

# How can we work with stakeholders for recovery?

importance of pre-disaster recovery  
planning.

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DPRI, Kyoto University

Why recovery?

# Chart of the Sendai Framework for Disaster Risk Reduction 2015-2030

[www.preventionweb.net/go/sfdr](http://www.preventionweb.net/go/sfdr)  
[www.unisdr.org](http://www.unisdr.org)  
[isdr@un.org](mailto:isdr@un.org)

## Scope and purpose

The present framework will apply to the risk of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters, caused by natural or manmade hazards as well as related environmental, technological and biological hazards and risks. It aims to guide the multi-hazard management of disaster risk in development at all levels as well as within and across all sectors.

## Expected outcome

The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries

## Goal

Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience

## Targets

Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared to 2005-2015

Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared to 2005-2015

Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030

Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030

Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020

Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030

Substantially increase availability of and access to multi-hazard early warning systems and disaster risk information and assessments to by 2030

## Priorities for Action

There is a need for focused action within and across sectors by States at local, national, regional and global levels in the following four priority areas.

**Priority 1**  
Understanding disaster risk

**Priority 2**  
Strengthening disaster risk governance to manage disaster risk

**Priority 3**  
Investing in disaster risk reduction for resilience

**Priority 4**  
Enhancing disaster preparedness for effective response, and to «Build Back Better» in recovery, rehabilitation and reconstruction

# Build Back Better

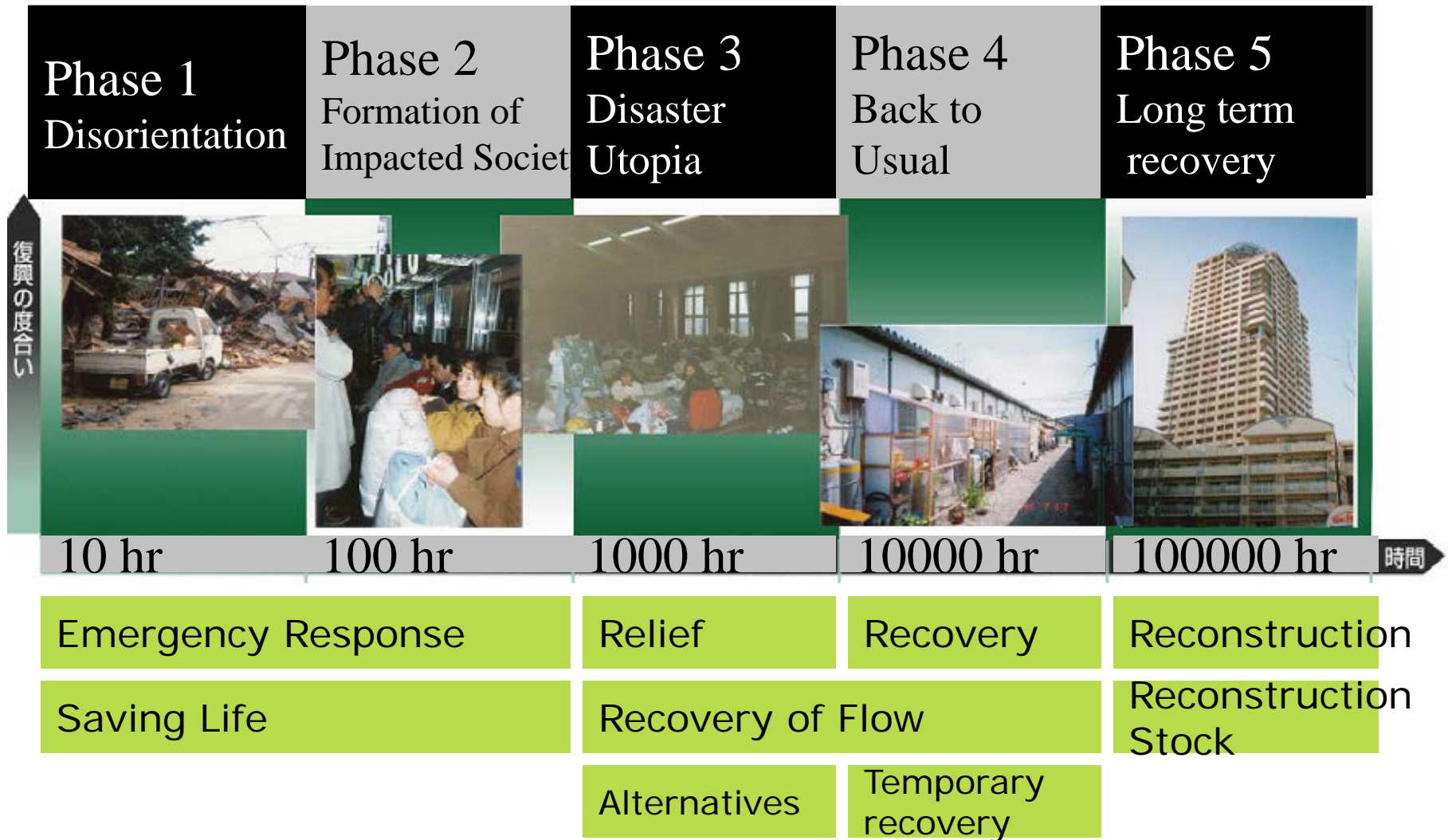
## Priority 4

Enhancing disaster preparedness for effective response,  
and to «Build Back Better» in recovery,  
rehabilitation and reconstruction



What is recovery?

# Societal Response after disaster

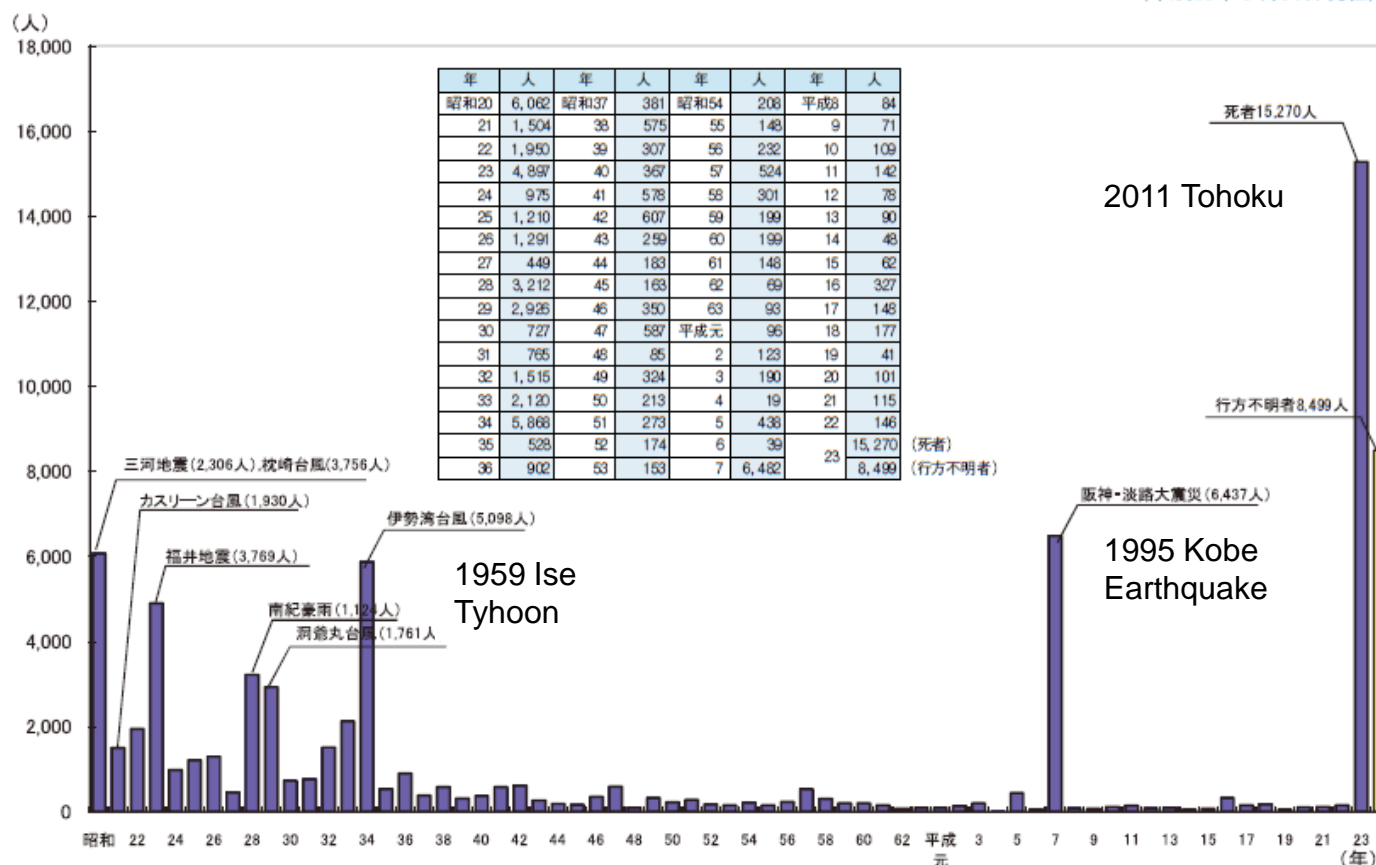


# Cases in Japan

# Japanese Disasters by Mortalities

図 1-1-10 自然災害による死者・行方不明者数

(平成23年 5月30日現在)



資料：昭和20年は主な災害による死者・行方不明者（理科年表による）。昭和21～27年は日本気象災害年報，昭和28年～37年は警察庁資料，昭和38年以降は消防庁資料による。

(注) 平成7年の死者のうち，阪神・淡路大震災の死者については，いわゆる関連死919名を含む（兵庫県資料）。

平成22年の死者・行方不明者は速報値。

平成23年の死者・行方不明者については，東北地方太平洋沖地震のみ（緊急災害対策本部資料）。

Source:  
White Paper on  
Disaster Management 2011

# History of Long term recovery plan

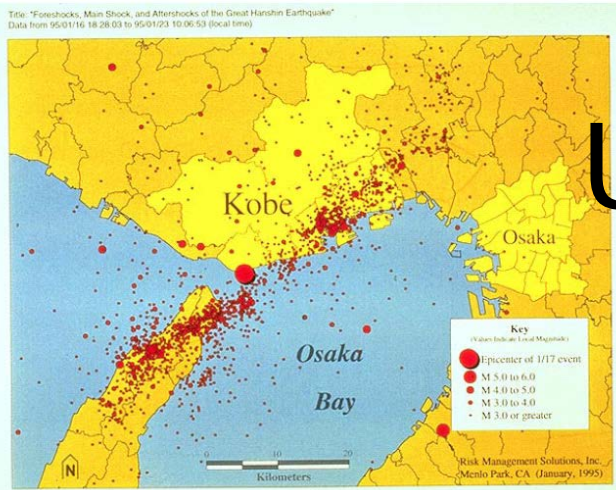
—Ise Bay Typhoon (1959) ~Mid-Niigata Earthquake (2004) —

- 1960s Recovery of Built Environments
  - Ise Bay Typhoon (1959) 、Niigata Earthquake (1964)
- 1970s Beginning of Citizen Involvement
  - Amendment of City Planning Act (1968) <Citizens Involvements> 、Amendment of Local Governments Acts (1969) <Local Initiative> 、Sakata Fire (1975)
- 1980s Emerging of Life Recovery Concept
  - Miyake Volcanic Eruption (1983)
- 1990s Life recovery becoming a target
  - Unzen Volcanic Eruption (1991 —) 、Hokkaido South-East Earthquake (1993)

1995 Kobe and 2011  
Tohoku

We are in new phase.

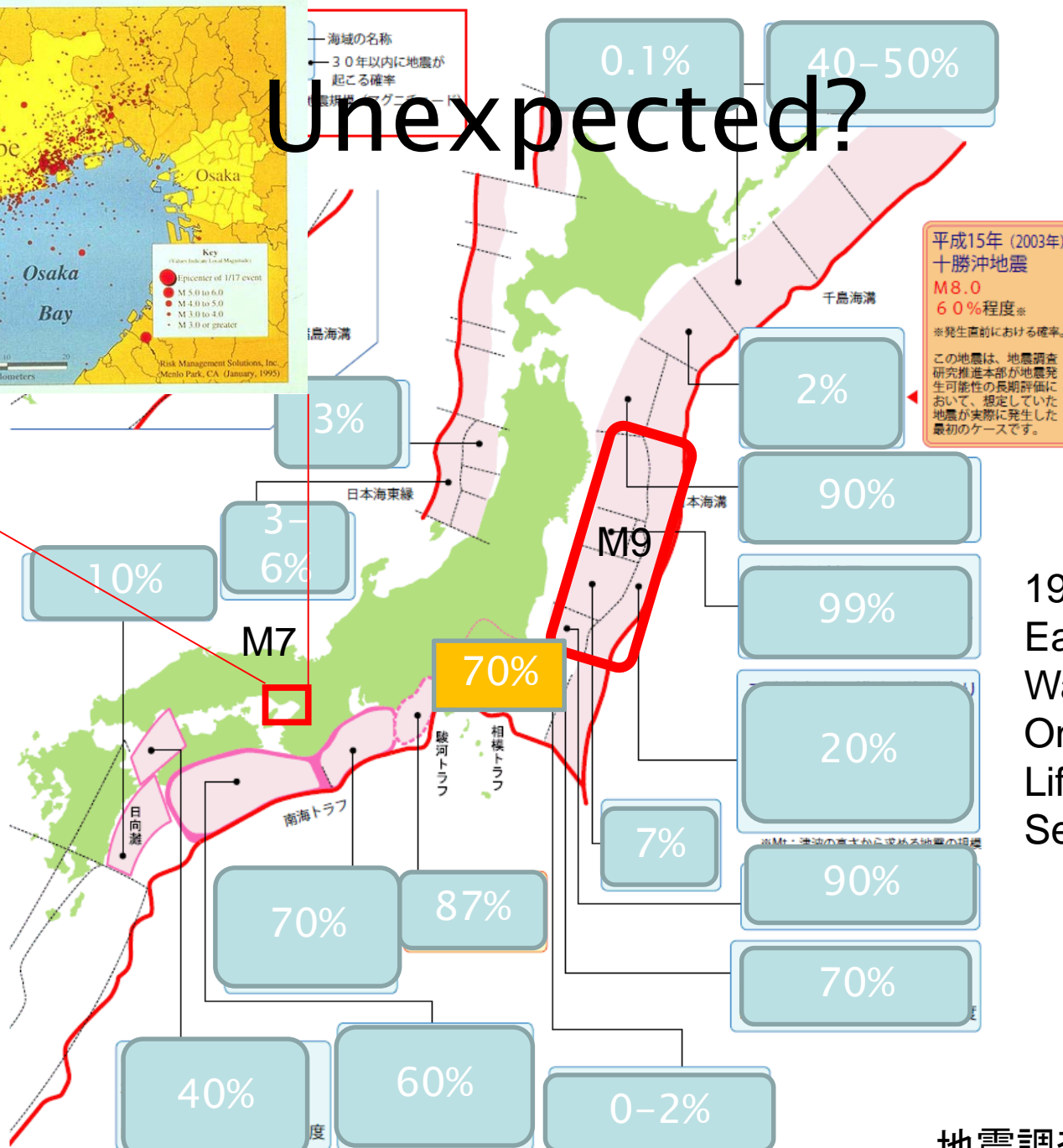
The 2011 Great East Japan  
Earthquake Disaster



