



# Establishing Pusdalops PB: A Solution to Disaster Risk Communication in Karo Regency, Indonesia

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**Abstract.** This study aimed to address the problem of disaster risk communication in Karo Regency by establishing an effective system for managing disaster risk information in the Centers for Disaster Management Operations (Pusdalops PB). The study utilized qualitative methods, including Focus Group Discussions (FGD) and literature reviews, to evaluate the urgency of establishing Pusdalops PB and develop academic papers on the topic. The results showed that establishing Pusdalops PB was a critical step in improving disaster risk communication and information system policies in Karo Regency. The study also outlined the working mechanism of Pusdalops PB, which would contribute significantly to addressing the problem of disaster risk communication. The implications of this study include the establishment of Pusdalops PB in Karo Regency, which would specifically handle disaster risk communication and information. This system is expected to enhance the effectiveness of disaster management in the region and contribute to reducing the negative impacts of disasters.

**Keywords:** Disaster risk communication · Information system policies · Centers for Disaster Management Operations · Pusdalops PB · Karo Regency · Qualitative methods

## 1 Introduction

Centers for Disaster Management Operations (Pusdalops PB) is a service to support the performance of the Regional Agency for Disaster Management (BPBD) in providing disaster management data and information to decision-makers and the public. The roles and functions of the Centers for Disaster Management Operations (Pusdalops PB) refer to the guidelines issued by the Head of BNPB Regulation No. 15 of 2012 on the duties and functions of the Centers for Disaster Management Operations (Pusdalops PB), namely to provide directions and components needed for the functioning of the Centers for Disaster Management Operations (Pusdalops PB). Since the issuance of the Head of BNPB Regulation, the functions of the Centers for Disaster Management Operations (Pusdalops

PB) at BPBD are broader and varied, one of which is in terms of institutions, managed resources, and patterns of relationships with other Centers for Disaster Management Operations (Pusdalops PB) both from the National Centers for Disaster Management Operations (Pusdalops PB), Provincial Centers for Disaster Management Operations (Pusdalops PB) and Regency/City Centers for Disaster Management Operations (Pusdalops PB). Centers for Disaster Management Operations (Pusdalops PB) manage the communication related to planning, organizing, implementing, and evaluating various government policies related to disaster management [1].

Karo Regency is located on a plateau with active volcanoes, namely Mount Sinabung and Mount Sibayak. The potential hazards posed by volcanic eruption are pyroclastic flows or hot cloud avalanches, pyroclastic falls, and lava [2]. Based on BNPB data, the disaster potential from volcanic eruptions allows approximately 29,557 people to be affected by volcanic eruptions in 11 sub-districts. The potential for flooding in Karo Regency is in several villages scattered in Mardinding Sub-District and Laubaleng Sub-District. Through BNPB data, the potential for flooding allows approximately 18,793 people to be affected in 15 sub-districts. The potential for landslides or landslides also threatens Karo Regency, especially 39,151 people in 17 sub-districts consisting of Mardinding Sub-District, Kutabuluh Sub-District, Payung Sub-District, Simpang Empat Sub-District, Kabanjahe Sub-District, Berastagi Sub-District, Tiga Binanga Sub-District, Barus Jahe Sub-District, Tiga Panah Sub-District, Merek Sub-District, Munte Sub-District, LauBaleng Sub-District, and Juhar Sub-District.

Based on the findings in 2019 [3], Karo Regency has problems related to disaster risk communication and information systems. The Karo Regency Government received a lawsuit from residents regarding the handling of refugees with claim number 68/PDT.G/2018/PN.KBJ, July 30, 2018, point 5 b related to incomplete and interactive information systems so that people have difficulty making decisions. Disaster risk communication and information are important elements and must be carried out. Disaster risk communication provides information to the public, including preparedness, so that they are ready to face disasters [4]. Preparedness determines success in overcoming challenges in the operation and governance of the Centers for Disaster Management Operations (Pusdalops PB). The duties and functions of the Centers for Disaster Management Operations (Pusdalops PB) can be carried out effectively from various places.

This study uses Karl Weick's Organizational Information Theory stating that organizations have interaction patterns combining communication behavior cycles and managing member activities as an organizational strategy to minimize information uncertainty [5]. Organizational Information Theory is also used to explain how organizations interpret ambiguous and confusing information [6]. Disaster management through information systems provides learning about successes and challenges in the field. Learning about disaster management is expected to provide evidence-based interventions that are more systematic and encourage more effective management practices at the Centers for Disaster Management Operations (Pusdalops PB) in Karo Regency. Based on the background, this study aimed to 1) evaluate and find the urgency of disaster risk communication and information system policies through the establishment of Centers for Disaster Management Operations (Pusdalops PB) in Karo Regency; 2) prepare academic

papers on the establishment of Centers for Disaster Management Operations (Pusdalops PB) in Karo Regency.

