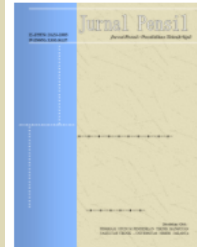


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THE EFFECT OF PREPAREDNESS MEASURES ON COMMUNITY PARTICIPATION IN FLOOD EMERGENCY RESPONSE IN RANGKASBITUNG DISTRICT

Ajeng Prihantini^{1}, Henita Rahmayanti², Samadi³*

^{1,2} Program Magister Pendidikan Lingkungan Pascasarjana Universitas Negeri Jakarta, Jl. Rawamangun Muka Raya No. 11, DKI Jakarta, 13220, Indonesia

³ Program Studi Pendidikan Geografi Fakultas Ilmu Sosial Universitas Negeri Jakarta, Jl. Rawamangun Muka Raya No. 11, DKI Jakarta, 13220, Indonesia

¹ ajengprihantini9907818002@mhs.unj.ac.id ² henita.rahmayanti@unj.ac.id ³ samadi@unj.ac.id

Abstract

Every disaster brings victims, both human and property is a fact. But whatever the type of disaster, there is always an omen before it comes. This is where the urgency is to understand every sign that comes correctly and accurately. So, of course, knowledge, skills, and skills are needed on how the community, especially in disaster-prone areas, prepares anticipatory steps for the arrival of the disaster (Priyowidodo and Luik 2013). The readiness and skills of the community, especially families, are the primary keys to safety in dealing with disaster emergencies (Willem Rampangilei 2018). This study aims to determine the effect of preparedness measures on community participation in flood emergency response. This research uses research that uses correlational survey method. In this study, the independent variable is community participation in disaster emergency response, while the dependent variable is preparedness measures. This study aimed to determine the effect of preparedness measures on community participation in flood emergency response. The results of the survey: Preparedness measures (X) affect the community participation variable (Y) by 16%.

Keywords: Action Preparedness, Community Participation, Flood

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Introduction

Throughout 2021 BNPB recorded 3,092 events dominated by hydrometeorological disasters. The most frequent disasters were floods with 1,298 events, followed by 804 extreme weather, 632 landslides, 265 forest and land fires, 45 tidal waves and abrasion, 32 earthquakes, 15 droughts, and one volcanic eruption (BNPB, 2018). During 2015-2020, BNPB recorded 29 flood events in the Lebak regency. The worst flood occurred in early January 2020 (Lebak Regional Disaster Management Agency, 2020). According to the Indonesian Disaster Risk Index in 2021, Lebak regency has a high-risk index of 182.04 (Adi et al., 2021).

Flooding is a condition of water overflowing beyond the normal limits of a river or body of water or accumulation of water in an area that usually does not sink (Kundzewicz et al., 2014). The threat is defined in the Hyogo Framework of action as a physical event, phenomenon, or human activity with destructive potential that causes loss of life or injury or damage to property or structures. Hazards can include latent conditions that represent a future threat and can come from different sources (Woodford, 2015). Besides being caused by natural factors, namely high rainfall, floods also occur due to human activities. For example, reduced water catchment areas due to land conversion, deforestation that increases erosion and catalyzes rivers, and irresponsible behavior such as throwing garbage in rivers and establishing housing on river banks (Yanuarto 2015).

Ciujung River in the Rangkasbitung city segment is the meeting point between two sub-watersheds, namely Ciujung and Ciberang, where the river's width is 60 meters to 80 meters and is a river in Banten province. Some segments of this river often overflow precisely at Muara Ciujung Village, Rangkasbitung City, and Lebak district (Maddeppungeng et al., 2017). Rivers that include SWS Ciujung include Ciujung River, S.Cilaki, Ciberang River, Cisemeut River (Dinas Lingkungan Hidup dan Kehutanan Provinsi Banten, 2017). According to the

Indonesian Red Cross (2021), flash floods in Rangkasbitung District caused by heavy rains caused 108 houses to be affected.

