



Long-term Disaster Recovery Processes: Lessons Learned From The 1995 Kobe Earthquake and other major disasters

Haruo Hayashi
Kyoto University



復興との関わり

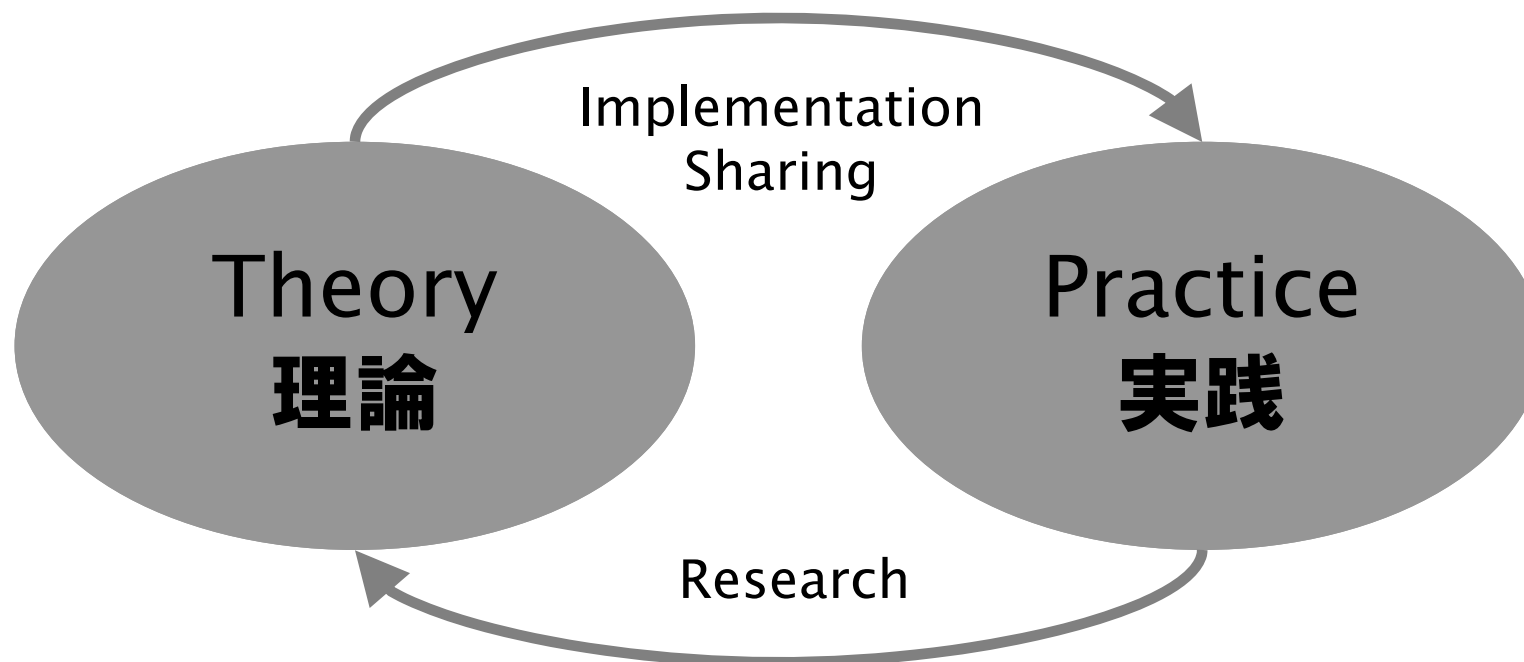
- 1983 日本海中部地震
 - 1984 農山間地域の災害からの復旧・復興
- 1995 阪神淡路大震災
 - 1995.2~6 神戸市復興計画・兵庫県復興計画
 - 1995.7~1999 被災者復興支援会議
 - 2000 神戸市復興検証・兵庫県復興検証
 - 1999,2001,2003,2005 兵庫県復興調査
- 2005 Hurricane Katrina
 - 2006~ CGP Project



Action Research

There is nothing more practical
than a good theory K. Lewin

過去の知見と新しい技術を、現地の対応支援に生かす



現場活動を通して、新しい問題を発見し、解決法を研究する



Three Goals of Recovery Plan

Physical Recovery

Reconstructing Destroyed Cities

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Economic Recovery

Revitalizing Local Economies

Life Recovery

Helping Disaster Victims



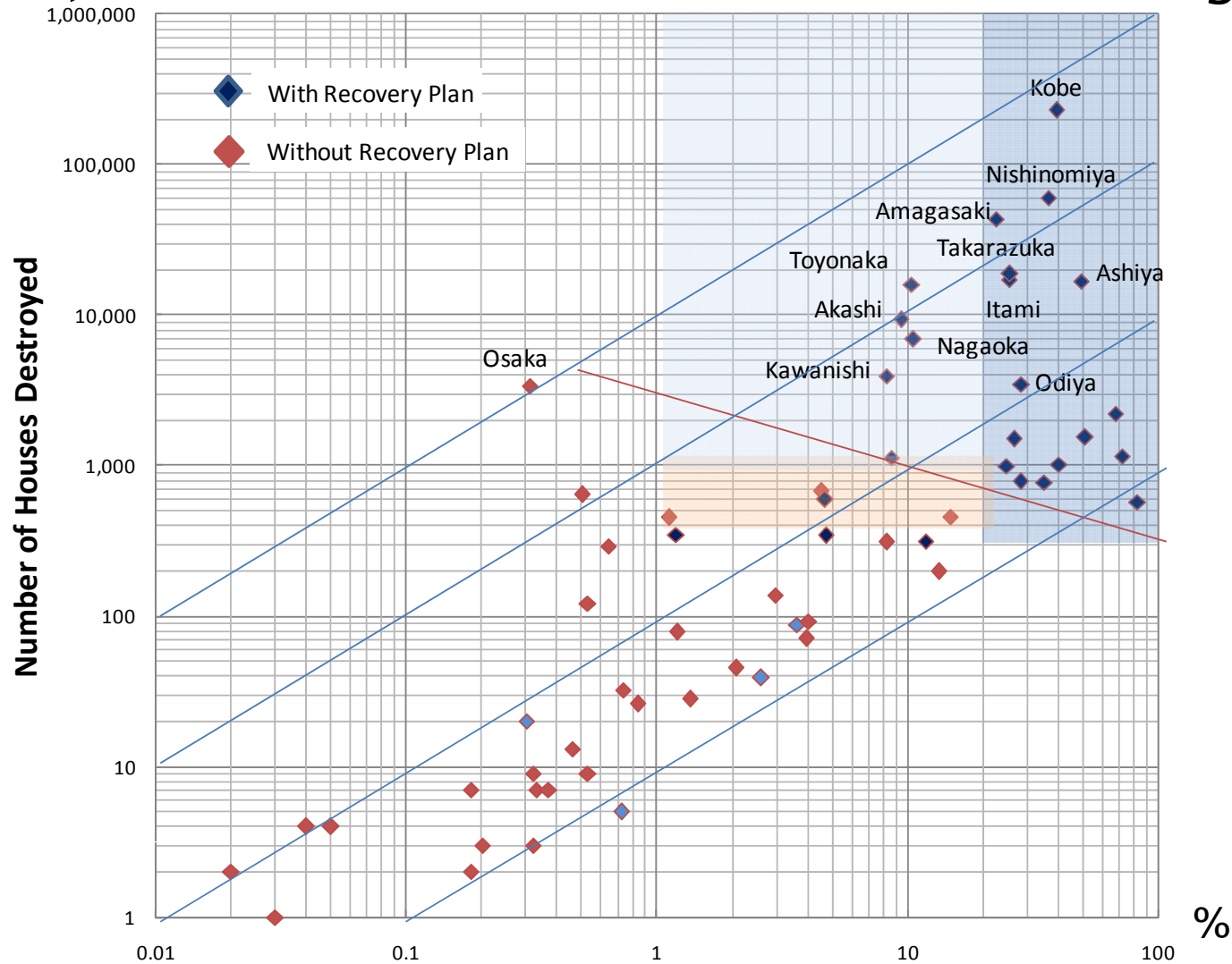
Importance of Recovery Planning

- Recovery is not just restoring what it was before the disaster
- Recovery is a great chance for realizing a better and sustainable way of life: a new ideal
- Recovery planning is the key for taking coordinated and cooperative actions to realize the new ideal among all stakeholders



