NCDR
National Science and Technology Center
for Disaster Reduction
國家災害防救科技中心

www.ncdr.nat.gov.tw

Community Disaster Risk management:

a Public-Private Partnership Approach

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Vulnerable to Typhoons

2001 TORAJI

2004 AERE

2009 MORAKOT
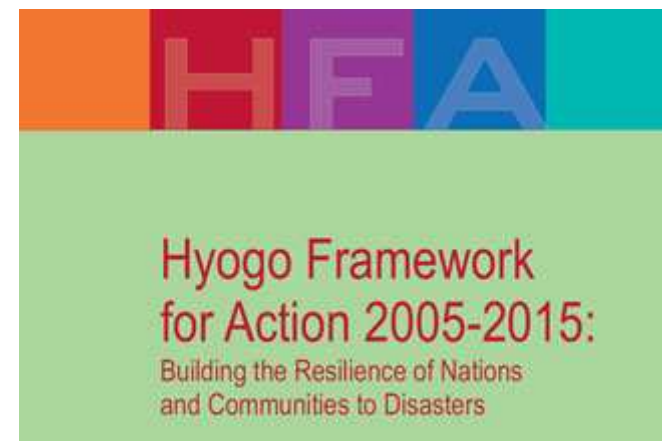

2004 MINDULLE

2008 SINLAKU

2010 FANAPI

Disaster-prone community

Hyogo Framework for Action 2005-2015

- … disaster risk reduction are mutually supportive objectives, …, accelerated efforts must be made to build the necessary capacities at the **community** and national levels to manage and reduce risk.

- The development and strengthening of institutions, mechanisms and capacities at all levels, in particular at the **community level**, that can systematically contribute to building resilience to hazards.

Hyogo Framework
for Action 2005-2015:
Building the Resilience of Nations
and Communities to Disasters

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Building Disaster-Resistant Community

♦ **Action taken prior to the 1999 Chi-Chi EQ**

- Structural measures (i.e. levee, retaining wall, etc.)

- Non-structural measures
  - education programmes or safe tips on emergency response
  - first responder training & drill
  - The forming of citizen volunteer teams
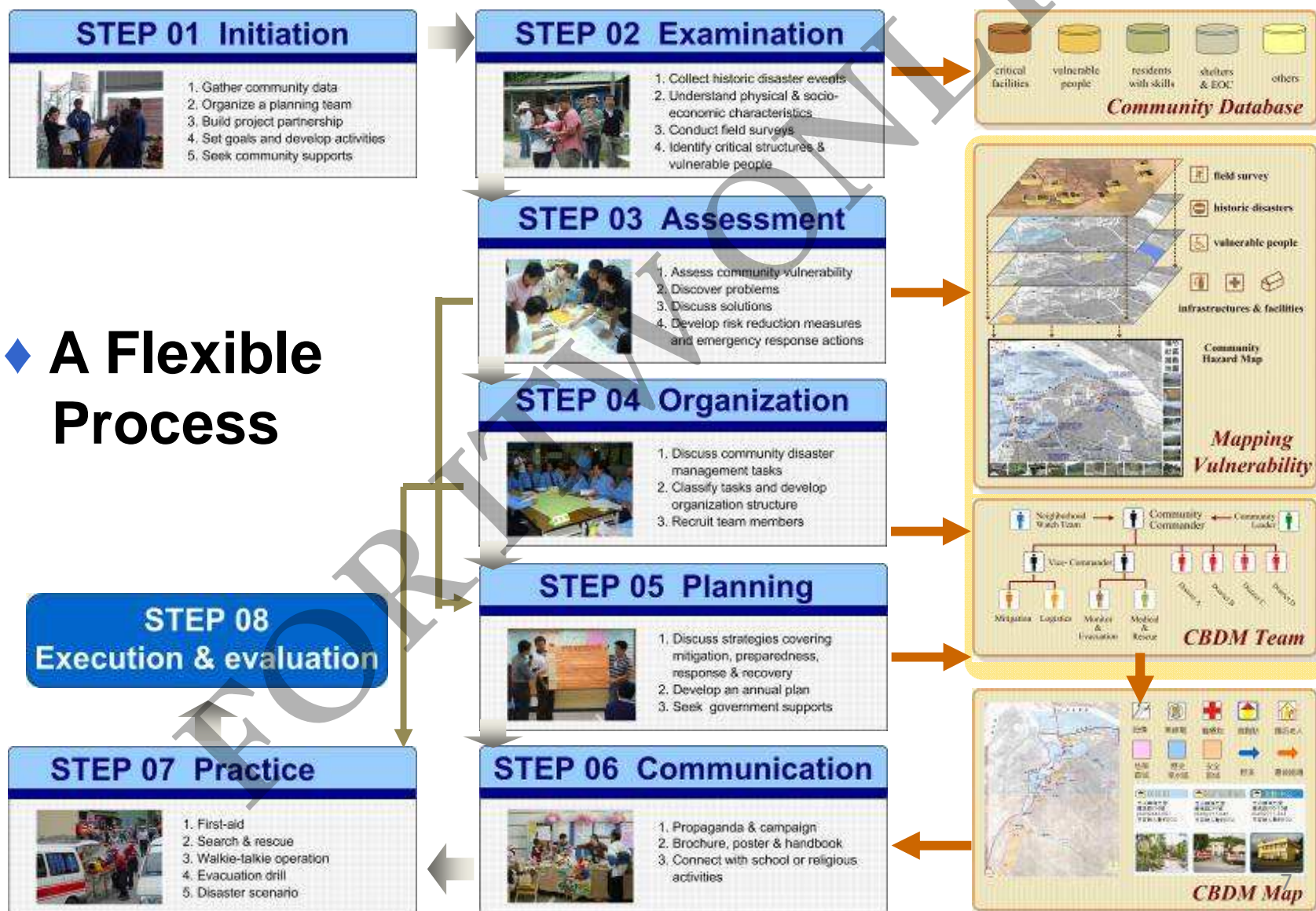
Building Disaster-Resistant Community

