

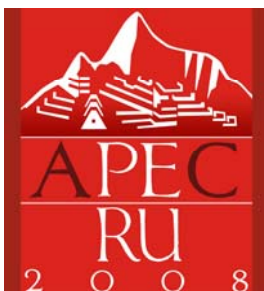


**Asia-Pacific
Economic Cooperation**

2008/TFEP/WKSP3/004

Kobe Earthquake 1995

Submitted by: Japan



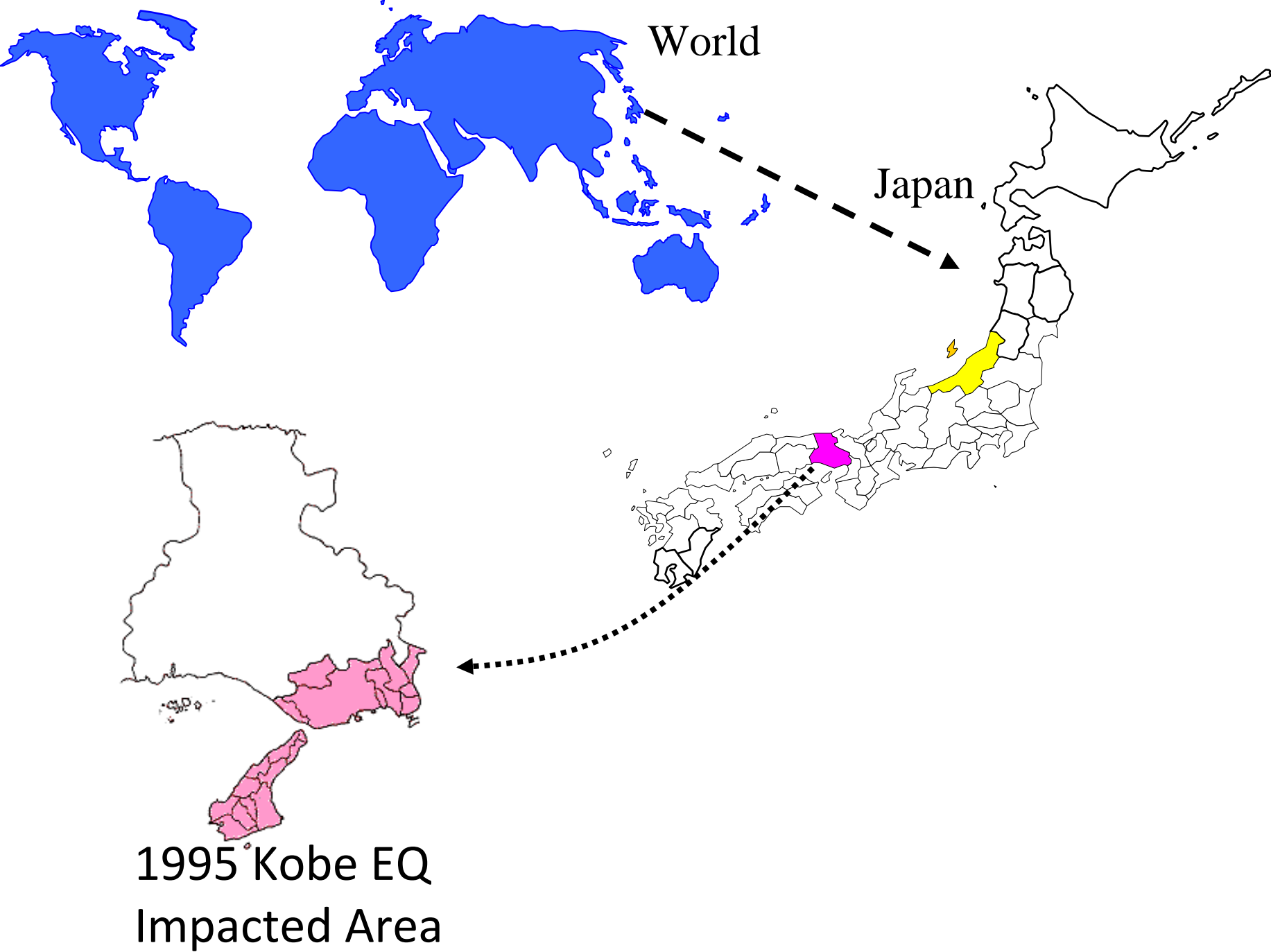
**Workshop on Large-Scale Disaster Recovery in
APEC
Taipei, Chinese Taipei
22-23 September 2008**

Session I : Disaster Recovery Practices of
Economies
- Geological Disasters I

Kobe Earthquake, 1995

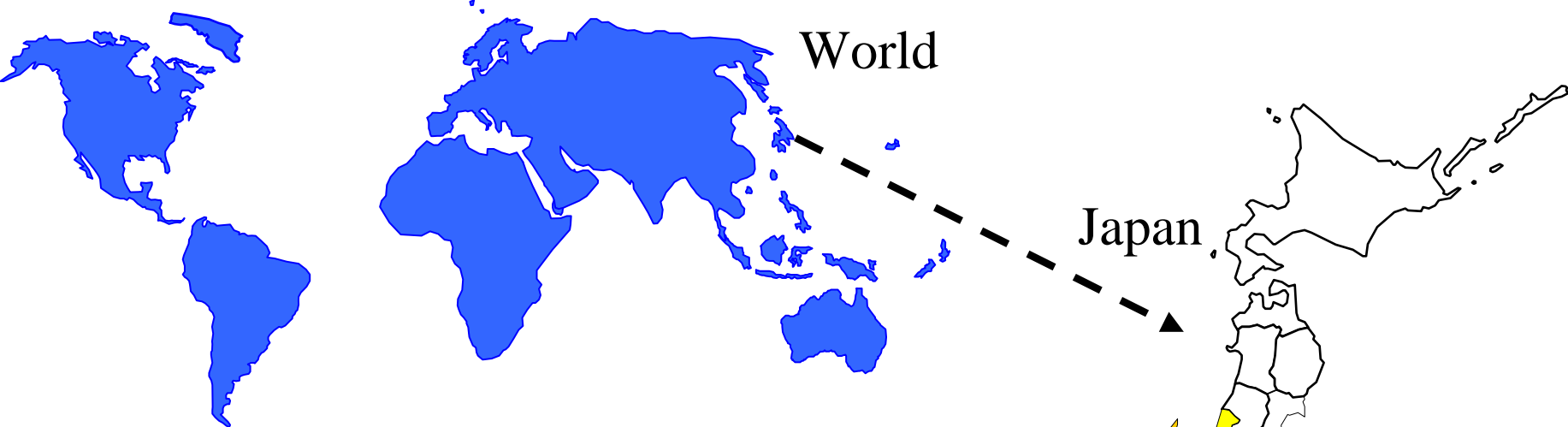
Keiko TAMURA

Research Center for Natural Hazard & Disaster Recovery,
Niigata University



Kobe Earthquake(1995.1.17)