2011年1月11日現在

- 海域の名称
- 30年以内に地震が  
起こる確率  
(震源域、マグニチュード)

# Unexpected?



平成15年(2003年)  
十勝沖地震  
M8.0  
60%程度※  
※発生直前における確率。  
この地震は、地震調査  
研究推進本部が地震発  
生可能性の長期評価に  
おいて、想定していた  
地震が実際に発生した  
最初のケースです。

1978 Miyagi  
Earthquake  
Wake up call  
On Urban disaster  
Life Line failure  
Seismic Safety



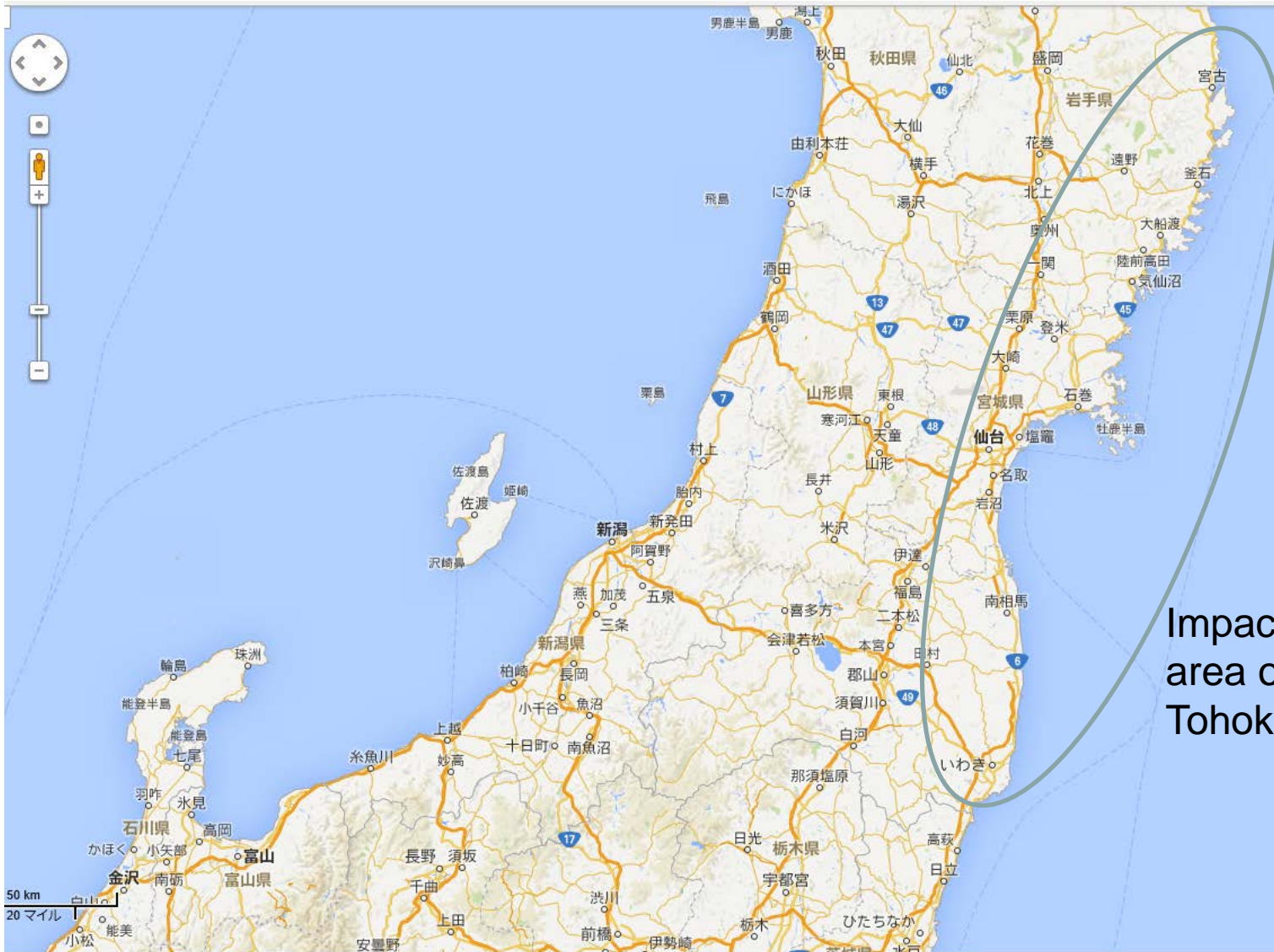
# Kobe(1995) and Tohoku(2011)

## 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 20M t**
- Home less 320,000 people
  - 1 week
- Interim Housing 60,000 units
- Economic Loss 10 trillion JPY
- Affected Municipality 20 cities and towns

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

- **M9**
- **Death and Missing 18,715**  
Building damage 383,375 units
  - Collapse 129,340 units
  - Major damage 264,035 units
- **Debris 27Mt**
  - 18 Mt from Structure
  - 9.5 Mt from Sea Sand
- 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)**



