

Proactive disaster management to reduce casualties

RESEARCH ARTICLE

May-an C. Tinangag

School of Criminal Justice and Public
Safety, University of Baguio, Baguio City,
Philippines
20154864@s.ubaguio.edu
0009-0001-5444-4235

Abstract

Disasters continue to pose significant risks globally, highlighting the need for effective disaster management. This study explored the disaster management practices of the Barangay Kias Disaster Risk Reduction and Management Council (BDRRMC), with a focus on how seminars and training programs enhance members' skills and community preparedness. Using a qualitative-descriptive research design, in-depth insights were gathered from five active BDRRMC members through validated Key Informant Interviews and thematic analysis. Findings revealed that Kias BDRRMC employs a proactive and comprehensive approach, including quarterly earthquake drills, regular training in Basic Life Support, Disaster Preparedness, and Fire Safety, as well as active use of social media for early warnings and resident engagement. Strong coordination with partner agencies ensures well-maintained evacuation areas and effective response. The council provides direct assistance to victims, including mental health support, and activates the Incident Command System during emergencies. Debriefings and written reports follow each event, fostering continuous improvement. Training participation increased members' knowledge, confidence, and emergency response skills, resulting in better organized and more effective interventions. Challenges remain, such as limited equipment and volunteer numbers. Overall, the Kias BDRRMC's collaborative, organized, and continually learning approach grounded in public governance, emergency management, and decision-making theories significantly enhances community safety and resilience. The study underscores the importance of ongoing training, inter-agency collaboration, and adaptive planning, offering a model that can benefit other communities facing similar hazards.

Corresponding Author: May-an C. Tinangag
20154864@s.ubaguio.edu
School of Criminal Justice and Public Safety
University of Baguio
Philippines

Received Date: March 27, 2026

Accepted Date: July 13, 2026



Keywords: *Disaster Management, Casualties Reduction, Barangay Kias, Training Impact, Community Resilience*

INTRODUCTION

In a world where disasters seem to be happening more often, protecting human lives is more important than ever. Therefore, local responders must move beyond reactive responses to proactive stance by building robust disaster management systems. This means that investing in preparedness is necessary by equipping local responders with the knowledge and skills needed to respond swiftly and effectively to hazards.

Literature Review

Natural or anthropogenic hazards are still a big threat to communities all over the world. They often kill a lot of

people, damage properties, and make it hard for community residents to make a living.

A disaster is a phenomenon that may inflict harm on a community through loss of human life, damage to the environment and property, or economic loss (Abid et al., 2021). The hazards are unpredictable which leads to a catastrophic event with fatal consequences, as it does not cause economic losses only to societies but also loss of lives in many cases (Acikara et al. 2023). Alarming, the frequency of destructive hazards has dramatically increased globally causing a huge amount of damage in the past several years. According to Sawaltaha (2020), each and every disaster is a unique incident itself, and it

should be treated differently. This view fosters a wider involvement of individuals and the general public in the disaster management process and highlights elements of creativity and modernity. The actual damage and loss observed in recent decades has shown an increasing trend; as a result, disaster managers need to take a growing responsibility to proactively protect their communities by developing efficient management strategies (Sun et al. 2020).

Khan et al. (2023) explained that natural catastrophes are happening more often, creating serious challenges not only for the communities but also for the agencies responsible for disaster preparedness and response. Also, when disaster management systems fall short, the consequences can be devastating. Al Harthi et al. (2020) stated that a lack of proper disaster management process creates a chaotic and ineffective response and care measures. Disaster management processes begin with identifying disaster risks that might impact communities, families, individuals, and hospitals. Although identifying disaster risks is a challenging and labor-intensive process that requires significant effort from the government and related agencies, it is a fundamental and essential step in disaster management. To address this challenge, Linardos et al. (2022) outline that disaster management operations are performed before, during, and after the occurrence of a disaster, aiming to prevent human and infrastructure loss, reduce the impacts on the economy, and reestablish a state of normalcy. The complexity and criticality of disaster operations require robust decision-making and strategic coordination.

Abid et al. (2021) further describe disaster management as a strategic process that involves reducing risks, preparing for emergencies, responding effectively when a disaster strikes, and supporting recovery afterwards which generally aimed to protect the vulnerable communities and infrastructures. Raikes et al. (2019) add depth by distinguishing governance and management. Governance refers to “the system of institutions, mechanisms, policy and legal frameworks, and other arrangements to guide, coordinate, and oversee disaster risk reduction and related areas of policy while management refers to “the organization, planning, and application of measures preparing for, responding to, and recovering from disasters.

According to Oktari et al. (2020), having a solid understanding of disaster management strategies, best practices, and lessons learned plays an important role in guiding informed actions for mitigation and preparedness. To achieve this end, investments in systems, databases, and network structures need to be made to develop a culture of learning from prior knowledge and also from current best practices. Community involvement is another cornerstone of effective disaster management. Basyah et al. (2023) emphasized that communities should be actively involved in every stage of the management process to develop their strengths and become more capable of handling disasters on their own.

