

What are important for community disaster resilience? – focusing on natural hazard –

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Research objective

To **explore** the factors of community disaster resilience

Community resilience

Minimizing the impact of natural hazard

To enhance sustainability

Community disaster resilience

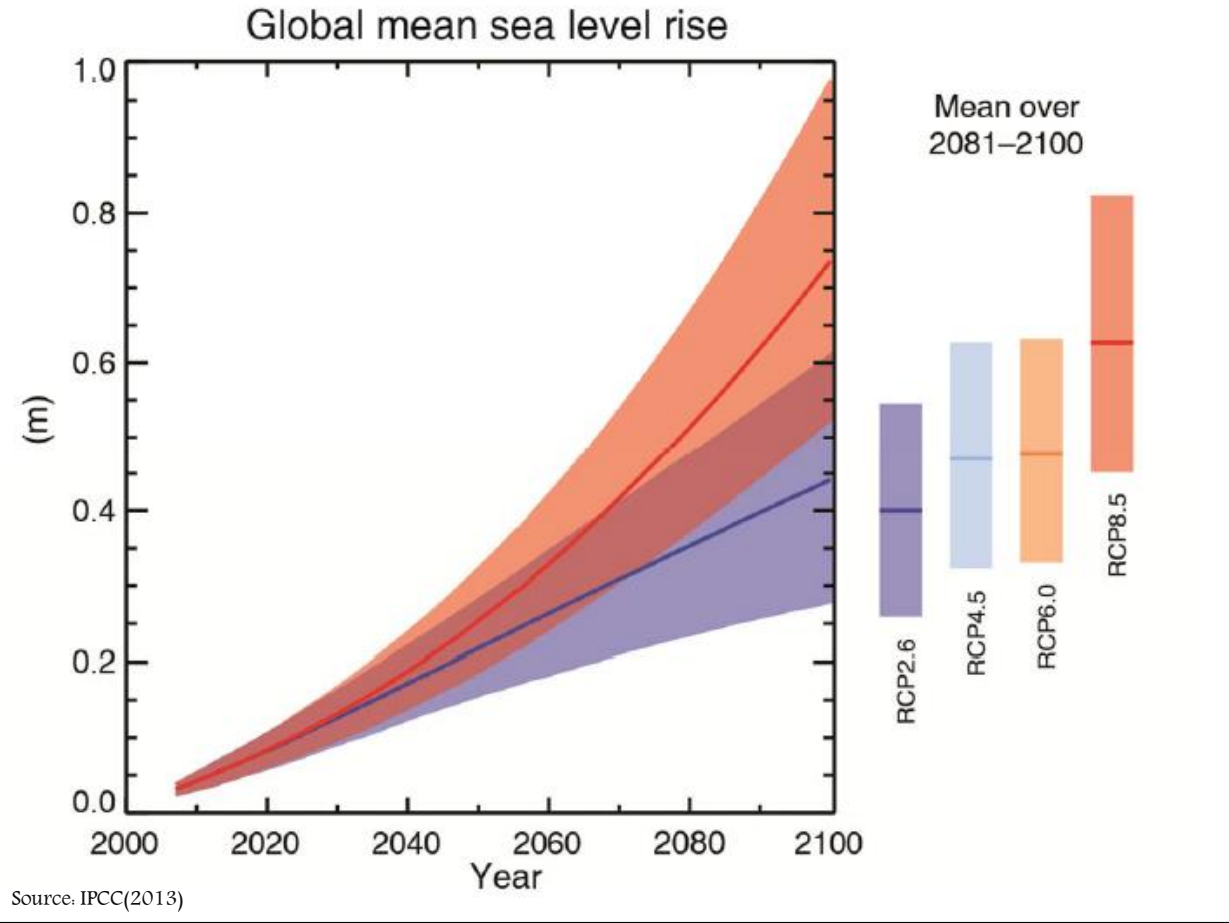
Why do we need to consider
community disaster resilience for
natural hazard?

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The threat of sustainability : natural hazard

Figure SPM.9 [FIGURE SUBJECT TO FINAL COPYEDIT]



Source: IPCC(2013)

Natural hazard endanger communities.

