

The Local Wisdom of the Takome Community in Facing the Gamalama Volcano Eruption Disaster

Dewi Liesnoor Setyowati ^{1,*} Erni Suharini ², Fitri Annisa Djafar ³

^{1,2} Department of Geography, Faculty of Social Sciences Universitas Negeri Semarang

³ Postgraduate Universitas Negeri Semarang

*Corresponding author. Email: liesnoor2015@mail.unnes.ac.id

ABSTRACT

Ternate Island is one of the georgous islands in Indonesia that has a volcano since become a part of the field with "active strato-volcano at South Pacific". In line with that statement, Gamalama Volcano which located in the North Maluku, Ternate Island becomes one of the active with a height of 1,715 meters above sea level. Takome Village is one of several villages that are included in the Disaster-Prone Areas I. In the face of disasters, the Takome community still uses traditions that have existed for a long time. The aim of this research was to determine the local wisdom forms of Takome community in dealing with disasters and analyze the success in implementing local wisdom to deal with volcanic eruption disasters. The method used was qualitative research with research informants namely community leaders in the Takome Village. Data collection techniques were carried out through interviews with Takome community leaders and literature studies. The results showed various types of local wisdom forms of the Takome community, such as visiting the sacred place (*tagi jere*) and reading prayers together in the mosque (*tahlilan/ratiban*). This local wisdom is still practiced today. The community believes this is a way to refuse reinforcements to avoid disaster. This local wisdom has succeeded in shaping the traditional knowledge of the community to be prepared to face the volcano eruption disaster.

Keywords: *Disaster eruption, Disaster mitigation, Disaster preparedness, Local wisdom.*

1. INTRODUCTION

Mount Gamalama is one of the volcanoes located in the arc of Halmahera Island, Northeast of Maluku. Gamalama volcano is formed in complex tectonic areas which are built by interactions between the Philippine plate in the north, the Pacific plate in the east, the Eurasian plate in the west, and the Indo-Australian plate in the south (Andreas & Putra, 2018). Gamalama volcano has a chronicle of eruptions on or after 1538 to 2014. The year 1538 was the first recorded eruption, while a major eruption occurred in 1775. The Gamalama eruption formed a maar nearby Soela Takomi Village within 1.5 km southwest of Takomi's current location (May et al., 2017).

Ternate Island, when viewed from a geological point of view, is one of the georgous islands in Indonesia that has a volcano since become a part of the field with "active strato-volcano at South Pacific" that intersects from East Asia to Southeast Asia, north to south, and one that is quite active in the North Maluku Islands with the altitude in 1,715 masl.

Topographically, Ternate Island has a circular cone (stratovolcano) shape with a diagonal area from north to south 13 km, from west to east 11 km, and with a border of the island that is 55 km which involves lowlands and slopes. In addition, topographic features of most of the terrain are mountainous and hilly areas, containing volcanic and coral islands (Rahman, 2010).

Galamama volcano has time-consuming eruption interval of 50 years and the briefest in one year. The Gamalama volcanic eruption normally occurs in the core crater and that almost always magmatic, excluding for the explosion that happened in 1907 which took place on the eastern hill (sideway of eruption) and produced lava (Angus stone) up to the beach (*Badan Penanggulangan Bencana Kota Ternate*, 2011). The eruption of Gamalama volcano in December 2011 caused 2,711 people / 627 families to be evacuated in nine refugee points consisting of 974 people / 214 families of Ex-Governor Office, Persiter Inn of 179 people / 54 families, SMK Negeri 2 Ternate City Hall 466 souls / 96 families, Dufa-Dufa

Mosque 216 people / 47 families, Ternate Kedaton 55 people / 14 families, Togafo Village 391 people / 99 families, 11 Taduma Junior High School 366 people / 78 families, Dufa-Dufa Office of Fisheries 39 people / 10 families, and Kipan Hall 55 people / 15 families (*Badan Penanggulangan Bencana Kota Ternate*, 2011).

Centre of Volcanology and Geological Hazard Mitigation of Ternate City recorded the impact caused by the eruption of Gamalama Volcano on July 16, 2015, on areas affected by volcanic ash, including in the Takome village with 1-2 mm ash thickness. Takome Village is one of the villages in the first disaster-prone Zone I. It is a zone that possibly can be involved by lava and influenced by fall over the material that exchange to ash rain with extreme acidity. If the eruption increases, this zone will have the prospect to be impacted by the development of burning clouds and knockout by fall over the material in substantial ash rain, along with lightning stones (National Disaster Management Agency, 2018). The impact is not so much but it can paralyze activities in various sectors. The eruption of Gamalama Volcano became a threat to the people who live around the foot of Mount Gamalama (Pradiptasari, 2015). An effort to prepare for disaster preparedness or a system is needed to prevent and reduce the impact of disasters that occur.

