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Disaster Preparedness of Cagayan State University – Gonzaga, Philippines

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ABSTRACT

The study was conducted to determine the disaster preparedness of CSU-Gonzaga as perceived by administrators, faculty, staff, and students. Specifically, it aimed to profile respondents based on role, age, gender, and years on campus; assess the perceived levels of preparedness in procedures and systems, manpower resources, equipment and logistics, and support services; examine the relationship between preparedness levels and respondent profiles; identify factors affecting preparedness; and propose action plans to enhance disaster readiness. To fulfill these objectives, the researchers employed a mixed-method research design, integrating Quantitative surveys and Qualitative interviews. The study involved 3rd-year students, administrators, faculty, and staff of CSU-Gonzaga, using a structured survey adapted from McEntire (2019) and semi-structured interview questions. The quantitative data were analyzed using descriptive statistics, T-tests, and Fisher's Exact Test, while qualitative data were examined through thematic analysis. The results showed that most respondents were students (75.91%), aged 20-29 years (81.39%), predominantly female (67.88%), and had spent 1-3 years on campus (69.71%). Disaster preparedness was generally perceived as effective, with mean scores of 2.76 for procedures and systems, 2.58 for manpower resources, 2.53 for equipment and logistics, and 2.66 for support services. However, gaps were identified in emergency equipment maintenance, training programs, and support services, particularly in providing temporary housing for affected students. A significant relationship between gender and perceived preparedness indicated the need for gender-sensitive approaches. Thus, the researchers recommend enhancing equipment maintenance, improving training programs, increasing security and emergency response capacity, strengthening communication channels, providing temporary housing solutions, and incorporating gender sensitive strategies to bolster CSU-Gonzaga's disaster preparedness and ensure the safety and resilience of its campus community.

Keywords: *Disaster Preparedness; Man power Resources; Equipment and Logistics; resilience*

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INTRODUCTION

The Philippines is a nation prone to natural disasters, including earthquakes and fires, due to its location along the Pacific Ring of Fire and its tectonic structure. According to the Philippine Institute of Volcanology and Seismology (PHIVOLCS), the country experiences an average of 20 earthquakes per day (PHIVOLCS, 2021), most of which go unnoticed by the public. In addition, the Bureau of Fire Protection (BFP) reported a significant uptick in fire incidents, with a total of 15,322 fires in the first quarter of 2023 alone, resulting in the tragic loss of 142 lives and property damage valued at approximately ₱4.76 billion (Bureau of Fire Protection, 2023).

Given the frequency of these calamities, the importance of effective preparedness cannot be overstated. Adequate preparation can save lives, reduce property damage, and lessen the impact on affected communities. In the wake of the 2013 Bohol earthquake, for instance, experts credited the lower fatality rate (PreventionWeb, 2013) to the increased earthquake preparedness and awareness initiatives implemented in the province. Furthermore, the World Health Organization (WHO) emphasizes that emergency preparedness in schools can help protect students and staff during disaster events, minimize disruption to education, and bolster community engagement.(WHO, 2019)

In recognition of these issues, the Philippine government has implemented policies and programs to enhance disaster preparedness at various levels. The Philippine Disaster Risk Reduction and Management Act of 2010 (Republic Act 10121) directs local government units (LGUs) to establish disaster management offices responsible for designing and executing risk reduction strategies. Additionally, the Department of Health (DOH) and Commission on Higher Education (CHED) have introduced school-based risk reduction initiatives (Mendoza, Trinidad, & Mapanao, 2019) such as earthquake and fire drills, to improve school communities' readiness during emergencies.

Cagayan State University (CSU) - Gonzaga is an academic institution located in Cagayan Province, Philippines, an area prone to earthquakes and fires. With the current situation, it is necessary for the academe to invest in preparedness due to the potential risks these calamities pose to students, faculty, staff, and infrastructure. Failure to adequately address these threats may compromise the university's ability to fulfill its educational mission and maintain the safety and wellbeing of the campus community. To facilitate this, research on disaster preparedness in the academic setting has been emphasized, with numerous studies highlighting the importance of instituting measures (Bizimana, Estoque, & Duran, 2017) that address the unique challenges that educational institutions face during calamity events.

Cagayan State University, there are 35 administrative personnel responsible for managing various administrative tasks across the university. Additionally, each of the six colleges is supported by a total of 45 dedicated faculty members who play a crucial role in teaching, research, and academic guidance. Moreover, the university boasts a vibrant student population, with a total of 2,142 students enrolled across all academic years from first to fourth year during the second semester. This diverse population constitutes a significant part of the university community and could potentially be affected by disasters that may occur in Cagayan State University.

However, there is limited research on CSU-Gonzaga's preparedness for earthquake and fire incidents. As such, this study aims to assess the current state of preparedness at CSUGonzaga in relation to earthquake and fire disasters. By identifying gaps in existing policies and practices, this research endeavor can contribute to the development of comprehensive and effective preparedness strategies that bolster the campus's resiliency during calamities.

MATERIALS AND METHODS

Research Design

The study utilized a Mixed-method research design, integrating both quantitative and qualitative methodologies to gather comprehensive insights into the university's readiness for various calamities. This design facilitates a more detailed understanding of the effectiveness of disaster preparedness measures implemented by the university. Quantitatively, the research utilizes surveys to collect data on the perceptions and attitudes of the university community, including administrators, faculty members, staff, and students, towards the existing disaster preparedness programs.

Moreover, the qualitative aspect of this study includes a semi-structured interview and focus group discussions to delve into personal experiences, suggestions for improvement, and perceived gaps in the current disaster preparedness framework. This qualitative inquiry offers a platform for stakeholders to voice their concerns, experiences, and recommendations, providing depth to the statistical data gathered.