Impacted  
area of the  
Kobe



Impacted  
area of the  
Tohoku



# Urban Disaster Kobe 1995



Response  
Relief

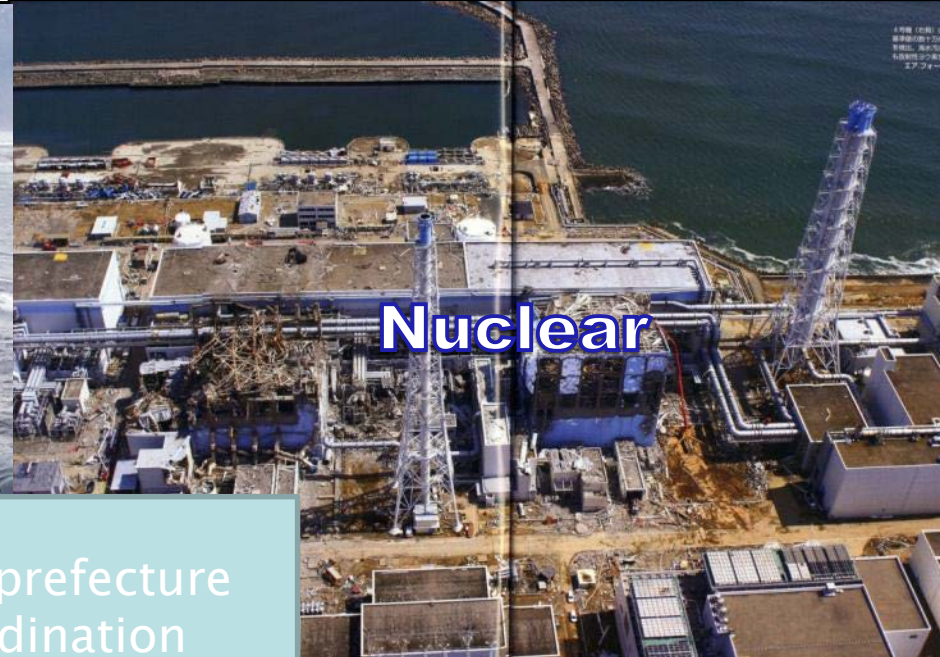




# Multi Location Cascading Disasters Tohoku 2011



**Tsunami**



**Nuclear**

Multi-prefecture  
coordination  
Recovery



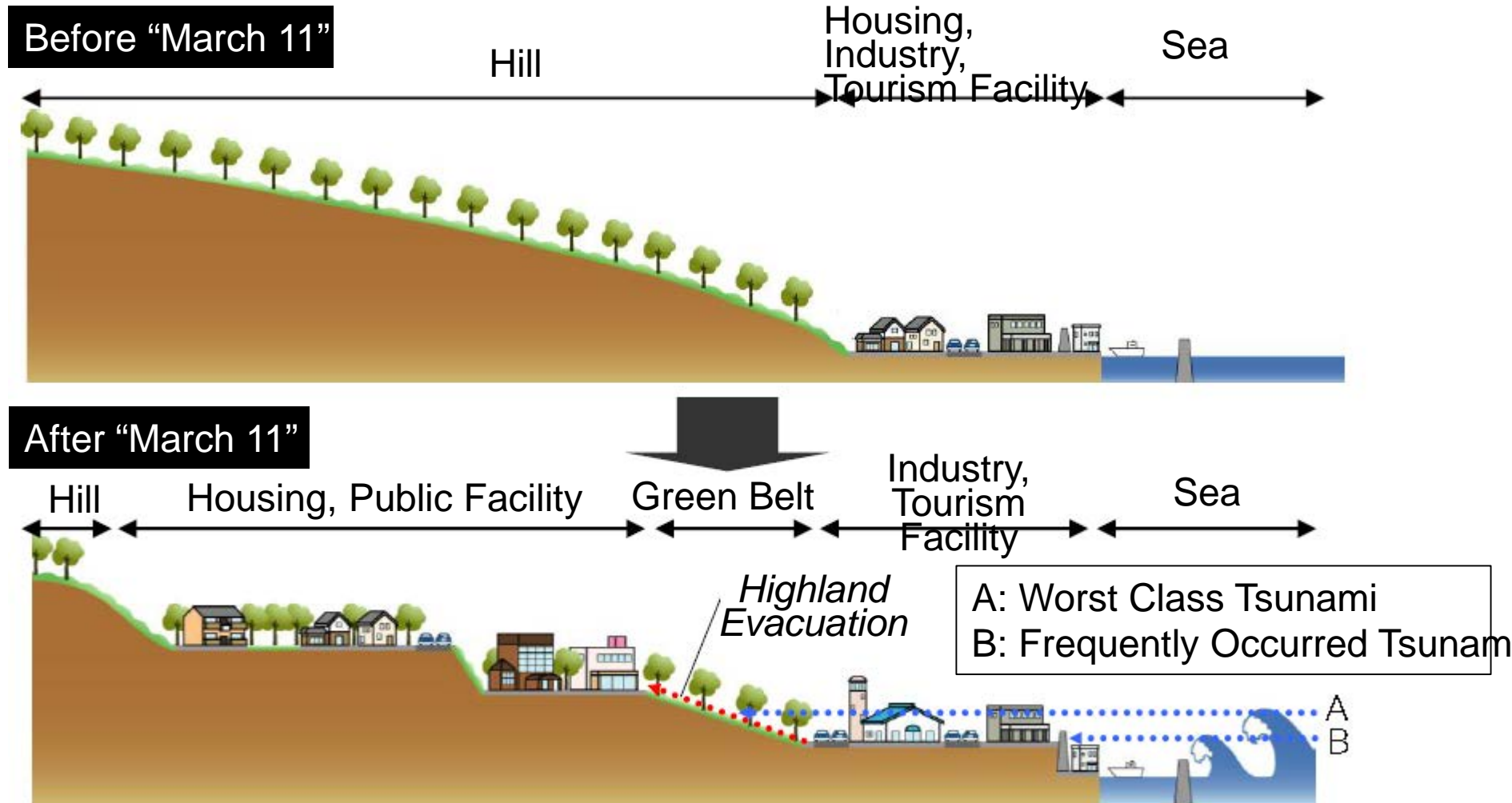
**Subsidence**



**Liquefaction**

**Fire**

# Land Use Concept of National Government











Now

Sea Wall, Mound, Resettlement,  
Public Housing

















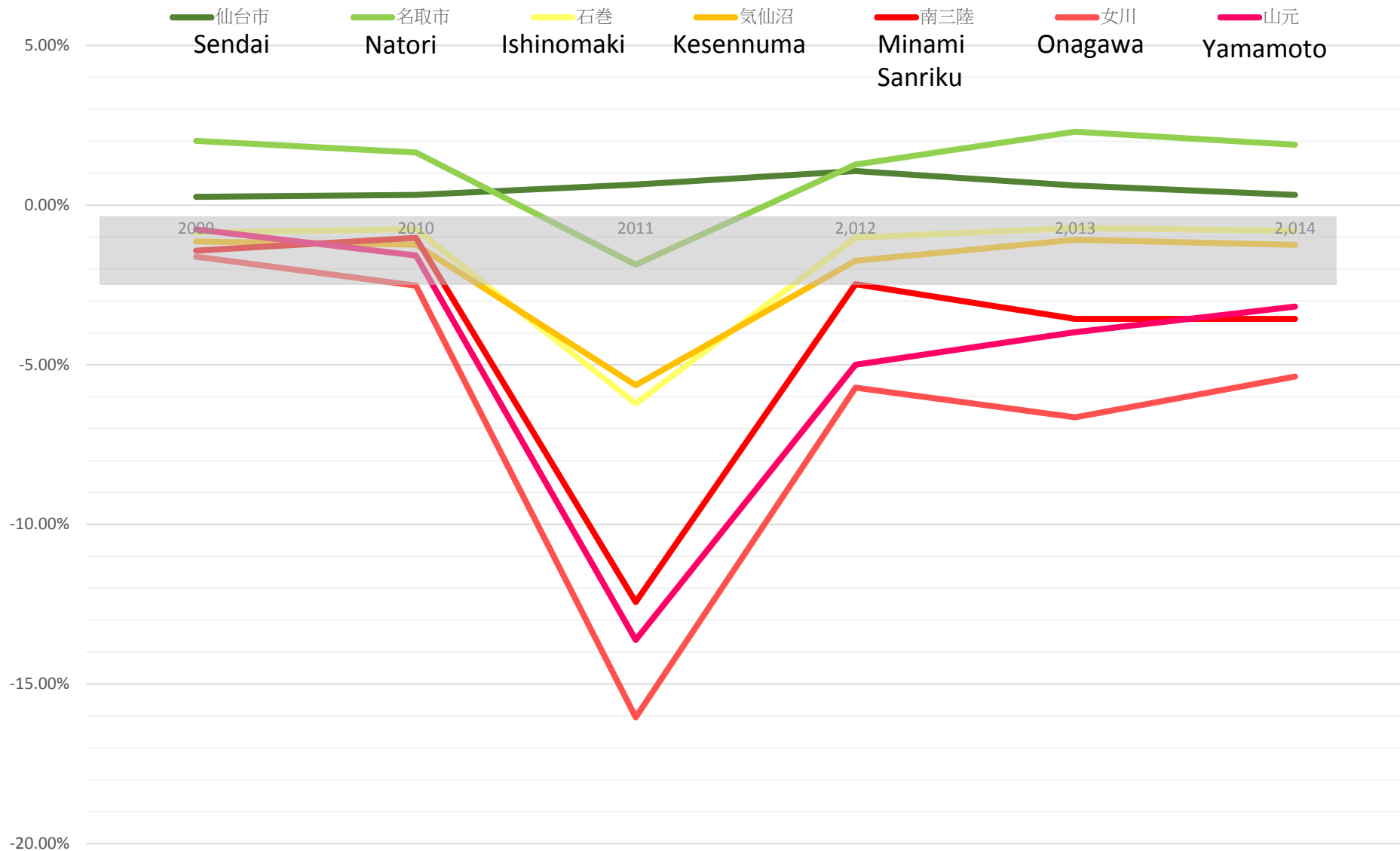


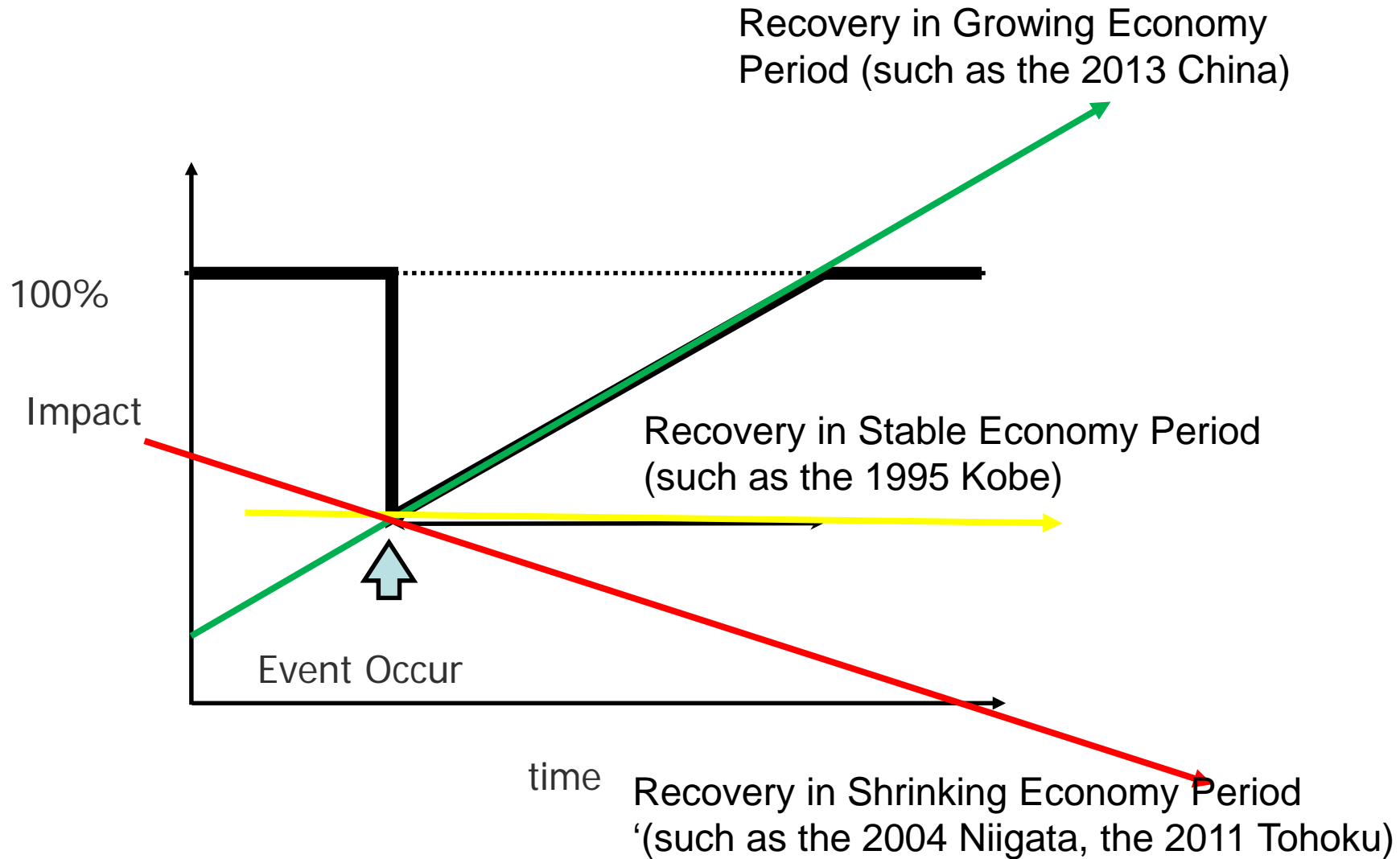






# Three population change pattern after the 2011 Tohoku Disaster

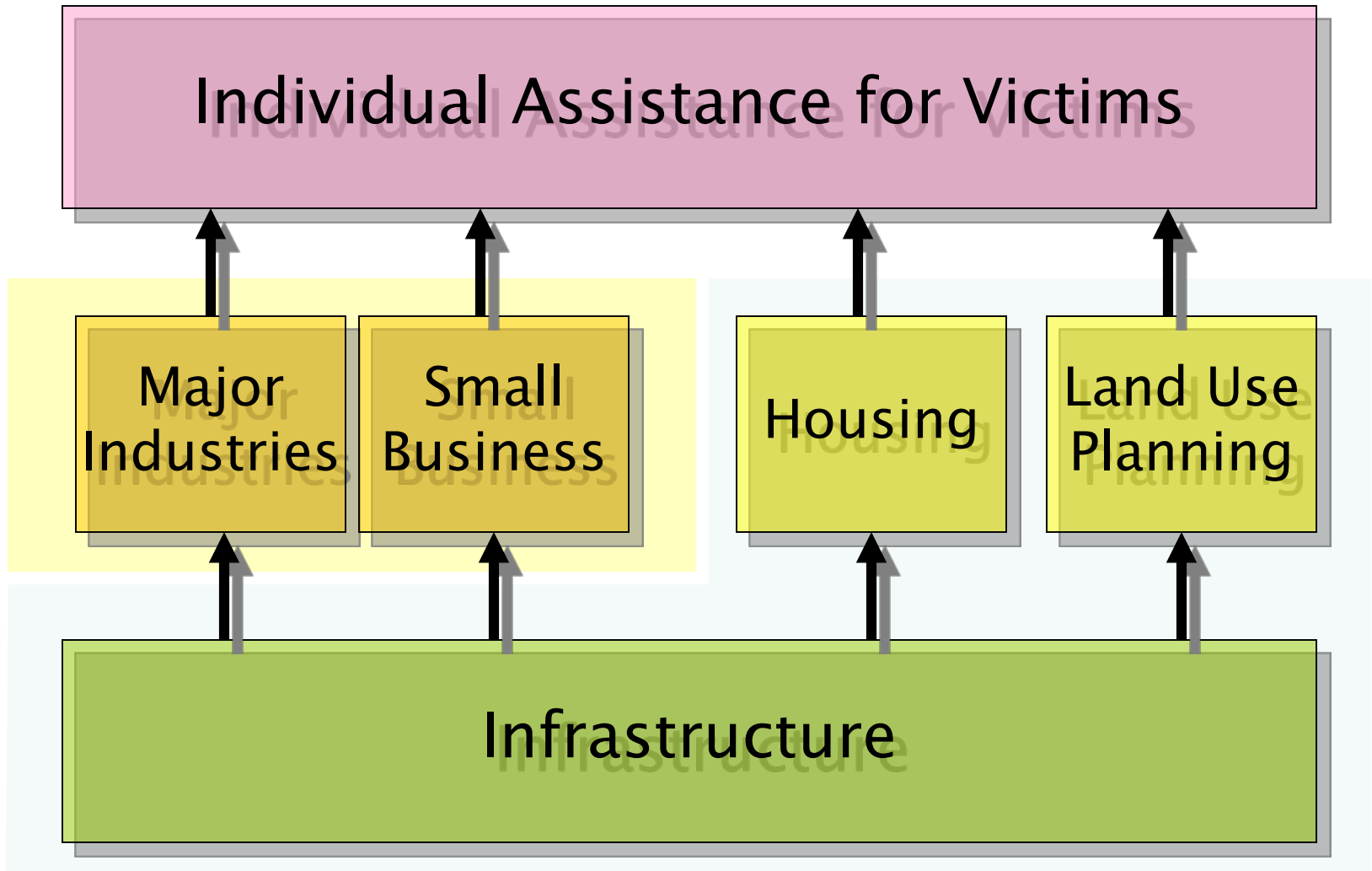






Basic understanding about  
long term recovery

# Basic Structure of Recovery Program



# Three Goals of Recovery Plan

Physical Recovery

Reconstructing Destroyed Cities

+

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Economic Recovery

Revitalizing Local Economies

Life Recovery

Helping Disaster Victims

# Three Basic Economic Recovery Patterns after Kobe EQ

**Immediate boom & following slump**

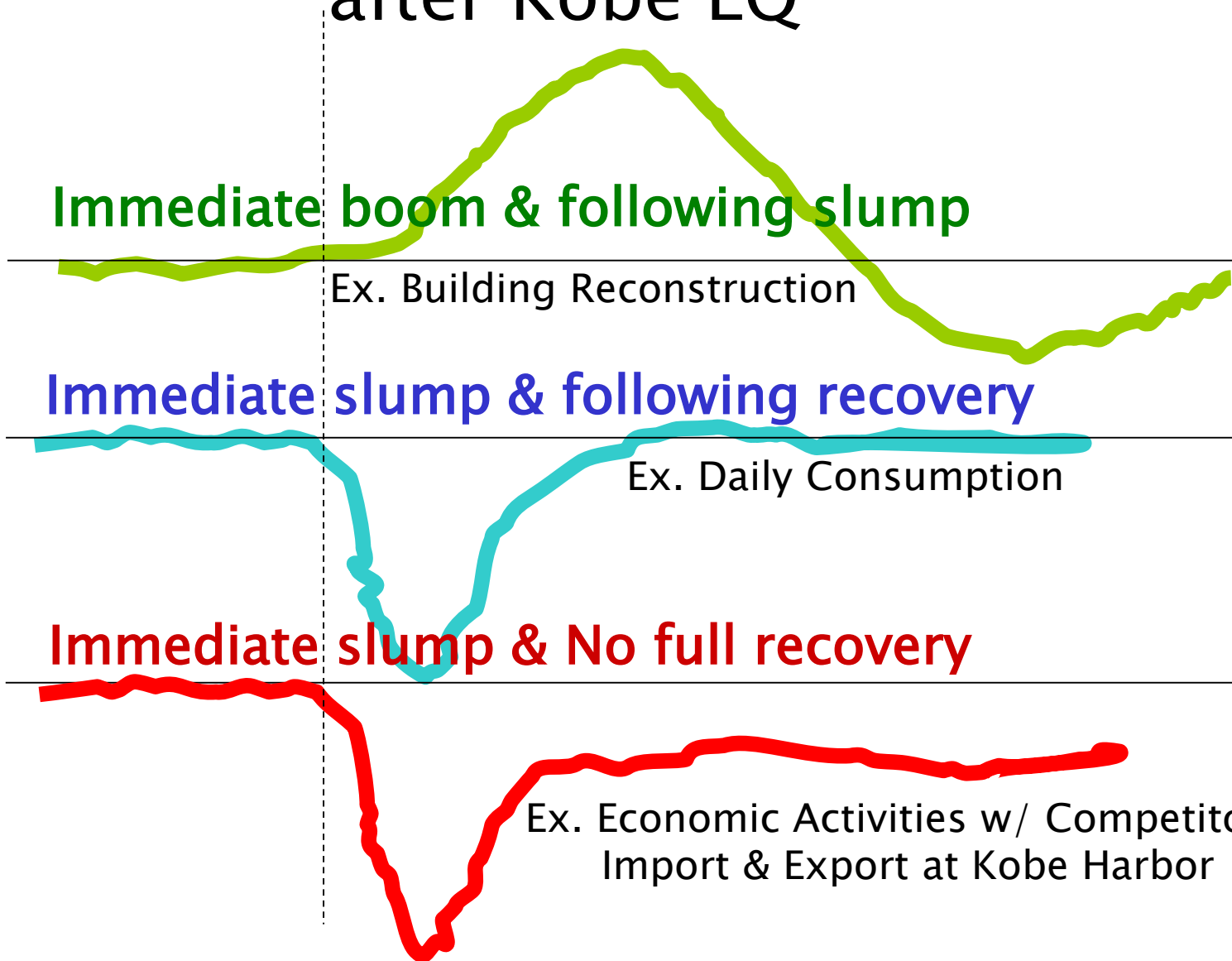
