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THE LEVEL OF DISASTER RISK REDUCTION AND MANAGEMENT (DRRM) PROGRAM IMPLEMENTATION AMONG PUBLIC ELEMENTARY SCHOOLS: BASIS FOR A PROPOSED 'OUR SCHOOL, OUR SAFE ZONE' PROGRAM

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Abstract:
The study aimed to determine the level of Disaster Risk Reduction and Management (RDDM) Program Implementation of the three different districts in Polomolok South Cotabato. A cross-sectional survey was utilized in this study. The respondents were the 40 schools district coordinators of the three districts namely South, West, and East districts of Polomok, South Cotabato. It was found out that the level of Disaster Risk Reduction and Management in Districts 1, 2, and was high in terms of prevention and Migration. In terms of preparedness, the level of implementation of DRRM was high in District 1, moderate in District 3, while low in District 2. In terms of disaster response, the level of implementation of DRRM in Districts 1, 2, and 3 was high. In terms of recovery and rehabilitation, the level of implementation of DRRM was high in Districts 2, 3, while moderate in District 1. A proposed 'Our School, Our Safe Zone' program was crafted to address the gaps of the study.

Keywords: educational management, disaster, management, risk reduction, cross-sectional survey, Philippines

1. Introduction

The world has been continuously exposed to natural and manufactured calamities for centuries. Catastrophes deeply afflict the education sector. With this, educational institutions around the globe have been implementing stringent measures, including developing plans, policies, and designs to counterbalance the effects of natural and unnatural disasters. When underlying vulnerabilities are addressed, resilience can be enhanced. A systematic strategy to incorporate disaster risk analysis and reduction

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measures into education sector development planning is known as disaster risk reduction in education (Bronfman et al., 2019; Jurilla, 2016).

Thereupon, disaster risk mitigation contributes to the education system's long-term resilience. The thread binds humanitarian aid and development programs together, allowing children to realize their right to education. When a natural and manufactured hazard strikes, children are among the most vulnerable population group, especially those attending schools in times of disaster. During a disaster, the school building is destroyed, destroying the precious lives of children and teachers and stalling access to education in the aftermath of disaster (Acuevas, 2016; Goniewic & Burkle, 2019; Gummesson, 2019; Mwangi, 2019).

Along the way, the education sector should organize a well-managed development program on disaster management. Improving school managers' disaster risk reduction management practices in their schools and communities is necessary. The excellent practices of school managers in disaster risk reduction management should be continued and expanded. Also, more intensified training programs should be designed, formulated, and implemented to upgrade the skill and competencies of school managers in managing disaster risk reduction in the school and the community. Finally, other studies should work into other aspects of disaster risk reduction management using variables on a broader scope (Parcon, 2017; Saique, 2018).

Consequently, to safeguard vulnerable populations from natural and manufactured catastrophes, the Philippine educational system continuously strengthens Republic Act (RA) No. 10121, popularly known as the Philippine Disaster Risk Reduction and Management (PDRDM) Act of 2010. This act required all national government entities, including schools, to develop policies, structures, methods, and disaster risk reduction and management programs. The main areas of RA 10121 are disaster prevention and mitigation, preparedness, disaster response and recovery and rehabilitation. Over time, these areas will contribute to DepEd's three key educational outcomes: Access, Quality, and Governance (Florano, 2018; Turpin, 2019).

This study was conducted due to the challenges and complications that arise during disasters to assess the level of disaster risk-reduction management implementation among elementary school administrators in Polomolok as the basis for an intervention program. Furthermore, along with these realities, the researcher was motivated to conduct the study because of the challenges and complications that arise during disasters. This study seeks to fill a gap in the current literature by assessing the level of disaster risk reduction management implementation among schools in Polomolok, which will serve as a foundation for intervention programs.

Moreover, considering that intervention programs vary from one place to another concerning location and types of disasters encountered, there is a need to measure the level of DRRM program implementation in Polomolok schools. Little has been known about the status and level of DRRM program implementation in these schools in four thematic areas. Though there are many existing policies and implementing rules and

regulations of DRRM programs set by the national agency, there may be a gap in its applicability, usability, and effectiveness as status varies across regions, provinces, and municipalities.

2. Research Objectives

This study aimed to determine the level of implementation of Disaster Risk Reduction Management in the Polomolok District.

Specifically, the following objectives were formulated:

1) To determine the level of the implementation of Disaster Risk Reduction Management (DRRM) in terms of:
   1.1. disaster prevention and mitigation;
   1.2. preparedness;
   1.3. disaster response; and
   1.4. recovery and rehabilitation.
2) To formulate an intervention program based on the study's results.