◆ **Action taken after the 1999 Chi-Chi EQ**

- More structural measures to reduce disaster risk

- Non-structural measures
  - Programmes on disaster preparedness for effective response (i.e. training, drill, education, awareness raising activity, outreach, etc.)
  - Community Emergency Response Team (CERT)
  - identify of specific hazard-prone area and targeted household
  - monitoring and early warming system

Building Disaster-Resistant Community

STEP 01 Initiation
1. Gather community data
2. Organize a planning team
3. Build project partnership
4. Set goals and develop activities
5. Seek community supports

STEP 02 Examination
1. Collect historic disaster events
2. Understand physical & socio-economic characteristics
3. Conduct field surveys
4. Identify critical structures & vulnerable people

Community Database
critical facilities · vulnerable people · residents with skills · shelters & EOC · others

STEP 03 Assessment
1. Assess community vulnerability
2. Discover problems
3. Discuss solutions
4. Develop risk reduction measures and emergency response actions

♦ **A Flexible Process**

Mapping Vulnerability
field survey · historic disasters · vulnerable people · infrastructures & facilities · Community Hazard Map

STEP 04 Organization
1. Discuss community disaster management tasks
2. Classify tasks and develop organization structure
3. Recruit team members

STEP 08 Execution & evaluation

STEP 05 Planning
1. Discuss strategies covering mitigation, preparedness, response & recovery
2. Develop an annual plan
3. Seek government supports

CBDM Team

STEP 07 Practice
1. First-aid
2. Search & rescue
3. Walkie-talkie operation
4. Evacuation drill
5. Disaster scenario

STEP 06 Communication
1. Propaganda & campaign
2. Brochure, poster & handbook
3. Connect with school or religious activities

CBDM Map

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◆ **Localized guidance documents**