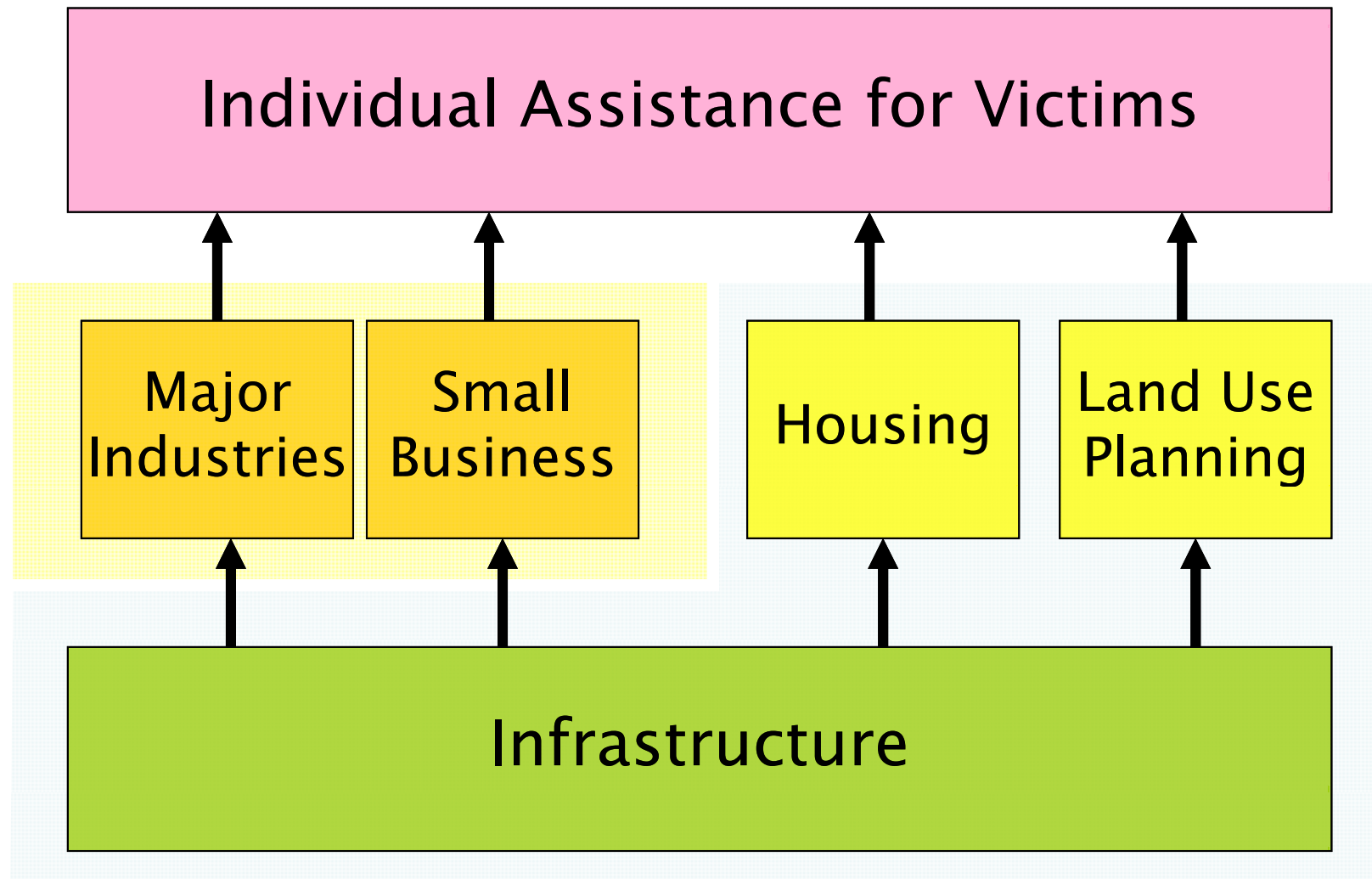
Municipalities with Recovery Plan

if 1,000+ House or Over 10% of Stock Damaged



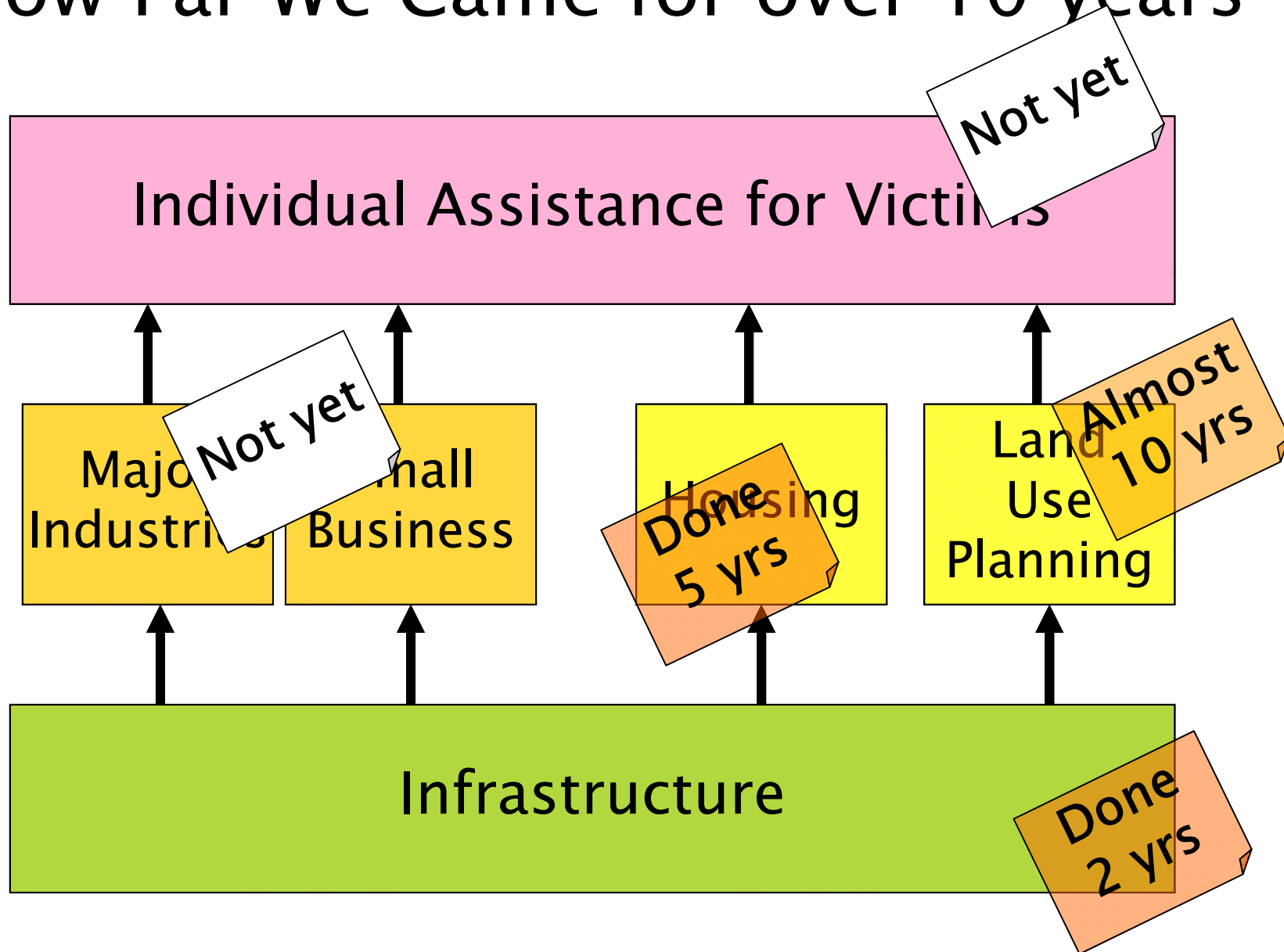


Basic Structure of Recovery Program





How Far We Came for over 10 years





Physical Recovery

Reconstructing Destroyed Cities:

Success



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 5 years, no temporary housings left
 - Enforce 'building codes' strictly for a higher seismic performance



