

Engagement of the Resilience Evaluation Instrument for Pasar Blumbang Wirokerten Tourism Village Yogyakarta Against Disaster Risk

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Abstract. Wirokerten village has advantages in the field of cultural tourism and Micro, Small Medium Enterprise (MSME) potential place called Pasar Blumbang. Despite all the advantages, this area also a threat of disaster. Therefore, this research aims to assess village resilience against risky disaster to measure the level of community resilience in facing disasters. Research methods using evidence-based independent assessments by villages and Focus Group Discussions (FGD) to agree on assessments assisted by facilitators or village assistants. The result of assessment shows that the percentage shows an increase in residents' awareness of potential disasters in the Wirokerten Village area. These results become the basis for decision-making about actions to increase disaster resilience and monitor its progress. This workshop is expected to increase the resilience of Wirokerten Village and surrounding communities to natural disasters.

1 Introduction

Wirokerten Village is one of eight sub-districts in Kapanewon Banguntapan, Bantul Regency, DIY which has an area of 367.17 ha with a population of $\pm$ 13,750 people. Wirokerten district also has tourism potential and Micro, Small Medium Enterprise (MSME) or Usaha Mikro, Kecil dan Menengah (UMKM) potential [1]. Wirokerten District has advantages in the field of cultural tourism, such as jatilan, gamelan, hadroh, karawitan, and angklung arts [2]. Then, in terms of MSME potential, they are the emping melinjo industrial village, grape cultivation village, telang flower cultivation village, and old school food producer village [3-5]. Based on the potential above, Wirokerten Subdistrict has the opportunity to prepare the subdistrict to become an independent cultural village [6, 7]. The

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process of achieving an independent cultural village is strengthened by the vision of Wirokerten Village, as stated in the District Medium Term Development Plan for the 2019-2024 period.

Despite all the advantages of Wirokerten Village, this area also has a threat that lurks in the community, namely disaster. Disasters in Indonesia are inevitable. Disasters occur because of unpreparedness for the risks and impacts of dangerous threats [8]. To respond to potential disaster events, there must be pre-disaster management planning efforts from all parties [9, 10]. Understanding hazards and disaster risk reduction needs to be disseminated to the community as an effort to reduce vulnerability and increase personal capacity [11, 12]. The community is the party directly affected physically, mentally, and socially by loss, damage, and losses due to disasters [13, 14]. Therefore, the community needs to play an active role in disaster management efforts [15, 16].

A disaster resilient society is one society that has the ability to anticipate, overcome, and recover from threats, shocks, or pressures resulting from disasters [17, 18]. Apart from that, disaster resilient communities also have the ability to recognize threats in their area and are able to organize existing resources to reduce vulnerability while increasing capacity in order to minimize disaster risk [14, 19]. This capability is realized in risk management, which includes planning, mitigation, and preparedness for disasters and post-emergency recovery [20, 21].

In the regulation of head of the National Disaster Management Agency (Perka Badan Nasional Penanggulangan Bencana - BNPB) No. 1 of 2012 it is explained that Disaster Resilient Villages or *Desa Tangguh Bencana* (Destana), are villages that have the independent ability to adapt to and face the threat of disasters, as well as recover immediately from the detrimental impacts of disasters [22]. Independent capability means a series of efforts carried out by oneself by empowering and mobilizing the resources of village communities to recognize the threats and disaster risks they face, including evaluating and monitoring their capacities [23, 24]. In BNPB Perka Number 1 of 2012, there are at least 20 indicators to describe the resilience of a village because a single sector approach has been proven not to be able to build resilience adequately [22]. For this reason, a lot of effort is still needed both by the community itself and from various parties to increase community capacity.

Development integration efforts are very important to carry out because various aspects of development are interrelated and influence each other. In addition, the integration of Disaster Risk Reduction or *Pengurangan Risiko Bencana* (PRB) seeks to ensure that aspects of development, such as economic, social, cultural, and environmental, can run effectively, efficiently and benefit the community [23, 25]. Therefore, in this service activity, a Village Resilience Assessment or *Penilaian Ketangguhan Desa* (PKD) process will be carried out which is very necessary to measure the level of community resilience in facing disasters [26]. This village resilience assessment also aims to produce basic data on aspects that influence disaster resilience at the government and community levels. The results of the assessment will be analyzed as a basis for making decisions on actions to increase disaster resilience and monitor progress. The PKD framework adopts village and sub-district disaster resilience standards in SNI 8357:2017, and adapts the Disaster Resilience of Place (DROP) model [26, 27].