Local people or indigenous people depend their lives on natural conditions, such as the fertility of agricultural land, sand quarries, and the charm of beauty around the volcano has become the basis of community life. These natural conditions are the basis for the community's consideration to remain in their territory even though the Regional Disaster Management Agency determines the area as a disaster-prone area (Gunawan, 2015). This is aligned with what was established by Prasojo (2015) that people who live around Mount Merapi in Yogyakarta learn, be friends, and live side by side with nature. This then raises a variety of local knowledge as one solution to living side by side with nature that has potential danger. The aim of this research was to determine the local wisdom form of Takome people in dealing with disasters and analyze their success in implementing local wisdom to deal with volcanic eruption disasters.

2. RESEARCH METHOD

This research used a qualitative approach method by using a phenomenological approach to understand about social phenomena of society. A phenomenology is a research approach that focuses on human subjective experiences (Creswell, 2019). Researchers describe the experience of human life about a particular phenomenon as described. The researcher also uses a phenomenological research design to

understand each event that occurs and its relation to the perpetrators of the event.

The data were obtained through observation, interviews, and documentation techniques. The observations were conducted directly in the Takome village, a disaster-prone area I. Whereas the interviews were conducted in the form of unstructured interviews and open interviews with key informants, Imam of the Takome Village, village heads, and the community who participated in local wisdom rituals. Then, analysis of datum used an interactive model, which is data collection, data reduction, data presentation, and the last is concluding.

3. RESULTS AND DISCUSSION

Local wisdom can be explaining as the attitudes, views, and abilities of a community in managing the spiritual and physical circumstances that offer the public endurance besides growth in the region where the community is pinpointed. Likewise, local wisdom is ingenious response to a geographical-political, historical, and situational which has the citizen (Saini in Prasojo, 2015). Therefore, local wisdom has become part of a wise way of life in dealing with the problems of life.

It is seen that the research of local wisdom and disaster mitigation in traditional communities in Indonesia concerns with natural and human wealth. In local societies, human and nature become one entity because God's creations. Nature and human are considered to have the same fortitude. Thus, nature can be responsive if human handle it consciously. In contrast, nature can be outraged when humans break it.

In addition, local understanding and wisdom in Indonesia have been generally confessed by the society, beginning from the capability of cooperating with its ecological ecosystem. For instance, human who live on the slopes of Merapi Mountain. Also, in various districts in West Sumatra, so the community can calculate the probability of an eruption. The local wisdom itself can be stated in the LHK ministerial regulation, Number P.34 / MENLHK / SETJEN / KUM.1 / 5/2017, that is the virtuous principle that apply in the local community's living arrangements, among others to keep and accomplish the surroundings and natural assets sustainably. Furthermore, local wisdom entails of two words, those are local wisdom. It can be understood as local thoughts that are judicious and occupied of wisdom that is of worthy value and also peaceable which is keep only the society. Local wisdom in the latest years has been greatly deliberated, especially concerning to local wisdom that is related with local communities in the local area. [source: Nurningsih].

3.1. Kololiekie Local Wisdom

Kololi kie, according to Dano (in Syukur, 2014), is a traditional ritual tradition of going around Mount Gamalama on Ternate Island while visiting the sacred tombs around the island. Etymologically, the word *kololi kie* comes from the native language of Ternate, "*kololi*" which means to go around and "*kie*" which means mountain, island, and land. In general, *kololi kie* is defined as an activity to go around an island/mountain.



Figure 1 *KololiKie* Rituals

The ritual of *kololi kie mote ngolo* is an activity to go around the mountains or the island of Ternate by sea and is nothing but a ritual conducted to ask for protection from God so that this country is protected from disaster (Djafar & Thaib, 2011). This activity is also interpreted by the people of Ternate as part of living side by side with nature.

Kololi kie ritual is said to be one of the local wisdom of the Ternate community which has been done for a long time and is believed to be one of the efforts to protect the environment. In the Ternate community, the harmony between humans and nature is apparent. Thus, this ritual is believed to protect the people and the city of Ternate from all the disasters that will occur.

3.2. Tagijere Local Wisdom

The *tagi jere* or sacred tomb pilgrimage is carried out by the people of Ternate, especially the Takome people in respecting nature and asking for protection from Almighty God so that they are given safety and are kept away from all kinds of disasters. *Tagi jere* or tomb pilgrimage is usually conducted by the community to make a pilgrimage to a place that is considered sacred or to the tomb of a respected figure who is considered meritorious for the community. Based on the statement of the Imam of Takome Village, this ritual is carried out if the community starts to feel there will be a danger, such as a volcano erupting or as has just been done in June 2020 to pray to be kept away from the dangers of the covid-19 pandemic. This *tagi jere* activity is conducted by taking water from a spring in Takome village and then praying together.



Figure 2 *Tahlilan* or Praying together (Source of information: Headmen of Takome)

After the *tagi jere* activity is conducted, *tahlilan* or a prayer is read together on the last day of a series of rituals at night which means the whole rituals have been completed. The recitation of the prayer or *tahlilan* is carried out in the mosque and followed by the community to pray for the water that had previously been taken at a sacred place while performing the *tagi jere* ritual. The water is then drunk by the whole community as part of the ritual to ask for protection from God.