Why success

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



Long-term Physical Recovery

From July, 1995 to March, 2000



Residential Area

Higashinada Ward, Kobe City



Commercial/Residential
Mixed Area

Nagata Ward. Kobe City

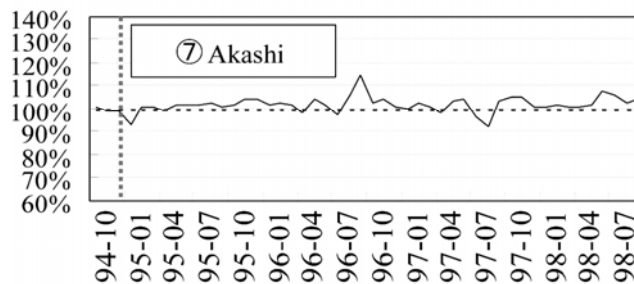
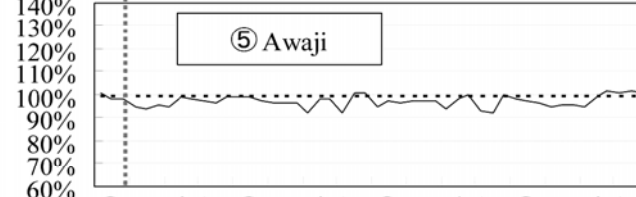
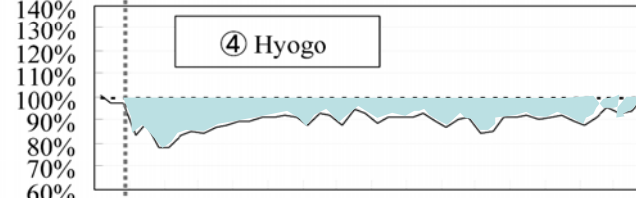
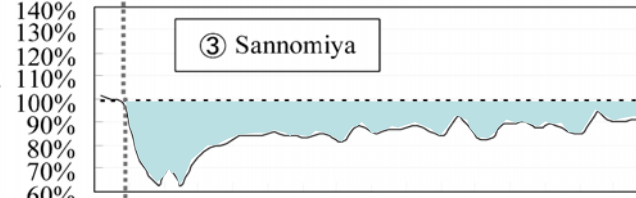
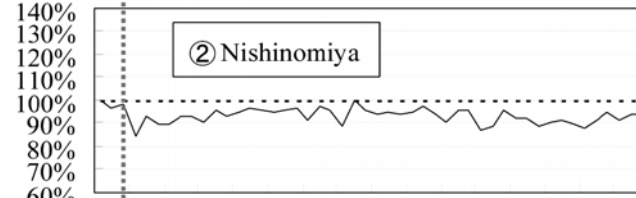
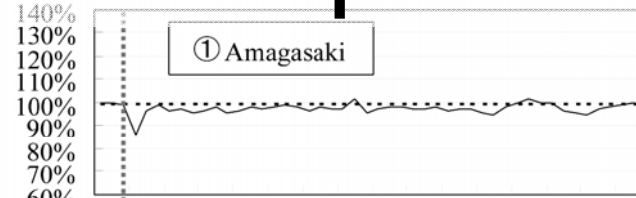
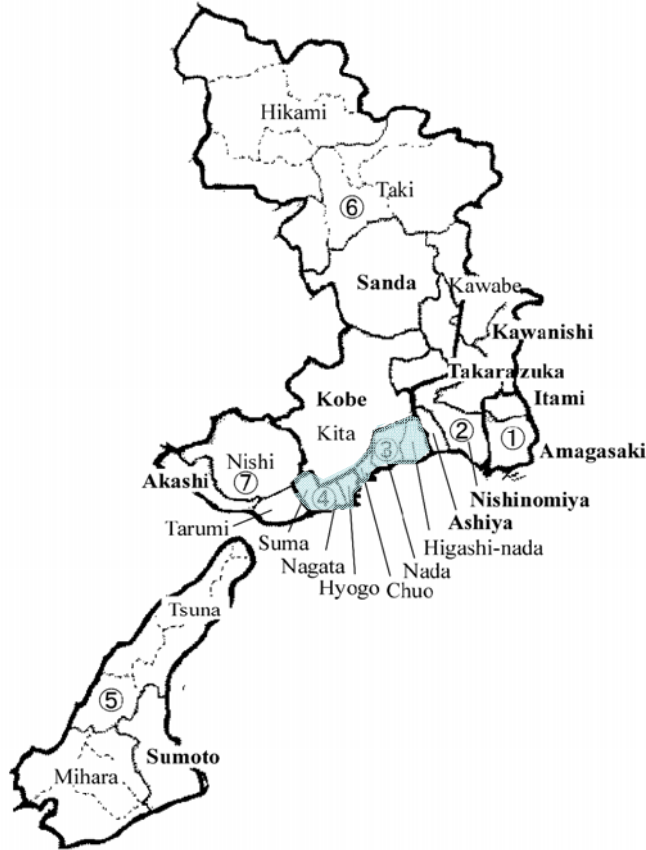
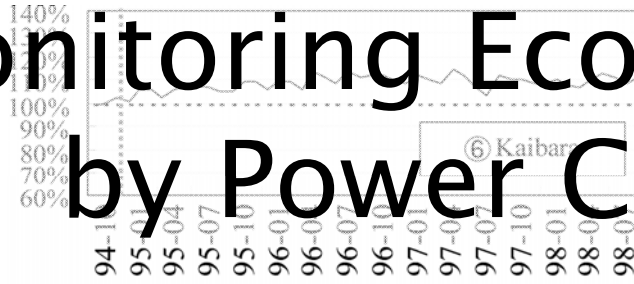


Economic Recovery

Revitalizing Local Economies:

