

Regional resilience in post-disaster recovery efforts of Merapi eruption based on local wisdom in Sleman Regency

Ketahanan daerah dalam upaya pemulihan pasca bencana erupsi Merapi berbasis kearifan lokal di Kabupaten Sleman

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Abstract

Mount Merapi is located in two administrative regions, namely Central Java and Yogyakarta Special Region. Subsequent to the major eruption in 2010, the Sleman district government of Yogyakarta continued to formulate various policies related to post-disaster regional development. This study aims to explore regional development post-eruption of Merapi in Sleman, Yogyakarta, and formulate strategies that can be applied to the development of disaster-prone areas in Indonesia based on local wisdom. This research is qualitative research, which uses a literature review data collection method. The data were obtained and then processed by using CAQDAS (Computer-assisted Qualitative Data Analysis Software)-NVIVO 12 Plus™ application. The results of this study show that the existence of harmonious local wisdom among residents and the Javanese view of life triggered high optimism to rebuild areas affected by the eruption. Regional development strategies that are based on local wisdom are considered capable of overcoming post-disaster trauma and accelerating regional development. It also supported regional resilience goals that were needed to rebuild the affected areas. Based on the findings of this study, as areas with considerable potential and threat of disaster, Sleman and DIY can be role models for other regions to live in harmony with disasters.

Keywords: local wisdom; Merapi eruption; regional resilience

Abstrak

Gunung Merapi terletak di dua wilayah administratif, yaitu Jawa Tengah dan Daerah Istimewa Yogyakarta. Pasca erupsi besar tahun 2010, Pemerintah Kabupaten Sleman Yogyakarta terus merumuskan berbagai kebijakan terkait pembangunan daerah pascabencana. Penelitian ini bertujuan untuk menggali perkembangan wilayah pasca erupsi Merapi di Sleman Yogyakarta dan merumuskan strategi yang dapat diterapkan untuk pengembangan kawasan rawan bencana di Indonesia berbasis kearifan lokal. Penelitian ini merupakan penelitian kualitatif, yang menggunakan metode pengumpulan data studi pustaka. Data yang diperoleh kemudian diolah dengan menggunakan aplikasi CAQDAS (Computer-assisted Qualitative Data Analysis Software)-NVIVO 12 Plus™. Hasil penelitian ini menunjukkan bahwa adanya kearifan lokal yang harmonis antar warga dan pandangan hidup masyarakat Jawa memicu optimisme yang tinggi untuk membangun kembali wilayah yang terkena dampak erupsi. Strategi pembangunan daerah yang berbasis kearifan lokal dinilai mampu mengatasi trauma pascabencana dan mempercepat pembangunan daerah. Hal ini juga mendukung tujuan ketahanan daerah yang diperlukan untuk membangun kembali daerah yang terkena bencana. Berdasarkan temuan penelitian ini, sebagai daerah dengan potensi dan ancaman bencana yang cukup besar, Sleman dan DIY dapat menjadi panutan bagi daerah lain untuk hidup selaras dengan bencana.

Kata kunci: kearifan lokal; erupsi Merapi; ketahanan daerah

Introduction

Located in the Southeast Asia region, the chance of natural disasters in Indonesia, especially those related to volcanoes, cannot be separated from Indonesia's status in the 'Ring of Fire' area (Prakoso et al. 2022). Mount Merapi has high volcano activity (Maharani et al. 2020) and becomes one of the most active volcanoes worldwide (Anjasni 2013, Mei et al. 2016), has a lot of potential as well as threats. Mount Merapi is located in Central Java and the Special Region of Yogyakarta, on the geographical

position of 110°26'30" East Longitude and 7°32'30" South Longitude (Antriyandarti et al. 2013). The environs are home to around of 1.6 million people (Surono et al. 2012). From 1672 until 2010, more than 80 times the eruption occurred with an interval of rest between 1-5 years or an average of 4 years (Anjasni 2013, Antriyandarti et al. 2013). Merapi Eruption in 2010 was the major disaster that occurred in the last 100 years (Nugraha et al. 2019).

Natural hazards have the potential impact in social and economic aspects (Bakkour et al. 2015). Economic shocks can occur periodically, although the impact of these shocks varies from region to region, as well as the adjustment and recovery of each region (Stanickova & Melecký 2018). Febriyan in Wahyuni & Sakir (2021) revealed that this eruption has killed 354 people, 240 people were injured, and 47,486 people had to evacuate. The total damage recorded was as many as 2636 houses were severely damaged, 156 houses were classified as moderately damaged, and a total of 632 houses suffered minor damage. The eruption in 2010 resulted in changes in the reach of disaster-prone areas that were wider than the previous eruption. More than 2,200 families had to be moved from their former residences. This resettlement is arranged during the rehabilitation and reconstruction phase (Mei et al. 2016).

