

People's Vulnerability, Capacity, Response and Resilience during the 2010 Merapi eruption at local level

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Abstract

Located in the western flank of Merapi volcano, Ngargomulyo municipality (figure 1) is placed within the zone of higher danger to volcanic hazards (8 km from the summit). The municipality experiences several volcanic eruptions in 1930, 1961, 1967, 1994, 2006 and the latest in 2010. With most of the local people are farmers (83%), natural resources, notably lands and agriculture, are crucial to people's livelihoods. A volcanic eruption may impact upon these resources and therefore hinder the villagers' ability to sustain their daily needs, through loss of food crops and cattle, damage to cash crops and decrease in incomes. Using Participatory three dimensional mapping and focus group discussions as the research tools, this article has three objectives: (1) to analyze the community vulnerability and capacity; (2) to examine community responses during the 2010 crisis; and (3) to analyze the community resilience after the 2010 crisis.

Through P3DM we can easily find which area with high number of vulnerable people such as disabled people, elderly people, pregnant women and children and plot the physical vulnerability such as brick house and wood-bamboo house. This type of map can be easily understood by community and therefore they can make a disaster plan based on this map. This tool gave opportunity to the local people who build the map and plot most of the information and to scientists and government representatives who could easily overlap their own data and plans. The capacities to face with disaster in Ngargomulyo municipality can be translated to different aspects, such as social capitals in the form of kin network, people's organizations, non-governmental organizations, cooperatives; strong local leadership with less political conflict; memories of disasters and experiences of evacuation; and transport capacity for evacuation purposes. In Ngargomulyo, people initiated community-based actions to reduce the risk of disasters since the 2006 eruption, including the formation of monitoring teams, the systematic use of a traditional warning system (such as sirens and loud speaker from the mosques), and planning for evacuation. During the 2010 pre-crisis period, each village prepared a team headed by the village chief for organizing warning dissemination, evacuation and refuge. In facing volcanic eruptions people rely on collective labor, *gotong royong*, e.g: volcano community monitoring groups and organization of evacuation by means of available "local" vehicles.

Using a participatory three dimension mapping and focus group discussions, this research revealed that "Although classified as a volcanic disaster prone area and has been prepared to deal with volcanic disaster, the village of Ngargomulyo still found difficulties in dealing with volcanic crisis. The 2010 disaster made aware that the danger of volcanoes is very difficult to predict in detail. However, the community together with local authorities and non-governmental organizations has proven that together they can deal with and recover from disaster." P3DM can facilitate an effective dialogue between local authorities, emergency managers, communities, scientists and non government organizations, including measures to reduce people's vulnerability and to enhance the capacities to face natural hazards based on the previous experiences of disaster as happened in Ngargomulyo.

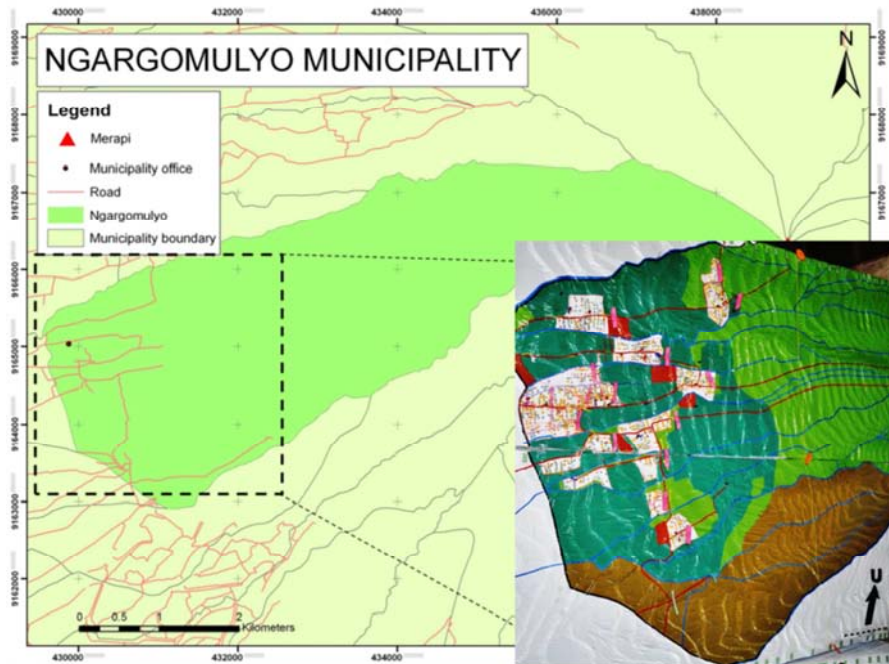


Figure 1. Ngargomulyo Municipality



Figure 2. Participatory Three Dimensional Mapping in Ngargomulyo