



## The Recontingencies of Merapi Eruption Disasters in Implementation of Sister Village

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### Abstract

The objectives of PPDM are: 1) Improving the community's understanding of the community-based village communication and information system in the implementation of sister villages and the follow-up phase will be carried out gradually and continuously. 2) Build an organizational or institutional structure that functions to handle disasters so that they are better planned and clear. 3) Develop technical guidelines as put-off Buffer Village in sister village implementation. 4) Promote joint activities to improve the hospitality of KRB III Village and Buffer Village. The method to be used in achieving these goals is a participatory Rural Appraisal (PRA) participatory community empowerment model. The results obtained: 1) Management of Deyangan Village Disaster Management Institution is more organized and in implementing sister village implementation together with Krinjing Village has a meaningful agreement to mitigate the eruption of Mount Merapi, 2) The Village of Buffer has more adequate MCK facilities in case of displacement at any time so that problems that will arise in the health aspects of refugees will be minimized, especially in clean and healthy lifestyles, 3) Deyangan Village has more adequate internet towers to improve the quality of communication and information as a sister village and support the development of SID, 4) Villages KRB III and the Village of Buffer seek joint activities to increase friendship to hold a "Village Cultural Potential Expo (Sister Village).

### a. Introduction

Since the establishment as a sister village, (disaster-prone areas) KRB and a Buffer village have made an agreement to pair with each other facilitated by (Regional Disaster Management Agency) BPBD Magelang Regency. However, due to limited resources owned, the program seems to stop. Though the activity is expected to be carried out continuously so that the sense of security and comfort from the community of both parties at the time of the eruption disaster is relatively better or fulfilled. Even though it has been running for

almost 6 years as a sister village, the community has only just gotten a very good awareness about the Early Warning System (EWS) and the sister village. So their understanding needs to be refreshed and improved again.

Despite having experienced the eruption of Mount Merapi many times, the villages of the (Disaster Prone Areas) KRB and surrounding areas very often experience the problem of losing population data along with other important documents. This has a significant impact on the performance of village officials. The Village Information System (SID) which contains population data along with other important documents has been developed since 2015 but to date there are only 5 villages out of 47 villages that have used SID. Both Krinjing Village as (Disaster Prone Areas) KRB and Deyangan Village as Buffer Village are villages that have not used the system. During the 2010 eruption there were 23 people separated from their families. Livestock brought in refugee camps lack adequate places and feed. Because they were busy saving them, many of their important documents were lost and the village did not have a duplicate. (*BPS Kabupaten Magelang, 2015. Kabupaten Magelang dalam Angka. Pemerintah Daerah Kabupaten Magelang, n.d.*)

While on the other hand, up to now Magelang Regency (Regional Disaster Management Agency) BPBD as the (Decree of the Regional Government) SKPD responsible for disaster management in the regions has found it difficult to compile the Technical Guidelines for the Implementation of Village Brothers' SOPs along with supporting SOPs due to limited resources.

Another problem that arises is that, when a number of refugees with unpredictable numbers appears, many problems begin to be prepared, where they will be placed, logistical sufficiency must be provided, if an eruption occurs in a long time will cause panic for the population (trauma), Bathing Washing latrines are inadequate when compared with the number of refugees. This is compounded by the very minimal implementation of (Clean and healthy living program) PHBS. For example littering, defecating or defecating in any place and many others. Dirty and dirty become a common sight in the refugee barracks. Another impact is social disorder will occur. As a Buffer Village, it is necessary to develop appropriate strategies to anticipate these events so as not to cause the effects of the emergence of unpleasant odors everywhere, stomach ailments or other diseases caused by unclean behavior from refugees.

In 2015 (Regional Disaster Management Agency) BPBD and Mertoyudan Sub district in collaboration with (Muhammadiyah Disaster Management Center) MDMC, provided socialization on barracks management in Deyangan Village, attended by 24 people consisting of various community elements in order to become a Village of Buffer but the community was still less motivated to develop a genuine strategy to become a Resilient Buffer Village. They felt that it was not necessary to lead to the put-off Buffer Village, among others because they did not have enough time to think about a more operational or concrete strategy in the event of an eruption, limited resources, no technical guidelines or supporting (Standard Operating Procedure) SOP that could be used.