Building Disaster-Resistant Community
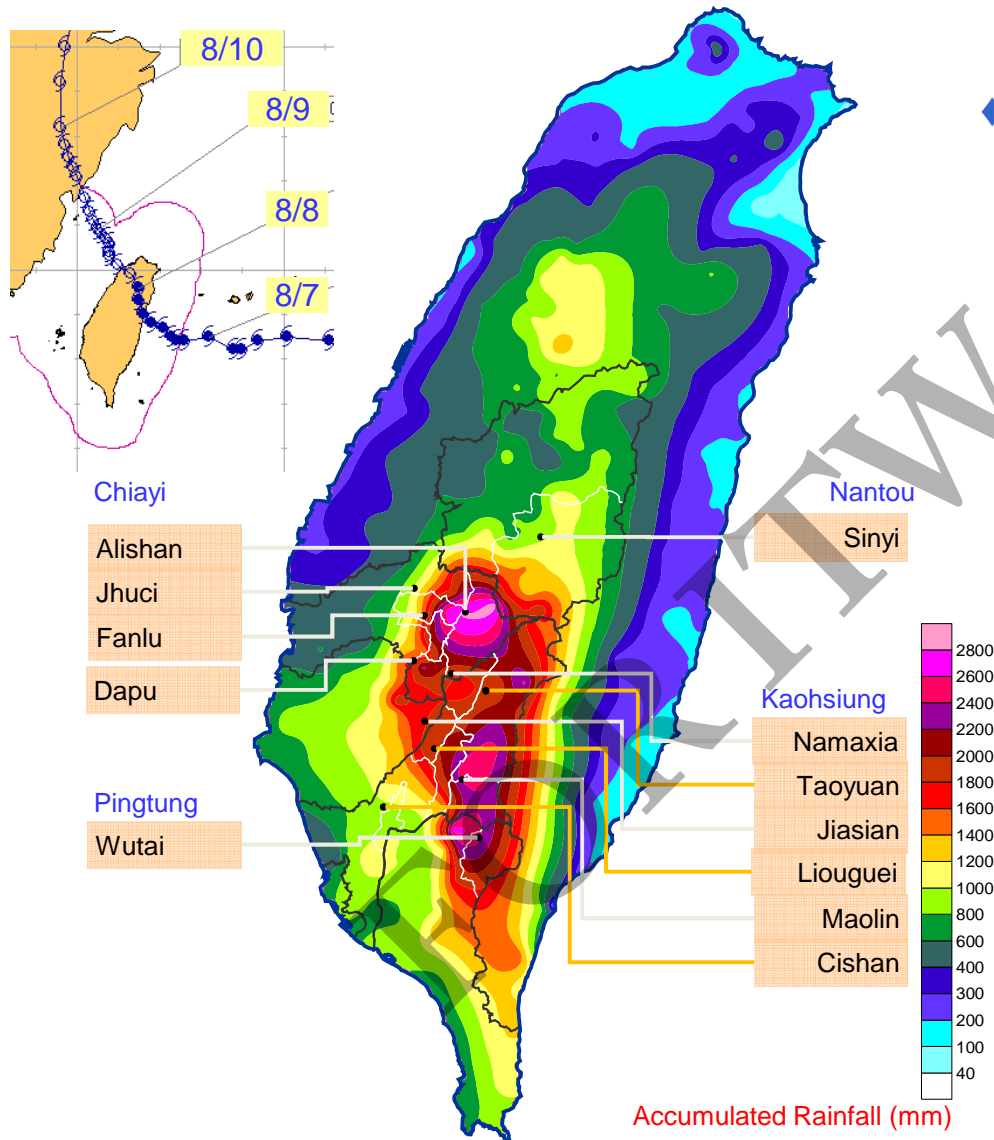
- ## Pilot projects

