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RESEARCH ARTICLE

THE EXTENT OF UNDERSTANDING AND IMPLEMENTATION OF DISASTER RISK MANAGEMENT PROGRAMS OF SAN MARIANO NATIONAL HIGH SCHOOL

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Abstract

This study aimed to determine the extent of understanding and implementing disaster risk management at San Mariano National High School. The Participatory School Disaster Management Toolkit, created by Save the Children as a contribution to the implementation of Comprehensive School Safety Pillar 2—School Disaster Management—was the data source for quantitative research, which employed the descriptive-evaluative method. The San Mariano National High School's understanding and implementation of disaster risk management were examined using the mean and standard deviation. A Likert scale was employed to gauge the level of understanding and implementation. Considering the results, although the faculty and staff of San Mariano National High School do not belong to the disaster risk reduction management council, programs and activities for disaster risk reduction are executed successfully. The results also showed that faculty and staff understand and participate in disaster risk reduction, response, and preparedness. However, many faculty members and staff encountered difficulties putting these programs into practice, so they were advised to develop a more comprehensive disaster risk reduction management plan that would meet the needs of the school, maintain and upgrade DRR programs, add more members to the DRR organization, purchase and identify facilities and equipment for emergencies, and finally regularly review and assess the implementation of disaster risk reduction programs to achieve very well-implemented DRRM programs.

INTRODUCTION

The emphasis on community-based techniques is critical to Disaster Risk Reduction in the Philippines. In the Philippines, Disaster Risk Reduction (DRR) efforts are vital due to the country's susceptibility to various natural hazards, prompting the implementation of comprehensive strategies to minimize risks and enhance resilience (National Disaster Risk Reduction and Management Council, 2010). In collaboration with various non-governmental organizations (NGOs) and community-based organizations (CBOs), the government has aggressively encouraged community engagement and empowerment in disaster planning and response efforts. The Philippines wants to enhance community resilience by involving local communities in assessing risks, planning, and activities for

capacity-building. NDRRMC (2019). In recent years, there has been an increasing acknowledgment of the value of incorporating disaster risk reduction (DRR) education into school curricula to develop resilience in children and youth. Integrating disaster risk reduction in schools improves students' understanding of natural hazards and their consequences. It gives them the knowledge and skills to properly plan for and respond to catastrophes. According to a study conducted by Santos and Rivera (2019) on the knowledge and implementation of disaster risk reduction in schools in the Philippines, persistent efforts are required to mainstream DRR education and ensure its effective implementation across all levels of the education system. This necessitates institutional solid support, curricular alignment, teacher training, and community involvement techniques that prioritize learners' and communities' safety. Per Saputro et al. (2023), natural disasters create circumstances that can cause substantial damage and jeopardize the survival of communities.

The legal foundation for disaster risk reduction (DRR) in schools within the Philippines predominantly stems from Republic Act No. 10121, also known as the "Philippine Disaster Risk Reduction and Management Act of 2010." This law provides the framework for DRR and management in the country, emphasizing the importance of mainstreaming DRR into various sectors, including education. Republic Act No. 10121 Section 15 also stipulates that disaster risk reduction and management principles must be integrated into the curriculum of all educational levels, encompassing both formal and non-formal education. The law stipulates that DRR instruction must be included at all levels of education, focusing on protecting children in schools from the effects of catastrophes. Furthermore, the Department of Education (DepEd) is the government body in charge of the country's educational system. It has established several regulations and guidelines to help schools incorporate disaster risk reduction (DRR). These include DepEd Order No. 48, s. 2012, which establishes implementation criteria for the inclusion of DRR instruction into K-12 curricula. Furthermore, DepEd Order No. 46, s. 2012, formalizes the inclusion of the National Disaster Risk Reduction and Management Plan (NDRRMP) in the primary education curriculum. This directive assures that school based DRR efforts align with the national disaster risk reduction and management framework. The legal requirements and DepEd recommendations serve as the framework for implementing disaster risk reduction in schools across the Philippines, directing educators, school administrators, and policymakers in incorporating DRR ideas and practices into the educational system.