The importance of cooperation from various elements: the government, the community, and relevant stakeholders can accelerate efforts to recover post-disaster areas, especially when the pulse of the economy has stopped and paralyzed various daily activities of residents from disaster-affected areas. In addition, according to Buchari (2020), disaster emergency response is also needed to deal with the various bad impacts caused as well as to restore post-disaster infrastructure and facilities. The government on all levels and the local community can create disaster mitigation planning to overcome the disaster and return to normal function as quickly as possible (Anjasni 2013). The local community will take a great role in its collective identity. It cannot be separated from how the locals perceive the natural phenomena that occurred. Strategies to facilitate better integration of disaster-related issues should include training of local stakeholders in development planning, implementation of more resilience pillar enforcement projects through local government and NGOs (funded from higher-level institutions) which are also embedded with development and provision of incentives for a locally integrated approach (Djalante et al. 2013).

Despite causing a lot of damage, the existence of Merapi for the people who live around it has a very important meaning (Gunawan 2014). The community has been living surrounding Merapi Mountain for hundreds of years ago and has a social attachment to the environment (Akbar 2019). Merapi's soil fertility and natural beauty have great potential for improving people's welfare (Hudayana 2021), both for those who live on its slopes and for the people of Yogyakarta. In general, the composition of the soil in the area around Merapi is used as agricultural land (Antriyandarti et al. 2013). Several potential natural resources emerged after the eruption, such as a sea of sand, as well as the growth of various plant species, which have now become dense forests in the conservation area of Mount Merapi National Park. Yusrifa & La'ia (2015) notes that tourism potential has also grown due to the cooperation of local residents, local governments, and stakeholders, such as volcano tours, which have contributed to Sleman's regional income and are able to regenerate local residents' motivation to quickly rise from hardships. This high optimism was triggered by the local people's view of life and local wisdom, such as the principle of living in harmony. The existence of local wisdom has a significant contribution to understanding natural languages as well as reviving the community's enthusiasm for life to be able to recover immediately after being hit by a disaster.

Regarding the participation of the community in disaster management efforts, it is stated in Article 60 of the Sleman Regency Regulation No. 7 of 2013. Local governments are also responsible for encouraging community participation and independence in disaster management through various activities that can foster community initiatives and capacities in disaster management. These activities must also pay attention to the local wisdom of the local community. This effort is in line with the vision of regional resilience, which is part of national security. Regional resilience must be supported by community resilience, starting from family and individual resilience. The concept of national resilience

in overcoming threats, challenges, obstacles, and disturbances can be one of the ways to maintain the survival of the nation and state (Hediarto 2016). One of the disasters that may occur is the eruption of Merapi, which can happen at any time and threaten the lives of the people living in the vicinity. Based on the explanation presented above, this study aims to analyze regional resilience in post-eruption recovery efforts based on local wisdom in Sleman Regency.

Many studies on the Merapi eruption have been carried out, but there has been no discussion on regional resilience in post-disaster recovery efforts of the 2010 Merapi eruption based on local wisdom in Sleman Regency. Several recent studies approach research variables regarding post-Merapi eruption recovery efforts based on local wisdom. First, the study titled *Community Resilience: Learning from Mt Merapi Eruption 2010* by Rahman et al. (2016) shows the community's resilience to face hazards that using 16 indicators. The data were collected through in-depth interviews conducted with disaster risk reduction activists, the community, and the government. This study was conducted in Cangkringan district, Kepuharjo sub district, and 3 villages: Kaliadem, Petung, and Jambu. The villages are located in the Third Stage Disaster Prone Area of Mount Merapi. Pasteur Framework was used to analyze the data. Second, the recent study titled *Community Based Mount Merapi Eruption Disaster Management* by Permana et al. (2020) shows that Cangkringan society has local wisdom in managing economic aspects post-eruption by opening business entities like cooperatives. This research used a qualitative approach, with observation patricianly and structural interview as data collecting techiques. Second, the study titled *Indonesia's Disaster Resilience Against Volcanic Eruption: Lessons from Yogyakarta* by Prakoso et al. (2022) shows that Indonesia has a unique style to handle its potential disaster. Cultural identity becomes the majority concept in society. The most important things are the existence of a leader that could influence people in the regional community to move.

