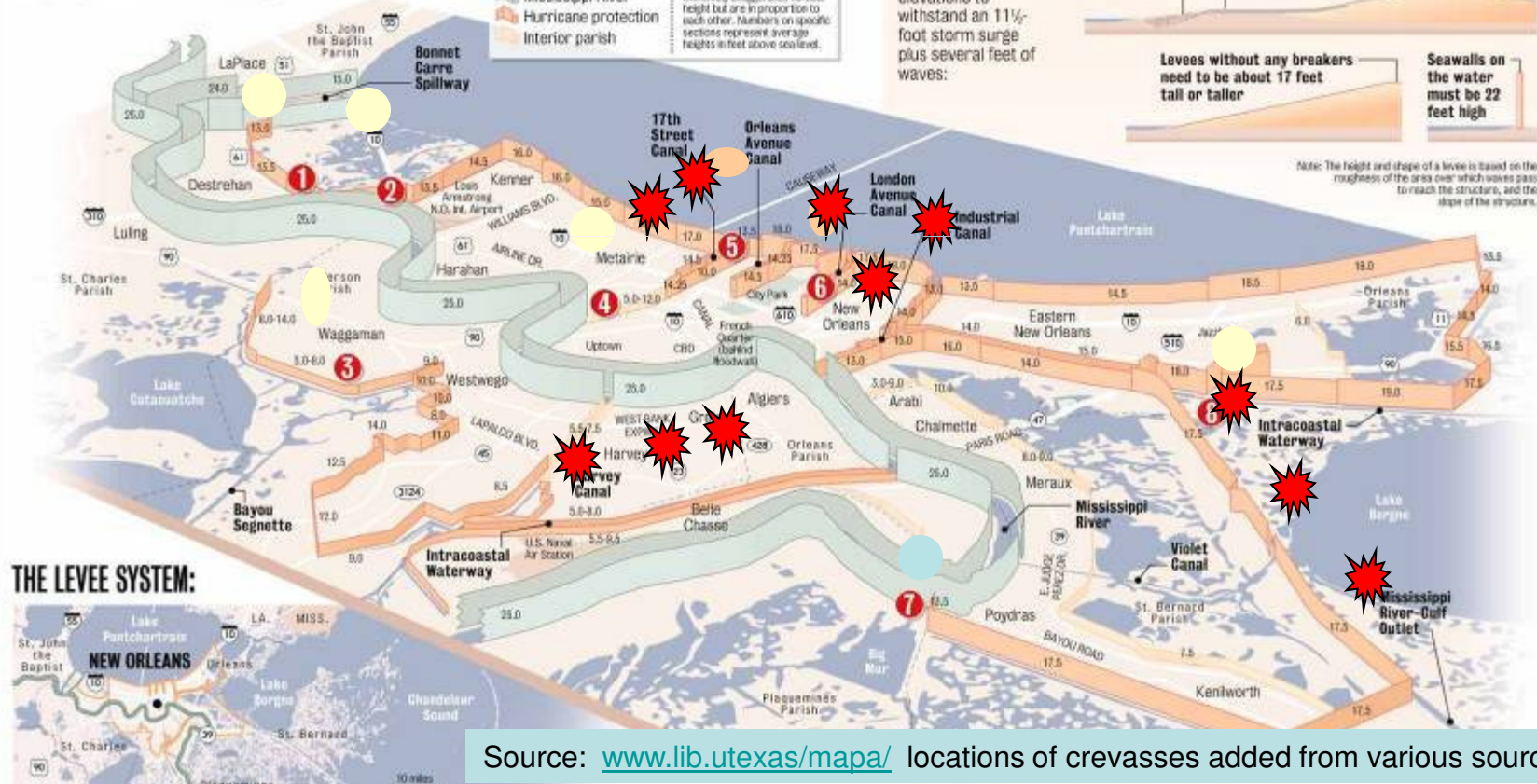
# Early Investigations of Levee Failures