Korea is **no exception.**

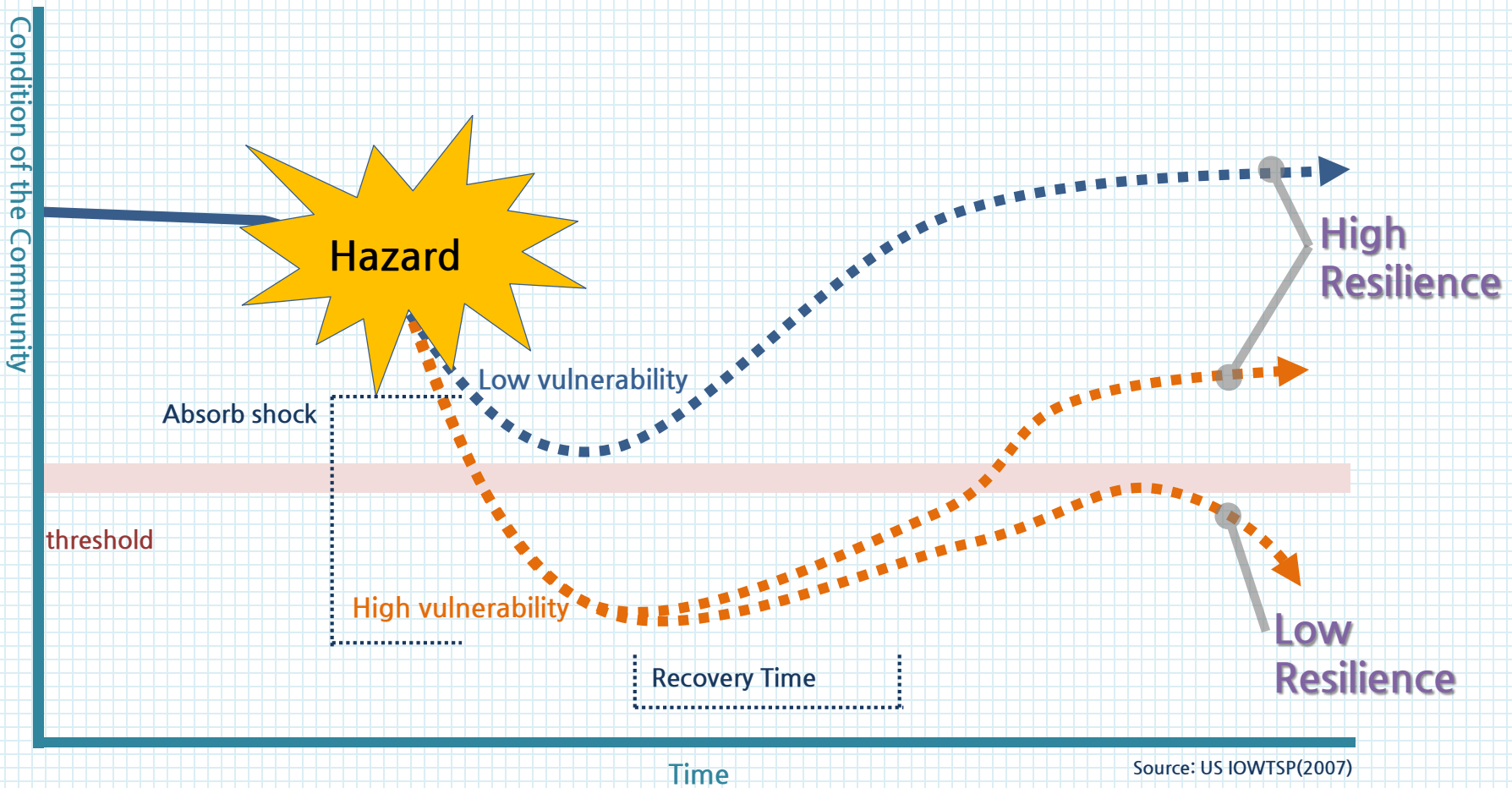
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Are communities sustainable?



