

Strengthening The Capacity Of Sleman Regency In Protecting The Prambanan Temple Site From Mount Merapi Eruption

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Abstract

Mount Merapi is one of the most active volcanoes in Indonesia, administratively located in the southern part of Sleman Regency. Prambanan Temple is a historical site in Sleman Regency that was affected by the eruption of Mount Merapi. To reduce the impact of the eruption of Mount Merapi on the world historical site of Prambanan Temple, capacity building and cooperation from stakeholders in Sleman Regency are needed. The purpose of this study is to analyze the implementation of capacity building in Sleman Regency in protecting the world historical site of Prambanan Temple from the eruption of Mount Merapi. This research method uses a qualitative approach with the research locus carried out in the Sleman Regency area. Data collection techniques through interviews, observation and documentation. The data examination is carried out with triangulation and data analysis techniques using an interactive analysis model. The results of the study show that mitigation focuses on structural aspects, especially post-disaster activities with tarpaulin coverings, while non-structural efforts are not optimal due to gaps in coordination, communication and cooperation between agencies. The Mount Merapi disaster risk assessment in strengthening the capacity of Sleman Regency through strategic efforts ranging from procedures or SOPs to scenarios and alternatives that have been well prepared such as several signs and evacuation symbols. Sleman Regency has implemented innovation and knowledge through its sister village program to provide evacuation information through a mutual cooperation system.



Keywords: *Mount Merapi, Prambanan Temple, Risk, Institutional Capacity*

INTRODUCTION

Mount Merapi is one of the most active volcanoes in Indonesia, administratively located in Sleman Regency, with the rest of the area within Central Java Province, namely Magelang Regency to the west, Boyolali Regency to the north and east, and Klaten Regency to the southeast. Mount Merapi has a high disaster risk, with eruptions occurring every two to five years. Prambanan Temple, a UNESCO World Heritage site, is a key tourism sector that contributes significantly to Sleman Regency's revenue. Tourism is a highly complex industry. The development of the tourism industry can have a multiplier effect that impacts various sectors of the community's life where it thrives. Foreign exchange earnings from international tourists and the creation of various job opportunities can increase

Therefore, Sleman Regency is responsible for minimizing its vulnerability by coordinating with relevant parties to reduce the impact of disasters through disaster mitigation and preparedness, which are part of the pre-disaster phase. Disaster mitigation and preparedness are crucial for increasing capacity to maintain the sustainability and preservation of the Prambanan Temple historical site. Disaster mitigation and preparedness require human resources (HR) capable of managing the impacts and risks of disasters. This quality of human resources can be achieved by strengthening the capacity of all parties so that disaster risk reduction can be carried out effectively and optimally. Disaster mitigation and preparedness must be implemented to enhance the capacity of the Sleman Regency Government to respond to the threat of a Mount Merapi eruption. Furthermore, regional capacity in disaster management is a crucial parameter for determining the success of disaster risk reduction.

METHODOLOGY

This research employed a qualitative method with a descriptive approach. The research was conducted at the Regional Disaster Management Agency (BPBD) of Sleman Regency. Additionally, research was conducted at the Prambanan Temple Conservation Center in Sleman Regency and the Sleman Regency Tourism Office. The research subjects consisted of competent informants who were utilized to provide information on the situation and conditions of the research.

Data collection consisted of delimiting the research, gathering information through observation, interactive interviews, and focus group discussions. Data validity was checked using



triangulation, while data analysis employed an interactive data analysis model.

DISCUSSION RESULTS AND DISCUSSION

Geographically, Sleman Regency is located between 110°13'00" and 110°33'00" East Longitude and 7°34'51" and 7°47'30" South Latitude. The administrative boundaries are bordered by Magelang Regency and Boyolali Regency to the north, Klaten Regency to the east, Bantul Regency and the Special Region of Yogyakarta to the south, and Kulon Progo Regency and Magelang Regency to the west. The area of Sleman Regency is 574.82 km².