Sampling Technique

Table 1. Student-Respondents of the Study

Respondents	Total Population (3rd Year)	Sample Size
Agri tech	49	25
BEED	18	9
BSE	44	21
BS Information Technology	77	37
BS Accounting Information System	69	33
BS Criminology	66	32
BS Hospitality Management	109	52
	Total	**209**

Table 2. Faculty Members and Administrative Staff-Respondents of the Study

Respondents	Total Population	Sample Size
Administrator	14	11
Administrative Personnel	35	30
Faculty		
BS Agriculture	11	9
BEED BSED	10	8
BS Information Technology	6	5
BS Accounting Information System	8	7
BS Criminology	6	5
BS Hospitality Management	4	3
	Total	**78**

Participants were selected using stratified random sampling and convenience sampling methods to ensure diverse representation. Stratified and convenience random sampling methods were employed, certain demographic groups or individuals with unique experiences might not have been adequately represented, potentially impacting the comprehensiveness of the findings. Furthermore, the study's depth and scope were restricted by the limited time and resources available for conducting the research, potentially affecting the scale of data collection and analysis. Using the Slovin's formula, the reseachers calculated the necessary sample sizes for each group of respondents of CSU-Gonzaga to determine the sample size because this is the recommended formula for drawing out finite population to make generalization on the larger population (Ryan, 2013). The formula is presented; Sample (n) = N/(1+Ne2).

Data Gathering Tool

The research employed a three-section survey questionnaire adopted from the study of McEntire, D. A. (2019), "Disaster Response and Recovery: Strategies and Tactics for Resilience," as its primary data-gathering tool. Section one gathered demographic information about the participants, including their roles/status at CSU-Gonzaga, sex, age, and the duration of time they had spent on campus. These factors aimed to uncover potential correlations between different demographic

groups and their views and involvement in disaster preparedness efforts.

The second section of the survey focused on assessing the university's disaster readiness. It included 40 items distributed across four critical domains: Procedures and Systems, Manpower Resources, Equipment and Logistics, and Support Services. Responses were elicited using a 4-point Likert scale, ranging from Strongly Disagree to Strongly Agree. The implementation of this structured survey allowed for a comprehensive exploration of the university's disaster preparedness levels, contributing to a holistic understanding of the operational, logistical, and human resource components underpinning effective disaster management.

Furthermore, section three consisted of 5 interview questions designed to facilitate deeper insights into the qualitative aspects of disaster preparedness at CSU-Gonzaga. These questions aimed to explore respondents' personal experiences, perceptions, and suggestions for enhancing disaster preparedness.

The validity and reliability of the survey tool were essential for the study. Its content, designed by experts around disaster preparedness benchmarks, ensured validity. The survey was piloted for inputs and adjusted accordingly, confirming construct validity. Reliability was examined through internal consistency checks, including the Cronbach's alpha measure, affirming that participants consistently understood and responded to the survey. This rigorous approach guaranteed dependable, quality data for the research.

Data Gathering Procedure

The data gathering procedure for this study began with the preparation of the research instrument, which was a survey questionnaire focusing on relevant aspects of disaster preparedness at Cagayan State University, Gonzaga Campus (CSU-Gonzaga). After finalizing Respondents Total Population Sample Size Administrator 14 11 Administrative Personnel 35 30 Faculty BS Agriculture 11 9 BEED BSED 10 8 BS Information Technology 6 5 BS Accounting Information System 8 7 BS Criminology 6 5 BS Hospitality Management 4 3 Total 78 the survey, necessary permissions were sought from relevant authorities at CSU-Gonzaga, including institutional research boards, administrators, department heads, and course lecturers.

Once permission was granted, participants were randomly selected from specified groups (specific courses and employee groups) based on the calculated sample size, ensuring representative data collection. The questionnaires were distributed to the selected participants, with clear instructions on how to fill them out and emphasizing the importance of honest responses for the study's reliability.

Participants were given the flexibility to complete the survey at their convenience, either in a designated space on campus or within a given timeline for completion. Completed questionnaires were collected at a specified location and time.

After collecting the surveys, the data were compiled, coded, and analyzed both qualitatively and quantitatively based on the research objectives. Throughout the process, efforts were made to ensure participant privacy, obtain informed consent, and maintain the integrity and objectivity of the research. This procedure aimed to gather reliable and valid data that accurately reflected the preparedness for earthquake and fire disasters at CSU-Gonzaga, as perceived by its students and employees.

Analysis of the Data/ Statistical treatment

To measure disaster preparedness at Cagayan State University - Gonzaga, a structured statistical approach was used. Descriptive statistics detailed participant demographics, including role/status, sex, age, and years on campus, providing percentages, means, and rank.

A Likert scale assessed attitudes towards disaster preparedness, with mean scores indicating the general readiness level perceived by the community.

Fisher's Exact Test evaluated significant association s in disaster preparedness based on participant profiles. Thematic analysis was used for qualitative responses, encoding and tabulating them into themes.

These analyses provided insights into how different groups within the university perceived disaster preparedness, guiding targeted improvements in the institution's strategies.

RESULTS AND DISCUSSION

I. Profile of Respondents

Role/Status

Table 1. Attitude of the respondents towards General Mathematics subject

Role/Status	Frequency	Percentage	Rank
Administrators	11	4.01	3
Faculty and Staff	55	20.07	2
Students	208	75.91	1
Total	**274**	**100**	

Table 1 shows the distribution of respondents according to their role or status at CSUGonzaga. Majority of the respondents are students, making up 75.91% of the total sample. Faculty and staff constituted 20.07%, while administrators account for the smallest group at 4.01%. This distribution reflects the demographic composition of the CSU-Gonzaga campus, where students form the largest part of the population. The substantial representation of students highlights their critical role in disaster preparedness and response initiatives.

The results indicate that students are the primary stakeholders in disaster preparedness efforts at CSU-Gonzaga, followed by faculty and staff, with administrators being the smallest group. This significant student population suggests that disaster preparedness programs should be heavily focused on student engagement and participation. Since students form the bulk of the campus community, their awareness and preparedness are crucial for overall campus safety. Faculty and staff, although fewer in number, are essential for implementing and overseeing these programs. Administrators, while the smallest group, are pivotal in decision-making and resource allocation for disaster preparedness.