3. Literature Review

This section presents the related literature and studies about disaster risk reduction management that are relevant to the study such as disaster prevention and mitigation, preparedness, disaster response, and recovery and rehabilitation. (Adopted and modified from National Disaster Risk Reduction and Management (NDRRM) Plan and the Hyogo Framework of Action, 2011)

3.1 Disaster Risk Reduction Management

Disasters often follow natural hazards. However, a disaster's severity depends on how much impact a risk has on society and the environment. Our decisions for our environment and our lives will determine the extent of the effect. These decisions affect everything from how we raise our food to where and how we build our homes to the type of government we have to the operation of our financial system and even the curriculum we use in schools. Every decision and action either increase or decrease our resilience to disasters (Munsaka &Dube, 2018; Murti & Mathez-Stiefel, 2019; Saique, 2018).

Additionally, the idea and practice of disaster risk reduction involve systematically identifying and reducing the factors that cause disasters. Disaster risk reduction practices include lowering the vulnerability of people and property, reducing exposure to hazards, managing land and the environment carefully, and enhancing preparedness for unfavorable events. Disciplines like disaster management, mitigation, and preparedness are all included in disaster risk reduction (DRR), but DRR is also a component of sustainable development. Development initiatives must lower the risk of

disaster for them to be sustainable. On the other hand, disaster risk and losses will rise due to poor development policies. DRR affects every aspect of society, the government, and the professional and private sectors (Astulil et al., 2021; Murti & Mathez-Stiefel, 2019; Wu & Guo, 2021).

Prevention and Mitigation. Mitigation means reducing the severity of the human and material damage caused by the disaster. To prevent a disaster or emergency from being caused by either human activity or a natural occurrence, primary prevention entails reducing or eliminating a risk that an event will occur, for example, by preventing overcrowding, deforestation, and the lack of services. In addition, a healthy environment and healthier individuals will make people less susceptible to most risks. As an illustration, immunizing people against smallpox reduced their susceptibility to the virus and gradually helped eradicate the disease (Diaz et al., 2019; Suk et al., 2020).

Moreover, healthier people in a healthy environment will also be more capable of overcoming the emergency. However, as the global climate warms, the occurrence frequency and loss of natural disasters are both increasing, posing a significant threat to the sustainable development of human society. One of the most fundamental approaches to disaster management is to prevent disasters and reduce disaster loss through the fiscal expenditure of the government; however, the optimal proportion of spending for disaster prevention and mitigation has always been a problematic issue that people are concerned about (Cubillas, 2018; Sumbillo & Madrigal, 2020; Wu & Guo, 2021).

A. Preparedness

The phases of emergency management are mitigation, preparedness, response, and recovery. Optimal disaster response requires knowledge and understanding of the US disaster response structure. In a disaster, the local government is the first to start a reaction. It initiates the incident command system, activates the local emergency management plan, sets up an emergency operations center (EOC), and activates mutual aid agreements. Assistance from the state and federal governments may be requested. Hospitals respond using the hospital incident command system (Dariangan et al., 2021; Kusumastuti et al., 2021).

In addition, a great deal of research has been done recently on determining how prepared people are for natural disasters and the factors that encourage the adoption of preparedness measures. Characterizing these measures in the settings where people spend most of their time, like their homes (with their families) and workplaces, is one of the most popular methods for examining natural disaster preparedness levels. These areas reflect the different types of preparedness measures used by the populace and the locations people regard as reliable and current information sources for such measures (Acuevas, 2016; Turpin, 2019).

In order to lessen the effects of the disaster, preparedness measures also include creating plans, stockpiling materials, and conducting drills and exercises. These actions have been transformed into suggestions, checklists, and exercises that organizations offer

to individuals, families, communities, and workplaces to help them prepare for emergencies. In addition, response organizations recommend frequently assessing and evaluating whether these actions have been implemented (Chacko et al., 2019; Faustino et al., 2019; Van der Kroef, 2020).

Furthermore, when describing the population's levels of preparedness, researchers have primarily concentrated on comprehending family preparedness. Family preparedness has been studied and evaluated using various strategies, including planning, mitigating, and surviving. The least frequently adopted family planning measures in the face of natural disasters are those whose significance is widely acknowledged by people. Additionally, it is acknowledged that family preparedness serves as the foundation for all other forms of preparation (Bronfman et al., 2019; Nurdin et al., 2017; Signh, 2016).

On the other hand, even though the search for natural disaster preparedness has mainly concentrated on family preparedness, the study of workplace preparedness is emerging as an appropriate field of study given the role that organizations play in the domestic economy, the lives of the individuals they employ, and even the recovery period following natural disasters. Workplace preparedness, like family preparedness, entails planning activities like talking with employees about the impact and significance of preparing the company for natural hazards, having an emergency plan in place, having alternative energy supplies for the operation of the company following a natural disaster, event's insurance, and having an emergency kit in the company (Etikan et al., 2016; Latupeirisa, 2020; Salita et al., 2020).