Pu et al. (2025) highlighted, as natural disasters become more frequent and severe, the need for effective emergency response planning becomes even more important to reduce both human and economic losses. Education and training are key to understanding disaster risks. Gundran et al. (2022) emphasized that truly understanding disaster risk with building awareness and knowledge through proper training and education is not just for government officials but also for the civil society and other key stakeholders.

In the Philippine context, legislative and institutional frameworks have been established to strengthen disaster management. The Lawphil Project (2025) outlines RA 10121, which was enacted to strengthen the Philippine Disaster Risk Reduction and Management System, providing for the National Disaster Risk Reduction and Management Framework and institutionalizing the National Disaster Risk Reduction and Management Plan, appropriating funds, and for other purposes. RA 10121 is specifically designed for the development and implementation of national and local policies on disasters, as well as to improve and capacitate people (especially in the government) on preparedness, policy review, institutional structure, and procurement, including mobilization of resources related to disaster mitigation/actions (Tabao, 2025).

Furthermore, NDRRMC (2021) issued a memorandum explaining that due to the country’s increasing exposure to disasters, RA 10121, or the Philippine Disaster Risk Reduction and Management (DRRM) Act, was enacted in 2010 to lead the paradigm shift of the government’s

thrust to disasters from a reactive disaster management stance to a proactive DRRM Approach. As part of the paradigm shift, in 2014, the NDRRMC institutionalized the Rapid Damage Assessment and Needs Analysis (RDANA) as a tool to guide disaster response during the most critical early stages to quickly identify life-threatening and the urgent needs of the affected communities, helping responders prioritize actions that can save lives. Recent experiences have highlighted the need to enhance the conduct of RDANA by integrating and harmonizing with other response mechanisms, such as the Incident Command System (ICS) and the use of the Cluster Approach.

Theoretical Framework of the Study

Public Governance Theory. According to Kim & Sohn (2017), public governance theory emphasizes cooperation, public participation, problem-solving, and openness as key principles of disaster management that aims to form a collaborative risk governance system consisting of diverse actors, including governments, businesses, and civil society organizations, in which national government serves as facilitator in promoting the development of a decentralized collaborative network among local governments, nonprofit organizations, and various public services.

Emergency Management Theory. According to StudySmarter (2024), emergency management theory encompasses a framework of ideas and models aimed at improving the preparedness, response, recovery, and prevention of emergencies. This theory guides the professionals in a structured approach to managing disasters effectively. They integrate knowledge from various fields like risk management, crisis management, and disaster response to form comprehensive strategies.

Decision-Making Theory. According to Mojtahedi & Lan-Oo, (n.d.), this theory facilitates selecting appropriate exposures and pertinent variables in the development of the stakeholder disaster response index to provide optimized decisions in order to minimize all negative consequences of disasters.

Significance of the Study

The importance of this study lies in its potential to contribute valuable insights into effective disaster management strategies that can help reduce casualties

during calamities, thereby promoting community safety and resilience. By examining the principles and innovative practices implemented by the BDRRMC of Barangay Kias, Baguio City, it provides practical approaches that can serve as models for similar urban communities facing increasing environmental threats.

Objectives of the Study

This study sought to identify the following:

1. To identify the different practices employed by the BDRRMC of Barangay Kias in disaster management; and
2. To know the impact of the seminars/training attended by the members of the BDRRMC of Barangay Kias.

METHODOLOGY

Study Design

This study employed a qualitative-descriptive approach aimed at gathering and analyzing comprehensive insights through interviews utilizing open-ended questions, facilitated by a customized interview instrument to enhance the understanding of participants' experiences and their responses during disasters. The data that was gathered was carefully sorted and analyzed to give a clear picture of the situation, showing common patterns, themes, and important insights. The researcher thoroughly analyzes the data to comprehend its context and significance. Thematic coding was used to put similar ideas into groups, while pattern recognition was used to find themes that came up repeatedly. The results were also analyzed in the context of larger frameworks to give a more complete and in-depth picture of the study.

Population and Locale of the Study

The target population included the nine (9) core members of Kias BDRRMC who are official and currently serving during the study period and are willing to participate. These individuals must be a resident of Barangay Kias and officially assigned to perform duties within the barangay. Also, all participants are 18 years old and above.

Excluded from the study are individuals who are not the core member of Kias BDRRMC and those members who are inactive, on leave, or have already resigned from their roles. Additionally, any person who is

unwilling or unable to provide informed consent was exempted from the research.

The study was conducted at Barangay Kias, Baguio City, a local community where disaster preparedness and response are coordinated by the BDRRMC.

Data Gathering Tools

The main data collection tool employed in this study is a Key Informant Interview (KII) guide, a validated and open-ended questions specifically crafted to correspond with the study's objectives. It contained carefully structured questions which were intended to explore the knowledge, experiences, roles, and perspectives of Kias BDRRMC members regarding disaster preparedness and response. The open-ended format encouraged participants to share detailed responses, allowing for the collection of rich qualitative data that may not be captured through closed-ended questions.