Given that Mount Merapi is an "active" mountain, planned, coordinated, concrete, dynamic and measurable disaster mitigation efforts are needed. In connection with this, community service activities will be carried out aimed at making Deyangan Village a put-off Buffer Village. Based on (Peraturan Bupati Magelang Nomor: 41 tahun 2011, n.d.), concerning the Function of the Regional Magelang Disaster Management Agency. The

Government has determined disaster mitigation efforts in a gradual and continuous plan with stakeholders. Although the purpose of disaster mitigation is to minimize casualties and losses from disasters, many obstacles arise including:

- a) Insufficient performance of the apparatus and disaster management institutions. The problems faced include: 1) Database that is not updated and regularly administered; 2) Inaccurate post-disaster damage and loss assessment; 3) Limited map of the area which causes delays in the implementation of spatial damage analysis; 4) Limited funding allocation for rehabilitation and reconstruction sourced from regional governments.
- b) Still low awareness of disaster risk and understanding of disaster preparedness. Problems faced are related to awareness of disaster risk reduction efforts, including: 1) Limited information and communication networks that are effective in disseminating disaster information to the public; 2) Not yet integrated disaster risk reduction in development planning effectively and comprehensively; 3) Do not have clear guidelines and or SOPs related to disaster mitigation.(BPPBD, n.d.)

The purpose of this engagement in part-2 was empowering, namely increasing capacity by strengthening community potential such as providing various inputs, training and opening access to various opportunities that can make the community more empowered. One of the efforts of the Regional Government to overcome the obstacles that arise above is to hold a sister village program. The social capital owned by the Sister village method is group and network, trust and solidarity, joint action and cooperation, information and communication, social cohesion and inclusion, as well as empowerment and political action. This program was initiated in 2011 after the eruption of Mount Merapi. There are 19 sister villages that have been established and received legal recognition from the Local Government of Magelang Regency, namely:

**Table 1.** The list of *Sister Village*

No.	Villages of Disaster-prone areas	Buffer village
1	Wonolelo Sawangan	Banyuroto Sawangan
2	Kapuhan Sawangan	Mangunsari Sawangan
3	Ketep Sawangan	Podosuko Sawangan dan Sobowono Pakis
4	Sengi Dukun	Pucungrejo Muntilan
5	Sewukan Dukun	Treko Mungkid
6	Paten Dukun	Gondang dan Bumirejo Mungkid
7	Krinjing Dukun	Deyangan Mertoyudan
8	Kalibening Dukun	Adikarto Muntilan

9	Sumber Dukun	Pucungrejo Muntilan
10	Ngargomulya Dukun	Tamanagung Muntilan
11	Keningar Dukun	Ngrajek Mungkid
12	Kaliurang Srumbung	Jamus Kauman, Plosogerde, Blingo Ngluwar
13	Kemiren Srumbung	Salam Salam
14	Ngablak Srumbung	Kradenan Srumbung, Somokerto dan Tirto Salam
15	Nglumut Srumbung	Sucen Salam
16	Tegalrandu Srumbung	Bringin Srumbung, Baturono Salam
17	Mranggen Srumbung	Gunungpring dan Sukorini Muntilan
18	Ngargosuko Srumbung	Gulon dan Seloboro Salam
19	Srumbung Srumbung	Jumoyo Mertoyudan

### a. Methods of Implementation

The method to be used for the implementation of PPDM activities is a participatory community empowerment method with the Participatory Rural Appraisal model, which is an approach method in the process of empowering and increasing community participation, the emphasis on community involvement in the overall activities carried out. (Burhan,2002)

