

Needs and Issues for Pre-Earthquake Recovery Training in Regional Disaster- Management Affairs of Township

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Abstract

This study focuses on analyzing the case of the pre-earthquake recovery training in the Minami-Ayase area of Tokyo, explaining the operational methods of Japan's pre-disaster reconstruction plans during normal times. It is hoped that through the discussion of this case, the pre-earthquake recovery training methods can be widely referenced in Taiwan and applied to disaster prevention and reduction. This training method can be incorporated into the routine disaster prevention and rescue training of public departments.

1. Background

The Minami-Ayase community, located in Katsushika Ward, Tokyo, conducted a total of four earthquake reconstruction town planning training sessions from October 2022 to February 2023. During these sessions, local residents and ward officials discussed "how to rebuild homes" and "what kind of community they want to create in the reconstruction process."



Figure 1. The Earthquake Reconstruction Town Planning Training in the Minami-Ayase Area, 2022.

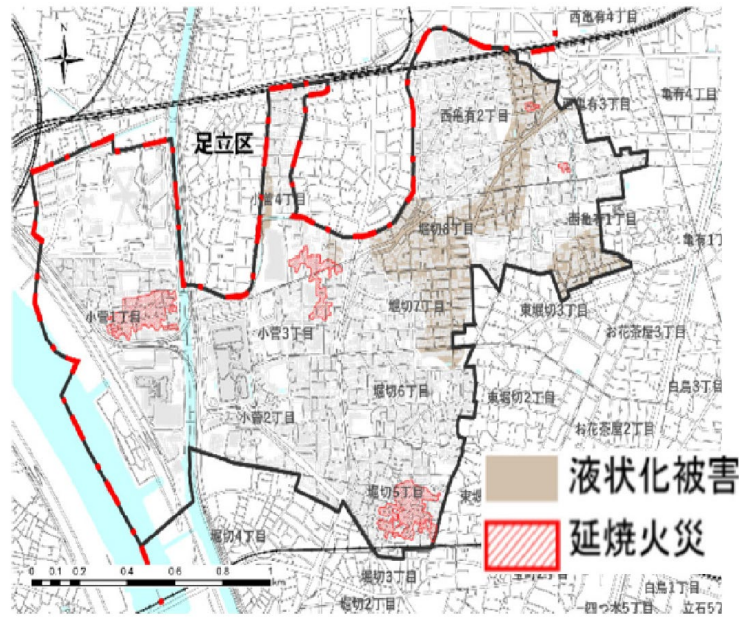


Figure 2. Disaster Potential in the Minami-Ayase Area (Soil liquefaction and spreading fire).

2. Training Scenario Damage Assumptions

A magnitude 7.3 earthquake originating from the southern part of the city center strikes directly beneath. Most of Katsushika Ward experiences a strong tremor of intensity 6+. The following building damages occur: (1) Approximately 11.8% of buildings are totally or partially destroyed. (2) Five fires break out, burning approximately 6.8% of buildings. (3) Approximately 9.3% of buildings suffer damage due to liquefaction. (4) The total or partial destruction rate of buildings varies depending on their age and structure. (5) The following settings are input into the total destruction rate curve to estimate the number of totally or partially destroyed buildings.

About condition set, there are several setting conditions: (1) Intensity 6+ (measured seismic intensity: 6.0) (2) Calculation of building age: Based on the 2018 Housing and Land Survey Statistics / Statistics Bureau. (3) Calculation of building structure and number of buildings: Based on the 2016 Land Use Survey / Tokyo Metropolitan Government. (4) Referring to the Great East Japan Earthquake, it is assumed that 60-70% of buildings in liquefaction-affected areas are totally or partially destroyed. (5) Created based on the Ehime University Disaster Information Research Center's fire spread simulator (conditions set: north wind, wind speed 7 m/s).

3. Training Points and Issues

(1) Build a Community.

In the event of a disaster, the cooperation of many people is essential. Therefore, it is important to participate in disaster drills and local events regularly to become acquainted with each other within the community. Joining neighborhood associations that build a sense of solidarity among residents through various activities such as crime prevention and community exchanges is also part of disaster preparedness.

(2) Understand the Characteristics of Your Area.

In your daily life, such as during your daily walks, identify issues in the area that may be dangerous during a disaster and the local attractions you want to preserve for the future.

(3) Consider Disaster Preparedness Measures.

Check the materials and equipment in disaster storage warehouses and conduct disaster drills to prepare for disasters. In the Minami-Ayase area, disaster agreements have been made with entities such as the Tokyo Detention House, Rengo Co., Ltd., and Miyoshi Oil & Fat Co., Ltd. Coordinate with various organizations and discuss disaster preparedness measures.

(4) Think About Town Planning Regularly.

If community members regularly discuss the future of their town and reach a certain level of consensus, it will enable swift reconstruction town planning in the event of an earthquake. The "Katsushika Ward Ordinance for Promoting Town Planning through Citizen Participation" allows community members to propose their vision for the future of the town to the ward. The ward supports procedures and activities to consider town planning to promote community-led town planning.



Figure 3. The discussion of pre-earthquake recovery strategies based on different training points by different teams.



Figure 4. The recovery issues discussed by different teams (Taking no.1 and no.2 for example).

4. Steps for Earthquake Reconstruction in the Minami-Ayase Area

If the Minami-Ayase area is damaged by a large-scale earthquake, the following steps will be taken to work on reconstruction town planning in cooperation with Katsushika Ward, centered around neighborhood associations and community associations.

(1) Establishing the System for Urban Reconstruction (About Two Weeks to One Month)

For areas that need reconstruction town planning, they will establish a Community Reconstruction Council to examine and propose reconstruction town planning, centered around relevant rights holders.

(2) Considering Reconstruction Town Planning Plans (One Month to Six Months)

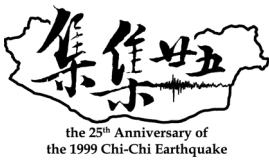
In areas with significant damage that require reconstruction town planning, they will examine reconstruction town planning that addresses local issues such as eliminating narrow roads to create a more disaster-resilient and livable town.

(3) Operating Temporary Emergency Housing (About Two Months to Two Years)

To maintain the pre-disaster community and work on reconstruction town planning, they will consider leasing disaster-affected private land within the area to build temporary housing and shops, creating a temporary urban area.

(4) Dealing with Distant Evacuees (About Two Months to Two Years)

Each neighborhood and community association will work with Katsushika Ward to identify



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the locations of distant evacuees and provide information on the local recovery situation and the reopening of facilities.

(5) Gradually Resume Community Activities (Six Months and Beyond)

They will gradually resume community activities of neighborhood associations that are important for rebuilding the town and revitalizing the area, in line with the progress of reconstruction town planning.

REFERENCES

Minami-Ayase District Neighborhood Association Federation (2023). *How to proceed with earthquake recovery in Minami-Ayase District*. Katsushika City Urban Development Department Urban Planning Division.