## BARRIERS OF EARTH AND CONCRETE

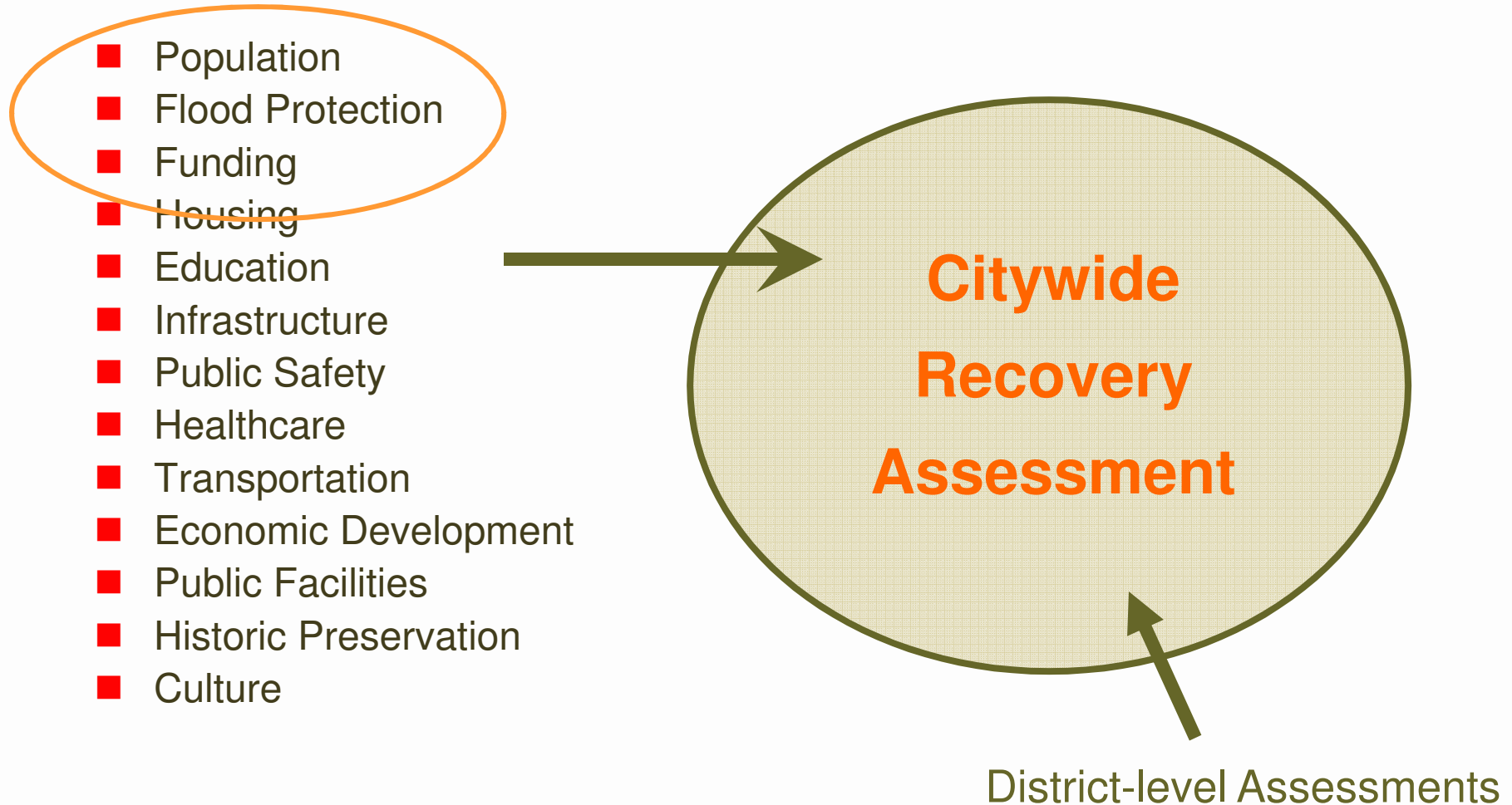
Levees and floodwalls that protect against flooding from both the Mississippi River and hurricanes are built by the Army Corps of Engineers and are maintained by local levee districts. The corps and the local districts share the construction cost of hurricane levees, while the Mississippi River levees are a federal project. Local levee districts also build and maintain nonfederal, lower-elevation levees with construction money from each district's share of property taxes and state financing.