A tool validation review was done to make sure that the interview guide questions were clear, relevant, and appropriate. It was divided into sections based on the main topics of the study, such as disaster risk awareness, preparedness measures, and community engagement. This structure made sure that the data that was collected directly answered the research questions and goals. To improve the reliability and accuracy of data, the interview was documented through audio-recording with the consent of the participants supported by note-taking. This dual approach allows the researcher to capture not only the participants' verbal responses but also important non-verbal cues, contextual details, and immediate impressions during the interview process. Later, the audio recordings were transcribed word-by-word to ensure that all insights were preserved and accurately represented.

By using this validated and well-structured interview tool, the study was able to gather meaningful and context-specific information, providing a deeper understanding of the roles and experiences of Kias BDRRMC in disaster risk reduction and management.

Data Gathering Procedures

Before gathering the data, the researcher obtained ethical clearance from RIECO to make sure that the rights and well-being of the people taking part were

protected. Following this, a communication letter was sent to the SCJPS Dean and to the barangay captain asking for permission to gather data from the members of the BDRRMC. After the letter was sent to the Barangay Hall, the secretary scheduled the interview for the following week so that the Kias BDRRMC members would have time to learn about the researcher's request. On the day of the interview, the researcher went to Kias Barangay Hall and was only able to talk to five (5) members of the BDRRMC because they were the only ones who were available during that day. Some members were deployed to other areas of the barangay to oversee various activities according to the Barangay Secretary. Before the commencement of the interview, the barangay secretary escorted the researcher and key informants to the conference room. Each of the five key informants received a consent form for review and approval ensuring that they understood their rights as participants. After reading the document, they agreed to the terms and signed the consent form. After signing the consent form, the interview process began and questions were posed in English as the key informants indicated that the Tagalog version of the questions are more challenging to understand. However, the key informants responded in both Tagalog and Ilocano dialect. During the interview, the researcher observed the physical appearance of the participants to ensure their comfort and all participants remained at ease throughout the interview session. After the interview, the researcher asked the key informants on how they preferred to receive the results, and they expressed a desire for a hard copy so that everyone could read the content and share it with the other barangay officials.

Furthermore, to prepare the collected information, the researcher carefully encoded everything that the key informants have mentioned. This involved listening to the recorded interviews and checking them in the notes taken during the actual interview, making sure the original words in the languages spoken were accurately captured. Afterward, these written responses were translated to English.

Treatment of Data

After data collection, the researcher used thematic analysis to find patterns and themes within the qualitative data. This process starts by familiarizing the content and developing preliminary codes to categorize

data segments. These codes were reviewed and refined into broader themes, which were further analyzed to understand the connections and significance. The final report presents these themes along with a discussion of their implications, ensuring the findings are reliable and meaningful in contributing to existing knowledge.

Ethical Considerations

Ethical guidelines were strictly followed to ensure the integrity of the research and protect participants' rights and ethical guidelines. Participants were provided with a clear information about the study's purpose, risks, benefits, and voluntary informed consent, with the option to withdraw at any time without repercussions. There are no foreseeable risks in participating in this interview; rather, the research study contributes to a safe environment wherein the participants share their experiences without fear of judgment, and it will contribute to disaster management. The researcher minimized physical and emotional risks while actively monitoring the participants' well-being and protecting their privacy through confidentiality measures including anonymization and securement of data storage. Furthermore, the participants remained anonymous, and their responses were handled with care. Results will be shared by furnishing them a hard copy of the research study, fostering a respectful environment that upholds trust, credibility, and dignity of all involved, ultimately supporting ethical and reliable research.

RESULTS AND DISCUSSIONS

Disaster Management Practices of the Barangay Kias BDRRMC

To keep communities safe and ready for disasters, good disaster management requires a number of strategic practices. The Kias BDRRMC uses a number of different methods to help the community deal with disasters in a way that works best for them.

Provision of Seminar/Training/Drills to Community Residents

Continuous education is important for effective disaster management. Through seminars, training sessions, and drills, the Kias BDRMMC equips both members and the wider community with significant disaster preparedness skills.

Two key informants mentioned that they are facilitating earthquake drills. Key Informant 1 said that, *"Mostly, dagijay da earthquake drill quarterly"* (Mostly, we conduct earthquake drills quarterly) while Key Informant 3 also stated that, *"Ti maysa nga e-implement tayo dita ket trainings by the BDRRMC. Ti nakajoin dita ket mostly Kias Elementary School. Ag-ited tayo met ti Basic Life Support kenya, NSED, Fire Drills. Adda met e-of-offer tayo nga trainings para kadagiti kabarangayan ngem dayta ket agdawdawat tayun ti tulong from other agencies such as BFP, Red Cross, EMS, CDRRMO, ken dadduma nga Private Entities kasla ni BBPICAG"* (One of the implementations we have is trainings by the BDRRMC. Those who join are mostly from Kias Elementary School. We organize Basic Life Support training for them, NSED, and fire drills. We also offer training for the community but we request assistance from other agencies such as BFP, Red Cross, EMS, CDRRMO, and other private entities like BBPICAG).

The Kias BDRRMC regularly conducts seminars, training sessions, and drills primarily at Kias Elementary School and within the broader community. According to key informants, earthquake drills are held quarterly, and topics such as fire safety, disaster preparedness, and basic life support are consistently addressed.