Implementation of the Sendai Framework is guided by several principles, directly referring to knowledge Disaster Risk Reduction requires a multi-hazard approach and decision making based on inclusive risk information based on open exchange and dissemination of disaggregated data, including by gender, age, and disability, as well as on easily accessible, up-to-date, comprehensible, science-based non-sensitive risk information, supplemented by traditional knowledge (Weichselgartner & Pigeon, 2015).

Disaster is a phenomenon that occurs due to the collectivity of the hazard components that affect natural and environmental conditions, as well as how the level of vulnerability and capacity of a community in managing threats (Oxfam) (Arsiadi Wisnu Hapsoro, 2015).

That every disaster brings victims, both human and property, is a fact. But whatever kind of disaster, before it comes, there is always a sign. This is where the urgency is to understand every sign that comes correctly and accurately. Then, of course, what is needed is the knowledge, skills, and skills of how people, especially in disaster-prone areas, prepare anticipatory steps for the arrival of the disaster (Priyowidodo & Luik, 2013; Wibowo et al., 2020). According to BNPB, there are at least four main factors that interact with disasters that can cause many victims and losses, namely a lack of understanding of the characteristics of hazards, attitudes or behaviors that lead to a decrease in natural resources (vulnerability), lack of information/Early warning (early warning) which causes unpreparedness and inability to face the threat of danger (Suryadi et al., 2021).

In terms of behavior or public awareness of the environment, there are still many people who are not or less aware that their daily behavior or activities can harm others, both in the area and in other areas. Natural disasters have a negative impact that

causes the balance of one's development to be disturbed into an imbalance in aspects of one's development (Peek et al., 2018).

According to research by David Webber et al. (2017), adopting a participatory-based approach to emergency planning is a significant benefit. Only timely efforts have been made to address the gap between risk interpretation and action. Many aspects of the environmental interface between data sharing, knowledge retrieval, and decision making remain unexplored and better evaluation is needed to efficiently integrate data, knowledge, and capabilities into demonstrated efforts at Disaster Risk Reduction, particularly concerning mechanisms for positive exchanges between science, policy, applications, and the public (Spiekermann et al., 2015). To minimize the risk caused by natural disasters, it is necessary to increase the capacity of residents who have the possibility of being affected by disasters (Kurniati et al., 2020).

Vulnerability forces a temporal reconceptualization of disasters, if vulnerability is generated by human behavior and is unevenly distributed, then disasters will be historically produced. Thus, rather than being a hidden event, a disaster is a process that begins long before the danger arises and continues long after the threat subsides. In addition, the implication that disasters are temporary obscures the fact that everyday life for many people is chronically unsafe. Finally, vulnerability effectively politicizes Disaster Analysis by placing disadvantaged groups and unequal distribution of power at the center of the analysis (Jos, 2016)

This impact can be reduced by increasing community preparedness in the face of disasters. An emergency response plan is part of disaster preparedness. Among the forms of these plans are community response plans for emergencies, evacuation plans, first aid, fulfillment of basic needs, equipment, and supplies (BNPB, 2018). The incidence of fatalities and other impacts due to natural disasters is not only caused by the strength of the disaster itself but also by

human factors living in areas prone to being affected by the disaster (Permana, 2019).

Community preparedness and skills, especially families, are the keys to safety in the face of disaster emergencies (Willem Rampangilei, 2018), because early warning preparedness and effective response are important because they help communities and individuals can act appropriately to reduce threats (Amaratunga et al., 2018).

Recent research has found that behaviors resulting in damage and loss, as well as low levels of preparedness due to lack of knowledge and experience, little awareness, and no institutionalized measures for early warning or evacuation, contribute to human and material losses during disasters (Bowman & Henquinet, 2015; Venkataramanan et al., 2020). Based on research by Yushanthi and K.W.G. Rekha Nianthi (2021), in Sri Lanka, only 43% of the population follow flood awareness programs that teach them how to evacuate flood-prone areas and respond to early warning systems.

