

Disaster Resilient Village Effectiveness Program (Study in Citepus Village, Sukabumi, Indonesia)

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Abstract. Among the 38 villages in Sukabumi Regency that have implemented the Disaster Resilient Village program, Citepus Village was chosen by BPBD Sukabumi Regency to implement this program because it has a high disaster risk. However, if we look at the level of capacity, Citepus Village is classified as a village with a low level of capacity, this shows that the community and village officials in disaster management are still relatively low or poor. The aim of this research is to find out how the Disaster Resilient Village program is implemented in Citepus Village, Palabuhan Ratu District, Sukabumi Regency. The method used in this research is quantitative with a descriptive approach. The population in this study were Citepus residents, with a sample size of 100 respondents. In this research, researchers used data collection techniques, namely observation, questionnaires/surveys, and literature study. Data analysis and hypothesis testing used in this research are validity testing, reliability testing, hypothesis testing, t test. The findings in this research are the Disaster Resilient Village Program in Citepus Village, Effectiveness, Disaster Resilient Village Program. Effectiveness, defined as the degree of goal achievement, is crucial in gauging organizational progress. In conclusion, community knowledge and awareness are pivotal in mitigating disaster risks and losses. The findings emphasize the efficacy of community-driven disaster resilience initiatives and advocate for proactive, preventive measures in disaster management.

Keywords: Effectiveness; Disaster; Resilient; Village

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INTRODUCTION

In recent years, the global community has witnessed an alarming increase in the frequency and intensity of natural disasters, posing significant threats to communities around the world (Islam & Khan, 2018). As a response to this growing challenge, the Disaster-Resilient Village Effectiveness Program has emerged as a proactive and comprehensive initiative aimed at enhancing the resilience of vulnerable communities (Hutagalung, 2023). Indonesia, situated in the Pacific Ring of Fire, is particularly susceptible to a wide array of natural disasters, including earthquakes, floods, and volcanic eruptions (Teh & Khan, 2021). The vulnerability of its communities necessitates strategic and sustainable approaches to disaster preparedness and response (Waclawski, 2015). Recognizing this need, the Disaster-Resilient Village Effectiveness Program was introduced as a holistic framework designed to empower local communities to withstand and recover from the adverse effects of disasters (Sharma et al., 2021).

Disaster Information Data Indonesia (DIBI) records that there are seven types of disasters that have occurred in Sukabumi District, including floods, tornadoes (as part of extreme weather), tidal waves/abrasion, drought, forest and land fires, earthquakes, and landslides. Among these disasters, floods, landslides and tornadoes are the most frequent (BNPB, 2023a). In addition, Sukabumi District also has the potential for other disasters such as flash floods, volcanic eruptions and tsunamis, due to the diverse geographical conditions of the region which increase the potential for these disasters to occur.

In Sukabumi District, there are ten types of disasters that have different levels of risk. Five of these disasters have a high risk, namely flash floods, extreme weather (tornadoes), extreme waves and abrasion, earthquakes and tsunamis. In addition, there are six disaster types with moderate risk levels, including floods, forest and land fires, droughts, volcanic eruptions and landslides. This disaster risk is calculated based on the mathematical relationship between the previously generated hazard index, vulnerability index and capacity index (BNPB, 2023b). This information can serve as a guide for the Sukabumi District Government and related parties to design disaster risk reduction strategies to support disaster management efforts in the region.

The biggest victims of disasters are the poor at the community level and the first to face disasters are the communities themselves, the government is developing a community-based disaster risk reduction program, in accordance with the state's responsibility to protect the entire nation and the entire homeland of Indonesia as mandated in the 1945 Constitution of the Republic of Indonesia (Pramono & Yusuf, 2015). One of the strategies that will be used to realize this is through the development of disaster resilient villages and sub-districts, so the National Disaster Management Agency (BNPB) made Regulation of the Head of the National Disaster Management Agency Number 1 of 2012 concerning General Guidelines for Disaster Resilient Villages.