B. Disaster Response

The Philippine Disaster Reduction Management Act (RA 10121) defines disaster response as the taking of appropriate measures to respond to an event, including action taken and measures planned in anticipation of, during, and immediately after an event to ensure that its effects are minimized and that persons affected by the event are given immediate relief and support. Response operations aim to save lives, protect property and make an affected area safe. Accordingly, the response is the operationalization and implementation of plans and processes and the organization of activities to respond to an event and its aftermath. Disaster response and disaster recovery are critical components of disaster operations. Disaster operations are defined in section 15 of the Act as activities undertaken before, during, or after an event happens to help reduce loss of human life, illness or injury to humans, property loss or damage, or damage to the environment, including, for example, activities to mitigate the adverse effects of the event. While local governments are primarily responsible for managing events in their area, the early and pre-emptive activation of support and resources from the district and state levels ensures an integrated, active, and effective response to disaster-affected communities (Munsaka & Dube, 2018; Pascapurnama et al., 2018).

Moreover, this is particularly relevant for hazard-specific arrangements and large-scale disasters which may overwhelm local resources. Activation of response arrangements occurs when there is a need to monitor potential hazards or disaster operations, support or coordinate disaster operations being conducted by a designated lead agency, coordinate resources in support of disaster and recovery operations at the local or district level, and coordinate state-wide disaster response and recovery activities (Apronti et al., 2017; Bello, 2020; Ferrer et al., 2021).

Furthermore, the activation does not necessarily mean disaster management groups must be convened but may entail providing information to members of those groups about the risks associated with a pending hazard impact. The decision to activate disaster management arrangements, including the disaster management groups and disaster coordination centers, depends on multiple factors, including the perceived impact on the community. Therefore, response arrangements should be activated under the activation processes detailed in the relevant plan (Delicado et al., 2017; Faustino et al., 2019).

C. Recovery and Rehabilitation

Community recovery from disasters can be a complex and often lengthy process, with different communities recovering at different rates. The recovery element of the comprehensive approach to disaster management – Prevention, Preparedness, Response, and Recovery (PPRR) – can be the most complicated and protracted. The best outcomes are achieved by ensuring recovery strategies align with community needs and are led by the affected community. It requires a collaborative, coordinated, adaptable, and scalable approach where the responsibility for disaster recovery is shared among all sectors of society, including individuals, families, community groups, businesses, and all levels of government (Gummesson, 2019; Parcon, 2017; Sakurai & Sato, 2016).

In addition, a community-led approach supports the rapid restoration of services essential to human well-being. It presents an opportunity to build resilience and improve community circumstances and preparedness beyond their pre-disaster status. Effective recovery requires an integrated, multi-disciplinary approach to needs analysis, consequence management, community engagement, planning, and service delivery. Aspects of recovery are conceptually grouped into five interrelated functions applicable in a hazardous environment: human and social, economic, environment, building, roads, and transport (Kusumastuti et al., 2021; Seddighi et al., 2022).

The functional lead agencies' responsibilities for recovery directly correlate to the relevant agency's core business activities to ensure alignment, appropriate skill sets, and sufficient capabilities. The functional lead agencies are as follows: Human and social – Department of Communities, Disability Services and Seniors, Economic – Department of State Development, Manufacturing, Infrastructure, and Planning, Environment – Department of Environment and Science, Building – Department of Housing and Public

Works, and Roads and Transport – Department of Transport and Main Roads (Phelan et al., 2020; Shah et al., 2020).

Individual recovery functions can either negatively or positively impact the outcomes sought by other recovery functions. Accordingly, each part must undertake recovery activities in the spirit of cooperation, collaboration, and integration, focusing on mutually beneficial outcomes across multiple functions. An early challenge for all recovery functions is facilitating communities' return following any evacuation. 'Return' after an evacuation must be planned in conjunction with recovery plans. Similarly, recovery planning must consider those planning the return of those following evacuations (Murti & Martinez-Stiefel, 2019; Tuladhar et al., 2016; Wu & Guo, 2021).

D. International Studies

Studies reveal that this concern is not isolated to a single part of the world but globally. Correspondingly, the implementation of disaster risk reduction education for children in Indonesia. A novel approach for evaluating the performance of education programs linked to these disciplines was devised based on prior studies. The viewpoints of children, school workers, and non-governmental organizations on the challenges of scaling up disaster risk reduction education in schools were collected in this study. The research uncovered seven major concerns and made several policy recommendations for moving forward. These underlying difficulties may be present in many developing and developed countries, and the offered solutions may likely be relevant outside Indonesia. The findings imply that a new approach and measures are required to increase the implementation and effectiveness of disaster risk reduction education in Indonesia (Acuevas, 2016; Astutil et al., 2021).