This ongoing education equips both residents and students with the necessary knowledge and skills to respond to emergencies swiftly and effectively. The collaborative approach reflects the principles of Public Governance Theory (Kim & Sohn, 2017), which emphasizes the need for cooperation among various groups in disaster management. As Fazeli et al. (2024) highlight, training and education significantly improve individual and collective response across all stages of a disaster.

By prioritizing continuous learning and collaboration, the Kias BDRRMC fosters a well-prepared and resilient community. This not only enhances the ability to save lives and reduce economic loss but also strengthens long-term recovery and resource utilization, underscoring the essential role of education in disaster management.

Utilization of Social Media as Early Devices

In today's digital age, social media is a powerful way to communicate, especially during a disaster.

Three key informants mentioned that they use social media as an early warning device. Key Informant 1 said that, *"Mostly, agpost kami ti social media tas sasabihan naming sila na mag-evacuate kung kinakailangan sakbay umay ti sakuna. Binibigay din namin ang mga emergency numbers na pwede nilang hingan ng tulong"* (Mostly, we post on social media and inform them to evacuate, if necessary, before a disaster occur. We also provide emergency numbers that they can call for help). Key Informant 2 stated that, *"We post online tas isesend mi metlng through group chat tapos e-encourage mi suda nga agreport ditoy barangay nu adda makita da nga problema ta kitaen ti BDRRMC ti situation"* (We post online and also send it through group chat, then we encourage them to report to the barangay if they see any problems so that the BDRRMC can assess the situation). Key Informant 5 also answered that, *"Usaren mi metlang ti social media as early devices tapno mainform mi ti constituents mi nu adda ti paumay nga bagyo kasjay. Mairemremind da mentlng ti basic steps para ti earthquake"* (We use social media as early devices to inform our constituents if there is an incoming storm. They are also reminded of the basic steps for an earthquake).

The Kias BDRRMC utilizes social media platforms as early warning systems to disseminate alerts, safety instructions, and emergency contact information to the constituents. Three key informants confirmed that real-time updates are posted online and through group chats. Community members are also encouraged to report any issues to help the BDRRMC better assess and respond to evolving situations.

Mole et al. (2025) and Seneviratne et al. (2024) noted, social media now plays a critical role in all phases of disaster management by facilitating data sharing and community participation. This aligns with Emergency Management Theory (StudySmarter, 2024), which highlights the importance of structured, knowledge-driven disaster response.

The strategic use of social media enhances both preparedness and collective action, making the

community safer and more cohesive. It demonstrates the value of integrating modern technology into disaster management frameworks to support rapid, informed decision-making.

Preparation of the Evacuation Area

Ensuring that evacuation areas are accessible, properly equipped, and familiar to the public enhances the community's capacity to respond rapidly and safely during emergencies.

One key informant mentioned that they are preparing the evacuation area at Barangay Kias. Key Informant 3 said that, *"Kadalasan, before disaster, ti ar-aramiden ti BDRRMC ket makicoordinate da ti schools tapno if worst comes to worst ket nakasagana jay school for evacuation. Kumbaga, before disaster, communication amin ti maaramid"* (Often, before a disaster, the BDRRMC coordinates with the schools to ensure that if the worst comes to worst, the schools are prepared for evacuation area. In other words, communication is being prioritized before a disaster).

The BDRRMC prepares and coordinates evacuation areas in partnership with Kias Elementary School to ensure these areas are accessible and adequately equipped in preparation for the approaching hazard. Communication with stakeholders and other government agencies is prioritized before disasters occur.

According to Salazar (2020), effective evacuation relies on thorough preparation, a principle consistent with Emergency Management Theory (StudySmart, 2024), which underscores the critical role of planning in disaster resilience. The BDRRMC's advance coordination strengthens the community's capacity to respond effectively to disasters.

Coordination with Other Agencies

Disaster management is a team work that needs good communication between government agencies and non-government organizations.

Five key informants stated that they are coordinating with other agencies during a disaster. Key Informant 2 said that during the response operation, *"Pag andun na sa event, data gathering kung ano ang nangyari. If ever*

hindi kaya ng grupo, magtatawag ng tulong sa ibang ahensiya tapos sabihan sila kung ano ang sitwasyon para alam nila ang dadalhin nilang gamit” (During the event, data gathering is done to determine what happened. If the group is unable to handle the situation, they will call for help from other agencies and inform them about the situation so they know what equipment to bring). Also, the mode of communication, Key Informants 1, 2, 3, 4, 5 stated that, *“Ti communication, ibaga mi ti barangay nu anya ti kasapulan mi nga agencies, nu kasano mi suda nga tawagan ket through landline, messenger, phone call, and two-way radio ta nakahook tayo met piman kenni CDRRMO. Dagita lang ti maus-usar nga mode of communication”* (For communication, we inform the barangay of the agencies we need, and how we will contact them is through landline, messenger, phone calls, and two-way radios, as we are also connected with the CDRRMO. Those are the modes of communication we use). For the recovery operation, Key Informants 1, 3, 4, 5 answered that, *“Kenjami, dumawdawat kami ti tulong ti CSWDO. Isubmit mi ti nagan da nu manu ti affected families ken nu anya category na jay da biktima, nu adda ba senior, baby, lactating kakasjay. Amin dagijay nga data ket maiyaramidan ti written report santo maisubmit tapno makita da nu anya ti klasen ti tulong ti maited da”* (We seek assistance from the CSWDO. We submit the names of the affected families and their category as victims, whether they are seniors, babies, or lactating individuals, etc. All data’s will be compiled into a written report and submitted so they can identify what kind of assistance will be given).