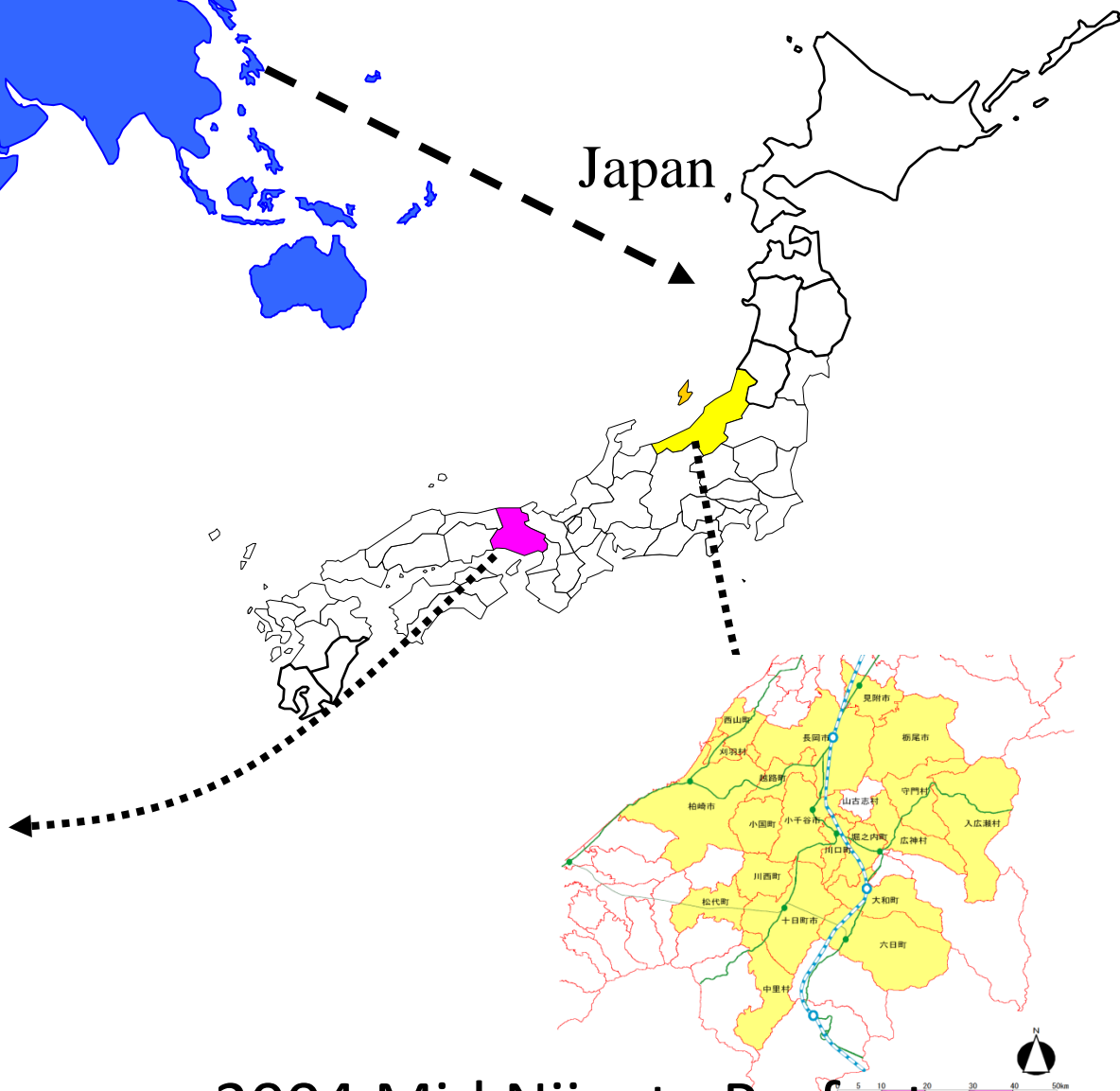


World

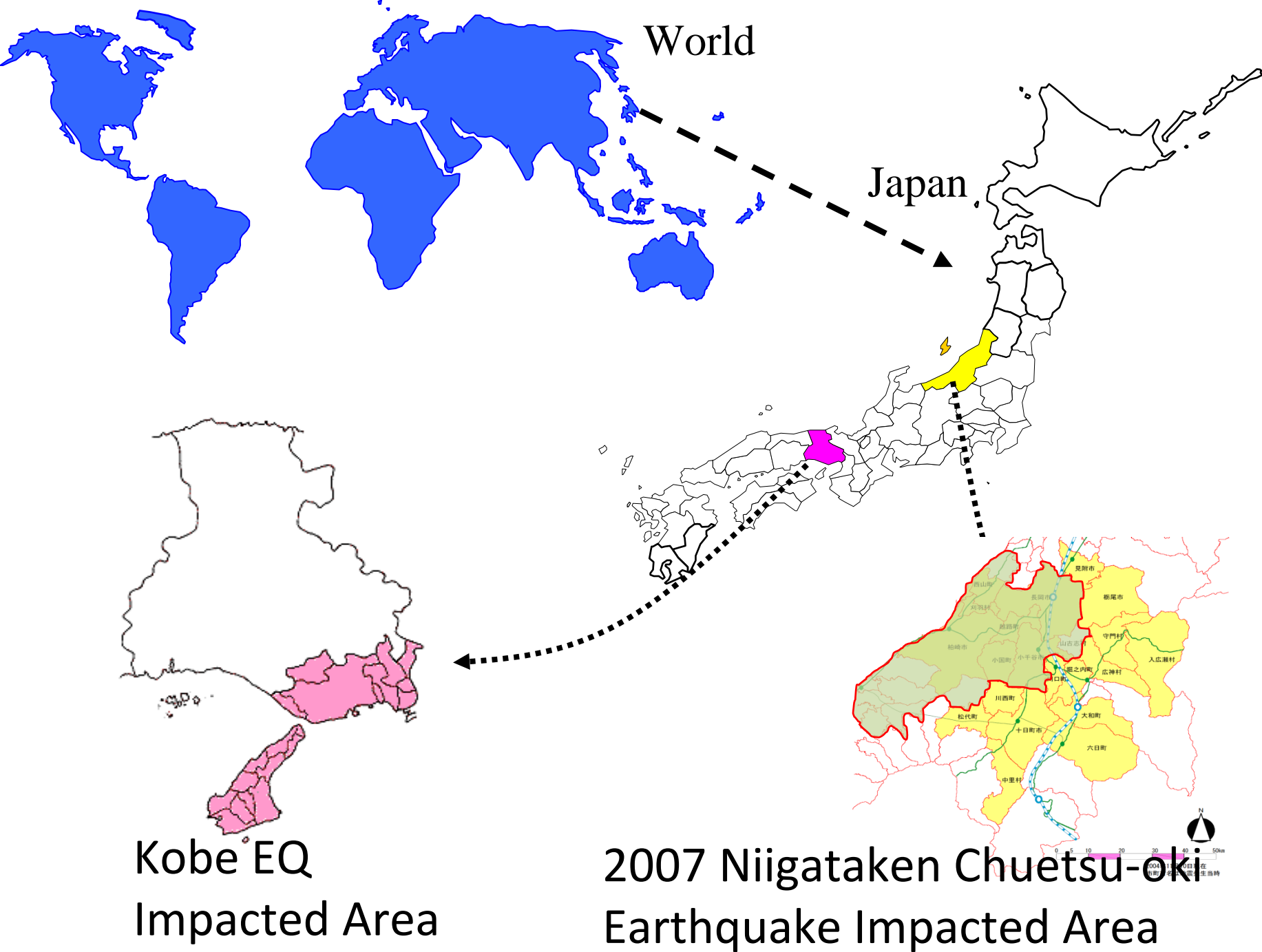
Japan



1995 Kobe EQ
Impacted Area



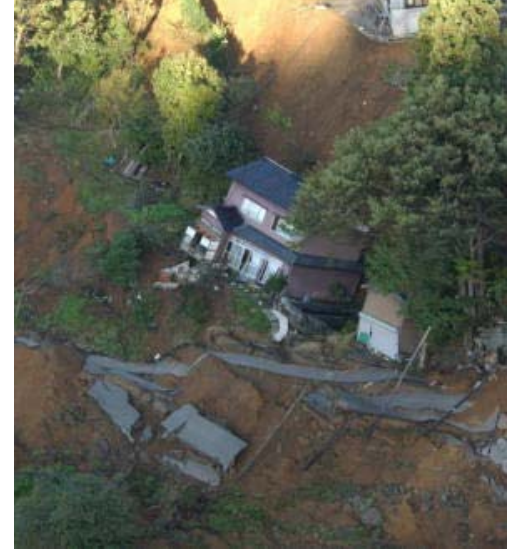
2004 Mid Niigata Prefecture
Earthquake Impacted Area



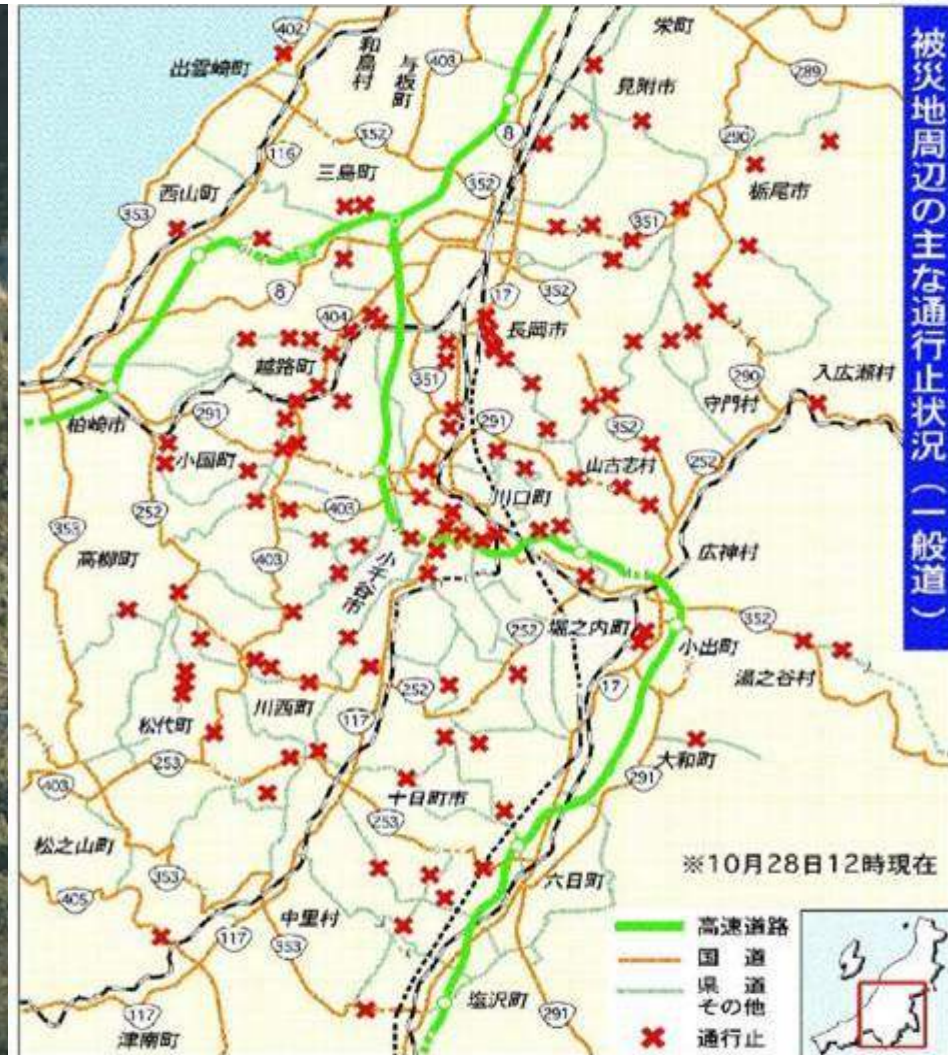
Damage caused by 2 EQ in Niigata Prefecture