The importance of Prambanan Temple as a research location is given that it has attracted the attention of various government agencies and is a vital national attraction in the tourism industry, as well as a global magnet as a historical site. Furthermore, Prambanan Temple's relevance to disaster management in supporting national security lies in the suboptimal prevention efforts implemented by the Prambanan Temple management. As a strategic step in supporting national security, Prambanan Temple's existence is a particular focus for the government and stakeholders in an effort to prevent the broader impacts of the threat of a Mount Merapi eruption.

a. Implementation of Eruption Disaster Mitigation

Disaster mitigation is a priority for the Sleman Regency Government in protecting the world-famous Prambanan Temple from Mount Merapi eruptions. Disaster mitigation needs to be supported by resources to support institutional preparedness activities. To date, the Prambanan Temple management institutions, including the Conservation Center, the private sector, the Regional Government, and the community, have prepared their resources due to stakeholders' awareness of the dangers of Mount Merapi eruptions, which frequently hit Sleman Regency. Human resource capacity building activities are crucial for providing understanding and action, but sometimes each institution operates at its own pace in terms of resource readiness. Disaster mitigation is one of the activities in the pre-disaster phase. Mitigation is defined as efforts to reduce the impact of a disaster.

Non-structural disaster mitigation conducted by the Sleman Regency Government includes simulations and personnel training with rapid assessments, security for Prambanan Temple and tourists, and cleaning of Prambanan Temple. Non-structural mitigation efforts by the Sleman Regency Government focus on human resource development, specifically the government, the business sector, and the community itself, as well as organizational strengthening and institutional reform.



The division of zoning authority for Prambanan Temple maintenance presents a challenge for each managing agency. Administratively, the temple is located within Sleman Regency, with the central government managing agencies, namely the Ministry of Education and Culture and the Ministry of State-Owned Enterprises. This has led to policy polemics, with unsynchronized perspectives between agencies. In disaster management studies, the concept of mitigation is a crucial component for every disaster agency to consider to mitigate greater risks. Disaster risk reduction is a national and local priority with a strong institutional basis for its implementation. Disaster mitigation and preparedness efforts in the face of the threat of a Mount Merapi eruption will support national security in Indonesia. Furthermore, this is crucial because Prambanan Temple is located here, a major economic hub. The Prambanan Temple World Heritage Site must not only be a sustainable historical site but also a thriving tourism industry.

The information system established was conducive, enabling efficient communication between agencies in the affected areas. However, this research found that the regional disaster risk assessment lacked the participation of government agencies, including the Prambanan Temple area management, despite the significant environmental impacts of a Mount Merapi eruption.

Based on the measurement of regional capacity achievement indicators, Sleman Regency can be classified as Level 3, meaning that the government and several communities have committed to disaster risk reduction in the region and are supported by systematic policies. However, the achievements achieved through these commitments and policies are considered incomplete and insufficient to mitigate the negative impacts of disasters. This is because not all institutions fully understand disaster risk assessment procedures, resulting in pre-disaster management agencies focusing more on post-disaster preparedness in the event of an eruption.

The information system has been operating effectively to the public, providing up-to-date information on the situation, both from temple management and from the Yogyakarta Regional Disaster Management Agency (BPBD) and the Yogyakarta Center for Disaster Management (BPPTKG), which provide information on Mount Merapi's activity. Disaster education and access to information have been effective, as evidenced by the presence of disaster signs and educational materials, particularly for eruption victims in evacuation centers. The Sleman Regency Government, through the BPBD, collaborates with universities and various volunteers.

b. Utilizing Innovation and Knowledge

The Sleman Regency Government's efforts outlined above represent a strategy to improve



the efficiency, effectiveness, and responsiveness of government and community performance in responding to the Mount Merapi eruption. Efficiency refers to the resources required by the Sleman Regency Government to achieve its goal of protecting the Prambanan Temple world heritage site from the eruption of Mount Merapi. Effectiveness refers to the appropriateness of the efforts undertaken to achieve the desired outcome. The Sleman Regency Government has identified disaster risk reduction and protection of the Prambanan Temple world heritage site as the desired outcomes of its various disaster mitigation and preparedness activities.

Regarding this low capacity, research findings indicate that the management of the tourist park area is still lacking in terms of benefit sharing through Corporate Social Responsibility (CSR). To date, the Regional Government has not received a budget report from the tourist park management to the regional treasury.