## 2 Methodology

This study used qualitative method with Focus Group Discussion (FGD) to collect data. Subjects of study were Karo Regent, Head of BNPB, and 37 Regional Apparatus Organizations (OPD), namely Secretary of Karo Regency Office, Assistant for Governance and Welfare of Karo Regency Office, Assistant for General Administration of Karo Regency Office, POLRES Tanah Karo, Kodim 0205/TK, Head of Karo Regency Bappeda, Head of Karo Regency Communication and Informatics Office, Head of Karo Regency BPBD, Head of Karo Regency Social Affairs Office, Head of Karo Regency Public Works and Housing Office, Head of Karo Regency PMD, Head of Karo Regency Satpol PP, Head of Karo Regency Perkim, Head of Karo Regency Health Affairs Office, Head of Karo Regency Women Empowerment and Child Protection Affairs Office, Head of Karo Regency Transportation Affairs Office, Head of Karo Regency Education and Culture Affairs Office, Head of Karo Regency Civil Registry Office, Head of Simpang Empat Sub-District Office, Head of Tiganderket Sub-District Office, Head of Payung Sub-District Office, Head of Namanteran Sub-District Office, Head of Public Relations, Eselon III BPBD Karo Regency, RSUD Kabanjahe, PVMBG (Pos Pemantauan Gunung Api Sinabung), Bank SUMUT Kabanjahe, Telkom Kabanjahe, Palang Merah Indonesia (PMI) Kabanjahe, Moderamen GBKP Kabanjahe, MUI Kabanjahe, Kevikepan St. Yakobus Rasul Kabanjahe, ORARI, RAPI, Radio Kekelengen, Tagana Karo Regency, Kwarcab Pramuka Tanah Karo. The total participants involved in the FGD from OPD representatives were 65 namely Head of Simpang Empat Sub-District Office, Head of Tiganderket Sub-District Office, Head of Payung Sub-District Office, Head of Namanteran Sub-District Office, Head of Public Relations, Eselon III BPBD Karo Regency, RSUD Kabanjahe, PVMBG (Pos Pemantauan Gunung Api Sinabung), Bank SUMUT Kabanjahe, Telkom Kabanjahe, Palang Merah Indonesia (PMI) Kabanjahe, Moderamen GBKP Kabanjahe, MUI Kabanjahe, Jalan Kevikepan, Yakobus Rasul Kabanjahe, ORARI, RAPI, Radio Kekelengen, Tagana Karo Regency, Kwarcab Pramuka Tanah Karo.

Focus Group Discussion (FGD) is a qualitative data collection method by gathering one or two researchers with several participants as a group to discuss a study topic. A researcher as a moderator plays the role of leading the discussion by asking participants to respond to open-ended questions, while the second researcher records the discussion in detail. This method is able to obtain information about various norms and opinions in a relatively short time through group dynamics that encourage one participant to speak and encourage other participants to respond to the conversation. Interaction between participants is a feature of the FGD method that other qualitative study methods do not have, such as in-depth interviews and observations [7].

The FGD process in this study was divided into two stages. The FGD first stage discussed the establishment of the Centers for Disaster Management Operations (Pusdalops PB) and the second stage discussed the information systems used in the Centers for Disaster Management Operations (Pusdalops PB). Apart from the FGD, researchers

conducted literature studies on relevant reference books and scientific journal articles. A series of literature studies began by collecting library data related to disaster risk information systems and the Centers for Disaster Management Operations (Pusdalops PB). Researchers read, noted, and documented activities and processed information. The FGD process was carried out by regional government organizations in Karo Regency on the integrated disaster risk communication and information system through the establishment of Centers for Disaster Management Operations (Pusdalops PB) in Karo Regency in order to be able to interpret communication and information in an integrated manner. This must be supported by the structure of human resources in the organization. In the structure, human resources are placed as part of a relatively fixed relationship that will determine the pattern of interaction and task-oriented behavior [8].

The procedures carried out in the literature study include 1) seeking information to support the study topic, 2) confirming the focus of the study and organizing appropriate materials, 3) searching for and finding data sources in the form of primary library sources, namely books and scientific articles to become supporting materials, 4) conducting re-organization of material and concluding notes obtained from data sources, and 5) compiling study results.

Qualitative data analysis was carried out through data collection, data reduction, data display, conclusion drawing, or verification. Miles & Huberman updated the interactive model qualitative analysis component [9]. The difference lies in replacing data reduction with data condensation.

In data condensation, researchers can select, focus, simplify, and abstract data from FGDs. In displaying data, researchers are allowed to draw conclusions and take action logically and systematically so that it makes it easier to understand various things that happen in the study and allows researchers to take action in the analysis process based on their understanding. Finally, conclusions are drawn according to the data that has been obtained and analyzed. The conclusion of a qualitative study is a new finding that can be in the form of a description of an object that was previously vague to become clear [9].

### **3 Results and Discussion**

#### **3.1 Evaluation and Urgency of Disaster Risk Communication and Information System Policies Through Establishment of Centers for Disaster Management Operations (Pusdalops PB) Di Karo Regency**

Policy urgency is a basic guideline plan for carrying out work. Evaluation of the integrated disaster risk communication and information system in Karo Regency succeeded in finding policy urgency as a basic guideline for planning the implementation of a project. Thus, the establishment of Centers for Disaster Management Operations (Pusdalops PB) in Karo Regency is used to build a more effective and efficient disaster risk communication and information system. The disaster risk communication and information system are very important in the disaster cycle to prepare protection at the pre-disaster, during and post-disaster stages [10], especially in disaster-prone areas such as Mount Sinabung in Karo Regency.



**Fig. 1.** FGD on Disaster Risk Communication and Information through the Establishment of Centers for Disaster Management Operations (Pusdalops PB) in Karo Regency (Documentation, 2022)

The results of the FGD on 19 April 2022 with 37 participants from the Regional Government Organizations (OPD), Head of Centers for Disaster Management Operations (Pusdalops PB), BNPB, Karo Regent accompanied by the Secretary, BPBD, and other OPDs show that BPBD needs to establish an organizational structure to handle the disaster risk communication and information through Pusdalops PB. The FGD can be seen in Fig. 1.