Moreover, as far as the most recent disaster risk management is concerned, a review of empirical studies about its implementation focused on communication strategies and planned scholarly studies are also focused on community-based and local district levels. However, there are few studies on program awareness and performance in educational institutions, specifically in public elementary schools. Also, there are no existing studies on the level of disaster risk management implementation during the COVID-19 pandemic, which has become very timely in this time of emergency health crisis (Diaz et al., 2019; Ferrer et al., 2021; Parcon, 2017; Saique, 2018; Sumbillo & Madrigal, 2020; Signh, 2016).

Furthermore, the role of education in disaster risk reduction initiatives has grown in importance over time. They are now considered an essential part of communities in terms of prevention and mitigation. Various studies have found that involving children in the early stages of disaster risk reduction helps to reduce risk and hazards. As a result, disaster risk reduction management in schools must be improved. Meanwhile, various literature and initiatives around the world investigated the DRRM implementation in the educational sectors in some specific settings (Apronti et al., 2017; Delicado, 2017; Ronan et al., 2016).

Likewise, because of its geographical and geological location in the Pacific Ring of Fire and typhoon belt, the Philippines has become a hotspot for natural disasters like earthquakes, volcanic eruptions, landslides, and flooding. As a result, the country is vulnerable to disasters. For example, Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA) states that 20 tropical cyclones (TCs) enter the Philippine Area of Responsibility (PAR) on average each year. Flooding, earthquakes, volcanic eruptions, landslides, fires, and other disasters are all triggered by these TCs. In addition, there are also stated risks of violence, such as armed conflict generated by political movements, culture and tradition-based conflicts, and civilian brutality. Currently, the country is not immune to an epidemic of COVID-19 in the future (Comighud, 2018; Mamhot, 2019; Phelan et al., 2020; van der Kroef, 2020).

On the other hand, educational institutions play an essential role in raising awareness and building engagement for sustainable communities in countries geographically close to natural disasters. As a result, countries prone to frequent earthquakes, such as Japan, and extreme weather changes, such as Poland, have pushed for comprehensive school safety and practical disaster education, such as the Sendai Framework for Disaster Risk Reduction (SFDRR), which emerges education to reduce loss, hazards, and damages in educational resources. A systematic review of publications on disaster risk reduction strategies in education in Middle Eastern countries was also carried out (Sakurai & Sato, 2016; Goniewicz & Burkle, 2019).

The review findings were themed accordingly, with suggestions for improving DRR knowledge for teachers and students, assessing the school's needs, planning and implementing appropriate strategies and curriculum integration, involving other organizations, and anticipating potential challenges and barriers. While schools have been working hard to leverage their disaster risk plans, it was suggested that teaching strategies be improved to increase disaster hazard preparedness among students and other school personnel (Aghei et al., 2018; Phelan et al., 2020).

However, another study investigated Indonesia's disaster risk reduction education challenges. It was revealed that most teachers are confident in children's involvement in disaster response and preparedness (86%). They also firmly believed that children must be taught DRR responses in school (89%) and should be involved in improvising preparedness plans in their respective homes (61%) and schools (61%) (Acuevas, 2016; Saique, 2018).

Furthermore, various schools across the globe have also integrated disaster education into their curriculum. For example, a case study to evaluate the National Strategic Plan for Disaster Risk Management integrated into the school curriculum in Lao PDR. Results showed that 80% of the student respondents answered the fire response test correctly, showing that students were taught how to report the fire to teachers, evacuate from fire incidents, and go to assembly areas. In addition, the implementation of disaster risk reduction management in Central Sulawesi, Indonesia, has improved after the teachers experienced a disaster in Palu which was believed to help them increase their

knowledge in disaster risk reduction and integrated it into their classroom activities (Astutil, Weridana & Wahyono, 2021; Kanyasan et al., 2018).

On the other hand, various studies exploring implementing disaster risk reduction programs have found several challenges that schools experience. For instance, an investigation uncovered multiple factors that humped the implementation in schools. These include unclear provisions in the national legislation, miscommunication and unclear orders, lack of human capital, and stakeholders' partnerships. Consequently, it was found that there needed to be more training teachers, financial resources, and fragmented systems. Moreover, it was more challenging in traditionally conservative areas where teachers' knowledge of the risk of environmental hazards is limited (Kanyasan et al., 2018; Nurdin et al., 2017).

Likewise, In Northern Ghana, a disaster revealed a risk reduction is integrated into the curriculum. However, there is a massive gap in transforming these theories into practice due to a lack of knowledge and professional development for school personnel and insufficient material resources for teaching. Furthermore, in an interview of 18 to 74 years old Nepal residents conducted, it was presented that there needed to be an adequate educational initiative to spread the knowledge in disaster risk reduction preparedness and perception. They also suggested that most local institutions in Pakistan showed unpreparedness in training human resources, financial capital, buildings integrity and equipment, and communication (Shah et al., 2019; Tuladhar et al., 2017).