Supporting literature emphasizes the importance of involving students in disaster preparedness activities. Johnson and Oshiro (2018) found that student engagement in drills and training sessions significantly enhances the overall readiness of educational institutions by improving response times and effectiveness during actual emergencies. Similarly, Williams and Noyes (2019) highlight the role of faculty and staff in facilitating disaster preparedness programs, showing that well-trained faculty and staff can effectively guide students and manage emergencies, thereby improving the overall safety and preparedness of the institution. Additionally, Brown et al. (2020) point out that administrators are crucial in providing the necessary resources and support for disaster preparedness. Their study indicates that institutions with strong administrative support for disaster preparedness initiatives tend to have better outcomes in terms of readiness and resilience.

Age

Table 2. Profile Distribution of Respondents According to Age

Age Group	Frequency	Percentage	Rank
Below 20	4	1.46	5
20–29	223	81.39	1
30–39	23	8.39	2
40–49	17	6.20	3
50–59	6	2.19	4
60 and above	1	0.36	6
Total	**274**	**100**	

The table shows the distribution of respondents according to their age. The majority of the respondents fall within the 20-29 age range, comprising 81.39% of the total sample. This is followed by the 30-39 age group, which makes up 8.39%, and the 40-49 age group at 6.20%. Respondents aged 50-59 account for 2.19%, while those below 20 and those aged 60 and above make up the smallest portions, at 1.46% and 0.36% respectively.

The results indicate that the predominant age group among the respondents is 20-29, reflecting a young demographic at CSU-Gonzaga. This likely includes a large number of students, who typically fall into this age category. The concentration of respondents in the 20- 29 age range suggests that disaster preparedness programs should be tailored to engage younger individuals effectively. This age group, being the most populous, plays a crucial role in the overall preparedness of the campus. Ensuring that disaster preparedness materials and training are accessible and relevant to this demographic can enhance their effectiveness.

Research indicates that younger individuals, such as those in the 20-29 age group, are more likely to benefit from interactive and technology-based disaster preparedness programs. According to Kang, Lindell, and Prater (2018), using digital tools and social media for disaster preparedness can significantly increase engagement and knowledge retention among younger populations. Additionally, a study by Uscher-Pines et al. (2020) found that age-specific training programs improve the overall effectiveness of disaster preparedness initiatives, ensuring that all age groups are adequately prepared.

Sex

Table 3. Profile Distribution of Respondents According to Sex

Sex	Frequency	Percentage	Rank
Male	88	32.12	2
Female	186	67.88	1
Total	**274**	**100**	

The table above shows the sex distribution of respondents at CSU-Gonzaga. The majority of the respondents are female, comprising 67.88% of the total sample, while males represent 32.12%. This significant representation of females suggests that any disaster preparedness initiatives should consider the perspectives and needs of

female students, faculty, and staff to ensure comprehensive engagement and effectiveness.

The predominance of female respondents indicates that disaster preparedness programs might need to address specific concerns and preferences that are more prevalent among women. Research by Zahran et al. (2018) indicates that women often have different perceptions and responses to disaster preparedness compared to men, which can influence the effectiveness of preparedness strategies.

Additionally, studies such as those by Enarson and Pease (2017) have shown that engaging women in disaster preparedness activities can lead to more inclusive and effective preparedness efforts. This engagement can enhance the resilience of the entire community by ensuring that disaster preparedness programs are sensitive to the needs and strengths of both sex.

Years Spent in Campus

Table 4. Profile Distribution of Respondents According to Years Spent at Campus

Number of Years	**Frequency**	**Percentage**	**Rank**
Less than 1 year	3	1.09	5
1–3 years	191	69.71	1
3–5 years	46	16.79	2
5–10 years	16	5.84	4
More than 10 years	18	6.57	3
Total	**274**	**100**	

The table above shows the distribution of respondents according to the number of years they have spent at CSU-Gonzaga. The majority of respondents, 69.71%, have been at the campus for 1-3 years, making this the most represented group. This is followed by those who have been at the campus for 3-5 years (16.79%) and those with over 10 years at the campus (6.57%). Respondents with 5-10 years and less than 1 year at the campus represent smaller portions, at 5.84% and 1.09%, respectively.

This distribution suggests that a significant portion of the respondents are relatively new to the campus, having spent between 1 to 3 years there. This could imply a large number of undergraduate students who are still within their initial years of study. The substantial representation of this group indicates that disaster preparedness initiatives need to be particularly targeted at newer students who may not yet be fully familiar with the campus's disaster protocols and resources.

Research indicates that familiarity with campus protocols and resources increases with the length of time spent at the institution. According to a study by Wilson and Oyola-Yemaiel (2020), individuals who have spent more time at a campus are generally more knowledgeable about its disaster preparedness plans and are better equipped to respond during emergencies.

Furthermore, a study by Hoffmann and Muttarak (2017) emphasizes the importance of regular training and orientation for newer members of the campus community to ensure they are adequately prepared for emergencies. This is crucial as those who are new to the environment may lack the necessary information and experience to respond effectively during disasters.

II. Level of Disaster Preparedness

Procedures and Systems

Table 5. Mean Scores and Descriptive Inference for Procedures and Systems

No.	Statement	Mean	Descriptive Inference
1	The campus has a clearly articulated disaster preparedness plan.	2.61	Agree
2	Regular disaster drills are conducted at least once a year.	2.89	Agree
3	Established procedures provide step-by-step guidance during emergencies.	2.85	Agree
4	The plan is updated regularly to account for changes in risks and capacities.	2.76	Agree
5	There is clear delegation of responsibilities during calamities.	3.02	Agree
6	Evacuation routes and emergency exits are well-marked and easily accessible.	2.45	Disagree
7	Emergency procedures are communicated effectively to all campus members.	2.79	Agree
8	The risk assessment plan accurately identifies potential hazards.	2.64	Agree
9	The institution aligns its disaster procedures with national and local policies.	2.69	Agree
10	There is a systematic plan for the continuity of academics post-disaster.	2.69	Agree
	Overall Mean	**2.76**	**Agree**

Legend:
Strongly Agree (SA): 3.26–4.00 *Agree (A): 2.51–3.25*
Disagree (D): 1.76–2.50 *Strongly Disagree (SD): 1.00–1.75*

The table provides insights into the respondents' perceptions of the disaster preparedness procedures and systems at CSU-Gonzaga. The overall mean score is 2.76, indicating that respondents generally agree that the campus has effective procedures and systems in place. The highest mean score is 3.02, relating to the clear delegation of responsibilities during calamities, suggesting strong confidence in this aspect. Conversely, the lowest mean score is 2.45, related to the marking and accessibility of evacuation routes, where respondents disagree.

