

Multiple Exposures of Risks: Disaster-Prone Societies in the Time of the Pandemic

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Abstract— Taking the case of the local communities on the slopes of Mt. Merapi, Indonesia, this study examines the social construction of risks within the disaster-prone societies in the time of the pandemic. The empirical basis of this study comes from longitudinal qualitative research with the local communities on this volcano, principally in some hamlets of the Cangkringan Subdistrict, Sleman Regency. This study finds that the threat of the eruption was generally more prominent for the locals than the threat of the virus. However, the locals are aware that they are dealing with multiple layers of hazards, based on which they construct their own (subjective) risks. Such processes of risk construction happen at the social level, which always engages with certain power relations. The cultural or collective memory of the given society plays a fundamental role in constructing the hierarchy of the perceived risks.

Keywords— *risk society, natural disaster, perception of risk, volcanic eruption, pandemic*

I. INTRODUCTION

The Covid-19 pandemic is a complex problem. At the social level, the spread of the virus has caused not only public health problems; but also economic, political economy, and cultural problems. As an illustration, lockdown policies or strict social restrictions implemented in various countries are not effective in certain places, for example, in an urban slum area where restrictions on social interactions and social distancing are simply impossible.

In this complexity, the perceptions of the risk of the Covid-19 are closely related to other risk perceptions, such as the risk of cessation of livelihood, the broader economic crisis, etc. Within the disaster-prone communities, the perception of the Covid 19 risk is highly likely to be closely related to the perception of the threat of natural disasters that come from the surrounding environment.

This paper examines the perception of risk within disaster-prone societies in the time of the pandemic. Taking the case of the local communities on the slopes of Mt. Merapi, this paper applies a cultural semiotic point of view [1, 2]. This study will primarily engage with the Risk Society theory of Ulrich Beck [3].

For a couple of months, from November 2020 to January 2021, the activities of Mt. Merapi, the most active volcano in the world, have significantly increased. Therefore, the Centre of Research and Development of Geological Disaster Technology (*Balai Penyelidikan dan Pengembangan Teknologi Kebencanaan Geologi - BPPTKG*), a government

body responsible for deciding the status of the volcano, decided to raise the status of the volcano to the third level, i.e., ready (*siaga*), on 5th November 2020. The publication of the status includes the list of hamlets that were recommended to be evacuated. A complicated problem has emerged due to the pandemic, as staying in the evacuation camps is generally much more vulnerable to contracting the virus.

II. METHOD

This paper is based on qualitative research. Empirical data were collected through in-depth interviews in February 2021 with several key sources, namely BPPTKG staff, disaster management volunteers, and local journalists. Due to the pandemic condition that did not allow face-to-face meetings, the interviews were conducted via Zoom meetings. Each interview lasted one to two hours and was recorded.

I have to add that these 2021 interviews were the update about the latest 2021 eruption and the local's response to such eruption. It was an update as I have been researching communities on the slopes of Merapi for a long time, especially related to the topic of their adaptations to the volcano. My interactions with the locals on the slopes of Merapi began in 2010 when I volunteered for various activities related to the 2010 eruption emergency responses. Several years later, in 2013, I conducted the first qualitative research in several hamlets on the slopes of Merapi. In 2019, I returned to working qualitative research in several communities on the slopes of Merapi. Since then, I have always tried to update empirical data about the dynamics of local communities on the slopes of Mt. Merapi.

During the fieldwork, I have conducted participant observations, semi-structured and open-ended interviews, and informal discussions. The fieldwork was guided by Clifford Geertz's 'thick description' approach [4], which emphasizes the cultural analysis as a hermeneutical reconstruction of 'deep meanings' and 'culture structures' through an in situ semiotic sensibilities as the researcher were 'being there' within the studied cultures [5].

III. RESULT AND DISCUSSION

A. Multiple exposures of risks

In 2020, Mt. Merapi's volcanic activity began to increase in October 2020. It has led BPPTKG to raise the status of Merapi from *Waspada* (Level 2) to *Siaga* (level 3) on 5th November 2020, with a danger radius of up to 5 kilometers

from the summit. The press release regarding this status increase also lists the hamlets, as many as 30 hamlets in four different sub-districts, in dangerous areas. Except for one community, all of the communities that recommended to be evacuated did obey this governmental order. Some of them evacuated all people, while others evacuated only the vulnerable groups.