The BDRRMC collaborates closely with government and non-government agencies for both response and recovery. Communication occurs through multiple channels, and detailed reports are submitted to ensure that assistance is tailored to the needs of affected families, particularly the vulnerable groups.

This multi-agency cooperation facilitates data collection, resource sharing, and comprehensive support. As Disaster Shiksha (2024) explains, successful disaster management requires seamless collaboration, as no single agency can address all needs alone. This systematic approach aligns with Public Governance Theory (Kim & Sohn, 2017), emphasizing the importance of synchronized action.

Coordinated efforts optimize resource use, speed up response times, and ensure that support is both effective and equitable, ultimately building a more resilient community.

Helping the Victims

Providing immediate support to disaster victims is a fundamental responsibility.

Five key informants mentioned that they help victims during disaster. Key Informants 1, 3, 4, 5 said that, *“Dakami nga BDRRMC ket mapan kami met tumultulong kadagijay da family nga nasalanta”* (We from the BDRRMC will also go to help the affected families). Key Informant 2 also stated that, *“Sa recovery, itulod mi dagijay victims nga agpa counselling ijay Atok Trail Health Center. Kadwaan mi metlang dagijay personnel jay health center nga ag-ited ti aids like medicine para kadagijay victims”* (For recovery, we transport the victims for counseling at the Atok Trail Health Center. We also accompany the personnel at the health center in providing aids like medicine for the victims).

The BDRRMC provides immediate relief to disaster victims, including medical assistance and access to counseling services at Atok Trail Health Center, as providing psychological first aid and support is integral to recovery efforts.

This approach addresses both physical and mental health needs, recognizing that recovery extends beyond initial survival. Anoneze (2024) and Disaster Shiksha (2025) stress the profound impact of psychological first aid and counseling. Incorporating these services aligns with the Emergency Management Theory (StudySmarter, 2024), which advocates a holistic approach to disaster response.

Comprehensive support promotes resilience and hope, facilitating long-term recovery and reinforcing the importance of mental health within disaster management frameworks.

Activation of Incident Command System

Implementing ICS streamlines coordination, clarifies roles, and improves communication in responding to disasters in an organized, timely, and efficient manner.

One key informant stated that ICS is being activated during a disaster. Key Informant 3 said that, *“Nu kas pangarigan typhoon, first of all nga aramiden ket i-activate jay ICS. Upon activation jay ICS, ag scene size up tayo. Nu Nakita tayo nga safe, mabalin tayon nga agpenetrate, mabalin tayon nga agproceed ti rescue nu adda marescue. Nu met ti nadangran jet structural, haan tayun nga kasapulan nga mapan, ti pinaka priority tayo lang ket jay biag. Nu nagkalma en ti panawen, ag-roving metten ti BDRRMC, agsubli tayo manen ijay scene size-up. Ag gather da manen ti datas nga maisubmit ijay daduma nga agencies para iti tulong”* (For instance, in the case of a typhoon, the first thing to do is activate the ICS. Upon activation of the ICS, we conduct a scene size-up. If we see that it is safe, we can penetrate; we can proceed with the rescue if there are people to rescue. If there are structural damages, we do not need to go; our top priority is safety. Once the weather calms down, the BDRRMC also conducts roving and returns for another scene size-up. They gather data again to submit to other agencies for assistance).

The Kias BDRRMC promptly activates the Incident Command System (ICS) during disasters, enabling them to conduct scene assessments, prioritize life-saving actions, and coordinate communication and data collection.

ICS provides a structured framework for efficient, safe, and organized disaster response. This reflects Decision Making Theory (Lan-Oo, n.d.; Mojtahedi, Lan-Oo, n.d.), where optimized decisions are based on situational variables. Mitton (2025) further affirms that ICS is a flexible, standardized system vital for effective crisis management.

The use of ICS ensures that disaster response is both systematic and adaptable, prioritizing safety and clear communication, and demonstrating the necessity of structured plans in effective emergency management.

Conduct of Debriefing and Making of Post-Activity Report

Post-incident debriefing and accomplishing the post-activity report are essential practices for evaluating and improving disaster response efforts by learning from what happened in the past to strengthen what works

best, and make disaster management activities better in the future.