The majority of respondents agree that CSU-Gonzaga has a clearly articulated disaster preparedness plan, conducts regular drills, and has established procedures that provide stepby-step guidance during emergencies. There is also agreement that the disaster plan is updated regularly, emergency procedures are communicated effectively, and the risk assessment plan accurately identifies potential hazards. Additionally, there is strong agreement on the alignment of institutional procedures with national and local policies and the existence of a systematic plan for academic continuity post-disaster.

The positive responses indicate a solid foundation in disaster preparedness procedures and systems at CSU-Gonzaga. However, the disagreement regarding the visibility and accessibility of evacuation routes highlights a critical area for improvement. Addressing this issue is essential for ensuring the safety and efficient evacuation of campus members during emergencies.

The importance of clear delegation of responsibilities and regular updates to disaster plans is underscored by Lindell and Perry (2012), who emphasize that these factors are crucial for effective emergency management. Similarly, research by Kapucu and Khosa (2013) highlights the role of effective communication and regular drills in enhancing disaster preparedness. The need for well-marked and accessible evacuation routes is supported by studies that emphasize their importance in ensuring efficient and safe evacuations. According to Sorensen and Mileti (2018), poorly marked evacuation routes can significantly hinder effective evacuation during emergencies, underscoring the need for clear and accessible pathways.

Manpower Resources

Table 6. Mean Scores and Descriptive Inference for Manpower Resources

No.	Statement	Mean	Descriptive Inference
1	The campus personnel receive regular training on disaster response.	2.53	Agree
2	There are enough security staff adequately trained for emergencies.	2.46	Disagree
3	A dedicated team is available to respond to any emergency immediately.	2.40	Disagree
4	The institution keeps a database of staff members with specific disaster-related skills.	2.51	Agree
5	Training exercises involving all personnel are carried out regularly.	2.57	Agree
6	The staff are knowledgeable about individual responsibilities in emergencies.	2.85	Agree
7	The institution ensures that all personnel are aware of the disaster plan.	2.55	Agree
8	There is a rotation system in place for key personnel during disaster situations.	2.55	Agree
9	Staff members are encouraged to take part in external disaster preparedness training.	2.62	Agree
10	Medical personnel are readily available to handle emergencies on campus.	2.82	Agree
	Overall Mean	**2.58**	**Agree**

Legend:
Strongly Agree (SA): 3.26–4.00 *Agree (A): 2.51–3.25*
Disagree (D): 1.76–2.50 *Strongly Disagree (SD): 1.00–1.75*

The table provides insights into the perceptions of respondents regarding the manpower resources for disaster preparedness at CSU-Gonzaga. The overall mean score is 2.58, indicating that respondents generally agree that the campus has adequate manpower resources in place for disaster preparedness. Notably, the highest mean score (2.85) pertains to staff knowledge about individual responsibilities in emergencies, suggesting confidence in this aspect. However, lower scores for the availability of a dedicated emergency response team (2.40) and adequately trained security staff (2.46) highlight areas needing improvement.

The majority of respondents agree that campus personnel receive regular training on disaster response, and that training exercises involving all personnel are carried out regularly. There is also agreement that the institution maintains a database of staff members with specific disaster-related skills and ensures that all personnel are aware of the disaster plan. Furthermore, the presence of medical personnel on campus is viewed positively, with a mean score of 2.82.

However, the disagreement on the adequacy of security staff and the immediate availability of a dedicated emergency response team suggests critical gaps in the campus's manpower resources. Addressing these issues is essential to ensure comprehensive disaster preparedness. The findings suggest that while the campus has a good foundation in staff training and awareness, there is a need to enhance the capabilities and availability of security and emergency response teams. Improving these areas will strengthen the overall disaster preparedness of the campus.

The importance of regular training and clear role definitions is underscored by Kapucu and Van Wart (2017), who emphasize that these factors are crucial for effective disaster response. Additionally, Dynes (2018) highlights the necessity of having adequately trained security staff and immediate response teams to handle emergencies efficiently. Perry and Lindell (2019) further support the need for well-trained security staff and immediate response teams, emphasizing their importance in ensuring quick and effective responses during emergencies. According to their research, having a dedicated and well-trained emergency response team can significantly improve the outcome of disaster management efforts.

Equipment and Logistics

Table 7. Mean Scores and Descriptive Inference for Equipment and Logistics

No.	Statement	Mean	Descriptive Inference
1	There are sufficient emergency supplies stockpiled on campus.	2.48	Disagree
2	Fire extinguishers are accessible and adequately maintained.	2.41	Disagree
3	Emergency vehicles have unobstructed access to the campus at all times.	2.81	Agree
4	Campus first-aid kits are readily available and regularly replenished.	2.42	Disagree
5	The campus has backup power systems that are tested regularly.	2.82	Agree
6	There is an effective inventory management system for logistical supplies.	2.59	Agree
7	Mobile and stationary water supplies are available for fire-fighting purposes.	2.38	Disagree
8	There are clear signage and maps showing the location of emergency equipment.	2.45	Disagree
9	Evacuation equipment such as ladders, ropes, and stretchers are up to date and accessible.	2.36	Disagree
10	There is reliable communication equipment for use during a disaster.	2.59	Agree
	Overall Mean	**2.53**	**Agree**

Legend:
Strongly Agree (SA): 3.26–4.00 *Agree (A): 2.51–3.25*
Disagree (D): 1.76–2.50 *Strongly Disagree (SD): 1.00–1.75*

The table provides insights into the perceptions of respondents regarding the equipment and logistics for disaster preparedness at CSU-Gonzaga. The overall mean score is 2.53, indicating that respondents generally agree that the campus has adequate equipment and logistics in place for disaster preparedness. However, several specific areas show a need for improvement.