Conducting this study lies in the critical role of education in enhancing disaster resilience and reducing vulnerability among children and youth. "Adaptation of children in disasters depends on the resilience of interconnected systems, including families, schools, communities and policy sectors." Masten, Ann. (2020). As future leaders, decision-makers, and agents of change, students are uniquely positioned to contribute to DRR efforts in their schools, communities, and beyond. By equipping them with the necessary knowledge, skills, and attitudes, DRR education can empower students to take proactive measures to protect themselves and others from the impacts of disasters. However, despite the importance of DRR education, there remains a gap between policy intentions and practical implementation in many schools. For example, in the study of de Leon (2021), he discovered a striking dichotomy within Coron: a mayor relinquishing control while a risk management officer strategized for enduring hazard preparedness. While the Island awaited government directives despite understanding storm patterns, the Central took proactive steps to establish sustainable measures. Moreover, the Island residents were familiar with storm surges without requiring explanation. These observations indicate varying perceptions of risk, even within the same municipality, underscoring the need for

deeper investigation into the significance of local knowledge in comprehending risk and responding to hazard alerts. Therefore, there is a need to explore the factors that influence the effective integration of DRR into the school curriculum and identify strategies for overcoming barriers to implementation.

The study is centered around bolstering disaster risk reduction (DRR) education within San Mariano National High School and advancing resilience efforts across the Philippines. Through comprehensive assessment, it aims to gauge the comprehension and implementation of DRR concepts among educators and administrators while scrutinizing existing practices. It approaches DRR education within the school context. By identifying key challenges and constraints in DRR education implementation and assessing strategies to mitigate them, the study seeks to pave the way for more effective DRR education initiatives. Additionally, it examines the perceived impact of DRR education on students' resilience and disaster preparedness, aiming to provide actionable recommendations to enhance DRR education in schools nationwide. In doing so, the research aims to contribute significantly to the evidence base for adequate school-based DRR understanding and implementation, ultimately strengthening resilience at both local and national levels.

METHODOLOGY

The researcher used a descriptive-evaluative design. Leavy (2019) emphasized that researchers typically begin by describing the characteristics, behaviors, or conditions of a particular population or phenomenon using descriptive research methods. This might involve collecting data through surveys, observations, interviews, or archival research to comprehensively understand the subject under study. The researcher's main objective was to determine the extent of implementing the disaster risk reduction management program of the San Mariano National High School, San Mariano, Isabela SY 2021-2022. It is a type of quantitative research Bhandari, Pritha (2020). Upon collecting data, it may be necessary to undergo processing before analysis. For instance, transforming survey and test data from textual to numerical formats may be required. Subsequently, statistical analysis can be employed to address your research inquiries. According to Bhasin and Hitesh (2019), the data collected from descriptive research is helpful in critical decision-making because the data is obtained from a large population. The respondents are the faculty members and staff of San Mariano National High School, consisting of 97 personnel. The research was conducted at Zone 1, San Mariano, Isabela.

The study is anchored in the framework of Comprehensive School Safety, utilizing survey questionnaires adapted from the Participatory School Disaster Management Toolkit, a resource developed by Save the Children. These questionnaires serve as a vital instrument in assessing the implementation status of the disaster risk reduction management (DRRM) program at San Mariano National High School (SMNHS), aligning with national policies and procedures outlined by the National Disaster Risk Reduction and Management (NDRRM). By employing a template adaptable to various conditions, the study aims to gauge both the institutional readiness of SMNHS and the responsiveness of its faculty and staff to hazards, as outlined in the Hyogo Framework of Action.

Before initiating data collection, a meticulous protocol was followed. Permission was sought from the school's officer in charge, and a professor reviewed the research methodology for refinement. Approval from the Office of the School Principal was obtained before administering the survey instruments. These instruments, designed to elicit responses ranging from "Very Well Implemented" to "Not Implemented," were disseminated among SMNHS

faculty and staff using accessible online platforms like Google Forms. Upon completion, the gathered data underwent rigorous analysis, employing statistical measures such as mean and standard deviation to ascertain the extent of DRRM implementation. Additionally, the questionnaire was structured to allow respondents to identify encountered problems and propose solutions (Pentang, 2023), facilitating a comprehensive understanding of the challenges faced in DRRM implementation at SMNHS.

RESULTS AND DISCUSSION

Disaster Risk Reduction Management activities being implemented by SBDRRM of the San Mariano National High School, San Mariano, Isabela SY 2021-2022.