Until now, the disaster risk communication and information system in Karo are still carried out through the Kominfo call centers 117 and 112. The existence of this communication and information system confuses the public because there are two network systems to search for disaster risk information. Human resources who understand emergency systems and understand disaster management organizations are needed in the operations of the Centers for Disaster Management Operations (Pusdalops PB). Therefore, the establishment of Centers for Disaster Management Operations (Pusdalops PB) is important to manage the disaster management information system. The disaster management information system is currently being developed through the [bpbdkaro.com](http://bpbdkaro.com) website. The Regent decided to make a policy related to the Centers for Disaster Management Operations (Pusdalops PB) in Karo Regency by adding a new structure and SK of Karo Regent Number: 821.23/1424/BKPSDM/2022 on Dismissal and Appointment of Civil Servants in Administrator Positions in Karo Regency Government May 11, 2022. The decree designates a new organizational structure specifically for handling disaster risk information at the Karo BPBD, namely the Head of Cooperation, Control, and

Information. Through FGDs, disaster risk communication management can be carried out in disaster situations to reduce disaster risk.

The establishment of the Centers for Disaster Management Operations (Pusdalops PB) is an embodiment of disaster management. Based on Chapter 3 Law no 4 of 2007 on Disaster Management, article 5 stipulates that “the central and regional governments are responsible for implementing disaster management”. Chapter 3 article 6 a-g states that the responsibilities of the government in implementing disaster management include: 1) disaster risk reduction and integration of disaster risk reduction with development programs; 2) community protection from the impact of disasters; 3) guaranteeing the fulfillment of the rights of communities and refugees affected by disasters in a fair manner and in accordance with minimum service standards; 4) restoration of disaster impact conditions; 5) adequate allocation of disaster management budget in the State Revenue and Expenditure Budget; 6) allocation of disaster management budget in the form of ready-to-use funds, and 7) maintenance of authentic and credible archives or documents from disaster threats and impacts. In short, it can be said that risk management is needed. Risk management includes preparedness, mitigation, and prevention, resulting in protection, life, and comfort for the whole community [11].

The importance of establishing policies regarding Centers for Disaster Management Operations (Pusdalops PB) is also based on Ministry of Home Affairs Regulation Number 101 of 2018 on Technical Standards for Basic Services and Minimum Service Standards for District or City Disaster Sub-Agency. Article 1 paragraph 2 states that “Basic services are public services to meet the basic needs of citizens who are affected in disaster-prone areas and who are victims of disasters”. This is also reinforced in Article 1 paragraphs 3–6, “Basic Service Technical Standards are provisions regarding the quality of basic services for each type of basic service at the Regency or City Disaster Sub-Agency Minimum Service Standards obtained by citizens at a minimum (Minimum Service Standards, hereinafter referred to as SPM). SPM is a provision regarding the type and quality of basic services that every citizen is entitled to obtain at a minimum; Types of Basic Services related to basic goods and/or services that every citizen is entitled to obtain at a minimum; Quality of Basic Services is a measure of the quantity and quality of goods and/or services for basic needs and their minimum fulfillment in basic services in accordance with technical standards in order to live a decent life. Basic services must be carried out autonomously in each region. Based on article 1 Law No. 23 of 2014, “regional autonomy is the rights, powers, and obligations of autonomous regions to regulate and manage government affairs and the interests of the regional community with the system of the Unitary State of the Republic of Indonesia”. The statement shows that Karo Regency is responsible for the community’s interests in overcoming disasters. This responsibility is stated in article 4 of Government Regulation Number 41 of 2007 on Regional Apparatus Organizations; paragraph 1 discusses the Development Planning Agency at Sub-National Level as a government administrator.

Various regulations regarding Centers for Disaster Management Operations (Pusdalops PB) can support the successful establishment and operation of Centers for Disaster Management Operations (Pusdalops PB) in Karo Regency supported by work mechanisms. Regional Apparatus Organizations have their respective duties in supporting the disaster risk information system Centers for Disaster Management Operations



(Pusdalops PB). The FGD results regarding the role of the Head of the Sub-District in the establishment of Centers for Disaster Management Operations (Pusdalops PB) must pay attention to an integrated disaster management communication system with Pusdalops BP in each sub-district. This makes it easier for the Centers for Disaster Management Operations (Pusdalops PB) to provide disaster risk information. The working mechanism is regulated in the Head of BNPB Regulation No. 15 of 2012 on Guidelines of Centers for Disaster Management Operations. In Chapter 5 Head of BNPB Regulation No. 15 of 2012 describes the working mechanism of the Centers for Disaster Management Operations (Pusdalops PB) operating 24 h per day and 7 days a week. The administrative unit is obliged to support all technical unit tasks with a financial system, facilities, and infrastructure for good documentation. Various technical unit activities regulate team schedules, work mechanisms in normal conditions, work mechanisms in early warning conditions, work mechanisms in emergency response conditions, and the return to normal situations (termination of emergency response post).

### 3.2 Team Schedule

Under normal conditions when no disaster occurs, the management of the Centers for Disaster Management Operations (Pusdalops PB) and the administration team carry out their duties based on regular working hours (08.00–16.00 WIB) for five working days, while different working hours are applied to operational staff, namely supervisors and operators. The 24/7 operation by operational staff is carried out in three (3) shifts with one day off after three working days (two days off per week). Each shift team works according to the schedule: 08.00 - 16.00: four (4) operators, one supervisor, one administrative coordinator, one finance staff, one infrastructure staff, one documentation staff, and one manager; 16.00 - 24.00: four (4) operators, one supervisor, and one infrastructure staff; 24.00 - 08.00: four (4) operators, one (1) supervisor, and one (1) infrastructure staff.

In a disaster situation, shifts are carried out two (2) times by providing support to the Emergency Response Command Post while continuing to carry out daily monitoring. There is no day off until the end of the emergency response period. There are multiple operators, one (1) personnel radio communication; information technology operation and maintenance of one (1) personnel; database and reporting of two (2) personnel. It is recommended that each personnel wear a uniform with certain specifications and attributes and/or with a different number to indicate the different duties of each personnel. Managers are also expected to be able to ensure that each Centers for Disaster Management Operations (Pusdalops PB) personnel carry out their duties. It is also useful for superiors (eg BPBD) and decision-makers to identify who is doing what and what can be expected from certain operators in critical situations.

