

Geography of the Resilience of Household and
Regional Community after the Great East Japan
Earthquake: A Case Study in Kesennuma City,
Miyagi Prefecture

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Abstract

Although the human race has used nature ingeniously and developed its culture, science, and economy since the beginning of human history, it has had to confront various disasters. Thus, it has devised and implemented disaster prevention measures, has developed a disaster culture to adapt to disasters, and has managed disaster risks by using appropriate technologies. However, experiencing devastating disasters due to global warming and other climatic changes, attention began to be paid to the concept of resilience, meaning the disturbed society's capability to restore its normal state. The concept of resilience, which was first argued in the field of ecology, can be applied to the geographic study of disasters. This study defines the concept of resilience as applicable to geography and presents a case study by emphasizing the importance of examining the community prior to the disaster, the proposals for restoration, and social change after reconstruction.

In Japan, the tsunami disaster caused by the Great East Japan Earthquake in March 2011 triggered interest in the concept of resilience. Geographic features of tsunamis include the concentration of flood damage in the coastal lowlands, the relocation of residents to higher ground for the purpose of disaster prevention, and the increase of risks against disasters by the reason of the social changing during the course of time due to long period of time until the next major tsunami disaster.

This study examines the resilience of households and local communities in the coastal area of northeastern Japan that was devastated by the Great East Japan Earthquake. Kesennuma City, Miyagi Prefecture was chosen for the case study. Special attention was paid to the migration patterns of residents who were affected by the tsunami disaster, the origin of migrants devastated by the tsunami, and the destination of migrants and their resettled communities.

The residents of Kesennuma City had to secure themselves for tsunami by moving from evacuation shelters immediately after the tsunami disaster, to provisional housing, and eventually to the site of reconstructed residences in higher land. Although those who lost their residences either moved within Kesennuma City or moved out to other municipalities, the Higashi-Shinjo district, where vacant

housing lots were available and easy access to major routes was possible, attracted many migrants . Consequently, the population increased and land use changed rapidly after the disaster. The decision to migrate was affected by the tsunami risk and by the desire to reconstruct immediately. The migrants to the Higashi–Shinjo district came from districts within Kesennuma City, and many originated in particular from the coastal section of the Urashima area.

The Urashima area on the east side of Kesennuma Bay, consisting of four districts, has a history of tsunami disasters. The three districts damaged by the 2011 tsunami disaster implemented the group relocation projects. However, another district received only minor damage from the tsunami because the local residents had already moved their houses to higher ground after the previous major tsunami. As the population decreased in the three districts, they established a supporting association for maintaining their community. In particular, the Urashima Promotion Association established at the now defunct school building is the center for community activities by compensating decreased local events after the disaster. Because of the population decrease, the focus of local community activities changed from the traditional four separate communities to an enlarged community combining four settlements. Reorganization of community associations brought about a spatial reorganization in the traditional local community.

The resilience of the local community and the households, migration, and the resettlement of households played an important role in the process of local community restoration and change. Accordingly, this study examines the following aspects in the context of resilience and community restoration: the importance of the vacant lots, the decision making of the migrants, the relationship between the migrants and the local community from which they originated, the shared knowledge of the group relocation project in the larger community, and disaster-risk reduction on the basis of the experience of past tsunamis. Geographic studies of resilience to the disaster need to consider the regional scale, the features of the disaster, and the changes after the disturbance.

Keyword: Tsunami, Resilience, Population Movement, The Great East Japan Earthquake, Kesennuma City