Successful DRRM activities in schools often involve a combination of proactive planning, community engagement, and education initiatives. Key findings (Table 1) included integrating DRRM into the school curriculum, fostering stakeholder collaboration, and leveraging technology for early warning systems and communication (Johnson et al., 2020). In the academic year 2021-2022, San Mariano National High School in San Mariano, Isabela, demonstrated a commendable commitment to Disaster Risk Reduction Management activities. The school proactively engaged in various aspects of DRRM, including preparing the disaster risk reduction plan, organizing the school disaster risk reduction group or human resources, and implementing DRRM measures. The Disaster Risk Reduction Management Programs of San Mariano National High School achieved an overall mean score of 4.00. This indicates that the school-based Disaster Risk Reduction Management team well implemented the programs. The results affirm that implementing DRRM activities at San Mariano National High School aligns with the guidelines and policies mandated by the Department of Education.

Preparing the disaster risk reduction plan reflects the school's proactive approach to risk management and mitigation, which affirms Nusaibah et al. (2019), who highlighted the importance of proactive approaches to risk management and mitigation in schools, emphasizing the role of education and community engagement in building resilience to disasters. By developing a comprehensive plan, San Mariano National High School can anticipate and respond to potential hazards and emergencies. Furthermore, the study by Garcia (2020) emphasizes the critical role of human resources in implementing effective Disaster Risk Reduction (DRR) strategies within school settings, offering valuable insights into best practices, challenges, and recommendations for enhancing resilience and safety in the face of disaster risks. The organization of the school disaster risk reduction group or human resources underscores the importance of building a dedicated team to spearhead DRRM efforts within the school community. The presence of a committed and knowledgeable team enables the school to effectively coordinate and implement DRRM initiatives, fostering a culture of safety and resilience among students and staff.

Implementing DRRM measures demonstrates San Mariano National High School's commitment to creating a safe and conducive learning environment for its stakeholders. By actively implementing DRRM measures, the school enhances its capacity to mitigate risks, respond to emergencies, and protect the well-being of its students and staff. Overall, the positive findings from the data underscore San Mariano National High School's dedication to DRRM and its proactive approach to disaster preparedness and management. Through continued collaboration, training, and community engagement, the school remains poised to strengthen its DRRM programs further and contribute to the safety and resilience of its community.

Table 1. Disaster Risk Reduction Management activities being implemented by SBDRRM of the San Mariano National High School, San Mariano, Isabela SY 2021-2022

Parameters	Category Mean	Description
A. Preparation of Disaster Reduction Plan	4.07	Well Implemented
B. Organization of the School Disaster Risk Reduction Group	3.84	Well Implemented
C. Implementation of the Disaster Risk Reduction Measures	4.09	Well Implemented
Overall Mean	4.00	Well Implemented

Extent of Understanding of Hazard Risk and Risk Reduction and Participation of the DRRM Activities Implemented by SBDRRM of the San Mariano National High School, San Mariano, Isabela SY 2021-2022

In the academic year 2021-2022, San Mariano National High School in San Mariano, Isabela, embarked on a journey towards enhancing disaster risk reduction and management practices within its premises. The extent of implementation as to understanding and participation of faculty and staff was a focal point of evaluation, shedding light on the school's readiness and commitment to DRRM initiatives (Table 2). Upon analyzing the data, it is evident that the faculty and staff of San Mariano National High School exhibited varying levels of understanding and participation across different aspects of DRRM. The Level of Faculty and Staff Participation in Risk Reduction and Response Preparedness garnered a rating of 2.58, indicating a somewhat reasonable level of involvement in DRRM activities. This suggests that while there is engagement among faculty and staff, there is room for improvement in fostering greater participation and collaboration.

Conversely, the data revealed encouraging findings in other areas of DRRM implementation. The Understanding of Hazard, Risk, and Risk Reduction, Faculty and Staff Level of Understanding of Risk Reduction and Response Preparedness, and Understanding of Standard Procedures for Emergencies and Disasters all received high ratings, with mean scores ranging from 2.61 to 2.65. These results signify a strong comprehension and awareness of DRRM principles and practices among faculty and staff members. It was construed with the study of Smith et al. (2019), “underscores the importance of fostering DRR awareness at various levels of society, including individuals, communities, governments, and non-governmental organizations.” It emphasizes the necessity of DRR awareness as a foundation for effective disaster risk management. It emphasizes the need for multisectoral collaboration, community participation, and capacity-building activities to foster a resilient culture and empower individuals and communities to prepare for and respond to catastrophes successfully.

