

Economic recovery from disaster; safer city and economic revitalization

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Kobe(1995) and Tohoku(2011)

Kobe (1995)

- M7
- Death 6,434 people
- Building damage 249,180 buildings (460,356 families)
 - Collapse 104,906 buildings (186,175 families)
 - Major Damage 144,274 building(274,181 families)
- Debris 20Mt
- Home less 320,000 people
 - 1 week
- Interim Housing 60,000 units
- Economic Loss 10trillion JPY
- Affected Municipality 20 cities and towns

Tohoku (2011) (as of August 28, 2012)

- M9
- Death and Missing 18,715
- Building damage 264,035 units
 - Collapse 129,340 units
 - Major damage 264,035 units
- Debris 27Mt
- Home less 360,000 people
 - 1 week
- Interim Housing 110,000 units
 - Temporary housing 50,000
 - Voucher housing 60,000
- Economic Loss 17 trillion JPY
- Affected Municipality 227(10 Prefectures)

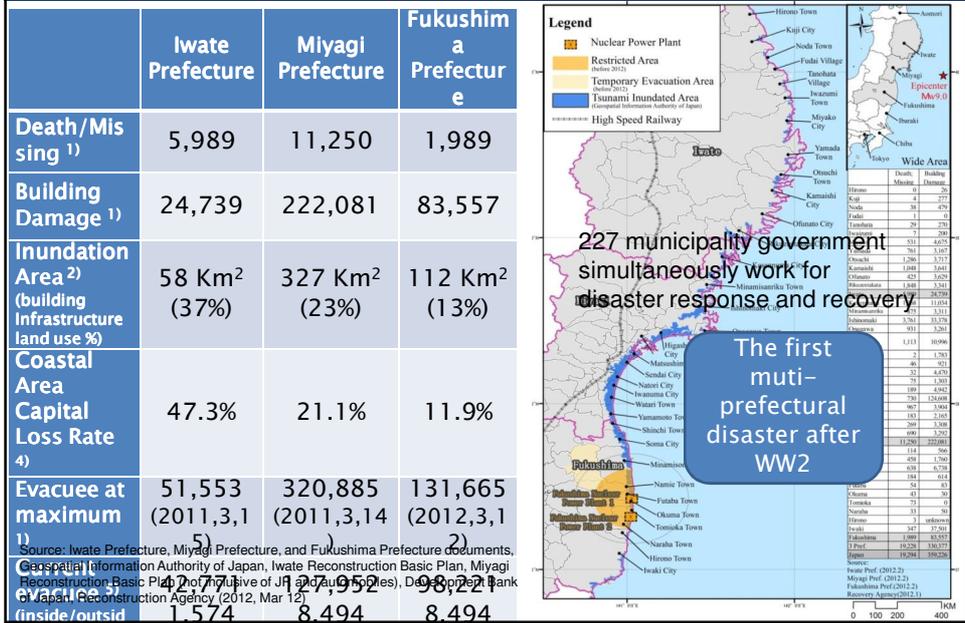
Urban Disaster Kobe 1995



Multi Location Cascading Disasters Tohoku 2011



Multi-Location Disaster



What we have learned from Kobe recovery

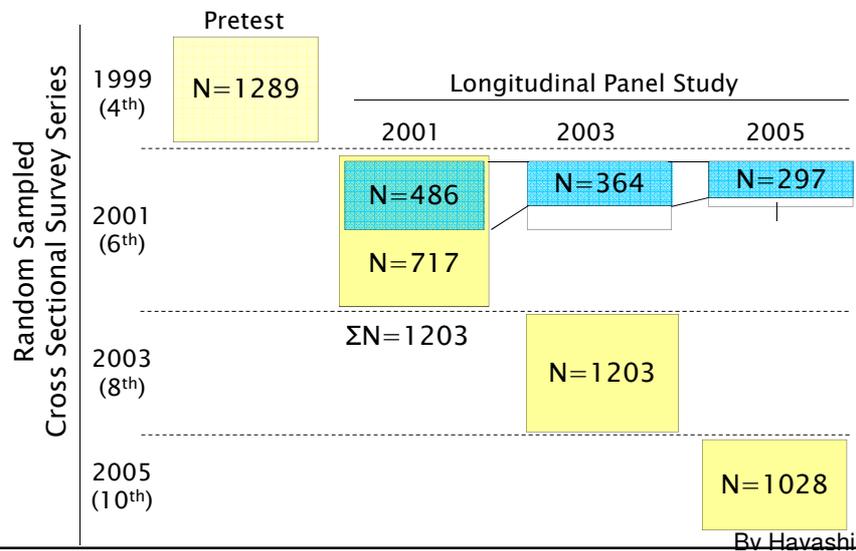
Severe Damage for Lifeline Systems Kobe

	Damage	Recovery in
Power	2600000	9 days
Gas	850000	3 months
Water	1300000	3 months
Sewage	260km	1 year
Phone	193,000	2 weeks

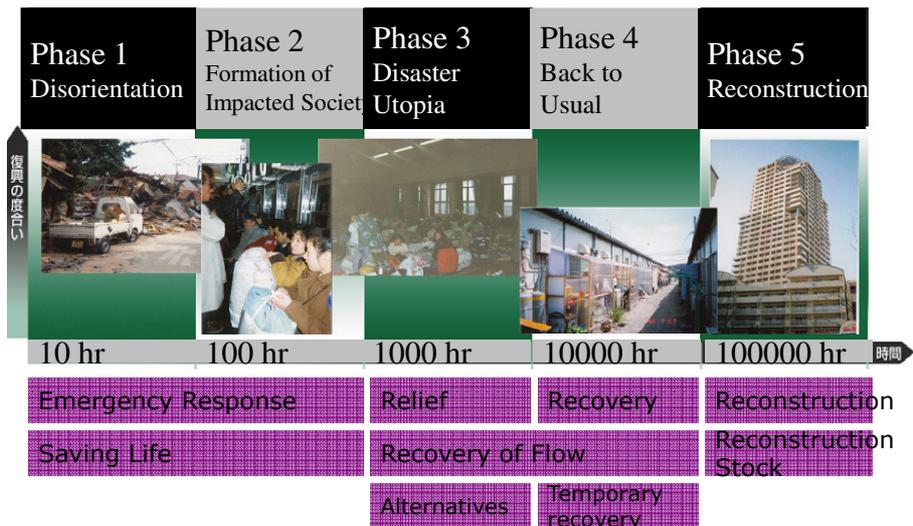


Life recovery became a target of recovery effort

Holistic Recovery Research by Hyogo Prefecture and Kyoto University

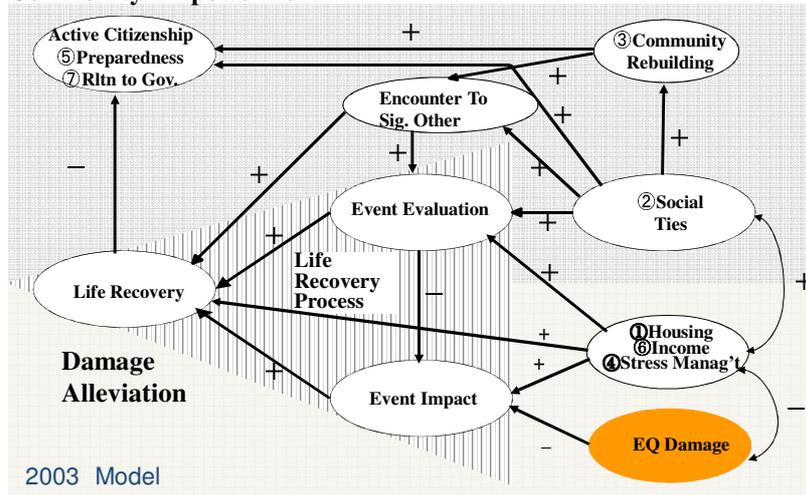


Societal Response after disaster



Bird's-eye view of life recovery process:

