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Strategy Analysis of Disaster Mitigation for Disability-Friendly (Case Study on Application Difgandes by Difagana)

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Abstract: One of the effects of climate change is an increase in natural disasters, such as floods and droughts. Therefore, there is disaster mitigation to reduce disaster risk. Analysis of disaster mitigation strategies implemented by Difagana through the disability-friendly DIFGANDES application. This research uses a qualitative approach with a type of descriptive research. Data collection is done with interviews as well as secondary data collection. Test validity using time triangulation, technique. An interview with the head of Difagana, Doddy Kaliri, and an observation of the DIFGANDES application. Application has a variety of disaster mitigation education features that are disability-friendly. For a deaf friend to read the information briefly, equipped with a picture of the pergamon. There are speakers to inform disabled, mentally ill, and elderly people. For mentally disabled people, it is also easy to read brief information. Weather information around the location is also updated. Introducing the DIFGANDES application to the public, especially the disabled, so that they can obtain hate mitigation information, given the increasingly extreme climate change. This research has not reached the wider public using the application as a result of minimizing the cooperation of disaster rescue villages as well as the cost of treatment or development of a considerable number of applications. The catastrophe caused by climate change is highly risky in many respects, so this research into disability-friendly applications is a novelty in reviewing its mitigation strategies.

Keyword: DIFGANDES, Difagana, Disaster Mitigation

INTRODUCTION

Geographically, Indonesia is one of the regions that is vulnerable to various kinds of natural disasters that may pose a threat to its inhabitants due to a combination of natural factors and human intervention. These incidents raise concern across the community, especially the government, which has an important role to play in post-disaster prevention and response efforts.

Rentetan Bencana Sepanjang tahun 2012 - 2019



Figure 1. Disaster string 2012-2019

According to PUPR data, the condition and geographical location of Indonesia make the potential for major natural disasters enormous. Indonesia is an island nation located at the meeting of the four tectonic plates of the Asian continent, Australia, the Indian Ocean, and the Pacific Ocean. In southern and eastern Indonesia, there is a volcanic arc that extends from Sumatra Island, Java, Nusa Tenggara, to Sulawesi. On the side are old volcanic mountains and lowlands that are partially dominated by dew. So Indonesia is very vulnerable to natural disasters such as volcanic eruptions, earthquakes, tsunamis, floods, and landslides. Here is a list of a series of disasters that have occurred in Indonesia since 2012–2019.

Under these conditions, Indonesia is a disaster-prone country because of its geographical location. Seen from the country's position in the Pacific Ocean, it is a meeting of earth plates that makes Indonesia vulnerable to earthquakes, volcanic eruptions, and tsunamis. Indonesia is also located at the intersection of four plates: the Asian continental plate, the Australian continental plate, the Indian Ocean plate, and the Pacific plate, as well as an island state crossed by a volcanic belt that allows for relatively high natural disasters.

A disaster is an unwanted event that can cause damage, loss, or loss of life. Disasters for disabled people are events that have a greater impact on disabled people because they have more difficulty controlling their lives. Because disasters are caused by a series of natural symptoms consisting of three factors, namely, natural factors, non-natural factors, and human social factors, Like the flooding that occurred in Demak in 2024, caused by extreme weather changes. The intensity of the high rainfall caused the shrimp. As reported by BBC News Indonesia (2024), more than 95,000 people were affected, about 25,000 of whom had to flee. The Pantula route between Demak and Holy is "totally paralyzed" as the water reaches a height of 1.5 meters. This situation makes transportation and logistics access difficult.

In fact, disaster-prone areas in Indonesia spread evenly throughout the homeland and should be recorded. This is because every region in Indonesia has a different chance of occurrence of natural disasters depending on their geographical location, and it is our duty to continue to pay attention to natural disasters. Because natural disasters can happen at any time, either through certain signs or directly, There fore, in the event of a natural disaster, everyone should be vigilant and act according to the circumstances, without exception for the disabled.