Therefore, the Sukabumi District Government through the Sukabumi District Disaster Management Agency (BPBD) established 38 Disaster Resilient Villages (Destana) out of 381 villages in Sukabumi District. This is an effort by the government to increase community capacity when facing natural disasters given that Sukabumi District has a high risk level for natural disasters. One of them is the Disaster Resilient Village in Citepus Village, Palabuhan Ratu Sub-district, Sukabumi District. Citepus Village is one of the villages in Palabuhan Ratu Sub-district, Sukabumi Regency, West Java Province. The village is located northwest of Palabuhanratu Sub-district with an area of 1,351 hectares and a population of 12,008 people (Citepus Village Government, 2023). Because of its location in the coastal area, it has the potential for extreme

wave and tsunami disasters. Citepus Village has a high risk of 7 (seven) types of disasters including flash floods, extreme weather, extreme waves and abrasion, earthquakes, droughts, landslides and tsunamis. Of course this needs to be the focus of the local government to reduce the impact when natural disasters occur. The number of damage to residential houses due to disasters that occurred in 2020-2022, increased in 2022, namely a total of 1,999 housing units from 2021, which only amounted to 1,057 housing units. This shows that the disaster resilient village program has not been effective in minimizing the amount of damage caused by disasters.

The reason why the researchers chose Citepus Village as the research locus is because among the 38 villages in Sukabumi District that have implemented the Disaster Resilient Village program, Citepus Village is one of the villages selected by the BPBD of Sukabumi District to implement this program due to its high disaster risk as shown in Table 2. However, when viewed from the level of capacity, Citepus Village is classified as a village that has a low level of capacity, indicating that the community and village officials in Citepus Village in disaster management are still relatively low or poor. This is reinforced by the BMKG's efforts to make Citepus Village a tsunami alert village. Citepus Village, Palabuhanratu Sub-district is used as an international Tsunami Alert Community Village or Tsunami Ready Community. Tsunami Ready Community is a program to increase community capacity in facing the threat of tsunami based on 12 indicators set by the Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO). The establishment of Citepus Village as a tsunami-prepared village is because most of the areas in Citepus Village are coastal areas that are prone to tsunami disasters.

It can be said that quite a lot of research has been conducted regarding the effectiveness of disaster resilient village programs. Researchers chose 3 previous studies as references in this research so they could see differences and updates from previous research. The first research was conducted by Yulianti et al., (2023), the results of this research were that the majority of respondents had moderate community resilience and ready preparedness, with $p\text{-value}=0.000$ which means <0.05 indicating that there is an influence of community resilience on preparedness public. The conclusion in this research is that there is an influence of community resilience on community preparedness in dealing with landslide disasters. The second research conducted by Shalih (2020) the community's perception of 'local scale' landslide disasters can basically be tolerated and mitigated with local wisdom that has existed for generations. The community does not want to move from their current residence even though landslides often occur because they occur with their residence (place attachment). Community resilience in facing landslides is basically still relatively low considering the ability to recover from disasters (bounce back). The

strategies implemented by the community and government in dealing with landslides are currently still responsive (not yet preventive). The third research conducted by Deva Azharry H.A.G et al., (2023), public knowledge and awareness about disasters is very important in efforts to reduce the risks and losses caused by natural disasters. In this research, we explain the implementation of an Education and Training Program to increase public awareness of disasters.

The research conducted now has significant differences compared to the three previous studies mentioned. First, the research objects and locations differ substantially. The first research focused on the influence of community resilience in Girijaya Village, Nagrak District, Sukabumi Regency, while the second research was centered in Sirna Official Village, Cisolok District, Sukabumi Regency, and the third research was conducted in Parungseah Village. Meanwhile, the research being carried out now will assess the effectiveness of the Disaster Resilient Village Program in Citepus Village, Palabuhanratu District, Sukabumi Regency, with an emphasis on rural areas. Second, the research objectives are also different. The first research aims to understand the influence of community resilience on community preparedness, while the second research looks for strategies to build community resilience, and the third research aims to increase community awareness through disaster mitigation education and training programs. The research being conducted now will focus on evaluating the effectiveness of disaster preparedness programs in rural areas. Third, Fourth, the focus of the research is also different, with the first and second research focusing more on understanding landslide disasters and mitigation, while the third research is more related to efforts to increase public awareness. The research conducted now has the potential to provide fresher insights into the effectiveness of disaster preparedness programs in rural areas of Sukabumi District, taking the latest into consideration.