Even though communities have had the repetitive losses, **do we have any sustainable planning tools?**

Community disaster resilience is a capacity



After a hazard event, the condition of a community depends on the resilience of the community

The indicators of community disaster resilience



Categories of indicators

| Categories |

- Society, Economy, Exposure, Hazard Recovery and mitigation(Cutter et al.(2008), Peacock et al.(2010), US IOTWSP(2007), Sempier et al.(2010), Nam et al.(2010))

| Hazard mitigation and recovery |

- Hazard mitigation is the most important part in enhancing community resilience(Nam et al.2010).
- Hazard recovery is the opportunity to mitigation after hazard.

Case study

Could we apply all indicators of community disaster resilience to Korea's context?

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Research method : case study



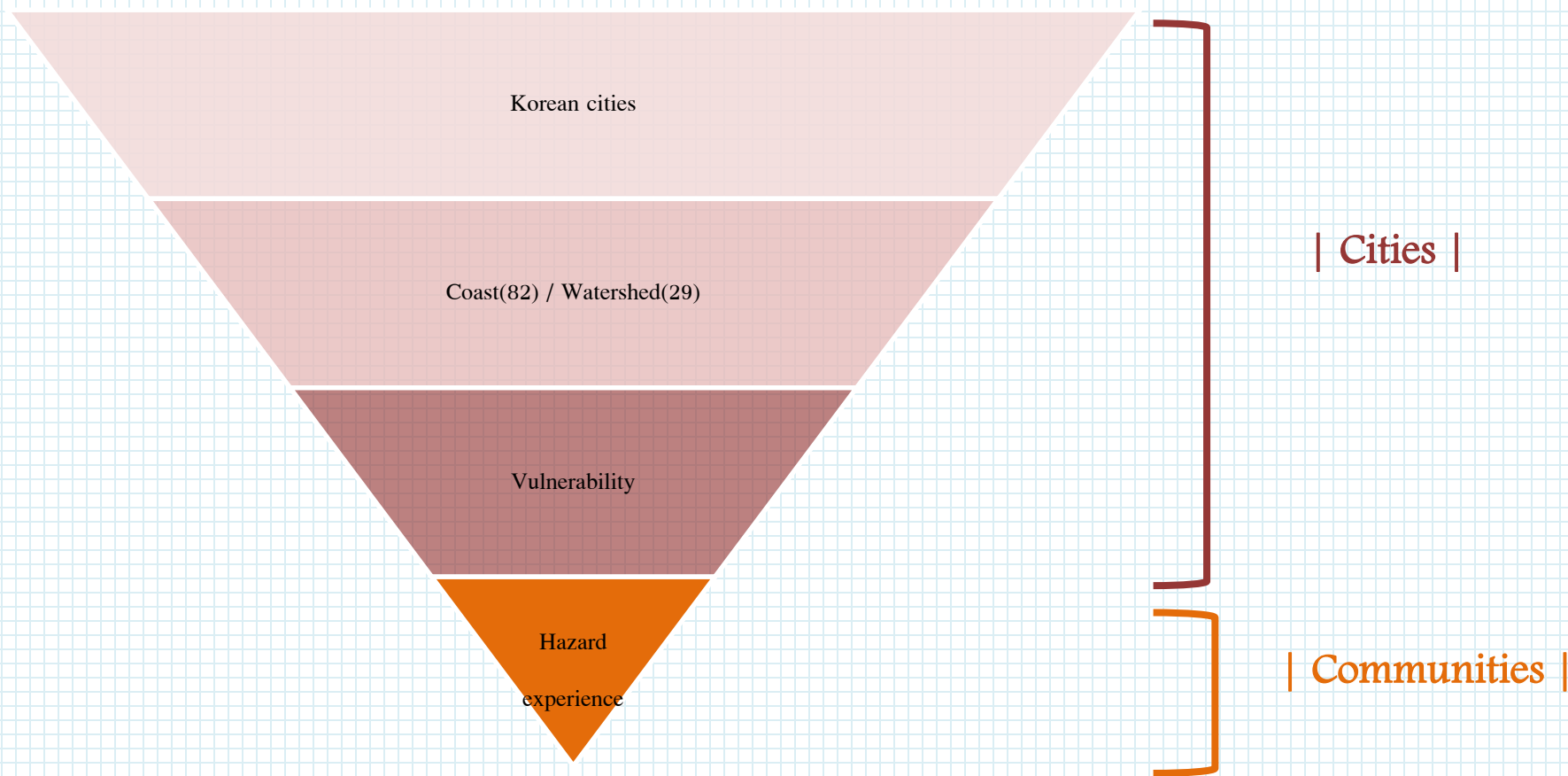
Case study gives opportunities for

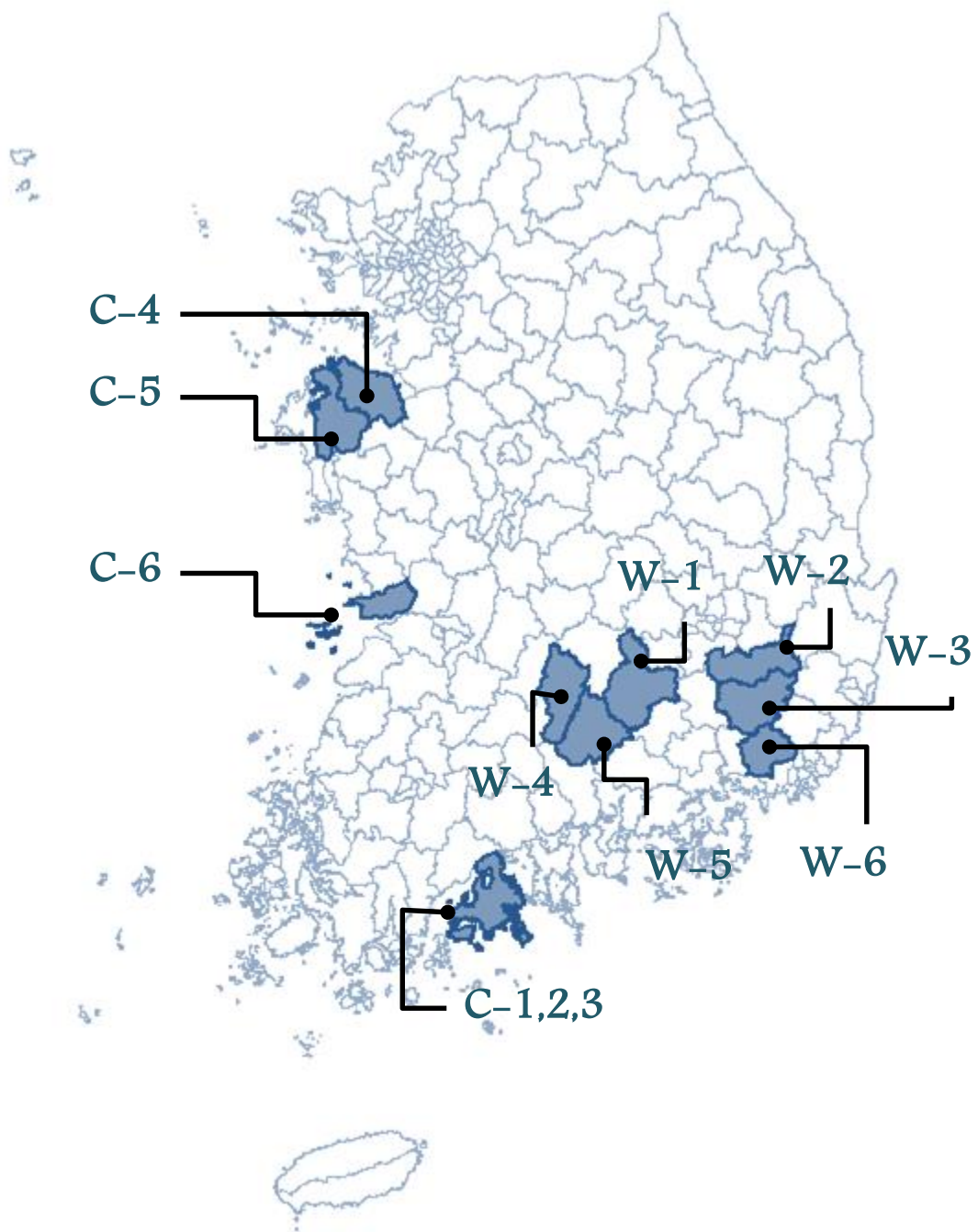
“what is important through exploring”

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Sampling case study sites

Stratified method





Case study sites

| Coastal communities |

No	Site	Period
C-1,2,3	Goheung	2013.6
C-4	Dangjin	2013.8
C-5	Seosan	2013.8
C-6	Gunsan	2013.8