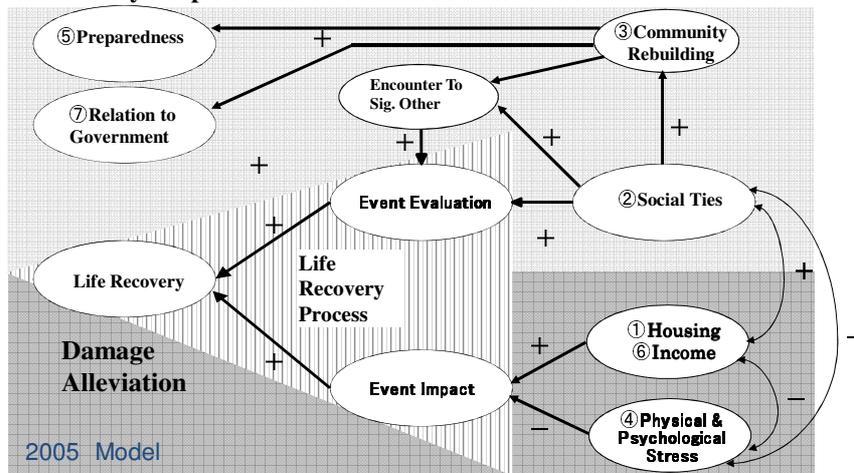
The 2003 study results (N=1,203, Jan. 2003)



Source: Tatsuki Shigeo

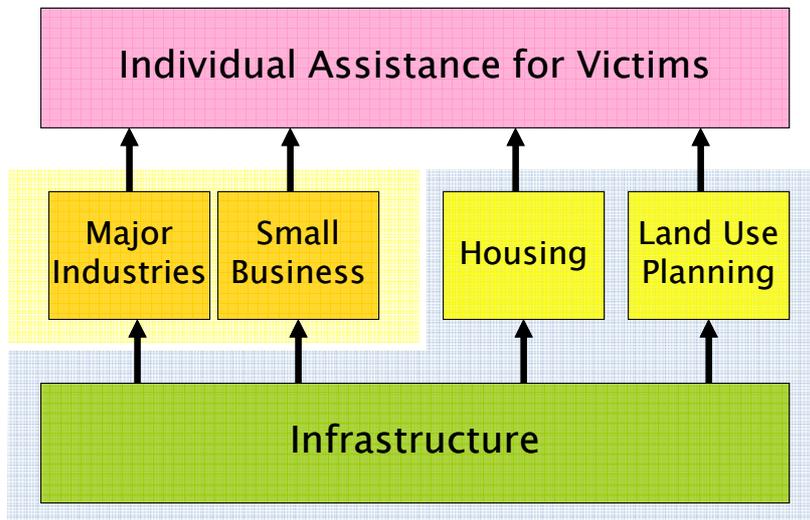
Bird's-eye view of life recovery process:

The 2005 study results (N=1,028, Jan. 2005)