Ex. Building Reconstruction

**Immediate slump & following recovery**

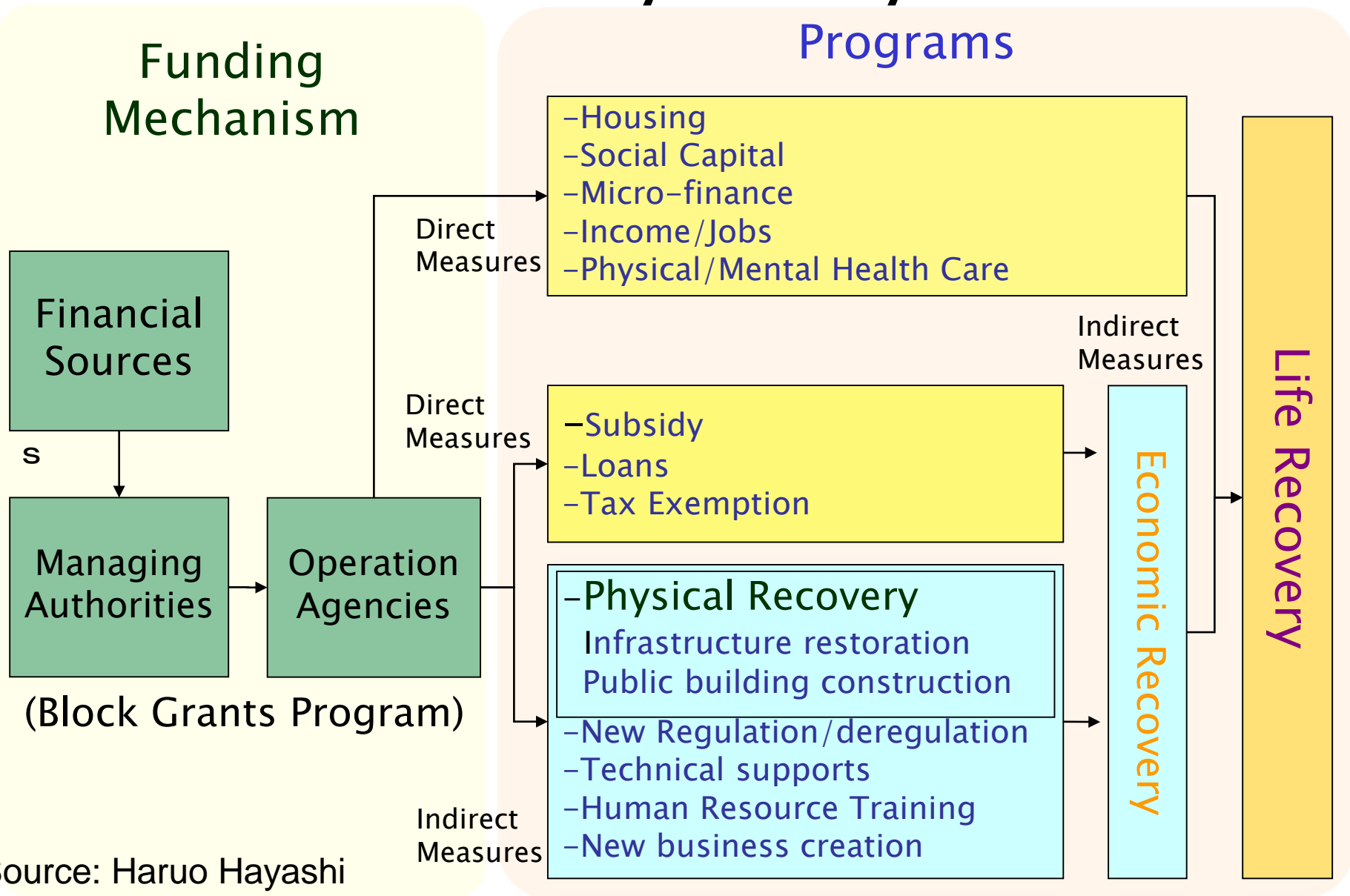
Ex. Daily Consumption

**Immediate slump & No full recovery**

Ex. Economic Activities w/ Competitors  
Import & Export at Kobe Harbor

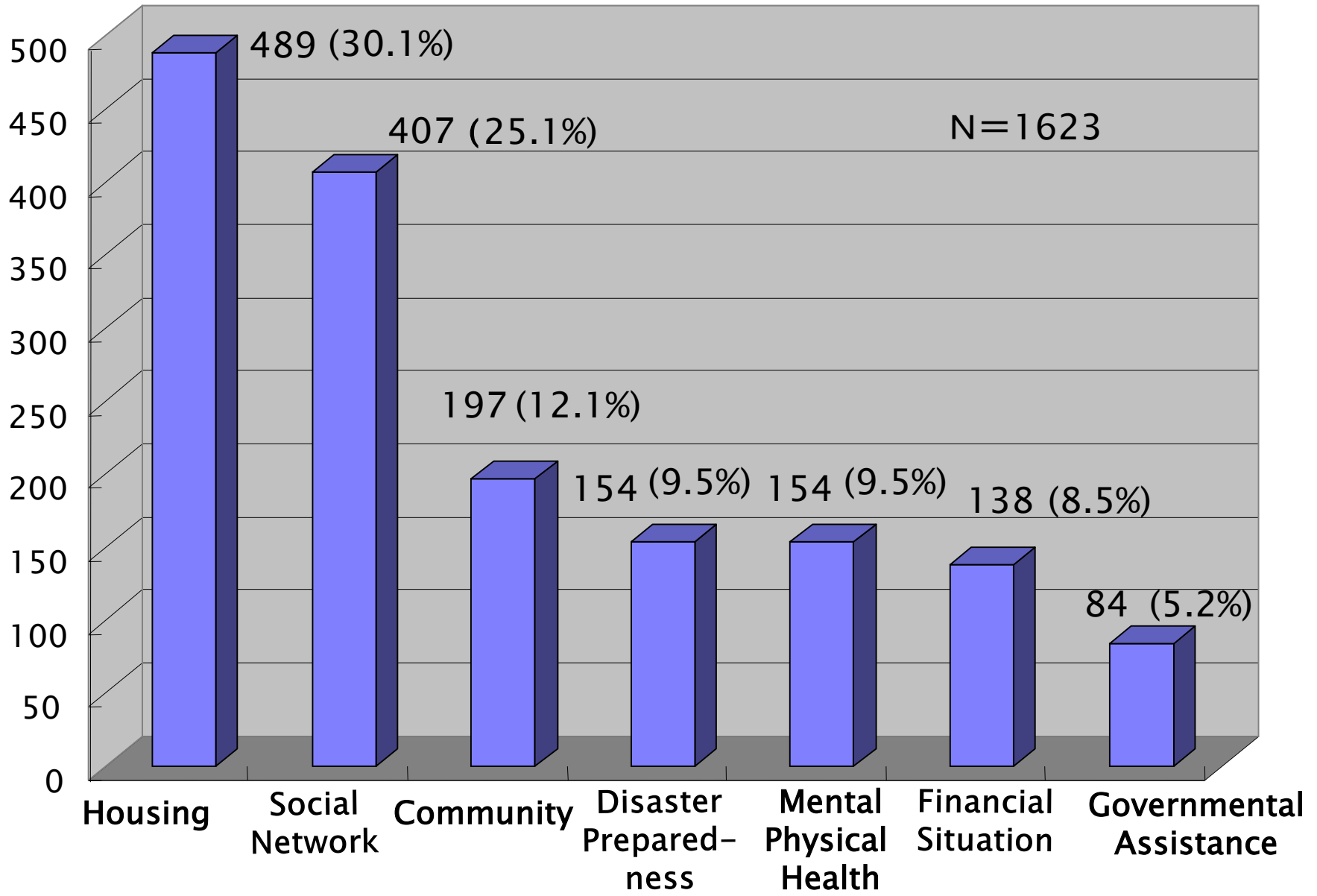


# Holistic Recovery Policy Model



From people view

# Seven Elements for Life Recovery Kobe Case



# Community Development

## “Machidukuri”



## 住民参加による計画





# 重点復興地区 都市再開発：2 土地区画整理：9

1995年1月17日午前5時46分兵庫県南部地震発生  
(阪神・淡路大震災)

震源地 淡路島北部 北緯34度36分 東経135度02分  
震源地の深さ 16km  
各地の震度 7 (神戸市、芦屋市、西宮市、宝塚市、北淡町、  
一宮町、津名町の一部)  
6 (神戸、洲本) 5 (豊岡) 4 (姫路) など  
マグニチュード 7.3

死者 6,432人  
全壊 104,906棟、186,175世帯  
半壊 144,274棟、274,180世帯





# Two step decision making

- First step(March 17, 1995) 2 months after
  - Select location (government)
- Second step
  - Detailed planning by community members

## 六甲道駅南地区まちづくりニュース

平成7年3月(第1号)  
神戸市都市計画局  
神戸市広域印刷物登録  
平成6年度278号(B-1類)

東の副都心の防災拠点づくりをめざして

## 再開発事業の都市計画が決まりました

六甲道駅南地区震災復興第二種市街地再開発事業が、平成7年3月17日に都市計画決定されました。

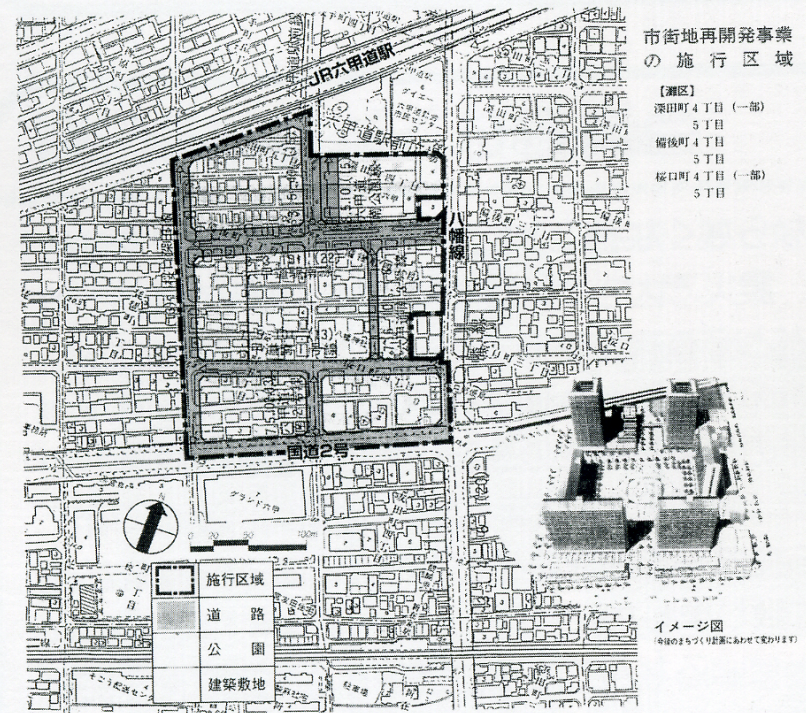
これは、施行区域や公共施設の配置など再開発事業の枠組みを決めたものですが、再開発ビルなどの具体的な計画は、今後、地元のみなさんとともににつくりあげていきたいと考えています。

