

A model for disaster shelter planning from the viewpoint of local people  
----a case of Nagata Ward in Kobe City, Hyogo Prefecture, Japan

○ Wei Xu, Yukiko Takeuchi, Yoshio Kajitani, Norio Okada

With the disaster-robust conditions, such as stable ground, aseismatic structure, fireproof walls, appropriate lifeline support systems and voluntary assistant services, a shelter can adequately accept and protect victims in a disaster. With the increase of disaster preparedness and awareness, more and more countries, such as the US, UK, Japan and China have enforced their efforts to set up disaster shelters for disaster-prone areas.

To respond to the recent demand for community shelters, many guidelines or guidances for shelter planning have been released. While most of these guidelines or guidances are developed by the central or local government or disaster prevention organizations along with the involvement of experts or local community leaders' participation, yet local residents are still not commonly involved in the process of disaster shelter planning.

In this paper, we will develop a model for disaster shelter planning with the case of

earthquake disaster from the viewpoint of local people in the Nagata Elementary School Community of Nagata Ward, Kobe City, Hyogo Prefecture, Japan.

Based on a questionnaire survey, the indicators of shelter planning are classified into six categories (criteria), namely security, sustainability of lifeline service, accommodation capacity, comfortability, accessibility and connectivity, and their weights are calculated according to the AHP (Saaty, 1980). And then a participant planning model is developed, which has two functions: (1) to help the local government to select the shelter location (to maximize the total value or utility of all households), and (2) to help the local people select shelter to evacuate when the shelter location is designated (to maximize the value or utility of each household). Finally, an illustration will be made with the help of GIS.

Reference: Saaty T.L. (1980), Analytical Hierarchy Process, McGraw Hill, New York.