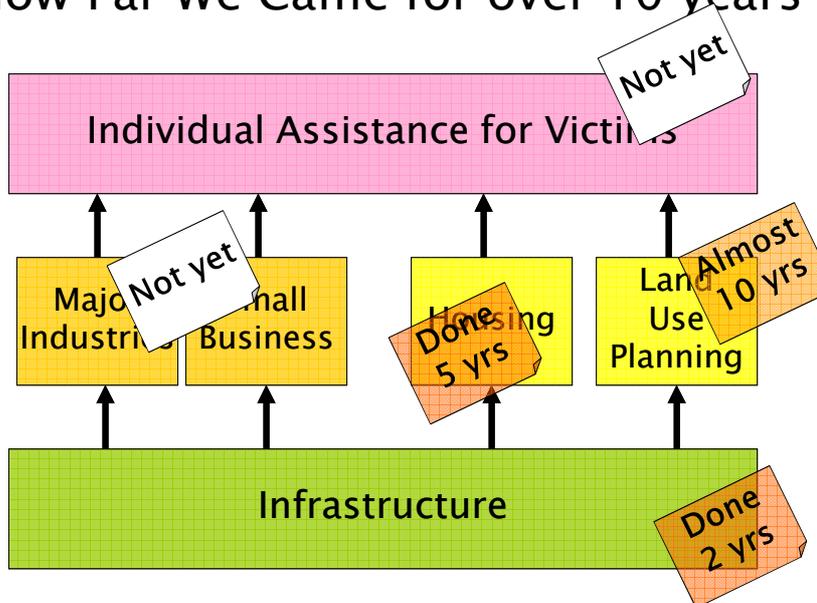


Source: Tatsuki Shigeo

Basic Structure of Recovery Program

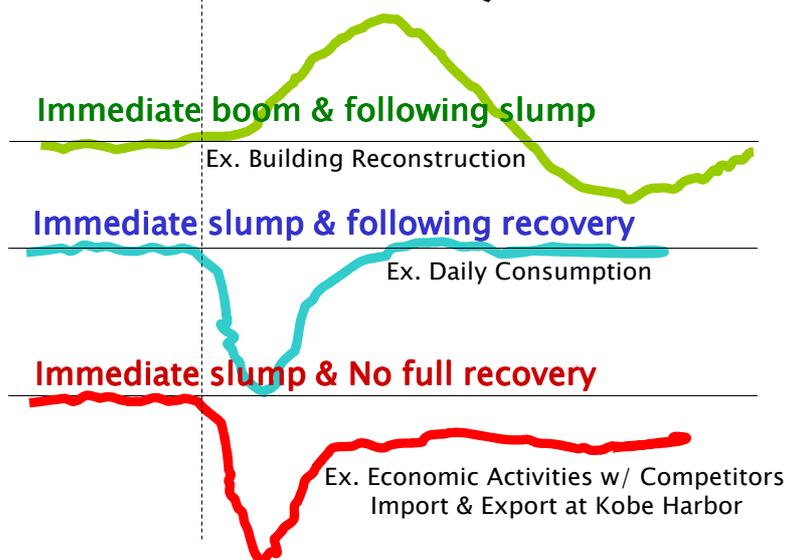


How Far We Came for over 10 years

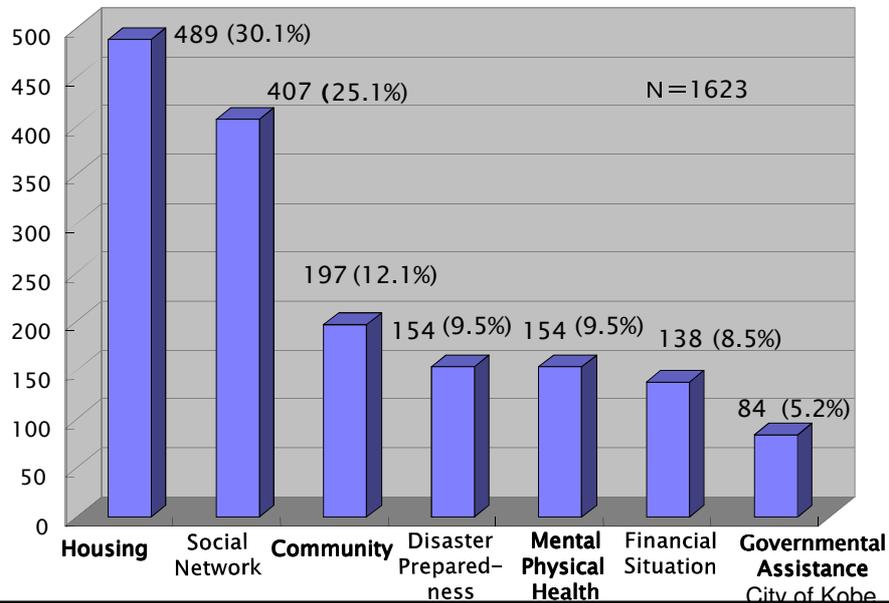


Economic Recovery

Three Basic Economic Recovery Patterns after Kobe EQ



Seven Elements for Life Recovery

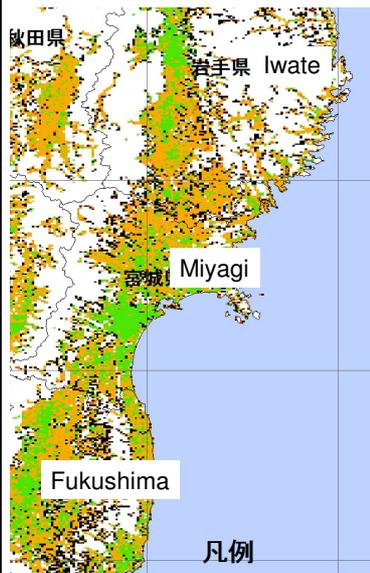


Kobe recovery

- Main target of the recovery projects in Kobe was housing (individual people). Kobe have successfully completed the recovery of commuting communities.
- But recovery of small businesses did not work well.