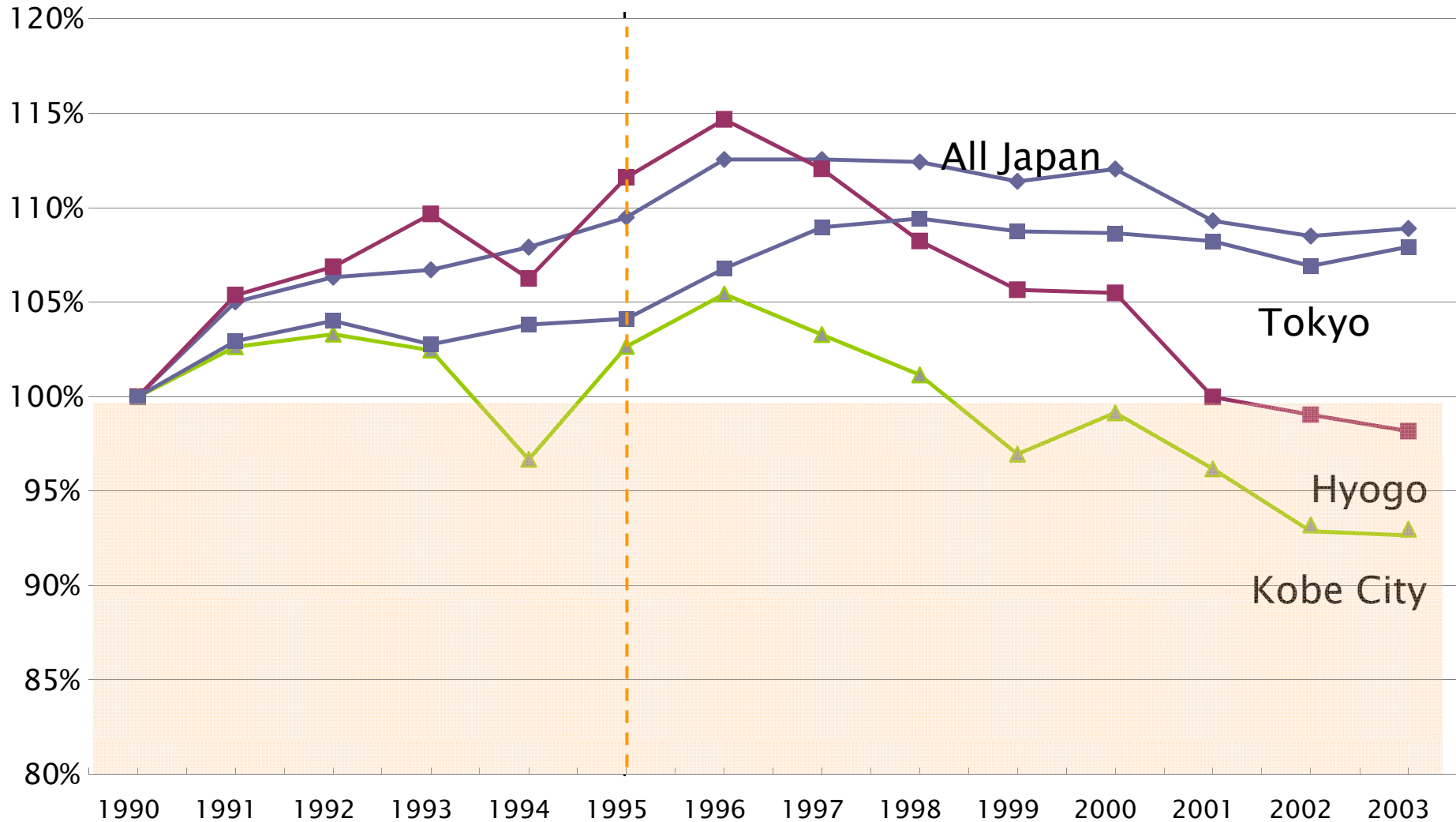
Partially Success

Monitoring Economic Recovery by Power Consumption



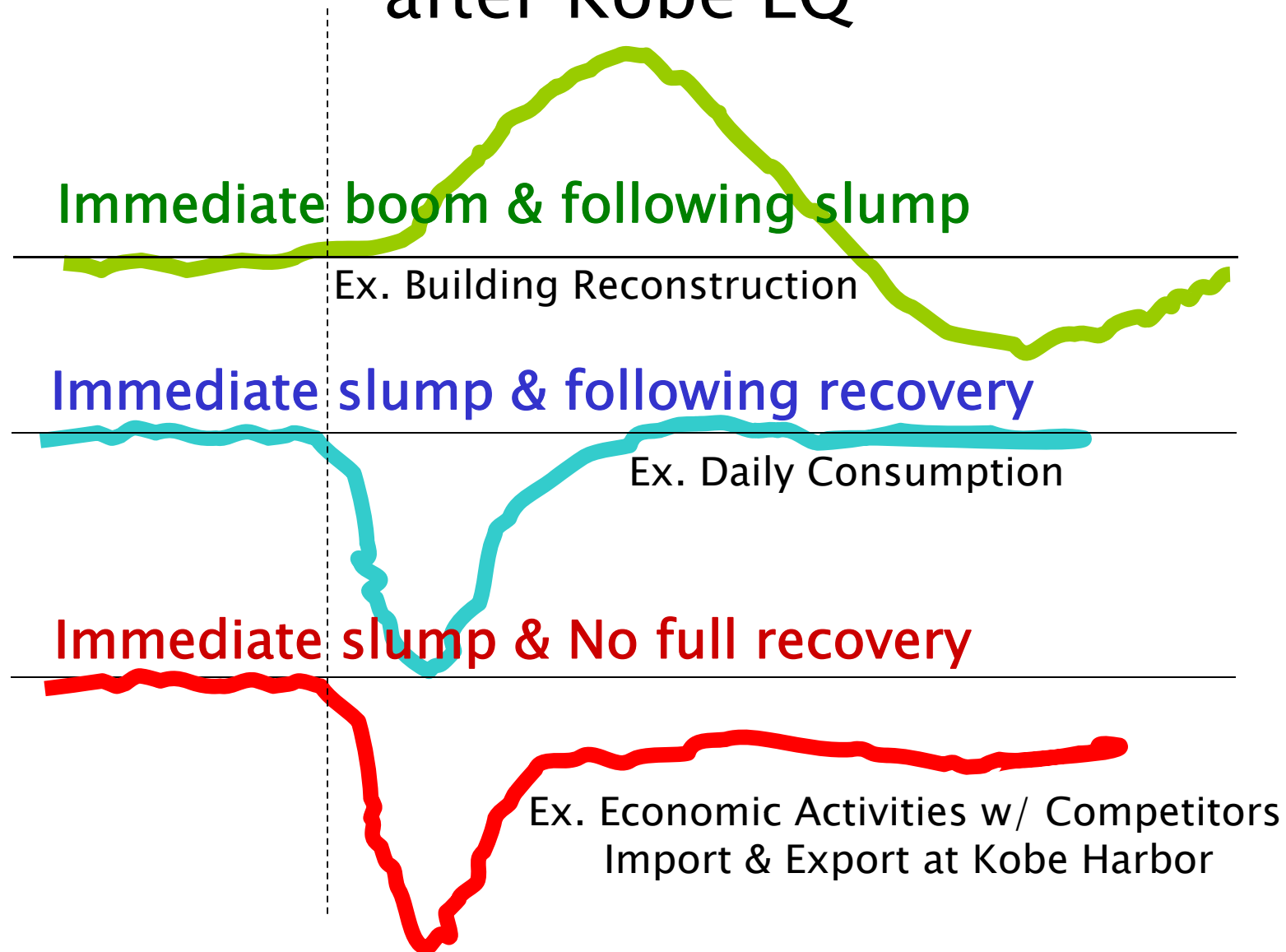


Changes in GDP & GRP after Eq



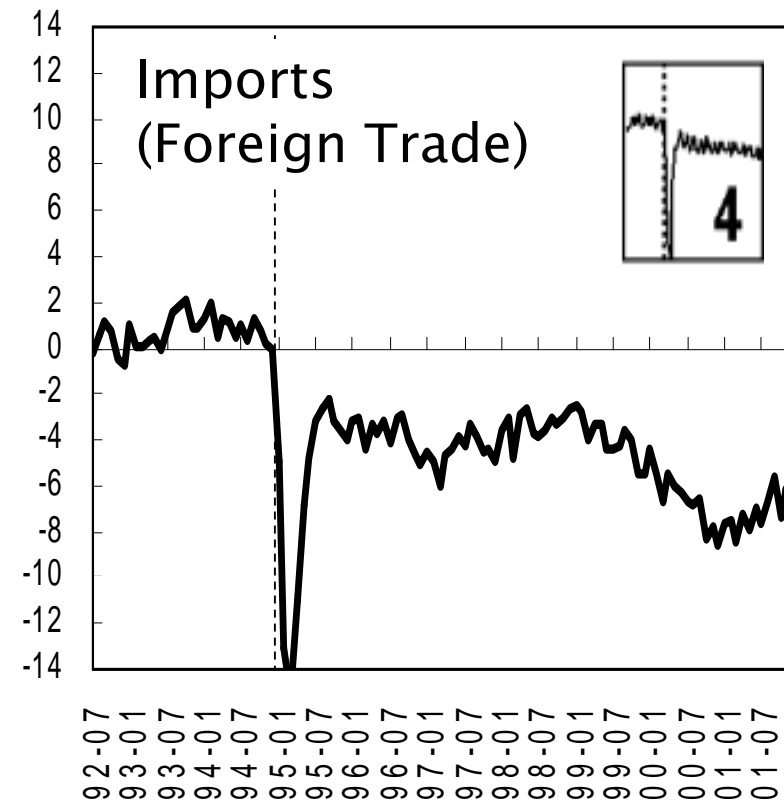
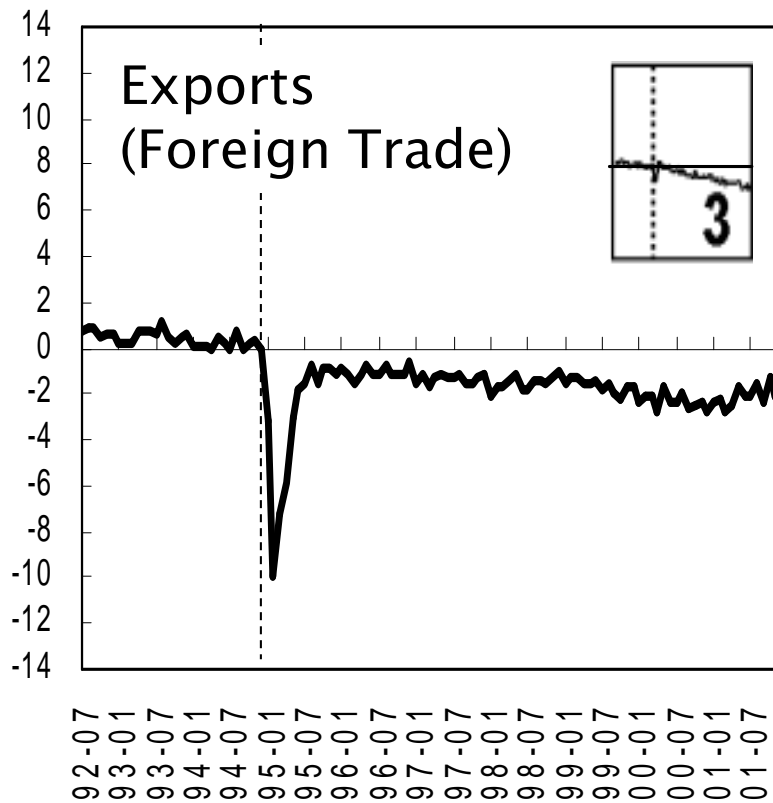