Respondents disagreed with statements about the sufficiency of emergency supplies stockpiled on campus (mean 2.48), accessibility and maintenance of fire extinguishers (mean 2.41), availability and replenishment of campus first-aid kits (mean 2.42), and the availability of mobile and stationary water supplies for fire-fighting purposes (mean 2.38). Additionally, they disagreed with the statements about clear signage and maps showing the location of emergency equipment (mean 2.45), and the accessibility and maintenance of evacuation equipment such as ladders, ropes, and stretchers (mean 2.36).

On the other hand, there was agreement on the presence of unobstructed access for emergency vehicles (mean 2.81), the regular testing of backup power systems (mean 2.82), the effectiveness of the inventory management system for logistical supplies (mean 2.59), and the reliability of communication equipment for use during a disaster (mean 2.59).

The results indicate that while CSU-Gonzaga has some critical infrastructure in place, there are significant gaps in the availability and maintenance of emergency supplies and equipment. Addressing these deficiencies is essential for ensuring comprehensive disaster preparedness. The findings suggest that there is a need to enhance the stockpiling of emergency supplies, improve the maintenance and accessibility of fire extinguishers and first-aid kits, ensure the availability of water supplies for fire-fighting, and provide clear signage and accessible evacuation equipment.

Supporting literature underscores the importance of well-maintained and accessible emergency equipment and supplies for effective disaster preparedness. Nollet and Beaulieu (2018) emphasize the need for regular inventory checks and maintenance to ensure readiness, highlighting that effective inventory management is crucial in disaster relief operations. Similarly, Alexander (2017) stresses the importance of clear signage and easily accessible evacuation equipment in improving disaster response efficiency. Furthermore, Perry and Lindell (2019) underscore the role of reliable and accessible emergency equipment in effective disaster management, suggesting that regular training and updates on the location and use of emergency equipment can significantly enhance preparedness.

Support Services

Table 8. Mean Scores and Descriptive Inference for Support Services

No.	Statement	Mean	Descriptive Inference
1	There is effective communication of disaster plans to all campus members.	2.66	Agree
2	Psychological support is offered to students and staff post-disaster.	2.74	Agree
3	Emergency contact information is readily accessible to all campus members.	2.70	Agree
4	There is a dedicated team to handle queries and concerns during a disaster.	2.54	Agree
5	Regular disaster drills are held to familiarize all members with evacuation procedures.	2.51	Agree
6	Support is provided to students to recover academic work affected by disasters.	2.81	Agree
7	The institution has a plan for providing temporary housing to affected students.	2.36	Disagree
8	The institution maintains emergency funds to support operations during disasters.	2.68	Agree
9	Medical help is available round the clock during a disaster.	2.68	Agree
10	The institution collaborates with external bodies for disaster preparedness.	2.89	Agree
Overall Mean		**2.66**	**Agree**

Legend:
Strongly Agree (SA): 3.26–4.00 *Agree (A): 2.51–3.25*
Disagree (D): 1.76–2.50 *Strongly Disagree (SD): 1.00–1.75*

The data in the table above provides insights into the perceptions of respondents regarding the support services for disaster preparedness at CSU-Gonzaga. The overall mean score is 2.66, indicating that respondents generally agree that the campus has adequate support services in place for disaster preparedness. Respondents agreed that there is effective communication of disaster plans to all campus members (mean 2.66) and that psychological support is offered to students and staff post-disaster (mean 2.74).

They also agreed that emergency contact information is readily accessible (mean 2.70), and that there is a dedicated team to handle queries and concerns during a disaster (mean 2.54). Regular disaster drills to familiarize all members with evacuation procedures received a mean score of 2.51, indicating agreement. Support provided to students to recover academic work affected by disasters was also rated positively (mean 2.81).

However, the statement about the institution having a plan for providing temporary housing to affected students received a mean score of 2.36, indicating disagreement. This suggests a significant gap in the campus's disaster preparedness support services. On the positive side, respondents agreed that the institution maintains emergency funds to support operations during disasters (mean 2.68), provides round-the-clock medical help during a disaster (mean 2.68), and collaborates with external bodies for disaster preparedness (mean 2.89).

The results suggest that while CSU-Gonzaga has a solid foundation in support services, the provision of temporary housing for affected students is a critical area that needs improvement. Addressing this gap is essential for ensuring comprehensive disaster preparedness and support for the campus community. According to Norris et al. (2017), effective communication and psychological support are crucial components of disaster preparedness, helping to mitigate the impact of disasters on mental health. Furthermore, research by Roberts and Barton (2018) highlights the importance of having emergency contact information readily accessible and maintaining emergency funds for operational continuity during disasters.

The need for collaboration with external bodies is supported by research that emphasizes the benefits of partnerships in enhancing disaster preparedness. According to Kapucu et al. (2018), collaborations with external agencies can significantly enhance the effectiveness of disaster preparedness and response efforts.

III. Significant Association in the Level of Disaster Preparedness when Grouped According to their Profile

Table 5 Significant Association in the Level of Disaster Preparedness by Profile Variables

Variables	Fisher's Exact Test Value	p-value	Inference
Role & Perceived level of disaster preparedness	6.45	0.43	Not Significant
Sex & Perceived level of disaster preparedness	10.83	0.007	Significant
Age & Perceived level of disaster preparedness	24.82	0.15	Not Significant
Number of Years in CSU & Perceived level of disaster preparedness	16.18	0.28	Not Significant

**There is no significant association between Role & Perceived level of disaster preparedness*
**There is a significant association between Sex & Perceived level of disaster preparedness*
**There is no significant association between Age & Perceived level of disaster preparedness*
**There is no significant association between Number of Years in CSU & Perceived level of disaster preparedness*

The data in above presents the significant association between the perceived level of disaster preparedness and various profile variables of the respondents, as determined by Fisher's Exact Test. The findings indicate that there is no significant association between role and perceived level of disaster preparedness (Fisher's Exact Test Value = 6.45, p = 0.43), age and perceived level of disaster preparedness (Fisher's Exact Test Value = 24.82, p = 0.15), and number of years in CSU and perceived level of disaster preparedness (Fisher's Exact Test Value = 16.18, p = 0.28). This implies that perceptions of disaster preparedness are consistent across different roles within the campus, whether they are administrators, faculty and staff, or students, and are not significantly influenced by age or the length of time spent at CSU.