And Tohoku (2011)

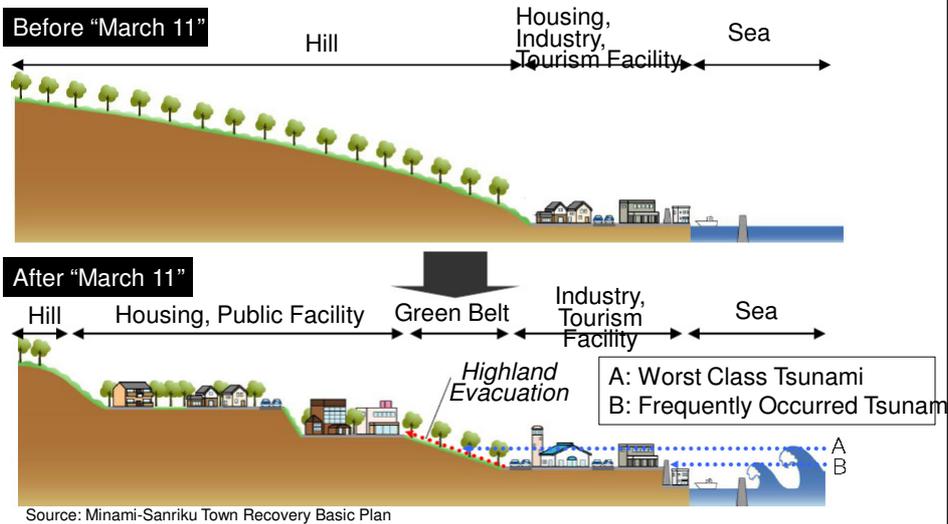
Tohoku before disaster



Sendai was only the core of developments
The other part was shrinking community.
They lacked resilience.



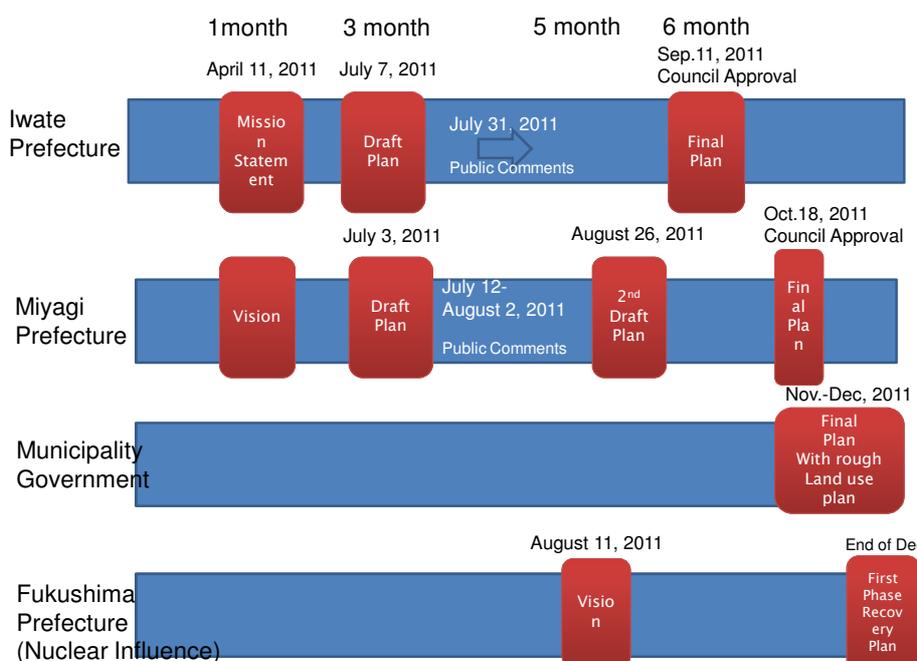
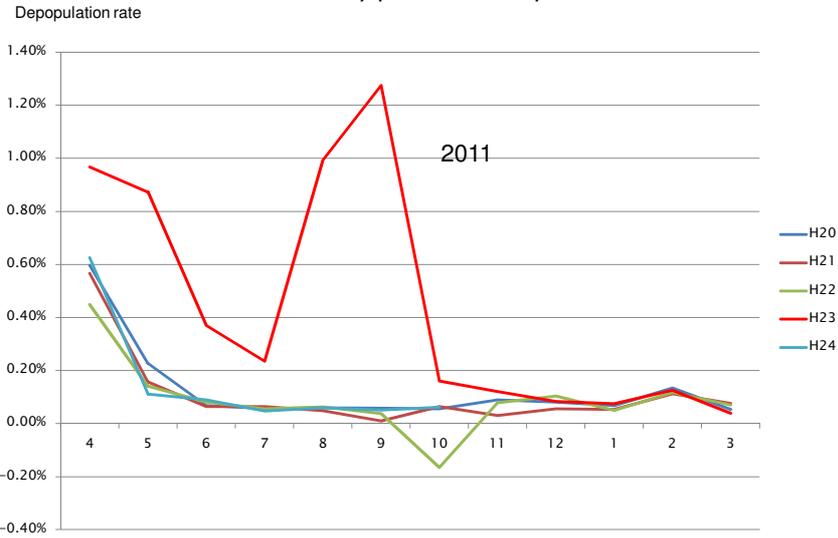
Land Use Concept of National Government