なお、建築基準法第84条の制限に代わつ

て都市計画法第53条により、引き続き同様の制限がかかります。また、土地の売買をするときは届出が必要となりますのでご注意ください。

### お問い合わせは

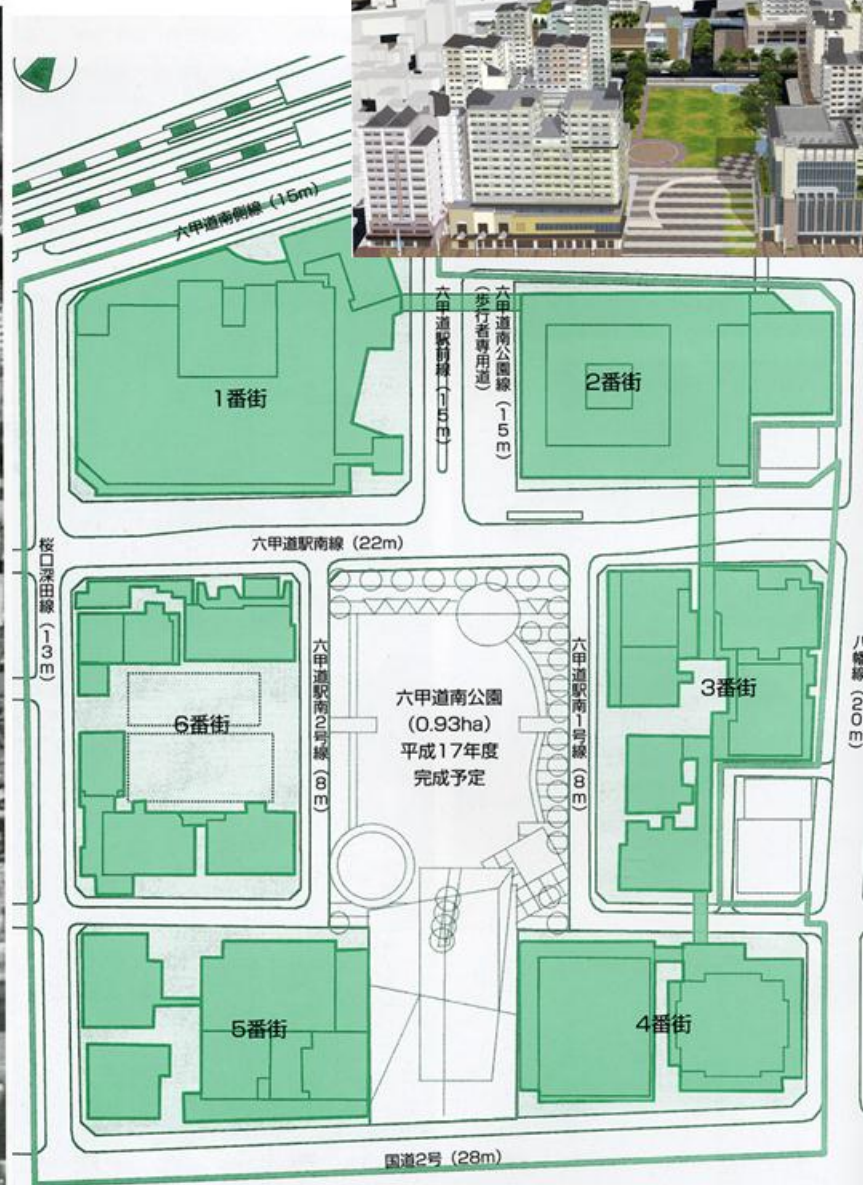
神戸市都市計画局 六甲道南再開発事務所  
Tel. 821-6285 Fax. 856-2286



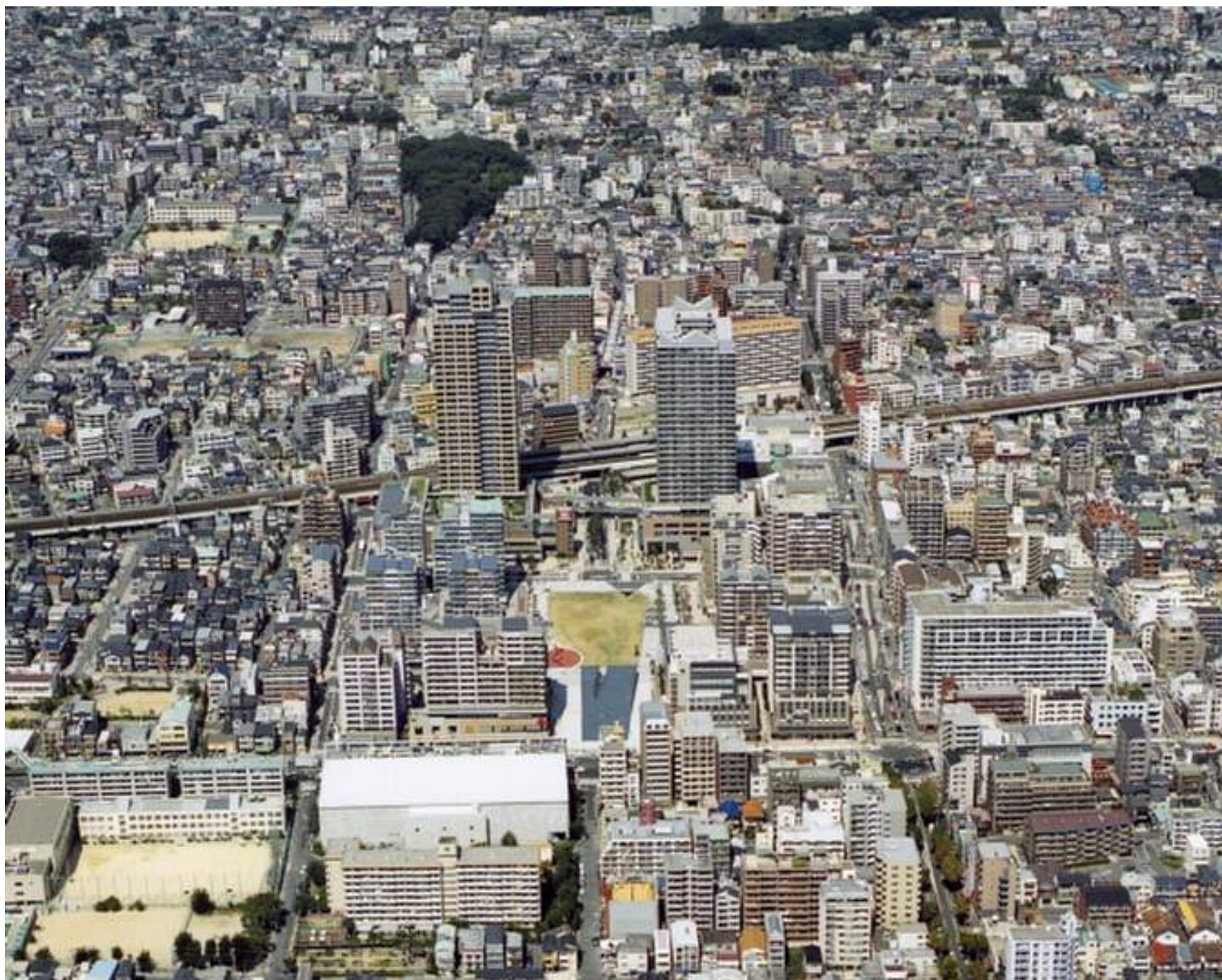


六甲  
846m USD

# Redevelopment Project



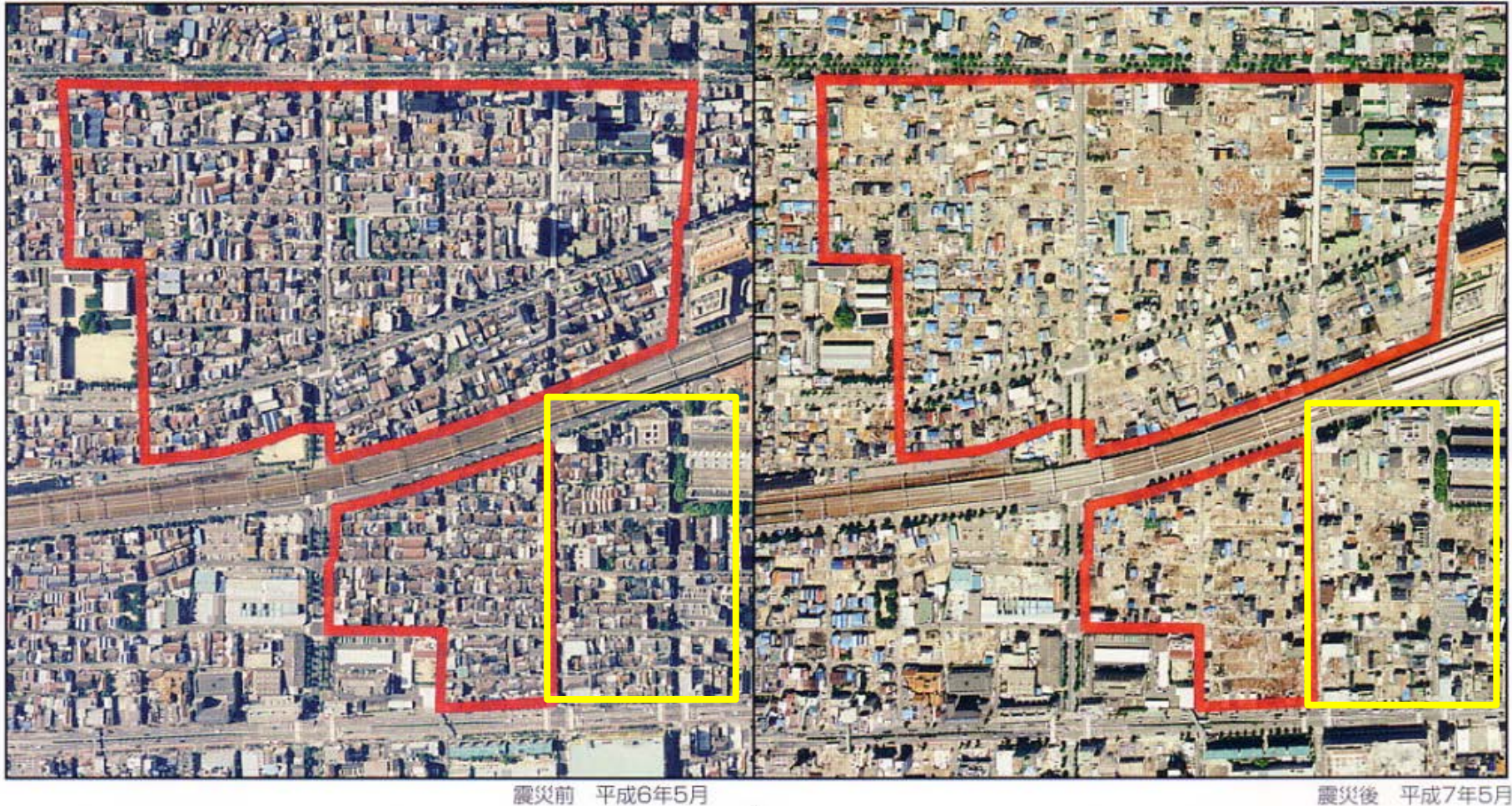




出典：神戸市



# Land use re-adjustment project

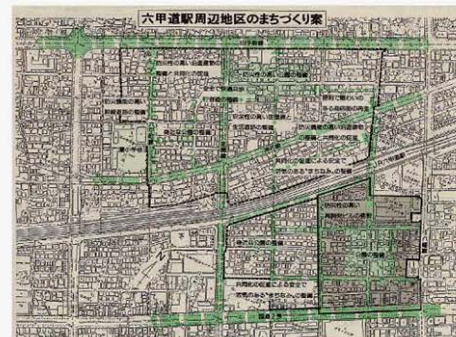




# Plan change



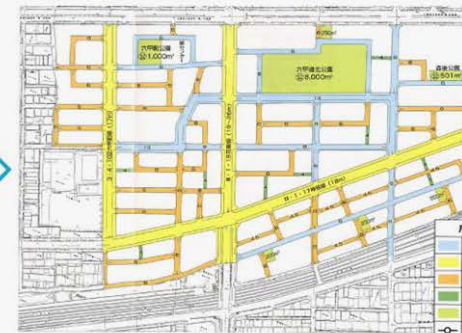
リニュース (H7.2)で「まちづくり案」が発されて以降、8つのまちづくり協議会からの「1次まちづくり提案」はじまり、その後の連協議会からの「まちづくり提案」などを受けて神戸市は事業計画を数にわたり変更しました。



神戸市の復興まちづくりニュース (H7. 2. 23発行)



六甲道駅北地区まちづくり構想図 (第1次まちづくり提案 H8.4)



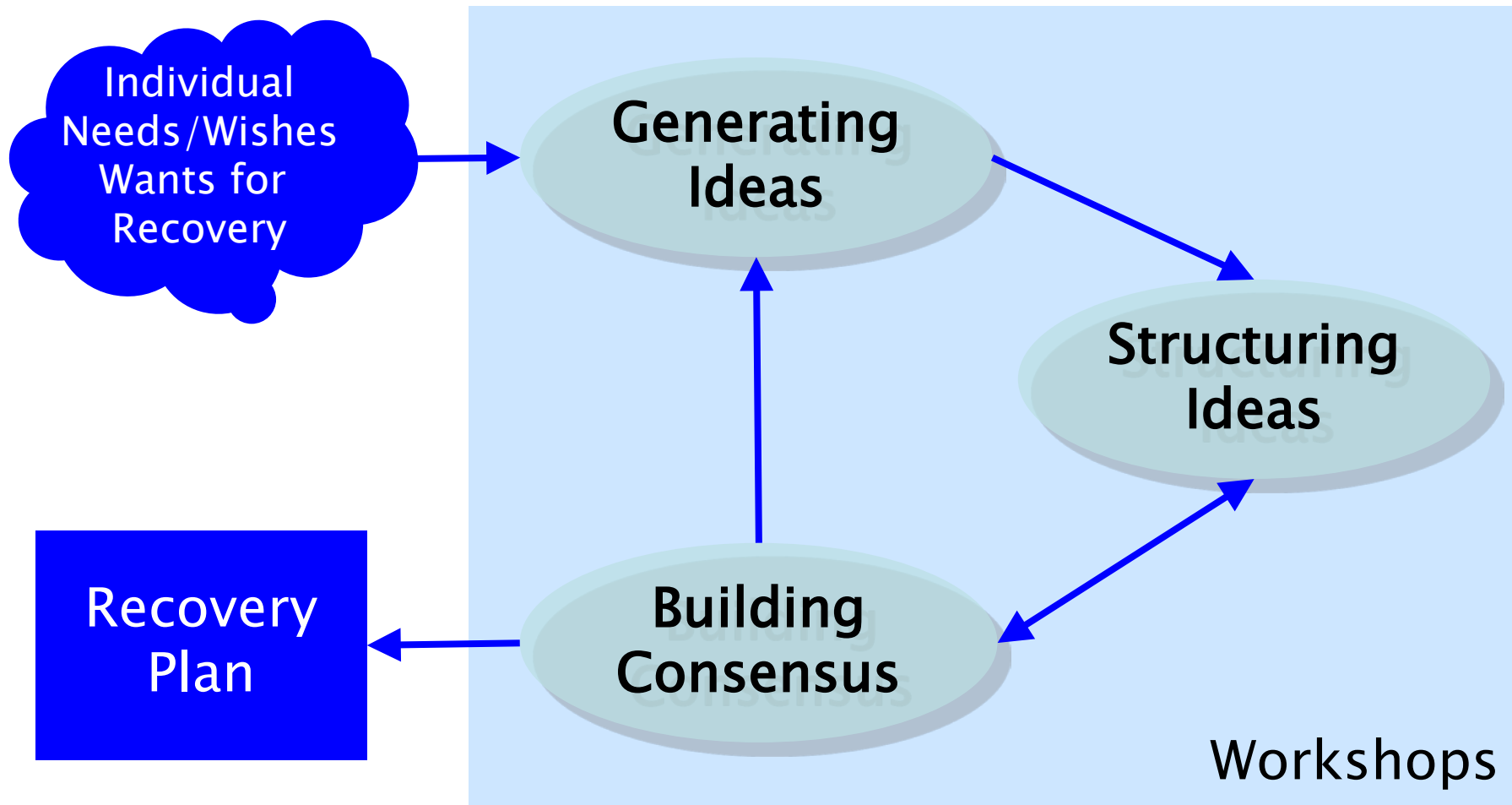
神戸市のまちづくり案 (事業計画素案 H8.5)

# City wide planning

Who pays?