Moreover, in Kenya, school personnel found not enough equipment for fire disasters, along with preliminary inspections. While these schools tried to strengthen their preparedness, they still had to improve safety plans, evacuation plans and drills, efficient assembly points, and training school personnel. Alongside the discussed literature, aftermaths of disaster occurrence also involve risk to the people. Thus, it should be expected and promptly responded to. These risks involve infectious, water-borne, and air-borne diseases, infrastructural destructions, loss of life, resources, and mental sanity. Consequently, school communities become agents in promoting awareness related to prevention, response, rehabilitation, and recovery (Pascapurnama et al., 2018; Mwangi, 2019).

Meanwhile, transdisciplinary approaches have improved disaster risk reduction management implementation and evaluation. They are integrating science and technology and collaborating with stakeholders to support accurate assessments, analysis, and scientifically based school risk reduction management decisions. Thus, it was suggested to support these approaches. Given the effectiveness of transdisciplinary approaches in disaster risk reduction management, it is crucial to support and promote these approaches. This can be achieved by investing in interdisciplinary research and education programs, creating institutional frameworks to encourage collaboration across disciplines, and providing funding and resources for transdisciplinary projects (Ferrer et al., 2021; Matsuura & Razak, 2019).

On the other hand, the Philippines faces multiple disasters due to its geographical location, and the COVID-19 pandemic has made the situation worse. Disaster risk reduction and management programs are essential in preventing, preparing for, responding to, and recovering from disasters. Empirical studies have evaluated the implementation of these programs, particularly in Philippine schools, which can raise awareness and promote the practice of DRRM. Schools play a critical role in addressing the root causes of vulnerabilities to disasters and are therefore crucial to the success of DRRM programs. (Parcon, 2017; Salita et al., 2020; Sumbillo & Madrigal, 2020).

Moreover, another study aimed to determine the status of the implementation of the DRRM program in the public elementary and secondary schools on the Island of Samar, which is vulnerable to typhoons. The Island of Samar's public schools were discovered to be vulnerable to tropical storms, flash floods, and cyclones. Insufficient funding from DepEd for DRRM implementation in schools, limited financial support from stakeholders, equipment, and facilities of the school for DRRM implementation, and a lack of modern technology needed for implementation are among the issues faced by the respondents (Comighud, 2018; Faustino et al., 2019).

Additionally, the study's findings served as the foundation for the intervention program, the DRRM Program Enhancement Strategies/Plan, which is intended to shift the focus from reactive to proactive DRRM by raising awareness and understanding of DRRM among school administrators, teachers, students, and other internal and external stakeholders, to boost school resilience and reduce vulnerabilities. A similar study examined the effectiveness of Iloilo Province's preparedness for disaster risk reduction in 10 chosen municipalities (Bello, 2020; Manhot, 2019; Signh, 2016).

In addition, disaster-prone elementary school disaster risk reduction and management program components are being implemented. However, the study found that the respondent schools had several performance issues, including a poor serving entrance for schoolchildren and a lack of training among school disaster risk reduction and management program administrators. In addition, a study conducted in the central Philippines, inhabited by 2.4 million people, used the state-designed Local Government Unit Disaster Preparedness Journal: Checklist of Minimum Actions for Mayors in assessing the readiness for natural hazards of 92 profiled municipalities (Munsaka & Dube, 2018; Murti & Mathez-Stiefel, 2019; Saique, 2018).

Moreover, it assessed their readiness in four areas, based on the Hyogo Framework for Action 2005-2015: systems and structures, policies and plans, building competencies, and equipment and supplies. Local governments were found to be partially prepared regardless of profile, but coastal, middle-income, most populated, with the fewest villages, and middle-sized had higher levels of preparedness. Those who were highly vulnerable to earthquakes and forest fires were only partially prepared for a flood, storm surge, drought, tropical cyclone, tornado, tsunami, and landslide (Cubillas, 2018; Dariagan et al., 2021; Diaz et al., 2019).

Furthermore, the school teachers' disaster preparedness uses the extended parallel process model in Los Angeles City, Philippines. A total of 45 school teachers from Angeles City, Philippines, answered a structured survey questionnaire to assess their current disaster preparedness and whether their attitude, intentions, behavior, perceived efficacy, perceived threat, and fear constitute a danger control or fear control response. A high percentage of the respondents exhibited danger-control responses, although fear-control responses were also observed. Perceptions of fear were most heightened for terrorist attacks and lowest for floods. Overall, through the EPPM-based questionnaire, there is evidence that teachers show positive attitudes and intentions towards disaster preparedness but lack sufficient motivation to exhibit excellent disaster preparedness behavior due to the low perceived threat (Delicado et al., 2017; Delorino, 2019; Salita et al., 2020).

Lastly, an investigation into the awareness of disaster preparedness was conducted. Surveying the residents of Mimbalot, Buru-un, Iligan City, stakeholders, the community, and the school focal people were also involved in this project. Data collection and analysis revealed that respondents are at risk from trees and that more than half lack emergency exits, kits, and hotlines. As a result, the respondents received brochures and leaflets to inform and educate them on the significance of being ready for emergencies, as well as to include them in meetings on disaster risk management in the school and earthquake and fire drills (Maminta, 2019; Signh, 2016; Towers et al., 2017).