**LEVEES AND FLOODWALLS**  
 Mississippi River  
 Hurricane protection  
 Interior parish

Notes: Levee and floodwall elevations are drawn with an extremely exaggerated vertical height but are in proportion to each other. Numbers on specific sections represent average heights in feet above sea level.



# Phase 1: Recovery Assessment

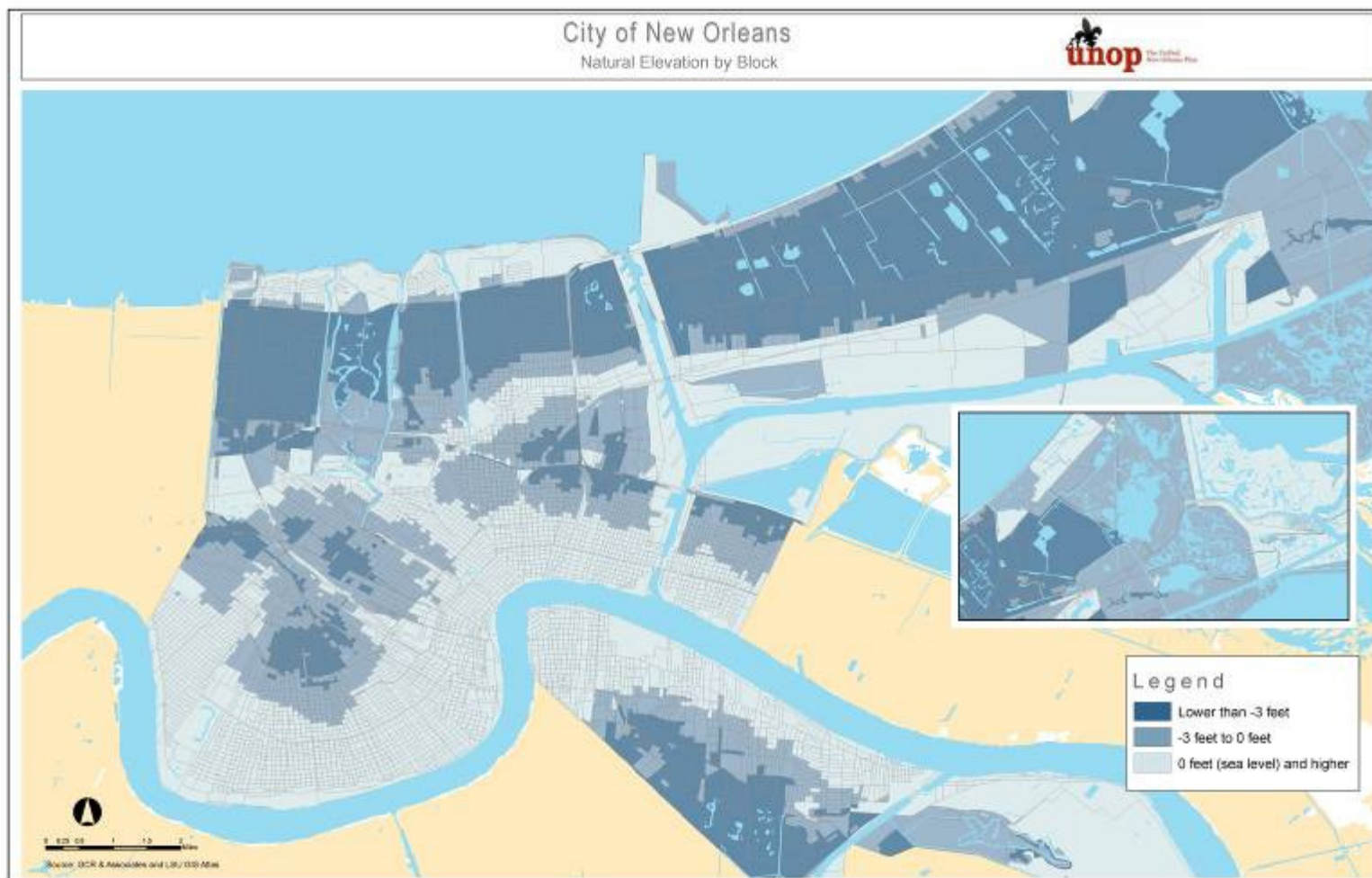


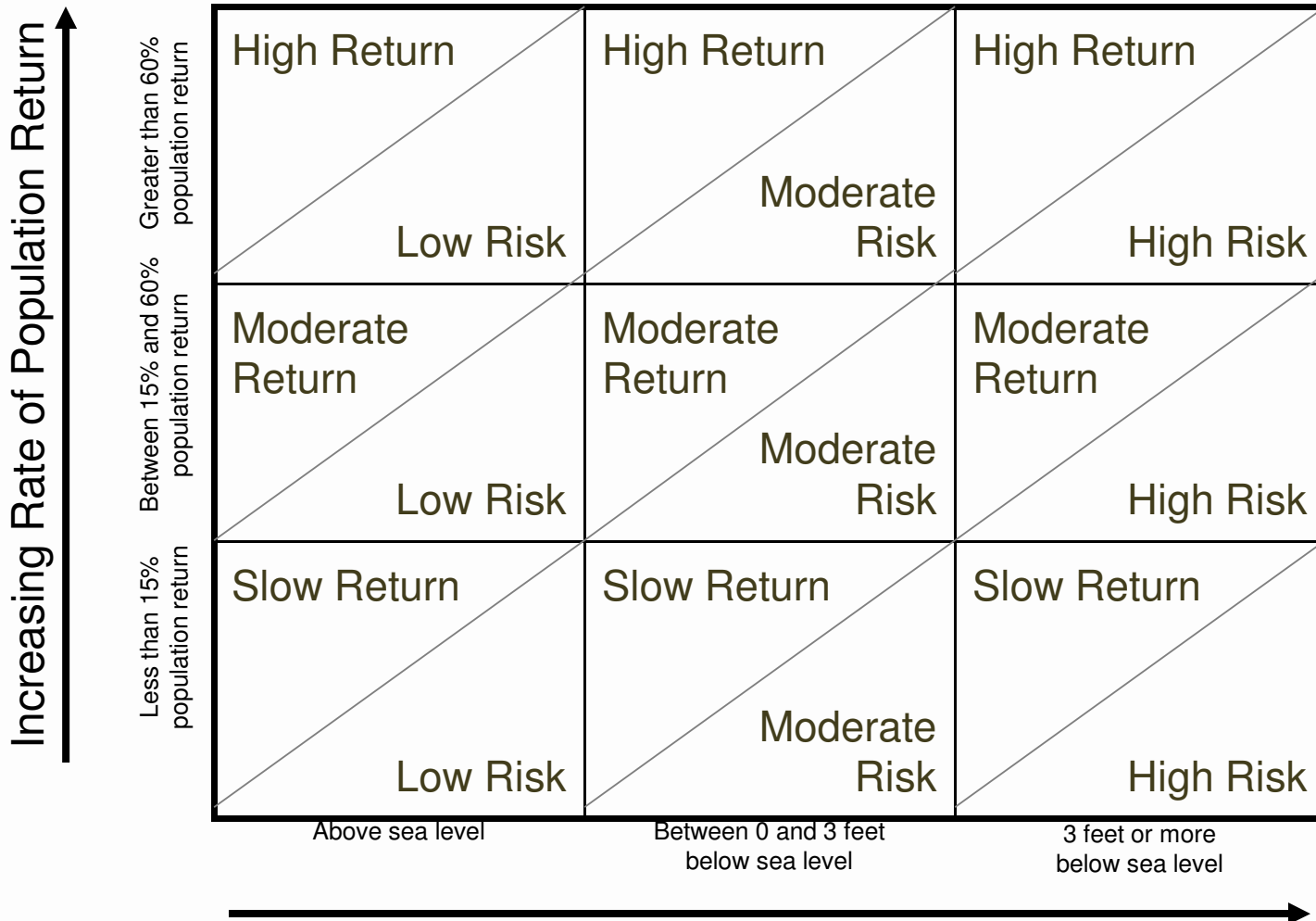
# Public's Priorities for Recovery and Rebuilding