  - Targeted at single hazard or multi-hazard
  - Communities located in urban, suburban or rural areas
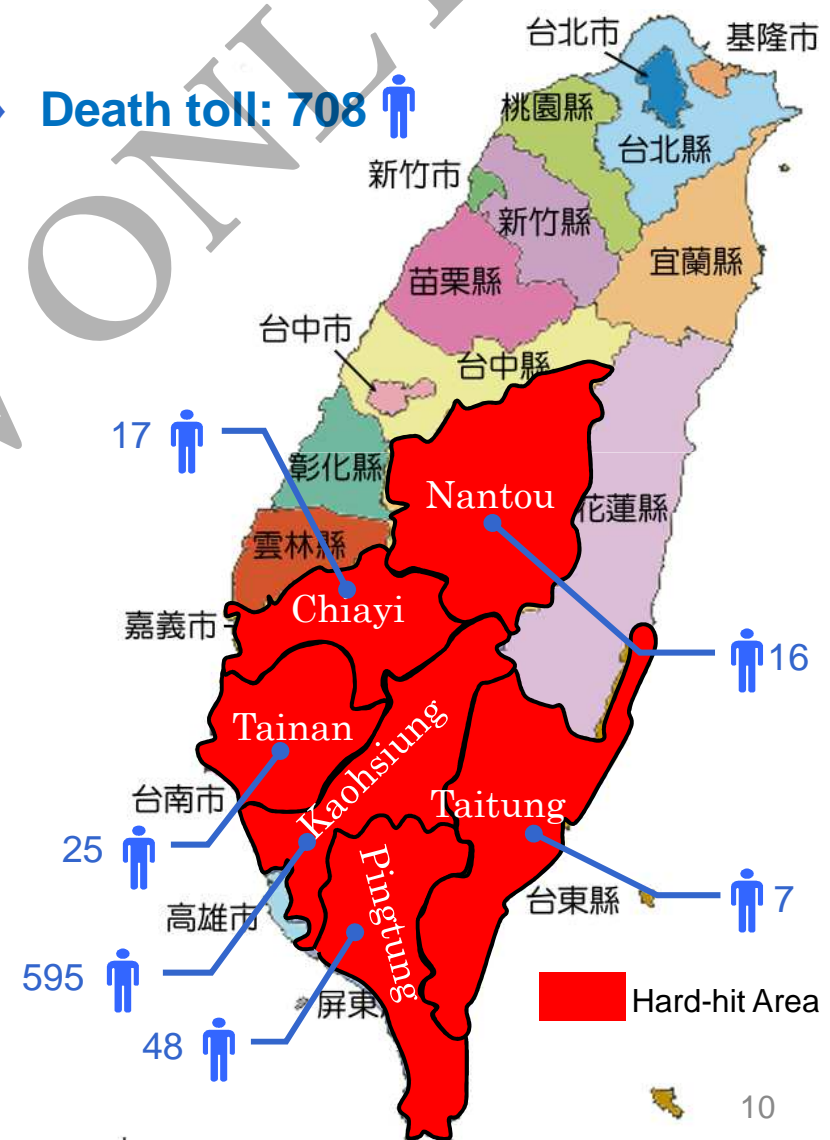
- ## Train the trainers

  - Awareness promotion
  - Advanced knowledge
  - Specific operation skills & methods

Severe Impacts of Morakot

8/10
8/9
8/8
8/7

◆ **Death toll: 708**

Chiayi

| Alishan |
| Jhuci |
| Fanlu |
| Dapu |

Nantou

| Sinyi |

Kaohsiung

| Namaxia |
| Taoyuan |
| Jiasian |
| Liouguei |
| Maolin |
| Cishan |

Pingtung

| Wutai |

| 2800 |
| 2600 |
| 2400 |
| 2200 |
| 2000 |
| 1800 |
| 1600 |
| 1400 |
| 1200 |
| 1000 |
| 800 |
| 600 |
| 400 |
| 300 |
| 200 |
| 100 |
| 40 |

Accumulated Rainfall (mm)

台北市　基隆市
桃園縣
新竹市　台北縣
新竹縣　宜蘭縣
苗栗縣
台中市　台中縣
彰化縣　花蓮縣
雲林縣　Nantou
嘉義市　Chiayi
台南市　Kaohsiung　Taitung
高雄市　Pingtung　台東縣
屏東

17
16
Tainan
25
595
48
7

Hard-hit Area

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Challenges posed by Morakot

◆ **Issues raised – communities / citizens**

- Poor risk communication
  (i.e. Communities with few disaster experiences suffered heavy casualties.)
- Ignore early warming information and evacuation advice
- Unexpected and Compound disaster events
- Facing higher risk following Morakot
- losing of tribe identification (i.e. relocation issue)
- Difficulties on livelihood recovery

