Post-earthquake resettlement policies, processes and outcomes of the 2004 Chuetsu earthquake

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Why Chuetsu case?

- Research period: 2008-2010
- Not as renowned as Kobe and Tohoku, but:
  - First major recovery experience in depopulation
  - Greater emphasis on community/human aspects
- Included a debate on relocation vs. on-site rebuilding in long-term sustainability
- Explains the resettlement sequence of decision, processes, and outcomes
2004 *Chuetsu* earthquake

- **Earthquake and its impact**
  - October 23, 2004 5:56 PM; Mw 6.8
  - Death: 59; Injuries: 4,805

- **Key Characteristics**
  - Largely affected mid-mountainous region, leading to isolation of villages
  - Many landslides due to aftershocks and heavy rain a day prior

- **Issues on rebuilding**
  - How to do so sustainably
    - infrastructure services? vs
    - Community capital?
Similarities include:

- Economic, cultural, social and geographical conditions: “Isolated land on land [Rikuno Kotou]”
- Severely affected from 2004 earthquake
- Resettlement paths
- 52% household return rates
• **5 total communities, 3 distinct types**
  Community relocated, Communities returned, Communities disintegrated
  3 from *Higashiyama* District, 2 from *Yamakoshi* District

• **Interviews and conversations**
  Snowball interviews and additional conversations during four months stay
Communities collectively relocated

• Location pre-disaster:
  – Remotest in Nijumurago
  – Least developed and had a sense of marginalization
  – Natural disasters: severe floods and landslides

• Community relationship:
  – An understanding that community members would support each other at any time
  – Fellow residents are perceived as the most reliable resources

• Decision making process on resettlement:
  – Leader heads relocation, negotiated with local gov’t
  – Members followed decisions of leaders’ and others’ to follow
Comments:

“We decided to relocate because our community leader presented to us a relocation program. We can’t directly talk with the city government, but he could. So we relied on him and just followed his lead with other community members. Even if we decide to return with only one or two other households, living in the mountains would be so difficult. Furthermore, our rice paddies and Koi breeding pond were destroyed so badly that reestablishing a living back there seemed just impossible.” (Female, in her 50s)
Communities Collectively Rebuild in situ

• Location pre-disaster:
  – Advantageous locations: close to the city, good access to infrastructure and services
  – Comfortable living in community: lower living expenses and access to local activities

• Community relationship:
  – Strong inter-personal relationships
  – Lacking pronounced hierarchical power relationships
  – Members understanding their role to be with their community

• Decision making process on resettlement:
  – Members supporting one another, without evident strong leadership
“Living in the city will cost you more; besides, I like living in a place where I belong. I was very happy when neighbors persuaded me to return when I was thinking of relocating [to another community].” (Male, in his 50s)

“I almost decided to go to the city because I lost my land … but [one of the] a community leader provided me [to purchase] a piece of land where I am currently at. In addition, I began wanting to show some support to the younger generation in the community after I heard they were coming back. We, as a community, had such a great coordination throughout the evacuation and displacement periods, and wanted to be of help.” (Male, in his 50s)
Disintegrated Communities

• Location pre-disaster:
  – Encompassed larger geographic areas: Varied geography, local conditions and socio-economy
  – Access to services: Some improved, others did not

• Community relationship:
  – Households grouped in clusters, based on family kinships
  – Stronger bonds within neighborhoods, weak bonds across the community

• Decision making process on resettlement:
  – Decisions made individually or within immediate neighborhoods (clusters)
  – Minimum informal conversation across the community members
Comments:

Returned:

“Our house was built just two years before the earthquake, so I never thought of going to the city from the beginning. My next door neighbor [who also had a home newly constructed], and I were talking about returning together since the time we were at the welfare center [as the temporary shelter]. I also feel that we [the returned villagers] are protecting mountains. I like experiencing the four seasons in the mountains, it’s beautiful.” (Female, in her 50s)

Relocated:

“I was initially planning to return, but finding a new site for relocation in the community didn’t proceed as smoothly as we expected – so I decided to leave. In fact, I was very poor [in the early years] and our family only had lands in the mountain… and I’ve always wanted to own lands in the city, so I took this opportunity.” (Male, in his 50s)
**Interpretation: Decision making**

<table>
<thead>
<tr>
<th></th>
<th>Collectively relocated community</th>
<th>Collectively returned communities</th>
<th>Disintegrated communities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-disaster community</strong></td>
<td>• Disadvantaged location</td>
<td>• Advantageous locations</td>
<td>• Varied (some privileged others not)</td>
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<td></td>
<td>• Sense of marginalization</td>
<td>• Sense of comfort</td>
<td></td>
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<tr>
<td><strong>Pre-disaster community relations</strong></td>
<td>• Strong-bond across community</td>
<td>• Collaborative relationship</td>
<td>• No community-wide bonding</td>
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<td></td>
<td>• Mutual-reliance</td>
<td>• Supporting one another</td>
<td>• Limited bonding by clusters</td>
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<tr>
<td><strong>Decision making process</strong></td>
<td>• Informal and communicative</td>
<td>• Informal and communicative</td>
<td>• Non-communicative</td>
</tr>
</tbody>
</table>

- Decision to relocate or return
  - influenced by previous community conditions
- **Communities that took collective action had:**
  - cohesive relationship prior to the earthquake
  - inherent structure of communicative and informal decision making
## Outcomes after resettlement

<table>
<thead>
<tr>
<th>Physical environment</th>
<th>Collectively relocated community</th>
<th>Collectively returned communities</th>
<th>Disintegrated communities</th>
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<tbody>
<tr>
<td></td>
<td>• Better accessibility to services</td>
<td>• No change to the accessibility to services and comfort</td>
<td>• Varies</td>
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<td>• Less hazards</td>
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<thead>
<tr>
<th>Social capital</th>
<th>Collectively relocated community</th>
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<tbody>
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<td></td>
<td>• Communal ties and networks slightly weakened through lessened interaction post resettlement</td>
<td>• Connections b/w community members strengthened</td>
<td>• As a whole, communal ties and networks significantly lessened</td>
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<td>• The community as a whole became collaborative</td>
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- Communities with collective decision had smaller change regarding communal ties and networks.
Conclusion

• Decision-making style used by communities influences the outcomes of resettlement decisions
  – communicative $\rightarrow$ collective
  – individualistic $\rightarrow$ disintegrative
• However, the process relies largely on inherent pre-disaster social characteristics
• Perhaps need more support the communities with less cohesion

• Cohesive and communicative communities are capable of identifying their needs for better resettlement