- Safety from Future Flooding
  - Effective Cat 5 levees and wetlands protection,
  - Shared responsibility with standards and programs, as well as incentives, to reduce individual flood risk
- Empowerment to Rebuild Safe, Stable Neighborhoods
- Opportunity for All to Return
  - Funding for a range of housing solutions
- Equitable Access to Public Services
  - Strong Educational System



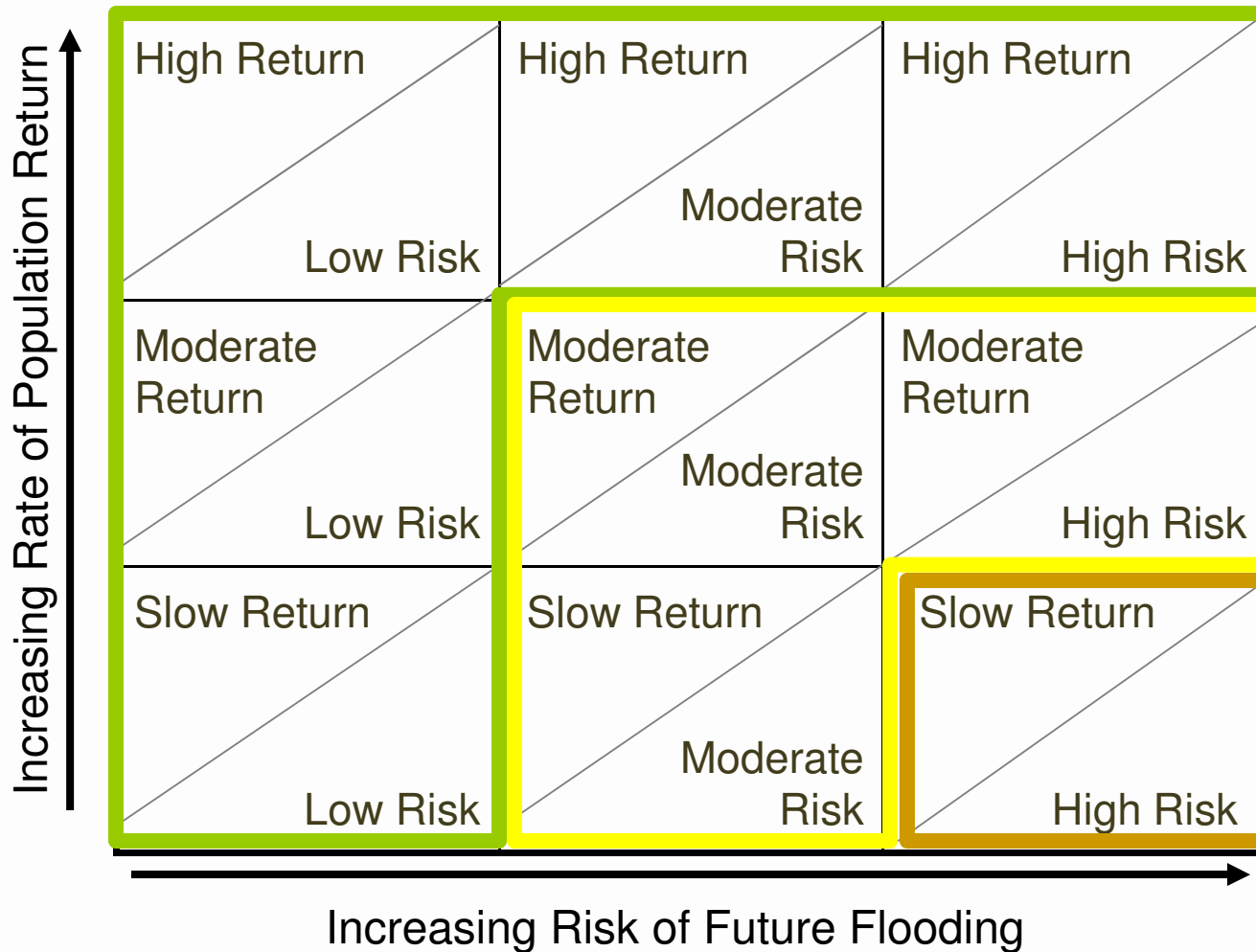
# Natural Land Elevations





Increasing Risk of Future Flooding →





- Policy Area A – Less flood risk and/or higher repopulation rates
- Policy Area B – Moderate flood risk and/or moderate repopulation rates
- Policy Area C – Highest flood risk and slowest repopulation rates

# Citywide Recovery Framework

	Policy Area C	Policy Area B	Policy Area A
0 - 2 yrs	<ul style="list-style-type: none"> <li>■ Stabilize neighborhoods and help rebuild together safely</li> <li>■ Use modular or temporary facilities to provide full coverage</li> </ul>	<ul style="list-style-type: none"> <li>■ Help returning residents and businesses with elevation</li> <li>■ Repair major infrastructure</li> <li>■ Use modular or temporary facilities to provide full coverage</li> </ul>	<ul style="list-style-type: none"> <li>■ Ensure residents can fund individual flood protection</li> <li>■ Accommodate additional residents and businesses</li> <li>■ Repair major infrastructure</li> <li>■ Restore permanent facilities</li> </ul>