### 3.3 Work Mechanisms in Normal Conditions

During normal conditions, the Centers for Disaster Management Operations (Pusdalops PB) carry out their duties by conducting monitoring as part of mitigation and preparedness efforts. In this condition, the Centers for Disaster Management Operations (Pusdalops PB) monitor and communicate with BMKG, PVMBG, and Centers for Disaster Management Operations (Pusdalops PB) in other regions, post or field personnel

using communication equipment such as internet, radio communication, telephone, cell phones, and satellite phones. If the communication is successful, monitoring is continued to obtain the latest conditions regarding the situation and conditions in all areas, community preparedness in the location concerned, availability of disaster management facilities and infrastructure, social conditions in certain disaster-prone areas (poor, disabled, elderly, toddlers), availability, location, and access to buffer stock, including issuing authorities, early warnings, and signs. All communications are recorded in a logbook. Communication during a disaster is not only needed during an emergency but also very important during a pre-disaster. In addition to adequate information regarding potential disasters in a region, training and internalization in dealing with disaster situations need to be carried out on an ongoing basis [12].

### **3.4 Work Mechanisms in Early Warning Conditions**

After the communication has been successful, the next step is to analyze it. At the same time, other operators continue to monitor different locations. The results are needed to identify the current situation and conditions of each site in the work area of the Centers for Disaster Management Operations (Pusdalops PB). The identification results are then categorized under several statuses such as safe, alert, or early warning. At locations categorized as safe, the information obtained can be used to update data. In locations categorized as early warning, operators at the Centers for Disaster Management Operations (Pusdalops PB) provide directions to personnel at the disaster site to ensure continuity of communication and obtain further information from the area concerned.

Further information regarding disasters must be known by the public such as the type, time, place, and scope of the disaster, quick and accurate assessment of possible locations or areas, damage, losses that will arise, available resources, determination of disaster emergency status or level of preparedness, plans for rescue and evacuation of disaster victims, and plans for emergency assistance and evacuation routes. The information obtained is recorded in the log book to be then reported by the Supervisor to the Manager of the Centers for Disaster Management Operations (Pusdalops PB). Then the Manager of the Centers for Disaster Management Operations (Pusdalops PB) reports to the Head of BNPB/BPBD to take further action. If there is no follow-up command from the Head of BNPB/BPBD and a crisis occurs due to a disaster, then the Manager of Centers for Disaster Management Operations (Pusdalops PB) activates, where the Centers for Disaster Management Operations (Pusdalops PB) becomes an Emergency Response Post with reference to the Head of BNPB Regulation Number 14 of 2010. Then, all Centers for Disaster Management Operations (Pusdalops PB) personnel, including those not on shift, must be on standby.

### **3.5 Work Mechanisms During Communication Failure**

Communication is not an easy thing to do. If a communication failure occurs, it is necessary to trace work mechanisms. Failure can occur due to technical problems at the Centers for Disaster Management Operations (Pusdalops PB), so it needs to be handled immediately by IT Operators or expert technicians. Failures other than technical problems at the Centers for Disaster Management Operations (Pusdalops PB) can also occur,



the team must immediately report to the Supervisor to proceed to the Manager of the Centers for Disaster Management Operations (Pusdalops PB). The Manager of the Centers for Disaster Management Operations (Pusdalops PB) then immediately investigated the causes of the communication failure with assistance from various parties who had access, for example to the Koramil and Polsek. If a communication failure occurs during a disaster at the location, the action taken is to proceed to the standard procedure of the Emergency Response Command Post (Head of BNPB Regulation Number 14 of 2010). Communication failures can also occur due to technical issues. This makes it necessary for the Manager of the Centers for Disaster Management Operations (Pusdalops PB) to report the results of the investigation to the Head of BPBD.

Failure in the communication process can also occur due to differences in information. Karl Weick's Organizational Information Theory shows that information received by organizations or the public can vary [5]. This relates to how relevant information is conveyed, where each piece of information can have different meanings. This understanding is also key for the organization in conveying information. The organization is always dependent on information and receives large amounts of information. Therefore, it is important for the organization to monitor work mechanisms before, during, and after a disaster occurs so that work mechanisms can be more effective.

### **3.6 Work Mechanisms During Emergency Situations**

When a disaster occurs, the Centers for Disaster Management Operations (Pusdalops PB) become an Emergency Response Post. However, due to differences in operational areas, the placement of this post is carried out by the mechanism of the regency/city government. The activation of Centers for Disaster Management Operations (Pusdalops PB) to become an Emergency Response Post is only carried out in Regency/City. Meanwhile, the Provincial and National Centers for Disaster Management Operations (Pusdalops PB) continue to carry out their routine duties by supporting and monitoring emergency response activities in the regency/city.

If a disaster hits more than regencies/cities and cannot be handled by the local regencies/cities, the Provincial Centers for Disaster Management Operations (Pusdalops PB) are activated to become Emergency Response Posts. Likewise, if a disaster in a province cannot be handled, the National Centers for Disaster Management Operations (Pusdalops PB) are activated to become Emergency Response Posts or Centers for Disaster Management Operations (Pusdalops PB) continue to function routinely, and Emergency Response Posts near the disaster location refer to on the Head of BNPB Regulation Number 14 of 2010.

