
**Humanitarian Logistics Management
(Case Study of Cianjur District, Indonesia)**

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Abstract: Humanitarian logistics plays a vital role in disaster relief, involving the coordination and management of resources and personnel to ensure the efficient delivery of life-saving assistance during natural disasters, conflicts, or humanitarian crises. Its primary focus is on planning and facilitating the timely distribution of goods, services, information, personnel, and aid to affected populations. Qualitative methods are employed as a tool to gain an in-depth understanding of how these variables influence outcomes within the domain of humanitarian logistics. This journal uses study case in Cianjur with data collected through interviews with BNPB Disaster Analysis, Founder of Sekolah Relawan, and volunteers who's participated in Cianjur's earthquake in November, 2022. This research investigates the influence of infrastructure, transportation, warehousing, and volunteers' involvement on operational efficiency in humanitarian logistics, offering insights and case studies to advance humanitarian logistics operations in Indonesia.

Keywords: *Humanitarian logistics organization, Cianjur's earthquake, BNPB, BPBD Cianjur, Sekolah Relawan, volunteers involvement, infrastructure, transportation.*

1. Introduction

Indonesia is often cited for its notably high frequency of disasters. When compared to other countries, certain regions in Indonesia are more vulnerable to natural disasters. This vulnerability is due to its geographical location at the intersection of active tectonic plates, the presence of active mountain ranges, and its tropical climate. Furthermore, 70% of its territory is composed of water. This geographical location, situated between two continents, Asia and Australia, has contributed to the country's socio-cultural diversity (Khusna et al., 2023). These factors make Indonesia more prone to various natural and man-made disasters, highlighting the need for strong plans and actions to prepare for and respond to emergencies (Raden Didiet Rachmat Hidayat et al., 2017).

The humanitarian sector has developed a collective strategic goal to emphasize localization which includes the distribution of duties and the relocation of capabilities and resources to national and community stakeholders even though progress is slower than expected. Implementing the strategy is challenging, and converting a broad strategic goal into the practical operations of humanitarian organizations is far from straightforward.

Efficiency and effectiveness in humanitarian logistics management are pivotal. These reflect the measurable performance achievements of organizations carrying out these critical activities.

Indonesia's Disaster Management Law No. 24 of 2007, describes a disaster as an event or series of events that endanger and disrupt the lives and livelihoods of a community. These disturbances can be caused by natural and/or unnatural factors, as well as human activities, leading to loss of life, environmental degradation, loss of property, and psychological impacts (Law of the Republic of Indonesia No. 24/2007 Concerning Disaster Management, 2007).

In recent years, Indonesia has faced a series of natural and man-made disasters, which highlight the indispensable role of an effective disaster management system. Law No. 24 of 2007 delineates the principles, allocation of responsibilities, organizational structure, and execution of Indonesia's national disaster management system. This law establishes the National Agency for Disaster Management (BNPB), which is responsible for coordinating proactive disaster risk reduction efforts and providing leadership during emergencies. The BNPB's functions include formulating disaster management policies, managing refugees through prompt, suitable, effective, and efficient actions, and coordinating disaster management activities in a well-planned, integrated, and comprehensive manner. As a visual aid, Figure below presents an infographic summarizing the disaster landscape in Indonesia for the year 2022.



Figure 1. Disaster in Indonesia, 2022

Source: BNPB

A case study is a research approach in which the investigator conducts a thorough examination of a program, event, activity, process, or a specific group of individuals (Creswell & Creswell, 2014). A case study was conducted in Cianjur as an example of disaster management in a region. Cianjur was chosen as a case study because it is a region that is frequently affected by disasters, particularly earthquakes due to its location along the Cimandiri Fault with its left-lateral strike-slip fault mechanism, making it susceptible to seismic hazards (Irsyam et al., 2017).

2. Literature Review

2.1 Supply Chain and Logistics

The humanitarian supply chain plays role in order to minimize casualties and to ensure the flow of relief aid and to provide effective and efficient information about the victims and the donors (Ade Rikasonya et al., 2020). According to the study by (Chiappetta Jabbour et al., 2019), resilience is an important concept in the Humanitarian Supply Chain. This refers to the ability of a supply chain to withstand the impact of a disaster and then recover after the disaster occurs.