The most crucial driving factor was the social memory of the last big eruption in 2010. All informants of 2021 interviews have emphasized that the experience of the 2010 eruption was the main factor leading to self-evacuation in the 2021 eruption. Thus, the direct experience of being directly affected by the previous eruption was much more prominent than the threat of the virus. However, it does mean that people did not consider the pandemic situation. Instead, they created some strategies to prevent the spread of viruses while in the evacuation, such as making a list of people entering and leaving the evacuation camp, carefully selecting the outsiders who want to come into the camp, etc.

Thus, we may say that the locals were also aware that they are dealing with multiple layers of risks. In disaster-prone areas, it is evident that people should deal with constant hazards originating from the specific features of their local environment, such as earthquakes or volcanic eruptions. At the same time, they should also encounter a lot of new techno-scientific hazards, such as pollutants, new types of disease, etc. [3, 6]. Even in some marginalized societies, the circumstances become much more complicated as they are still dealing with other hazards, such as hunger and malnutrition. In the case of local communities on the slopes of Mt. Merapi, they have also to deal with the economic threat due to pandemics. Some communities that rely on tourism-based livelihood had to close their tourism places and activities during the pandemic as no tourists come to their sites. Thus, many communities are not even dealing with 'double exposure' [7], but they experience multiple exposures of risks.

At this point, I do not agree with the realist and generalist view of Beck in his thesis risk society. Risk Society emphasizes that the new techno-scientific hazards as the objective and actual risks in our late modern society are globally widespread over the globe [3]. Let me first try to adopt the semi-realist view of Beck, which "[...] tends to waver between a realist and a weak social constructionist position of risk" [8, p. 5]. With such a point of view, we will be sure that the new techno-scientific hazards, such as radioactivity, nuclear fission, toxins and pollutants, forest destructions, new types of disease, etc., are real in our today's world. We will also believe that those risks are global: "They possess an inherent tendency towards globalization. A universalization of hazards accompanies industrial production, independent of the place where they are produced: od chains connect practically everyone on earth to everyone else" [3, p. 36]. From such a theoretical lens, we will also believe that Covid 19 is the most real and dangerous global risk; therefore, it confirms the Risk Society thesis.

However, does every society construct such global risks uniformly? Many experts have problematized the reliability of Risk Society to understand societies different from what Beck envisioned, especially people outside Global North,

who are still dealing with hazards that Beck no longer considers important, such as famine, malnutrition, etc. [9]. Thus, I will argue that every culture is dealing (constructing) its own risks. Therefore, instead of saying Risk Society, I prefer to say 'risks societies', with double 's': risk(s) and society(es).

Beck himself has replied to this criticism and argued that the late modern risks are simultaneously local and global, or glocal [6]. However, this statement seems just an ornament of his grand theory that the new risks, which are fundamentally different from the old ones, characterize our epoch. In the same paragraph, Beck mentioned the locality of risk; he already stated, "The global threats have led to a world in which the foundations of the established risk logic are undermined and invalidated" [6, p. 218].

However, the risk society thesis remains very useful, particularly in demonstrating the complexity of risks in late modern society. Similarly, some disaster experts have already highlighted the complexity of disaster in the contemporary globalizing world. Mark Pelling [10, p. 6] has argued that globalization is related to the production of vulnerability, "Not only does it contribute indirectly through the (re)production of geographies of economic and social power, and hence human vulnerability across the globe and locally, but it also impacts directly through the ways in which natural disaster is perceived and responded to." Oliver-Smith [11, p. 31] has argued that we are entering a new chapter of risk adaptation, "Basically, people, society, and nature are opening a new chapter in co-evolution, due largely to human inputs on a far more global scale than ever before."

B. The social construction of risks

As I have mentioned beforehand, one hamlet did not follow the BPPTKG's recommendation to evacuate. One of the community leaders in this hamlet (interview, February 2021) explained why the residents did not evacuate: 1) the hazard level of the Merapi, considering the amount of material in the crater, is very low if compared to the 2010 eruption, 2) the direction of the lava flow did not go to their hamlet, and 3) the threat of exposure to Covid 19 is much more significant if they live in the evacuation camp.