Disabled people are a group of people who have physiological, intellectual, or sensory deficiencies that make it harder to control their lives. They may have problems with the way they use their hands, feet, ears, or faces, or they may have a mental deficiency or understanding that makes it difficult for them to control their lives. (Nurhakim, 2019). Disabled or disabled

people are one of the most vulnerable groups to disasters. According to Act No. 19 of 2011 on the Appreciation of the Rights of Persons with Disabilities, a disabled person is a person who has had physical, mental, intellectual, or sensory limitations for a long period of time and, in interacting with the environment and attitudes of his or her community, may encounter obstacles that make it difficult to participate fully and effectively on the basis of equal rights. According to the type of disability itself, it is divided into several categories, namely, physical disability, intellectual disability, mental disability, and sensory disability.

In disaster mitigation, disability should also be taken into account in connection with accessibility, hatred education, and so on. Disabled people are vulnerable to natural disasters, especially when they lose their families, facilities, or mobility, not to mention when they have access to information, facilities, and infrastructure. Conditions like this can get worse when people with disabilities do not have adequate access to emergency knowledge and training in disaster mitigation and response. (Hayati,dkk, 2021). Another important issue is that the country does not have an early warning system, or so-called "early warning" system, or a natural disaster evacuation system that is accessible to vulnerable persons. Consequently, the consequences of labeling become a high-risk group when a disaster occurs. This could cause a lot of people to lose their aids, like crows, wheelchairs, and clue sticks for net tuna. (Fuad, 2006; Arifin, 2008).

According to Hayati, the DKK (2021) survey showed that the United Nations Office for Disaster Risk Reduction (UNDRR) in 2013 stated that 70% of disabled participants did not know the personal preparedness plan and only 17% knew the disaster management plan in their community. This indicates that there is still very little access to information and training in disaster mitigation and response for vulnerable communities, especially those with disabilities.

Difagana is a volunteer organization that has a mission to support disabled people in disaster management. Difagana was acquired by Difabel Tanggap Bencana (Difagana) and was established at the end of 2017 in Yogyakarta Special District (DIY) under the coordination of DIY State Social Service. Members of Difagana get character education training, risk reduction, disaster simulation, general kitchen systems, and medical skills (P3K). This group has an influence on society because it empowers people with disabilities. (Dinas Sosial DIY, 2021). The role of disabled people is often considered objective in the context of disasters, while they are empowered to be part of the pillars of society, according to Doddy Khaili. The existence of Difagana indicates that disabled people are no longer seen as targets for disaster management. In addition to other factors, they act as actors according to their abilities. (Liputan6.com, 2022).

Another role of Difagana is to create an application called DIFGANDES, or the abbreviation for Difagana Disaster Emergency Support. The mission of DIFGANDES is to make disaster-related information more accessible to people with visual and hearing disabilities. The application also provides data on vulnerable populations in the area, their physical characteristics, and general medical records, so that when evacuating, the data is already available and makes it easy to meet needs. (Kementerian Sosial RI, 2022). Therefore, the role of disability in disaster mitigation is also needed to mitigate disaster risk. Based on the above urgency, the aim of this research is to analyze disaster mitigation strategies that are disability-friendly through Difagana's DIFGANDES application.

METHOD

This study uses a qualitative descriptive approach to find out the disaster mitigation strategies carried out by Difagana. The qualitative approach has emphasized interactive dimensional reality, the structure, as well as an exchange of social experiences interpreted by individuals. (Triyono, 2021). So this approach is considered appropriate to show the reality of what is happening in Difagana and to participate in disaster mitigation in Yogyakarta. Used to get the entire data in the research, then used data collection with observations and in-depth

interviews. According to Susilo (2010), in-depth interviews are optimal for gathering data from individuals about their life history, views, and experiences. In this study, we used an interview with the head of Difagana, Doddy Kaliri, through a Zoom meeting on April 8, 2024.