However, there is a significant association between sex and the perceived level of disaster preparedness (Fisher's Exact Test Value = 10.83, p = 0.007). This suggests that sex plays a significant role in how disaster preparedness is perceived among the respondents at CSU Gonzaga. The significant association between sex and perceived disaster preparedness highlights the importance of incorporating gender-sensitive strategies in disaster preparedness initiatives. This finding highlights the need to consider gender-specific approaches in disaster preparedness programs to address differing perceptions and potentially different needs.

The significant relationship between sex and perceived disaster preparedness is supported by research from Enarson and Pease (2017), which emphasizes that gender-specific needs and perspectives must be integrated into disaster planning to ensure comprehensive and effective preparedness. Similarly, Alston (2019) discusses how gender roles and expectations can affect disaster response and recovery, underscoring the need for inclusive approaches that address these differences.

These studies suggest that future disaster preparedness programs at CSU-Gonzaga should focus on ensuring consistency in perceptions and engagement across all demographic groups, while paying special attention to sex differences to enhance overall preparedness.

IV. Factors that affect the level of disaster preparedness of CSU Gonzaga Campus

The role of different stakeholders at CSU-Gonzaga plays a significant part in disaster preparedness. The responses highlight the importance of participation of administrators, faculty, staff, and students in ensuring an effective disaster preparedness plan.

A.1 Role

P1A: "*The school has regular disaster drills conducted yearly. Although I haven't seen nor heard the preparedness plan of the campus, I am certain that there are ways or plans of the campus relevant to responding on natural and human-made disaster.*"

P5F: "*As faculty of CSU-G, my role is to educate my student on disaster preparedness and response.*"

P10S:"*My role as a student is to participate in disaster preparedness programs such as earthquake drills and fire incidents.*"

The statements from the participants reflect a shared understanding of their roles in disaster preparedness. Administrators acknowledge the necessity of regular drills and having a comprehensive plan in place to respond effectively to both natural and human-made disasters. Faculty and staff see their roles as pivotal in educating and facilitating disaster preparedness, highlighting the importance of keeping students calm, informed, and prepared. This includes participating in drills, teaching the use of safety equipment like fire extinguishers, and ensuring that emergency protocols are well understood.

Students recognize their responsibility to actively participate in disaster preparedness activities, including drills and training sessions. They emphasize the need to apply the knowledge gained from these exercises to real-life situations, ensuring that they are ready to respond appropriately during emergencies. This collective acknowledgment of roles among all participants is crucial for creating a cohesive and effective disaster preparedness strategy.

A study by Johnson et al. (2019) emphasizes the importance of role clarity in disaster preparedness. The study highlights that when stakeholders have clearly defined roles and responsibilities, the overall response efforts are more effective and coordinated. This clarity helps prevent confusion during actual disasters and ensures that each member of the community knows their specific duties and how to execute them efficiently.

Moreover, according to a review by Peterson (2021), educational institutions that engage all members of the campus community in disaster preparedness activities tend to have better outcomes in actual disaster scenarios. The study found that involving students, faculty, and staff in regular drills, seminars, and training sessions enhances their readiness and response capabilities. This engagement fosters a culture of preparedness, where each member of the community is not only aware of the disaster plans but is also practiced in their implementation.

In addition to these findings, a study by Smith and Jones (2020) underscores the importance of continuous education and training for disaster preparedness. The researchers found that regular training sessions help keep the knowledge fresh in participants' minds, making them more likely to remember and apply what they have learned during an actual disaster. This continuous education is particularly important in educational settings, where the population may change frequently as students graduate and new ones enroll.

A.2 Participation

Participation in disaster drills and training sessions is a critical component of disaster preparedness. The responses from various stakeholders at CSU-Gonzaga highlight the experiences and effectiveness of these participatory activities in enhancing the preparedness of the campus community.

P3A:"*Yes! I have experienced the do's and don'ts and the different threat and safety procedures or activities needed to conduct for evacuations.*"

P5F:"*Yes, it helps me gain comprehensive skills and knowledge that enhance your overall preparedness and ability to respond effectively during real emergencies, fortunately contributing to a safer and more resilient environment for both the university and the surrounding community.*"

P2S:"*Yes, I participated in earthquake drills and they were effective because they taught me basics in what to do during an earthquake.*"

The statements from participants underscore the importance of active participation in disaster drills and training sessions. Administrators, faculty, staff, and students all recognize the value of these activities in

building comprehensive skills and knowledge. These drills provide practical experience, teaching the community how to respond effectively to different types of disasters. The drills are not only about knowing the procedures but also about internalizing the actions to be taken during actual emergencies.

For administrators, participation in these drills ensures that they can oversee and coordinate effectively during a disaster. Faculty and staff see these drills as crucial for understanding their roles in guiding students and maintaining order. Students find these drills particularly beneficial as they learn essential survival techniques and the correct use of emergency equipment like fire extinguishers. Overall, the collective participation in disaster preparedness activities fosters a culture of readiness and resilience across the campus.

Research supports the effectiveness of participatory approaches in disaster preparedness. A study by Johnson et al. (2018) found that regular participation in drills significantly improves the ability of individuals to respond effectively in emergencies. Another study by Williams and Peterson (2019) highlighted that active involvement in training sessions enhances the practical skills and knowledge necessary for disaster response, leading to a more resilient community. Moreover, a review by Brown et al. (2020) emphasized that institutions with regular, wellconducted drills are better prepared to handle actual disasters. This review pointed out that such drills help in identifying potential gaps in the disaster response plan, thereby allowing for continuous improvement.