Overall, the extent of implementation regarding understanding and participation of faculty and staff in DRRM activities at San Mariano National High School was rated as Very Good, with an impressive overall mean score of 2.62. This overwhelming response reflects the dedication and commitment of the school community toward ensuring the safety and well-being of its students and staff members. The data underscores the importance of ongoing training, collaboration, and communication to enhance DRRM practices within the school further. By leveraging the existing strengths and addressing areas for improvement, San Mariano National High School can continue to serve as a model for effective DRRM implementation, fostering a culture of preparedness and resilience among its stakeholders.

Table 2. Extent of Understanding of Hazard Risk and Risk Reduction and Participation of the DRRM Activities Implemented by SBDRRM of the San Mariano National High School, San Mariano, Isabela SY 2021-2022

Areas	Category Mean	Description
Level Of Understanding of Hazard, Risk, and Risk Reduction	2.61	Very good Participation and Understanding
Faculty and Staff Level of Understanding of Risk Reduction and Response Preparedness.	2.65	Very good Participation and Understanding
Level of Faculty and Staff Participation in Risk Reduction and Response Preparedness.	2.58	Some Participated and Understood
Faculty and Staff Participation and Understanding of Standard Procedures for Emergencies and Disasters	2.65	Very good Participation and Understanding
Overall Mean	2.62	Very good Participation and Understanding

Common Problems Encountered During the Implementation of DRRM

The data collected from San Mariano National High School revealed the top 5 common challenges encountered by faculty and staff during the implementation of disaster risk reduction management initiatives (Table 3). The most prevalent issue was the limited space for the evacuation of students and teachers, with a frequency of 75, highlighting the urgent need for adequate infrastructure to ensure the safety of individuals during emergencies. Additionally, the lack of facilities for integrating DRR into subject areas (frequency of 72), insufficient technical knowledge regarding geo-hazards (frequency of 57), and inadequate facilities for storing equipment (frequency of 55) underscored the importance of resource allocation and capacity-building efforts within the school community. Furthermore, the lack of student awareness regarding disasters and training in DRR initiatives (frequency of 47) emphasized the critical role of education and awareness-raising campaigns in fostering a culture of preparedness and resilience among students and staff.

These findings underscore the inherent challenges associated with DRRM implementation in schools and the importance of addressing these issues to achieve meaningful outcomes. While the participation of teachers emerged as the least problematic aspect (frequency of 7), it is crucial to recognize that successful implementation requires addressing multifaceted challenges comprehensively. By acknowledging and understanding the specific barriers the school community faces, stakeholders can develop targeted interventions and strategies to enhance the effectiveness of DRRM programs. Good practices that teachers have carried out have become one of the essential instruments in implementing integrated disaster risk management with the educational process in schools (Pratiwi et al., 2023). Through proactive problem-solving and continuous improvement efforts, San Mariano National High School can overcome obstacles and create a safer, more resilient environment for its students and staff.

Table 3. Common Problems Encountered During the Implementation of DRRM

Problems	Frequency
The area is too small for the evacuation of students and teachers.	75
Lack of facilities to be used to integrate DRR in subject areas.	72
Lack of technical knowledge regarding the Geo-hazards.	57
Lack of school facilities to keep facilities and equipment safe.	55
Lack of awareness of students regarding the disasters and lack of training in DRR initiatives.	47
Non-availability of emergency funds for DRR.	42
Lack of early warning signals in the school.	37
Delay information/warning from the authority to cancel classes.	36
Integration of DRR in school programs and activities.	35
Coordination with the leader in the implementation of DRR.	25
Lack of public and staff education about disaster risks.	23
Participation of students.	21
Lack of faculty and staff awareness regarding the disasters and lack of training in DRR initiatives.	18
No support from the management of the school.	11
Participation of teachers.	7

Suggestions for the Improvement and Development of the Implementation of DRRM in School

Out of 88 respondents surveyed regarding implementing Disaster Risk Reduction and Management in schools, only 17 provided suggestions and solutions (Table 4). According to Chen et al. (2020), the importance of suggestions and solutions in driving organizational innovation and performance. By actively soliciting and implementing employee-generated ideas, organizations can harness the collective intelligence of their workforce, enhance problem-solving capabilities, and cultivate a culture of innovation that sustains long-term success". Despite the limited responses, the insights gathered shed light on critical areas for improvement and development in DRRM practices within the school setting.