Logistics is the overall process of managing how resources are acquired, stored, and transported to their final destination. It includes the flow of goods, cash and information along the lines of the supply chains. The responsibility of logistics management entails designing and overseeing a system for controlling the strategic movement and storage of materials, spare parts, and finished products, with the aim of optimizing the company's overall benefits.

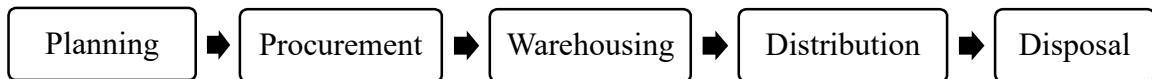


Figure 2. Logistics and Equipment Management System Process for Disaster in Indonesia

Source: National Disaster Management Regulation No. 04 of 2018 about Logistics and Equipment Management System

According to (National Disaster Management Agency Regulation Number 4 of 2018 Concerning Logistics and Equipment Management Systems, 2018), the management of logistics and equipment in disaster response involves a sequence of five steps. It begins with planning which involves identifying needs, assessing available resources, collecting data, and analyzing to establish minimal standards. The goals include determining aid quantities, assessing affected individuals, deciding distribution methods, identifying aid recipients, and establishing delivery timelines. Procurement involves planned fulfilment of needs for logistics and equipment, funded by the national budget or other official sources. Warehousing handle logistics and equipment with defined procedures for location, storage, security, and safety to record, preserve, facilitate distribution, and ensure continuous availability. Distribution involves the transport and delivery of logistics and equipment from the origin to the destination, utilizing various modes of transportation such as land, sea, river, lake, and air. Factors considered are emergency situations, speed, infrastructure availability, regional conditions, effectiveness, efficiency, safety, and security. The goals are to deliver aid, ensure safety and integrity during transportation, and expedite delivery cost-effectively. Disposal of state-owned assets removes items from the inventory by issuing a decision from authorized officials. This decision releases administrators, users, or authorized users from administrative and physical responsibilities.

2.2 Humanitarian Logistics Organization

Humanitarian logistics has established itself as a noteworthy subject within the logistics field, garnering significant attention from the academic community following the 2004 Asian tsunami (Çelik, 2016; Habib et al., 2016; Sakiani et al., 2020) (Rojas Trejos et al., 2023).

Humanitarian logistics stands apart from the logistics processes in commercial supply chains due to the presence of various uncertainties, such as the selection of routes, fluctuations in facility capacity, shifting demand, safety concerns, underutilized routes, and additional challenges like disruptions in communication systems, constrained resource availability, and the imperative of achieving efficient and timely deliveries (Balcik et al., 2008) (Safeer et al., 2014).

A Humanitarian Logistics Organization refers to a dedicated entity or group focused on the strategic planning, coordination, and implementation of logistical and supply chain activities within humanitarian and disaster relief scenarios. These entities have a pivotal role in ensuring the prompt and efficient delivery of aid to individuals impacted by natural disasters, conflicts, or other urgent situations.

2.3 Cianjur Earthquake

The number of fatalities resulting from the 5.6-magnitude earthquake that hit Cianjur regency on Monday, November 21, 2022 (Indonesian Consulate General in Vancouver, 2022). Based on the earthquake disaster update in Cianjur from BNPB (National Agency for Disaster Management), there are 93 institutions/organizations with 116 donors contributing to 9 clusters divided into 26 sub-clusters and 98 types of activities, providing 8 types of assistance to 628,685 aid recipients in 29 districts and 114 villages.

2.4 BNPB and BPBD

The National Disaster Management Agency (BNPB) serves as the central coordinating body for government institutions. In contrast, the responsibility for disaster management at the provincial and district/city levels is assigned to the Regional Disaster Management Agency (BPBD) (Cahya Dicky Pratama & Serafica Gischa, 2020).

According to the Head of BNPB Regulation No. 13 of 2008 on Logistic Management and Disaster Management Equipment Guidelines, the distribution is based on inventory data, and a distribution plan is formulated with supporting data. This plan is established upon request and authorization from competent disaster management authorities. The distribution plan includes details about who will receive assistance, prioritized logistics and equipment needs, delivery timing, location, method of delivery, transportation means, and responsible parties.