In addition, in looking for novelty research in this study, researchers used VOSViewer software. Although there are many software programs to analyze text units and matrix similarities, the advantages of VOSviewer are in the visualization aspect (van Eck & Waltman 2010). The results of VOSViewer processing by researchers show that research trends in aspects of the study of the Merapi eruption are more technical and impactful. Research that is rarely done, according to VOSViewer analysis, is related to aspects of regional resilience in the Merapi area. With the results of the VOSViewer, it can be proven that research on regional resilience in post-disaster local wisdom is still rarely researched and this is an opportunity for researchers to develop this research. Therefore, researchers conducted research on regional resilience in post-disaster recovery efforts of the Merapi eruption based on local wisdom. These studies that have been carried out have not answered how the region's resilience is in post-eruption disaster recovery efforts based on local wisdom in Sleman Regency, which also considers the role of the government and various elements in supporting the rehabilitation and reconstruction program. So, a new study needs to be done to answer this question.

Research Method

This research is multidisciplinary research that uses a hermeneutic-philosophical approach in order to explore the deepest meaning of the research conducted. The type of research used is qualitative research that considers interpretation or interpretation in revealing the meaning of the data presented and then analyzed. The characteristics of qualitative research lie in the object that is the focus of research. The phenomenon raised is related to the post-disaster recovery strategy of the Merapi eruption from 2010 until now, which has been promoted by the local government, various elements of society, and the parties involved based on applicable regulations. Through library data collection techniques, this study tries to dissect the meaning behind the function of local wisdom in the local community in dealing with disasters and how the participation of the community, government, and related stakeholders supports the success of managing disaster-affected areas. The research flow that will be carried out is data inventory, data classification, management and systematization, inductive analysis, and reflection of research results.

There are 30 scientific articles that are used as a reference in mapping recovery efforts after the Merapi eruption based on local wisdom. The keywords used in the search included the local wisdom of Merapi, the value system of the people of Merapi, and the philosophy of life of the people of Merapi. Data analysis in this study will be assisted by the CAQDAS (Computer-assisted Qualitative Data Analysis Software) application, namely NVIVO 12 Plus. The features used are: Create New Project, which includes data in the form of literature related to local wisdom and post-eruption recovery efforts, both from the community, local government, and stakeholders involved; The import functions to enter research data; the node that functions as a data category maker in research on the coding process; and crosstab, which serves to describe the relationship between each node and class classification. At the conclusion drawing stage, the results of data analysis are interpreted using a philosophical hermeneutic approach, namely finding common threads from each category based on predetermined regional resilience indicators.

Results and Discussion

Local wisdom of the Merapi community in facing eruption

The traditional view of life and culture makes myth a wise cultural figure. The myth carries the mission of sustainability and the universe. As part of the Javanese traditional group, precisely under the auspices of the cultural area of the Yogyakarta Palace, the people of Merapi believe that eruptions are a part of the life cycle of God's creatures, especially so far as Merapi has been personified as grandparents or grandfathers for the people who live around it (Hudayana 2021). Belief in ancestral spirits, united with belief in natural forces that have an influence on human life, colors the religious life and customs of the Javanese people, namely Syncretism, Tantularism, Tolerant Kejawen, and Accommodative and Optimistic. The term Javanese way of life can flexibly be replaced by other terms, such as Javanese philosophy or kejawen philosophy (Susilo 2016, Wasisto 2021). It should be underlined that the Javanese way of life is not identical to the belief in God Almighty, Abangan Islam, Javanese mysticism, or occult science, as well as other religious terms. The Javanese view of life is not a religion, but a view of life in a broad sense, which includes a view of God and the universe He has created, and the position of man in it (Marta et al. 2022, Yusrifa 2017).

The local community named Kejawen Community views the eruption of Mount Merapi as not just a physical or ecological problem or related to environmental phenomena. The surrounding community considers that the eruption event is closely related to the reality of the *sasmita*, the Javanese value which includes the existence of the highest essence, namely the Creator of the human world (Daeng 2008). The eruption of Merapi is also considered a form of warning to humans to conduct self-introspection about their relationship with the Great Creator. The disharmonious relationship between humans and the Creator needs to be repaired again through metanoia, or self-cleaning, which is practiced by the Kejawen community in their attitude to life and offerings (Daeng 2008, Yusrifa 2017).