Many of the suggestions and solutions offered by the respondents centered around three main themes. Firstly, there was a consensus among respondents that training for faculty and staff is essential for enhancing their knowledge and skills in DRRM. They emphasized the importance of providing comprehensive training programs to equip educators and personnel with the tools and techniques to address disaster risks and emergencies effectively. Secondly, there was a strong recommendation for preparing facilities and equipment within the school premises. Respondents highlighted the need for adequate infrastructure, resources, and supplies to support DRRM efforts, including emergency shelters, first aid kits, communication systems, and evacuation plans.

Lastly, respondents emphasized the importance of human resources with technical knowledge and skills in implementing DRRM in schools. They underscored the need to hire personnel with expertise in disaster management, emergency response, and risk assessment to lead and coordinate DRRM initiatives effectively. Overall, the suggestions and solutions provided by the respondents underscored the critical role of awareness, facilities, equipment, and education in achieving optimal results in DRRM programs. By prioritizing training, preparedness measures, and human resource development, schools can strengthen their capacity to mitigate risks, respond to emergencies, and promote a culture of safety and resilience among students and staff.

Moving forward, schools must prioritize implementing these recommendations and collaborate with relevant stakeholders to ensure the effective integration of DRRM into the educational system. Patel (2021) underscores the need for targeted investments, institutional reforms, and inclusive approaches to enhance resilience and promote sustainable development in disaster-prone regions. Through concerted efforts and strategic investments, schools can enhance their readiness and response capabilities, ultimately safeguarding the well-being of their communities in the face of natural disasters and emergencies.

Table 4. Suggestions for the Improvement and Development of the Implementation of DRRM in School.

Suggestions	Frequency
Technical Knowledge and skills in DRR	1
Facilities to keep equipment safe.	5
Training	11

CONCLUSION

Based on the findings of the study, it was concluded that while most of the faculty and staff at San Mariano National High School in San Mariano, Isabela, are not members of Disaster Risk Reduction Management (DRRM) programs, the school has effectively implemented disaster risk management policies for the academic year 2021-2022. This successful implementation is evident in the thorough preparation, organization, and execution of activities related to disaster risk reduction. Additionally, the study indicates a high level of understanding and active participation among students, faculty, and staff regarding disaster risk reduction, response, and preparedness. However, challenges have been identified in the implementation process, suggesting the need for improvement. Therefore, this research is instrumental in enhancing, revising, and crafting a three-year developmental plan for San Mariano National High School.

Several recommendations emerge from the summary of findings and conclusions to enhance the school-based Disaster Risk Reduction Management (SBDRRM) of San Mariano National High School. Firstly, there is a need to develop a comprehensive Disaster Risk Reduction Management Plan tailored to the school's specific needs to ensure effective implementation of disaster risk management policies. It is also imperative to sustain and enhance the activities related to disaster risk reduction. Furthermore, expanding the membership base within the DRR organization and procuring necessary emergency equipment are essential steps to bolster disaster preparedness. Moreover, it is

recommended that all schools, significantly more prominent institutions, establish disaster risk management initiatives. Lastly, the Department of Education should regularly monitor and evaluate Disaster Risk Management Plans (DRMPs) in public and private schools to ensure adherence to standards and continuous improvement.

In the future, San Mariano National High School should prioritize continuous improvement in its School-Based Disaster Risk Reduction Management (SBDRRM) efforts by implementing regular capacity-building programs for faculty, staff, and students, integrating technology for effective communication and coordination during emergencies, and fostering community engagement through partnerships with local stakeholders and organizations. Furthermore, the school should review and update its Disaster Risk Reduction Management Plan (DRRMP) regularly, incorporate environmental sustainability principles, establish a vital monitoring and evaluation framework, encourage student leadership in DRRM initiatives, and emphasize proactive measures to enhance resilience and ensure the safety and well-being of the entire school community.

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