	The Great Hanshin-Awaji (Kobe) Earthquake in 1995	The Mid Niigata Prefecture Earthquake in 2004	The Niigataken Chuetsu-oki Earthquake in 2007
Seismic Intensity (JMA)	7 (M7.3)	7 (M6.8)	Upper 6 (M6.8)
Casualties	6,437	68	14
Injuries	43,792	4,795	1,984
Housing Damage	about 650,000	about 120,000	about 40,000
Emergency Shelters	over 1,200	603	116
Evacuees	over 300,000	about 103,000	about 12,500
Temporary Housings	48,300	3,460	1,222
Public Housings for victims	25,000	493	?

The Mid Niigata Prefecture Earthquake (2004.10.23)



61 areas were isolated by Land Slides (totally 3,800 slides occurred)



孤立集落多発(61地区)

2007 Niigataken Chuetsu-oki Earthquake (2007.7.16)



Major Industries were damaged



The Great Hanshin-Awaji (Kobe) Earthquake in 1995



- Severe damage to physical environment
- Severe damage to social systems
- Recover process took very long time
- Hard to construct the policies on the process of recover because never examined the process before

Disaster in a Densely-populated Urban Area

The Mid Niigata Prefecture Earthquake in 2004



- Wreak havoc on public infrastructure
- Get several villages isolated in the rural areas (Communication, traffic, material flow were disrupted)
- Occur Disaster related Death

Disaster in a Remote and Isolated Area Among Mountains

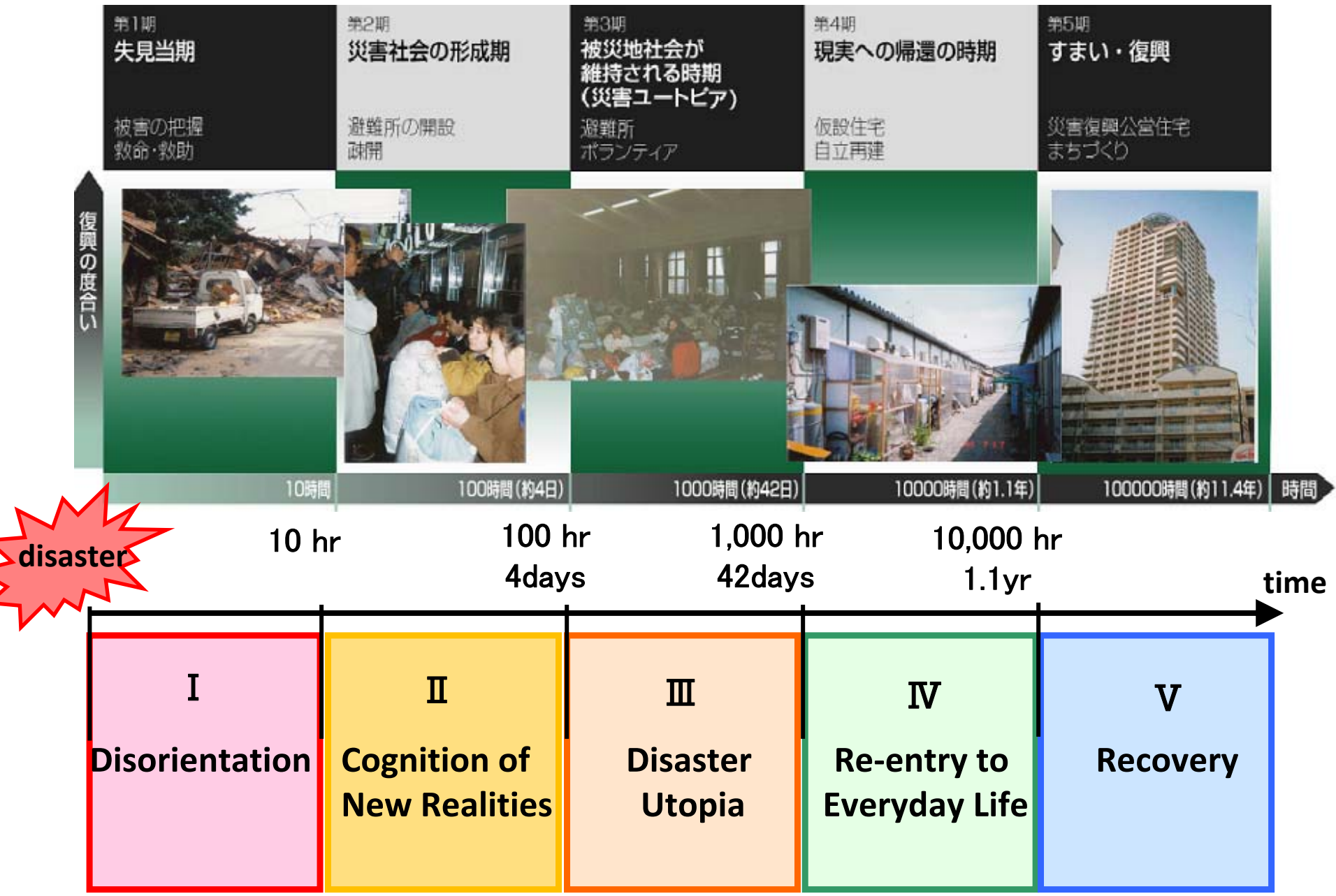
The Niigataken Chuetsu-oki Earthquake in 2007



- The Niigataken Chuetsu-oki Earthquake in 2007
- Wreak havoc on individual properties
- Get some people doubly victimized by 2 EQ
- Facilities of nuclear power generation were damaged
- spread harmful rumors about the damage of nuclear power plant
- Damage subcontract factory of national-wide enterprises and occur supply-chain disruption

Disaster in local cities area

The Process of Recovery



I . Disorientation (~10hour)



The first phase is "Disorientation" phase, a period in which the victims suffer from severe stress due to the impact of the disaster, and have difficulty objectively understanding what is happening around them

- Impossible to react as the organization

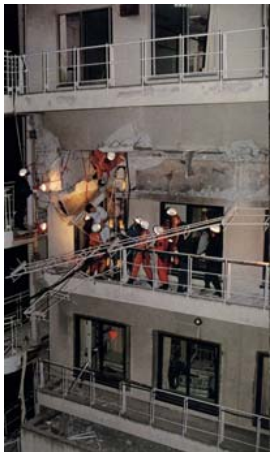
Ⅱ . Cognition of New Realities (~100hours)



Confirmation of
the safety



Search-and-
Rescue
operations



Relief Activity



Evacuation



Traffic Jam

The second phase is "Cognition of the new realities created by the disaster", a period in which the victims rationally accept the damage caused by the disaster and understand that a new reality of a disaster-stricken society has begun

- Emergency Response began
- Try to assess the safety and damage

Ⅲ. Disaster Utopia (~ 1000hours)



Emergency Shelters



Demolish buildings



Volunteers

Rescue Supply



The third phase is "Disaster Utopia" a period in which a primitive communal life is formed based on values different from those of ordinary times due to the paralysis of conventional social functions where the people shared materials and aimed at the same goals of recovery from the disaster for 1,000 hours.