Centers for Disaster Management Operations (Pusdalops PB) during the emergency response facilitate the Emergency Response Post with the following provisions: 1) The procedures used in the Emergency Response Command follow the Guidelines for the Emergency Response Command (Head of BNPB Regulation Number of 2008 and Head of BNPB Regulation Number 14 of 2010); 2) The facilities provided by the Centers for Disaster Management Operations (Pusdalops PB) are: a. Data and information. b. Operator assistance, IT, and communication facilities (ICT); 3) The use of equipment and analysis of disaster information is fully under the authority of Centers for Disaster

Management Operations (Pusdalops PB) personnel; 4) The Manager of Centers for Disaster Management Operations (Pusdalops PB) with the Commander of the Emergency Response Post are responsible partners. During the emergency response period, information on disasters or emergency conditions obtained from BMKG, PUSDALOPS PB, TRC, or other related agencies is received by shift workers.

Activities carried out in emergency situations, namely 1) Shift operators communicate and provide directions to personnel at locations to ensure continuity of communication; 2) Operators send and receive news, as well as forward information from and to the disaster location to the Centers for Disaster Management Operations (Pusdalops PB) at a higher level or to the area around the disaster site; 3) Communication is carried out to collect disaster information regarding the type, place and time of the disaster, the estimated number of victims and their categories, the estimated environmental damage, the scope of the disaster, the response efforts that have been, are being and will be carried out, as well as the type and amount of assistance available needed and the distribution method; 3) Information resulting from subsequent communications is recorded in a log book as material for preparing daily reports; 4) Manager of Centers for Disaster Management Operations (Pusdalops PB) estimates the needs for personnel, funds, materials and logistical equipment; 5) Must support the preparation of an emergency response operational plan, coordinate with related parties; and 6) Manager of Centers for Disaster Management Operations (Pusdalops PB) evaluates and monitors the general mobilization of all regional government potentials and apparatus in emergency response, coordinates with related institutions or agencies, and monitors developments in disaster management in the field.

### **3.7 The Return to Normal Situations (Termination off Emergency Response Post)**

When the emergency response period ends, the Emergency Response Post is terminated and the Centers for Disaster Management Operations (Pusdalops PB) returns to normal. The working mechanism of the Centers for Disaster Management Operations (Pusdalops PB) during the termination of the Emergency Response Post (TD) is 1) Operators communicate to collect post-disaster information including disaster locations, type of damage, amount of loss and condition of resources, number of deaths, refugees and injured along with their categories, estimated losses, types of assistance still needed for emergency recovery, rehabilitation and reconstruction activities including early recovery, types of follow-up assistance to meet the physical, mental, socio-economic needs of disaster victims, availability of buffer stock and types of follow-up assistance, then all this information is recorded in a log book to be reported to the Manager of Centers for Disaster Management Operations (Pusdalops PB); 2) All information related to post-disaster activities is used to update the database at the Centers for Disaster Management Operations (Pusdalops PB); 3) The Manager of Centers for Disaster Management Operations (Pusdalops PB) prepares a complete written report with disaster-affected area data to be reported to the Head of BPBD.

### **3.8 Reinforcement of Communication Policies Through Preparation of Academic Papers on the Establishment of Centers for Disaster Management Operations (Pusdalops PB) in Karo Regency**

Centers for Disaster Management Operations (Pusdalops PB) were operations control centers or disaster information centers before the issuance of the Guidelines of Centers for Disaster Management Operations (Pusdalops PB). The main task of the Centers for Disaster Management Operations (Pusdalops PB) is to become the center for communication and information networks between Regional Apparatus Organizations (OPD) covering the health, social and security sectors in delivering disaster risk information. Policy reinforcement can be interpreted that human or individual resources from an organization and system having the power to encourage organizations to carry out arrangements within the organization including systems and bureaucracy [13].

Institutionally, only the Centers for Disaster Management Operations (Pusdalops PB) in West Sumatra have a Governor's Decree as a task force. Other Centers for Disaster Management Operations (Pusdalops PB) have various existences, but basically, they are not formal. This means that when people visit the Provincial BPBD, they have buildings, rooms, or workplaces called Centers for Disaster Management Operations (Pusdalops PB) complete with relatively sophisticated personnel and equipment, even though Centers for Disaster Management Operations (Pusdalops PB) are not included in the plan. And budget of BPBD. The existence of the Centers for Disaster Management Operations (Pusdalops PB) is supported by decrees for personnel with various positions. The Centers for Disaster Management Operations (Pusdalops PB) have staff assigned specifically to collect information and communicate. This needs to be evaluated considering the existence of the Centers for Disaster Management Operations (Pusdalops PB) is very important in the disaster communication and information system.

Centers for Disaster Management Operations (Pusdalops PB) generally have 4–30 operators. Not all Centers for Disaster Management Operations (Pusdalops PB) have a specific supervisor or manager. The team of operators called “Centers for Disaster Management Operations (Pusdalops PB) personnel” work directly under the Head of BPBD, or under supervisors who report directly to related fields in BPBD. Centers for Disaster Management Operations (Pusdalops PB) that already have supervisors or managers, do not all carry out their roles optimally as directed in the Guidelines of Centers for Disaster Management Operations (Pusdalops PB).

Centers for Disaster Management Operations (Pusdalops PB) should operate 24 h/day and 7 days a week (24/7). Most of the Centers for Disaster Management Operations (Pusdalops PB) have 24/7 shifts, but in some places, the Centers for Disaster Management Operations (Pusdalops PB) operators only work during office hours, while 24/7 operations are manned by a radio unit. Based on this, it is understood that not all Centers for Disaster Management Operations (Pusdalops PB) manage shift operators 24/7. Indeed, there are several locations that are running well, but there are also those that have not managed to run them consistently. There are also operators only on duty at the Centers for Disaster Management Operations (Pusdalops PB) office until 21.00 or 22.00 local time. The existence of this shift allows all Centers for Disaster Management Operations (Pusdalops PB) to respond to roll calls made by BNPB twice a day, morning and evening.

