

The Three Goals for “Build Back Better”: Lessons from the 1995 Hanshin–Awaji earthquake.

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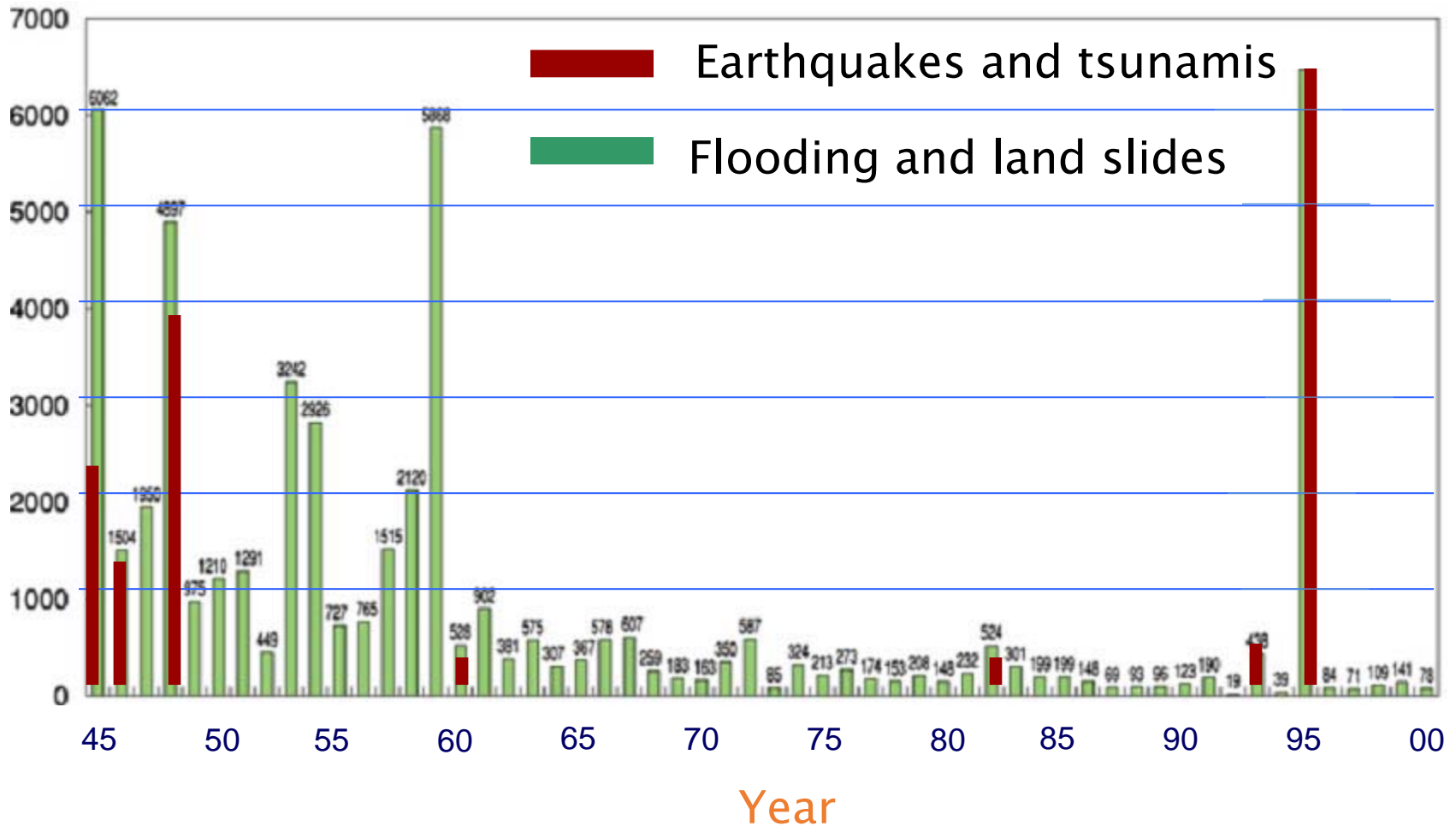
Unprecedented Severity of Urban Earthquake