Testing the validity of data using triangulation techniques, i.e., testing the level of data confidence by checking the data that has been obtained through several methods and sources, (Rustanto, 2015). This research not only conducted interviews with the head of Difagana but also observed the application of Difgandes on a regular basis. In addition to time triangulation, these triangulations can affect the level of data confidence. Data collection processes need to be done repeatedly and using different methods to obtain valid data (Rustanto, 2015). Therefore, the researchers have performed periodic checks on the Difgandes application to see if there will be any changes to the features, barriers, and up-to-date information provided in the application.

RESULTS AND DISCUSSION

Disaster Communication

Disaster communication is also referred to as part of disaster management, whose mission and function is to receive disaster risk reduction messages designed to spread messages and information covering before, during, and after a disaster (Lestari et al., 2012; Rakhman and Prihantoro, 2020). (Lestari et al., 2020).

Haddow and Haddows in Nugroho & Sulistyorini (2018), quoted in Rakhman and Prihantoro (2020), have unveiled about five key foundations of disaster communication: (1) customer focus as information needed; (2) leadership commitment in disaster emergency response as effective communication; (3) situational awareness as to how such data is obtained by emphasizing the elements of transparency and accountability; (4) media partnership useful for disseminating information to the public; and (5) soft power and hard power approaches such as disaster mitigation information activities carried out smoothly, then loudly, namely real actions such as building facilities.

It must be understood that disaster management must take into account cycles, which include pre-disaster, disaster-time, and post-planning situations. Therefore, you should be prepared for whatever steps you need to take to face the cycle. Disaster communication is necessary not only when a disaster occurs but also at the time and before it occurs. Communication is said to be the best way to ensure the success of disaster mitigation, preparedness, response, and recovery during disasters. (Putri dan Hamzah, 2021).

Disaster Mitigation

Under Act No. 24 of 2007 on Disaster Management, mitigation is a series of efforts to reduce disaster risk, both through physical development and awareness and enhancement of disaster threat response. Disaster mitigation is an urgent step to be taken as a key driving force in disaster management. In accordance with the primary purpose of reducing or eliminating possible casualties and losses, the weight must be given at the stage prior to the occurrence of a disaster, i.e., the activities of sanitation, containment, or mitigation. (Wekke, 2021).

Disaster Mitigation Strategy

According to Rahmayanti, Dkk, 2020 explains that in addition to the existence of policies and principles, it turns out that there is also a need for strategies in order to mitigate disasters to be well coordinated, such as:

1. This will serve to provide anticipation for disaster occurrences.
2. Monitoring After the mapping, the results will show the level of disaster severity in each area. This will help in monitoring in terms of prediction at or after the occurrence of a disaster. This monitoring can be done by building infrastructure to keep an eye on the environmental impact analysis. (AMDAL).

3. The dissemination of information can be done through a variety of media, such as printed or electronic media. This information can be a way of identifying disaster symptoms, preventing them, and managing them post-disaster to increase alertness.
4. Socialization, Consensus, and Education It's to anticipate a society that doesn't get information about hatred. One form of communication with the community could be the dissemination of information and the implementation of disaster mitigation topics in educational curricula.
5. Early Warning Early warning will be useful to inform the results of observations or forms of assessment of disasters on a scale in a disaster-prone area.

The role of communication technology has long been recognized as an integral part of disaster management. Although the use of communications technology plays a role in the four stages of disaster management: mitigation, preparedness, response, and recovery, most of its application traditionally occurs at the response and rehabilitation stages. The new communication and information technologies that have emerged over the last two decades provide further opportunities to integrate different communication systems. Communication systems such as the Internet, cell phones, faxes, emails, radio, and television are becoming more and more operational.

It also increases the possibility of using communication technology for disaster preparedness and prevention. Many new inventions and easy-to-use communication devices are being introduced all the time. Building communication with remote locations is a big challenge. With the emergence of satellite communications, the problem of connecting to remote areas has been solved. Satellite communication allows one or more satellites to be used comprehensively. (national and international).