Sleman Regency's disaster risk factors, based on policy planning, refer to existing regulations and continue to monitor developments in collaboration with the Yogyakarta-based Disaster Management Agency (BBPTKG) regarding Mount Merapi activity. The socio-economic aspects of the community have not yet fully benefited from the presence of the Prambanan Temple Area management, especially now facing the pandemic. The Sleman Regency Government's strategic efforts include preparing land for settlements for eruption victims through a grant system, which is part of Sleman Regency's assets.

c. Implementation of Preparedness Strengthening

The Sleman Regency Government's rapid response is a priority in the disaster sector. Strengthening preparedness through institutional capacity and implementing disaster risk reduction mechanisms will serve as a catalyst for the government. In addition, contingency plans for potential disasters at all levels of government, regular drills are held to test and develop emergency response programs, supported by post-disaster information reviews.

This collaboration builds on the resources available in Sleman Regency, including infrastructure and human resources, that can reduce the risk of a Mount Merapi eruption and protect the historical site of Prambanan Temple. The capacity building conducted by the Sleman Regency Government is a process of determining the resources, assets, capabilities, knowledge, and social relationships available to mitigate the Mount Merapi eruption disaster and prevent damage to the Prambanan Temple world heritage site.

The capacity of Sleman Regency government officials, the Prambanan Temple Conservation Center, and the community is considered quite good. This is due to regular training and simulation implemented.



However, the Prambanan Temple Conservation Center is rarely involved in disaster training and simulations, only involving training on protecting and cleaning Prambanan Temple from volcanic ash from the eruption of Mount Merapi. Strong social ties within the community are also a key asset implemented in the LPBDes and Desa Bersaudara programs to support disaster management. However, the capacity of Sleman Regency and the Prambanan Temple Conservation Center is not yet sufficient to protect Prambanan Temple from the eruption of Mount Merapi. Therefore, the Sleman Regency Government continues to strengthen its capacity.

This capacity building is carried out through structural and non-structural mitigation. Structural mitigation to protect Prambanan Temple is limited, given that the eruption of Mount Merapi is an unavoidable disaster. Therefore, the Prambanan Temple Conservation Center and the Sleman Regency Government have created evacuation routes and covered Prambanan Temple with cloth to protect its preservation. Meanwhile, non-structural mitigation efforts include human resource development through training, simulations, and local disaster content. Organizational and institutional strengthening is a barrier to strengthening Sleman Regency's capacity to protect the world-famous Prambanan Temple site from Mount Merapi eruptions. Based on field data, policy asymmetry was found in the implementation of Mount Merapi's eruption disaster management. There are three management zones: Zone One by the Prambanan Conservation Center, Zone Two by PT. TWC, and Zone Three by the Sleman Regency Government.

The following indicators can be used to measure the Sleman Regency Government's capacity to protect Prambanan Temple from Mount Merapi eruptions:

1. Policy Capacity, which is the ability to establish decision-making processes, coordinate between government agencies, and provide analysis of those decisions. As mentioned above, the Sleman Regency Government's policy capacity still faces various obstacles, particularly the lack of coordination between government agencies in disaster management.
2. Implementation Authority, namely the ability to implement and enforce policies for both itself and the wider community. In implementing disaster risk reduction in Sleman Regency, the government has implemented policies quite optimally for the community. This is evident in regular training and simulations, including the establishment of the Village Development Planning Agency (LPBDes) and Village Brothers Program.
3. Operational Efficiency, namely the ability to provide services effectively and efficiently with an adequate level of quality. The contingency plan outlines the operational strategies of



each sector and institution/stakeholder involved to ensure effective and efficient disaster management.

Strengthening institutional preparedness requires a shared understanding through collaboration and establishing a shared consensus on the policies to be developed. To date, the management of the temple area, divided into three zones, has operated independently, closely tied to institutional sectoral egos, resulting in a lack of clarity regarding temple management authority, leading to strengthened institutional capacity. Contingency plans and post-disaster information channels have been carefully prepared by the Sleman Regency Regional Disaster Management Agency (BPBD). The findings of the research on the protection of Prambanan Temple are very substantial and fundamental, where the policies governing the management of Prambanan Temple are still in sync because each UPT in the area under its auspices is different, making it difficult to find a common consensus.