Three Basic Economic Recovery Patterns after Kobe EQ





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

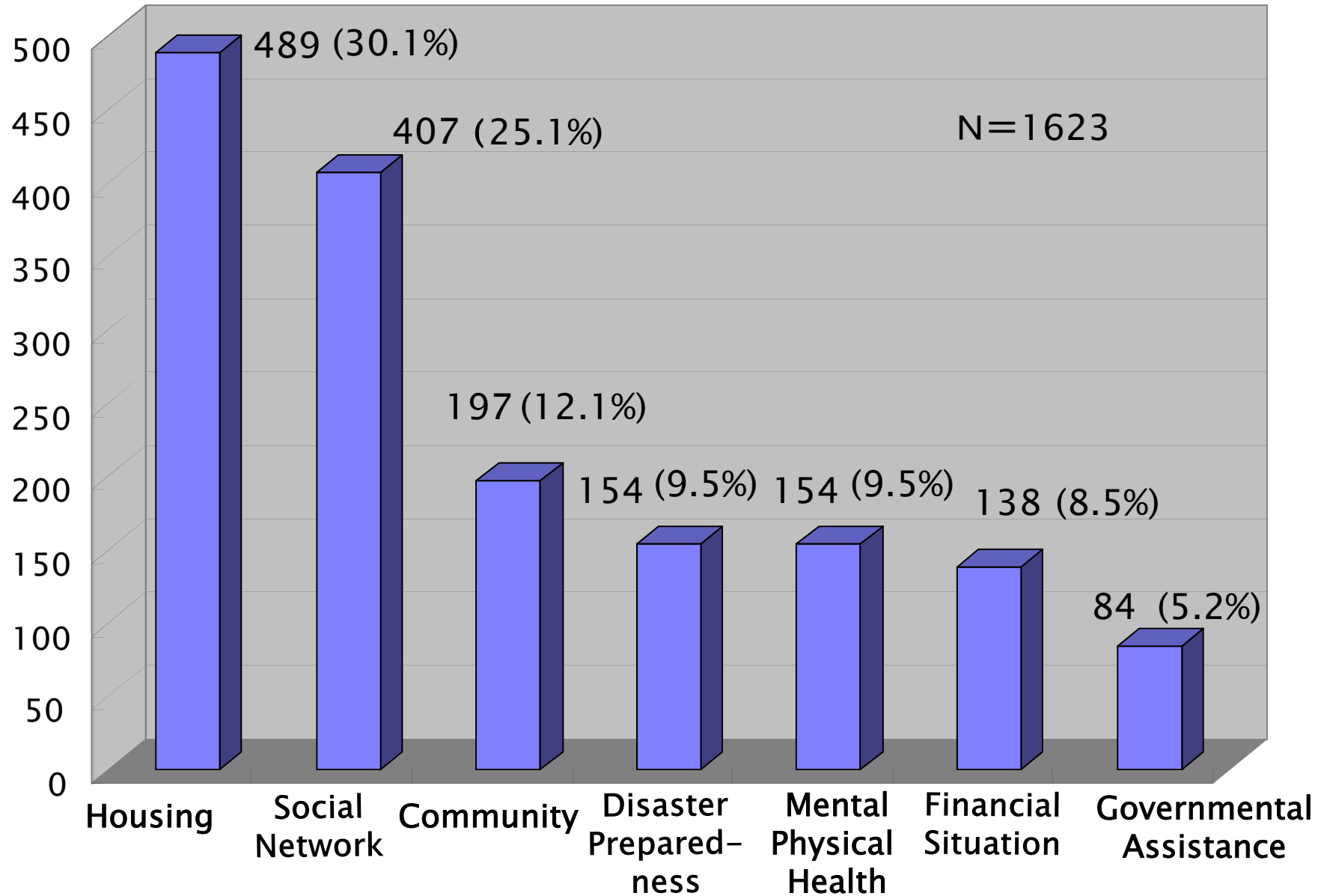


Life Recovery

- New Development
- 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

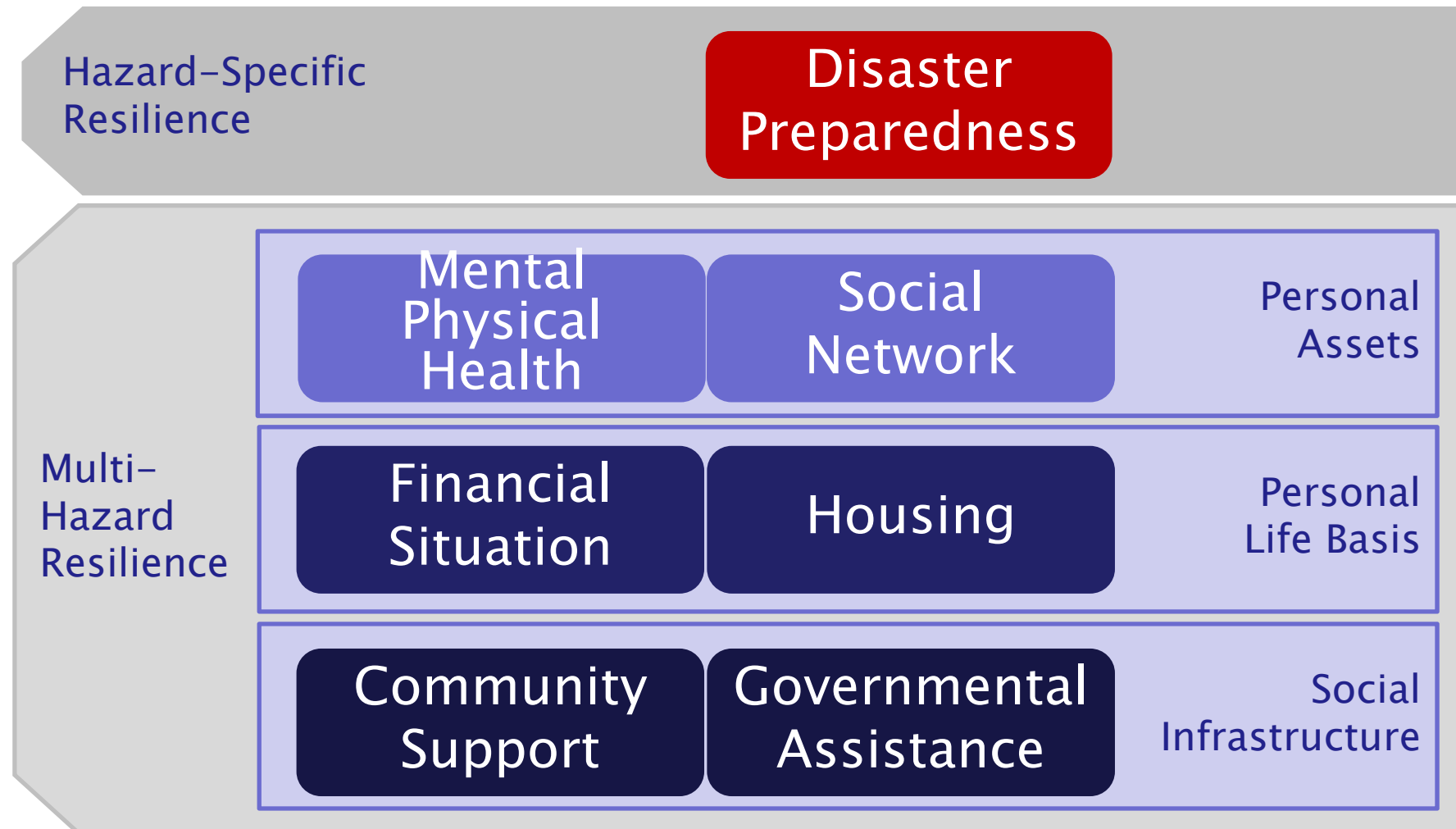


Seven Elements for Life Recovery



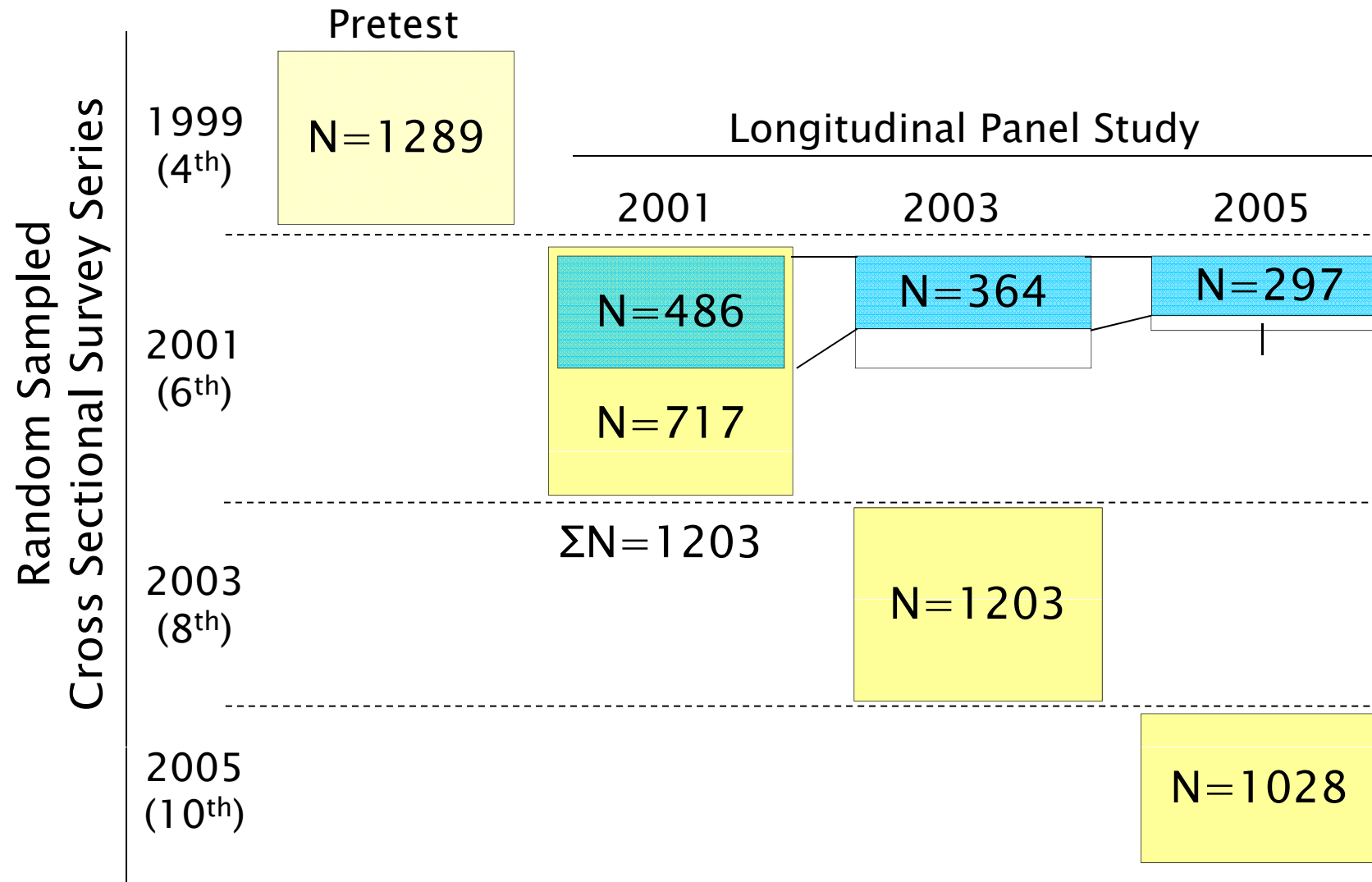