# Planning with stakeholders

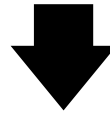


# Stakeholder Workshop

With All Key Stakeholders

With Proper Information

With Mild Time Pressure



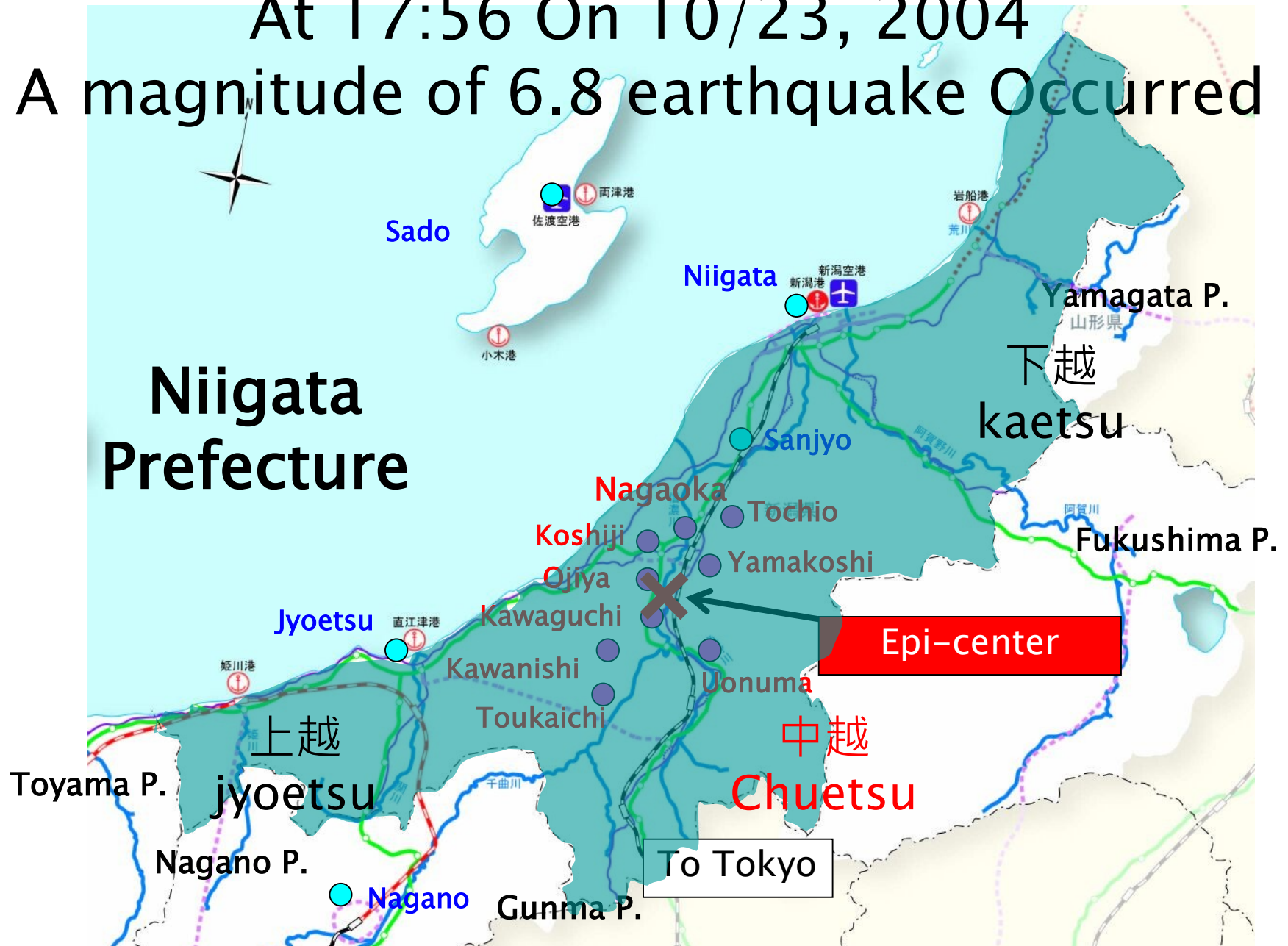
Participants will come to a logical and reasonable conclusion by themselves

# New “Machizukuri” through Disaster Recovery Process

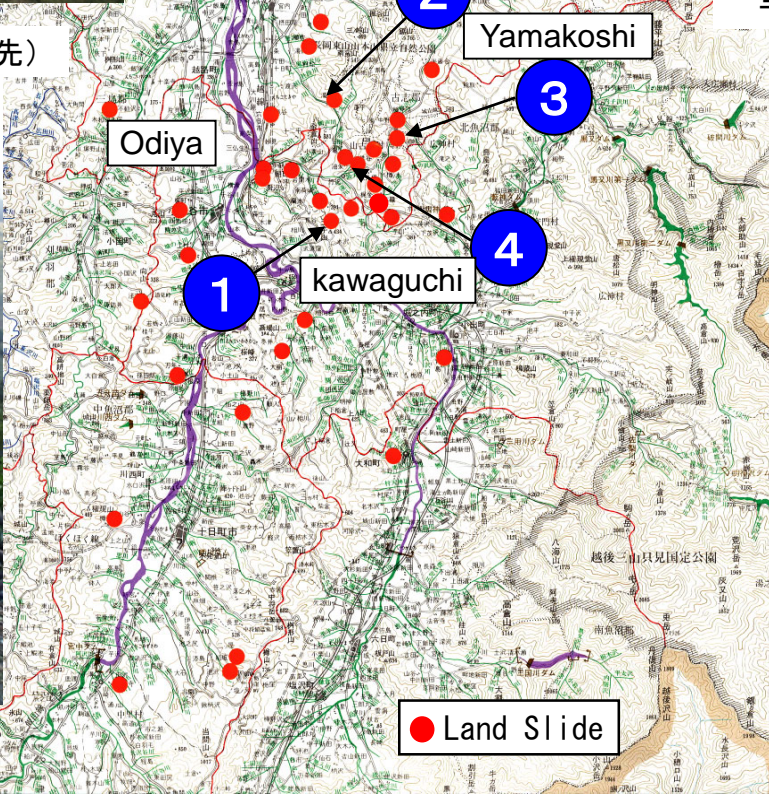
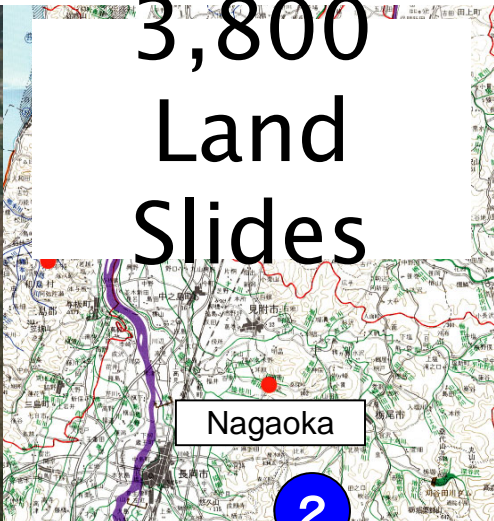
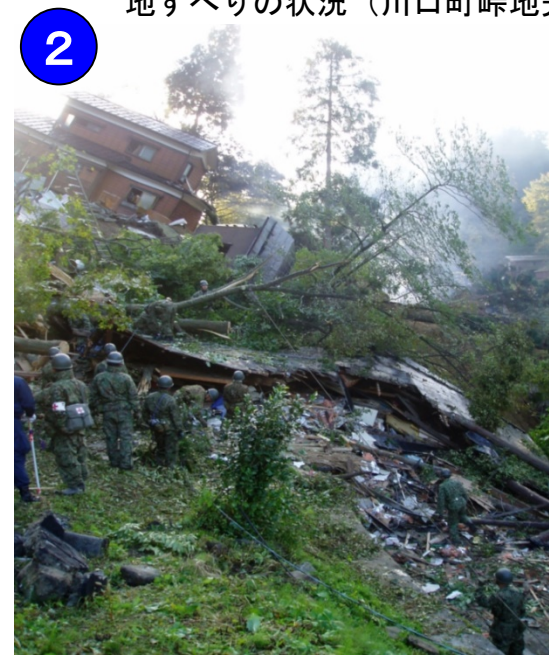
Ojiya City,  
Niigata Prefecture