Challenges posed by Morakot

♦ **Issues raised – Public sectors**

http://www.boston.com/bigpicture/2009/08/typhoon_morakot.html

Challenges posed by Morakot

◆ **Issues raised – Public sectors**

- A catastrophe never experienced
  (i.e. mega-disaster & a multi-disaster)
- Overwhelming of local emergency response capability
- Failure of regional incident common system
- Chaos due to large scale evacuation and sheltering
- Poor connectivity in mountainous areas or remote villages
- Lack of citizen involvement in community recovery

Challenges posed by Morakot

♦ **Issues raised – private sectors**

Challenges posed by Morakot

♦ Issues raised – private sectors

- Competition and poor coordination among private sectors
- Weak connection between government organizations and NGO community
- overlap of disaster relief resources in the aftermath of Morakot and sometimes focus on certain communities
- Limit access to hazard specific knowledge and real-time information
- Most resources were targeted in a short period of time following disaster

Challenges posed by Morakot

◆ **Issues raised – private sectors**

- What should be prepared for disaster?

-Goods   -Equipment

-Funds   -Personnel

site specific / impacts to local business

- Disaster relief/recovery resources may lead to an adverse effect on the impacted community.

-Depend on aid and assistance from outsiders

-lack of community capacity building

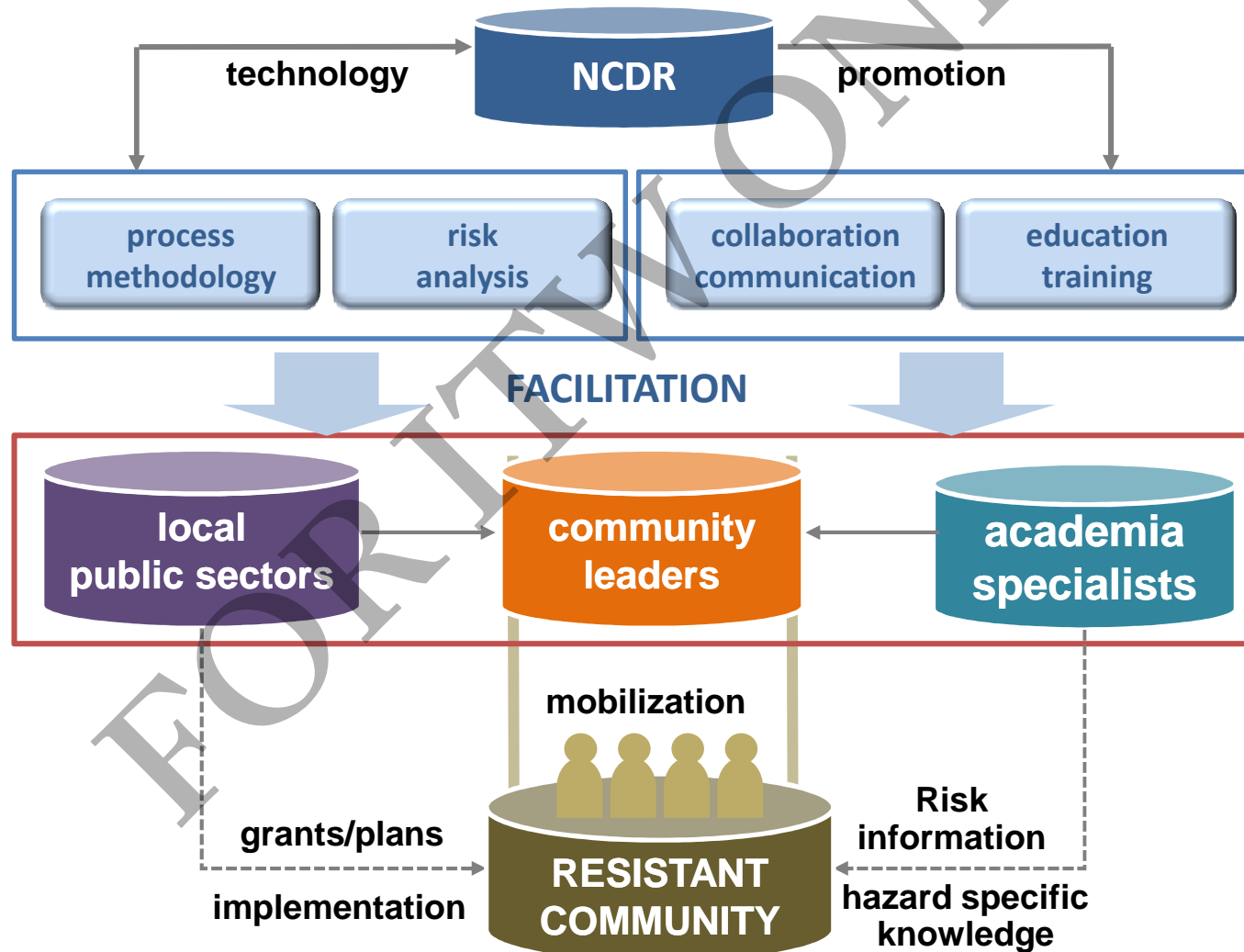Still being vulnerable to hazards and not disaster-resilient