Near Field earthquake → Unexpected Hazard
Urban Area → Huge Exposure



Japanese Disaster Mortality 1945–2000

Mortality



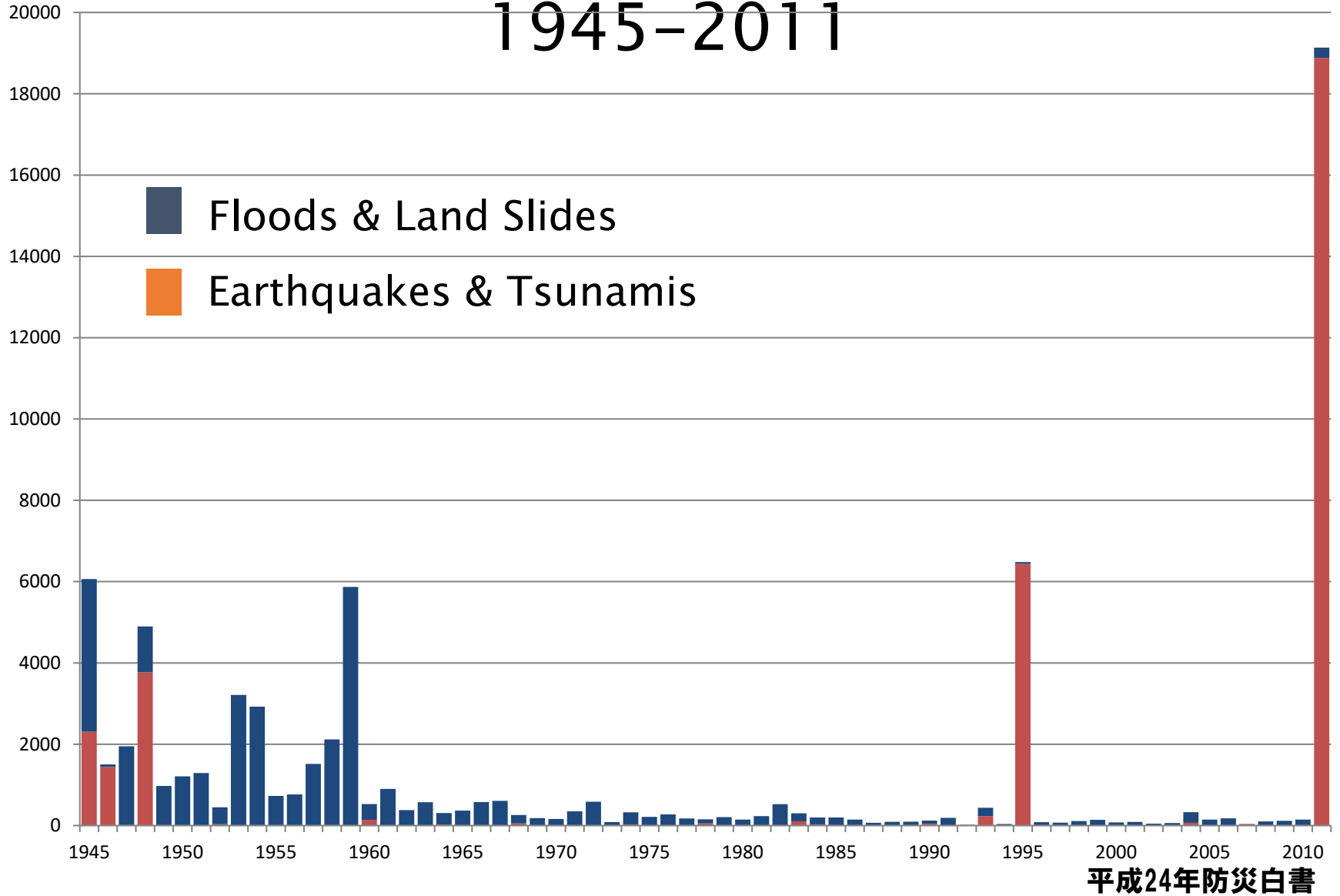
Unexpected Scale of Hazards 2011.3.11

Mw=9.0 Earthquake → Rare hazard
Landscape scale Area → Huge Exposure

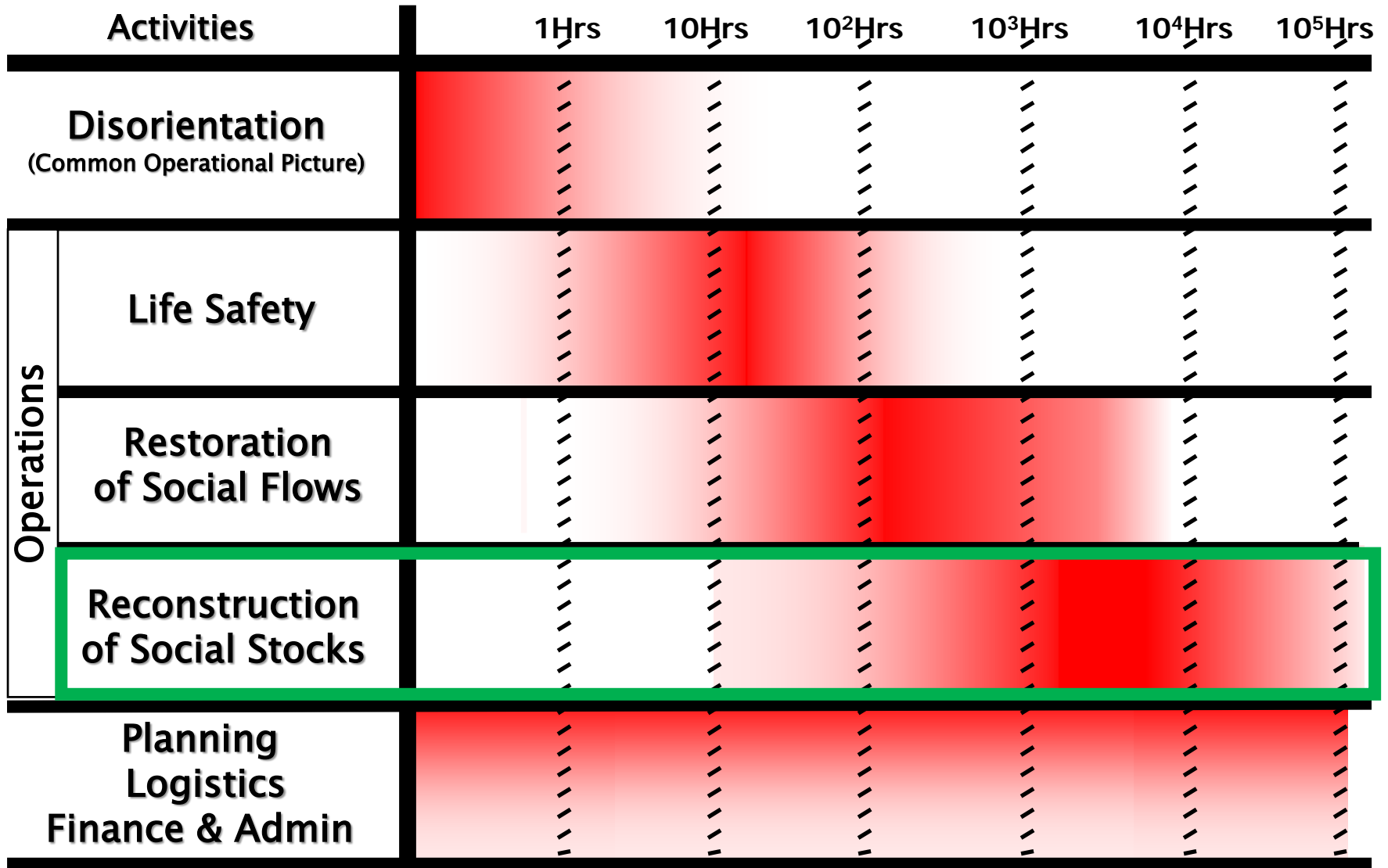


2011.3.11 Tohoku Earthquake and Tsunami Disaster(Mw=9.0)

Japanese Disasters by Mortalities 1945-2011



Activities Needed for Response and Recovery

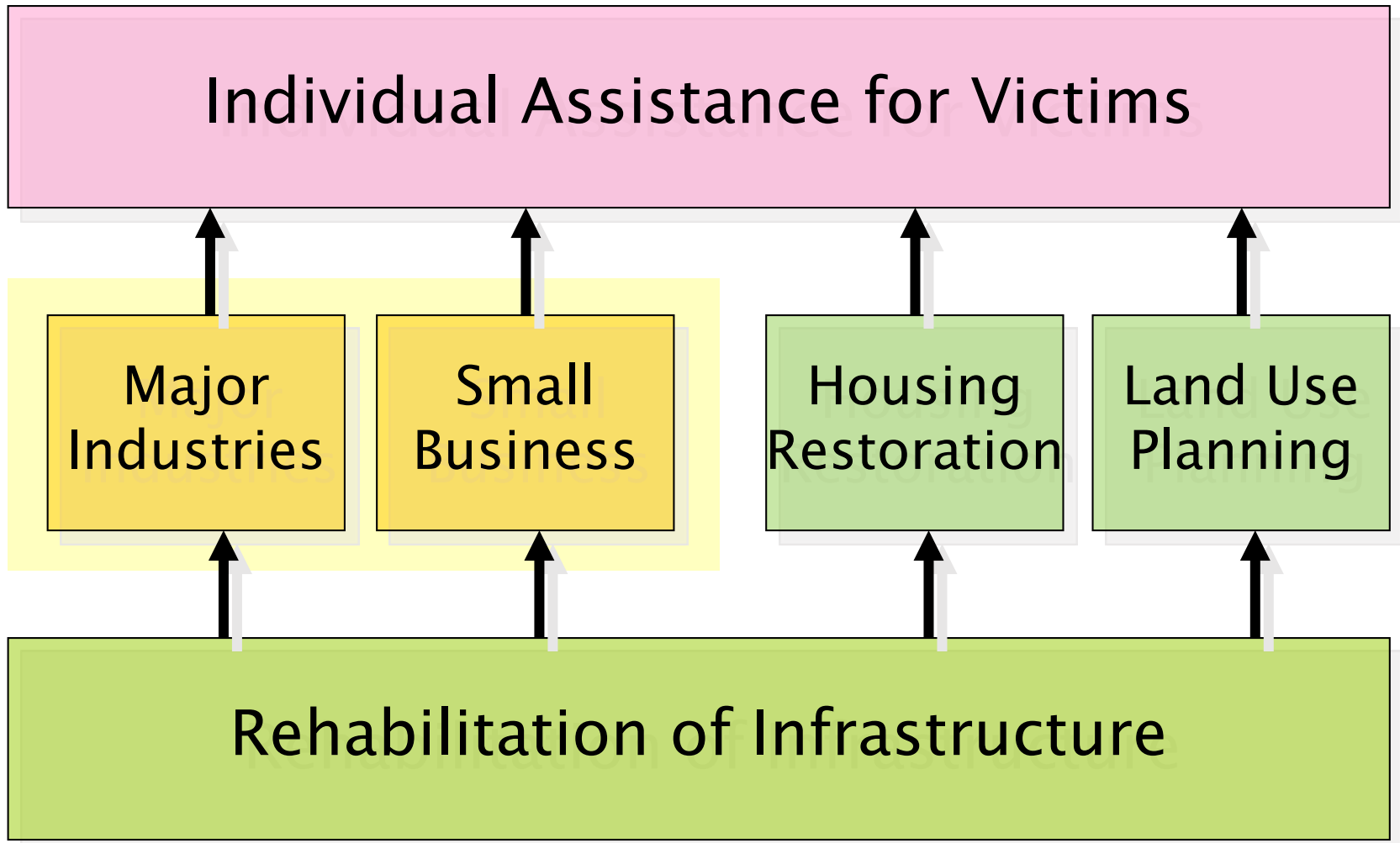


Two kinds of recovery (重建)

- *fukkyū* (復旧) :
 - “return to status quo ex ante”

 - *fukkō* (復興)
 - “adapt to the status quo ex post”
 - As a result of the unprecedented 1995 Kobe earthquake devastation
 - "Build Back Better" using the disaster as a chance
- ➡ Hanshin–Awaji Earthquake Disaster

Basic Structure of Kobe Recovery Program



Three Goals of Kobe Recovery Plan

Physical Recovery

Reconstructing Destroyed Cities

+

Economic Recovery

Revitalizing Local Economies

Life Recovery

Helping Disaster Victims

Physical Recovery

Reconstructing Destroyed Cities:

Success

Long-term Physical Recovery

From July, 1995 to March, 2000



Residential Area

Higashinada Ward, Kobe City



Commercial/Residential Mixed Area

Nagata Ward. Kobe City

What was done

- **Wise Land Use Planning**
 - Planning First
 - Moratorium for the First Two months to prohibit building construction
- **Quick Debris Removal: 1 year**
 - Recycle debris by discriminating materials
- **Quick Restoration of Infrastructure:**
 - In 2 years
 - Basis of all kinds of recovery activities
- **Providing Places to Live for Victims:**
 - In 3 years, the number of newly constructed houses exceeded that of destroyed by the disaster
 - In 5 years, no temporary housings left
 - ‘building codes’ were enforced strictly for a higher seismic performance