Based on this, researchers are interested in conducting research with the title "The Effectiveness of the Disaster Resilient Village Program in Citepus Village, Palabuhan Ratu Sub-district, Sukabumi Regency". The purpose of this study was to determine how the implementation of the Disaster Resilient Village program in Citepus Village, Palabuhan Ratu Sub-district, Sukabumi Regency. Understanding the effectiveness of the Disaster-Resilient Village program in Citepus Village holds broader implications for disaster management policies and practices not only in Sukabumi but also for similar communities globally. By identifying successful strategies and potential areas for improvement, this study contributes valuable insights to the ongoing discourse on building resilient communities in the face of increasing climate-related challenges.

METHODS

The method used in this research is quantitative with a descriptive approach. The decision to utilize a quantitative approach stems from several reasons. Firstly, a quantitative approach allows for the systematic collection and analysis of numerical data, which can provide precise measurements and statistical insights into the effectiveness of the program. Given the need to evaluate the impact of the Disaster Resilient Village Program objectively, quantitative methods offer a structured framework for data collection and analysis. Secondly, quantitative research enables the researcher to generalize findings to a larger population. By selecting a sample of 100 respondents from the population of 12,008 individuals in Citepus Village, the study aims to draw conclusions that are representative of the entire community. Through statistical analysis, the study seeks to identify patterns, trends, and correlations within the data set, providing valuable insights into the program's effectiveness.

The data collection methods employed in this research include observation, questionnaires/surveys, and literature studies. Data analysis in this study consists of several key components. Firstly, validity testing is conducted to assess the accuracy and relevance of the research instrument used to measure the effectiveness of the program. This ensures that the questionnaire items effectively capture the intended constructs and provide valid measurements of the program's outcomes. Secondly, reliability testing is performed to evaluate the consistency and stability of the research instrument over time. Cronbach's alpha coefficient is calculated to assess the internal consistency of the questionnaire items, indicating the extent to which they reliably measure the same underlying construct. Finally, hypothesis testing, specifically the one-sample t-test, is employed to analyze the data and test the research hypotheses. By comparing the mean effectiveness score obtained from the sample with a predetermined benchmark, the study assesses whether the Disaster Resilient Village Program in Citepus Village is statistically effective in achieving its objectives.

RESULTS AND DISCUSSION

Data from respondents who have filled out questionnaires regarding the effectiveness variable of the Disaster Resilient Village Program are explained using descriptive statistics. Descriptive statistics are used to determine the frequency and percentage of answers given by respondents to each statement item. The effectiveness variable for implementing the Disaster Resilient Village Program consists of 18 statement items that have been declared valid with 100 respondents.

The researcher explains the respondents' responses regarding the effectiveness variable of the Disaster Resilient Village Program in Citepus Village, Pelabuhanratu District, Sukabumi Regency, which is based on the effectiveness measurement theory as proposed by Sedarmayanti (2012) regarding the effectiveness theory, namely quality, productivity, efficiency, satisfaction, ability and development.

Validity Test

Table 1. Calculation Results of Validity Testing

Item	r_count
Availability of adequate facilities and infrastructure	0,959
Standard operating procedures	0,901
Ability of employees	0,872
Understand duties and responsibilities in work	0,847
Complete tasks consistently	0,912
Thoroughness in doing work	0,889
Timeliness in completing work	0,911
Provision of work in accordance with the provisions	0,865
Comparison of costs incurred with satisfaction	0,915
Providing good service to the community in accordance with the provisions	0,878
Improvement of work results	0,916
Promoting a professional attitude in relationships between coworkers and the community	0,860
Communication with the surrounding environment	0,910
Problem solving	0,893
Flexibility	0,875
Volume of activities	0,883
Reporting of work results	0,913
Ability to expand capacity	0,878

Source : Research 2023

Based on the results of table 1, it can be stated that all items of the instrument for the Effectiveness of the Disaster Resilient Village Program in Citepus Village, Palabuhan Ratu District, Sukabumi Regency are valid, because in each item above the rcount value exceeds the rtable, which is 0.30.

