

## Contribution of Disaster Response Team in Assisting Natural Disaster Mitigation in Cianjur

Harurikson Lumbantobing<sup>a,1,\*</sup>, Aryo De Wibowo Muhammad Sidik<sup>a,2</sup>, Anggy Pradiftha Junfithrana<sup>a,3</sup>, Anang Suryana<sup>a,4</sup>, Handrea Bernando Tambunan<sup>a,5</sup>, Muchtar Ali Setyo Yudono<sup>a,6</sup>, Bayu Indrawan<sup>a,7</sup>, Ilman Himawan Kusumah<sup>a,8</sup>, Marina Artiyasa<sup>a,9</sup>, Edwinanto<sup>a,10</sup>, Yudha Putra<sup>a,11</sup>, Yufriana Imamulhak<sup>a,12</sup>

<sup>a</sup>Electrical Engineering, Nusa Putra University, Sukabumi, West Java, Indonesia

<sup>1</sup>harurikson.lumbantobing@nusaputra.ac.id; <sup>2</sup>aryo.dewibowo@nusaputra.ac.id; <sup>3</sup>anggy.pradiftha@nusaputra.ac.id; <sup>4</sup>

anang.suryana@nusaputra.ac.id; <sup>5</sup>handrea.tambunan@nusaputra.ac.id; <sup>6</sup>muchtar.alisetyo@nusaputra.ac.id; <sup>7</sup>

bayu.indrawan@nusaputra.ac.id; <sup>8</sup>ilman.himawan@nusaputra.ac.id; <sup>9</sup>marina@nusaputra.ac.id; <sup>10</sup>edwinanto@nusaputra.ac.id; <sup>11</sup>

yudha.putra@nusaputra.ac.id; <sup>12</sup>yufriana.imamulhak@nusaputra.ac.id

\* Corresponding Author

### ABSTRACT

This article discusses the contribution of the natural disaster response team in assisting with natural disaster mitigation in Cianjur. The disaster response team consists of several experts in the field of electrical engineering, such as electrical technicians, telecommunications specialists, and electronics experts, who are ready to assist in facing natural disasters in the Cianjur region. The article explains the activities carried out by the disaster response team, ranging from pre-disaster preparedness to post-disaster management. Some of the activities performed by the disaster response team include the development and maintenance of electro-technological infrastructure, training and educating the community about natural disaster mitigation, as well as coordination with relevant agencies in disaster management. The results of these activities indicate that the contribution of the natural disaster response team is crucial in assisting with natural disaster mitigation in Cianjur. With the presence of this team, losses can be reduced, and the recovery of the affected areas can be expedited after a disaster. This article can serve as a reference for relevant parties in enhancing preparedness for facing natural disasters in other regions.

### KEYWORDS

Natural disaster preparedness team;  
Electrical Engineering;  
Natural disaster mitigation;  
Community readiness;  
Disaster management



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### 1. Introduction

This article discusses the contribution of the natural disaster response team in assisting with natural disaster mitigation in Cianjur [1]. Natural disasters pose a constant threat to communities in various regions of Indonesia, including Cianjur [2]. As professionals in the field of electrical engineering, we felt it was necessary to participate in addressing this issue [3]. In this article, we aim to share the experiences and lessons we have gained as part of the natural disaster response team in Cianjur [4].

The disaster response team we joined comprises several experts in the field of electrical engineering, including electrical technicians, telecommunications specialists, and electronics experts [5]–[7]. The team's primary task is to assist in facing natural disasters in the Cianjur region [8]. The activities performed by the disaster response team are diverse, ranging from pre-disaster preparedness to post-disaster management [9]. Some of these activities include the development and maintenance of electro-technological infrastructure, training and educating the community about natural disaster mitigation, as well as coordination with relevant agencies in disaster management [10].

The community service activities conducted by the natural disaster response team are vital in helping the community cope with natural disasters in the Cianjur region [11]. This article aims to demonstrate the significance of the natural disaster response team's contribution in assisting with natural disaster mitigation [12]–[15]. With the presence of the disaster response team, losses can be minimized, and the recovery of the affected areas can be accelerated post-disaster [16]. Additionally, this article serves as a reference for relevant parties in enhancing preparedness for facing natural disasters in other regions [17]–[19].