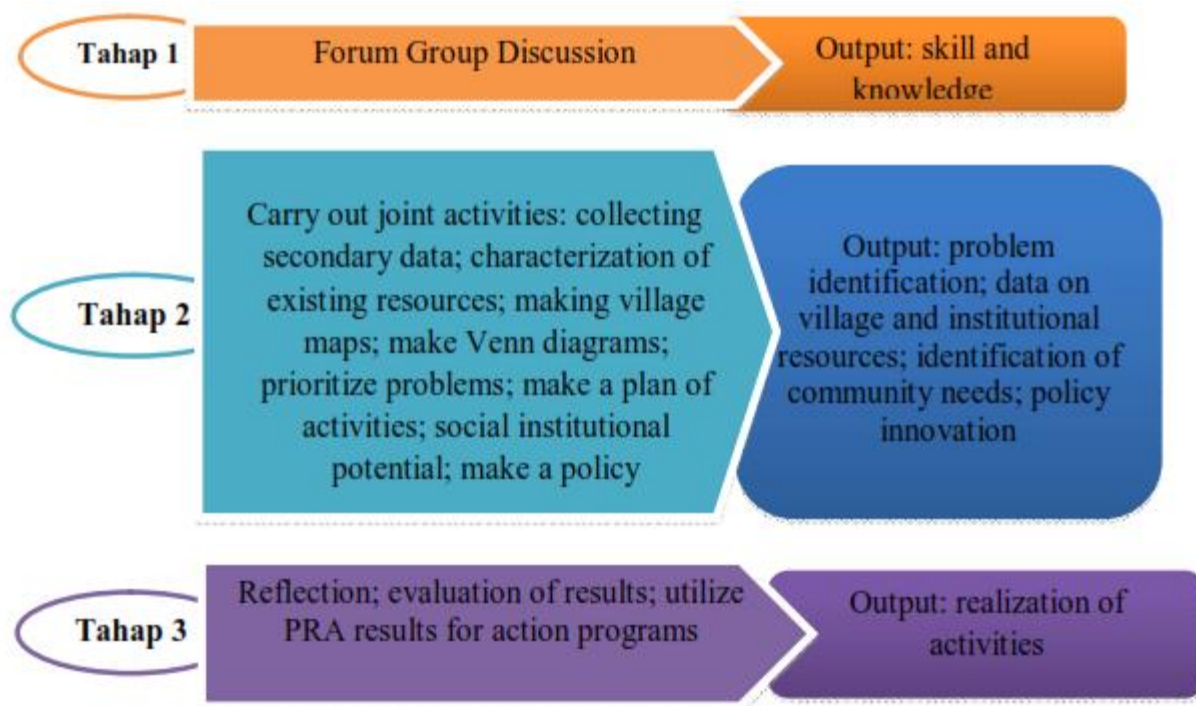


Figure 1. The steps of PPDM

### b. Results and Discussion

#### a. Group Discussion Forum

- 1) BAPPEDA supports and assists community service activities in the area of Magelang Regency conducted by the PPDM Team of Muhammadiyah University of Magelang in carrying out community empowerment efforts to reduce disaster risk.
- 2) BPBD strongly supports BPBD's efforts in disaster risk reduction in the Magelang Regency region and can be a partner and it would be highly expected if a better model for disaster risk reduction emerged, especially related to basic material on Community-based Information and Communication Systems, SID, SAR, evacuation, logistics synergize with BPBD Regency.



**Figure 2.** FGD with the chairman of BPPBD Magelang Regency

- 3) MDMC is ready to support activities, with data analysis of problems that occur:
    - a) Readiness is imperfect / absent;
    - b) Early warning is absent or ineffective;
    - c) Information incomplete / incorrect, confusing;
    - d) Communication / transportation is lost;
    - e) Confusion, failure to coordinate;
    - f) Large needs, insufficient assistance material;
    - g) Unclear targets;
    - h) Security issues and guarantee of protection; So that it takes steps in harmony or in sync from the stakeholders to reduce the number of victims and reduce the suffering of victims of the Mount Merapi eruption.
  - 4) The village government is ready to accept the second phase of the PPDM program as a buffer village, hopes that if there is a time they must accept their "siblings" from KRB Village, the moral and material readiness of the community is better and more resilient.
- b. Program implementation
- Training of the Parties on Management of Village Disaster Management Institutions or Village Disaster Risk Reduction Organizations in the Implementation of Sister Village. Held on: Day, date: Friday and Saturday 3 and 4 May 2019, Place: Hall / pavilion Office of the Head of Deyangan Mertoyudan Village, Participants: 41 people consisting of Muhammadiyah University of Magelang Scholars, Krinjing BPD and Deyangan BPD representatives, Krinjing Village Heads and Deyangan Village Heads,