Four key informants mentioned that they are conducting a debriefing after a disaster while one key informant stated that they also make post-activity reports after they conducted seminar/training/drill to Kias Community. Key Informants 1, 4 said that, *“Debriefing ah”* (Debriefing). Key Informant 2 stated that, *“Debriefing ta isu Talaga ar-aramiden mi”* (Debriefing is what we actually do). Key Informant 3 answered that, *“Ti pakakititaan tayo dita ket ti maysa nga response, agkakaroon ti BDRRMC ti debriefing ket amin nga nangyari during jay response ket mairuwar da nu debriefing. Idjay nga debriefing, maibaga jay da nagkamalian metlang ken pagtungtungan jay dapat nga naaramid, ket ti pakakitaan ti effectivity na jay disaster management ket nu adda manen sumaruno nga disaster, makita met nga maleslessen jay da kamali”* (Our basis in response, the BDRRMC holds a debriefing to discuss everything that happened during the response. During that debriefing, we address the mistakes made and discuss what should have been done. We observe the effectiveness of disaster management when another disaster occurs, we can see that the errors are lessened). Key Informant 5 uttered that, *“Agaramid kami post-activity report ket ikabil mi ijay nu mano ti nagparticipate ket nu jay da ba participants ket active da nga nakisursuro ket nu iap-apply da jay trainings da kuma ngem awan met nangnangneg mi nu adda nangyari nga incident tas in-apply da jay sinuro da”* (We prepare a post-activity report indicating how many participated and if the participants actively engaged and applied what they learned in training, but we haven't heard if any incidents occurred where they applied their knowledge).

After every disaster response or community training, the Kias BDRRMC conducts debriefing sessions and prepares detailed post-activity reports. These practices document participation, outcomes, and lessons learned.

Reflective debriefing and thorough documentation enable the council to identify successes, address mistakes, and enhance future performance. As Mead (2023) and Garcia (2024) noted that such practices are important for maintaining historical records and benchmarking progress. This aligns with Emergency

Management Theory (StudySmarter, 2024), which values structured, ongoing improvement.

Regular debriefing and reporting foster a culture of learning and continuous improvement, strengthening disaster management practices and team effectiveness.

Impact of Seminars/Trainings on BDRRMC Members

Training programs and seminars give people the knowledge and skills they need to be effective at managing disasters. This objective aims to find out how these educational programs have affected the members of Kias BDRRMC.

Seminars/Trainings attended by the Kias BDRRMC

Participation in specialized seminars and training sessions are important for the members of the BDRRMC to stay informed about the best practices and emerging trends in disaster management.

Kias BDRRMC members actively participate in a wide range of specialized seminars and training programs facilitated by agencies such as the Red Cross, BFP, CDRRMO, OCD, AFP, EMS, and CSWDO. Topics include first aid, basic life support, fire brigade operations, psychological first aid, camp management, and search and rescue.

These professional development opportunities enhance members' competencies across various disaster scenarios. As Disaster Shiksha (2025) noted, education and ongoing training are foundational for effective disaster management. This is consistent with Emergency Management Theory (StudySmarter, 2024), which emphasizes the integration of multidisciplinary knowledge to improve preparedness and response.

Continuous training produces a skilled, adaptable disaster response team, strengthening community safety and resilience while affirming the importance of lifelong learning in disaster management.

Impact of the Seminars/Trainings

How well disaster management works depends on how the seminars and trainings affects the BDRRMC members as a whole.

Five key informants shared how the seminars and training programs they have attended have helped them improve their performance in disaster management. Key Informant 1 verbalized that, *“Dakkel ah ta idi talaga damdamo ket awan ka ammu-ammok ngem tadt ket ammu kun nga ag first-aid, ammu kun nga tumawag ti 911 kasi nu talaga nga haan mo kaya, ag-ask ka ti tulong, haan ka nga sugod nang sugod nga basta-basta”* (It's significant because before I didn't know much, but now I know how to perform first aid, and I know to call 911 because if you truly can't handle the situation, you should ask for help; you shouldn't rush in without preparation). Key Informant 2 stated that, *“For me, yun talaga kung paano maghandle ng patient, kung paano mo siya kakausapin”* (For me, it's really about how to handle a patient and how to communicate with them). Key Informant 3 answered that, *“Idi kurang ti training / seminars ku, ti panonot ko ket no emergency, nakahazard ak ken masapol aglisi jay da lugan jay kalsada ta emergency garud. Tadt, after ko naki attend ti training / seminars, uray anya ka man, nu iyarig tayo ti kalsada, haan nga dapat balasubas uray emergency. Secondly, haan nakun nga marat-rattle uray kaiwara dita ti utak ken makawork nakun under pressure. Makamando tayo ladta uray agsinumbangir ti mangipukpukaw nga “awan met ar-aramiden yo, nakatakder kayo lang dita, apay haan yo nga tulungan jay biktima?” Kaya tayon nga e-explain kenya jay sitwasyon nga haan nga basta-basta nga aggaraw ka ta masapol nga surotan ti protocol. Ken maysa, kaya metten nga imaximize ti tao uray nu kurang ti responders nga agresponde”* (Before, when I had less training/ seminars, my thinking during an emergency was that I am the priority and they shall may way for me. Now, after attending trainings/ seminars, I understand that even if you are in an we hear an emergency situation, you should not be reckless. Secondly, I am not panicking anymore even though I see brain that was scattered and I can work under pressure already. We can still manage the situation even if someone shouts saying, “You're not doing anything; just standing there! Why aren't you helping the victim?” We can already explain to them that the situation requires protocols to be followed. Also, we can maximize our personnel even if there is a shortage of responders). Key Informant 4 uttered that, *“Charge to experience, nanaynayunan ti laing ko”* (It's a lesson learned; my knowledge has improved) Key Informant 5

affirmed that “*Nag-improve ti knowledge nga adda gayam ti certain protocols ken procedures nga kasapulan nga suruten, haan nga sugod-ng-sugod*” (My knowledge has improved regarding the specific protocols and procedures that need to be followed and not rushing in).