2 Methodology

The main activity carried out is assistance in fulfilling indicators towards a Destana). The initial stage of Destana's activities is to carry out a PKD. The PKD principles and methods used include evidence-based independent assessment by villages/subdistricts and FGD to

agree on assessments assisted by facilitators or village assistants. Stages of implementing activities include:

1. Conducting observations and analysis of the situation in Wirokerten Village regarding mitigation activities for potential natural disaster hazards that may occur.
2. Coordinate with the village regarding the results of observations and plans for further activities.
3. Organizing seminars and FGDs related to potential disasters and the disaster mitigation process in Wirokerten Village with collaborator partners from the Muhammadiyah Disaster Management Center (MDMC).
4. Evaluate the results of socialization activities and FGDs that have been held as a form of assessment of village readiness for facing potential disasters and provide recommendations for follow-up plans towards a Destana.

3 Results and Discussion

3.1 Location and Geography

The service location is located in Wirokerten Village, Banguntapan Sub-district, Bantul Regency, Yogyakarta Special Region. The distance of the Wirokerten Village government to the sub-district government is 2 km, the distance to the district government is 15 km, and the distance to the provincial government is 14 km. Wirokerten Village has an area of 386.17 hectares, consisting of 255.75 hectares of technically irrigated rice fields, 24.25 hectares of semi-technically irrigated rice fields, 15.55 hectares of fields, 104.55 hectares of settlements, and 56.00 hectares of other areas. The total population of Wirokerten Village is ± 14713 people, consisting of ± 7300 women and ± 7413 men. And the number of family heads is ± 4740 family cards.

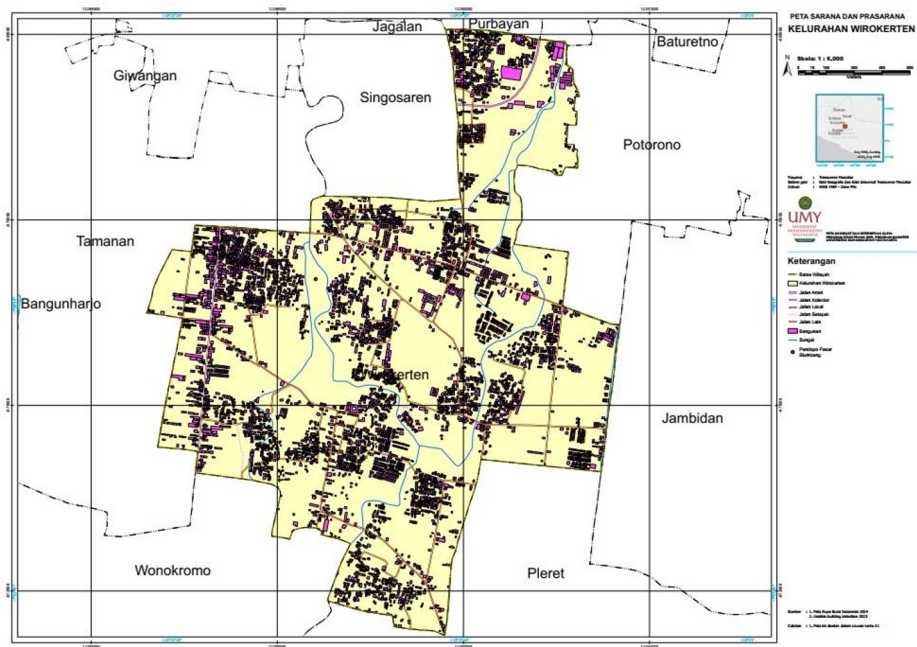


Fig. 1. Wirokerten Village facilities and infrastructure map.

Wirokerten Village also has tourism potential and MSME potential. This potential is evidenced by the area of Wirokerten Village which consists of 76% technical irrigated rice fields, semi-technical rice fields, and green fields. In addition, Wirokerten Village also excels in the field of cultural-tourism potential such as Blumbang Mataram Market activities, Ngontel N'Deso, jatilang art, gamelan, hadroh art, karawitan, and angklung. Then, in terms of the potential of MSMEs in the form of the emping melinjo industry village, grape nursery village, telang flower cultivation village, knitting peci, and traditional cuisine producer village. Wirokerten Tourism Village is located on the banks of the Gajah Wong River and is at risk of natural disasters such as flooding and erosion. Flooding can occur during the rainy season due to high rainfall causing the river to overflow, while erosion can erode the land around the banks, threatening infrastructure. Water pollution from domestic and industrial waste is also a threat to health and the environment. Therefore, disaster mitigation strategies are needed through the Disaster Resilient Village program.

3.2 Implementation of Problem Solution

The results of the implementation of this community service activity have been carried out by conducting a discussion group forum with speakers from the MDMC PP Muhammadiyah, by giving a questionnaire test through google form to participants consisting of the community and assisted by the Wirokerten Village tourism awareness group. The activity was held at the pavilion of Blumbang Market.



Fig. 2. Disaster counseling activity with resource persons from MDMC.