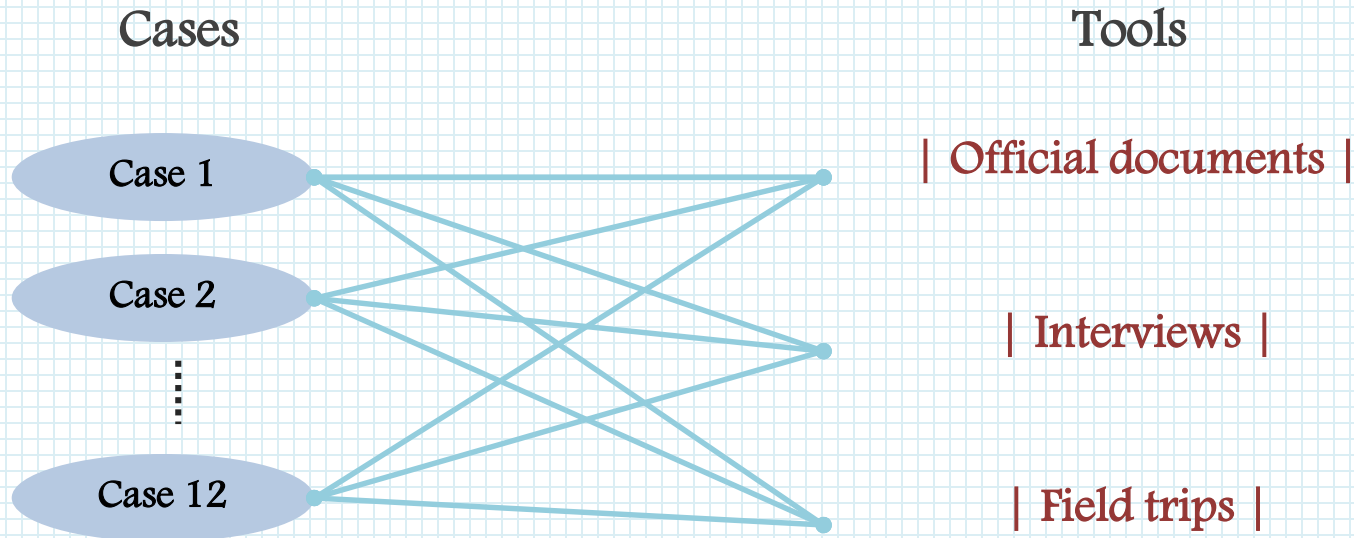
| Watershed communities |

No	Site	Period
W-1	Hapcheon	2013.8
W-2	Cheongdo	2013.9
W-3	Miryang	2013.9
W-4	Sancheong	2013.10
W-5	Hamyang	2013.10
W-6	Gimhae	2013.10

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Case study : to prepare for collection

Research question : What factors have an impact on community resilience?



For searching evidence to understand community resilience reasonably

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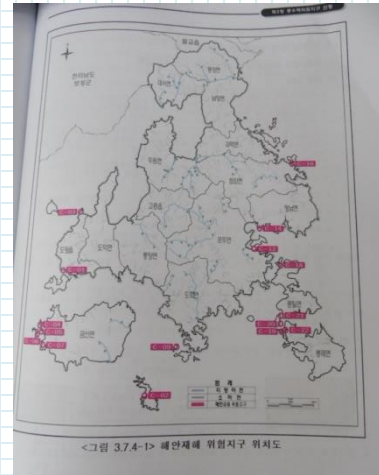
Case study : to prepare for collection

| Interviews |



To contact with the community leaders and the officials

| Field trips |



To make questionnaires

To review on the history of the hazard events

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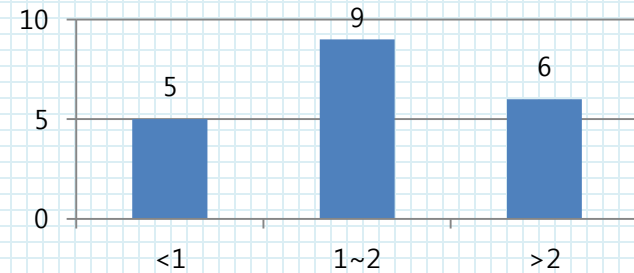
Case study : to collect evidence