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Lessons learned from Morakot

▎ Community coping capacity & resiliency...
▎ Technology and communication...
▎ Collaboration and networking among public and private sectors
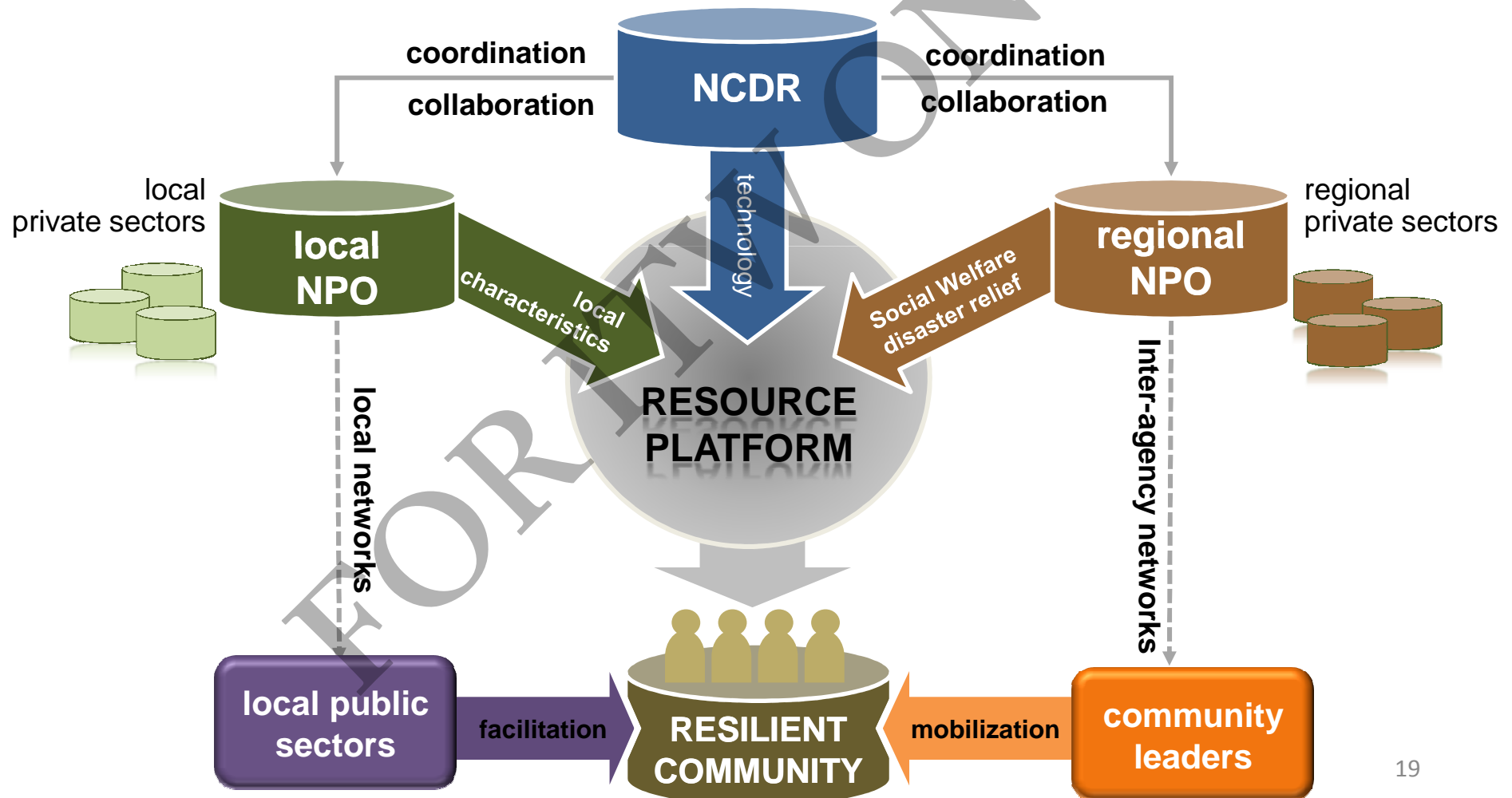
Key elements regard to disaster impacts!!