2.5 Sekolah Relawan as NGO (Non-Government Organization)

According to the study by (Lewis, 2009). Civil society categorizes NGOs based on their independence from government aid and also plays a role in empowering civil society through assistance, humanitarian activities, and advisory services in order to strengthen the democratic movement (Hamilton et al., 2010).

Sekolah Relawan was established as a community committed to sharing knowledge and insights about volunteerism on January 13, 2013. Subsequently, on January 21, 2016, Sekolah Relawan officially established a humanitarian foundation with a focus on volunteers education. This foundation also supports three main programs, namely humanitarian social programs, community empowerment programs, and advocacy. With Bayu Gawtama as president of Sekolah Relawan.

2.6 Infrastructure and Transportation

The survivors will suffer due to infrastructure failure that caused delayed search, rescue operations and relief efforts (Ghobarah, Saatcioglu & Nistor, 2006) (Ker Qing & Daud, 2014). According to (Coco et al., 2020), transportation method selection depends on several elements, including the disaster's type, the geographical characteristics of the impacted region, the condition of infrastructure like roads, transport terminals, sea and river ports, airports, and logistics centers, as well as the duration or temporary nature of the disruptive event (Rojas Trejos et al., 2023). Study by (Schiffeling et al., 2022) mentioned that The absence of infrastructure posed a significant obstacle for humanitarian organizations in the aftermath of two distinct disasters: the earthquake in Haiti in January 2010 and the floods in Pakistan in July 2010.

2.7 Warehouse and Aid Distribution

In humanitarian logistics, warehouses play a crucial role in maintaining product quality until it reaches the customer (Ramzy Aziz et al., 2019). Addressing accessibility constraints during aid distribution makes effective storage and quality control in warehouses vital. As outlined by (Tatham et al., 2017), despite pre-positioning relief goods in facilities like the BNPB's big data central warehouse, various constraints may hinder procurement and distribution actions. This highlights the pivotal role of warehouses in overcoming logistical challenges and ensuring the success of aid distribution efforts. Furthermore, accessibility constraints are approached through aid distribution and access restoration models, each addressed separately in the literature (Karakoc et al., 2020; Rojas Trejos et al., 2023).

2.8 Disaster Area

The World Health Organization (WHO) defines a 'disaster' as an incident that leads to damage, environmental disturbance, loss of human lives, suffering, a decline in healthcare and health services, to a degree that requires an extraordinary response from external sources beyond the affected community or region.

A disaster area, often referred to as a disaster zone or disaster-stricken area, is a geographical location or region that has been severely affected by a natural or human-made disaster. In such an area, there has been significant damage to property, infrastructure, and the environment, and there may be casualties or injuries to human life. Disaster areas typically require immediate attention, relief efforts, and assistance from local, national, and international authorities and organizations.

2.9 Donors

In disaster scenarios, donors play a significant role by providing substantial assistance for essential relief efforts (Kovács & Spens, 2007; Day et al, 2012.). Nevertheless, even when the victims' needs are well-defined, it is the donors who ultimately decide the nature of their contributions (Day et al. 2012) (Scarpin & De Oliveira Silva, 2014).

Regarding cash donations, there is a stronger anticipation that they will be allocated for tangible relief purposes rather than for information systems materials or logistical equipment (Oloruntoba & Gray, 2006). An essential point to consider is that if relief organizations fail to use their resources effectively, donors might cease their contributions (Beamon & Balcik, 2008) (Scarpin & De Oliveira Silva, 2014).

A study done by (Hosseini et al., 2023), showed that many provided donations by donors were based on short-term requirements from disaster-affected populations, with less consideration for long-term needs, for example goods for children and adolescents were ranked the lowest. In other words, it donors should be open to adjusting their support based on changing circumstances and feedback from the ground.

3. Research Method

The study employed a qualitative research approach, which involved collecting in-depth descriptive data through techniques like interviews and observations (Poerwandari in 2005) (Dewi et al., 2021). This research focuses on how a humanitarian logistics organization plays vital roles in humanitarian logistics processes by providing SWOT analysis.