- Volunteers and victims experiences the “disaster high”

- Rebuilding the lifeline systems has begun

出典：神戸市災害対策本部民生部の記録

出典：報道写真 阪神大震災

IV. Re-entry to everyday life (~ 10000hours)



Temporary Stores



Temporary Housings



The fourth phase is "Reentry to everyday life". a period in which social flow systems are restored and people begin to reconstruct their lives

- Redeveloping Destroyed Cities
- Individual Assistance for Victims
- Revitalizing Local Economies

V. Recovery



City
Planning



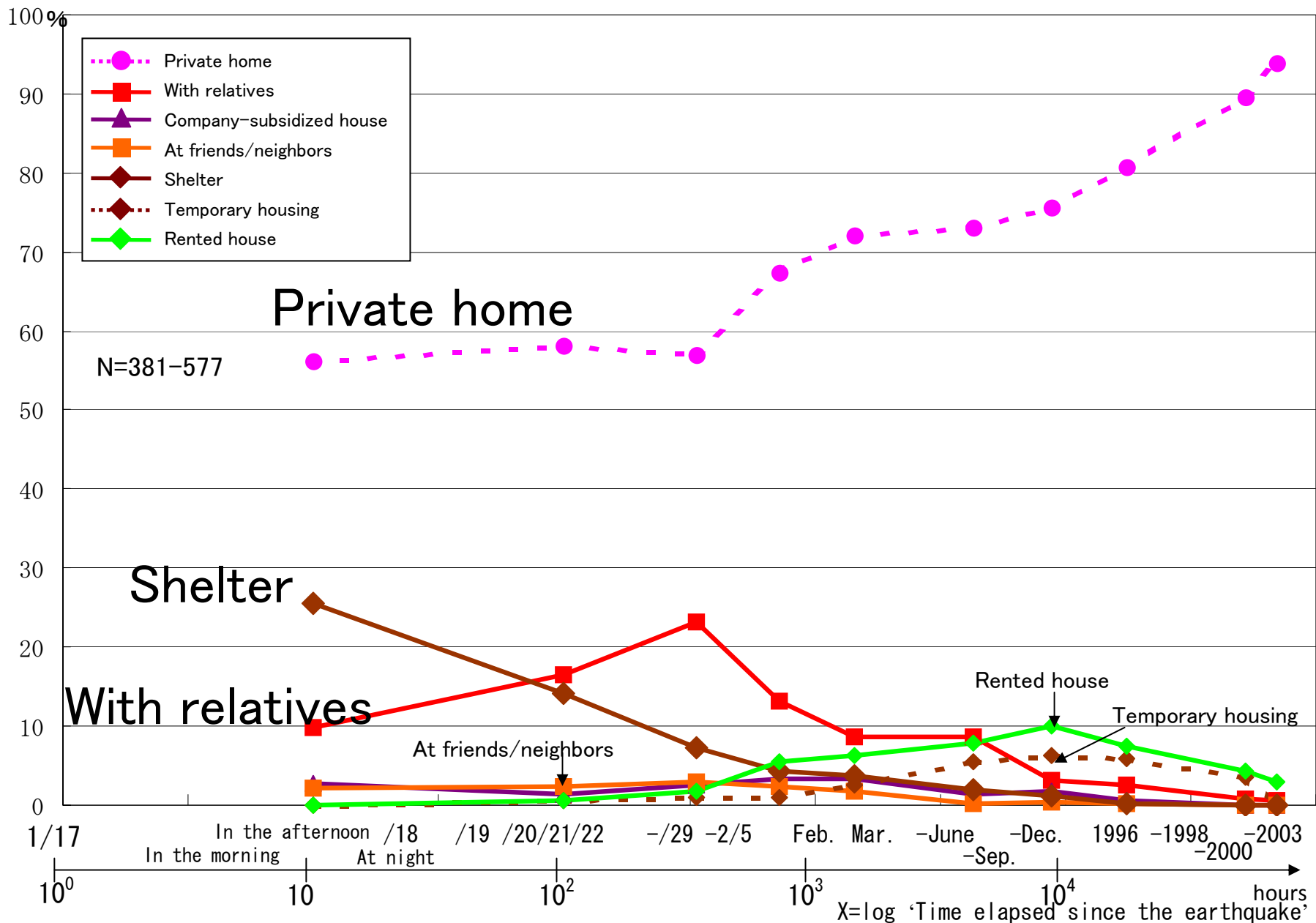
Moving from
temporary housings



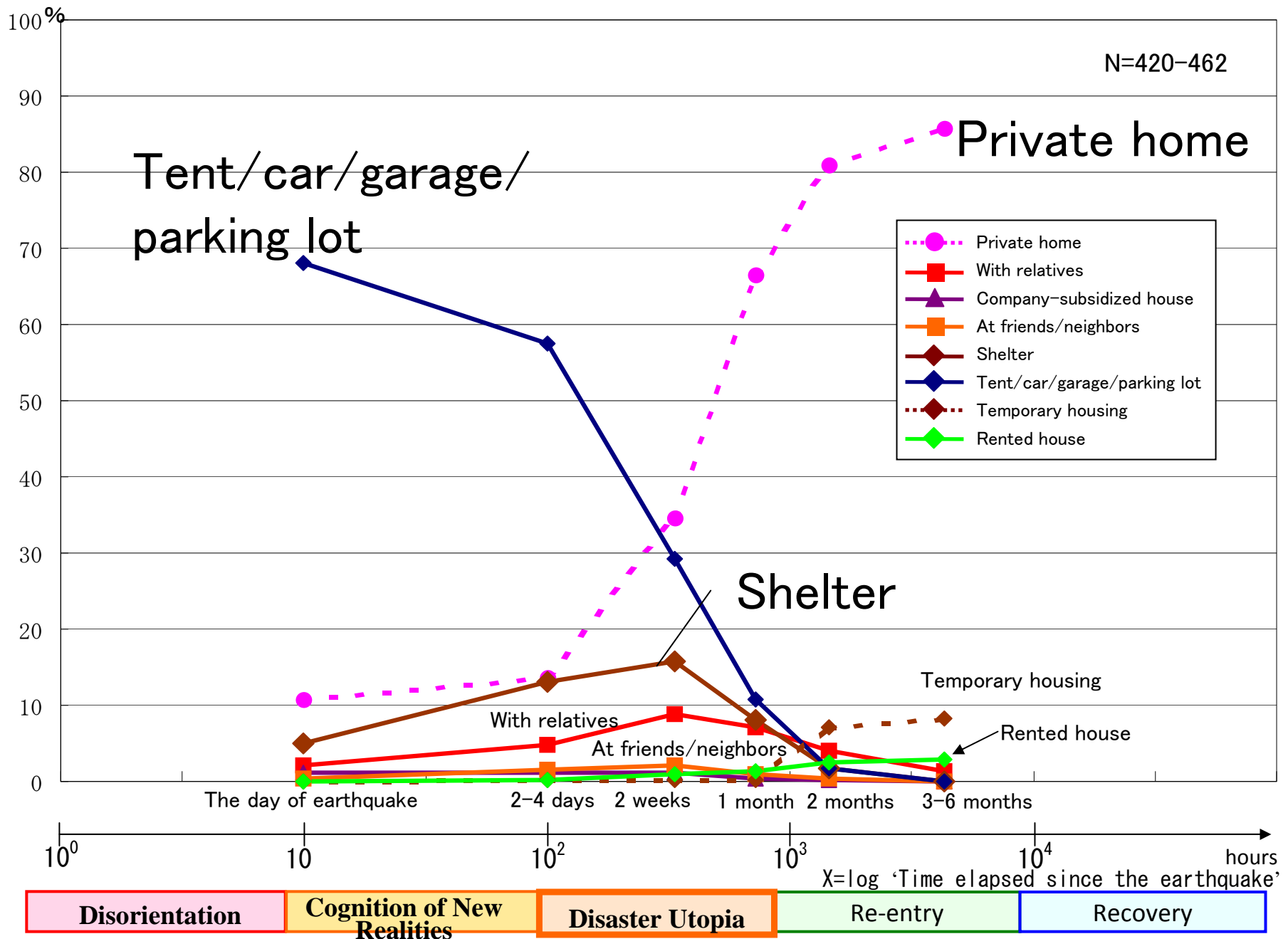
Public Housings

The fifth phase is "Recovery". a period in which the most of the victims and organizations believe that the impact of the disaster is reconstructed and the society in the impacted area is recovered