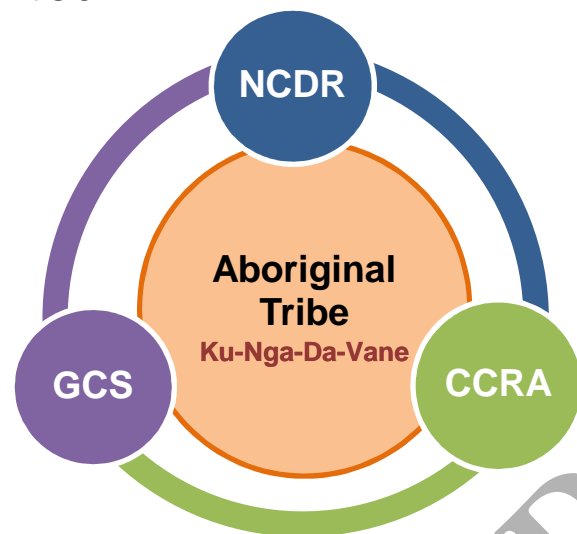# Implementation Prior to Morakot

Public-Academia Collaboration

Innovation After to Morakot

Public-Private Partnership
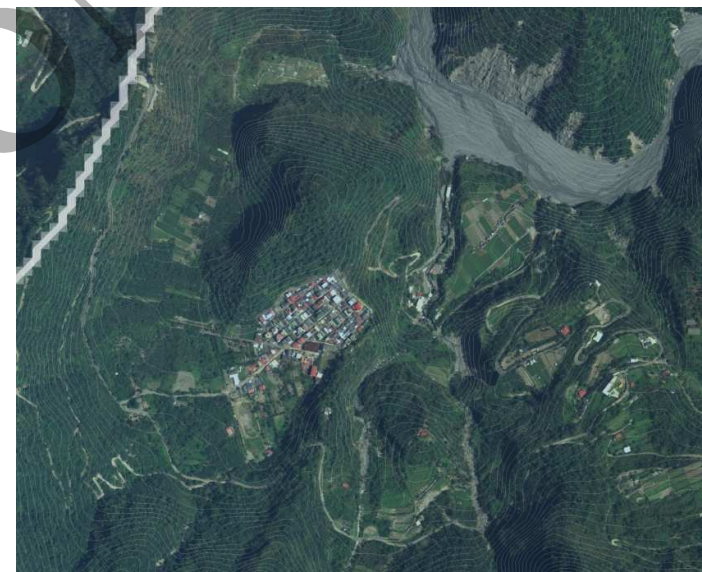
Pilot study in Ku-Nga-Da-Vane

◆ Cooperative working team

NCDR

Aboriginal Tribe
Ku-Nga-Da-Vane

GCS

CCRA

◆ Various resources

- Technology
- Emergency management
- Disaster relief
- Community empowerment
- Local networks

◆ Innovative operation

Morakot striked

Aug. 2009 — Dec. 2009 — Feb. 2010 — May 2010 — Jun 2010· — July 2010 — Aug. 2010

| initiation | data collection | risk assessment | organization & plan | preparedness resources | final campaign |