Philip Kotler defined SWOT analysis as an evaluation of the overall strengths, weaknesses, opportunities, and threats. Meanwhile, according to Freddy Rangkuti (2008), the utilization of SWOT analysis involves systematically identifying and assessing the strengths, weaknesses, opportunities, and threats associated with various factors. The purpose is to logically formulate a strategy aimed at resolving a problem. This analytical approach seeks to capitalize on strengths and opportunities while simultaneously mitigating weaknesses and threats (Aswin et al., 2018).

This journal used study case, which provided by the people that are well-knowledge about the problems that they can served correct information data. The focus of this study is on observing activities, individuals (actors), and specific locations (places) that will serve as a continued topic of discussion (Sugiyono, 2008, p. 49) (Dewi et al., 2021). The writers focusing on how a humanitarian logistics organization served their services on the case of Cianjur's earthquake.

This research used data from stakeholders and volunteers by direct interviews with Winda Yunita Ari Permata Puteri of BNPB Disaster Analysis, Bayu Gawtama the Founder of Sekolah Relawan, BPBD Cianjur's website, international journals, articles, and updated news which provide the distribution of humanitarian logistics processes in Cianjur, Indonesia.

4. Result and Discussion

4.1 Cianjur Earthquake and Its Impact

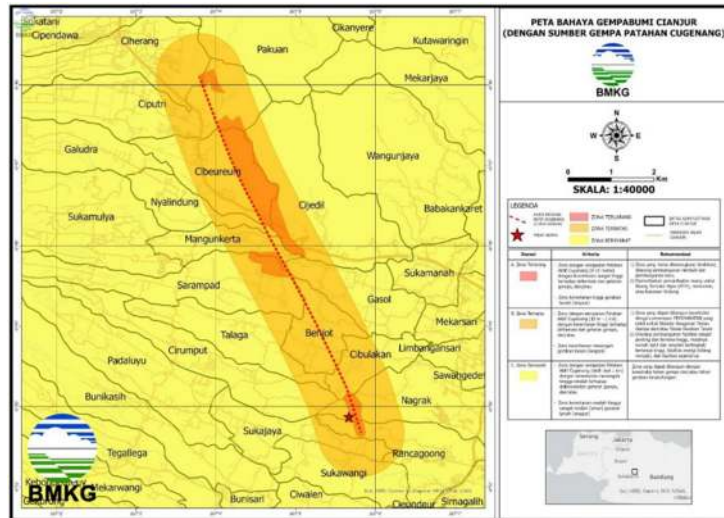
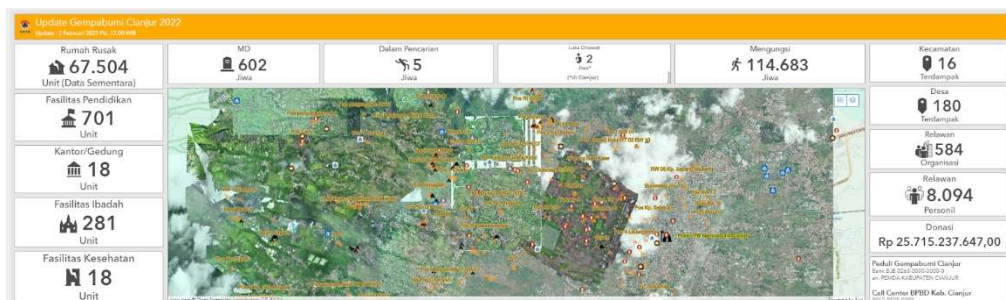


Figure 3. Cugenang Fault

Source: BMKG

According to the Head of Indonesia's Meteorology, Climatology, and Geophysics Agency (BMKG), Dwikorita Karnawati, a fault line in the Cianjur earthquake has recently been identified and is not connected to any other active fault lines in West Java. As reported by a local newspaper (Detik Jabar), the BMKG disclosed that the 5.6-magnitude earthquake that shook Cianjur Regency was caused by the Cugenang Fault. Head of BMKG, Dwikorita Karnawati, noted that this fault was a newly identified one and not linked to any other active faults in West Java (Farisa, 2023).