Based on the review of related literature and studies conducted in the local setting, only a few studies have investigated the extent of DRRM program implementation in the Philippines, specifically in the said locale of the study. Thus, an assessment of the performance of the DRRM program in selected public primary education schools in the municipality of Polomolok should be sought.

Disasters frequently follow natural disasters. The severity of a disaster is determined by how big of an impact a hazard has on society and the environment. The magnitude of the influence is determined by the decisions we commit in our personal lives and the environment. These decisions affect how we grow food, where and how we build our homes, the type of government we have, our financial system, and even what we teach in schools. Every decision and action make us more exposed - or more robust - to calamities.

Furthermore, disaster risk reduction is the concept and practice of lowering disaster risks by systematically analyzing and reducing disaster-cause elements. Reduced exposure to risks, lessened vulnerability of people and property, intelligent land and environmental management, and improved catastrophe preparedness are all examples of disaster risk reduction. Disaster risk reduction encompasses disciplines such as disaster management, mitigation, and preparedness, but it is also a component of long-term development. Development efforts must also lower disaster risk to be sustainable. On the other hand, unsound growth policies will increase catastrophe risk - and disaster

losses. As a result, DRR affects every aspect of society, government, and the professional and private sectors.

They implemented disaster risk reduction and management program components in disaster-prone primary schools. However, according to the findings, the respondent schools had many issues with their performance, including a poor serving entry for schoolchildren and a lack of training among school disaster risk reduction and management program administrators. In addition, a study employed the state-designed Local Government Unit Disaster Preparedness Journal: Checklist of Minimum Actions for Mayors to assess the natural disaster readiness of 92 municipalities in the central Philippines, which are home to 2.4 million people. It set its preparedness in four areas: systems and structures, policies and plans, building competencies, and equipment and supplies.

4. Theoretical Framework

The study was anchored on Protection Motivation Theory by Maddux & Rogers (1983), that stakeholders' motivations or intentions to protect themselves from harm are enhanced by four critical cognitions or perceptions regarding the severity of the risks, the personal vulnerability to the dangers, self-efficacy at performing the risk-reducing behavior, and the response efficacy of the risk-reduction behavior. It also posits that the perceived costs of risk-reducing behaviors and the perceived benefits of alternative risk-enhancing behaviors weaken people's intentions to protect themselves. PMT is organized as two mediating subprocesses that consumers use to evaluate threats a s to threat-appraisal process and select coping alternatives as to coping appraisal. Assessments of threats as to severity, vulnerability, and benefits and coping factors as to self-efficacy, response efficacy, and costs combine to motivate stakeholders to protect themselves from the risk. Protection motivation arouses, sustains, and directs activities, starting with identifying a natural hazard, such as a wildfire in the WUI.

The second was Protective Action Decision Model (PADM) by Mwangi (2019). It is a multistage model based on data from studies on how people react to natural disasters and hazards. The PADM combines the analysis of data derived from social and ecological cues with messages that social sources convey to those at risk via communication channels. The PADM identifies three crucial precision processes before all other processing: receiving, paying attention to, and comprehending warnings or exposure; concentrating; and interpreting environmental/social cues.

The revised model identifies three core perceptions--threat perceptions, protective action perceptions, and stakeholder perceptions--that form the basis for decisions about responding to an imminent or long-term threat. This article describes three applications, the revised model, and the research it is based on (development of risk communication programs, evacuation modeling, and adoption of long-term hazard adjustments). Finally, it identifies some of the research needed to address unresolved issues.

Lastly, this study was anchored on the Person-Relative-to-Event Theory by Mulilis and Duval (1998). The generalizability of the Person-Relative-to-Event (PrE) theory, applied initially to disaster-related situations, is investigated in a non-disaster simulation. The PrE approach of coping with threats emphasizes the relationship between the level of appraised threat relative to personal resources and personal responsibility. This theory has previously been used to investigate the impact of harmful threat appeals on preparedness behavior regarding earthquakes and tornadoes. PrE theory predicts differences in coping behavior based on the threat level under various conditions of personal responsibility.

5. Conceptual Framework

Figure 1 presents the conceptual framework of the study. The first box presents the level of implementation of Disaster Risk Reduction Management (DRRM) in terms of disaster prevention and mitigation, preparedness, disaster response, and recovery and rehabilitation, while the second box presents the intervention program crafted based on the study's results.

The Philippine educational system continuously strengthens Republic Act (RA) No. 10121, popularly known as the Philippine Disaster Risk Reduction and Management (PDRDM) Act of 2010. This act required all national government entities, including schools, to develop policies, structures, methods, and disaster risk reduction and management programs. The main areas of RA 10121 are disaster prevention and mitigation, preparedness, disaster response, recovery and rehabilitation. Over time, these areas will contribute to DepEd's three key educational outcomes: Access, Quality, and Governance (Republic Act No. 10121, 2010).