Research findings conducted by (Hasana et al., 2020) most people in Sungai Sibam Village are still less concerned about a disaster, this can be seen from a field survey by interviewing 10 people in RT 03, It was found that 10 people (100%) said that they were not ready to anticipate disasters such as the protection of household appliances/furniture, important documents and elevating electronic goods places. According to the research of David Webber et al (2017), adopting a participatory-based approach to emergency planning is significant benefits. According to research by (Gustini et al., 2021), an overview of community preparedness in anticipation of flood disasters in Danau Kerinci Barat District, Kerinci regency is almost ready.

Success in handling and evacuating/evacuating during floods depends very much on the preparedness of the community and the individuals themselves (Yatnikasari et al., 2020) because an effective emergency response depends on the effectiveness of the preparatory work carried out during the pre-flood season

because it can reduce some of the suffering and losses that occur during and after the disaster. This is particularly important because local communities are, in many cases, the first responders and have the greatest chance of saving lives and providing support in the hours and days following a disaster (WMO (World Management Organization 2017).

Learning from flood management in Nepal's Karnali river reveals that local communities accept the paradigm shift from fighting to living with floods. The involvement of local actors is essential in community-based disaster management (Sharma, 2021). According to research by Umeidini, Nuriah, and Fedryansyah (2019), the results of this study indicate that there is a form of participation from the community in Disaster Management in Mekargalih Village, Jatinangor District; the structure of community participation is in the form of thought participation, energy participation, skill participation, goods participation, and money participation. The five forms of participation have been implemented and run well in the community when the flood disaster is coming.

This research is motivated by the research gap in previous studies conducted by Hasana et al. (2020), David Webber et al. (2017), Sharma (2021), Gustini et al. (2021), Yushanthi and K.W.G. Rekha Nianthi (2021), Kurniati et al. (2020), Bowman and Henquinet (2015) Umeidini et al. (2019) it was concluded that the community is still less concerned about a disaster, only efforts at the right time have been tried to pursue the gap between risk interpretation and action, local communities accept paradigms from fighting floods to living with floods, community preparedness in anticipation of floods is almost ready, only 43% of those enrolled in flood-aware programs taught them how to evacuate from flood-prone areas and how to respond to early warning systems. 57% of respondents said that the impact of flooding could be reduced through better structural mitigation strategies. 10% of respondents recommend controlling illegal waste disposal and land

mining activities on the Kanakarayan River, to minimize a risk caused by natural disasters, the need for capacity building of residents who have the possibility of being affected by disasters, behaviors that result in damage and loss as well as low levels of preparedness due to lack of knowledge and experience, little awareness, and no institutionalized measures for early warning or evacuation contribute to human and material losses during disasters. The difference between this study and previous research is that it seeks to improve community preparedness for flood disasters because of the importance of community skills before a flood disaster, especially individuals in households so that when a flood emergency occurs, people can face, prevent and overcome flood disasters in a participatory manner.

Based on the explanation, the purpose of this study was to determine the effect of preparedness actions on community participation in flood emergency response. The formulation of the problem of this study is whether the effect of preparedness measures on community participation in flood emergency response. This study's benefit is adding insight into increasing community participation in flood disaster emergency response.

Literatur Review and Hypothesis Development

An essential component of disaster management is mitigation. Article 1 Number 9 of the law of the Republic of Indonesia, number 24 of 2007 on Disaster Management, defines mitigation as a series of efforts to reduce disaster risk through physical development and awareness and increased ability to face disaster threats (Suhardjo, 2015). According to PP No. 21, year 2008, disaster mitigation is a series of efforts to reduce disaster risk, both through physical development and awareness and increased ability to face disaster threats (Paripurno et al., 2019). Activities at the pre-disaster stage are closely related to the term disaster mitigation, which is an effort to minimize the impact caused by the disaster

itself. Disaster Mitigation includes the planning and implementation of actions to reduce the risk of the effect of a disaster that is carried out before the disaster occurs, including preparedness and long-term risk reduction measures (Mantasia & Jaya, 2016).