Disaster Communication Facilities

DIFGANDES is an abbreviation for Difagana Disaster Emergency Support. This app appears to be the fruit of the spirit of Difagana in creating space to make it easier for disabled people to get information about hatred. Starting from the race to get a grant, Difagana managed to enter the top 10 as a chosen innovator and earned funds of about 85 million rupees, followed by the results of his interview. Then we got a grant of about 85 million to realize that innovation idea. Then, from that idea, we agreed to propose an Android-based application called DIFGANDES," Doddy said in an interview.

The principle of this DIFGANDES application is accessibility and ease of feature features for disabled friends. The app is also expected to make it easier to obtain information related to abuse. Besides Doddy, the head of Difagana, also added that the principle of this application is participatory; the application, DIFGANDES, can involve resources from various elements of the community. Here's Doddy's explanation of the DIFGANDES application principle.

Suppose in the first program, we engaged with the KSB in the village of Wonokerto. Then, with KSB, we conceived questions to dig up information from vulnerable communities, among other things related to the importance of these DIFGANDES. It's also inclusive; it can be used by everyone, not just the disabled, who can't wear this," Doddy said.

Based on the results of the above interviews, it shows that not only does Difagana play an active role in managing this application, but it also involves the KSB, or Disaster Guard Village, that exists in the villages. Such collaboration is expected to absorb a lot of information, facilitating data retrieval.

Increased collaboration between emergency planners at the community level and disabled communities can ensure the safety and security of the entire community and minimize the impact of disasters on disabled people. Several provisions on emergency preparedness and

response have called for the implementation of strategies that integrate the needs of people with disabilities into all levels of future planning. (Kruger,dkk2018).

Feature: Easy to Understand

In addition to being a means of hateful communication, this DIFGANDES application has features that are easily understood by people with disabilities. This is proven from the very beginning of the application's appearance; it has provided a user choice feature with a variety of conditions (deaf, deaf, general, etc.), followed by observations on the application.



Figure 2. Initial view of DIFGANDES

In this application, one of the continuity concepts is that once the user has selected the group in the image above, they should wait for the appearance of the application to adjust. Despite this, the application is currently undergoing continuous development, given the inexpensive maintenance costs of the application.

In fact, at first, it was not complete; at first, we were just deaf and general; then, in the second phase, we added another disability. The principle of the needs of the vulnerable group is different, so the net will be different from the deaf, so we facilitate with spaces like that," said Doddy.

The accessibility principle is the first principle; then we provide some other accessibility, although not yet in line with our initial wishes, but at least we have put some things in the DIFGANDES. For new users, the DIFGANDES application will be simplified with the presence of instructions for use; it will introduce some features and uses. This effort must be in line with the purpose of the leader of Difagana, which is to make it easier for vulnerable groups to access information.



Figure 3. DIFGANDES Application Usage Instructions

DIFGANDES also provides features that facilitate Netra disability to obtain information, such as the presence of speakers. That usually Netra must use an additional application on Android, namely Talkback; now DIFGANDES already provides such facilities, so that information and education can be delivered.

This is the future we're going to build, related to information, education, and socialization; it's uneven. It's adapted to the needs of a confidential friend, and what's more about this hatred that hasn't been accepted by a lot of confidential friends? "DIFGANDES also facilitates when people can't use the Talkback app, so they can use voice accessibility in the DIFGENDES app," Doddy said in an interview.

Informative and Educational Languages

In the application, DIFGANDES also provides a variety of disaster mitigation-related information. Because this application is based in Yogyakarta, one of his educational concentrations is about mitigating mountain eruptions. So you get information about what to do before, during, and after a disaster. This information is packed in simple language—not very long sentences—but it can be conveyed clearly. Then, this information is accompanied by pictures, which can help it be easily understood. Here are some observations on the DIFGANDES application.