Why we succeeded

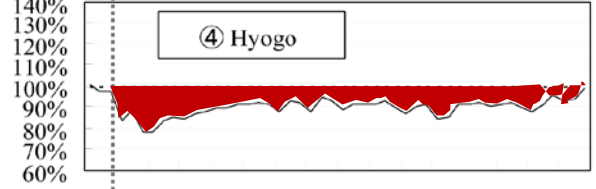
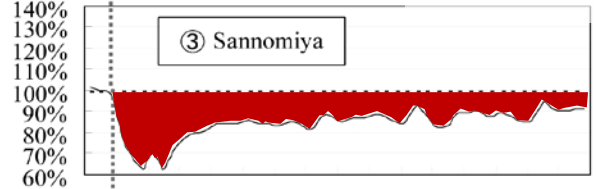
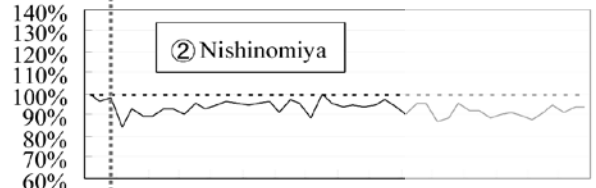
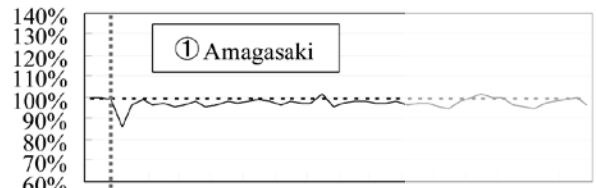
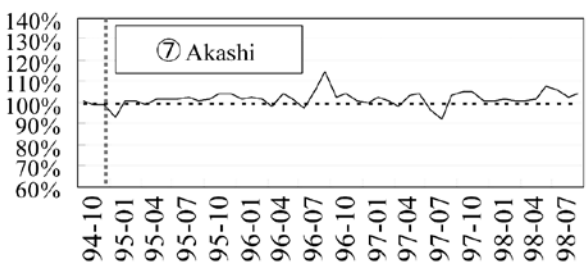
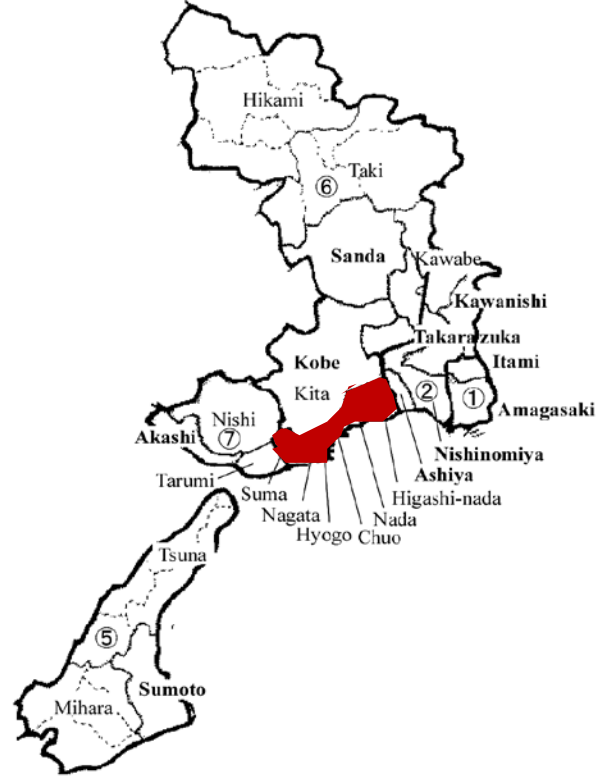
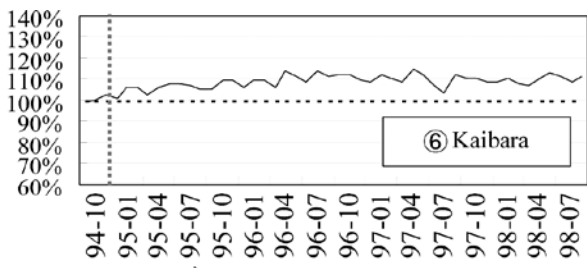
- **Based on Lessons Learned from Many Past Disasters**
 - 1923 Kanto Earthquake,
 - Post WWII Reconstruction
 - Large Scale Fire Incidents
- **Specific Numerical Targets helped to facilitate the process**
 - In the First Five Years, Physical Recovery was Completed

Economic Recovery

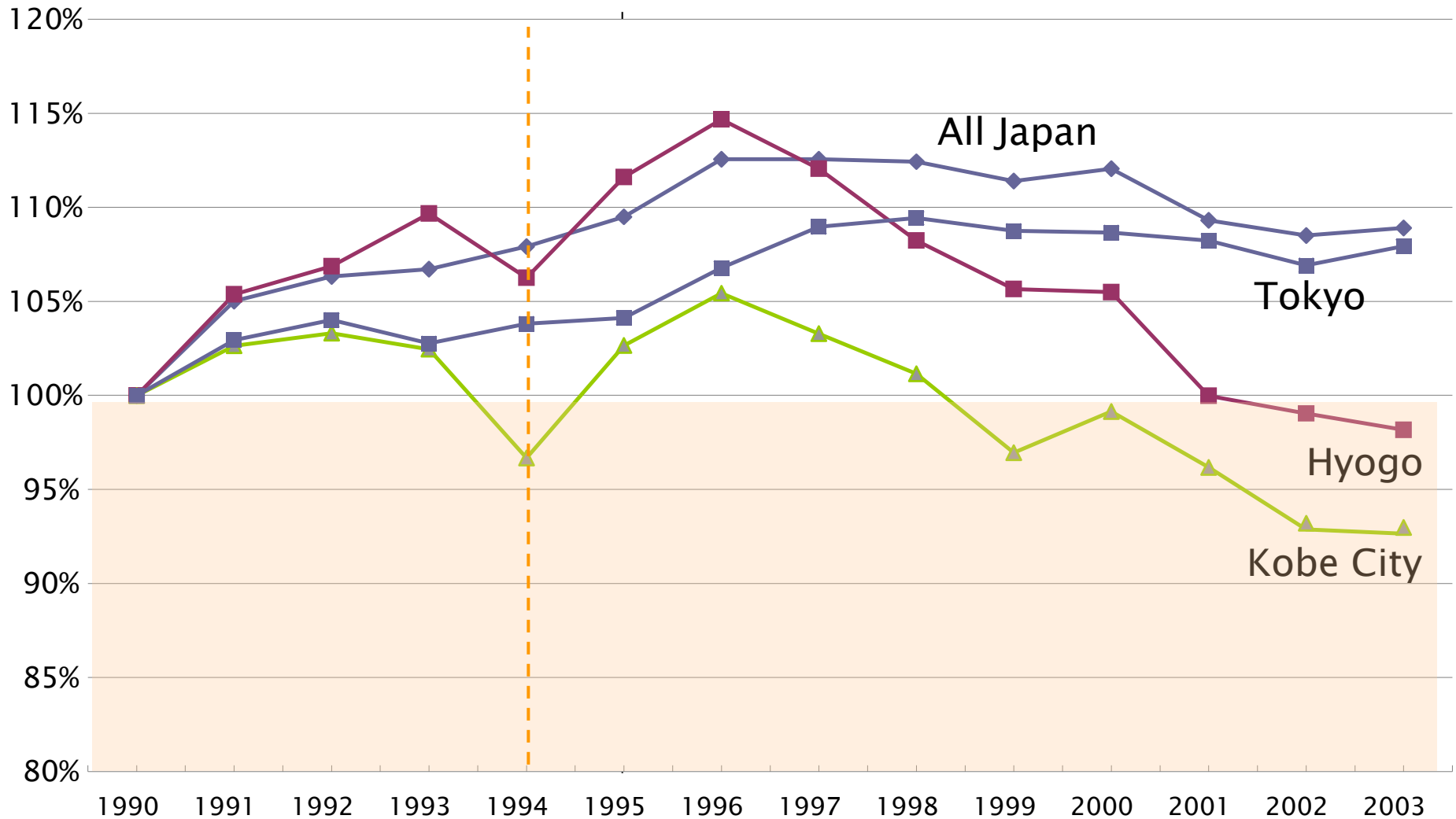
Revitalizing Local Economies:

Partially Success

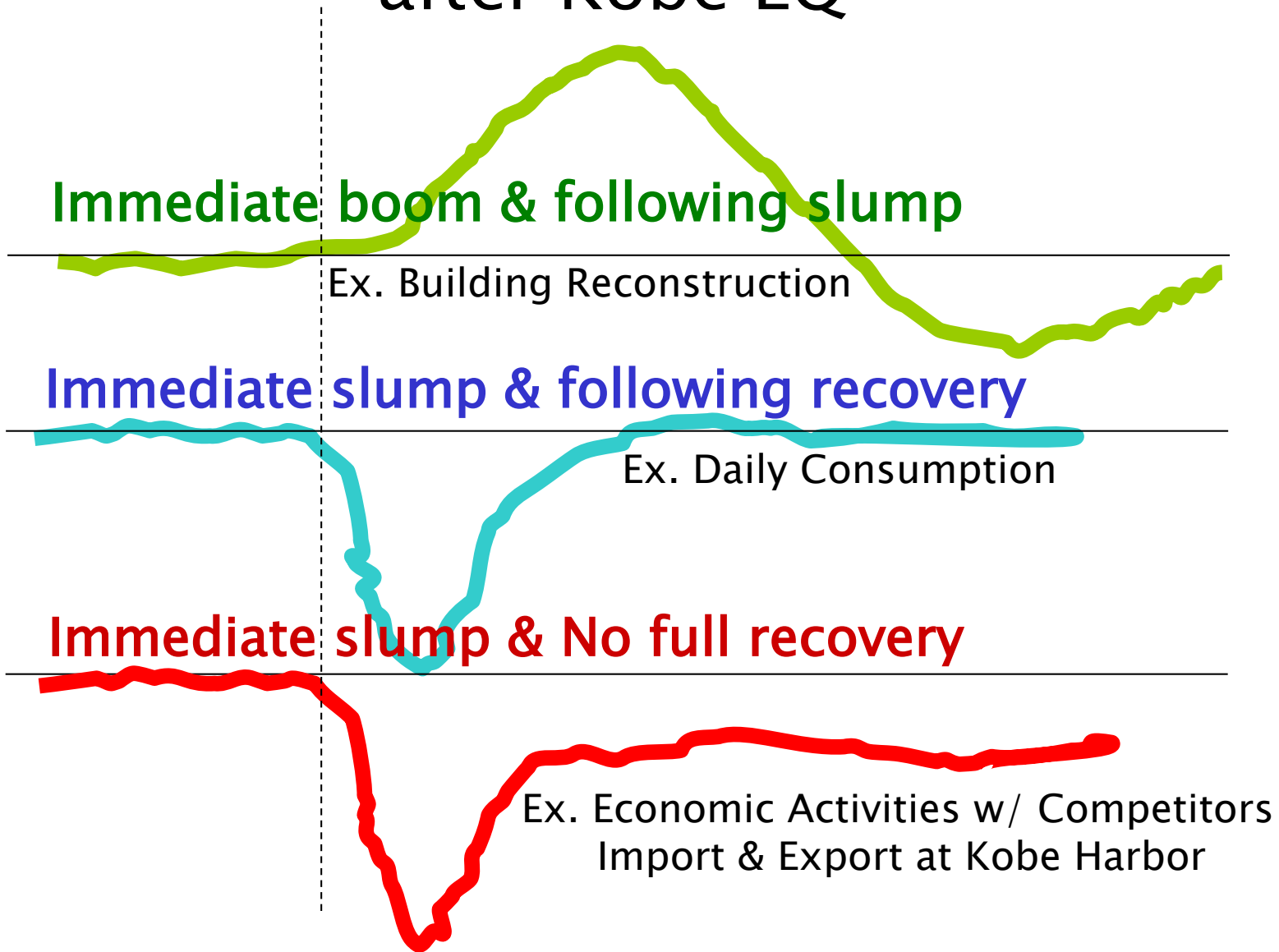
Monitoring Economic Recovery by Power Consumption