According to Sung-Chin Chung and Cherng-Jyh Yen (2016), the conceptual framework of Disaster Risk Reduction skills consists of preparedness actions and behavioral responses. Preparedness indicators are how early warning systems exist in the community, especially in areas that have flood disaster vulnerability (Erlia, Devi, Rosalina Kumalawati, 2017). A warning system that includes warning signs and information distribution in the event of disaster preparedness is one of the disaster management mechanisms as well as an effort to anticipate and reduce the consequences of Disaster Risk. The activities to increase preparedness are through improving knowledge and attitudes carried out by the community (Aprilin, 2018).

According to Wisner (Ali & George, 2021), community participation is the active involvement of people from communities preparing for or reacting to disasters, true participation means the involvement of interested people in the analysis, decision making, planning, and implementation of programs, as well as in all activities, from search and rescue to reconstruction, that people affected by disasters perform spontaneously without the involvement of external agencies.

The role of the community to participate in disaster management activities is regulated in Law Number 24 of 2007 2 on Disaster Management Article 26 paragraph 1 letter e, namely "everyone has the right to participate in decision-making on disaster management activities. Article 27, letter b, explains that everyone is obliged to carry out disaster management activities (Wijaya, 2019).

Based on Government Regulation No. 21 of 2008 concerning the implementation of disaster management, there are 3 (three) main components in

Disaster Risk Reduction, namely pre-disaster / preparedness (when there is no disaster), emergency response (when there is a disaster), and post-disaster (after) (Pahlevy, 2018).

According to Hapsari and Zenurianto (2016), there are two events to raise public awareness. The first is a supportive environment such as the insertion of ecological content in formal education and group training, and the second is local strategies for flood control such as the vital role of community leaders, the introduction of watersheds, local traditions, and training.

Community involvement in disaster management, also referred to as community-based Disaster Management community-based Disaster Management is the effort made by community members in an organized manner both before, during, and after a disaster by using the resources at their disposal to the maximum extent possible to prevent, mitigate, avoid and recover from the effects of disasters (Umeidini et al. 2019).

Community activities play an essential role at the forefront of flood management. Because Integrated Flood Management (IFM) seeks practical aspects in flood management, community participation becomes fundamental and crucial for every management stage, namely preparedness, response, and recovery from flood disasters. Community activities are an integrated component of flood management. They seek to maximize benefits through related development activities in the watershed (Murase et al., 2008).

According to the World Management Organization (2017), emergency response activities that need to be carried out by the community in the event of a disaster are flood monitoring, the implementation of contingency emergencies, and the provision of a foundation for recovery activities.

This study hypothesizes that there is a positive /negative influence between preparedness actions and community participation in flood emergency response.

Research Methods

This study was conducted in the District Rangkasbitung Lebak Banten using quantitative research methods. This study is study that uses correlational survey methods. In this study, the independent variable is community participation in disaster emergency response, while the dependent variable is preparedness action with a sample of 52 respondents. The instrument is worth using for there are no two indicators, namely validity and reliability. Based on the validity test of community participation in flood disaster emergency response, as many as 15 items of the statement, 0 questions are invalid.

Furthermore, the researcher validated the preparedness instrument with as many as 13 statements, and there was one invalid statement. Next, the researcher revises the weak statement. Calculation of the reliability coefficient of the instrument grain using Cronbach's Alpha coefficient, using the help of Ms. Excel 2016, obtained data from the

Cronbach Alpha coefficient of community participation in flood emergency response 0.92. Furthermore, the analysis requirements test and the results of the calculation analysis show that the sample has a normal distribution, then the research hypothesis test can be carried out. Hypothesis testing was conducted using a multiple correlation coefficient tests with the help of the SPSS application. This study uses descriptive data analysis techniques through validity, simple linear regression, Significance, and determination tests using SPSS Statistics. The goal is to see the effect of the independent variable on the dependent variable.