Resilience Model





Holistic Recovery Research by Hyogo Prefecture and Kyoto University

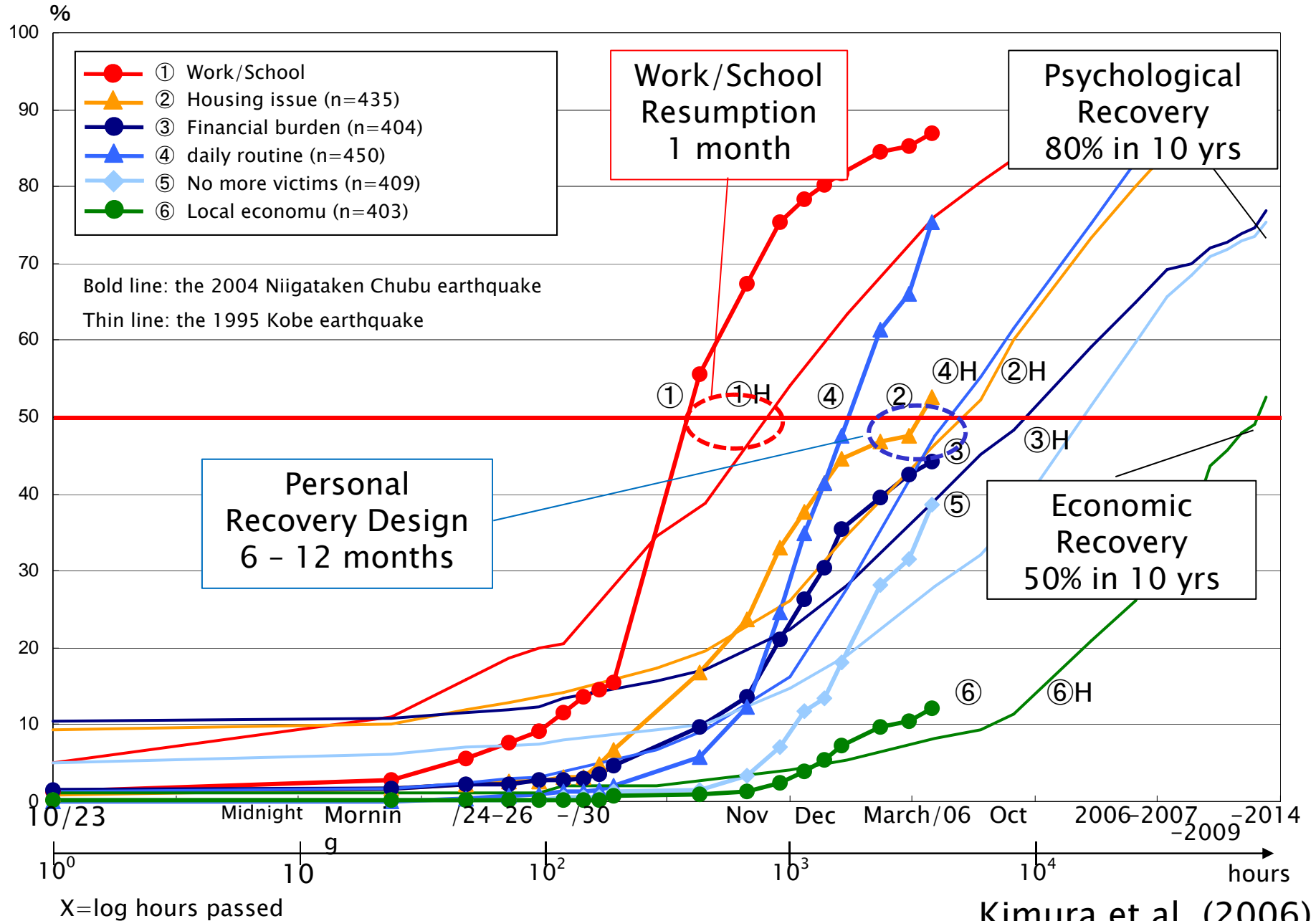




Recovery Timeline

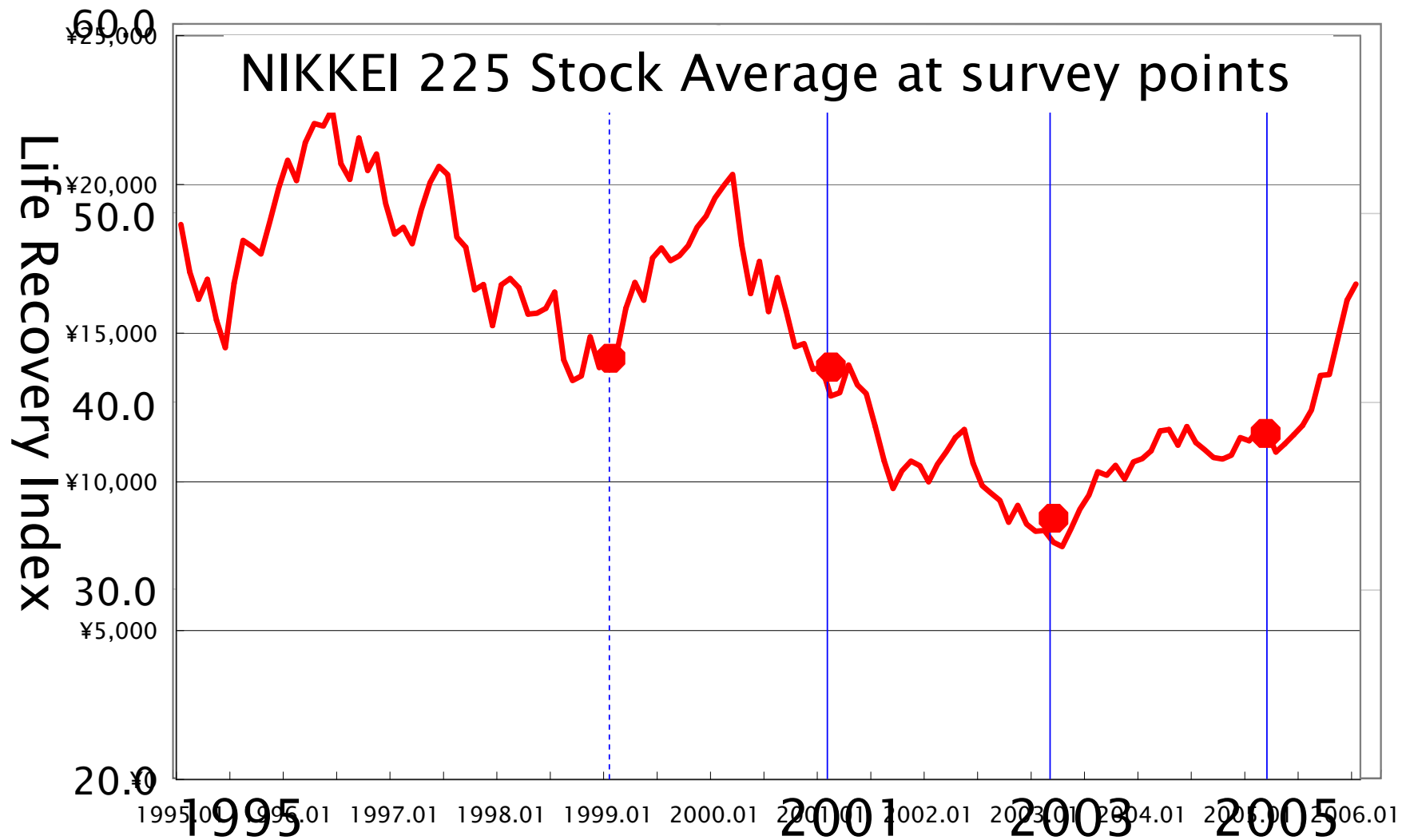
- When the disaster victims thought the followings were recovered or restored
- Chronological Change in Percentage of those who thought recovered in terms of log scale