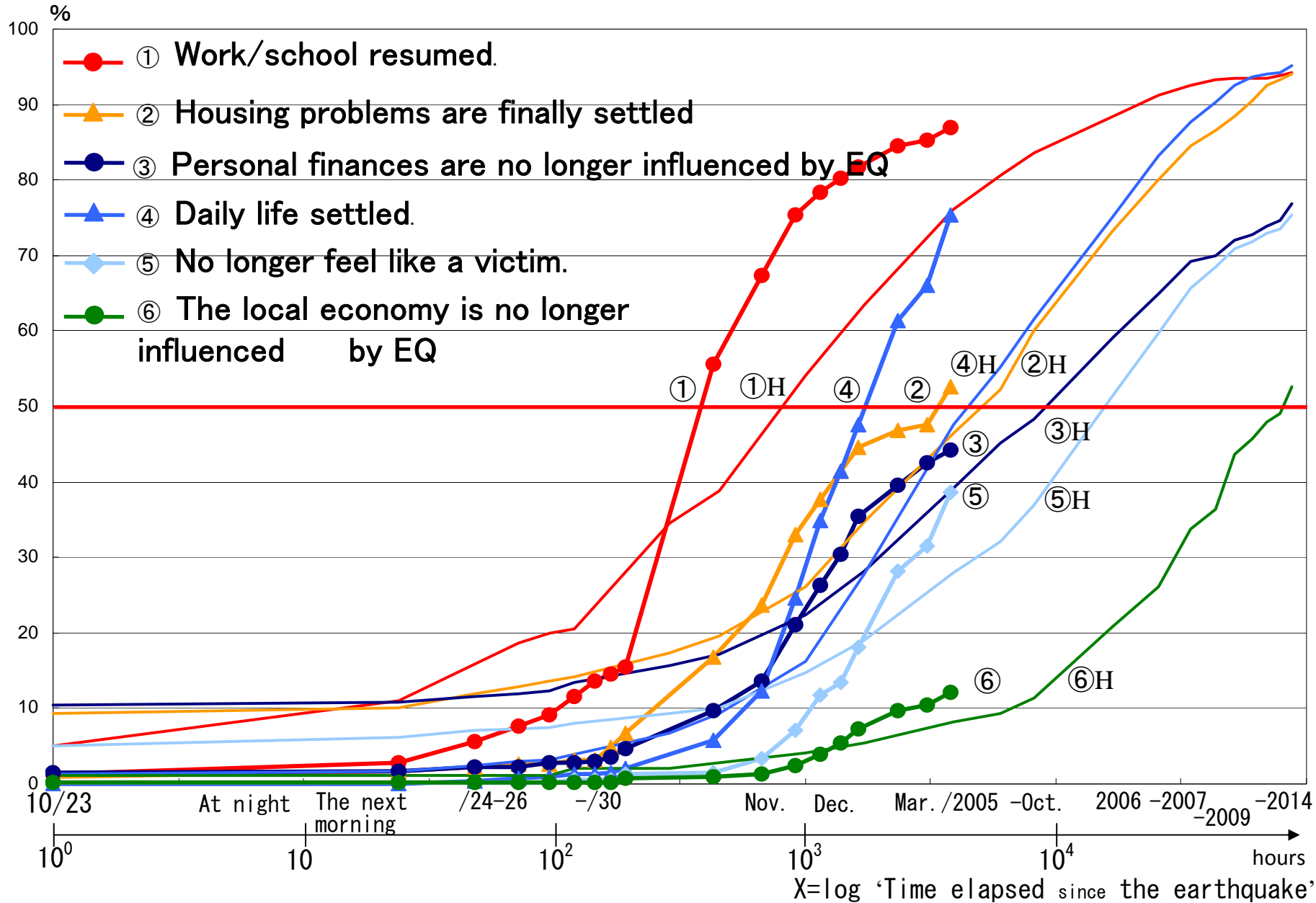
- Redeveloped Destroyed Cities
- Revitalized Local Economies



Changes in the Dwelling Places of the Victims (Kobe)

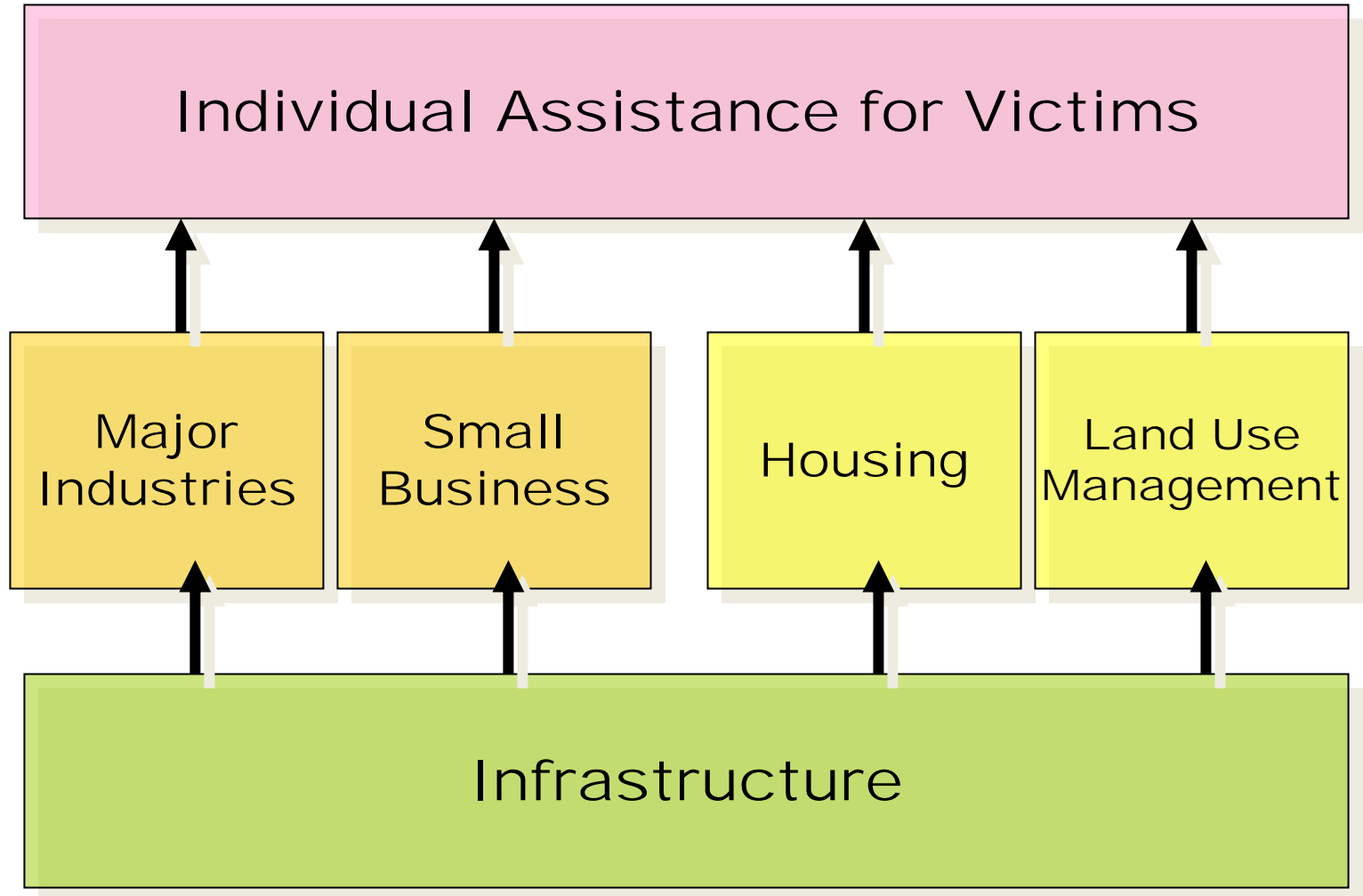


Changes in the Dwelling Places of the Victims (Niigata)



Mar 2005, Reconstruction Calendar (Niigata:bold line & Kobe)