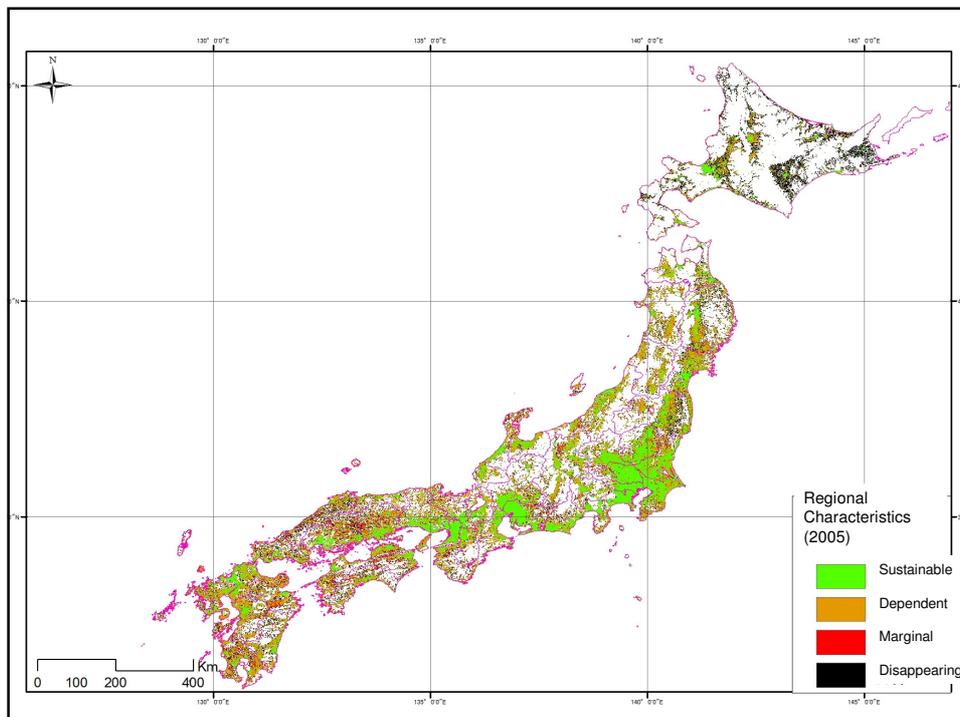
Recovery of business is critical for Tohoku recovery