- Work and/or School (n=405)
- ▲— Housing issues (n=435)
- Financial burden (n=404)
- ▲— Daily routine (n=450)
- ◆— No more victims (n=409)
- Local economy (n=403)





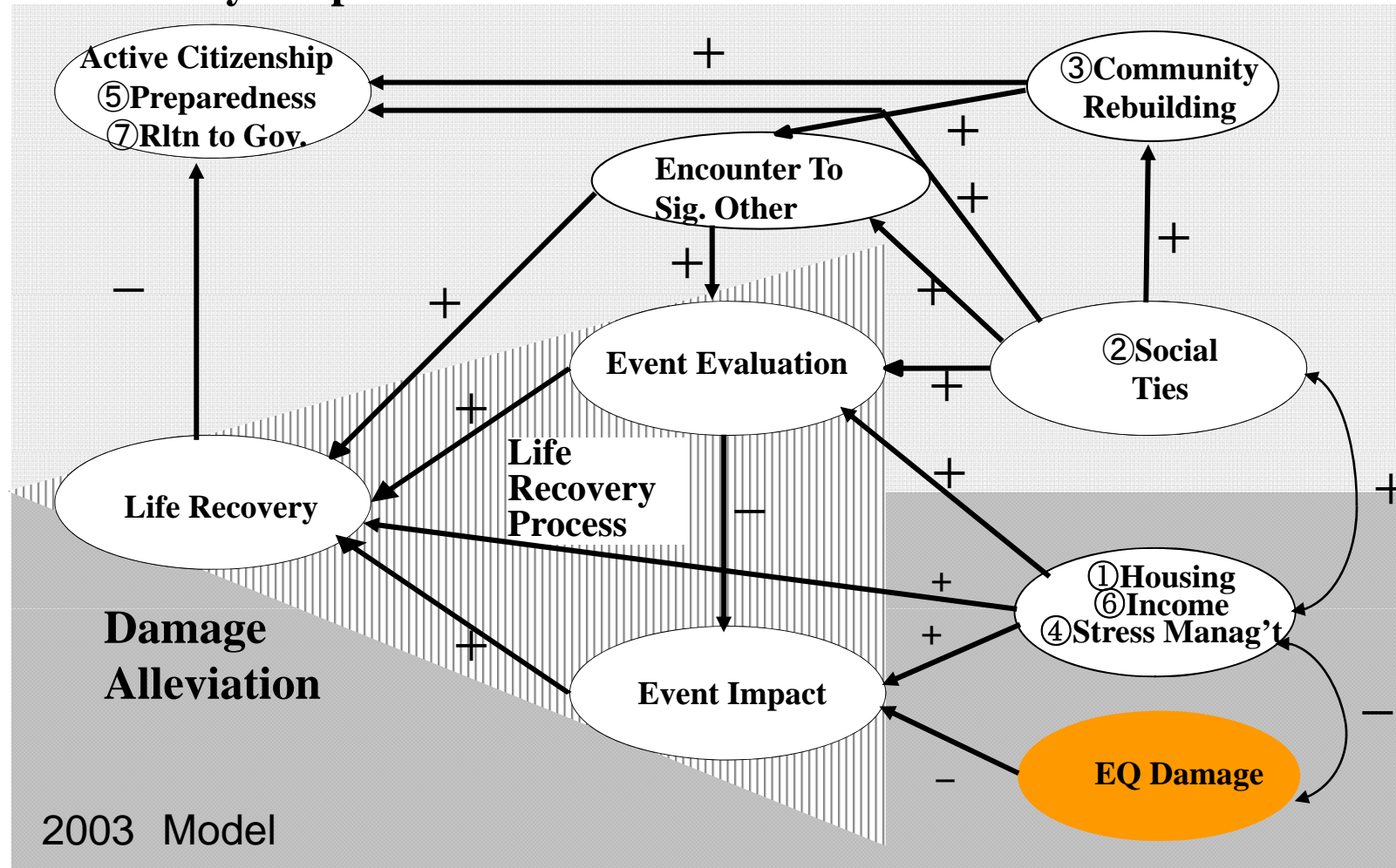
National economy strongly influences Life Recovery





Bird's-eye view of life recovery process: The 2003 study results (N=1,203, Jan. 2003)

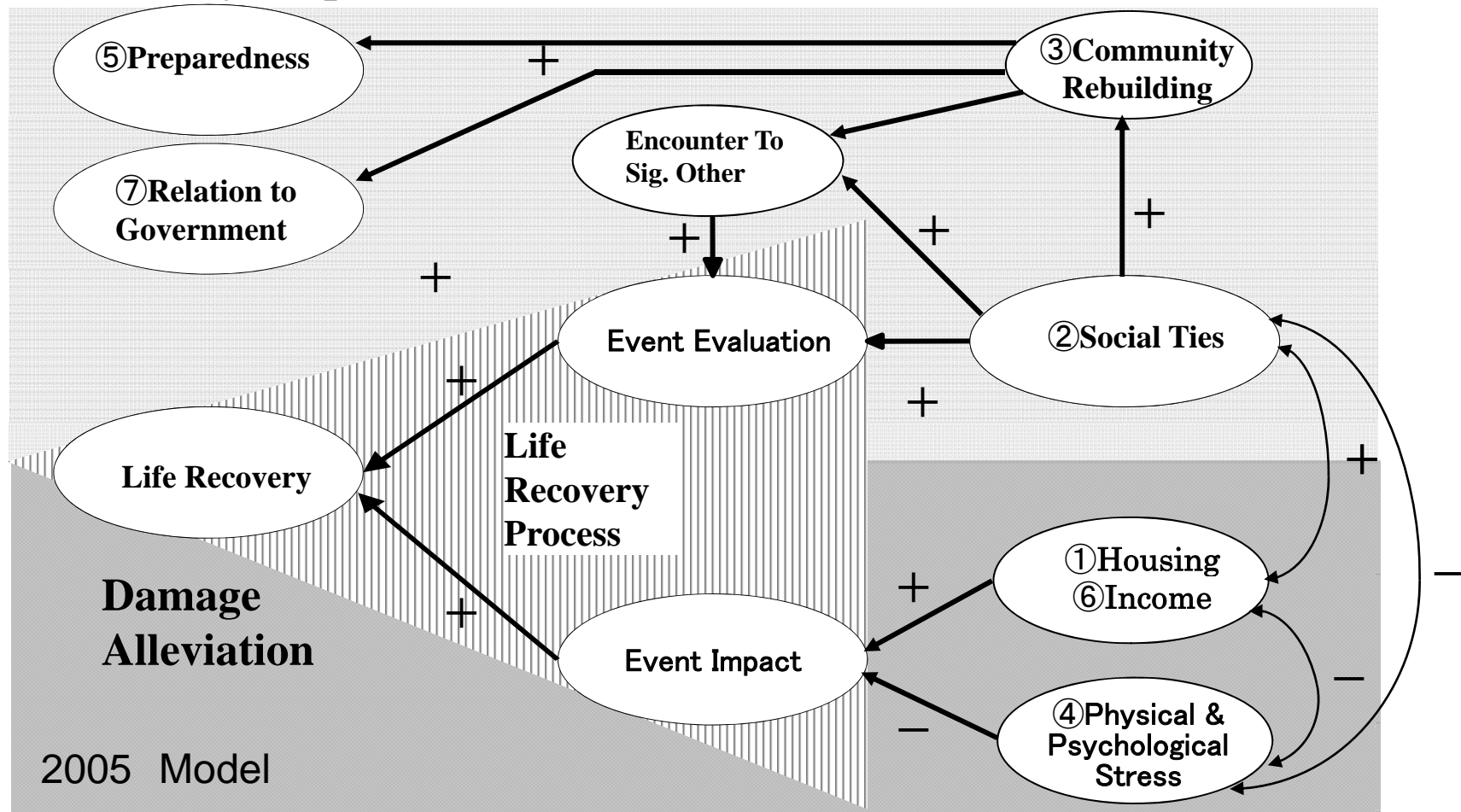
Community Empowerment





Bird's-eye view of life recovery process: The 2005 study results (N=1,028, Jan. 2005)