Karnawati explained that this newly discovered fault traverses nine villages across two districts in a northwest-southeast direction. Among these, one of the villages is Desa Mangunkerta. The earthquake has led to 602 fatalities, 5 individuals unaccounted for, and 114,683 people forced to evacuate. In addition, there has been extensive physical damage, with 67,504 homes in a state of disrepair and numerous public facilities affected (Farisa, 2023).



4.2 Logistics Distribution and Relief Efforts in Cianjur Earthquake Response

A week after the earthquake struck which is on Monday, November 28th, the National Agency for Disaster Management (BNPB) once again carried out the distribution of logistics, which included 300 sets of bedding (pillows, bedspreads, pillowcases) and refugee tents to the Cianjur Regency Regional Disaster Management Agency (BPBD). Additionally, BNPB Head distributed 6 units of aid to the earthquake-affected community. In areas that are challenging to access, logistics distribution continued to be facilitated through both air and land routes. This includes the use of one helicopter and 50 motorcycles. Notably, there are a total of 451 refugee points, comprising 351 centralized points and 100 self-managed points. The Social Services Department has also operated 18 communal kitchens, and an additional 150 hygiene and sanitation facilities have been added to centralized refugee points, bringing the total number of facilities to 197. (National Agency for Disaster Management, 2022).

Figure 4. Impact of the 2022 Cianjur Earthquake Disaster
Source: BNPB, on Lampuk Beneana Gempa Bumi Cianjur

4.3 BNPB and BPBD Cianjur Aid Distribution Processes

Winda Yunita Ari Permata Puteri of BNPB Disaster Analysis stated that, "BNPB's work system is in the form of assistance, so it only intervenes when BPBD is no longer able to handle the impact of a disaster". First, BNPB will receive information from BMKG regarding the disaster status. BPBD Cianjur will follow up on the disaster status in Cianjur with BNPB. Second, BNPB will provide assistance. This includes strengthening institutional capacity as a form of preparedness. At this stage, BNPB has already supplied assistance needs to the Provincial and District/City BPBDs before the disaster occurs. Therefore, within the first 72 hours, this assistance will be distributed to the affected areas. Lastly, an assessment is made by the rapid response team of BNPB. The provision of assistance will be supported by BNPB based on the received data. Procurement will be carried out using readily available funds provided by the Ministry of Finance to BNPB. BNPB has three functions, namely as a coordinator, commander, and executor. There are four mandatory logistics that BNPB must fulfill, which are: (1) ready-to-eat food; (2) blankets; (3) mattresses; and (4) refugee tents.

"There is no specific strategy in handling disaster cases. This is because the disaster response strategy will adapt to the specific case of the disaster. So, for each disaster case with its unique characteristics, the response will be different," said Winda Puteri in her interview with the interviewers.

According to Winda Puteri, in Cianjur's case, vehicles have difficulty accessing disaster-affected areas. Therefore, the distribution to remote disaster-affected areas can only be done using trail motorcycles.

The distribution of logistical assistance by BNPB can be carried out in two ways. In its implementation, BNPB has distributed logistical assistance before emergencies to 34 provinces and 514 regencies/cities in Indonesia. This is in line with the concept of

humanitarian logistics, "the effective and efficient concept in humanitarian logistics is to bring assistance closer to areas that have the potential for disasters," said Winda Yunita Ari Permata Puteri.

First, sending logistical assistance directly from the central BNPB warehouse. The shipment of logistical assistance from the central warehouse in Jakarta is sent to provincial warehouses and ultimately ends up at district/city warehouses. The distribution is carried out by BPBD according to the provided data. Second, using ready funds. BNPB, through PJOK (Operational Activity Supervisor), will purchase the necessary logistical assistance for disaster victims, in accordance with the available data.

