World Academy of Science, Engineering and Technology International Journal of Civil and Environmental Engineering Vol:11, No:12, 2017

Spatial Design Transformation of Mount Merapi's Dwellings Using Diachronic Approach

Authors: Catharina Dwi Astuti Depari, Gregorius Agung Setyonugroho

Abstract: In concern for human safety, living in disaster-prone areas is twofold: it is profoundly cataclysmic yet perceptibly contributive. This paradox could be identified in Kalitengah Lor Sub-village community who inhabit Mount Merapi's most hazardous area, putting them to the highest exposure to eruptions' cataclysmic impacts. After the devastating incident in 2010, through the Action Plan for Rehabilitation and Reconstruction, the National Government with immediate aid from humanitarian agencies initiated a relocation program by establishing nearly 2,613 temporary shelters throughout the mountain's region. The problem arose as some of the most affected communities including those in Kalitengah Lor Sub-village, persistently refused to relocate. The obnoxious experience of those living in temporary shelters resulted from the program's failure to support a longterm living was assumed to instigate the rejection. From the psychological standpoint, this phenomenon reflects the emotional bond between the affected communities with their former dwellings. Regarding this, the paper aims to reveal the factors influencing the emotional attachment of Kalitengah Lor community to their former dwellings including the dwellings' spatial design transformation prior and post the eruption in 2010. The research adopted Likert five scale-questionnaire comprising a wide range of responses from strongly agree to strongly disagree. The responses were then statistically measured, leading to consensus that provides bases for further interpretations toward the local's characteristics. Using purposive unit sampling technique, 50 respondents from 217 local households were randomly selected. Questions in the questionnaire were developed with concerns on the aspects of place attachment concept: affection, cognitive, behavior, and perception. Combined with quantitative method, the research adopted diachronic method which was aimed to analyze the spatial design transformation of each dwelling in relation to the inhabitant's daily activities and personal preferences. The research found that access to natural resources like sand mining, agricultural farms and wood forests, social relationship and physical proximity from house to personal asset like cattle shed, are the dominant factors encouraging the locals to emotionally attached to their former dwellings. Consequently, each dwelling's spatial design is suffered from changes in which the current house is typically larger in dimension and the bathroom is replaced by public toilet located outside the house's backyard. Relatively unchanged, the cattle shed is still located in front of the house, the continuous visual relationship, particularly between the living and family room, is maintained, as well as the main orientation of the house towards the local street.

Keywords: diachronic method, former dwellings, local's characteristics, place attachment, spatial design transformation **Conference Title:** ICACUEE 2017: International Conference on Architecture, Civil, Urban and Environmental Engineering

Conference Location : Miami, United States **Conference Dates :** December 14-15, 2017