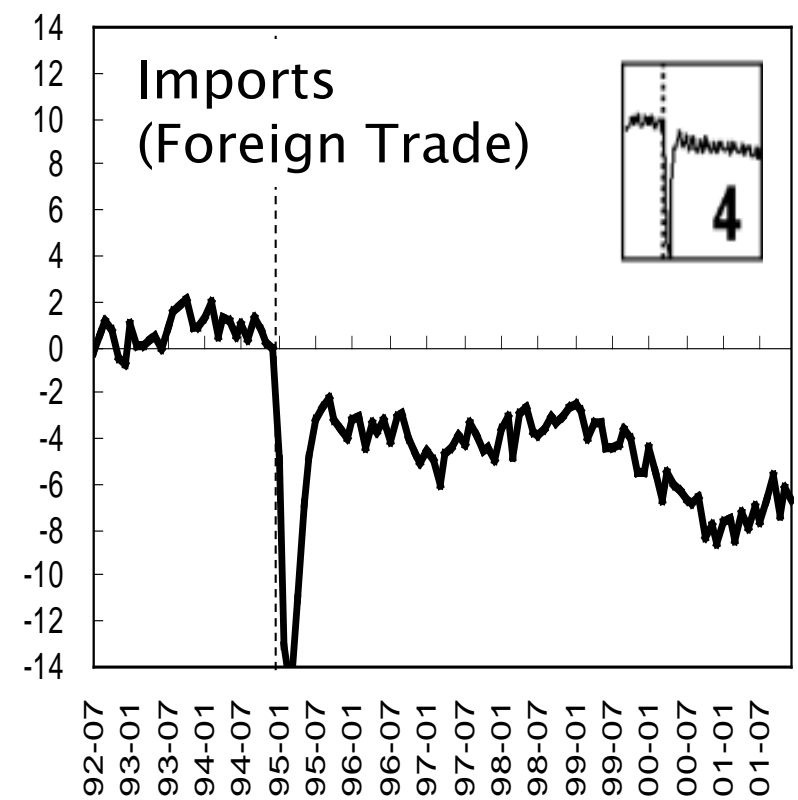
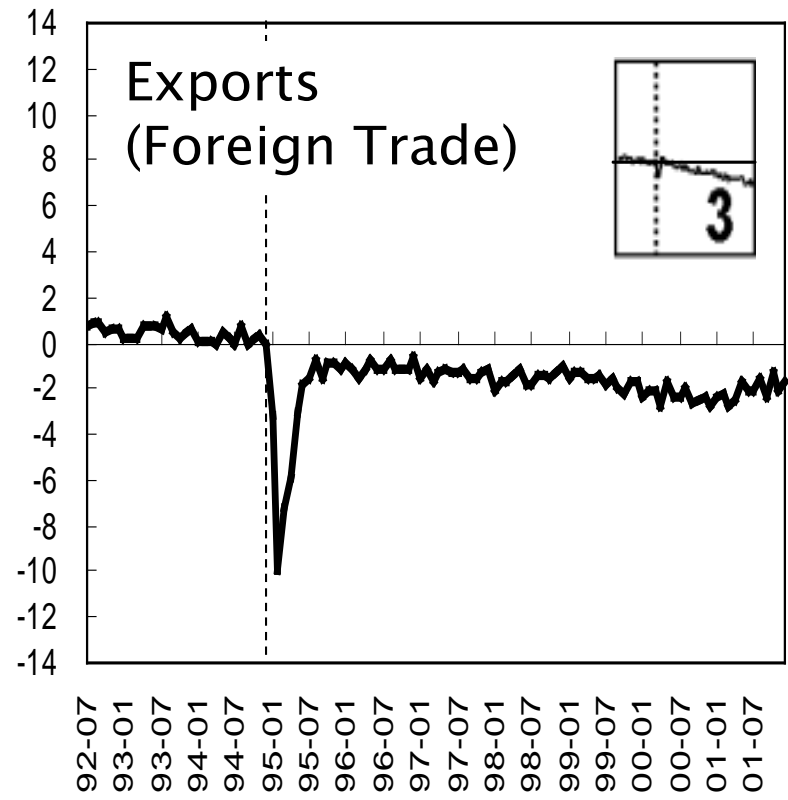
Changes in GDP & GRP after Earthquake