Community Empowerment





Towards Integrated Model of Recovery

Relationship among Three Goals

Economic Recovery

Revitalizing
Local Economies

as a Result

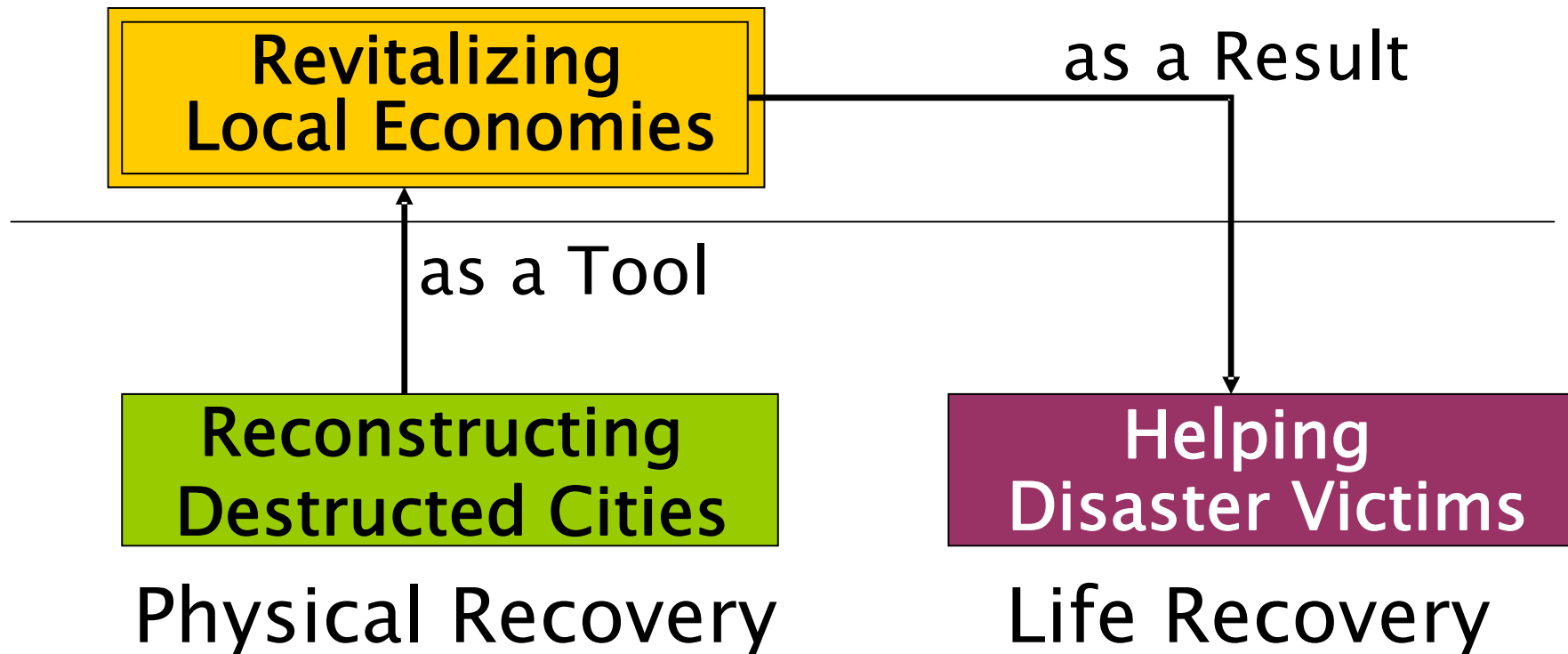
as a Tool

Reconstructing
Destroyed Cities

Helping
Disaster Victims

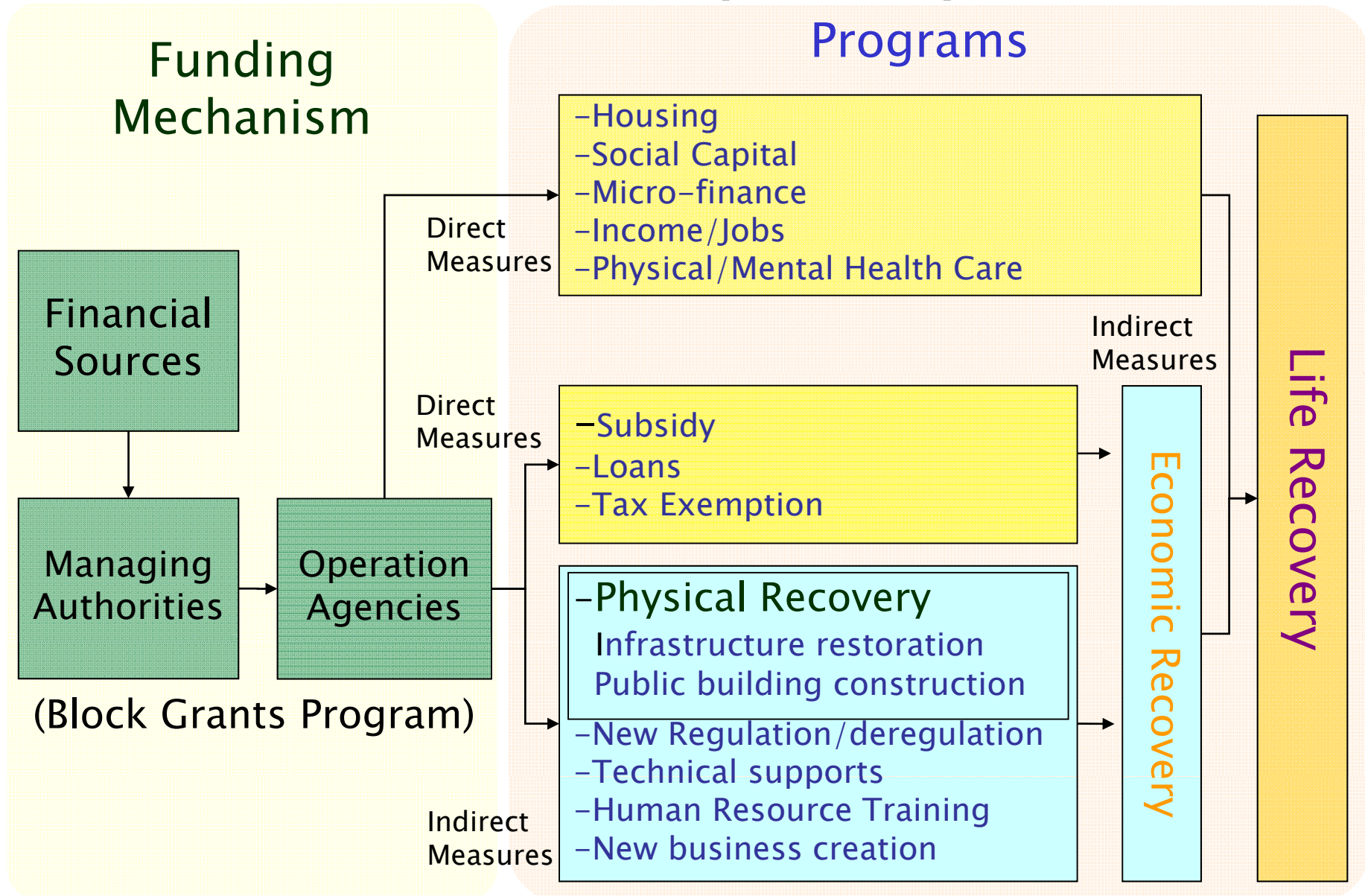
Physical Recovery

Life Recovery





Holistic Recovery Policy Model





Towards Integrated Model of Recovery Relationship among Three Goals

- Programs
 - Life recovery is the ultimate goal
 - Use both Direct and Indirect Measures
 - Economic recovery is an indirect measure for life recovery
 - Physical recovery is an indirect measure for economic recovery
- Funding Mechanism
 - Identify Funding sources, Managing Authorities, and Operating Agencies
 - National Government is not a single resource
 - Community Block Grant Approach



Summary

- Long Term Recovery is a time consuming and complicated process
- Long Term Recovery Management became an important new issue for disaster researchers and practitioners
- There at least three goals of recovery to be achieved: Physical recovery, Economic recovery, and Life recovery
- Activities for achieving these three goals should be coordinated
- Economic recovery should be the prime target,
- use physical recovery as the tool to achieve it, and
- life recovery as a consequence
- Pre-planning of recovery strategy really helps prevent and reduce potential damages
- Recovery planning should be holistic in nature, and participatory in action
- Don't rush, take time for recovery