Regarding infrastructure, not all Centers for Disaster Management Operations (Pusdalops PB) meet the minimum required infrastructure according to the guidelines. Usually, this is constrained by damage to infrastructure, which can actually be overcome internally, or related to regional infrastructure in general, for example, the absence of adequate telephone and internet networks. In addition, the disaster database is still under development or has not even been thought of.

In addition to the general description, there are also the duties and functions of the Centers for Disaster Management Operations (Pusdalops PB) at the Head of BNPB Regulation Number of 2012 on Pusdalop PB. The Head of BNPB has three main tasks related to the disaster stages, namely the pre-disaster stage which includes providing support for activities before the disaster in the form of collecting, processing, and presenting data and disaster risk information on a regular basis. This process is the simplest where the well-established Centers for Disaster Management Operations (Pusdalops PB) will involve recipients of disaster risk information from the regency/city to verify, record, process if necessary, then transmit. In this case, the Centers for Disaster Management Operations (Pusdalops PB) considers the main audience for the product to be the Head of BPBD and the Head of Regional Government.

In short term, the Centers for Disaster Management Operations (Pusdalops PB) can provide information for the Head of BPBD and the Head of Regional Government. Meanwhile, in the medium term, the collected data is arranged systematically so that it becomes a database of disaster events, which can be used as a basis for planning and policy-making. This database is also public information that can be accessed by parties outside the BPBD and outside the government. For the Centers for Disaster Management Operations (Pusdalops PB), the community is also seen as a user of disaster risk information. This is manifested in disaster risk information services to the wider public through the latest disaster news through social media and websites.

Centers for Disaster Management Operations (Pusdalops PB) are not fully related to OPD. Furthermore, when a disaster occurs, the Centers for Disaster Management Operations (Pusdalops PB) has the task of providing support to the Emergency Response Post and implementing emergency activities in the disaster area. It is the responsibility of the Centers for Disaster Management Operations (Pusdalops PB) to provide responses and reports to interested parties including the Head of Regional Government and journalists.

After a disaster, the Centers for Disaster Management Operations (Pusdalops PB) are responsible for providing activity support through the provision of data and information, especially in the implementation of rehabilitation and reconstruction. The Centers for Disaster Management Operations (Pusdalops PB) also receive, process, and transmit warnings. The Centers for Disaster Management Operations (Pusdalops PB) provide early warning services, which are carried out through 3 stages, namely reception, processing, and distribution. Early warning is divided into two for a relatively slow disaster such as drought and high waves, and a fast disaster, namely tsunamis. Based on these two types of disasters, it can be said that there is a wide gap between Pusdalops-PB which can run warning services and early-established Pusdalops-PB. With the development of early warning institutions, most of the Centers for Disaster Management Operations (Pusdalops PB) engage with various agencies and disaster monitoring tools

to receive national early warnings (weather, earthquake or tsunami, volcanoes, hotspots, river levels) and even use other sources. This is an alternative for disaster monitoring.

In the early-established Centers for Disaster Management Operations (Pusdalops PB), the team has access to warning services from various warning service provider institutions. Information is usually transmitted to the head of the regency/city government without further processing. It is also possible that the early warning information received will be supplemented with information about possible impacts and risk areas as well as warnings for preparedness. After being verified by supervisors and approved by management, operators publish this information via Whatsapp, Twitter, and Facebook groups. A decision by the Head of BPBD is required for the possibility of a large-scale disaster occurring. One thing that all Centers for Disaster Management Operations (Pusdalops PB) need to clarify is the audience for this service.

The Head of BNPB Regulation does state that the Centers for Disaster Management Operations (Pusdalops PB) carry out the functions of receiving, processing, and transmitting early warnings to relevant agencies and the public. Many Centers for Disaster Management Operations (Pusdalops PB) have undertaken or are considering transmitting early warnings and action directives to the wider community via social media without seriously examining whether this is a proportional role. SMS gateways can be used to reach the public by providing weather and climate information on the impact of rainfall [2].

Centers for Disaster Management Operations (Pusdalops PB) coordinate, communicate, and synchronize the implementation of disaster management. These functions are relatively not understood by BPBD. None of the Centers for Disaster Management Operations (Pusdalops PB) claim to have carried out these functions and tend to refer to the Head of BPBD. Several Centers for Disaster Management Operations (Pusdalops PB) have wondered why the coordination function precedes communication in the formulation of this function. However, the Centers for Disaster Management Operations (Pusdalops PB) can manage data and information for coordination and synchronization of disaster management implementation.

In addition to the basic tasks based on guidelines, there is a function of the Centers for Disaster Management Operations (Pusdalops PB) as a recipient where this function is responsible for processing and distributing disaster risk information as well as processing and transmitting early warnings to related agencies and the public. Then, in the emergency response function, the Centers for Disaster Management Operations (Pusdalops PB) become facilitators in mobilizing resources to handle disaster emergency response quickly, efficiently, and effectively. Human resources, materials, and methods must support the policy. Even though the goals, objectives, and contents of the policy have been communicated clearly and consistently, if the implementer lacks the resources to implement them, the policy will not run effectively and efficiently [14]. Without resources, policies only remain on paper as documents and are not realized to provide solutions to problems.