4.4 Sekolah Relawan Workflow

Out of the 93 NGOs that participated in the Cianjur earthquake response, the researchers chose Sekolah Relawan as the NGO to be interviewed. As a Non-Government Organization, Sekolah Relawan plays important roles in responding to earthquakes in Cianjur, Indonesia. First, they receive information from BMKG (Meteorological, Climatological, and Geophysical Agency). Then, Sekolah Relawan's team observes the earthquake's magnitude and monitors the response of volunteers through a WhatsApp group to obtain further information about the affected area. Second, after receiving A1 information, which is primary data, Sekolah Relawan receives a report on the impact of the earthquake, such as damage, casualties, and injuries. Upon receiving this information, Sekolah Relawan prepares a team consisting of 4 to 5 individuals and dispatches them to the disaster site in Cianjur, which is estimated to take 2 to 3 hours. Last, after the volunteers arrive at the disaster site, the dispatched team prepares natural assistance or logistic aid that has been prepared by Sekolah Relawan to be taken to the disaster site. This is a form of readiness by Sekolah Relawan to supply emergency needs for disaster victims, such as ready-to-eat meals, bottled water, medications, and medical supplies.

4.5 SWOT Analysis

1. Strengths
 - a. Efficiency of Transportation and Facilities

For transportation, Sekolah Relawan utilizes their organization's rescue vehicles, which includes one double-cabin vehicle, a pickup truck for transporting logistical supplies, three operational ambulance vehicles, and other operational vehicles that can be deployed by this organization. Sekolah Relawan does not rely on government vehicles assistance. In the Cianjur case, several vehicles supported by donors and volunteers are available for aid distribution for approximately one to two weeks.

- b. Volunteers Involvement and Preparedness

In carrying out its duties, Sekolah Relawan will prepare the needs of the rescue team and all volunteers on duty. This includes items such as uniforms, which serve as the volunteers' identification, personal protective equipment (PPE), and adequate tools for working in areas affected by earthquakes, such as rock-breaking hammers, pulleys for lifting heavy objects, body bags, and stretchers. Furthermore, the Sekolah Relawan will equip its team with official and legal assignment letters.

Sekolah Relawan enhances the quality of its organization by conducting regular and structured training, both internally and externally. This is aimed at ensuring that the volunteers on duty are not only mentally and physically prepared but also possess adequate skills and a broad perspective, enabling them to optimize their work in the field.

c. Aid Distribution Process

The distribution process carried out by Sekolah Relawan to Cianjur is the result of collaboration between Sekolah Relawan, donors, and stakeholders. There are two methods employed by Sekolah Relawan to facilitate partners and donors in delivering aid. Firstly, they directly deliver assistance to the disaster location in coordination with Sekolah Relawan's on-duty team. Secondly, they transport the aid to the Sekolah Relawan's center located in Depok, from where it will later be loaded and sent to the disaster site.

Currently, Sekolah Relawan uses an application for assessing the affected areas and collecting data for targeting volunteers in the aid distribution action.

2. Weaknesses

a. Logistics Information System Management

During the Cianjur earthquake, Sekolah Relawan did not have an application and relied on computer-based databases to monitor the distribution of goods. However, in the last two months, Sekolah Relawan has acquired an accessible application for tracking the distribution of aid items.

b. Delay in distribution of aid

The delay in aid distribution in Cianjur was caused by the high level of curiosity and social involvement of the public, often without considering the negative consequences. People who flocked to the disaster area, whether to provide assistance or to watch the disaster unfold, could hinder the volunteers on duty. This is a result of trusting invalid information when, in fact, the community should believe that humanitarian organizations and NGOs (Non-Government Organizations) will certainly fulfill their duties to the fullest.

3. Opportunities

a. Access to the Government (BNPB and BPBD)

The relationship between Sekolah Relawan and BNPB (National Agency for Disaster Management) and BPBD (Regional Disaster Management Agency) is going well, especially with the presence of the PBI Squad (*Squad Penanggulangan Bencana Indonesia*) in the Jabodetabek area. This facilitates coordination between BNPB and NGOs in Indonesia. Sekolah Relawan reports data about volunteers on duty and their assigned tasks to BNPB and the local BPBD.

b. Donators and Stakeholders

Sekolah Relawan collaborates with donors and stakeholders in carrying out its tasks. Donors can contribute aid in the form of goods or money, which will be

allocated according to the needs in the field. Meanwhile, stakeholders may request a proposal outlining the program to be implemented, and Sekolah Relawan will provide this proposal to stakeholders within a maximum of 24 hours.

c. Warehouse and Logistics Process

Sekolah Relawan rents a warehouse to store aid items before sending them to Cianjur. During the Cianjur earthquake, Sekolah Relawan did not have an application to record aid distribution activities. Instead, they used forms that were accessible to Sekolah Relawan's team. The new application became available and was eventually developed by Sekolah Relawan in the last two months.

d. Resources

Sekolah Relawan will establish requirements by conducting volunteers orientations and then providing training. Requirements, training, and upgrading are routine activities carried out by Sekolah Relawan.