There are four types of rituals performed at Mount Merapi, including disaster mitigation and reconstruction rituals (*Merti Bumi*), Javanese New Year rituals, and hamlet cleansing rituals (*Gugur Gunung*). This mitigation ritual is believed to increase resilience in the face of disasters as well as representative of the value of *Hamemayu Hayuning Bawana*. Javanese People, especially the people of Merapi based on the value *Hamemayu Hayuning Bawana* to interpret the nurturing beauty and salvation, the welfare of life, and eradicating the nature of anger and freedom (Tyas et al. 2021). The Javanese New Year ritual and *Gugur Gunung* can be included as volcanic rituals because they include sacred objects related to the theme of safe living at Merapi. In every ritual of Mount Merapi, after praying for safety and blessings from God, the ritual leader or locksmith will ask for help from sacred objects. In Balerante and Kaliurang, these sacred objects are named Eyang and Danyang. In Turgo, they are Grandmother and Jumadil Kobro who in ancient times were believed to live on Mount Turgo. In Babatan, they are Grandfather Merapi, Kiai Petruk, and their ancestors (Hudayana 2021). Each of these sacred objects is a legacy of the Yogyakarta palace, which means it has a very high cultural value.

Another tradition that is no less important in interpreting the phenomena that occur at Mount Merapi is *Labuhan*. The community held a traditional ceremony in the form of *Labuhan* as a thank you and asked for protection to avoid harm. The *Labuhan* Mount Merapi traditional ceremony is carried out when there is an important commemoration in the palace. *Labuhan* is held every 30th Rajab (Javanese calendar) in commemoration of the *jumenengan Ndalem* (ascension to the throne) Sri Sultan Hamengkubuwono X. *Labuhan* means lowering, washing away objects that have been determined by the traditional court institution. The Keraton (Indigenous Palace Institution) determines the types of *Ubo Rampe* that will be handed over at the *Labuhan* ceremony. In addition to the *Ubo Rampe* mentioned, two *Mustoko Apem* cakes were also handed over, covered with a white cloth. The *Apem* was given to the Regent of Sleman and the Locksmith of Mount Merapi. Meanwhile, The *Ubo Rampe* was received by the Cangkringan sub-district head and then handed over to the Umbulharjo village head and the locksmith. The purpose of holding *Labuhan* is to preserve the ancestral culture that has been carried out since the reign of Sultan Agung or Hamengku Buwono I, as well as to pray for the people of Yogyakarta to be given safety and prosperity. *Labuhan* can also hone the sense of sensitivity to the forces of nature (Yusrifa 2017).

There are three elements of culture that can be used as a reference to see how a community's local wisdom is formed in dealing with the phenomena that occur around it. The three elements are the value system; systems of knowledge or ideas; and traditional systems (Daeng 2008). This element can be used to see how the local wisdom system of the Merapi community in dealing with eruptions is formed. Based on data processing from the literature related to the local wisdom of the Merapi people, it was found that the largest percentage is in the value system which is 37%; followed by the traditional system at 35%; and the knowledge system at 28%. These systems are interrelated and related to each other. Traditions such as *Labuhan*'s cannot be separated from the perspective of life, which is included in the value system. The meanings contained in the *Labuhan* procession are then merged into a knowledge system adopted by the community. This meaning can also be interpreted as a value system that comes from a knowledge system through a set of traditions carried out as shown in Figure 1.

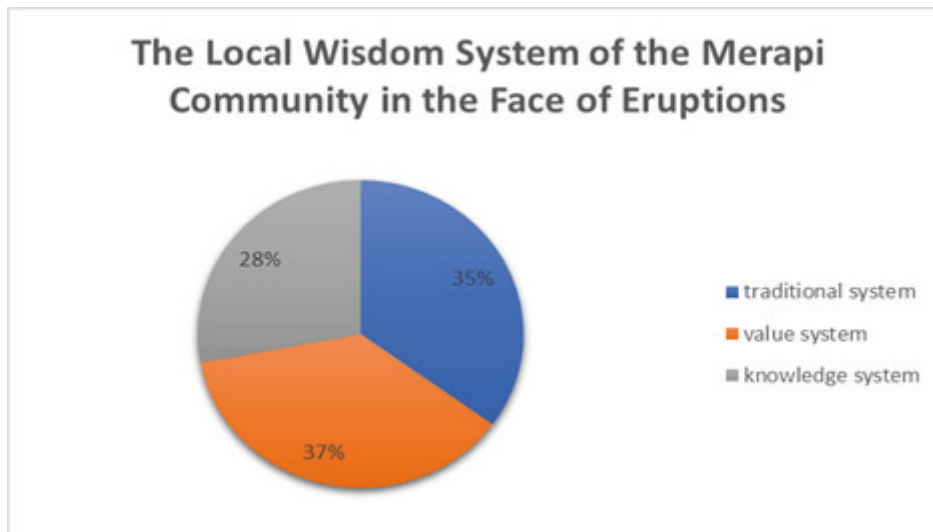


Figure 1.
Merapi community's local wisdom system in facing eruption
Source: Primary data processed by NVIVO 12