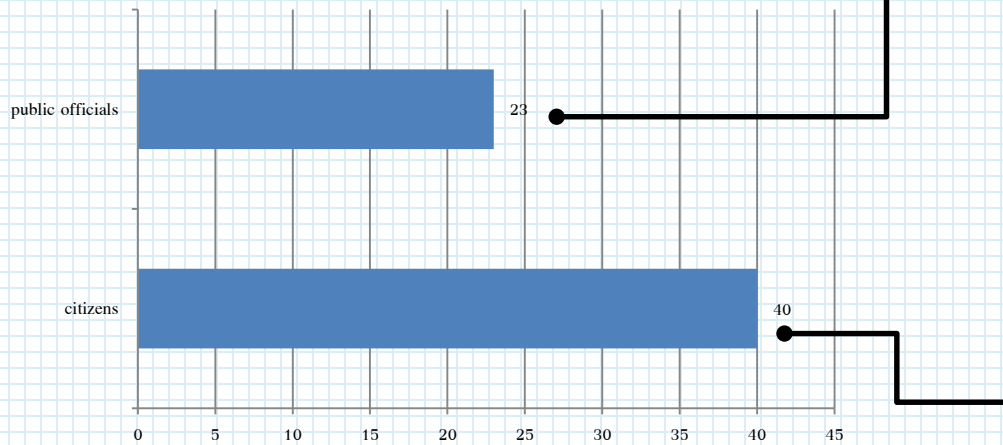
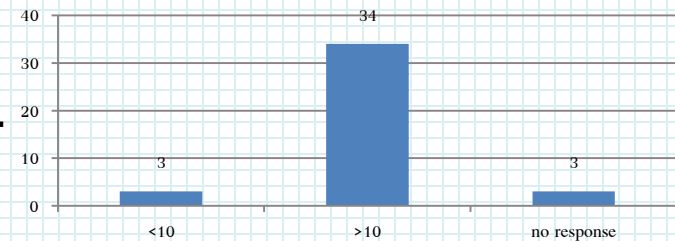
| Interviews |

