Chapter 46

Post-disaster Community Relocation

Field of expertise: Planning and Recovery, Disaster Risk and Resilience

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Summary

More and more, relocating communities away from hazardous areas is considered after major disasters. This is to protect people and their assets from future catastrophes. However, the way relocation occurs and the impact communities bear after relocation varies, as geophysical and socio-economic settings vary place by place. While there is no easy solution to reduce the suffering of relocating communities, learning from previous recovery cases could provide lessons learned to support an easier transition.

Keywords: Community relocation, recovery, future disaster risk reduction, geophysical and socio-economic settings

Introduction

Moving onto rehabilitation and reconstruction quickly after disasters reduces an affected region's secondary loss and damage. Traditionally, damaged residences were reconstructed on-site as fast as possible. It has been rare to relocate affected communities away from their original sites to reduce future risk, as it takes time and effort.

1: Problems Revealed by the Great East Japan Earthquake

The incident

On March 11, 2011, a 9.0Mw earthquake generated tsunami waves with a record of 9.3 meters (recorded runup height was 35 meters), inundating 560 km^2 of Japan's northeastern coastal regions. Impacts from the earthquake and tsunami were enormous; the tsunami alone was responsible for more than 18,500 deaths, damaged about 300,000 buildings (130,000 of which were severely damaged), and displaced about 470,000 people from home at peak. The financial loss was astronomical - an official estimation placed the cost at between 16 to 25 trillion yen (equivalent to USD 160 to 250 billion), which records it as the world's most expensive disaster in modern history (Iuchi and Olshansky 2018).

Reconstruction Facts

Tsunamis washed away coastal communities that stood along Tohoku's coast, and residents in the affected areas lost everything. To prevent such a scale of damage and loss in the future, affected local governments aimed to rebuild communities that would be safe from future tsunamis. However, Tohoku's geophysical formation continues to make it prone to recurrent tsunamis. Governments therefore decided to rebuild the affected communities on lands safe from possible tsunamis rather than rebuilding on-site in their former neighborhoods.

2: A paradigm destroyed by the GEJE

Norms pre-GEJE and the needed response

Recovery plans envisioned reconstructing communities in areas safe from tsunamis, on higher land, by either raising the ground or cutting into hillsides. By the end of the first year, the national government secured a reconstruction grant (*Fukko kofukin*) for local governments to access programs to rebuild the affected regions. Some of these programs included "collective relocation promoting program for disaster prevention" (*Bosai shudan iten sokushin jigyo: Boshu*), used to construct new residences on safer lands for the affected residents, and "land readjustment program for disaster-affected urban areas" (*Hisai shigaichi fukko tochi kukaku seiri jigyo: Kukakuseiri*) available for raising ground levels to better utilize urban functions. National data suggests that the affected local governments most favored using the collective relocation program (*Boshu*) (Figure 46-1), among other programs developed as "community rebuilding programs" (*Sumai no kakuho ni kansuru jigyo*). For example, Tohoku's 295 tsunami-affected districts (totaling about 2,840 ha by land area) with 37,000 eligible houses for relocation were able to get 324 new district sites (totaling about 839 ha) with 12,555 houses (Iuchi and Olshansky 2018, Reconstruction Agency 2020).

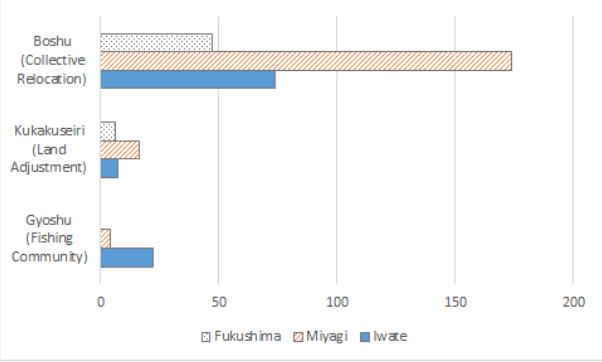

Figure 46-1. Preference on use of community rebuilding programs by prefecture

3: A New Approach

Using community relocation in recovery after major disasters is also trending in other parts of the world. Indonesia's 2018 Sulawesi earthquake (7.5Mw) caused a cascading phenomenon of landslides, tsunami, liquefaction, and mudflows that devastated the Central Sulawesi region. The national government first developed a hazard map targeting Palu City and its vicinity to initiate rebuilding. Based on the revised hazard map, Palu City, Donggala, and Sigi regencies planned

residents' relocation to either higher ground or inland, both of which were deemed to be safer. As of mid-2020, four large-scale relocation sites – with the largest one constructing approximately 3,400 housing units (see Figure 46-2) – are in progress, and smaller relocation sites (locally called satellite relocation sites) are also planned.

Figure 46-2. Tondo relocation site under construction

Similarly, in the recovery of the November 2013 typhoon Haiyan (local name Yolanda), the Philippines government supported the idea of relocating coastal communities by local governments regulating land use. In one of the hardest typhoon-hit cities, Tacloban city in the Leyte region, coastal residents lost their homes as well as social and economic networks they depended on for a living. In response, the city government planned and relocated about 14,000 informal coastal households affected in the downtown area by preparing new residential sites in the city's north, about 15 kilometers away. The rationale of relocation was to help residents resettle in a way that would allow them to continue their pre-typhoon life (Iuchi and Mutter 2020).

4: The Way Forward

A New Method towards Disaster Science

While relocating communities after disasters is becoming a favored approach for risk reduction, community relocation practices highlight several issues that need attention. Two years after the 2018 Sulawesi earthquake, hazard map revisions are still being discussed for Palu City and its vicinity. This is because the geophysically unusual mechanisms that severely damaged the region are not fully understood yet. Land use decisions are also under discussion because they rely on the hazard map. Therefore, the hazard map needs to be finalized to settle the land use plan, and then residents who are required to relocate will be identified. With many decisions still pending, many disaster-affected residents temporarily displaced are in limbo whether to return or relocate from their neighborhood upon reestablishing their residence and life.

While relocating residents, Tacloban city faced an unexpected development. After the typhoon, the city government quickly planned to develop relocation sites inland safe from the storm surge. However, preparing relocation sites and houses for the residents took a significant amount of time; in the meantime, many residents remained in their original neighborhoods to access their former economic and social networks to work and live (Figure 46-3). As a result, many families have two houses – one in the new relocation site and the other in their original neighborhood.

Meanwhile, Tohoku’s community relocation projects have finished construction, and

residents have moved in and begun their new life. However, new issues are emerging due to including aging of the relocated communities, a decline in the use of newly prepared housing units, and complicated management of land in the original neighborhood.

Figure 46-3. Houses rebuilt in the original Anibong neighborhood

These three cases illustrate that the governments of the disaster-stricken communities equally share the goal of relocation to reduce future hazard risks. At the same time, the cases show differences in hazard exposure and local cultural contexts, including social and economic networks, and how that affects relocation outcomes.

Conclusion - from the author

We are likely to continue living with disaster risks because climate change and rapid urbanization contribute to making our environment vulnerable. Due to this environmental change, it is likely that large-scale community relocation will be considered, especially after major disasters, in alignment with the Sendai Framework for Disaster Risk Reduction's "Build Back Better" concept (2015). Various examples of community relocation can provide lessons on how to reduce suffering and ease the transition process for residents targeted to relocate. More on-the-ground cases with different geophysical and socio-economic settings will help identify rationales and premises to achieve such a goal.

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