Idea Compiling

At 17:56 On 10/23, 2004  
A magnitude of 6.8 earthquake Occurred







地すべりの状況（川口町峠地先）

芋川の状況（山古志村寺野地先）

自衛隊による救援活動  
（長岡市濁沢地先）

人家、道路の被害状況  
（山古志村油夫地先）

● Land Slide



# Odiya Disaster Recovery Plan Planning Process

**1/5 Kick-off Briefing Session**

**1/28 City Officer WS #1**

**2/20 Citizen WS #1**

**3/2 City Officer WS #2**

**3/24 City Officer WS #3**

**4/10 Citizen WS #2**

**4/12**

**Public Comment**

**5/17**

**4/18 Drafting Committee#1**

**Policy Review WG Policy Review WG**

**5/26**

**7/12**

**7/18 Drafting Committee#5**

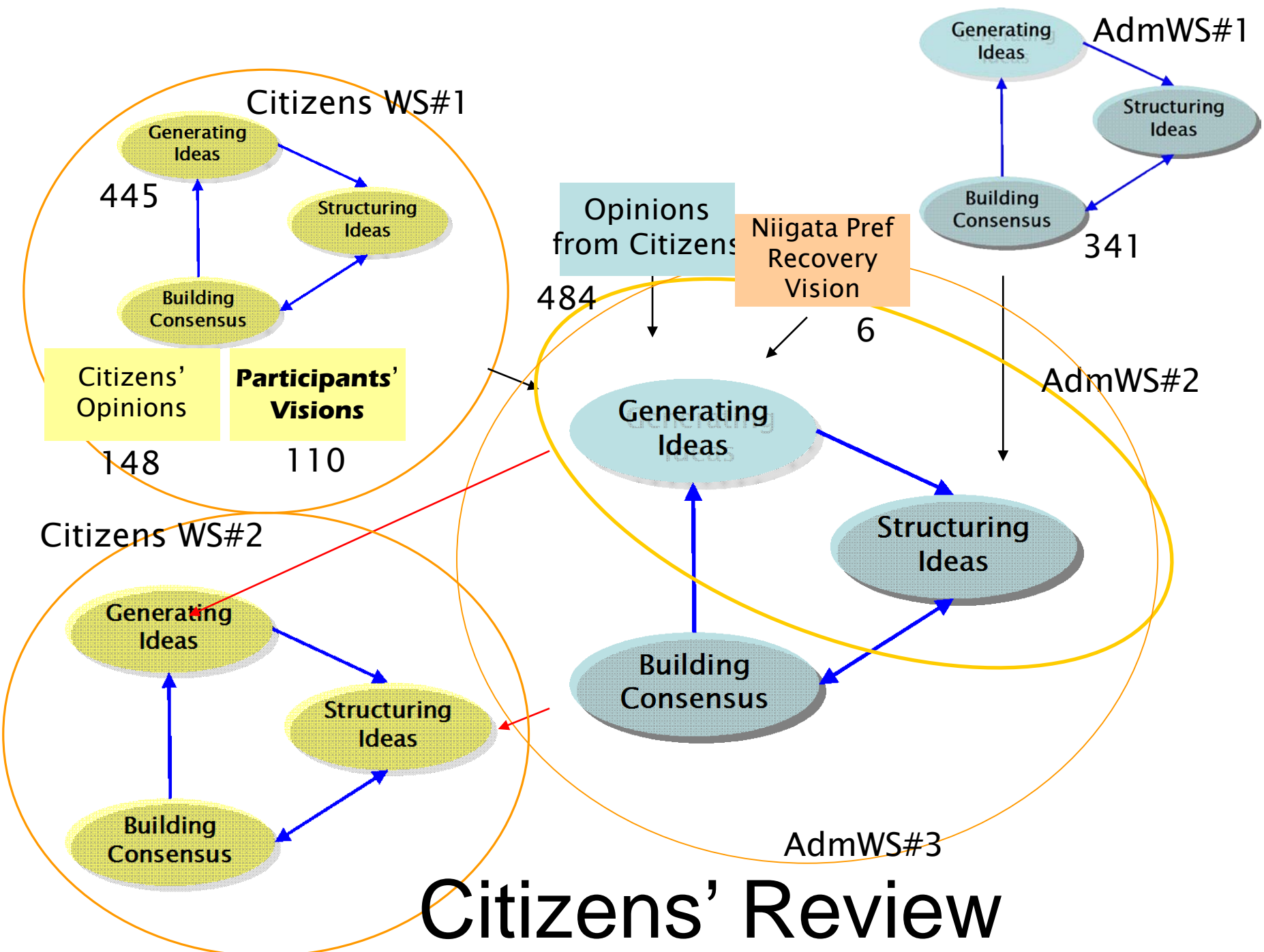
**What**

**How**

Citizens

City Officers

Local Bosses/Experts



# Citizen Workshop #1

## February 20<sup>th</sup>, 2005

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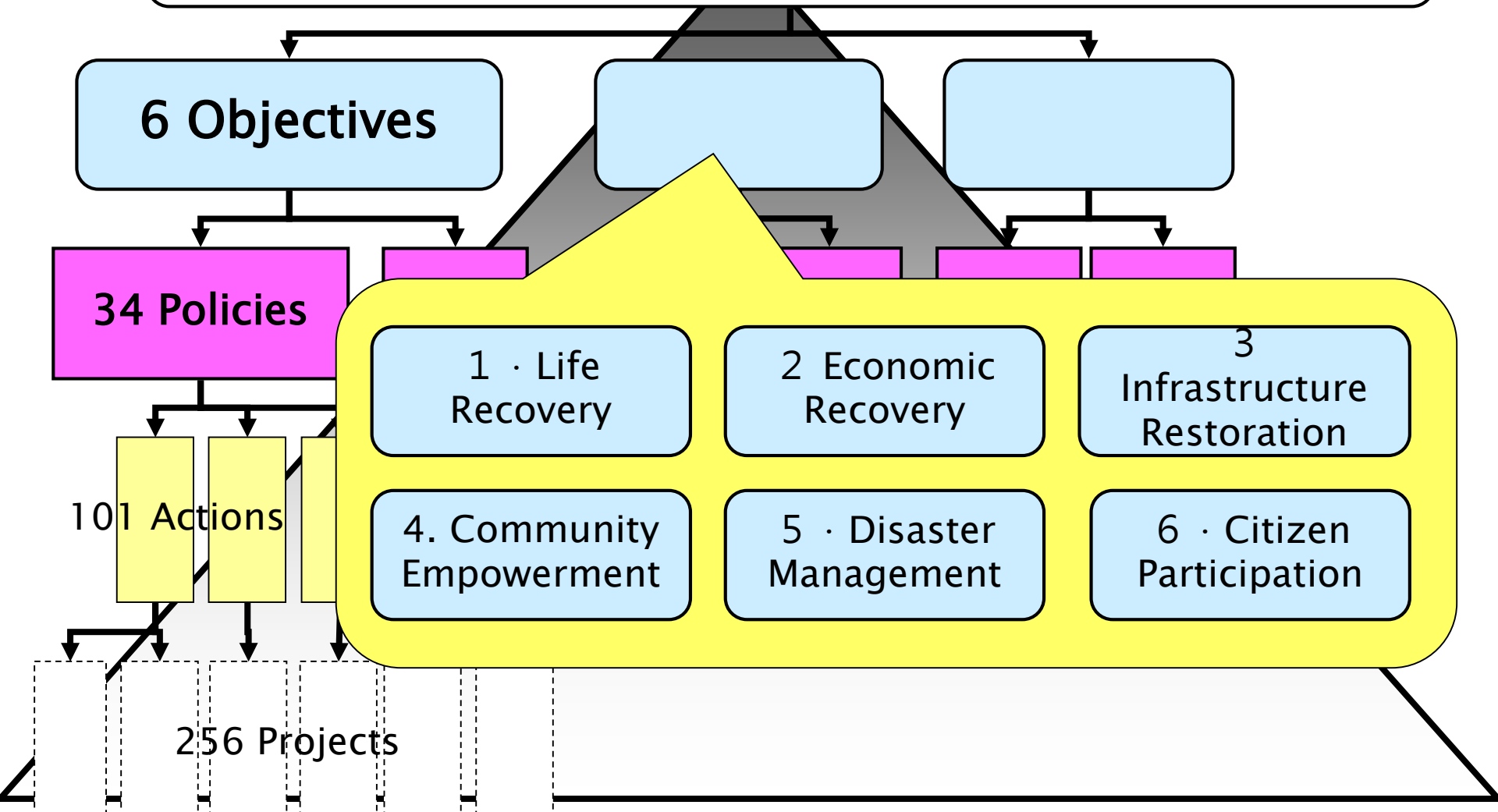
# Citizen Workshop #2

## April 10<sup>th</sup>, 2005



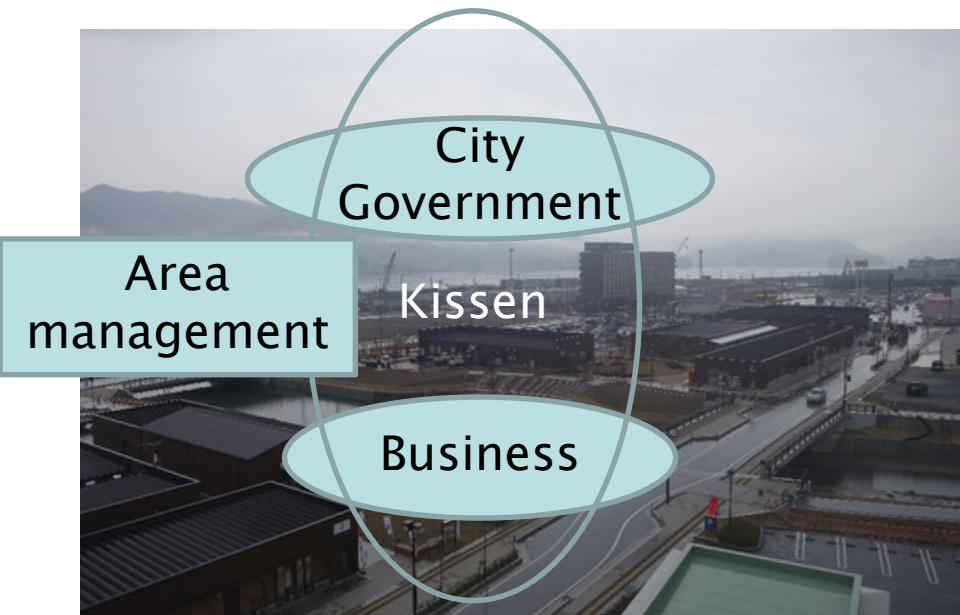
# Ojiya Recovery Plan Structure

New “Machizukuri” through Recovery process



# Tohoku

- Machizukuri – cooperation, TMO
  - Kissen-Oofunato
  - Machizukuri Manbo, Ishinomaki



Ofunato



Ishinomaki

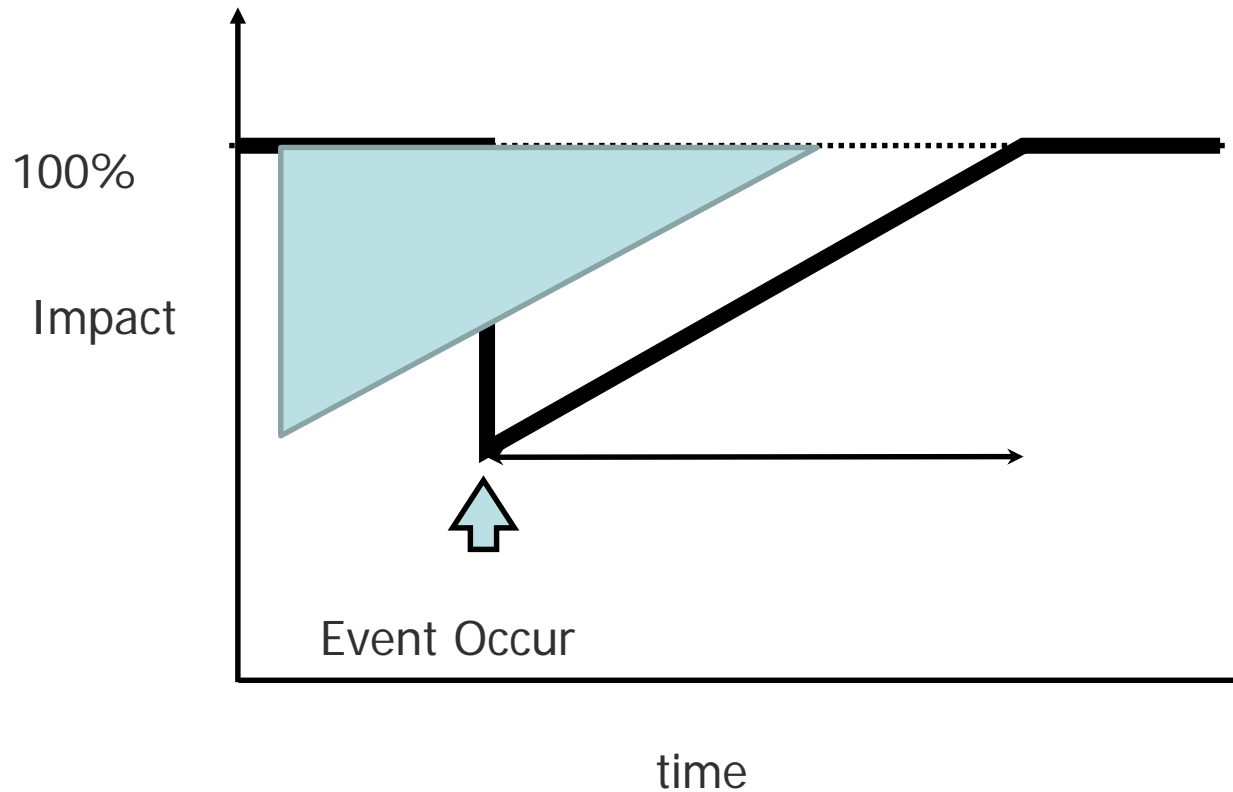
# But

- It needs time to make good plan.
- Delay of plan making cause depopulation.



# Start Ahead

## Pre-disaster recovery planning



# Normal Disaster Management Frame

Goal  
( Life, Property )



Seismic Retrofit  
USR

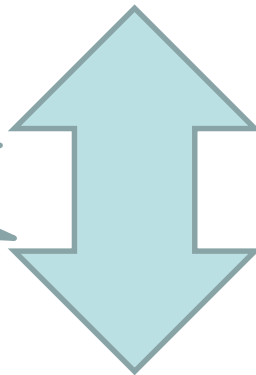
Reality  
Human Causality, Building Damage

Damage,  
Human Death

# Recovery Planning

## ① Future Vision

< As it is or was 、 Many Kinds >



③ Fulfill the GAP

## ② Reality

( Tsunami 、 Depopulation . . . )

# Getting Future Vision]

We would like to go back to the community before disaster



# Making of Asset Map







かに逃げ込んでいた  
(防空壕)がある。  
場所が決まっていた

台風時  
船を港側へ川をつたって  
のぼらせていた。

みなさん  
昔はみんなが帰った。  
漁師  
漁師寺(浄土寺)