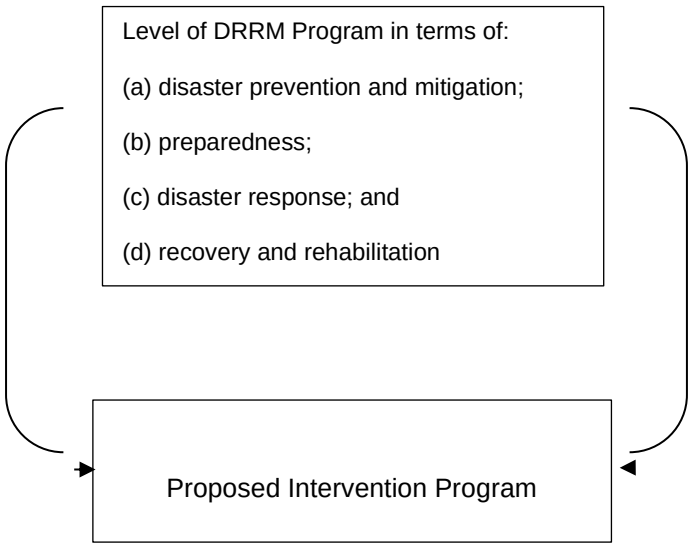

Figure 1: The Conceptual Framework of the Study

6. Significance of the Study

From the educational perspective, a safe and conducive learning environment is essential to achieving the school's vision, mission, goals, and objectives. With these, educational institutions in the Philippines are under Disaster Risk Reduction and Management (DRRM).

This study will be globally beneficial by increasing the resilience of people, communities, societies, and systems to resist, absorb, accommodate, and recover from and improve well-being in the face of multiple hazards. To cater to their constituents' needs, the school administrators plan to develop and enhance programs regarding disaster risk reduction management that may lead to realizing long-term goals and attaining DepEd's three primary education outcomes, namely: Access, Quality, and Governance. In addition, this study will help the teachers feel safe for their learners and themselves to facilitate learning at their optimum potential without feeling any threat or danger.

The parents and learners benefit from implementing disaster risk reduction and management to feel secure and safe in the learning environment. For other researchers, this research may strengthen further studies about disaster risk reduction and management implementation. Hence, this study could also give additional helpful information to other researchers to reinforce the present research. Moreover, the researcher can use this in the field of education shortly, especially in implementing disaster risk reduction and management, wherever her profession may bring her.

7. Definition of Terms

For certainty and a better understanding of the study, the following terms are conceptually and operationally defined:

- **DRRM.** In general, it serves as a national roadmap for building adaptive, safer, and more resilient Filipino communities to achieve long-term sustainable development (Kanyasan et al., 2018). In terms of operation, it refers to a catastrophe risk reduction program adopted among public schools in Polomolok.
- **DRRM Program Implementation.** As used in this study, it refers to refers to the practical application of policies, strategies, and activities aimed at reducing the negative impacts of disasters on individuals, communities, and the environment in terms of disaster prevention and mitigation, preparedness, disaster response, and recovery and rehabilitation.
- **Intervention Program.** As used in this study, it refers to the 'Our School Our Safe Zone' program which was crafted based on the investigation results.
- Prevention and Mitigation. Conceptually, it refers to avoiding hazards by coping with their impacts (Signh, 2016). Operationally, it refers to the extent of disaster prevention and mitigation implementation among selected public schools.

- **Preparedness.** Conceptually, it establishes and strengthens awareness of any threat, hazard, or vulnerability (Parcon, 2017). This study refers to the extent of disaster preparedness implementation among selected public schools.
- **Response.** Conceptually, it refers to providing for the current needs of the affected communities (Sumbillo & Madrigal, 2020). Operationally, it refers to the extent of disaster response implementation among selected public schools.
- **Rehabilitation and Recovery.** Conceptually, they refer to restoring and improving the affected communities (Delorino, 2019). This study relates to the extent of disaster rehabilitation and recovery implementation among selected public schools.
- **Public schools.** Conceptually, it refers to all academic-type schools except college institutions established by the department by law (Higgins & Abowitz, 2011). This study relates explicitly to select elementary public schools in Polomolok, South Cotabato.

8. Method

This chapter introduces the methods of analysis for the study. It includes the research design, research locale of the study, survey respondents, sampling technique, data gathering procedure, data analysis, statistical treatment to analyze the data gathered, and ethical considerations.

8.1 Research Design

Quantitative research design is a variety of techniques for the systematic investigation of social phenomena using statistical or numerical data. As a result, quantitative research relies on measurement and makes the assumption that the phenomena being studied can be quantified. It aims to examine data for patterns and connections as well as to validate the measurements (Watson, 2017).