Thus, the purpose of this article is to provide an overview of the contribution of the natural disaster response team in assisting with natural disaster mitigation in Cianjur. We hope that this article can offer benefits and inspiration to readers, encouraging them to actively participate in assisting communities in facing natural disasters.

## 2. Method

The methodology in this community service research involves several stages carried out by the natural disaster response team in Cianjur. These stages are as follows:

### 2.1. Problem Identification

In this stage, the natural disaster response team identifies potential issues that may arise during a natural disaster in Cianjur. These issues include infrastructure damage, shortages of clean water and electricity supply, as well as health-related problems.

### 2.2. Planning

After identifying the problems, the natural disaster response team devises action plans to assist in mitigating the natural disasters in Cianjur. The planning process includes setting priorities for actions and determining the required resources.

### 2.3. Implementaion

Once the planning is completed, the natural disaster response team starts implementing the planned actions. These actions encompass setting up emergency tents, providing clean water and electricity supply, as well as supplying medical equipment and food.

### 2.4. Monitoring and Evaluation

Throughout the implementation process, the natural disaster response team continuously monitors and evaluates the actions taken. This is done to assess the effectiveness of the actions and identify any measures that may need improvement or modification.

### 2.5. Documentation and Reporting

Finally, the natural disaster response team documents all the actions undertaken are shown in Figure 1. The figure shows the documentation includes photographs of the activities, data on treated patients, and daily activity reports. These reports are then compiled to create a final report, which will be submitted to the relevant authorities.

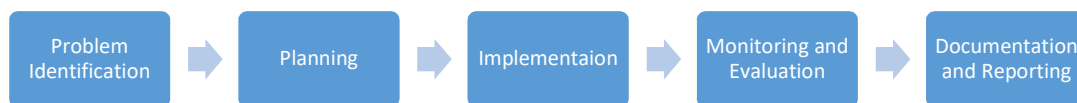


Fig. 1. Planning process

In this community service research, the data used for analysis are sourced from the documented activity reports of the natural disaster response team, as well as interviews conducted by the author with the members of the team. Additionally, the author utilizes secondary data sources such as weather data and information about the number of natural disaster victims in Cianjur. The collected data is then analyzed using a qualitative descriptive method. The analysis aims to depict the contribution of the natural disaster response team in assisting with natural disaster mitigation in Cianjur.

#### 1. Identification of problems

One of the main problems faced during natural disasters is infrastructure damage, which limits accessibility and complicates disaster response efforts [20]–[26]. This can lead to a decrease in the community's quality of life as they struggle to obtain basic necessities such as clean water, food, and medication. The second problem is the shortage of clean water supply, which can result in disease spread and worsen the health conditions of the disaster-affected community. Additionally, the lack of electricity supply can disrupt infrastructure and community activities, such as losing a source of lighting and hindering the use of medical equipment that relies on electricity [27]–[30].

Health issues also pose a problem that needs to be addressed. During natural disasters, the risk of disease transmission is high due to unclean environments and poor sanitation [31]–[35]. This condition can increase mortality rates and disease transmission among the disaster victims. To address these problems, the natural disaster response team needs to collaborate with the community and relevant parties, such as the government and humanitarian organizations, to identify and tackle the occurring issues. Proposed solutions should focus on infrastructure recovery, providing clean water and electricity supply, as well as efforts to improve sanitation and public health. By addressing these problems, it is hoped that the activities of the natural disaster response team can effectively and efficiently assist in mitigating natural disasters in Cianjur.

## 2. Planning

Planning is a crucial stage in natural disaster response activities. After the natural disaster response team identifies potential issues that may occur during a disaster in Cianjur, the next step is to create a well-structured and coordinated action plan. A thorough action plan will assist the natural disaster response team in determining priority actions, required resources, and avoiding confusion during actual disasters. The planning phase begins with the formation of a planning team composed of experts and trained volunteers in disaster response. This planning team is responsible for creating detailed and structured action plans [36]–[40].

Priority actions are determined based on their level of importance and urgency. For example, if there are individuals trapped in a collapsed building, their rescue becomes the top priority. Subsequently, the natural disaster response team will identify the resources needed to execute these actions. These resources include personnel, equipment, medication, food and beverages, as well as other necessary supplies. Additionally, the planning team develops various scenarios to anticipate potential situations during an actual disaster. These scenarios can assist the natural disaster response team in taking appropriate and swift actions when a real disaster occurs [41]–[45].