2 - 5 yrs	<ul style="list-style-type: none"> <li>■ Continue neighborhood stabilization</li> <li>■ Invest in permanent infrastructure</li> <li>■ Re-vision public services and amenities</li> </ul>	<ul style="list-style-type: none"> <li>■ Help slow-recovery neighborhoods rebuild together</li> <li>■ Improve infrastructure scalable to population and resettlement</li> <li>■ Re-vision public services and amenities</li> </ul>	<ul style="list-style-type: none"> <li>■ Improve infrastructure to spur revitalization and accommodate additional population</li> <li>■ Initiate re-visioning of public services and amenities</li> </ul>
> 5 yrs	<ul style="list-style-type: none"> <li>■ Complete reconstruction and revision of services and amenities</li> </ul>	<ul style="list-style-type: none"> <li>■ Complete reconstruction and revision of services and amenities</li> </ul>	<ul style="list-style-type: none"> <li>■ Complete reconstruction and re-vision of public services and amenities</li> </ul>

# Strategic Framework for Recovery

- Risk-based recovery strategies that balance pace and scale of recovery with pace of repopulation across neighborhoods and future risks of flooding
- Core Programs:
  - “Elevate New Orleans” Program
  - “Slab-on-Grade” Remediation Program
  - Neighborhood Cluster Program
  - Premier, Regional and Neighborhood-serving Health Care Network
  - Re-vision the K-12 Public Education System
  - Restore and Upgrade the Physical and Social Infrastructure
- Implementation and Financing
  - \$4.1 bn (short-term), \$6.8 bn (mid-term), \$3.4 bn (long-term)