Results and Discussion

The hypothesis proposed in this study is that there is a positive relationship between the action of preparedness (X) with community participation in disaster emergency response (Y).

Table 1. Test the regression equation X against Y

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	19.385	5.239		3.700	.001
action of preparedness	.490	.154	.410	3.175	.003

The results of partial regression analysis for preparedness action variable (X) with community participation in disaster emergency response (Y) obtained regression direction coefficient constant B = 0.490 and constant a = 19.385; thus, The Shape of the relationship between the two variables can be described by the equation $\hat{Y} = 19.385 + 0.490 X$.

Before the results of these calculations are used for prediction, the regression equation must meet the requirements of meaningfulness and linearity. To determine the Significance and linearity of regression equations should be done basic decision

making. Comparing the value of Significance (Sig.) with 0.05: if the value Deviation from Linearity Sig. > 0.05, then there is a significant linear relationship between the independent variable and the dependent variable, if < 0.05, then there is no linear relationship.

Table 2. Test linearity and significance of variable X to variable Y

			Sum of squares	df	Mean square	F	Sig.
Preparedness action preparation	Between groups	(Combined) linearity	1075.153	19	56.587	.787	.704
		Deviation from linearity	566.410	1	566.410	7.881	.008
	Within groups		2299.924	32	71.873		
Total			3375.077	51			

From the linearity and significance test results above, based on the significance value (Sig.) from the above output obtained Deviation value from Linearity Sig. is 0.980 > 0.05, and based on the value of F from the result above, obtained the value of F count and F table(18.32), 0.393 < 1.936

Because of the value of Deviation from Linearity Sig. F count is greater than

0.05, and F count is smaller than the value of F table, then it can be concluded that there is a significant linear relationship between the action of preparedness (X) with community participation (Y); thus, the regression equation $\hat{Y} = 19.385 + 0.490 X$, can be used to predict the relationship of the dependent variable Y by using the independent variable X which implies.

Table 3. Test coefficient of determination

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. error	Beta		
1	(Constant)	19.385	5.239		3.700	.001
	action of preparedness	.490	.154	.410	3.175	.003

The coefficient of determination is the square of the correlation coefficient between X and Y of 0.410. The magnitude of the coefficient of determination number (R Square) is 0.168 or equal to 16%. The figure implies that the variable of preparedness Action (X) affects the variable of community participation (Y) by 16%. Research findings by Hasana et al.(2020) showed that most people in Sungai Sibam

Village are still less concerned about a disaster; this can be seen from a field survey by interviewing ten people in RT 03. Ten people (100%) said they were not ready to anticipate a disaster, such as protecting household appliances/furniture, essential documents, and elevating electronic goods. Furthermore, based on research by Yushanthi and K.W.G. Rekha Nianthi (2021), in Sri Lanka, only 43% of the

population follow flood-aware programs that teach them how to evacuate flood-prone areas and how to respond to early warning systems.

Regression equation $\hat{Y} = 19.385 + 0.490X$ can be used to predict the relationship of the dependent variable Y by using the independent variable X, which implies that every increase of 1 Unit X will be followed by the rise of y by 0.490. The (+) sign indicates that if the variable X or the preparedness action increases, then the variable Y or the participation variable also increases. Community preparedness and skills, especially families, are the key to safety in the face of disaster emergencies (Willem Rampangilei 2018). Early warning preparedness and effective response are important because they help communities and individuals act appropriately to reduce threats (Amaratunga et al., 2018).

Conclusion

Based on the research results described and the conclusions obtained from this study. From various previous studies it can be concluded that community participation in disaster emergency response is influenced by preparedness actions, that prevailing conditions within each group of people in the community determine the extent of their vulnerability or resilience to loss or damage.

Community activities play an essential role as the frontline of flood management. Because Integrated Flood Management (IFM) seeks practical aspects in flood management, community participation becomes fundamental and necessary for each management stage: preparedness, response, and recovery from flood disasters. Community activities are an integrated component of flood management. They seek to maximize benefits through related development activities within the watershed (Murase et al., 2008).

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