OPRB Krinjing Village and Deyangan LPBDes, Kadus Representatives from all Krinjing Villages and representatives from the Ngroto Hamlet. Assistance: Compilation of contingency drafts 6 – 11 May 2019

- 1) Socialization of Magelang Distric Government Policy regarding the Implementation of Sister Village material was delivered by the PPDM Team and Mr. Gunawa ST, MT from BPBD Magelang Regency
  - a) Eruption of Mount Merapi will cause 3 hazards that can be categorized: primary hazards (immediate danger when eruptions occur (hot clouds, pyroclastic falls, volcanic ash, lava flows), secondary hazards (hazards occurring after eruptions - rain lava) and tertiary hazards (hazards danger due to damage to the mountain environment (loss of catchment areas /forests / springs.
  - b) In accordance with the 2014-2019 Magelang Regency RPJMD the sixth mission Improving the security and peace of society is: Strategy: Reducing Disaster Risk that impacts on the community, with a strategy of increasing preparedness in dealing with disasters and disaster management. Policy: disaster management in Magelang Regency is prepared on the basis of regulations, institutions and general planning for each phase of the disaster.
  - c) Sister Village is a method developed by the Magelang Regency Government through the BPBD as an effort to create a sense of calm for residents to live side by side with the threat of disaster; there is certainty of the destination of refuge; reduce the panic and chaos of the refugee process; facilitate refugee services on the basis of brotherhood. Sister Village is a brotherhood of two or more villages, between villages that have a high level of threat from the Mount Merapi disaster and a village that is considered safe from the threat of Merapi as a buffer village in the context of disaster risk reduction
  - d) The implementation can be illustrated through the flow chart below:



**Figure 3.** Flow Chart of Sister Village Implementation

So between the two villages there must be (1) synchronization related to the number of residents who will be evacuated to the Buffer Village. This is very important to know because it will relate to many things ranging from the needs of the place, clean water, logistics, health, education and others, especially those concerning basic human needs; (2) Krinjing – Deyangan procedures regarding how evacuation routes, how to evacuate, refugee placement according to the refugee's place capacity and objective conditions, how to receive refugees, placement of livestock and others; (3) division of tasks between OPRB and Deyangan LPBDes. The division of tasks is distributed starting from the pre-disaster condition, during the disaster and after the disaster. This was done in order to avoid overlapping roles that could become a potential horizontal conflict and make it easier to create harmonious relations between the two village brothers; (4) updating the Village Information System so that the dynamics of the objective conditions of the population in both villages always approach the real data, so that the evacuation process efforts can be carried out optimally.

- e) The dynamics of change in every condition of Mount Merapi or the so-called "Catur Gatra Ngadepi Bebaya Mount Merapi" that must be understood by all parties in the implementation of sister villages so that in pre-disaster disasters - when disasters can be addressed appropriately and quickly, are as stated below:



Figure 4. Flow Chart of Sister Village Implementation

- 2) (Village Disaster Management Agency) OPRB or LPBDes management training activities by the PPDM Team, Joint tasks between OPRB Krinjing Village and Deyangan LPBDs prepare preparations to support the smooth evacuation:
  - a) Data Collection and Mapping of Resources includes: the number of Krinjing residents who will be used as the basis for the most adequate refugee allocation policy; evacuation facilities that will be used for basic preparation, capacity in Deyangan and its facilities).
  - b) Evacuation (preparation of evacuation routes and evacuation vehicles).
  - c) Preparing a place of refuge.
  - d) Sanitation (clean water, MCK, Waste, Waste)
  - e) Health.
  - f) Education for children in refugee camps
- 3) Motivation Training with the theme "Work and Humanitarian Performance", participants of the activity were introduced to the Spiritual Emotional Freedom Technique (SEFT) method to increase the self-motivation of trainees as (Village Disaster Management Agency) OPRBOr LPBDes members to become more useful humans, people who have more concern, humans who are always more servant to God Almighty. The final goal in this session participants felt even more excited to implement the sister village systemically.