Three Basic Economic Recovery Patterns after Kobe EQ



Monitoring Economic Recovery by City Statistics



Why Partial Success

- Over-concentration of national government money and work for a very short time period killed local business recovery
 - Major Contractors in Tokyo got contracts
 - Little “Trickle-down” effect for local small business
 - 10 years worth housing renewal was completed in 3 years, followed by big economic slump
- Over-reliance on Public Spending by Victims
 - Little Initiative for Promoting a New Economy Development
 - Government was the only risk taker
- Customers Never Waited for recovery
 - Shift to competitors and never returned to old days
 - Importance of Business Continuation Plan

Life Recovery

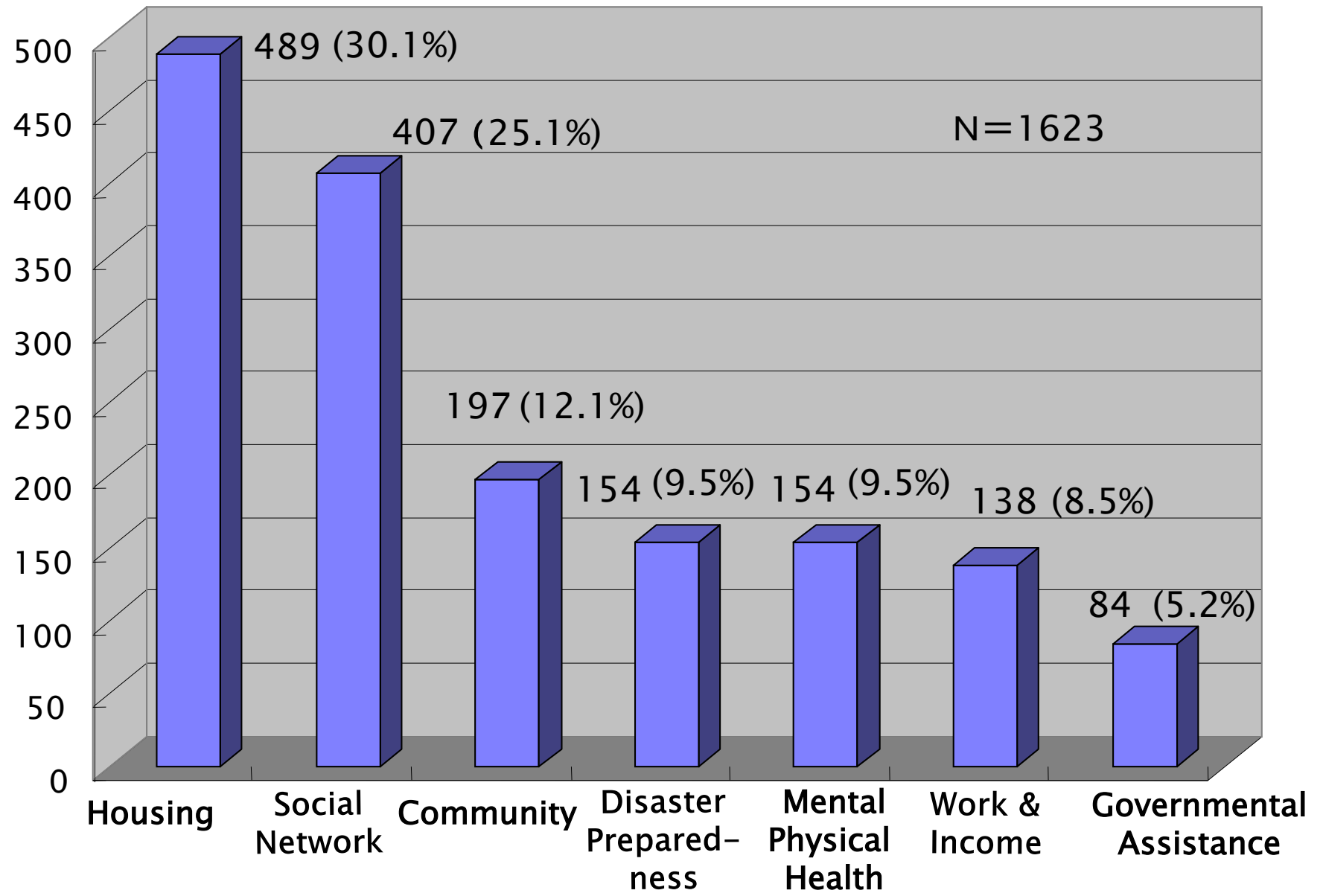
Helping Disaster Victims:

Partial Success

Life Recovery

- New Concept and Development
- 3.5 million disaster victims
- Nobody Can Define
 - Scope of Work
 - Desired End State
 - Need for Ethnographic Inquiry of Meaning of Recovery
- Public Help was provided mainly for Low–Income and/or Senior Citizens

Seven Elements for Life Recovery



Resilience Model for Life Recovery