The key informants verbalized that the seminars and training programs have significantly improved their confidence, technical skills, and ability to remain calm under pressure. They have gained a deeper understanding of protocols, effective communication, and the critical importance of following procedures during emergencies.

The seminars and training programs have transformed both individual and team responses, moving from a reactive stance to a proactive stance, skilled, and protocol-driven action. Redzcabang (2024) highlights that such capacity-building fosters robust, responsive teams capable of acting swiftly during disasters. This reflects Public Governance Theory (Kim & Sohn, 2017), which underscores collaborative problem-solving and community engagement.

The positive outcomes from ongoing training have elevated both individual and collective disaster response capabilities. This readiness ultimately ensures better protection for the community and highlights the value of investing in continuous professional development for disaster risk reduction.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This study successfully identified the effective disaster management practices of Kias BDRRMC through the following systematic approach of DRRM:

1. Kias BDRRMC demonstrates preparedness through conducting regular drills, sharing disaster-related information through social media, and strengthening capacity through pre-disaster coordination with other government agencies and non-government organizations, as well as with Kias Elementary School for the use of the facility as an evacuation area.
2. The Kias BDRRMC activates its Incident Command System (ICS) during a disastrous event to plan

operations, making sure that the different agencies are working together smoothly and providing immediate help to people who have been affected.

3. The Kias BDRRMC provides support to victims, including mental health services and careful conduct of data gathering for tailored assistance to support long-term rehabilitation.

The study showed that Kias BDRRMC members have learned a lot from taking part in disaster management seminars and training programs provided by various agencies. They now know more about first aid, emergency procedures, and how to handle patients. Also, they are more confident and better able to stay calm and make smart decisions when things get tough. This progress leads to better, more coordinated, and more caring responses during real or actual disasters.

Recommendations

While the Kias BDRRMC has demonstrated effective and proactive disaster management through regular trainings, drills, early warning systems, and strong inter-agency coordination, the study identified gaps in equipment and a shortage of volunteers as persistent challenges. To address these, it is recommended that the Kias BDRRMC shall:

1. Conduct a detailed assessment of current equipment and material resources, identifying urgent needs such as advanced first aid kits, communication devices, and specialized rescue tools.
2. Actively seek donations, grants, and shared resources through partnerships with local businesses, NGOs, and higher-level government units to address material shortages.

Acknowledgement

The researcher expresses her profound gratitude to the University of Baguio for the opportunity to conduct this study, to her family and friends for their unwavering support, to the study participants for their valuable cooperation, and above all, to the Lord Almighty for divine guidance and inspiration throughout the completion of this academic endeavor.

References

- Abid, S. K., Sulaiman, N., Chan, S. W., Nazir, U., Abid, M., Han, H., Ariza-Montes, A., & Vega-Muñoz, A. (2021). Toward an integrated disaster management approach: How artificial intelligence can boost disaster management. *Sustainability*,