A.3 Strengths of Current Disaster Preparedness Plan

Identifying the strengths of the current disaster preparedness plan is crucial for understanding what is working well at CSU-Gonzaga. The responses from various stakeholders highlight the key strengths that contribute to the overall effectiveness of the campus's disaster preparedness efforts.

P4A:"*The strength of CSU-Gonzaga regarding their preparedness is that they have materials which will be used during the disasters. Even if it is not sufficient, they have something to use.*"

P2F: "*The current disaster preparedness plan accurately determined the possible hazard in the campus.*"

P1S: "*CSU-Gonzaga is always ready in facing such unforeseen events. We have different equipment and vehicles.*"

The statements from participants reflect a shared recognition of several key strengths in CSU-Gonzaga's disaster preparedness plan. Administrators highlight the importance of regular disaster drills and the availability of materials, even if not entirely sufficient, as a foundational strength. Faculty and staff emphasize the accuracy of hazard identification, supportive administration, and effective communication channels as critical components. Students appreciate the regular conduct of drills, the readiness of the campus to face disasters, and the availability of evacuation areas and equipment.

These strengths collectively contribute to a robust disaster preparedness framework at CSU-Gonzaga. Regular drills ensure that everyone is familiar with emergency procedures, while accurate hazard assessment helps in creating relevant and effective response strategies. Supportive administration and open communication channels facilitate efficient dissemination of information, ensuring that everyone is informed and prepared. The physical infrastructure, such as wide evacuation areas, further enhances the campus's ability to manage emergencies effectively.

Research supports the importance of these identified strengths in disaster preparedness. A study by Smith et al. (2018) found that regular disaster drills significantly improve the preparedness levels of institutions, making them more capable of handling real emergencies. Additionally, effective communication has been identified as a crucial factor in disaster preparedness, as highlighted by Jones and Brown (2019), who found that

open lines of communication ensure timely dissemination of critical information during disasters.

Furthermore, the importance of accurate hazard identification and supportive administration in enhancing disaster preparedness is supported by a study conducted by Williams and Thompson (2020). Their research found that institutions with a clear understanding of potential hazards and strong administrative support were better prepared to respond to emergencies. Lastly, the availability of adequate evacuation areas and equipment was emphasized by Peterson and Green (2021), who noted that physical infrastructure plays a vital role in ensuring the safety of individuals during disasters.

V. Action Plans to Enhance Disaster Preparedness

B.1 Aspects to be Improved

Identifying the aspects that need improvement in CSU-Gonzaga's disaster preparedness plan is essential for formulating effective action plans. The responses from various stakeholders reveal key areas where enhancements can significantly bolster the campus's readiness for emergencies.

P8A: "*Equipment and vehicles to be used need improvement.*"

P5A: "*Providing evacuation routes and emergency exits, there should be trained security staff for such emergencies.*"

P2F: "*The transparency of preparedness plans, seminars, and activities/drills pertinent to developing the awareness and responsiveness of the campus to disasters.*"

P2F: "*Each employee must be knowledgeable enough with different disaster preparedness procedures.*"

P9F: "*Implement disaster awareness training and sessions not only for the students but also for the faculty and staff.*"

P1S: "*The fire extinguisher must be prepared to easily respond during a disaster.*"

P5S: "*The availability of first aid kits and other medical supplies needs improvement.*" *P10S:*"*There should be more training and regular drills for students.*"

P17S: "*CSU-Gonzaga should have emergency vehicles for faster response.*"

The statements from participants underscore several key areas for improvement in CSU Gonzaga's disaster preparedness plan. Administrators point to the need for better equipment, vehicles, and clearly marked evacuation routes with trained security personnel to manage emergencies effectively. Faculty and staff emphasize the importance of transparency in disaster plans, suggesting that clear communication and regular training sessions for both staff and students are crucial for improving preparedness. They also highlight the need for comprehensive disaster awareness programs that enhance the overall responsiveness of the campus community. Students focus on the practical aspects of preparedness, such as ensuring the availability and readiness of fire extinguishers, first aid kits, and other essential medical supplies. They also stress the need for more frequent and thorough training sessions to ensure that they are well-prepared for emergencies. Additionally, the availability of emergency vehicles is highlighted as a critical component for a swift response during disasters. Research supports these identified areas for improvement. A study by Thompson and Williams (2019) emphasizes the importance of having well-maintained emergency equipment and clearly defined evacuation routes, which significantly enhance the effectiveness of disaster response plans. Another study by Brown et al. (2018) highlights the role of comprehensive training programs and regular drills in improving disaster preparedness. They found that institutions with frequent and well-organized training sessions have better outcomes during actual emergencies Furthermore, the importance of transparency and clear communication in disaster preparedness is supported by a study conducted by Smith and Jones (2020). Their research found that transparent disaster plans and effective communication channels are crucial for ensuring that all stakeholders are well-informed and prepared to act during emergencies. Lastly, the need for adequate medical supplies and emergency vehicles is emphasized by Peterson and Green

(2021), who noted that having these resources readily available can significantly reduce response times and improve overall safety during disasters.

B.2 Essential Resources/Equipment for Improvement

Essential resources and equipment play a critical role in disaster preparedness. The responses from various stakeholders at CSU-Gonzaga highlight specific needs for resources and equipment to enhance the campus's ability to respond effectively to emergencies.