During the planning stage, the team also conducts a mapping of disaster-prone areas, identifies suitable locations for evacuation centers, and establishes communication and coordination systems among teams. All these aspects must be carefully considered to ensure that the action plan created can be executed effectively and efficiently during a disaster in Cianjur.

## 3. Implementation

In the implementation phase, the natural disaster response team carries out concrete actions to assist in mitigating natural disasters in Cianjur. The actions taken aim to address the previously identified problems and align with the prepared plan [46]–[52]. One of the actions involves establishing emergency tents as temporary shelters for those who have lost their homes due to the disaster. These emergency tents are strategically set up in accessible locations for the affected victims. Additionally, the natural disaster response team also provides clean water and electricity supply to ensure that the basic needs of the residents are met [53]–[55].

Furthermore, the team provides medical equipment and food for the disaster victims. Medical equipment is crucial for providing first aid to those in need. Meanwhile, the provision of food and beverages is essential to meet the nutritional and energy requirements of the affected individuals. During the implementation phase, the natural disaster response team must also ensure effective coordination and communication among team members and other stakeholders, such as local authorities and relevant agencies. This is crucial to ensure that the actions taken are well-coordinated and can deliver optimal benefits to the disaster victims.

Throughout the implementation phase, the natural disaster response team must remain prepared and vigilant in the face of changing circumstances. In critical and urgent situations, the team must be swift and responsive in addressing emerging challenges. Therefore, the implementation of appropriate and effective actions is vital in assisting in the mitigation of natural disasters in Cianjur.

## 4. Monitoring and Evaluation

Monitoring and evaluation are essential stages in the process of natural disaster response. In this phase, the natural disaster response team conducts monitoring of the affected communities' conditions and the actions taken previously. This monitoring is carried out periodically to understand the situation's

development and the community's status, ensuring that the actions taken remain relevant and effective. Additionally, the natural disaster response team evaluates the actions implemented. The evaluation is performed to assess the effectiveness of these actions and ensure they align with the pre-established plans. If any ineffective or non-compliant actions are identified, appropriate improvements and changes are made.

Monitoring and evaluation are also conducted to measure the impact of the actions taken. The natural disaster response team evaluates the social, economic, and environmental impacts resulting from the natural disaster. This is crucial to determine whether the actions have yielded positive results and improved the community's conditions. Furthermore, monitoring and evaluation are used to assess the success of the natural disaster response. This evaluation is done by comparing conditions before and after the actions were taken. If an improvement in the community's situation is observed after the actions were implemented, the natural disaster response is considered successful.

To carry out monitoring and evaluation, the natural disaster response team employs various methods, such as surveys, interviews, and direct observations. These methods are used to gather accurate and reliable data and information. By conducting regular monitoring and evaluation, the natural disaster response team can ensure that the actions taken have had a positive impact on the affected communities. Monitoring and evaluation also assist the natural disaster response team in improving ineffective actions and optimizing the actions that have been implemented.

#### 5. Documentation and Reporting

In community service activities, documentation and reporting play a crucial role. The natural disaster response team must maintain documentation and information regarding all the actions taken during the disaster mitigation in Cianjur.

Documentation and reporting serve several purposes, including:

- **Enhancing information accuracy:** Documentation and reporting assist the natural disaster response team in ensuring that all information related to their actions is correct and accurate. Having well-structured data enables the team to make better and more effective decisions.
- **Tracking progress:** Documentation and reporting help the natural disaster response team track their progress during the disaster mitigation. It allows them to know what has been done correctly and what needs improvement or modification.
- **Assessing success:** Documentation and reporting also help the natural disaster response team assess their success in assisting with the disaster mitigation in Cianjur. By reviewing recorded information, the team can evaluate the effectiveness of their actions and whether they have achieved their set goals.

When conducting documentation and reporting, the natural disaster response team must maintain the accuracy and sufficiency of data related to their actions. The submitted reports should encompass all relevant information and be well-organized for easy understanding by authorities. Additionally, documentation and reporting can be used as resources for future research or activities related to natural disasters. The collected data can be utilized to evaluate or develop action plans for more effective disaster mitigation in the future.