- 13(22), Article12560. <https://doi.org/10.3390/su132212560>
- Acikara, T., Xia, B., Yigitcanlar, T., & Hon, C. (2023). Contribution of social media analytics to disaster response effectiveness: A systematic review of the literature. *Sustainability*, 15(11), Article 8860. <https://doi.org/10.3390/su15118860>
- Basyah, N. A., Syukri, M., Fahmi, I., Ali, I., Rusli, Z., & Putri, E. S. (2023). Disaster prevention and management: A critical review of the literature. *Jurnal Penelitian Pendidikan IPA*, 9(11), 1045–1051. <https://doi.org/10.29303/jppipa.v9i11.4486>
- Disaster Shiksha. (2024, December 7). *Coordinating disaster response: Role of multiple agencies*. <https://disaster.shiksha/disaster-response/coordinating-disaster-response-agencies-role/>
- Disaster Shiksha. (2025). *How counselling helps disaster victims overcome trauma: Essential techniques*. <https://disaster.shiksha/rehabilitation-reconstruction-recovery/counselling-helps-disaster-victims-overcome-trauma/>
- Disaster Shiksha. (2025). *Why education, training, and awareness are crucial for effective disaster management*. <https://disaster.shiksha/rehabilitation-reconstruction-recovery/education-training-awareness-disaster-management/>
- Fazeli, S., Haghani, M., Mojtahedi, M., & Rashidi, T. H. (2024). The role of individual preparedness and behavioral training in natural hazards: A scoping review. *International Journal of Disaster Risk Reduction*, 105, Article 104379. <https://doi.org/10.1016/j.ijdr.2024.104379>
- Garcia, S. (2024, March 14). *How to write an effective post-event report*. Eventscase. <https://eventscase.com/blog/how-to-write-an-effective-post-event-report>
- Gundran, C. P. D., Lam, H. Y., Tuazon, A. C. A., Cleofas, J. V., Garcia, F. B., Puli, T. E. M., & Magdales, M. S. I. (2022). Enhancing mass casualty disaster management competencies through an integrated disaster simulation training program. *International Journal of Disaster Risk Reduction*, 78, Article 103124. <https://doi.org/10.1016/j.ijdr.2022.103124>
- Al Harthi, M., Al Thobaity, A., Al Ahmari, W., & Almalki, M. (2020). Challenges for nurses in disaster management: A scoping review. *Risk Management and Healthcare Policy*, 13, 2627–2634. <https://doi.org/10.2147/RMHP.S279513>
- Khan, S. M., Shafi, I., Butt, W. H., de la Torre Diez, I., López Flores, M. A., Galán, J. C., & Ashraf, I. (2023). A systematic review of disaster management systems: Approaches, challenges, and future directions. *Land*, 12(8), Article 1514. <https://doi.org/10.3390/land12081514>
- Kim, Y., & Sohn, H. G. (2017). Disaster theory. In *Disaster risk management in the Republic of Korea* (pp. 23–76). Springer. https://doi.org/10.1007/978-981-10-4789-3_2
- Linardos, V., Drakaki, M., Tzionas, P., & Karnavas, Y. L. (2022). Machine learning in disaster management: Recent developments in methods and applications. *Machine Learning and Knowledge Extraction*, 4(2), 446–473. <https://doi.org/10.3390/make4020020>
- Mead, A. (2023, November 28). *Mastering the debrief meeting: A guide to effective hosting*. Eventscase. <https://eventscase.com/blog/mastering-the-debrief-meeting-a-guide-to-effective-hosting>
- Mitton, A. (2025). *The importance of implementing ICS in an operational EOC: Enhancing efficiency, preparedness, and collaboration*. LinkedIn. <https://www.linkedin.com/pulse/importance-implementing-ics-operational-eoc-enhancing-andres-mitton-5mi4e>
- Mojtahedi, S. M. H., & Oo, B. L. (2013). *Theoretical framework for stakeholders' disaster response index in the built environment*. International Council for Research and Innovation in Building and Construction. https://www.irbnet.de/daten/iconda/CIB_DC27260.pdf
- Mole, P. V., Noche, E. B., & Hortizuela, R. D. (2025). Using social media in disaster management and emergency response: A literature review. *AIP Conference Proceedings*, 3287(1), Article 030019. <https://doi.org/10.1063/5.0262364>
- National Disaster Risk Reduction and Management Council. (2021). *Memorandum No. 107, s. 2021: NDRRMC rapid damage assessment and needs analysis (RDANA) standard operating procedures (SOP)*. https://ndrrmc.gov.ph/attachments/article/4164/NDRRMC_Memorandum_No_107_s_2021.pdf
- Oktari, R. S., Munadi, K., Idroes, R., & Sofyan, H. (2020). Knowledge management practices in disaster management: Systematic review. *International Journal of Disaster Risk Reduction*, 51, Article 101881. <https://doi.org/10.1016/j.ijdr.2020.101881>
- Pu, F., Li, Z., Wu, Y., Ma, C., & Zhao, R. (2025). *Recent advances in disaster emergency response planning: Integrating optimization, machine learning, and simulation*. arXiv. <https://doi.org/10.48550/arXiv.2505.03979>
- Raikes, J., Smith, T. F., Jacobson, C., & Baldwin, C. (2019). Pre-disaster planning and preparedness for floods and droughts: A systematic review. *International Journal of Disaster Risk Reduction*, 38, Article 101207. <https://doi.org/10.1016/j.ijdr.2019.101207>
- Redzcabang. (2024, October 7). *Barangay response training: Empowering BDRRMCs for effective disaster preparedness*. Municipality of Kitaotao. <https://lgukitaotao.com/barangay-response-training-empowering-bdrrmcs-for-effective-disaster-preparedness/>
- Salazar, C. M. C. (2020). *Case study evacuation center* [Unpublished student paper]. Scribd. <https://www.scribd.com/document/464187970/Case-Study-EVACUATION-CENTER>
- Sawaltaha, I. H. (2020). A contemporary perspective on the disaster management cycle. *Foresight*, 22(4), 469–482. <https://doi.org/10.1108/FS-11-2019-0097>
- Seneviratne, K., Nadeeshani, M., Senaratne, S., & Perera, S. (2024). Use of social media in disaster management: Challenges and strategies. *Sustainability*, 16(11), Article 4824. <https://doi.org/10.3390/su16114824>
- StudySmarter. (2024). *Emergency management theories*. <https://www.studysmarter.co.uk/explanations/medicine/public-health/emergency-management-theories/>
- Sun, W., Bocchini, P., & Davison, B. D. (2020). Applications of artificial intelligence for disaster management. *Natural Hazards*, 103(3), 2631–2689. <https://doi.org/10.1007/s11069-020-04124-3>
- Tabao, G. S. (2025). *Disaster Risk Reduction Management (DRRM) in the Philippines: Assessing the effectiveness of local government preparedness, response, and recovery strategies in the face of climate*. <https://doi.org/10.13140/RG.2.2.23290.40646>
- Philippine Disaster Risk Reduction and Management Act of 2010*, Rep. Act No. 10121 (2010). The Lawphil Project. https://lawphil.net/statutes/repacts/ra2010/ra_10121_2010.htm