Visiting 12 communities to interview citizens and public officials

The period of employment of public officials



Residential period of citizens

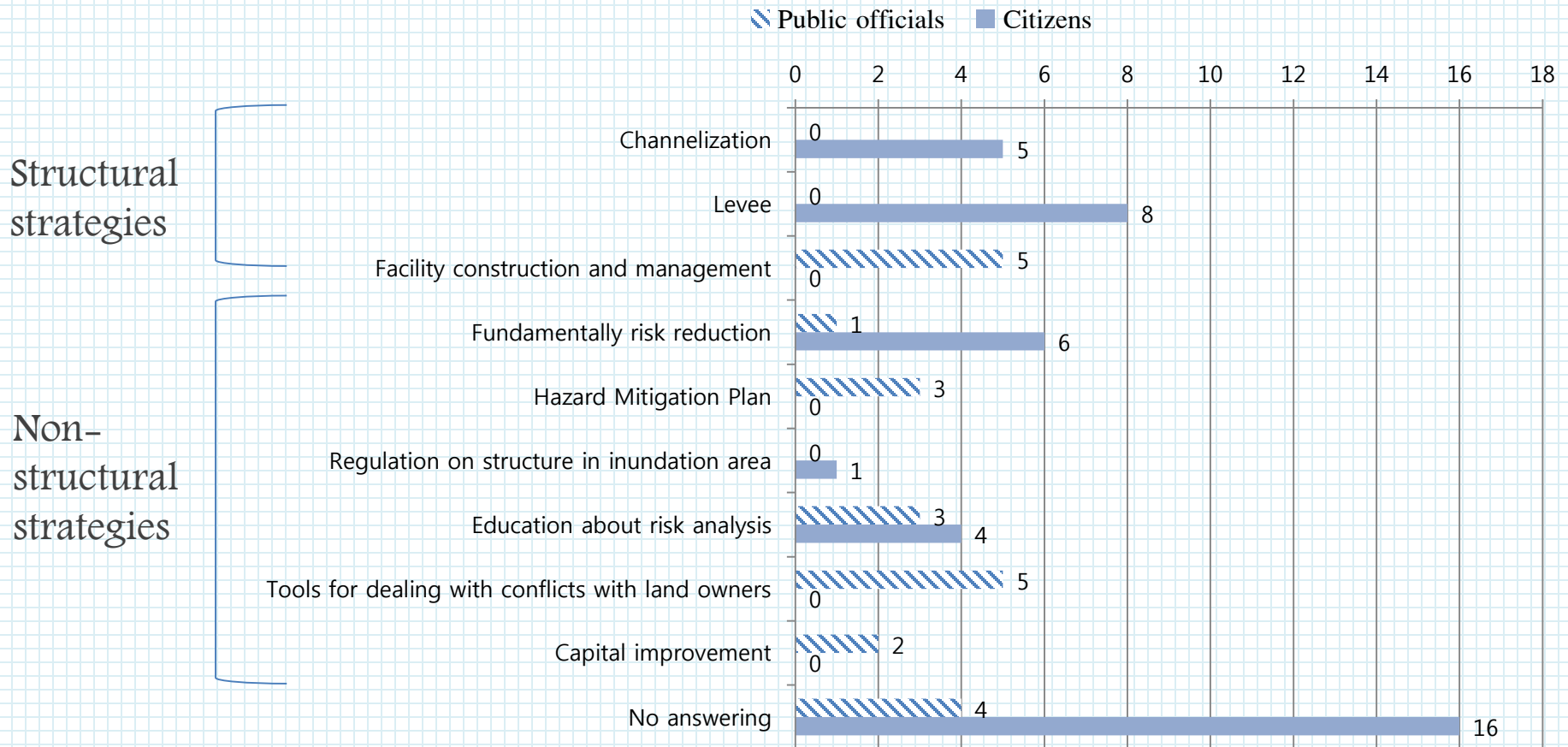


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Case study : to collect evidence

| Interviews |

What is important for hazard mitigation(n=63)?



Public officials paid attention to non-structural strategies
Citizens prefer structural strategies

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Case study : to collect evidence



| Field trips |

Collect the history of the hazard events and identify hazard mitigation strategies

위험구역지정 및 재해시 대피안내

1. 이 지역은 태풍·호우시 인명피해가 예상되어 재난 및 안전관리기본법 제41조에 의거 "위험구역"으로 설정한 구역입니다.

2. 태풍·호우로 재해예방시 경보 및 안내방송 또는 재해예방 감시원의 안내에 따라 대피하여 불의의 피해가 없도록 하여 주시기 바라며, 이에 불응시 200만원 이하의 벌금에 처하게 됩니다.

2013. 1.
함양군수

자연재해 발생시 함양군재난안전대책본부(055)960-5202 또는 119로 연락바랍니다.

위 치 도

위험구역

- 지구명: 추성지구
- 위치: 마천면 추성리 추성계곡
- 위험요인: 집중호우시 계곡수위 상승에 인한 인명피해 우려
- 대피장소: 추성마을회관, 광점동

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Case study Results

		Structural				Non-structural						
		Dam	Levee	Channelization	Seawall	Hazard Mitigation Plan	To prevent development in hazardous area	Building code	Preservation	Relocation	Acquisition	Education
Coast	A-1		●		●	●		●				
	A-2		●		●	●						
	A-3		●	●	●	●						
	B		●			●			●			
	C		●		●							●
	D		●	●		●	●			●		
Water-shed	E		●		-	●			●			●
	F		●		-							
	G		●		-	●				●		
	H			●	-				●		●	
	I			●	-			●				
	J		●		-	●					●	

Social Capital

- Citizen participation(+)
- Trust in local authorities(+)
- Sharing risk information(+)

Society/ Economy

- Communication capacity(people with phone)
- Holding insurance
- Car owner
- Education

- Age(-)
- Disability(-)
- Single person household(-)
- Housing age(+)
- Housing ownership(+)
- People who cannot speak Korean(-)

Exposure

- Hazard affected locations(-)
- Residence in inundation area(-)

Hazard Recovery

- Road recovery

- Restoration of access(+)
- Reestablishment of activities(+)
- Reconstruction of housing(+)
- Provision housing, clothing, and food(+)
- Restoration of critical facilities(+)
- Recognizing of policy(+)

