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Is post-disaster housing reconstruction with participatory method effective to increasing people's awareness for disaster prevention?

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Abstract

After the Indian Ocean Tsunami in 2004, many organizations supported housing construction in disaster affected areas. Several documents and papers reported that adopting the community participation in the post disaster situation is effective because disaster affected people needed skills to get a job to increase their income. Many organizations adopted the participatory method in their recovery program especially in housing construction because it would increase people's awareness to the natural disasters and develop their capacity through the working processes.

This research aims to evaluate the long-term changes between level of people's participation in post-disaster housing construction and current level of awareness for the natural disaster. Questionnaire survey was conducted in three areas which were affected by tsunami (Ache) and earthquake (Yogyakarta and Padang) in Indonesia. Ache was devastated by Indian Ocean Tsunami in 2004, about 31,000 people were killed in the capital of Banda Ache alone. Yogyakarta was hit by earthquake in 2006, and over 5,000 people were killed and 95% housing was collapsed in the community located near the epicenter. Padang was affected by earthquake in 2009, and 1,100 people were reported to be killed or missing. Total of 504 samples were collected (Ache 170, Yogyakarta 155 and Padang 179), we have compared three areas to understand the relationship with 'participation' and 'awareness'. This research findings will be useful to the housing reconstruction planning such as how to increase people's awareness and how we can approach to people's action for the future. We believe the possibility of participatory method for recovery phase, but long-term evaluation will reveal undiscussed issues, and it will give us a hint to improve more effective support for the people.

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1. Introduction

In recent years, housing reconstruction after disaster has adopted the participatory method by various organizations. Comerio stated that self-help housing is now the current model for rebuilding after disasters in developing countries [1]. Community participation in the post-disaster situation is effective because it will support to increase their income, get some skills of construction, and increase people's awareness to the natural disasters through the working processes. This study will show that relationship between 'participation to the reconstruction' and 'awareness to the natural disaster' based on the result of questionnaire survey. In particular it focuses on long-term evaluation. We studied the recovery process of three different sites where experienced a disaster some years ago. Our study areas are heavily damaged areas because of tsunami and earthquake in 2004 (Ache), earthquake in 2006 (Yogyakarta) and earthquake in 2009 (Padang). It has passed about 7 years to 12 years.

On 26th December 2004, a strong earthquake of magnitude 9.1 on the richer scale occurred in the Northwest of Sumatra Island, Indonesia caused the Indian Ocean Tsunami. City of Banda Aceh is closest to the epicentre where nearly 130,000 deaths, 500,000 homeless and extensive damage to life, property and infrastructures occurred [2]. According to the assessment carried out by the ministry of public works in May 2005, 116,900 houses were destroyed and 14,200 houses were heavily damaged in Aceh province [2] [3].

On 27th May 2006, a magnitude 6.3 earthquake struck the island Java, Indonesia. More than 5,000 people were killed and over 4,000 people got injured, and 600,000 people lost their permanent shelter. As estimated, 154,000 houses were completely destroyed and 260,000 suffered some levels of damage. Most heavily affected area was the Bantul district in Yogyakarta Special Province, and the Klaten district in Central Java Province [4].

On 30th September 2009, a magnitude 7.6 earthquake struck Western Sumatra coast in Indonesia. The second earthquake with magnitude 6.2 occurred 22 minutes later, and the third one with magnitude 6.8 struck an island area at next early morning. As estimated, 739 people were killed, with another 296 people missing and presumed dead. Primarily in Padang Pariaman district, more than 121,000 homes were severely damaged then 52,000 houses were moderately damaged [5].

In all cases, housing reconstruction were conducted in collaboration with community members. In previous studies, scholars and aid organizations supported the concept of community participation in post-disaster housing project [6] [7] [8] [9] [10]. In this study, we pay special attention when we consider the participation for reconstruction process or reconstruction work, or both. All cases took place around 10 years ago. The purpose of this study is to evaluate effectiveness of participatory method for housing reconstruction and improvement of disaster awareness of participants after 10 years for achieving 'build back better' in post reconstruction program.

2. Participatory Approach for Housing Reconstruction after Natural Disaster

Post-disaster housing reconstruction is extensively studied in which issues of people's participation, ownership, and accountability [11] [12] [13]. Maskrey [14] finds that, "people were able, through community-based organizations (CBOs), to articulate strategies for recovery and reconstruction which responded to their real needs". And now many organizations adopted the participatory method in their recovery program because it based on lessons from past recovery cases. These bottom-up approaches called participatory method/approach or owner-driven approaches have been advocated till this day [15] [16] [17]. When the owner is given more control over the housing reconstruction, it is possible to have a higher level of satisfaction as well as a higher chance to restore a sense of pride and to integrate their indigenous ways of building [18]. However, on the other hands, it has some of issue also. Souheil El-Masri [19] mentioned that reconstruction efforts after a disaster have been criticized as a failure of conventional top-down approaches that concentrated their attention on speed, standardization and technological oriented solutions. The idea of community participation has been so widely expressed that it does not seem to mean anything clear anymore [6]. And there are many issues like speed, quality, and management are critical to the post disaster reconstruction. More importantly, how people adopted to their newly built environment is crucial for the overall sustainability of their life [9].

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