It shows that the perceptions and knowledge of risks, be they the threat of the eruption or the threat of viruses, will significantly determine the response to these risks. We may say that people will avoid risks that are perceived as more real or certain. Risk will be constructed as more real when it is believed as sure to happen; or on the contrary, it is perceived as full of uncertainty, whether it will happen or not, to whom, where, and when. So, the risks perceived as certain or even uncertain can be constructed as real risks depending on the other risks that exist simultaneously at the same time. I need to emphasize that the real, certain, or uncertain here are all at the perceptual level, closely related to the construction of knowledge around the risks themselves.

In the case of a hamlet that did not evacuate, the risk of the eruption was perceived as no more dangerous than the threat of Covid 19 because they have adequate knowledge about the eruption, that the eruption will not hit their hamlet. In contrast, the risk of Covid 19 was constructed even more

dangerous because it is full of uncertainty. For them, living in an evacuation place will increase such uncertainty. Meanwhile, in other hamlets, the threat of the eruption was seen as more real, that the eruption would occur, and their hamlet will likely be directly affected. Therefore, the risk of Covid 19, even though it is full of uncertainty, was considered as more reasonable to deal with.

These two different risk perceptions show some similarities about how the risks are socially constructed. First, the response to the multiple-exposure risks will be based on specific social calculations, which risks are perceived to be much more real and dangerous, and which others are perceived as less scary and more likely to be faced. Second, these calculations and responses occur at the social level, not personal. During the 2021 eruption emergency periods, all local people responses happened at the community level, i.e., at the hamlet level, whether they decided to remain in their hamlet or evacuate. However, I have to add that this second thesis seems more appropriate for certain societies emphasizing social ties rather than personal achievements, in which the decisions related to evacuation are conducted at the community sphere, not at the individual level.

Third, these calculations and social responses will never be neutral or innocent. They are always closely tied with certain power relations, both internal power relations within the community itself, between one social actor and other social actors, and power relations with external parties or certain dominant discourses.

I have to note that at this point, I loosely used the Foucauldian notion that power is everywhere. Foucault emphasizes power as a relation between subjects (not property possessed by subjects). Then, knowledge is an ontological feature of any kind of power relations. In such respects, the subject is formed, forming, and mediated by knowledge. In his *Archaeology of Knowledge* [12], Foucault has argued that power and truth are two things that cannot be separated from each other as they are interconnected with one another. "We should admit, rather, that power produces knowledge [...]; that power and knowledge directly imply one another; that there is no power relation without the correlative constitution of a field of knowledge, nor any knowledge that does not presuppose and constitute at the same time power relations" [13, p. 175].

A senior disaster management volunteer (interview, February 2021) expresses his opinion that the increasing activity of the volcano in 2020 will not result in a big eruption. He also believes that the eruption will not occur in 2020 but in 2021. Moreover, he believes that his hamlet is safe from the direct impact of the eruption. Therefore, he has softly suggested that the emergency teams save their energy in anticipation of long periods of evacuation. He said that such feels come from his personal bodily and psychological entanglement with the volcano as a local. However, it was impossible for him to convey the statement openly because there was a very dominant social discourse during the emergency response that the early evacuation is much better than surviving in their hamlet for any reason.

IV. CONCLUSION

Taking the case of the local communities on the slopes of Mt. Merapi who are dealing with minimally two layers of risks at the same time, i.e., the risk from the volcano which was increasing its activities and the risk of the spreading of coronavirus, this study finds that the threat of the eruption was generally more prominent for the locals than the threat of the virus. However, the locals were aware that they are dealing with multiple layers of hazards.

This study concludes that dealing with multiple exposures of risks, a disaster-prone society will construct its own (subjective) risks. Such processes of risk calculations happen at the social level, in which certain risks are perceived to be much more real and dangerous and which others are perceived as less risky. These risk constructions will also engage with certain power relations, both within the local communities or between the local communities and external parties or particular dominant discourse. In addition, the community's cultural or collective memory plays a fundamental role in constructing the hierarchy of the perceived risks.

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