CONCLUSION

Based on the research results analyzed using theoretical foundations and research methods, the conclusions of this study are as follows:

- a. The Sleman Regency Government's Mount Merapi eruption disaster mitigation efforts focus on structural mitigation, particularly post-disaster activities. This includes protecting and cleaning Prambanan Temple from volcanic ash. In disaster mitigation, the Sleman Regency Government still faces obstacles such as a lack of inter-agency coordination and the limited involvement of the Prambanan Temple Conservation Center. This will undoubtedly hinder disaster risk reduction, the goal of mitigation activities.
- b. The Sleman Regency Regional Disaster Management Agency (BPBD) has prepared the Mount Merapi disaster risk assessment to strengthen the capacity of Sleman Regency. Strategic efforts, ranging from study procedures or SOPs to scenarios and alternatives, have been well-prepared. The risk assessment was carried out in collaboration with the Yogyakarta BPPTKG (Regional Disaster Management Agency). The steps taken include establishing an emergency command post, developing several scenarios, and organizing by sector or cluster.
- c. Innovation and knowledge provide a catalyst for strengthening the capacity of Sleman Regency in protecting Prambanan Temple, particularly from the eruption of Mount Merapi. Access to information is crucial for public transparency regarding ongoing and future activities undertaken by the local government, specifically the Sleman Regency Regional



Disaster Management Agency (BPBD), and for public accountability. A culture of disaster awareness fosters shared understanding among regions affected by the eruption, including Sleman Regency. The "Village Brotherhood" program is an alternative policy initiative through local government programs, demonstrating government responsiveness to disaster management.

- d. Sleman Regency's disaster risk factors, based on policy plans, refer to existing regulations and continue to monitor developments in collaboration with the Yogyakarta-based Disaster Management Agency (BBPTKG) regarding Mount Merapi's activity.
- e. Strengthening institutional preparedness requires a shared understanding through collaboration and establishing a shared consensus on future policies. To date, the management of the temple area, divided into three zones, has operated independently, closely tied to institutional sectoral egos, resulting in a lack of clarity regarding the authority for temple management, leading to strengthened institutional capacity.

The Sleman Regency Regional Disaster Management Agency (BPBD) has prepared contingency plans and post-disaster information channels in detail. The findings of the research on Prambanan Temple protection are substantial and fundamental, as the policies governing its management remain inconsistent due to the different technical implementation units (UPT) within its jurisdiction, making it difficult to reach a common consensus.

Recommendations

Based on the above conclusions, the following practical and theoretical recommendations are provided:

- a. Implementing eruption disaster mitigation requires non-structural mitigation efforts as a strategic step through policies governing the management of Prambanan Temple in response to a Mount Merapi eruption. Furthermore, human resources are needed to strengthen understanding of Mount Merapi eruption disaster mitigation. This is an effort to develop non-structural mitigation as an input to address gaps in coordination, communication, and cooperation between agencies. Structural mitigation needs to be maintained and enhanced in the event of increased eruptive activity by preparing facilities and infrastructure to protect the temple.
- b. The implementation of the Mount Merapi disaster risk assessment to strengthen the capacity of Sleman Regency has been well-understood by the Sleman Regency Regional Disaster Management Agency (BPBD). The established information system is operating smoothly,



ensuring efficient communication between agencies in the affected areas. Therefore, both institutional and personnel capacity must be maintained and enhanced.

- c. Innovation and knowledge are well-established in providing public education and information regarding temple maintenance activities. Furthermore, the sister village program aims to provide access for Mount Merapi evacuees to designated evacuation sites through a mutual cooperation system.
- d. Disaster risk factors impacting Prambanan Temple have been addressed through both policy regulations and existing actions. Therefore, they need to be maintained and enhanced in accordance with existing needs and disaster threats, with a swift, precise, and sustainable action plan through rapid assessments.
- e. Strengthening institutional preparedness needs to be enhanced through collaborative efforts and mutual agreements so that efforts are carried out effectively and effectively. A joint study is needed to synchronize Prambanan Temple management policies, as each Technical Implementation Unit (UPT) within its jurisdiction has different authorities, making it difficult to reach a common consensus. This concrete step involves policy coordination and harmonization by establishing a Prambanan Temple management authority capable of accommodating stakeholders in its management.

This study focuses on strengthening the capacity of Sleman Regency to protect the Prambanan Temple world heritage site from the eruption of Mount Merapi using the capacity indicator approach from the Hyogo Action Framework (BNPB Regulation 03/2012). Future researchers can develop a capacity strengthening research model by adapting each variable, indicator, and dimension to suit the subject and object of study.

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