3.3 Analysis of Disaster Mitigation Readiness

The table below shows the questionnaire questions that we gave to respondents as a pre-test and post-test. The figure below is the final score that contains the comparison results between the pre-test and post-test given to the socialization participants who also acted as test respondents. Based on the comparison of the bar chart in Figure 3, all respondents on average were able to answer the pre-test questions correctly by 51% of the 17 question items and increased to 81% for the post-test.

Table. 1. Questions to assess the resilience of Pasar Blumbang tourism village to disaster

No	Questions
1	Select the statement that corresponds to the meaning of disaster
2	Disaster Risk Factors according to Undang-Undang (UU) no. 24 of 2007
3	What are the types of disasters in Indonesia?
4	What is the purpose of disaster mitigation?
5	Choose the correct type of mitigation
6	The stages of Indonesian disaster management are?
7	Choose the statement that corresponds to the definition of disaster risk according to UU no. 24 of 2007.
8	The following are ways to manage disaster risk, except?
9	The following are considerations in choosing an evacuation site, except?
10	Disaster resilient village means?
11	The following are the roles and functions of village facilitators, except?
12	These are some of the duties and roles of a community facilitator, except:
13	Some facilitation methods include;
14	A Contingency Plan is, except?
15	PKD stands for?
16	Interpreting disaster according to fiqh of disaster is?
17	Responding to disasters according to disaster fiqh

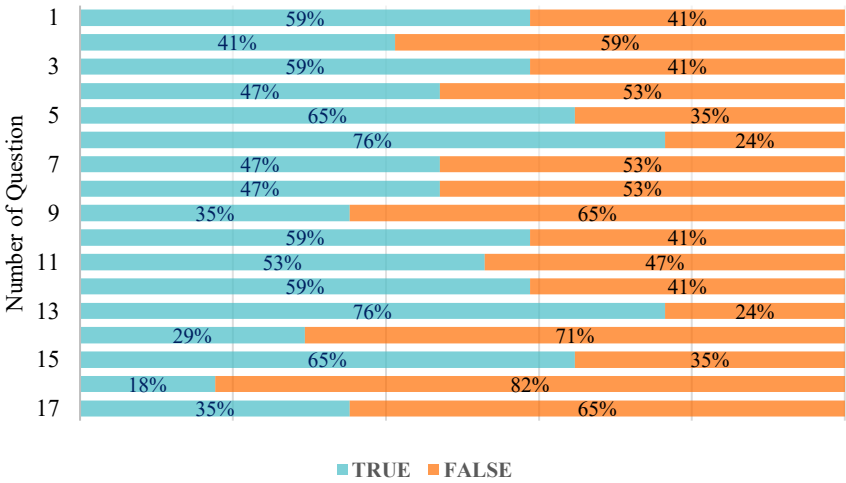


Fig. 3. Blumbang Market Tourism Village resilience assessment pre-test results

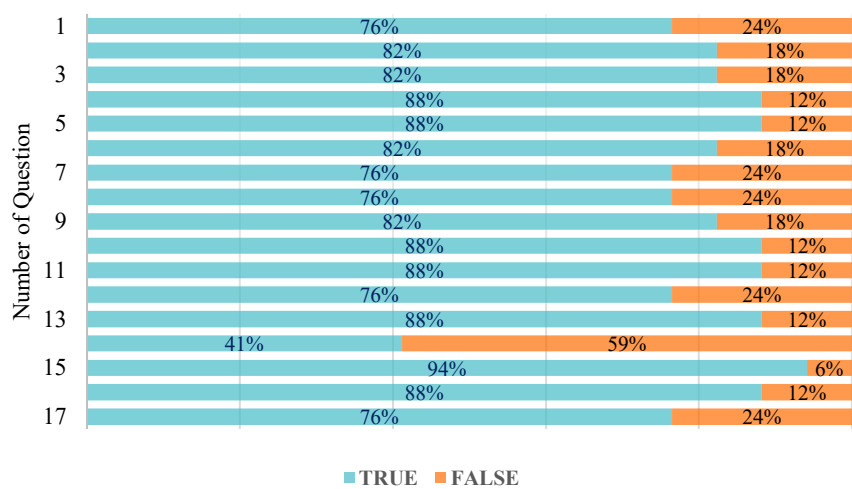


Fig. 4. Blumbang Market Tourism Village resilience assessment post-test results

4 Conclusions

The results of the community service activities in Wirokerten tourist village are disaster counselling and pre-test - post-test of disaster knowledge, the percentage of which shows an increase in residents' awareness of potential disasters in the Wirokerten Village area. These results become the basis for decision-making for actions to increase disaster resilience and monitor its progress. This workshop is expected to increase the resilience of Wirokerten Village and surrounding communities to natural disasters.

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