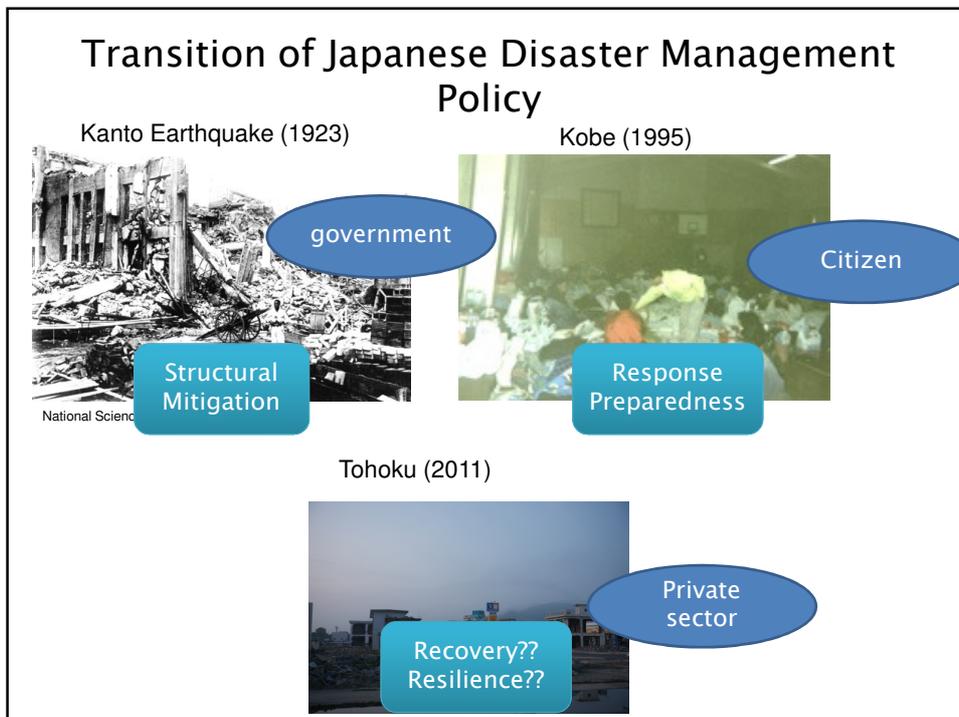
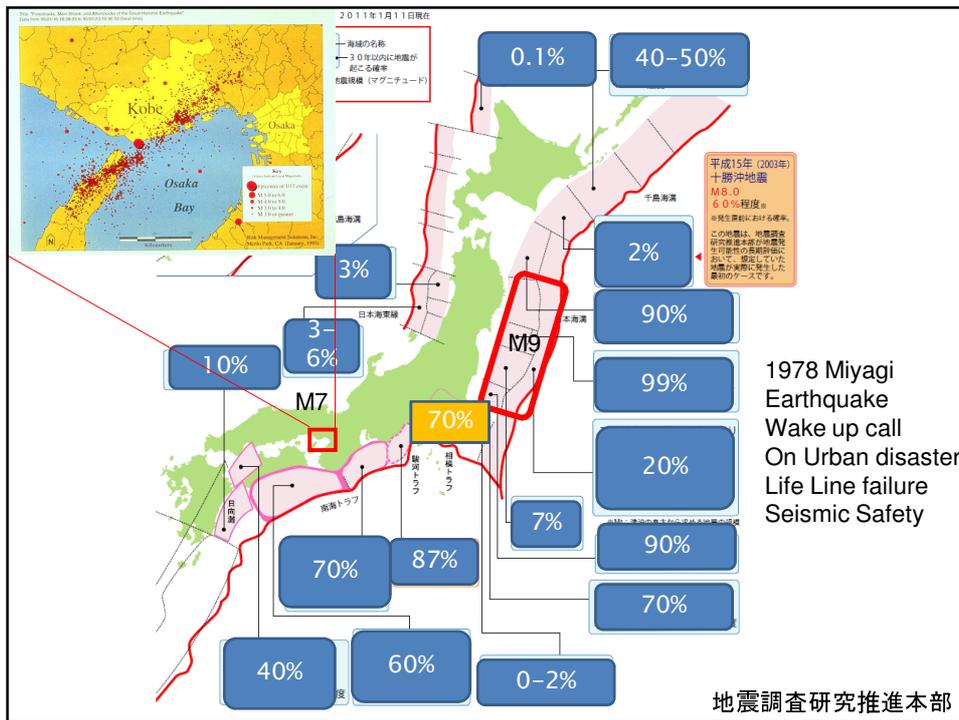


Depopulation in Impacted area Continues for 8months until local recovery plan has completed



Safer city or Survivability of Communities





Lessons from Tohoku

- Pre-disaster recovery planning is essential for communities to survive from disaster impact.
- Collaboration with Private Sector is essential for survival of communities.
- Integration with future vision is necessary for pre-disaster recovery planning.
- Targeting year of pre disaster reduction plan will be target year +10-20 years. So if the target year is 2030 then the vision of 2050 should be considered for the plan.