There is a wealth of local knowledge in the form of traditional intelligence related to the mitigation of the Merapi eruption disaster, namely community advice or instructions; animal behavior; conditions of natural vegetation and cultivation; and physical environmental conditions (Wardyaningrum 2019). One of the cultural semiotics that is well known in the Merapi community, especially those living in the Sleman area, is the mention of the procession. The process is interpreted as a lava flood flow consisting of debris material and high concentrations of sediment. Meanwhile, other semiotics, such as faunal semiotics, are defined as behaviors shown by various types of animals that tend to stay away from

the Merapi volcano as a sign of an impending eruption (Setyawati et al. 2015). This local knowledge develops in the community and its meaning is passed down from generation to generation.

The Merapi community as a group of people who live in disaster-prone areas already has a way to overcome problems in disaster management. The disaster faced by the people of Merapi has formed a high or resilient recovery capacity. The value of local wisdom in disaster management actions also strengthens the independence of the community to recover from the trauma of the disaster experience. The context of the local wisdom of the Merapi people, which blends with nature and the cosmic ties embraced by this community group, leads the community not to linger in sadness after the eruption. This spiritual approach is not only used by the community in viewing disasters (Gunawan 2014, Yusrifa, 2017). Although it is not written like a formal law, this view of life is very binding on the behavior of the Merapi people and their perspective on the disasters that occur around them. This wisdom is also accompanied by spiritual figures who have been legitimized both in the government system and in the community as the owners of the local wisdom.

Knowing the types of eruptions and their impacts plays an important role in people's lives, especially regarding the issue of disaster mitigation in order to save lives. Knowledge is the main factor and is the key to preparedness in tackling the impacts caused by disasters. Preparedness is an important element of proactive disaster risk suppression and reduction (Kurniawati & Suwito 2017). The Merapi disaster mitigation is very unique because it involves elements of technological progress through a series of integrated information systems with local wisdom in the community (Yusrifa 2017). In fact, this disaster mitigation also accommodates the value of harmony in the community, government, and other parties involved in post-disaster recovery efforts. Good cooperation on various fronts makes post-disaster recovery faster and provides plenty of time for the parties involved to respond quickly to eruptions or disasters that may occur in the following years.

The role of the government in the post-Merapi eruption disaster management efforts in 2010

After the eruption occurred, the condition of the affected area underwent many changes, both in terms of infrastructure and the socio-cultural conditions of the local community. Post-disaster regional management is one of the efforts promoted by local governments in accordance with the direction of the central government through Government Regulation of the Republic of Indonesia Number 21 of 2008 concerning the Implementation of Disaster Management. According to Chapter I Article 1 PP No. 21 of 2008, a disaster is defined as an event or series of events that threatens and disrupts people's lives and livelihoods caused, both by natural factors and/or non-natural factors, including human factors, resulting in the emergence of human casualties, environmental damage, property losses, and psychological impacts.

In Chapter I, Article 10 of PP No. 21 of 2008, rehabilitation is defined as an effort to repair and restore all aspects of public or community services to an adequate level in post-disaster areas with the main target of normalization, or the return of all aspects of government and community life in post-disaster areas. In addition to rehabilitation, this government regulation also mentions the definition of reconstruction, as set out in Chapter I, Article 11. In the view of the majority of the community, the rehabilitation program aims to return households, businesses, and government activities to the normal pattern that existed before the disaster struck. In order to get back to normalcy, people usually assume that buildings and infrastructure must be restored to the way they were before the disaster (Otani et al. 2018). Reconstruction is defined as the rebuilding of all infrastructure and institutions in post-disaster areas, both at the government and community levels, with the main target of leading to the growth of activities, the economy, society and culture, the enforcement of law and order, as well as the rise of community participation in all aspects of life. The authority and responsibility for the implementation of the rehabilitation and reconstruction are held by the government and/or local governments affected by the disaster.

There are several things that need to be considered in the preparation of the rehabilitation plan, namely, first, the regulation of building construction standards; second, social conditions; third, customs; fourth, culture; and fifth, economic factors. All of these provisions are contained in Chapter IV, Article 57, Paragraphs 2 and 3. Seeing how this government regulation accommodates the needs of the community, especially from a social and cultural perspective, it can be interpreted that the function of culture in post-disaster life recovery is quite vital. Socio-economic recovery of culture in disaster-affected areas is further described in Article 71, paragraphs 1-3. Socio-economic cultural recovery is aimed at helping communities affected by disasters so that they can enjoy living conditions as before the disaster.

