

# Linking human behavior, participatory mapping and community infrastructure for Disaster Risk Reduction -Approaches in Shiso and Kamaishi-

Yuta Suda

*Key Words: Human behavior, Participatory mapping, Community infrastructure, Disaster risk management, Local community*

## 1. Background and purpose of the research

Administrative agencies inform the information related to disaster to people. However, the information often does not link to understanding of disaster and evacuation behavior. Making a BOSAI MAP is expected to enhance people’s knowledge and awareness of disaster. However, the effect of the map has not been discussed adequately. Similarly, the functions and facilities of evacuation place are main factors on human behavior. In Japan, public schools function as an evacuation place but they are not constructed as evacuation places because the school is a place for learning. Therefore, the thesis discusses the effect of making a BOSAI MAP and focuses on its utilization as well as the desired facilities of a school as an evacuation place.

## 2. Research area and methodology

The target areas are Magari district in Shiso city of Hyogo prefecture and Toni town in Kamaishi city of Iwate prefecture, both with low birthrate and an aging population. A pilot program related to the BOSAI MAP was conducted in Magari district after the flood brought by Typhoon No. 9 in 2009. In Toni town, a new facility is being considered which would combine elementary school, junior high school, community center and feeding center after the damage brought by the earthquake and tsunami in 2011. A questionnaire survey was conducted in Magari district to examine the impact of a BOSAI MAP. The questionnaire sheet was distributed and collected through the head of residents’ association. As the result, 106 samples (93%) were gathered. In Toni district, a questionnaire survey conducted to obtain community perception of the desired functions and facilities of schools as evacuation places, respectively, and awareness about making a BOSAI MAP. The questionnaire sheet was distributed through the head of residents’ association and collected through post. As the result, 314 samples (42%) were gathered.

## 3. Human behavior, participatory mapping and community infrastructure

Chi-square test through results of the survey in Magari district found the correlation between participation in the pilot program and evacuation behavior ( $X^2_{(1)}=6.11, p<0.05$ ). In terms of utilization, 43% of the respondents show that the map should be put in a strategic place. In Toni town, the survey showed the importance of enhancing the functions of the disaster prevention facility by making it earthquake resistant and improving communication systems as well as enhancing the surrounding environment such as access road to the facility and parking place.

In terms of a BOSAI MAP, about 75% of the respondents answered that “I want to participate in making a BOSAI MAP”, and “The map should be put in community center”. Finally, in terms of a BOSAI MAP, these surveys showed that making a BOSAI MAP is an effective tool for enhancing knowledge and awareness of disaster leading to positive evacuation behavior when disaster happens. And, not only enhancing function for disaster prevention but also environmental consideration of the place of disaster prevention activities can promote positive human behavior.

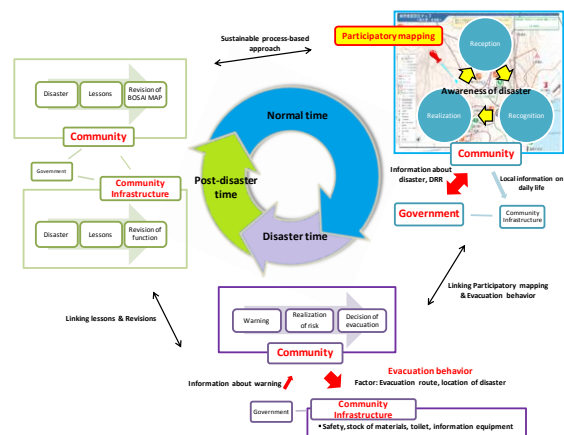


Figure1 Linking human behavior, participatory mapping and community infrastructure