Figure 3. Drinking water taken from *tagijere* activities (source: Headmen of Takome)

3.3. Efforts To Maintain Local Wisdom For Eruption Disaster Preparedness

The values contained in each archaeological resource are varied. Resources that are very valuable in a particular community or place, may not have any value in communities in other places (Pearson & Sullivan, 1995: 127). Also, cultural resources, in each different period, will be interpreted differently. Likewise, the potential contained in every cultural resource will also change with times (Feilden&Jokilehto, 1993: 15).

In the Law No. 11 of 2010 article (1) paragraph 22, what is meant by preservation is an active strength to preserve the subsistence of a Cultural Heritage and its value by defending, progressing, and exploiting it. The efforts in preserving the Cultural Heritage also include protection, rescue, and security. Preservation does not mean we forget the safety of cultural preservation. Problems that arise in the protection of cultural heritage itself arise from the society, such as cultural heritage that is in the process of establishment.

4. CONCLUSION

Local wisdom that still lives with the community is traditional knowledge related to mitigation in dealing with disasters. The people of Ternate in general, and Takome in particular, use traditional knowledge such as seeing natural signs around them to indicate that volcanoes will erupt. These important values must be preserved because they can form a community that understands the surrounding of natural conditions. Furthermore, local wisdom in a community can be developed as part of disaster mitigation efforts because it has been performed by ancestors, passed on to the next generation, and is believed by the community.

ACKNOWLEDGMENTS

This research was supported by research funding from the Ministry of Education and Culture, Directorate of Research and Community Service. We thank our colleagues from the Ternate Regency Disaster Management Agency for providing data and information that greatly assisted the research.

REFERENCES

- [1] Andreas, A., & Putra, A.: Perbandingan Karakteristik Batuan Beku Erupsi Gunung Gamalama dan Gunung Talang. *Jurnal Fisika Unand*, 7(4), 293-298 (2018).
- [2] Tyas Wulan Mei, E., Meilyana Sari, I., Fajarwati, A., & Safitri, D.: Assessing the Social Economic and Physical Vulnerabilities to Gamalama Volcano. 79 (January). <https://doi.org/10.2991/icge-16.2017.7> (2017)
- [3] Rahman, R. A., & Firmansyah, D. P.: Identifikasi Tingkat Risiko Bencana Letusan Gunungapi serta Arahan Mitigasi Bencana di Wilayah Kota Ternate (Doctoral dissertation, Fakultas Teknik Unpas), (2010).
- [4] Setiawan, Muzani, Warnadi, F R A'Rachman and Q Qismaraga. Analysis of land cover changes after the eruption of mount Sinabung using satellite imagery. *Journal of Physics: Conference Series*, 1402, 2019 (022108IOP) (2019).
- [5] Badan Penanggulangan Bencana Kota Ternate, 2011.
- [6] Badan Nasional Penanggulangan Bencana. Laporan Kinerja Tahunan. (2018).
- [7] Pradiptasari, A. G., Waani, J. O., & Mononimbar, W.: Sistem Penanggulangan Bencana Gunung Api Gamalama Di Permukiman Kampung Tubo Kota Ternate. *Spasial*, 2(3), 33-42 (2015).
- [8] Gunawan: Kearifan Masyarakat Lereng Merapi Bagian Selatan, Kabupaten Sleman-Daerah Istimewa Yogyakarta. *Sosio Informa*, 1, 189–212 (2015).
- [9] Prasajo, M. N. B.: Konstruksi Sosial Masyarakat Terhadap Alam Gunung Merapi: Studi Kualitatif tentang Kearifan Lokal yang Berkembang di Desa Tlogolele Kecamatan Selo Kabupaten Boyolali. *Jurnal Analisa Sosiologi*, 4 (2), 31–46 (2015).
- [10] Creswell, J. W.: *Research Design: Pendekatan Metode Kualitatif, Kuantitatif dan Campuran* (4th ed.). Pustaka Pelajar (2019).
- [11] Permana, SA, Prajanti, SDW., Setyowati, DL.: JTC Management In Disaster Information System. *J. Ponte - Dec 2016 - Volume 72 - Issue 12*. doi: 10.21506/j.ponte.2016.12.51.
- [12] Permana, S.A., Setyowati, D.L., Slamet, A. Society management in manage economic after Merapi disaster. *International Journal of Applied Business and Economic Research* 15 (7), pp. 1-10 (2017).
- [13] Syukur, Y.: Kololi Kie: Kajian Ritual Budaya Kesultanan Ternate. *Jurnal ETNOHISTORI*, 1(1), (2014).
- [14] Irsyadi, H.: Legu Gam Sebagai Refleksi Relasi Antaretnik Pada Kemajemukan Masyarakat Ternate. *ETNOHISTORI: Jurnal Ilmiah Kebudayaan dan Kesejarahan*, 2(1), 33-44 (2015).
- [15] Pearson, M., & Sullivan. Assessing the value of Heritage places. Looking after Heritage places. The basics of Heritage planning for managers, landowners and administrators, 126-186. (1995).
- [16] Umar, J.: Identitas Etnik dan Dinamika, Politik Lokal Orang Makeang Di Ternate. *Humano: Jurnal Penelitian*, 10(1), 354-363, (2019).