These social, economic, and cultural recovery activities include advocacy and counseling services, assistance to stimulate economic activity, and training. The local government coordinates with BPBD (Regional Disaster Management Center) in implementing these various post-disaster recovery activities. In addition to carrying out the various activities mentioned above, through Article 85 paragraphs 1-3, the government authorizes local governments, in coordination with the Head of BNPB or BPBD, to carry out efforts to revive the socio-cultural life of the community. The revival of the socio-cultural life of the community is aimed at reorganizing life and developing patterns toward a better socio-cultural condition of the community. Various ways can be taken to reorganize the socio-cultural life of the community, such as eliminating the community's traumatic sense of disaster; preparing the community through disaster awareness campaign activities or disaster care; adjusting the socio-cultural life of the community to the disaster-prone environment; and encouraging community participation in disaster risk reduction activities.

Technical discussions related to post-disaster rehabilitation and reconstruction are also contained in the Sleman Regency Regional Regulation Number 7 of 2013 concerning Disaster Management which refers to the Yogyakarta Special Region Provincial Regulation Number 8 of 2010 concerning Disaster Management. Article 41 of the Regional Regulation of Sleman Regency No. 7 of 2013 states that the local government in accelerating the recovery of the lives of people affected by disasters can set priorities for rehabilitation activities. In financing disaster management, local governments use disaster management finance as stated in article 45. The source of funds for the cost of managing funds is through the Provincial APBD; Regency APBD; and/or other parties.

The active involvement of the community in suppressing the high impact caused by the disaster is considered to have a very vital role if it is associated with local social and cultural conditions, including what happened at Merapi after the last eruption in 2010. The Regulation of the Head of the National Disaster Management Agency Number 5 of 2011 concerning the Determination of Action Plans for the Rehabilitation and Reconstruction of the Post-Disaster Eruption of Mount Merapi in the Special Region of Yogyakarta and Central Java Provinces in 2011-2013 provides an overview of solid cooperation between the local government and the institutions that oversee the problem. disaster and the community while at the same time clarifying the serious efforts promoted by the government in developing areas affected by the eruption.

In implementing structural mitigation as part of the disaster emergency response action, the Sleman BPBD (Regional Disaster Management Agency) carried out a house construction program according to disaster-prone area standards and collaborated with the REKOMPAK Team under the coordination of the Directorate General of Human Settlements of the Ministry of Public Works (Isnainiati et al. 2014). In line with the principle of community harmony, which implies unity within the Merapi community, people whose areas are affected by the eruption are involved in this program. The community was divided into settler groups and relocated from refugee camps to temporary shelters before finally living in permanent housing provided by the government.

In addition to post-disaster reconstruction and rehabilitation efforts, the Sleman Regency Government and DIY Provincial Government are also quite proactive in regenerating productive economic sectors, such as revitalizing farmer groups, gardens, and livestock; provision of fast-harvesting plant seeds; as

well as business capital assistance for traders and small and medium-sized industry (Alam et al. 2013). The 2010 Merapi eruption had a significant impact on the loss of livelihoods for residents, especially those who work daily as ranchers and farmers. The loss of livelihood is an indirect measurable impact or can be interpreted as an impact that occurs when a hazard event has just occurred, but the magnitude of the impact cannot be measured (Wijayanti 2013).

The decline in production in agriculture, livestock, industry, and other economic fields is within the scope of this type of impact. Nevertheless, they managed to build a post-disaster life through the opening of the Volcano Tour tourist area in December 2010. The local village government, namely Umbulharjo Village, saw that the area affected by the eruption had the potential to move together and was able to move the wheels of the economy, which had been paralyzed due to the eruption.

Regional resilience in recovery efforts after the Merapi eruption disaster in the Sleman Region

Resilience refers to the idea of describing that a system recovers from shocks or can build the ability to withstand future shocks. Regional resilience is part of the wider literature on resilience in human geography (Hassink & Gong 2020). In the 2010 eruption of Mount Merapi, it can be seen that the resilience of the region in Sleman Regency can be divided into several indicators, namely, indicators of regional economic resilience, social resilience of the surrounding community, and cultural resilience of the region. Several activities are carried out to design the concept of disaster risk reduction in a more visionary way in order to prepare a better life for future generations (EA & Sirimorok 2010).

In Figure 2, it can be seen that in post-eruption recovery efforts, the most dominant is community social resilience, followed by economic resilience, and lastly, cultural resilience. In the indicators of community social resilience, the development of social solidarity in the area around Merapi in the face of eruptions is not seen as a gradual process. There are three driving factors that influence social vulnerability in disaster-prone areas, namely, 'socio-economic status and infrastructure', 'gender, age, and population growth', and 'family structure' (Siagian et al. 2014). Each citizen activity contains different values of solidarity, mechanical solidarity can be more dominant, or organic solidarity can be more dominant. This cannot be separated from the Javanese principle of life, in which the Javanese should be able to put themselves in the appropriate place, on the one hand, to be a person or themselves, and on the other hand to be a part of society or social beings.