Centers for Disaster Management Operations (Pusdalops PB) communicate and synchronize the implementation of disaster management. In addition to the objectives, main tasks, and functions of the Centers for Disaster Management Operations (Pusdalops PB) in the Head of BNPB Regulation 15 of 2012 There are other guidelines in the form of

operational guidelines regarding the organizational structure and work procedures within the Centers for Disaster Management Operations (Pusdalops PB), personnel arrangements, references for facilities and infrastructure, work mechanisms and funding [15]. Through this function, the Centers for Disaster Management Operations (Pusdalops PB) must understand and be involved in all stages of disaster management. During a pre-disaster, this agency provides support for pre-disaster activities by collecting, processing, and presenting disaster data and information on a regular basis [16]. During the emergency response stage or when a disaster occurs, this agency supports the Emergency Response Post and carries out emergency activities. During the emergency response stage, there are emergency alerts, emergency response, and emergency transition to recovery stages. Meanwhile, at the post-disaster stage, the Centers for Disaster Management Operations (Pusdalops PB) provide support for activities after a disaster occurs, by providing data and information, particularly in the implementation of rehabilitation and reconstruction.

Centers for Disaster Management Operations (Pusdalops PB) in carrying out their duties and functions refer to regional regulations where these regulations include Government Regulation on Regional Apparatus Organization (OPD), Government Regulation on disaster management implementation, and Ministry of Home Affairs Regulation on Organization and Work Procedure (OTK) BPBD. However, there have been changes in government regulations regarding Regional Apparatus Organizations (OPD), namely an exception for the BPBD. This causes the Centers for Disaster Management Operations (Pusdalops PB) to still be in regulation from 2008, in this case, Government Regulation 41/2007 on OPD and Ministry of Home Affairs Regulation 46/2008 on BPBD Organizational and Work Procedure (OTK) guidelines, which did not mention the Centers for Disaster Management Operations (Pusdalops PB) specifically.

Performance is a result of work or achievement in activities that have previously been planned for goals that have been set at a certain time (13). Implementation by the Centers for Disaster Management Operations (Pusdalops PB) is inseparable from the factors and indicators that can directly or indirectly affect the performance of the Centers for Disaster Management Operations (Pusdalops PB). It is divided into external and internal factors.

The first internal factor is data-oriented policy. Orientation to data as the basis for decisions and policies in this case by the Head of BPBD and the Head of Regional Government is carried out by giving appreciation to the Centers for Disaster Management Operations (Pusdalops PB). One important note regarding “appreciation” is that this does not always translate into adequate financial support and status. Data and information from the Centers for Disaster Management Operations (Pusdalops PB) are important policy-making materials from BPBD.

The second internal factor is human resources. Not only varies in terms of numbers, but the capability (technical capacity) of Centers for Disaster Management Operations (Pusdalops PB) personnel also varies. This technical capacity relates to product quality and variety. Centers for Disaster Management Operations (Pusdalops PB) have a long history in the management of disaster risk information, thereby enabling personnel to have stronger and more creative data management skills with their advanced products. This shows that the Centers for Disaster Management Operations (Pusdalops PB) have



infographics on the results of monthly disaster data products such as flood and landslide hazard maps. In addition to technical capabilities, other issues related to human resource management, in general, are also understood by the Centers for Disaster Management Operations (Pusdalops PB).

Like other government organizations, the Centers for Disaster Management Operations (Pusdalops PB) do not have an incentive system for employees who have good and effective performance so that they can improve performance even further. The incentive system so far has been based on attendance, not on merit or technical ability. Employment status, staff remuneration, lack of direction from superiors, and many tasks also reduce personnel motivation. The good output at the Centers for Disaster Management Operations (Pusdalops PB) is an indication related to the intrinsic motivation of personnel. Intrinsic motivation is an important asset, but the management of personnel motivation needs to be improved so that the performance of the Centers for Disaster Management Operations (Pusdalops PB) runs sustainably. Each personnel needs motivation so that the resulting performance is maximized. This understanding indicates that the organization needs to monitor personnel in an organized manner to see that the intended system is running as planned. This was also recognized by Karl Weick in his theory that organizations have diverse views on the performance within them so the changes and differences need to be understood [5].

The third factor is infrastructure, BNPB plays a major role in providing equipment at the Centers for Disaster Management Operations (Pusdalops PB). The results showed that the equipment for receiving information and communication at the Centers for Disaster Management Operations (Pusdalops PB) was relatively adequate to carry out the task. One note related to the infrastructure provided by BNPB is accuracy. For example, a printer that was granted from BNPB does not have ink that can be found from local suppliers, so it can no longer be used.

Another internal factor is the budget. The Centers for Disaster Management Operations (Pusdalops PB) generally do not have a specific budget allocation, apart from the personnel that has been assigned and contracted. The operational budget for the Centers for Disaster Management Operations (Pusdalops PB) is entrusted to the secretariat or in each department. The activities of the Centers for Disaster Management Operations (Pusdalops PB) are also usually assigned to departments, without the explicit mention of Centers for Disaster Management Operations (Pusdalops PB). As an illustration, the purchase of certain equipment that has been budgeted for the Centers for Disaster Management Operations (Pusdalops PB) cannot be controlled by the Centers for Disaster Management Operations (Pusdalops PB) itself, because the nomenclature does not mention the Centers for Disaster Management Operations (Pusdalops PB), so the specifications are inaccurate. Even in Karo Regency, there are problems regarding the unclear infrastructure for the operation of the Centers for Disaster Management Operations (Pusdalops PB). In 2022 it has been budgeted for the construction of the Centers for Disaster Management Operations (Pusdalops PB) room, but until mid-2022 the construction has not started.

Performance is the result of work or achievement in previously planned activities to achieve the goals and objectives set by the organization at a certain time. Implementation

is of course inseparable from factors and indicators that can directly or indirectly affect the performance of the Centers for Disaster Management Operations (Pusdalops PB).