瀬元さんの家。  
この周辺からのりを  
歩くのりが多い  
前から戦後あたり

津波が  
エリア  
された海が見える場所  
家がな

意地持さんの商店  
今でも残っている。

スポンジでできた島  
昔はタリニエ  
大塚を築いていた

島  
島  
島

島  
島

古い家についての話  
昭和55年頃から  
地区でも多く建て直されるように。

石灰と焼  
石灰を山からトラックで  
運び、焼場で船に積み込  
み、大塚へ。







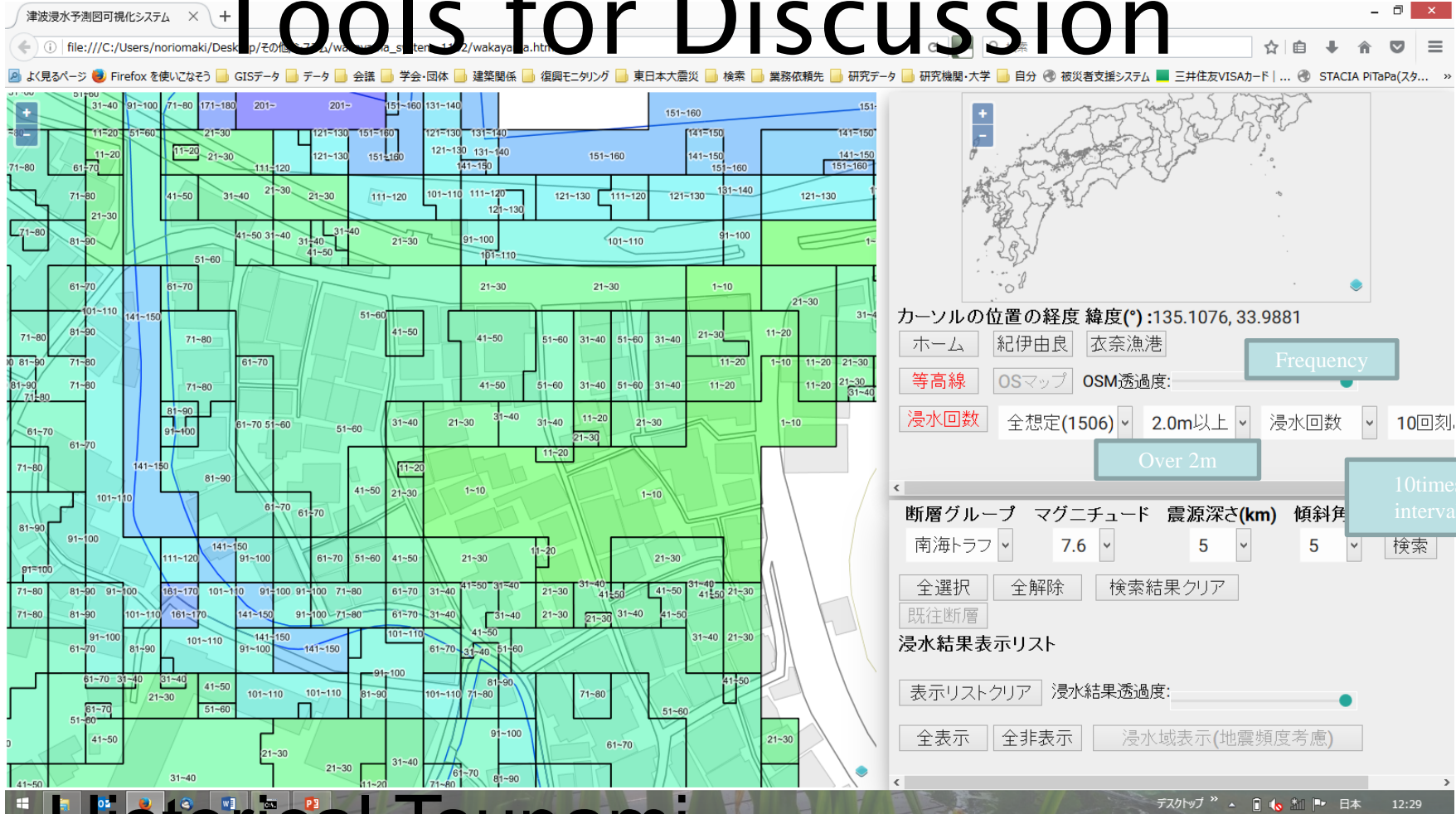


Understanding reality

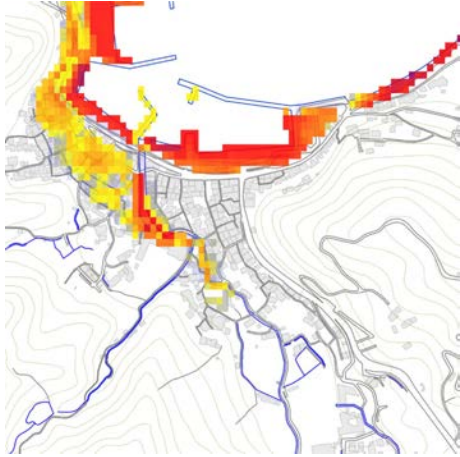
# Democracy in risk assessments



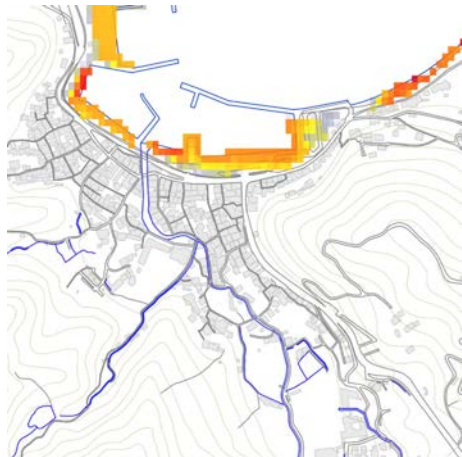
# Tools for Discussion



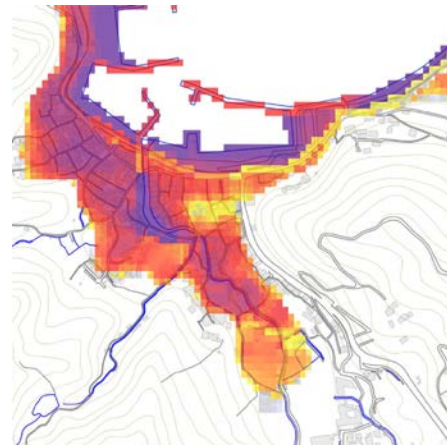
Historical Tsunami  
Government Simulation  
1506 tsunami simulation



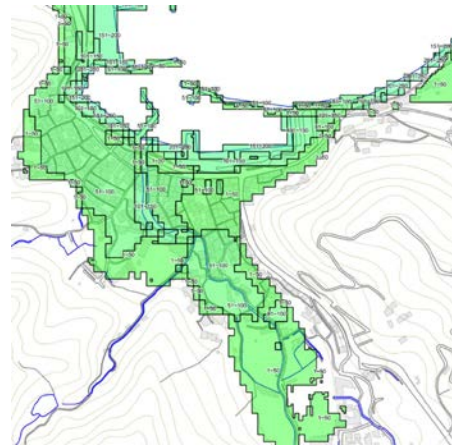
1854 Ansei Nankai



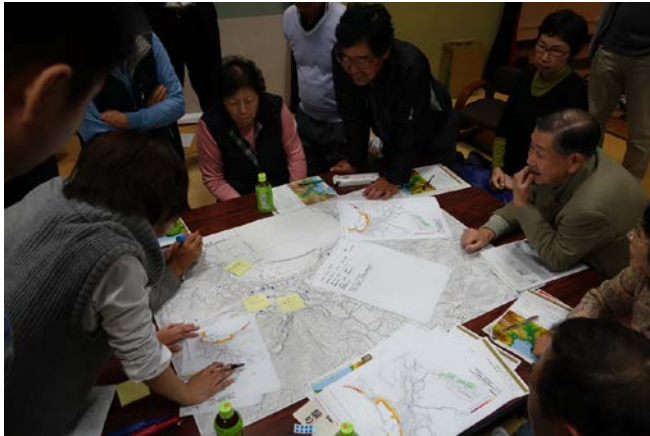
1944 Showa Nankai



The Worst case scenario  
(Hazard Map)



All the tsunami scenario  
(1506 scenario)



Step 1 group discussion  
Each group will set their own tsunami scenario using all the available data about tsunami



Step 2  
Sharing Information  
They explain why they selected their scenario.



Step 3 Voting  
Community members vote to preferable tsunami scenario



Group4: Did not set the line

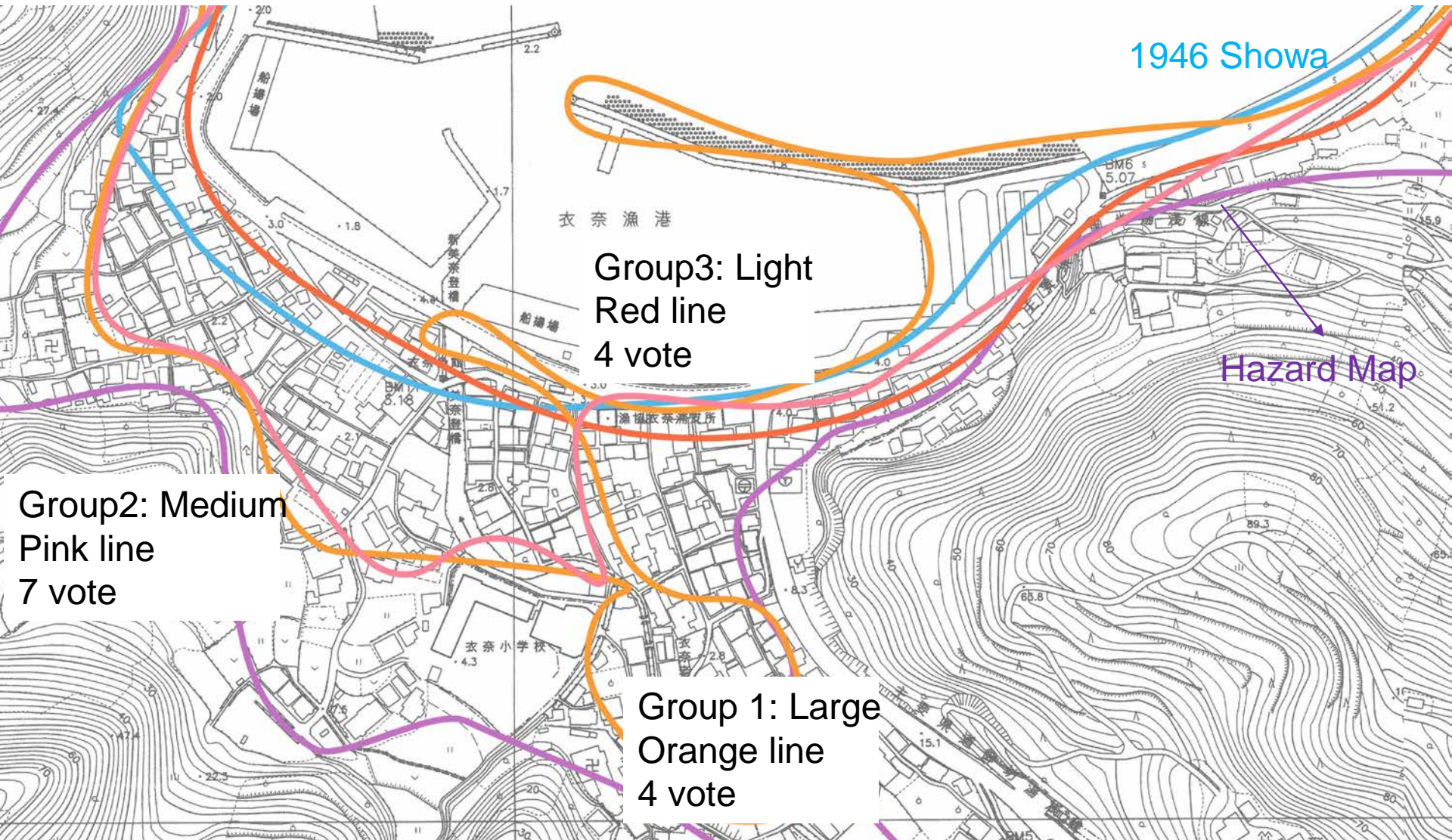
1946 Showa

Group3: Light  
Red line  
4 vote

Hazard Map

Group2: Medium  
Pink line  
7 vote

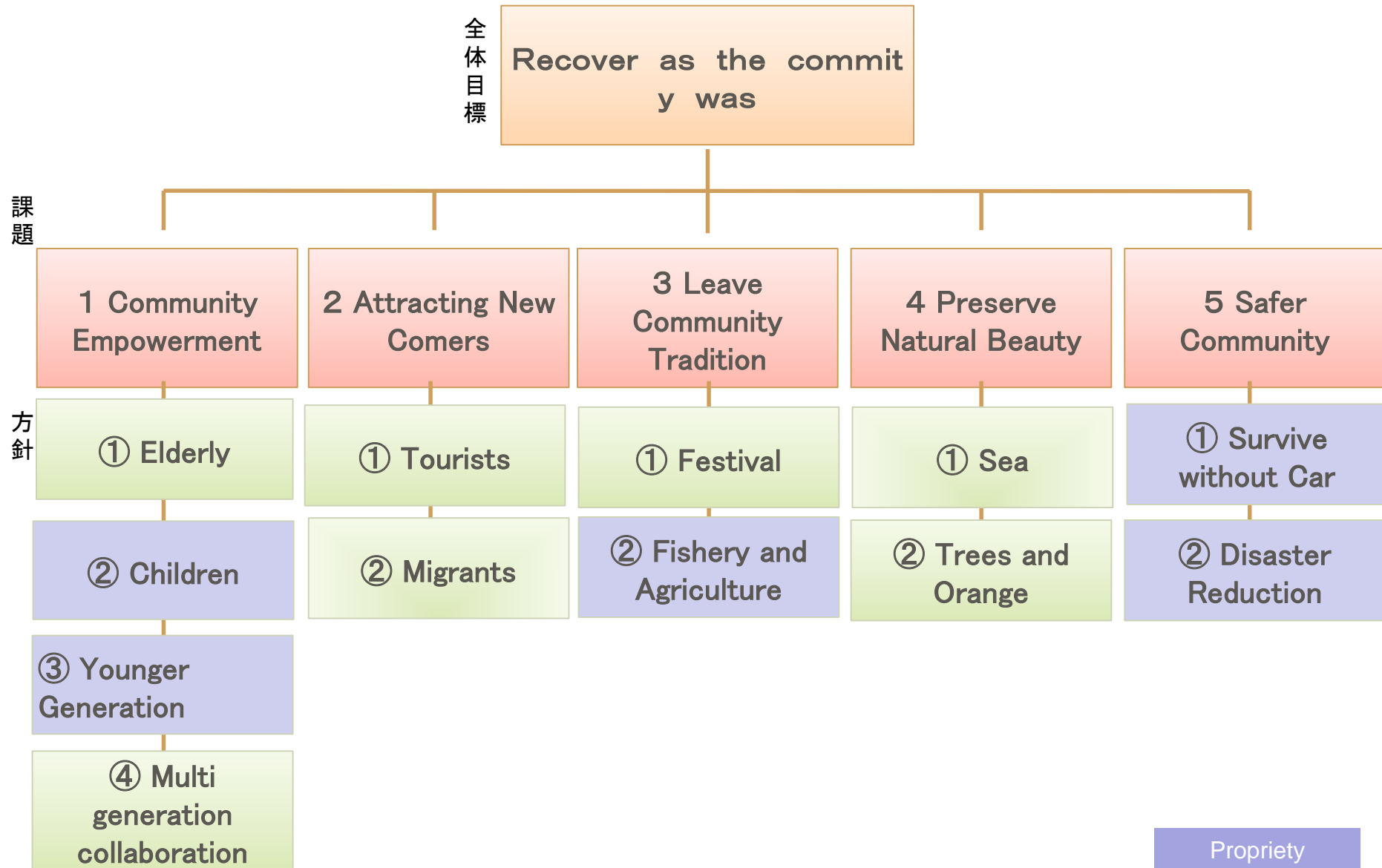
Group 1: Large  
Orange line  
4 vote



# Pre-disaster recovery plan

# PRE DISASTER RECOVERY PLAN

## HOW ARE WE LIVING?





Do you prepare for  
recovery?