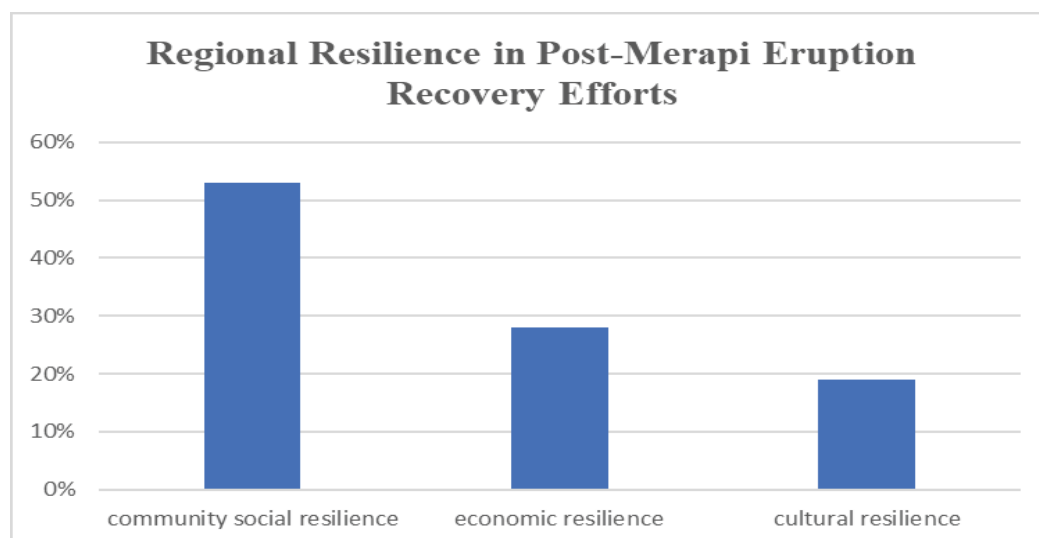


Figure 2.
Analysis of regional resilience in post-Merapi eruption recovery efforts
Source: Primary data processed by NVIVO 12 Plus

At least by applying the noble principles and values that underlie human attitudes in dealing with nature and other humans, harmony becomes a different color for the people of Merapi. The people of Merapi not only build solidarity with elements of society who have been bound by kinship ties but also embrace non-physical and non-human entities that are bound by cosmic ties as part of achieving social harmony (Yusrifa 2017). The traditional Merapi community generally does not recognize a complex and specific division of labor before the eruption. There is no diversity of roles and professions in the pre-eruption Merapi community structure. Meanwhile, at the time of the eruption, individualistic attitudes began to appear with residents' efforts to save themselves and be separated from community ties, except for some community structures that still considered the importance of living together. In the post-eruption period, mechanical solidarity can be seen in the structure of society, which relied on life again in the same sector as before the eruption. Meanwhile, organic solidarity seems to dominate the social order, which has moved away from the traditional structure and simple division of labor. This can be seen in the community who are doing recovery by emphasizing local wisdom.

Organic solidarity will be seen more dominantly in communities that depend on the tourism sector and accommodate the roles and abilities of each of their citizens. However, this organic solidarity is carried out together with the principle of togetherness and remains fully dependent on the collective consciousness of citizens. Thus, even though organic solidarity seems to dominate, there is still limited access for the egotistical attitude to penetrate the fortresses of the people who have been united. In terms of economic resilience, it can be seen in the phenomenon of the 2010 Mount Merapi eruption, which has caused many people around the slopes of Merapi to experience a downturn in various sectors, especially the economy.

This is because of the losses incurred, such as loss of livestock, shelter, and work. In supporting and restoring the community's economy, the government and affected communities have come up with innovations to make Merapi eruptions more attractive to tourists. Therefore, a tourism area was created, namely the Volcano Tour Area, which has since supported people's lives since the 2010 eruption (Wijayanti 2013). As part of the indicator of cultural resilience, as part of a Javanese entity, the people of Merapi also apply the principle of mutual harmony as part of disaster mitigation based on local wisdom. *Guyub Rukun* or *Guyub Harmony* is described through the relationship between communities in the pre-eruption through the harbor ceremony and other traditional ceremonies involving non-physical entities outside of humans as guardians of the balance of nature; the active participation of residents in efforts to save family members or relatives during an eruption; and post-eruption economic recovery.

