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Eruption of Mount Sinabung, North Sumatera, Indonesia, and SMS gateway for disaster early warning system

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Mount Sinabung, the sleeping volcano since the year 1600 awakened and erupted in 2010, 2013, and 2015. The volcano is located in Karo District, North Sumatera Province, Indonesia, geographically on 3°10' North Latitude, and 98°23, East Longitude [1]. It is about 2460 m high above sea level, and the highest volcano of Sumatera. Mount Sinabung has been estimated about 400 years long inactive, therefore categorized as B type of volcano [2]. It was astonishing; Mount Sinabung erupted on 27 August 2010, again on November 2013, and in May to June 2015. Awakening of the volcano hypothetically has been triggered by last decade earthquakes happened in North Sumatera and surrounding area, including the great earthquake and tsunami of Aceh, December 2004 that caused about 115,000 people died.

In its activities of 2010 and 2013, Mount Sinabung eruptions were characterized by moderately high gas pressure upward, and classified into vulkanian type. But lately, in 2015 with the occurrence of lava dome and avalanche pyroclastic flow, the eruption of Mount Sinabung changes to be Merapi and Pelean types. Area which is highly threatened by Sinabung volcanic hazards is Karo District, North Sumatera, where the study was conducted.

Figure: Mount Sinabung and impact of its eruption

One of the objectives of this study was to test and apply a model of such an information and communication systems for early warning in the disaster-prone areas by SMS gateway. The use of this communication model is expected able to increase public and government awareness in order to reduce risk and disaster victims [3]. Field surveying, interview, focus group discussion (FGD), descriptive qualitative analyses, model testing and training were applied in this study. The user parties among others were the representatives of local government, Department of Communication and Information Technology, and the affected communities. Although in its implementation there are still found some obstacles faced by persons who perform as the operator, because it is only an additional jobs among other duties. In relation to this, the operation of SMS gateway still needs to be mentored.

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