The first external factor affecting the Centers for Disaster Management Operations (Pusdalops PB) is related to the legal basis for the Centers for Disaster Management Operations (Pusdalops PB) to grow stronger. At the moment, the regional government does not provide a strong legal basis for the development of the Centers for Disaster Management Operations (Pusdalops PB) so the regional government cannot formulate regulations with a clear budget. On the other hand, the Centers for Disaster Management Operations (Pusdalops PB) is in the regulations on disaster management and the Head of BNPB Regulation but is not mentioned in the Ministry of Home Affairs Regulation 46/2008 on Organizational Guidelines and Work Procedures of BPBD as the operationalization of the Government Regulation Number 41/2007 of Regional Apparatus Organization. Therefore, the regional government does not have a reference for determining the institutional form for the Centers for Disaster Management Operations (Pusdalops PB).

Centers for Disaster Management Operations (Pusdalops PB) have problems in budgeting operational costs so currently an institutional form is being discussed in the form of a Technical Implementation Unit (UPT) for Centers for Disaster Management Operations (Pusdalops PB), however, this is also still not in accordance with the regulation applied. The direction given by the Ministry of Home Affairs is that the Centers for Disaster Management Operations (Pusdalops PB) can become content for revision.

The second external factor is the demand for Centers for Disaster Management Operations (Pusdalops PB) services with relatively solid products from the Head of Regional Government. Centers for Disaster Management Operations (Pusdalops PB) personnel understand expectations regarding data and information, so they need to respond with products and information quickly and appropriately. In the early-established Centers for Disaster Management Operations (Pusdalops PB), the vision regarding external requests for data and information was not clear. There is no indication that the manager has an understanding of the benefits of data and the differences between good and bad data products, so there is no feedback. There is no incentive for BPBD staff and the Centers for Disaster Management Operations (Pusdalops PB) to build solid information and communication data.

The third external factor relates to networking and cooperation among government agencies. The relationship with early warning providers is relatively good, and the Centers for Disaster Management Operations (Pusdalops PB) can now easily connect with early warning providers, as long as there is an internet network. There is no reason for the Centers for Disaster Management Operations (Pusdalops PB) in the region today to find it difficult to access information services related to disasters and early warning. On the other hand, there are still challenges in relations between OPDs in the region for the need to exchange information data and share roles in developing emergency preparedness and response planning, for example. Even in relatively strong provinces such as East Java, it is suspected that relations between OPDs are more personal in nature, relying on individual officials in each agency, and not yet institutionalized. This creates challenges in understanding the role and potential of the Centers for Disaster Management Operations (Pusdalops PB) in processing data and disaster risk information in the region.

The next external factor is the connection to the regency/city to get fast and accurate information. Currently, connections vary widely. Centers for Disaster Management Operations (Pusdalops PB) in western Indonesia enjoy better infrastructure so that the relationship between provincial and regency/city Centers for Disaster Management Operations (Pusdalops PB) is relatively better. Meanwhile, the Centers for Disaster Management Operations (Pusdalops PB) in Eastern Indonesia, on average, face their own infrastructure challenges. If this connection is not maintained properly, for information exchange and communication needs, how will the Centers for Disaster Management Operations (Pusdalops PB) function, especially in disaster risk information management?

## 4 Conclusion

In order to overcome the problem of disaster risk communication and information in Karo Regency, there are a number of things that become important concerns for disaster-related stakeholders in Karo Regency, especially BPBD. The results of this study conclude that the establishment of the Centers for Disaster Management Operations (Pusdalops PB) fulfills Law 24/2007 on Disaster Management, Law 23/2014 on Regional Government, Government Regulation 41/2007 on Regional Apparatus Organization (OPD), Government Regulation 21/2008 on Implementation of Disaster Management, Presidential Decree No. 1 of 2019 on BNPB, Head of BNPB Regulation No. 3/2008 on The Establishment of BPBD, Head of BNPB Regulation No. 15/2012 on Guidelines of Centers for Disaster Management Operations (Pusdalops PB), Head of BNPB Regulation No. 4 of 2019 on Organization and Working Procedures of BNPB, and Ministry of Home Affairs Regulation Number 101 of 2018 on Technical Standards for Basic Services and Minimum Service Standards for District or City Disaster Sub-Agency.

Based on the results of the FGD and considerations of the legal basis, the Karo Regency Government established Centers for Disaster Management Operations (Pusdalops PB) by appointing the Head of Cooperation, Control and Information in Karo Regency BPBD functions as the Centers for Disaster Management Operations (Pusdalops PB) based on SK of Karo Regent Number: 821.23/1424/BKPSDM/2022 on Dismissal and Appointment of Civil Servants in Administrator Positions in Karo Regency Government May 11, 2022. Dengan struktur organisasi yang baru, Centers for Disaster Management Operations (Pusdalops PB) mulai beroperasi dengan menempatkan beberapa staf sesuai dengan kompetensinya. Sistem komunikasi dan Informasi di BPBD Karo Regency dikelola oleh Centers for Disaster Management Operations (Pusdalops PB). BPBD Karo Regency telah menyiapkan work mechanisms Centers for Disaster Management Operations (Pusdalops PB) sesuai Head of BNPB Regulation No. 15/2012 on Guidelines of Centers for Disaster Management Operations (Pusdalops PB). Based on the results of the FGD, academic papers are also prepared regarding the operationalization of the Centers for Disaster Management Operations (Pusdalops PB) in Karo Regency including work mechanisms of Centers for Disaster Management Operations (Pusdalops PB) which operate 24 h per day and 7 days a week.. The administrative unit is obliged to support all technical unit tasks with a financial system, facilities, and infrastructure for good documentation. Various technical unit activities regulate team

schedules, work mechanisms in normal conditions, work mechanisms in early warning conditions, work mechanisms in emergency response conditions, and the return to normal situations (termination of emergency response post). This study contributed to the establishment of the Centers for Disaster Management Operations (Pusdalops PB) in Karo Regency which specifically handles disaster risk communication and information.

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