Basic Structure of Reconstruction Program



Integrated Recovery Plan with Three related Goals

Economic Recovery

Revitalizing
Local Economies

As a Tool

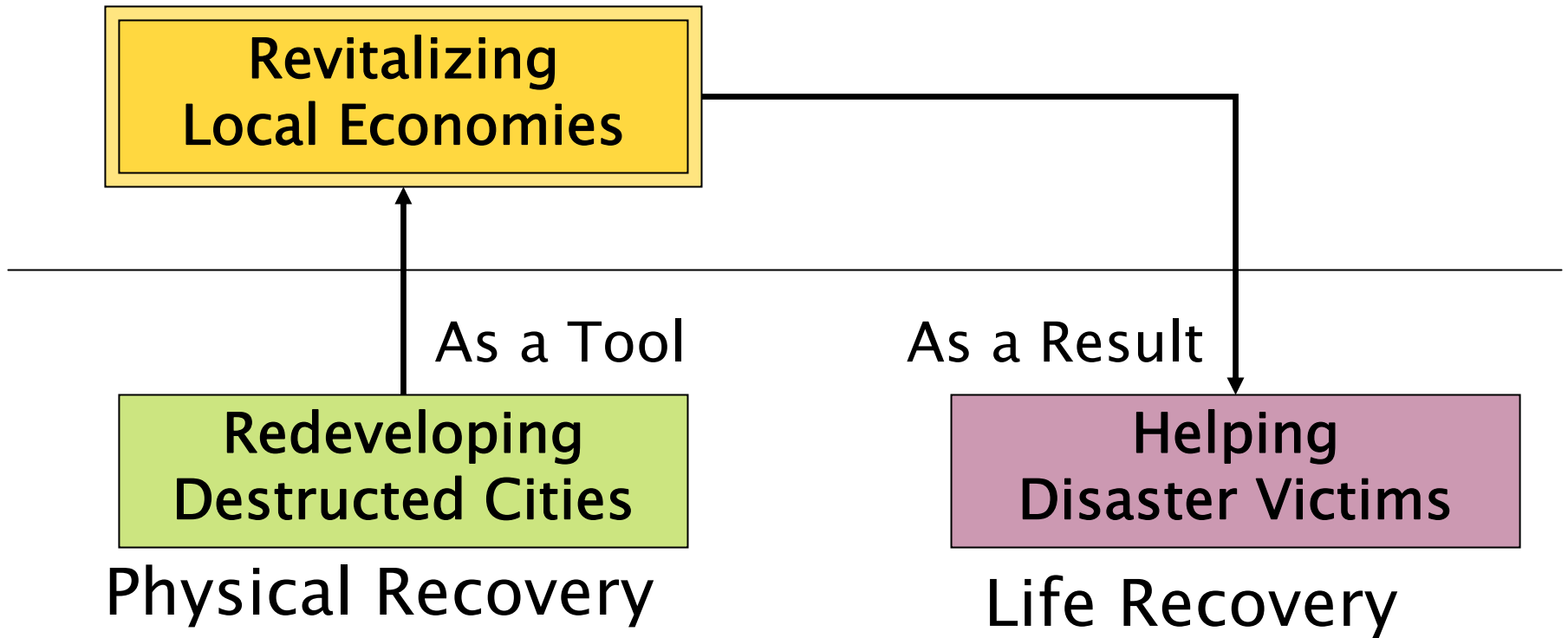
Redeveloping
Destructed Cities

Physical Recovery

As a Result

Helping
Disaster Victims

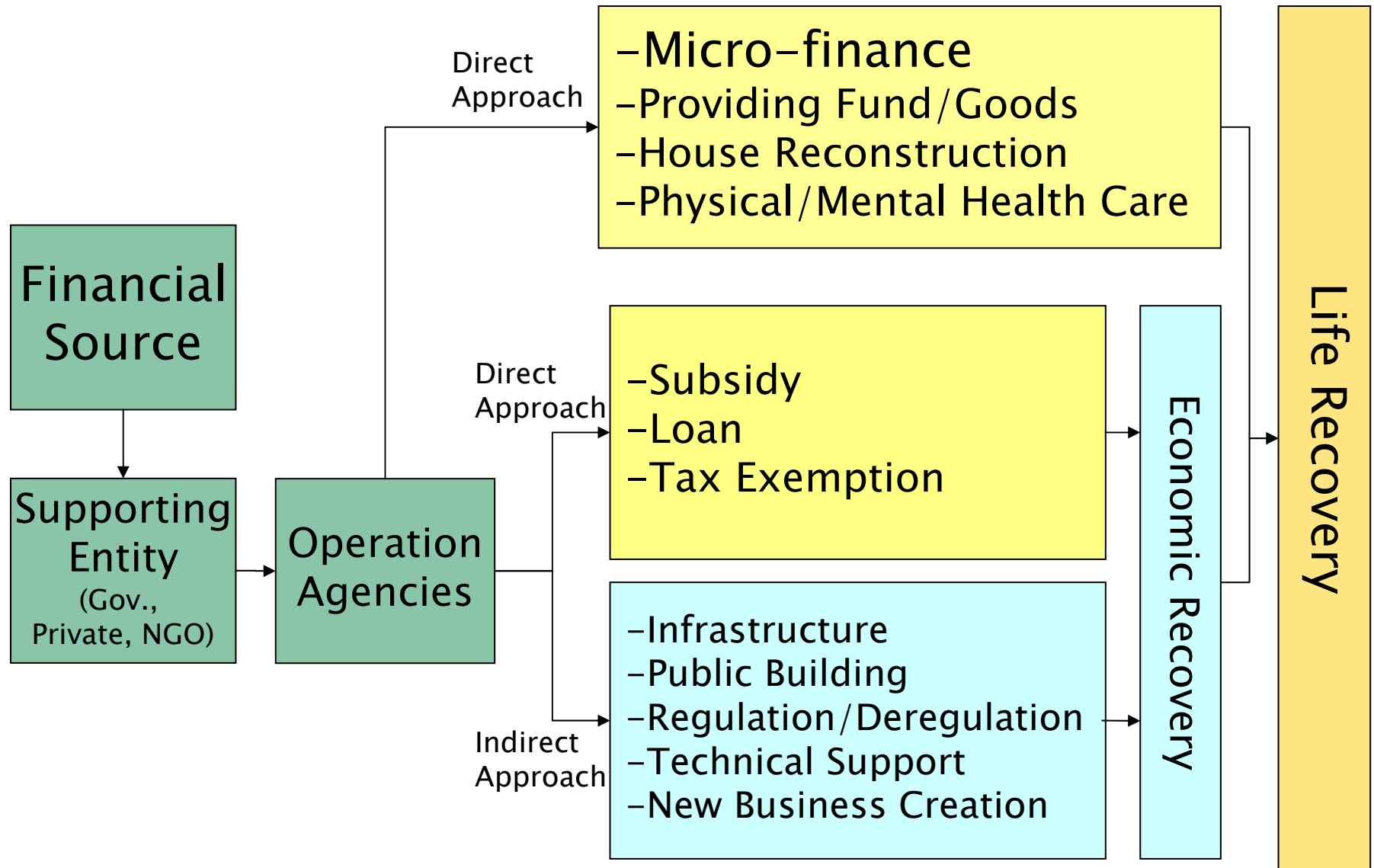
Life Recovery



Lessons to be Shared from Kobe

- Importance of Having Recovery Plan
 - It could be a chance for improvement
 - What we would like your life to be
 - Future Vision : Smart Growth
- Recovery Plan must be a Holistic Plan
 - Not Just Zoning
 - Sustainable Economic Development
 - Improving Quality of Life
 - Physical Recovery as a tool
- Planning Process Should be Participatory
 - Capacity Building
 - Don't Rush/Take Time