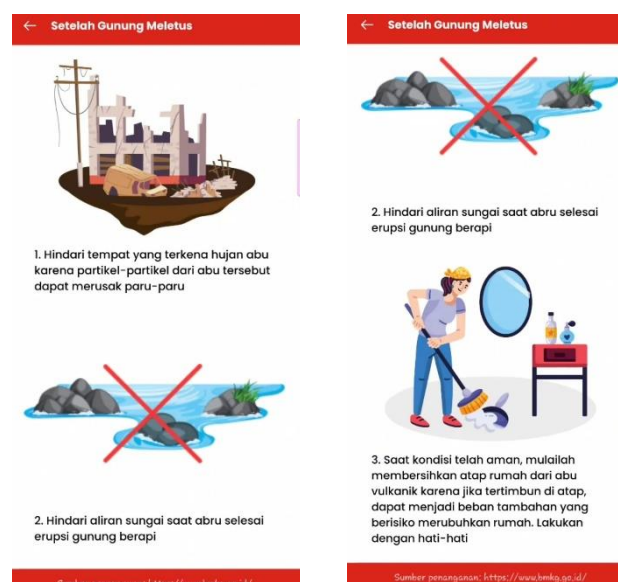

Figure 4. Explosion Mountain Management Education


Figure 5. Education After the Mount Eruption**DIFGANDES Application Obstacles**

This effort to create a DIFGANDES application is not free from the obstacles that are still experienced. As is the creation of other disaster mitigation applications that also have obstacles and still need development. In a study written by Mahardhani, dkk (2021) found that after it was released, the public, especially government officials and the Tagana team, quickly got used to using the DMC application. The results of implementation activities are quite significant in the long term. The activities are implemented from July 1, 2020, until December 31, 2020, until the implementation of the application program. But when it was launched, there were 45 people registered in the DMC application.

1. Minimum KSB cooperation

Currently, DIFGANDES has been working with two newly-established firms in Yogyakarta. It's definitely a challenge for DIFAGANA to develop the information and education that exists on the application. Because this application is expected to have information about the vulnerable groups that exist in the Setiao region of Yogyakarta, the needs of each vulnerable group can be the initial data for disaster mitigation. Here's a statement from the head of Difagana, Doddy,

If at the moment the application is in two sizes, we still encourage this application to use many cities or villages with a lot of potential disasters because Indonesia is the laboratory of disaster. Well, yesterday's strategy was that we were able to open talks with the province-level KSB so that this could be used by the manager of the KSB DIY region," Doddy said.

2. Development costs

The cost of creating or developing an application must be quite expensive, so it takes a lot of cooperation to treat the application so that its usefulness is maximized and the disabled are not hindered from accessing the information.

CONCLUSION

The results of the above study explain that many disaster-prone areas in Indonesia require systematic disaster mitigation. It appears that the development of the DIFGANDES application carried out by the disaster alert group (Difagana) can create space to make it easier for disabled people to get information about hatred.

In line with the development of DIFGANDES, it is not just for diffables but for all layers of society. In addition to being a means of hateful communication, this DIFGANDES application has features that are easily understood by disabled people, such as features that make it easier for net disabled persons to obtain information, like speakers. This information is packed in simple language—not very long sentences—but it can be conveyed clearly.

DIFGANDES is a cyclical becoming one of the smart city applications to respond to disasters that will be beneficial not only in where DIFgANDES stands, given geographically Indonesia is very much in need of the development of applications like this for the interests of a much larger national scale, the usefulness of this application for the re-layer of society needs to be continued.

This attempt to create a DIFGANDES application is not free from the obstacles that still exist. At least KSB is cooperating; currently, DIFGANDES is only cooperating with two establishments in Yogyakarta. It's definitely a challenge for DIFAGANA to develop the information and education that exists on the application. Besides, the cost of creating or developing an application must be quite expensive, so it takes a lot of cooperation to treat the application in obtaining information.

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