Using Comprehensive Science-based Disaster Scenarios to Support Seismic Safety Policy: A Case Study in Los Angeles, California

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• Agreement for 2014
• Mayor’s Science Advisor for Seismic Safety
• Address vulnerabilities in:
  • Old buildings
  • Water system
  • Telecommunications
Widespread Strong Ground Shaking + Shaking of Long Duration + Landslides =

- 300,000 buildings significantly damaged – 1 in 16
- 255,000 displaced persons – 1 in 60
- 53,000 injuries
- 1,800 deaths
- Up to 6 months without water
- Fires double the losses
- Business disruption doubles the losses
- $213 billion damages
CALIFORNIA’S ONLY GREAT URBAN EARTHQUAKE

- 1906 magnitude 7.8
- Earthquake and fire destroyed most of San Francisco
- Lowered the US GDP by 1.5-1.8%
LA & SAN FRANCISCO IN 1906

1906 earthquake

Population

San Francisco

Los Angeles

1890  1900  1910  1920
0  100000  200000  300000  400000  500000  600000
ECONOMIC REPERCUSSIONS

NEW ORLEANS VS NASHVILLE
ECONOMIC GROWTH

REAL GROSS DOMESTIC PRODUCT (in Billions of Dollars)

YEAR


NASHVILLE

NEW ORLEANS

-105 BILLION

-80 BILLION
OUR URBAN SOCIETY IS AT RISK

Goals:

- Protect lives during the earthquake
- Improve the City’s ability to respond
- Improve the City’s capacity for recovery

URBAN DISASTER RESILIENCE IS A SOCIETY THAT FUNCTIONS AFTER THE DISASTER
BRING IN CITY CONSTITUENTS

• Mayor’s Technical Task Force
  • Engineers from SEAOSC, Concrete Coalition, Tall Building Council, DBS
• LADWP Water Task Force
  • DWP design team
• Telecommunications Task Force
  • Four major cellular service providers
MEET WITH STAKEHOLDERS

• About 5-10 presentations each month

• Emergency services
  • Red Cross, government, corporate - partisans

• Building owners
  • BOMA, AAGLA, CAA, LA Conservancy

• Business leaders
  • Central City Association, ULI, Chambers of Commerce

• Community groups
  • Neighborhood councils
Resilience by Design
STRENGTHEN OUR BUILDINGS

1. Mandatory retrofit of soft-first story buildings
2. Mandatory retrofit of concrete buildings
3. Voluntary rating system
4. “Back to Business” inspection program
5. Excessive Damage ordinance
FORTIFY OUR WATER SYSTEM

1. Water for fire fighters
2. Protected fault crossings for the aqueducts
3. Less dependence on imported water
4. Seismic resistant pipes
5. Resilience By Design Program
ENHANCE RELIABLE TELECOMMUNICATIONS

1. MOU with service providers to manage emergencies
2. More resilient power
3. Promote City-wide Wifi access
4. Stronger towers

Cell tower in Tokyo after March 2011 M9
WHAT LED TO THE SUCCESS?

• A focus on what we know, not on what we don’t know
• A narrative so people see themselves in the picture
• A place for everyone in the picture
• Intelligence to see the implications of the hazard
• Courage to plan for a future
FINDING THE WAY FORWARD