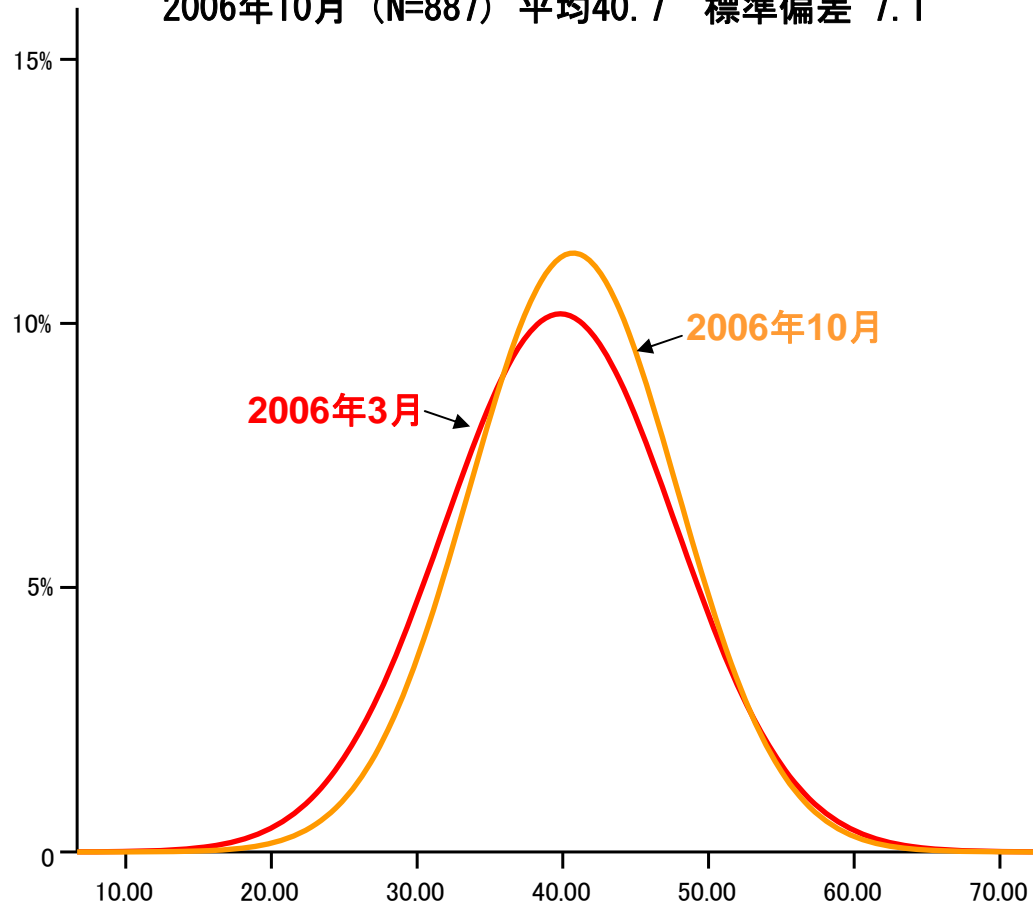
Holistic Recovery Policy Model



Life Recovery Scale

		かなり 増えた	少し 増えた	変わら ない	少し 減った	かなり 減った
問 震災前と比べて増えましたか？減りましたか？						
1	忙しく活動的な生活を送ること	5点	4点	3点	2点	1点
2	生きがいを感じることに	5点	4点	3点	2点	1点
3	まわりの人々とのつきあい	5点	4点	3点	2点	1点
4	日常生活を楽しく送ること	5点	4点	3点	2点	1点
5	将来は明るいと感じること	5点	4点	3点	2点	1点
6	元気でつらつとしていること	5点	4点	3点	2点	1点
8	仕事の量	5点	4点	3点	2点	1点
問 あなたの満足度は？						
		いつも ある	たびたび ある	たまに ある	まれに ある	まった くない
1	毎日のくらし	5点	4点	3点	2点	1点
2	自分の健康	5点	4点	3点	2点	1点
3	今の人間関係	5点	4点	3点	2点	1点
4	今の家計の状態	5点	4点	3点	2点	1点
5	今の家庭生活	5点	4点	3点	2点	1点
6	自分の仕事	5点	4点	3点	2点	1点
問 1年後のあなたは？						
		かなり 良くなる	やや 良くなる	変わら ない	やや 悪くなる	かなり 悪くなる
	今より生活がよくなっていますか？	5点	4点	3点	2点	1点

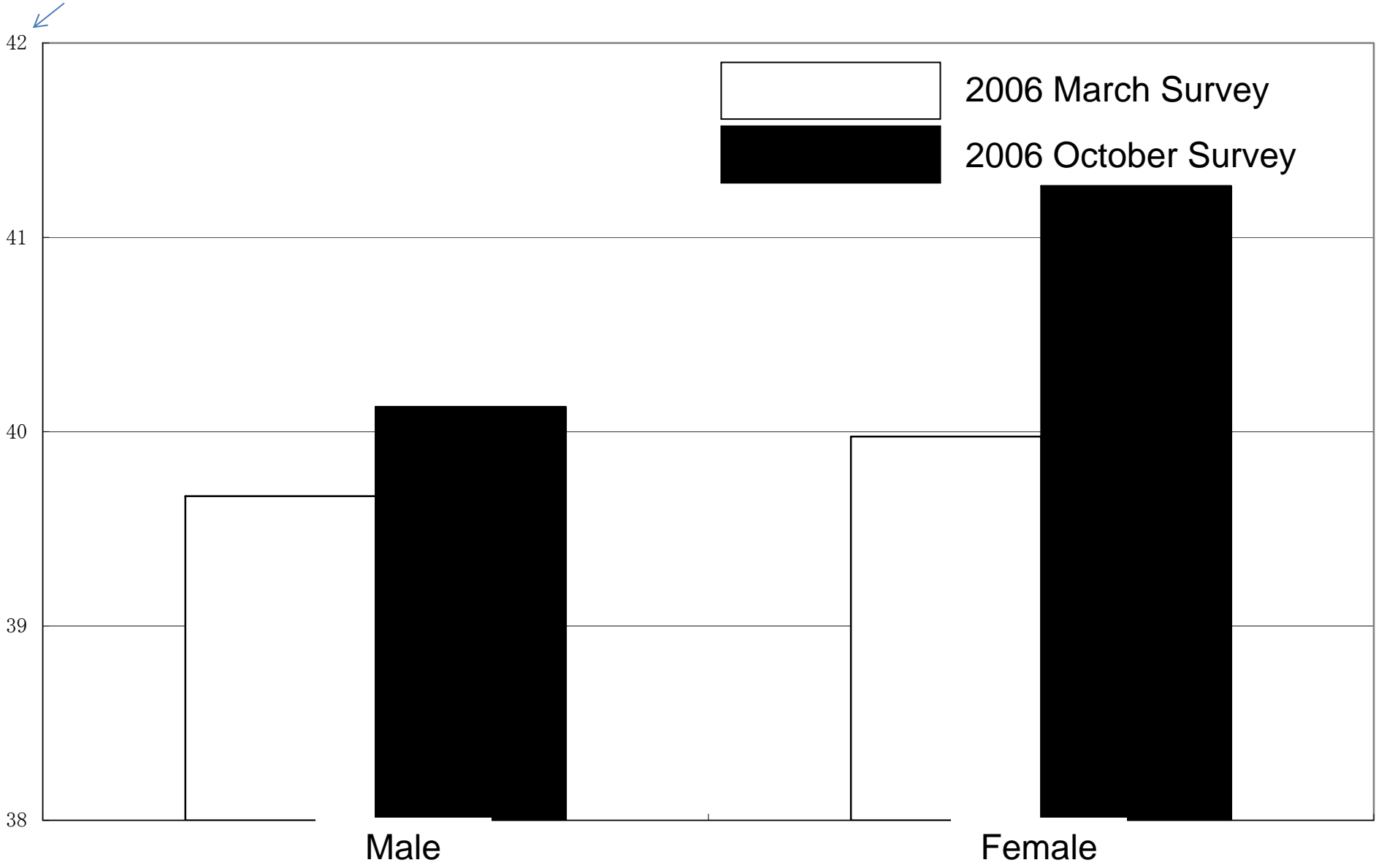
2006年 3月 (N=822) 平均39.8 標準偏差 7.9
2006年10月 (N=887) 平均40.7 標準偏差 7.1



生活復興感の2時点における分布

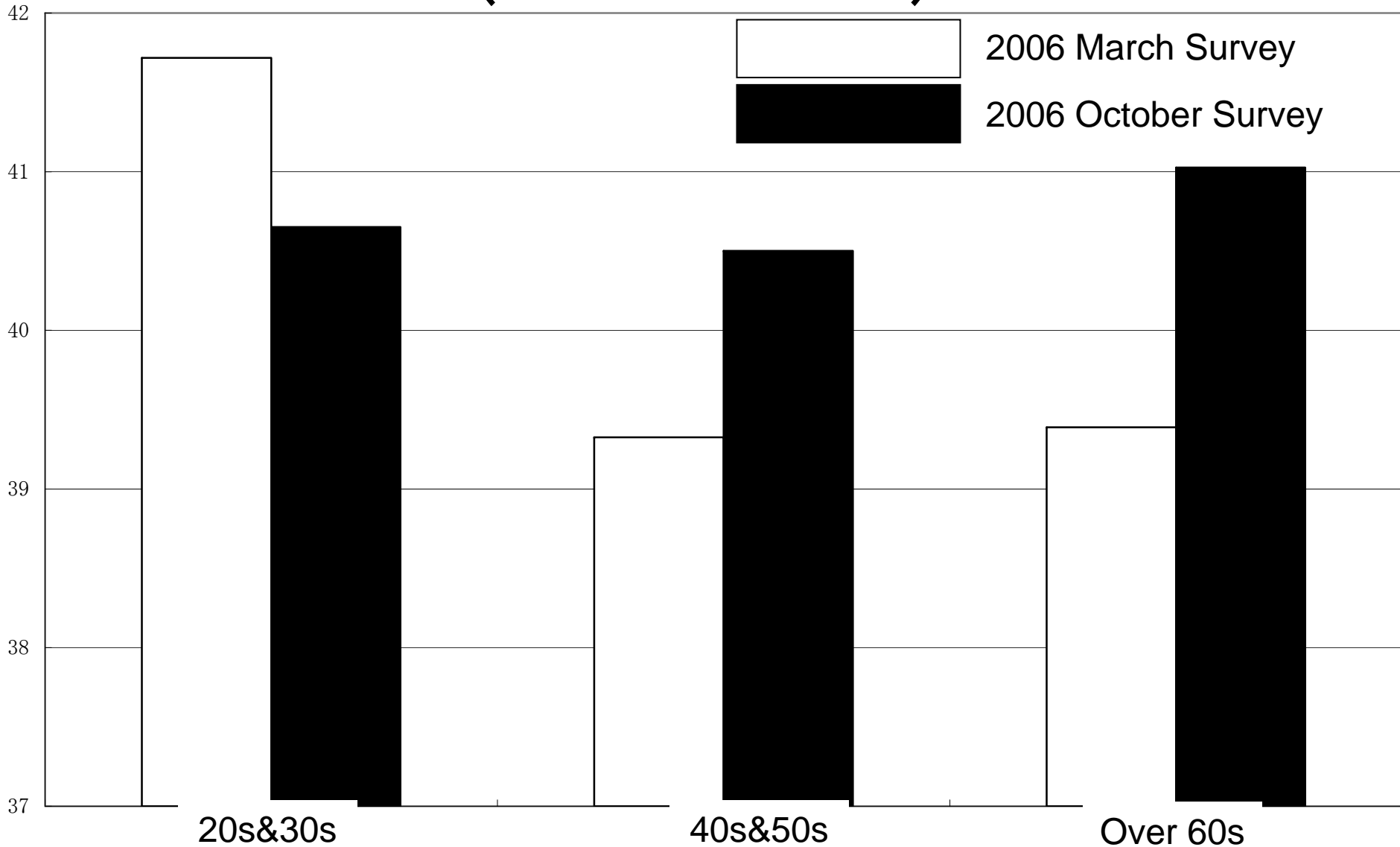
Average
Score of
Scale

The Degree of Life Recovery (Gender)