In conclusion, documentation and reporting are crucial parts of community service activities, particularly in natural disaster response. They help the natural disaster response team ensure that their actions are correct, effective, and accessible for public interest.

### 3. Results and Discussion

The natural disaster response team conducted problem identification as the initial step in assisting with disaster mitigation in Cianjur is shown in Figure 2. This figure shows that problem identification was carried out through field surveys to assess the condition of infrastructure, clean water supply, electricity supply, and public health in the disaster-affected areas. Infrastructure damage was a common issue during natural disasters. Road, bridge, and building damage hindered the community's accessibility and mobility, making it difficult to evacuate and distribute logistical aid. Hence, the natural disaster

response team identified and took measures to repair or address the infrastructure damage in the affected areas.



**Fig. 2.** Lab examination of earthquake victims

Furthermore, the shortage of clean water and electricity supply was also a frequent problem during natural disasters. Figure 3 shows that the natural disaster response team identified areas experiencing these shortages and took efforts to rectify or resolve the issues. Their efforts included installing generators and delivering clean water to areas in need. Health issues were also a concern for the natural disaster response team. Many community members suffer injuries or health disorders such as diarrhea, fever, and respiratory infections during disasters. As a result, the team identified areas requiring medical assistance and provided the necessary medical equipment. By conducting problem identification, the natural disaster response team can map out areas in need of assistance and prioritize actions to be taken. Additionally, problem identification helped them prepare the required resources and equipment for disaster mitigation in Cianjur.



**Fig. 3.** Blood test team

Planning was a crucial initial stage in assisting with disaster mitigation in Cianjur. Figure 4 shows that the natural disaster response team had to determine priority actions and required resources to ensure effective and efficient disaster response. Firstly, they assessed the level of infrastructure damage and the needs of the affected communities. Subsequently, the team created an action plan based on the identified priorities and needs. This action plan involved setting up emergency tents, providing clean water and electricity supply, as well as medical equipment and food supplies. These actions were prioritized to meet the needs of the disaster-affected communities.



**Fig. 4.**One of the buildings collapsed

In addition, the natural disaster response team also made plans for logistics management shown in Figure 5. The figure shows that this includes procurement, transportation, and distribution of logistics aid to the needed locations. The goal of logistics planning was to ensure that the logistics assistance could be swiftly and accurately received by the affected communities. Besides action and logistics plans, the natural disaster response team also devised plans for team management. This planning encompasses assigning tasks and responsibilities to each team member, as well as determining task schedules. The objective was to ensure that each team member had a clear and effective role in assisting with disaster mitigation in Cianjur.



**Fig. 5.**Briefing with the team before natural disaster management

In the planning process, the natural disaster response team also had to consider the possibility of situational changes that could affect action and logistics management plans. Therefore, planning had to be flexible and adaptable to the occurring situations. Overall, planning was a crucial initial stage in assisting with disaster mitigation in Cianjur. With well-crafted planning, the natural disaster response team could carry out effective and efficient actions to aid the disaster-affected communities.

Implementation was a vital stage in community service, especially in disaster mitigation in Cianjur shown in Figure 6. The picture is visible after the natural disaster response team formulated the necessary actions, they began to implement them. At this stage, they acted swiftly to address emerging issues and assist the disaster-affected communities. One of the actions taken was setting up emergency tents. Emergency tents were crucial to provide shelter for disaster-affected communities who lost their homes. Additionally, the natural disaster response team provided clean water and electricity supply since these provisions were usually disrupted during natural disasters. This was essential to ensure that the communities maintained access to clean water and electricity during the recovery period. The team also provided medical equipment and food supplies. Medical equipment was crucial in emergency situations like natural disasters as it could save lives and prevent disease outbreaks. Meanwhile, food provisions were essential to ensure that the communities received sufficient nutritional intake during the recovery period. In this implementation stage, the natural disaster response team is also coordinated with other parties, such as volunteers, aid agencies, and local authorities. This was important to ensure that the assistance provided effectively reached the needy communities.



**Fig. 6.** Tents for earthquake victims

Furthermore, the natural disaster response team also prioritized their own safety during the implementation of actions. They ensured that they had adequate personal protective equipment and followed appropriate safety procedures. During the implementation stage, the natural disaster response team also continuously monitored and evaluated the actions taken. This was done to determine the effectiveness of the actions and identify any areas that needed improvement or modification. Overall, the implementation stage is crucial in community service. The actions taken by the natural disaster response team at this stage can help meet the basic needs of the disaster-affected communities and expedite the recovery process.