**Figure 5.** Motivation Training

- 4) Preparation of Sister Village-based Eruption Disaster Eruption Contingency Plans, between Krinjing Village (KRB III) and Deyangan Village (Buffer Village). Activities carried out are discussions, information and agreement on: data on population numbers based on hamlet, sex, vulnerable groups , the possibilities of the evacuation route to be taken based on the objective conditions of the route as well as the existing means of transportation, places of refuge to be used, matters related to basic needs, economy and logistics, education, communication and information.
- 5) Training of Parties regarding. Barracks Management. Held on: Day, date: Wednesday and Thursday 7 and 8 August 2019, Venue: Hall / pavilion Office of the Head of Deyangan Mertoyudan Village, Participants: 38 people consisting of Krinjing BPD and BPD representatives, Deyangan, Krinjing Village Head and Deyangan Village Head, OPRB Krinjing Village and Deyangan LPBDes, Kadus Representatives throughout Krinjing Village and representatives from Ngroto Hamlet. Assistance: making a draft agreement 9 - 14 August 2019.



- 6) Socialization of Magelang Regency Government Policy regarding Refugee Management, material was delivered by the PPDM Team and Mr. Edy Susanto, MT from the Magelang Regency BPBD. Material core: Direction of disaster management policy in Magelang Regency in 2019-2024
- 7) Preparation of contingencies for barracks management is guided by the PPDM Team and MDMC Muhammadiyah Central Leadership. This planning is very necessary as a step of preparedness in the face of the possibility of a disaster / emergency, including community preparedness. By raising awareness through contingency planning, we can reduce uncertainty through developing scenarios and assuming projected needs for emergency response. The principles that must be developed are:
  - a) The process of drafting together & done openly.
  - b) Applies to one type of hazard (Hazard specific) or collateral.
  - c) Having a risk scenario and saving lives priorities.
  - d) Has a validity period.
  - e) Be the basis for preparing an emergency response operation plan after the rapid assessment.
  - f) Always updated and reviewing periodically based on changes in risk components, updating can be in the form of deactivation or improvement
  - g) Determine the roles and tasks of each institution based on the cluster in accordance with the SKTD (Emergency Response Command System)
  - h) Lists realistic resource components.
  - i) Agree on a consensus that has been made together.
  - j) To deal with emergencies and the effects of disasters

### **c. Conclusion**

- a. Management of Deyangan Village Disaster Management Agency is more organized and in implementing sister village implementation together with Krinjing Village has a meaningful agreement to mitigate the eruption of Mount Merapi,
- b. Buffer Village has more adequate MCK facilities in case of displacement at any time, so that problems that will arise in the health aspects of refugees will be minimized, especially in clean and healthy lifestyles
- c. Deyangan Village has more adequate internet towers to improve the quality of communication and information as a sister village and support the development of SID,
- d. KRB III and Desa buffer villages seek joint activities to increase friendship, one of which has been agreed is to hold a "Village Cultural Potential Expo (Sister Village)"

### **d. Acknowledgements**

The PPDM program is a second year grant from Kemnristekdikti which is mandated by the Muhammadiyah University of Magelang team. and it is fitting for us to say to the head of BAPPDEDA, BPPBD, MDMC, Deyangan and Krinjing village governments, Journal of Community Services and Engagement, ISSN: 2656-6990, EISSN: 2656-6974 43 The Recontingencies of Merapi Eruption Disasters in Implementation of Sister Village Kanthi

Pamunkas Sari et al. Magelang District who have shared knowledge in realizing a shared vision "Reducing the risk of disaster through the sister village program".

**e. References**

BPPBD, Renstra SKPD Kabupaten Magelang 2014-2019

BPS Kabupaten Magelang. (2015). Kabupaten Magelang dalam Angka. Pemerintah Daerah Kabupaten Magelang. (n.d.).

Burhan. (2002). Teknik Pemberdayaan Masyarakat Secara Partisipatif. Departemen Agribisnis FEM IPB.

Peraturan Bupati Magelang Nomor : 41 tahun 2011.