Reliability Test

The results of testing the reliability of the research instrument or questionnaire for the effectiveness of the zero new stunting program variable are presented in the following table 2. Based on table 2, it is known that the Cronbach alpha value obtained a value of 0.985. Where the score is above the critical r of 0.70 so that it can be declared reliable, reliable, or consistent in measurement.

Table 2. Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
.985	18

Source : Data Processing Results, 2022

Hypothesis Test

In this study, hypothesis testing used a one-sample t-test (one sample t-test) which is used to test the descriptive hypothesis of one or more variables whose data are in the form of intervals or ratios. The one sample t-test uses a right party test with an alpha value of 5% (0.05). The results of the one sample t-test (one sample t-test) test are presented in the following table 3:

Table 3. Hypothesis Test Results

One-Sample Test						
Test Value = 0						
				Mean	95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Difference	Lower	Upper
Effectiveness	41.650	99	.000	69.25000	65.9509	72.5491

Source : SPSS version 26, 2023.

Based on the results of the Table 3 calculations with a significant level of 0.05 (5%), it shows that the effectiveness variable is 41,650. The value of tcount is compared with the value of t table. T table is sought in the table listed in the attachment based on dk = (n-1) and the error rate set at 5%, so $df = 100-1 = 99$ so that t table = 1.66039 is obtained. Based on the results of the table above, it can be seen that the tcount value is smaller than the ttable where the tcount value is $41,650 > ttable\ 1,66039$, so H_0 is rejected and H_1 is accepted. This shows that the Disaster Resilient Village Program in Citepus Village, Palabuhan Ratu District, Sukabumi Regency is declared effective.

Effectiveness is a measure that illustrates how far the targets previously set by an institution or organization can be achieved. Targets are very important in every institution or organization and are useful for seeing the development and progress achieved by an organization itself. Daniarsyah (2020) defines that: Effectiveness is a measure that states how far the target (quantity, quality and time) has been achieved. Umam & Atho'llah (2021) defines effectiveness

as the ability to choose the right goal or equipment to determine the predetermined goal. According to Steers (1999) states that "effectiveness is assessed according to a measure of how far an organization has succeeded in achieving its feasible goals".

Disaster Resilient Village development is one of the disaster risk reduction strategies based on community participation. It encompasses various efforts to reduce disaster threats and community vulnerability, as well as improve preparedness capabilities, which are planned and implemented by the community as the main player. In the context of Disaster Resilient Villages, communities are actively involved in the process of assessing, analyzing, handling, monitoring, evaluating and reducing disaster risks that exist in their area, by utilizing local resources to ensure sustainability.

According to research conducted by Yulianti et al., (2023), there is an influence of community resilience on community preparedness in dealing with landslides. In addition, research conducted by Shalih (2020), community resilience in the face of landslides is basically relatively low due to the ability to recover from disasters (bounce back). Strategies carried out by the community and the government in dealing with landslides are currently still responsive (not preventive). Some alternative strategies to build ,community resilience are proposed, among others: the development of landslide mitigation based on local wisdom by means of forest and land rehabilitation with an economic approach, namely planting trees that are in-situ and developing a community-based landslide early warning system. In addition, research conducted by Deva Azharry H.A.G et al., (2023), showed that community knowledge and awareness about disasters is very important in efforts to reduce the risks and losses caused by natural disasters.

CONCLUSION

The effectiveness of the Disaster Resilient Village Program in Citepus Village, Palabuhan Ratu Sub-district, Sukabumi Regency in 2023, it can be concluded that the program has achieved a high level of effectiveness. Although Citepus Village has a high level of disaster risk, the program managed to overcome these challenges with various efforts made by the local government and community. Factors contributing to the effectiveness of the program include the availability of adequate facilities and infrastructure, the existence of standard operating procedures, employee abilities, thoroughness in doing work, and various other aspects. Despite some challenges, such as low levels of community capacity, the efforts made by the local government, BPBD, and the community can be considered successful in improving disaster preparedness and management in Citepus Village. Thus, the results of this study provide a

positive picture of the effectiveness of the Disaster Resilient Village Program in Citepus Village, providing a strong basis for continuing to improve this program in the future. The program not only provides protection against potential disasters, but also creates community awareness and preparedness in the face of natural disaster threats.

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