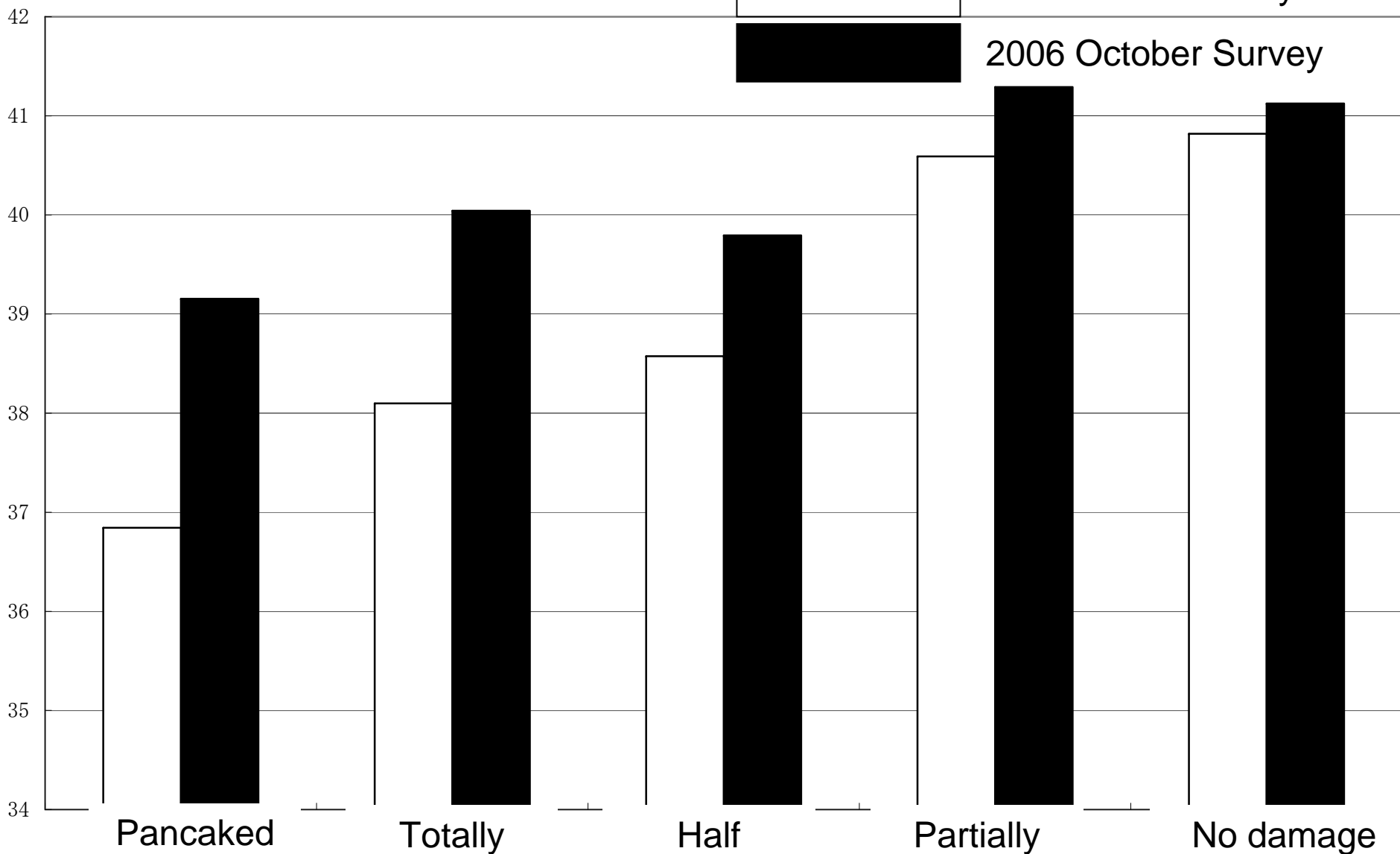
The Degree of Life Recovery (Generation)

Average
Score of
Scale



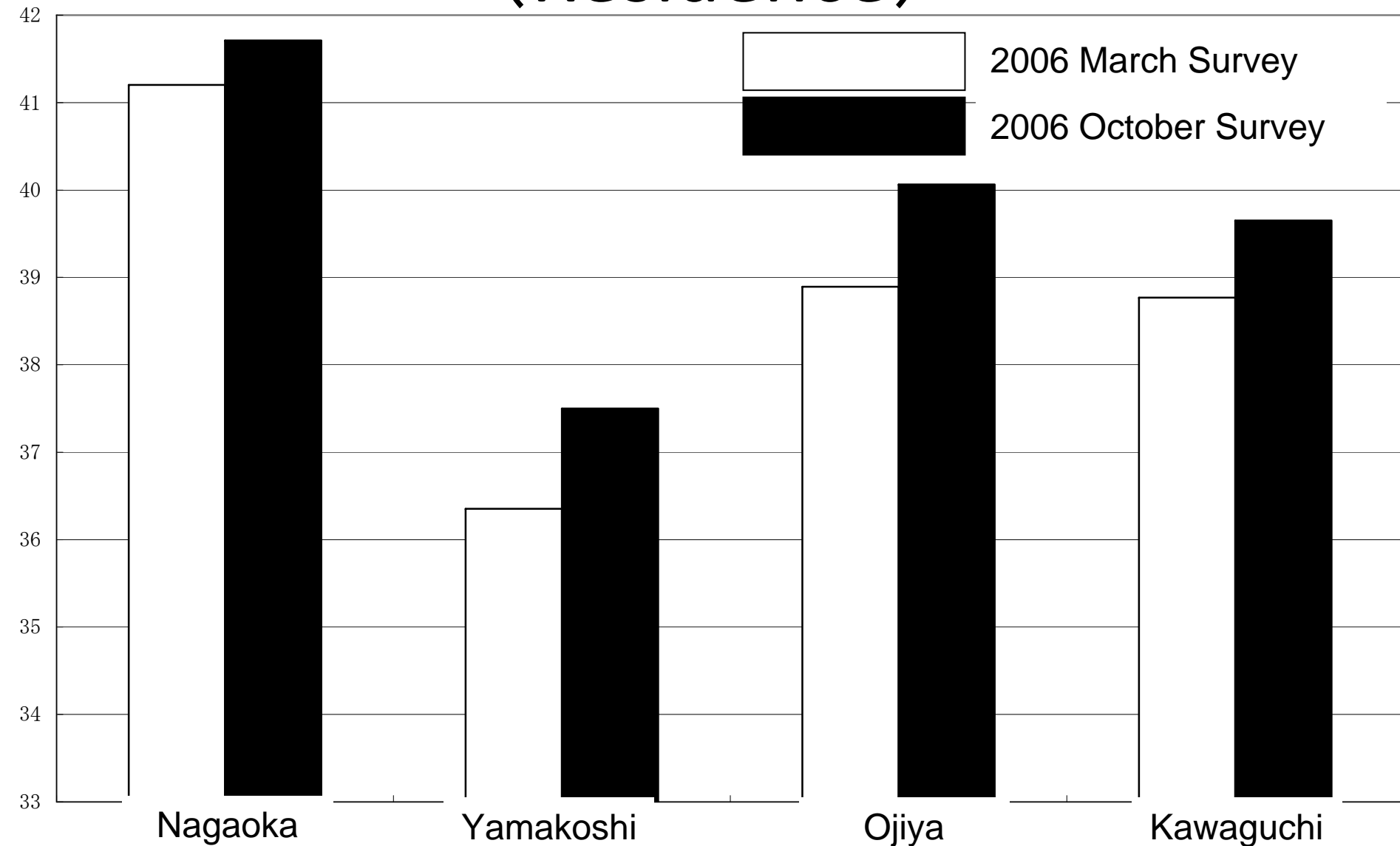
The Degree of Life Recovery (Housing Damage)

Average
Score of
Scale



The Degree of Life Recovery (Residence)

Average
Score of
Scale



Average
Score of
Scale

The Degree of Life Recovery (Occupation)

2006 March Survey
2006 October Survey

