

Analyze the housing recovery process and evacuation limit of elderly after Chiang Rai ,2014 earthquakes.

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1. INTRODUCTION

In the case of an Earthquake in Thailand in 2014, Earthquakes were recorded as the strongest inland in Thailand. The epicenter is in Chiang Rai province, northern Thailand. The primary objective of this research is to review recovery process and evacuation limit, since most of the residents in Saikao, Chiang Rai, are older people; 27 percent are over 60. They stressed the reconstruction process and worried that even though their house was minor damage, they could not be sure that it would not collapse again due to aftershocks. So, the academic and NPO joined forces to evaluate the damage and inform residents about their house damage level so that they could decide what to do next, such as moving back or renovating their house. From the interviews, most residents decided they would stay outside their own houses in temporary self-made shelters or on the road until the reconstruction finished. For almost two weeks, residents have stayed in a non-structural shelter that lacks electricity, clean water, and medicine. Even the local government tries to provide community public shelter using the local primary school as the shelter base, but it is not suited to residents' culture and lifestyle. Also, most older adults are worried about their own house and property safety, so they prefer to stay at their own house with temporary self-made shelters. The weather and temperature in Thailand were also moderate all year, so in residents' opinion, they no difference between staying out at their place or in a public shelter and that is why they prefer to stay at their own house even if the self-made temporary shelter condition in limit of constructed

2. METHODOLOGY

The study will be conducted by

1. Review effects of disaster damage to housing and compare the process of a housing recovery 2. 106 questionnaires for residents in the community about disasters affected on recovery participation to outline the involvement in housing reconstruction related to the living conditions and Improvements in social empowerment of communities. Research question is "What evacuation scenario will be in Saikao community if there have future earthquake in Northern Thailand again from evaluated the previous experience?"

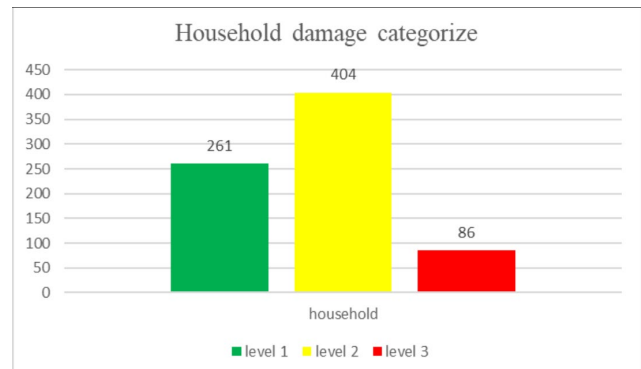


Figure 1. Household damage categorize credit Saikao sub-district Deputy chief of executive SAO' office

3. Houses Damage



Figure 2. Elderly's Residents in Saikao ,Tahor community

After the quake, the needs of building safety assessment were highly required. Most residents stay out of their houses and local government of Pan "subdistrict" work together with volunteer from local university to categorize the household damage to 3 level Green level 1 slightly damage 261 household Yellow level 2 moderate damage 404 house Red level 3 strongest damage to 86 houses

Local were afraid of housing collapse from earthquakes and aftershocks.

From reported that over 10,369 house were damaged in the Chiangrai earthquake because most of the households were local construction and were less aware of earthquake

Extended abstract

protection. The income of residents with an average household income per annual is 123,229 THB (about 3,500 USD/year) is the main reason that it was difficult for them to provide reconstruction

4. Residents' Decisions on Evacuation to Public Shelter

RESIDENTS DECISION TO EVACUATE TO PUBLIC SHELTER

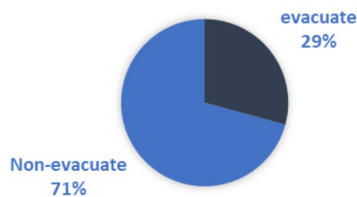


Figure 3. Evacuation choice of residents

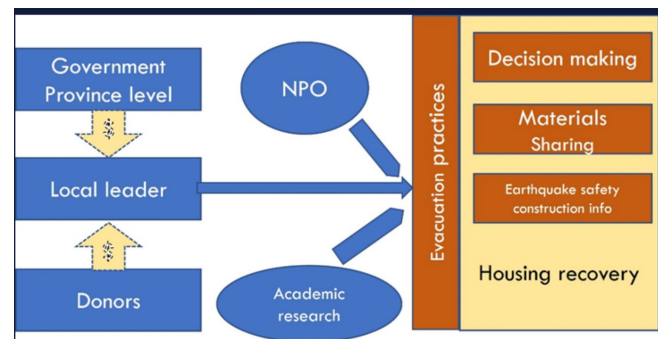
In case of an Earthquake and flood, evacuation is problematic since most of the residents' in Saikao is elderly people, 27%, age over 60. They stress the reconstruction process and worried that even their house was small damage, but they cannot assure that it will not collapse again according to aftershock. So, the academic and NPO join force to evaluate the damage and inform residents about their house damage level so that they could decide what to do next such as move back or renovate their house. From the interviews, most residents decided they would stay outside their own houses in temporary self-made shelter or on the road until the reconstruction finished. For almost two weeks, residents have stayed in a non-structural shelter that lacks electricity, clean water, and medicine. Even the local government try to provide community public shelter used local primary school as based of shelter, but it is not suited for residents' culture and lifestyle.



Figure 4. Temporary shelter during housing reconstruction

Even the local government try to provide community public shelter used local primary school as based of shelter, but it is not suited for residents' culture and lifestyle. Also, most older adults are worried about their own house and property safety, so they prefer to stay at their own house with temporary self-made shelters and weather and temperature in Thailand was also moderate all years so in residents opinion they no difference from stay out at their place or public shelter and that why are prefer stay at their own house even if the self-made temporary shelter condition were in limit constructed. Residents participated in housing reconstruction directly by building their own houses and sharing construction material received from Local-government and NPO donors in saikao case the local government sharing materials and labor together so each house that need specific repaired could get their house reconstruction finish with the limitation of budgets and labors.

5. Conclusion



Despite the limitation of evacuation choice and lack of funding, the Local government and NGOs still be able to support housing recovery by educating residents and local artisans about what are safe materials and structures for house construction in an earthquake-risk area In conclusion, the housing recovery from the Chiangrai earthquake has support from many community stakeholders to develop for future disaster risk reduction by giving residents knowledge and funding also provide room for decision making and flexible negotiation. Each stockholder fulfils what the national government lacks in processing and supporting the community to empower themselves and make their own decision.

REFERENCE

- [1] Jha, A. K., Barenstein, J. D., Phelps, P. M., Pittet, D., & Sena, S. (n.d.). Safer Homes, stronger communities : A handbook for reconstructing after natural disasters. Open Knowledge Repository
- [2] Maly, E., Vahanvati, M., & Sararit, T. (2022). People-centered disaster recovery: A comparison of long-term outcomes of housing reconstruction in Thailand, India, and Japan. International Journal of Disaster Risk Reduction, 81, 103234. <https://doi.org/10.1016/j.ijdr.2022.103234>

[3] Post earthquake structural house strengthening using appropriate strategies; a study of Sai Khao, Amphoe Phan at Chiang Rai. (2017). March 2017 Singapore International Conferences. <https://doi.org/10.17758/eap.eap317422>

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