4. Threats

a. Possible threats or external obstacles from thieves

In the case of Cianjur, there were no reported incidents of aid theft, either during shipping or at the disaster site. This is different from the case in Palu, which prompted Sekolah Relawan to implement a strategy of taking turns to guard the command post.

b. Environmental change and disaster injustice

While this does not occur frequently, the internal team of Sekolah Relawan is well-equipped to control the situation. They conduct periodic assessments to gather data on the needs in the field. In addition, BPBD and Basarnas (National Search and Rescue Agency) coordinate with the leaders of the involved organizations regarding plans for the following day.

c. Poor Infrastructure

Narrow roads can make it difficult for volunteers to access disaster areas, especially when there is a surge in the number of people present. This necessitates that volunteers, particularly medical personnel, respond promptly by using motorcycles instead of cars to avoid traffic congestion. This can be challenging for them when carrying the necessary items to provide aid. (Ker Qing & Daud, 2014)

4.6 Strategic Management SWOT Analysis

External Condition Internal Condition	Opportunities 1. Strong relationships with BNPB (National Agency for Disaster Management) and BPBD (Regional Disaster Management Agency). 2. Collaborate with donors and stakeholders to enhance service distribution. 3. Available warehouse for aid item storage before distribute it to Cianjur. 4. Conducting volunteers' orientations and providing training.	Threats 1. Potential aid theft. 2. Environmental changes and disaster-related injustices. 3. Poor infrastructure following a disaster.
Strengths 1. Adequate vehicles for aid distribution. 2. Preparedness for recruiting volunteers for aid distribution in Cianjur. 3. Strong relationships with partners and donors to facilitate aid distribution.	SO strategy 1. To enhance service distribution. 2. Strengthen the organization's capabilities. Developing strong relationships with other organizations and recruiting high-quality volunteers is essential for boosting the quality of the organization's services and aid distribution.	ST policy 1. Implement better security and tracking measures. 2. Maximize team performance to gather information about volunteers needs in the field. NGO must enhance its security system and team performance to effectively track the system.
Weaknesses 1. Aid distribution delays in Cianjur are caused by community members' curiosity and their desire to distribute aid independently, without	WO strategy 1. Utilize preparedness to recruit volunteers and establish a volunteers' program for aid distribution and coordination.	WT strategy 1. Conduct seminars on the importance of building trust in disaster response institutions and promoting independent evacuation methods.

coordinating with relevant institutions. 2. Applications and websites are still difficult to access and data is not always updated	2. Create high secure level and up-to-date website and applications. Managing relations with donors and stakeholders can expedite meeting the aid needs of disaster victims.	2. Explore alternative methods for aid distribution in disaster-affected areas. Holding seminars is crucial for sharing knowledge with the community to facilitate the work of disaster response institutions. Additionally, planning for areas with poor infrastructure is essential to maintain the aid distribution process.
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4.7 Key Issues in Post-Disaster Response at Cianjur

Following the devastating earthquake that struck Cianjur in November 2022, a dedicated team of volunteers, consisting of approximately 20 students and lecturers, embarked on a relief mission. In an interview with one of these volunteers in the disaster relief efforts in Mangunkerta Village, Cugenang District, several significant insights emerged.

The volunteers mentioned that before setting off for Cianjur, the volunteers' team had undergone a comprehensive briefing, equipping them with a sense of purpose and a clear understanding of their roles. However, upon arriving at the emergency post in Mangunkerta, a sense of confusion enveloped the entire team. The circumstances on the ground were different from what they had anticipated. The allocation of duties seemed unclear, and the urgency of the situation demanded swift decision-making. Over a four-day, three-night stay of the volunteers, their primary focus during their time in Cianjur became the operation of the emergency kitchen within the post. This involved preparing breakfast, lunch, and dinner for the displaced residents, many of whom had lost their homes in the earthquake. Fortunately, timely deliveries ensured that food supplies were adequate.