Hazard Mitigation

- Dam
- Development right(easement)

- Structural(Levee, seawall(coast), channelization)(+)
- Hazard mitigation plan(+)
- Regulation on structure in inundation area(+)
- Acquisition or relocation of repetitive damaged building(+)
- Acquiring inundation area(+)
- Educating the public(+)
- Training the officials(+)
- Preserving the natural environment(+)

<New founding>

- Regulation on public structure in inundation area(+)
- Regulation on private structure in inundation area(+)
- Tools for dealing with conflicts with land owners(+)
- Budget(+)

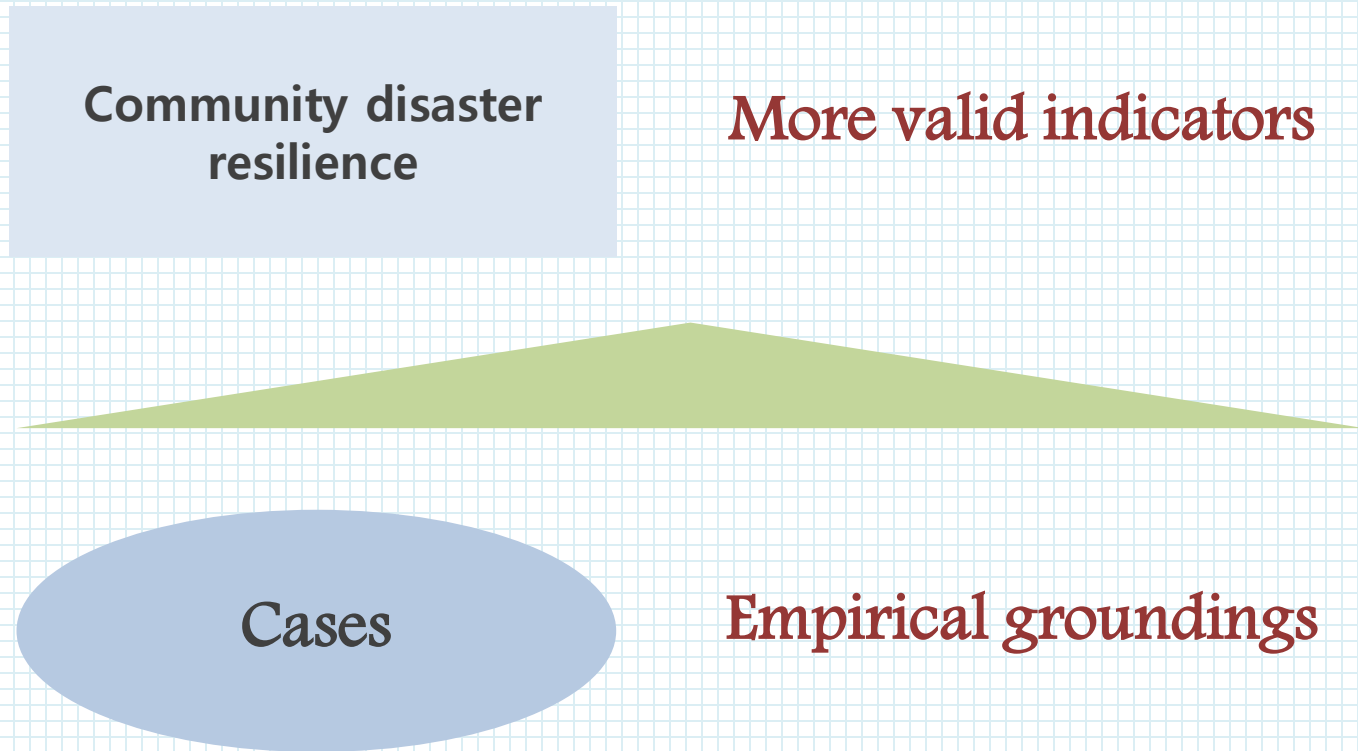
**Conclusion
and policy implications**

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Conclusion

Reconsidering indicators of community disaster resilience





| Citizen participation |

- Citizen participation of community resilience should be institutionalized to enhance sustainability.



| Plan quality |

- Evaluating plan quality makes community more resilient.

Thank you