The concept of *Guyub Rukun* is a central concept in the social life of the Javanese and is derived from the *Larasing Tripita Cipta Kirana* philosophy, which means the creation of harmonious life. As part of a Javanese entity, the people of Merapi participate in implementing the principle of mutual harmony as part of disaster mitigation based on local wisdom. The pillars of the community are depicted through the active participation of residents in preserving pre-eruption cultural values, and evacuating and recovering post-eruption victims. Emile Durkheim's theory of social solidarity views this phenomenon as a form of collective feeling that arises because of a long-standing sense of togetherness. Mechanical solidarity seems to dominate when carrying out *gotong royong*, or togetherness routines, as part of the pre-eruption and post-eruption society. Meanwhile, organic solidarity seems to dominate when people save themselves when the eruption occurs and when the roles and professions of citizens in the new livelihood sector are more specific and diverse. Overall, mechanical solidarity seems to dominate the implementation of the principle of living together in harmony with the Merapi community in dealing with the symptoms and impacts of the eruption due to long-standing ties of brotherhood and togetherness (Yusrifa 2017).

Residents refuse to be placed in different housing and choose to live together in temporary or permanent housing, regardless of the conditions. In fact, to build a new life after the eruption, residents worked for hand in hand to meet their needs by developing the potential for volcano tour tourism in Kinahrejo Village and returning to livestock and grazing for the people of Glagahrejo (Gunawan 2014, Yusrifa

2017). As social beings, the people of Merapi and the people of Yogyakarta, in general, are people who still have very strong family ties and uphold togetherness by helping and cooperating with each other. Please help and work together with the community to preserve the values that are still well preserved. Cultural values in our society are highly valued ideas when people like to cooperate with others based on a great sense of unity (Koentjaraningrat 1984, Yusrifa 2017).

The community has obtained prosperity through disaster mitigation based on local wisdom. The importance of this local wisdom has also been used as a topic of discussion in the Proceedings of the Fourth Session of the Global Platform for Disaster Risk Reduction in Geneva in 2013. In the discussion, it was explained that natural disasters that occur at the local level and local solutions do not mean liberating the government from responsibility national level. In the context of post-Merapi eruption recovery efforts, the government can build a framework and a supportive environment for local action. A culturally sensitive approach based on the principles of inclusivity, participation, and empowerment has been identified as a way to ensure sustainable impact in building community resilience. So far, the Sleman Regency Government has succeeded in building the pillars of regional resilience through a series of post-Merapi eruption recovery efforts. The responsibility that comes after is how to implement a better strategy to deal with the next eruption by continuing to stand on the values that have been firmly held by the people of Merapi so far and collaborating with a more modern knowledge system.

Analysis of regional resilience is in the dimensions of the process and implications. The process dimension examines the toughness and tenacity of youth in dealing with AGHT (Sunardi 1997), while the implication dimension looks at youth's resilience and tenacity in exercising control that has an impact on economic, social, and environmental aspects or aspects (Berkes & Ross 2013). Disaster management efforts, with all their stages, need to involve various government institutions as well as civil society groups as well as the private sector. When viewed in management theory, the implementation of disaster management includes several activities, namely planning, organizing, implementing, and supervising the entire effort (Coulter 2007). The Merapi Slope community is an open society with various innovations, especially in the field of disaster management. Almost all programs related to disaster management involve the community.

Conclusion

Based on the results of the analysis above, it can be concluded that the high level of public awareness supported by the value system of Guyub Rukun and Gotong Royong, as well as various Javanese views on life, has contributed greatly to the achievement of rapid post-disaster recovery. Strong cooperation between elements of society, the government, and stakeholders illustrates that all parties fully rely on the principle of unity in restoring disaster-affected areas, especially in the Sleman Regency. The large role of the district and provincial governments in cooperating in policy-making related to the rehabilitation and reconstruction of affected areas also contributes to the rapid post-disaster response. Post-eruption recovery efforts are also able to enforce regional resilience through a set of indicators, such as indicators of economic resilience through the existence of the Volcano Tour Tourism Area; indicators of cultural resilience through the persistence of the principle of living together in harmony, and various cultural values that still persist in the midst of the threat of disaster; and social indicators through togetherness that supports people's lives, even in rebuilding life after the disaster. In areas with a fairly large threat of disaster, Sleman and DIY can be role models for other regions to live in harmony and side by side with disasters. This study illustrates how the implementation of post-disaster recovery efforts needs to cooperate with local values adopted by the people who live in the area around the volcano. It also cannot be separated from the socio-cultural structure of the Indonesian people who still adhere to ancestral culture.

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