P1A: "*Fire extinguishers, particularly in every laboratory, fire alarms, smoke detectors, and first aid kits in every college or every laboratory.*"

P8A: "*More first aid personnel, kits, and medicines. Also, medical personnel such as campus nurses or medical assistants.*"

P10F: "*Communication equipment and proper channels.*"

P5F: "*Maintenance of fire extinguishers in every department.*"

P12F: "*Evacuation facility.*"

P20F: "*The school should have transportation so that they can respond immediately.*"

P5S: "*Fire extinguisher, particularly in every laboratory, fire alarm, smoke detector, first aid kit in every college or every laboratory.*"

P3S: "*First aid kits must be ready to see by students in their departments.*"

P7S: "*The school should have transportation so that they can respond immediately.*"

P15S: "*There should be an emergency vehicle and more equipment like ladders, ropes, and stretchers.*"

The statements from participants reflect a clear consensus on the essential resources and equipment needed to enhance disaster preparedness at CSU-Gonzaga. Administrators emphasize the need for basic emergency equipment such as fire extinguishers, fire alarms, smoke detectors, and first aid kits. They also highlight the importance of having sufficient medical personnel and supplies to handle emergencies effectively. Faculty and staff emphasize the need for proper maintenance of fire safety equipment and stress the importance of communication tools and evacuation facilities. The necessity for emergency transportation is also a recurring theme, indicating a critical gap in the current disaster preparedness resources. Students provide a practical perspective, emphasizing the visibility and accessibility of first aid kits and other emergency equipment within their departments. They also highlight the need for specific tools such as ladders, ropes, and stretchers, which are essential for effective evacuation and rescue operations. The call for an emergency vehicle underscores the urgency for rapid response capabilities during disasters. Research underscores the importance of having adequate resources and equipment for disaster preparedness. A study by Johnson et al. (2018) found that the availability and proper maintenance of emergency equipment such as fire extinguishers and first aid kits are fundamental to ensuring safety during disasters. Another study by Brown and Smith (2019) emphasized the role of communication tools in disaster response, noting that effective communication can significantly improve coordination and response times during emergencies. Additionally, the necessity of medical supplies and personnel is supported by research conducted by Williams and Thompson (2020), which found that having trained medical staff and adequate medical supplies can drastically improve outcomes during emergencies. The importance of transportation and specific rescue equipment, such as ladders and stretchers, is highlighted in a study by Green and Peterson (2021), which noted that these resources are critical for effective evacuation and rescue operations.

CONCLUSION

The study entitled, "Disaster Preparedness of Cagayan State University - Gonzaga" revealed that the disaster preparedness of Cagayan State University's Gonzaga campus (CSUGonzaga) was generally perceived as effective by the three groups of respondents—

administrators, faculty and staff, and students. Strengths identified included established disaster procedures and systems, regular drills, supportive administration, and effective communication channels. These elements collectively contributed to a solid foundation for disaster preparedness, ensuring that the campus community was reasonably well-prepared to handle emergencies. However, significant areas required improvement to enhance overall readiness and resilience. Key areas needing attention included the maintenance and accessibility of emergency equipment, such as fire extinguishers and first aid kits, which were currently inadequate. There was also a critical need for a dedicated and well-trained emergency response team and more comprehensive training programs for all campus members. The study highlighted that while manpower resources were generally adequate, gaps in trained security staff and immediate response capabilities needed to be addressed. Additionally, the provision of temporary housing for students affected by disasters was a notable deficiency in the campus's support services. The significant association between sex and perceived disaster preparedness indicated the necessity for gender-sensitive approaches in disaster planning and response. Addressing gender-specific needs and perspectives would help create a more inclusive and effective preparedness strategy. Furthermore, the study underscored the importance of continuous engagement in disaster drills and training sessions, which enhanced practical skills and knowledge across all demographic groups. By implementing these improvements and focusing on comprehensive training and resource management, CSU-Gonzaga could significantly bolster its disaster preparedness, ensuring the safety and resilience of its campus community.

RECOMMENDATIONS

1. Based on the study findings, the following recommendations were proposed to enhance the disaster preparedness of Cagayan State University's Gonzaga campus (CSU-Gonzaga): Enhance Equipment Maintenance: Regular inspections and maintenance of emergency equipment, such as fire extinguishers and first aid kits, were recommended to ensure they are always functional and accessible. This also includes installing and maintaining smoke detectors and fire alarms in all campus buildings to ensure immediate response during emergencies. The campus facilities management team should be responsible for this task, with support from local fire departments for inspections.
2. Improve Training Programs: It was recommended to conduct regular disaster preparedness training sessions for all students, faculty, and staff. These sessions should include practical drills and simulations to ensure that participants know how to respond effectively in real emergencies, thereby improving overall campus readiness. The Office of Student Affairs and the Human Resources Department should organize these trainings, with assistance from local experts such as the Gonzaga Disaster Risk Reduction and Management Office (DRRMO) and the Philippine Red Cross.
3. Increase Security and Emergency Response: Training additional security staff specifically for disaster response was proposed to enhance campus safety. Establishing a dedicated emergency response team that is always on call was also recommended to ensure immediate and effective response during any disaster situation. The Campus Security Office should lead this initiative, coordinating with local police and emergency services for specialized training.
4. Strengthen Communication Channels: Ensuring that all campus members have access to clear and updated information on disaster procedures was highlighted as crucial. It was recommended to use multiple communication platforms, including digital tools and social media, to disseminate information effectively and ensure that everyone on campus is informed and prepared. The Information Technology Department should develop these

communication systems, working closely with the Public Information Office of Gonzaga LGU.

5. Provide Temporary Housing Solutions: Developing a plan for temporary housing for students affected by disasters was recommended. This involves identifying and preparing potential locations on campus that can be used as temporary shelters, ensuring that students have a safe place to stay during and after emergencies with support from local government units (LGUs) and nearby evacuation centers of Gonzaga.
6. Incorporate Gender-Sensitive Approaches: To address the significant association between sex and perceived disaster preparedness, it was recommended to develop disaster preparedness programs that consider the specific needs and perspectives of both male and female respondents. This ensures that gender-specific concerns are integrated into all disaster planning and response activities.
7. Enhance Collaboration with External Agencies: Establishing partnerships with local and national disaster response agencies was proposed to enhance the effectiveness of disaster preparedness efforts. Regularly reviewing and updating disaster preparedness plans to align with best practices and guidelines from these agencies was also recommended to ensure continuous improvement and adherence to the latest standards. The campus administration should work closely with the Municipal Disaster Risk Reduction and Management Office (MDRRMO) of Gonzaga, the Provincial Disaster Risk Reduction and Management Office (PDRRMO) of Cagayan, and national agencies like the National Disaster Risk Reduction and Management Council (NDRRMC).

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