Monitoring and evaluation are essential components of community service. At this stage, the natural disaster response team monitored and evaluated the actions taken to address the natural disasters in Cianjur. The goal was to ensure that the actions were in line with the plan and effective in assisting the disaster victims. One of the tasks during the monitoring and evaluation stage was to monitor the availability of clean water, electricity, food, and medical equipment. The natural disaster response team also monitored the condition of infrastructure such as roads and bridges to ensure that access to disaster sites remained viable. Additionally, they monitored the health conditions of the disaster victims to ensure that adequate medical care was provided.

During the evaluation stage, the natural disaster response team assessed the effectiveness of the actions taken. They considered whether these actions had successfully assisted the disaster victims and identified areas for improvement. This evaluation was essential to ensure that the actions taken could provide maximum assistance to the disaster victims. Moreover, the natural disaster response team held meetings to discuss the results of monitoring and evaluation. This was done to improve strategies and planning for future actions. These meetings also helped the team in planning better actions in the future if other natural disasters were to occur.

In conclusion, monitoring and evaluation are crucial stages in community service for natural disaster management in Cianjur. This ensures that the actions taken are effective in assisting disaster victims and helps the team improve planning and strategies for future actions. In natural disaster management,

documentation and reporting are of utmost importance as a form of accountability and transparency. The natural disaster response team in Cianjur also carries out documentation and reporting as part of their community service.

Documentation is done by capturing the activities carried out by the natural disaster response team through photographs. These photos serve as evidence that the team has taken actions in accordance with the planning. Additionally, these photos can be used for promotion and publicity purposes for the activities carried out by the natural disaster response team. Apart from photographs, the team also records data of patients treated during the disaster management process. This data is crucial for medical purposes, enabling medical personnel to easily access and monitor patient health. Furthermore, this data can be used for evaluation and improvement of future disaster management. In addition to documentation, the natural disaster response team also creates daily reports that detail the activities undertaken each day. These daily reports serve as a form of accountability and transparency regarding the activities conducted. With the presence of daily reports, authorities and the public can have a detailed understanding of what the natural disaster response team has accomplished.



**Fig. 7.** Examination of one of the victims and recording of medical records

Finally, the natural disaster response team creates a final report that summarizes all the activities carried out during the natural disaster management in Cianjur. The picture shows that this report can be used for evaluation and improvement of future disaster management. Additionally, the report can also be utilized for promotion and publicity of the activities conducted by the natural disaster response team. In the series of community service, documentation and reporting are indispensable aspects. Documentation and reporting serve as forms of accountability and transparency for the activities undertaken by the natural disaster response team. Furthermore, documentation and reporting are valuable for evaluation and improvement of future disaster management.

#### **4. Conclusion**

In our overall dedication as a natural disaster response team in Cianjur, we have successfully made a significant contribution to assisting in the management of natural disasters in the region. Through writing this journal article, we can conclude that the role of the natural disaster response team is crucial in helping communities face natural disasters. During our service, we have undertaken several important steps, namely problem identification, action planning, implementation, monitoring and evaluation, and documentation and reporting. Problem identification is essential to determine appropriate actions in dealing with natural disasters. Subsequently, action planning is a crucial step in determining action priorities and required resources.

The implementation of actions carried out by the natural disaster response team involves various aspects, such as setting up emergency tents, providing clean water and electricity supplies, as well as supplying medical equipment and food. Throughout the implementation, we continuously monitored and evaluated to ensure the effectiveness of the actions taken and made necessary adjustments. Finally, documentation and reporting were conducted to ensure that all actions taken were well recorded and could be used as material for the final report. This final report could then be utilized to assist authorities in making informed decisions related to disaster management in Cianjur.

In conclusion of this journal article, we can affirm that the role of the natural disaster response team is highly significant in assisting communities in facing natural disasters. Through this dedication, we have made a substantial contribution to disaster management in Cianjur. We hope that this journal article can benefit society and also inspire others to engage in community service when confronting natural disasters.

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### **Author Contribution**

The methodology in this community service research involves several stages carried out by the natural disaster response team in Cianjur.

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### **Conflict of Interest**

The authors declare no conflict of interest.

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