There were also several critical issues concerning post-disaster response that were highlighted by the volunteers, mainly:

a. Limited Infrastructure and Delayed Aid

A significant challenge identified was the limited infrastructure in the affected area. This inadequacy resulted in delays in delivering essential aid and hindered the deployment of volunteers. This issue highlights the need for better infrastructure preparedness in disaster-prone areas.

b. Lack of coordination between organizations/agencies

Another important issue is the lack of effective coordination between the different organizations and agencies involved in disaster response. This lack of coordination led

volunteers to “look for things to do” instead of participating in a well-organized and coordinated response effort. To improve disaster response effectiveness, it is necessary to establish clear lines of communication and coordination between these units.

c. Distributing logistics to smaller, hard-to-reach areas

Distributing logistics support to smaller, remote areas poses a significant challenge. Ensuring that aid reaches these areas quickly is essential to ease the suffering of those affected. A comprehensive logistics strategy must be developed to effectively address this problem.

d. Emergency School Presence

The presence of an emergency school was noted as a concern. This suggests that educational institutions in disaster-prone regions may not be adequately prepared for such emergencies, and there may be room for improvement in disaster resilience planning for schools.

During the interview, the volunteers also expressed their opinion on the local government's reaction to the earthquake. They acknowledged that, overall, the government's response had been swift and efficient, demonstrating a sense of urgency and responsibility in managing the disaster. However, the volunteers also noted that challenges and obstacles persisted, reflecting the complexity of coordinating relief efforts in the aftermath of a natural catastrophe.

5. Conclusion

Based on the data analysis and interviews conducted, it is clear that humanitarian logistics processes require continuous research and improvement. This research investigates the operational of humanitarian logistics, specifically focusing on the 2022 earthquake in Cianjur. The earthquake's origin and the newly identified Cugenang Fault underscore the ongoing need for a robust disaster management system in Indonesia.

This study also highlights various challenges in post-disaster response, emphasizing issues such as limited infrastructure, coordination between organizations, logistics distribution to remote areas, and the preparedness of humanitarian agencies, which provides insights into the correlation between government agencies, NGOs, and volunteers in optimizing the distribution of logistics aid to disaster-affected areas. However, it also points out the absence of specific strategies to handle disaster cases resulting from the uniqueness of a particular disaster event, as in the case of the Cianjur earthquake in Indonesia.

First, BNPB has three functions: as a coordinator, commander, and executor. In carrying out their tasks, BNPB and BPBD Cianjur are assisted by government and non-government organizations (NGO). One of these NGOs is called Sekolah Relawan. Second, Sekolah Relawan plays a role in distributing logistics aid in Cianjur. The authors obtained SWOT analysis data from an interview with the founder of Sekolah Relawan. This SWOT analysis data shows that Sekolah Relawan has made rapid developments with their organization, by providing the application for tracking the distribution of logistics aid. Third, it's important to

consider the role of volunteers. As demonstrated by the unique case of Desa Mangunkerta, these issues have tangible and immediate effects on the ground, impacting the efficiency of relief efforts.

It's evident that humanitarian logistics constitutes a complex and dynamic field, where optimizing resources, transportation, and coordination are essential for saving lives and mitigating the impact of disasters.

6. Implications

The implications drawn from this study emphasize the need for a holistic approach to disaster management, involving all relevant stakeholders, including governmental agencies, NGOs, and volunteers. Furthermore, the study highlights the potential benefits of technology and the importance of tailored strategies for disaster events with unique characteristics. This approach can lead to more effective humanitarian logistics, ultimately saving lives and reducing the impact of disasters in Indonesia and other vulnerable regions.

7. Research Limitation

The research focuses on the Cianjur earthquake in 2022. The findings may not be directly applicable to other disaster scenarios, as each event presents unique challenges on their own. This research also used qualitative methods to explore the subject matter. Future research that used national's updated data may benefit from complementing these findings with quantitative data to provide a more complete picture of the issues in humanitarian logistics.

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