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Geohazards risk assessment for disaster management of Mount Merapi and surrounding area, Yogyakarta Special Region, Indonesia.

Ayu Narwastu Ciptahening¹ & Noppadol Phienwej²

¹ Universitas Pembangunan Nasional (UPN) "Veteran" Yogyakarta, Indonesia, E-mail ayunarwastu@yahoo.com

² Asian Institute of Technology, Thailand

It is well-known that there exists a very active volcano situated in Central Java and Yogyakarta Special Region, Indonesia, called Mount Merapi. It is classified into one of the most active volcanoes, even on the world. It mostly erupts in every 4 years. Deposits produced by its activity in Sleman Regency Yogyakarta Special Region of where the study located, can be divided into four rock units, namely Ancient Merapi, Middle Merapi, Recent Merapi, and Modern Merapi.

In the 10th to 11th century Mount Merapi had been responsible to the decline of Hindu Mataram Kingdom, Central Java, by its eruptions. It was verified by the discovery of many ancient temples in Yogyakarta and surrounding areas, such as Temple Sambisari, Temple Kadisoka, and Temple Kedulan which were buried by volcanic deposits of Mount Merapi [1]. The eruption of Mount Merapi, in the year 2010 was recognized as the biggest eruption during recent decades and claimed about 300 lives and very large treasures, after the eruption. The type of eruption was changed from Merapi type in the activity period of 2006 and before to become the combination of Vulcanian type and Pelean type [2]. Due to the activities of the volcano that is very intensive, it can be underlined that the threats of

geohazard faced by people living in the surrounding area of Yogyakarta is about the impact of volcanic eruptions [3].



In the study area, kinds of geohazard threats are lava flow, pyroclastic flow, ash fall, and lahar. There are four districts that able to be reached by

Figure: Mount Merapi activity of 2010

pyroclastic flow, including Turi, Pakem, Cangkringan, and Ngemplak districts. All of districts in the study area are threatened by ash fall, such as Turi, Pakem, Cangkringan, Tempel, Sleman, Ngaglik, Ngemplak, Minggir, Sayegan, Mlati, Gamping, Godean, Depok, and Kalasan districts. While areas which threatened by lahar are Turi, Pakem, Cangkringan, Tempel, Ngaglik, Ngemplak, and Kalasan districts. By applying scoring method on geohazard vulnerability, the study area can be classified into three vulnerability classification, those are very high vulnerability, high vulnerability, and moderate vulnerability.

References:

- [1] Kusumayudha S B (2013) Merapi a Beautiful Bounty: PT Citra Aji Parama: 53 – 70
- [2] Kusumayudha S B (2013) Active Volcanoes of Indonesia: PT Citra Aji Parama: 29 – 31
- [3] Paripurno ET (2012) CBDRM for Community Preparedness Around Disaster-Prone Areas of Merapi Volcano, Central Java - Case Study: Proc of International Seminar for Cooperation of Disaster Prevention, Seoul, Korea