Further, the goal of quantitative research design is to collect numerical data and generalize it to different populations. In this design, all aspects are meticulously and precisely planned before data collection, and the researcher has a clearly defined research question to which objective answers are sought. Statistics and numbers are examples of data. The project can be used to investigate causal relationships, predict future outcomes, or more broadly generalize concepts (Sibanda, 2019).

Closed-ended questions are frequently preferred in quantitative research. The majority of the time, respondents won't be able to offer detailed, open-ended responses unless you provide them with a predetermined list of options. With the help of this design, the quantitative research process will be much more successful than it would be with the use of qualitative open-ended questions. It is more efficient because it does away with the need to spend a lot of time coding a lot of open-ended responses. However, the quantitative research design frequently allows for the inclusion of another category when

it is appropriate in the list of potential responses to questions. As a result, even if a respondent doesn't directly fit into one of the major categories, their precise response can still be recorded and used to examine the research findings (Rahman, 2020).

On the other hand, a cross-sectional research study design was employed in this study. This study design involves looking at data from a population at one specific point in time. Since a cross-sectional study is a descriptive research and not causal or relational, it is an observational type of study that cannot be used to identify the cause of a problem, such as a disease. As a result, while this research can describe community characteristics, it cannot establish causal links between various variables. This technique is frequently used to draw conclusions about potential connections or to collect initial data to support future study and experimentation. It is deemed appropriate for the study because it aims to describe how far the Disaster Risk Reduction and Management programs of the chosen schools in the Municipality of Polomolok have been implemented. Consequently, the respondents' data were complemented to confirm and support the findings (Astutil et al., 2021; Cherry, 2019; Connelly, 2016).

8.2 Research Locale

This study was conducted in the public elementary schools in the South, West, and East, Districts of Polomolok, South Cotabato. The research locale considered the vulnerabilities of schools to natural calamities such as flooding and earthquakes and the unprecedented occurrence of COVID-19. Aside from the reason mentioned above, the selected schools are conveniently set due to restrictions of the present pandemic.

These schools include Eugenio Llido Ranada ES, Eustacio Barcatan ES, Polomolok Central ES, Pagalungan ES, Palakasam IS, Tadyaw Ogan MES, Dole Cannery CES, Lamcaliaf ES, Perfecto B. Salada ES, Guaza ES, Kalyong IS, Kawit ES, Lamcuah ES, Maligo ES, Polo IS, Landan ES, Juan Bayan ES, Polomolok Creek IS, Silway-8 ES, Viray-Lising ES, Bentung ES- Main, Bentung ES-Annex, Koronadal Proper ES, Lumakil IS, Sulit ES, Sumbakil ES, Pablo Valencia NHS.

Moreover, the school is known for its School-Based Management (SBM) practices, Brigada Eskwela, Summer Reading, and Gulayan sa Paaralan for its land is suitable for planting crops and agriculture. The schools involved in this study adhere to comprehensive disaster risk reduction management in the basic education framework of the Department of Education. This framework aims to safeguard investments in the education sector, safeguard students from death, injury, and damage in schools, plan for educational continuity in the face of anticipated hazards, and enhance risk reduction and resilience through education.

Figure 2: The Philippine Map and the Locale of the Study

8.3 Population and Sample

The respondents of this study involved 40 school district coordinators of the three districts, namely in South, West, and East, Districts of Polomolok, South Cotabato, accessible respondents who are coordinators of their respective school's disaster risk reduction management identified through purposive sampling. Etikan et al. (2016) opined that this method involves selecting respondents with specific qualifications and characteristics needed to serve the purpose of the study. Since this study required insights from the school personnel who were directly immersed in their DRRM implementation, purposive sampling was appropriate for its context. Moreover, the respondents were chosen based on the inclusion criteria set by the researcher: male or female regardless of their age and religion who have been serving the Department of Education for not less than 5 years.

This study made use of the total enumeration. Therefore, it would mean that the researcher considered 100% of the population.

The inclusion criteria for this study encompassed Principals, Disastrer Risk Reduction and Management (DRRM) Coordinators in public elementary schools within Division of Polomolok Municipalities. The respondents were required to have experience in coordination in Disaster Risk Reduction Management (DRRM). Moreover, they needed to be actively engaged in teaching during the data collection period, ensuring that their teaching performance could be accurately assessed. By including these specific criteria, the study aimed to focus on a targeted group of Principals and Disaster Risk Reduction Program (DRRM) Coordinators who possessed the necessary experience and expertise to provide disaster prevention and mitigation, preparedness, disaster response, and recovery and rehabilitation.

Exclusion Criteria were applied to ensure the study's focus remained on Principals and Disaster Risk Reduction and Management (DRRM) Coordinators directly involved

in classroom instruction. Principals and Disaster Risk Reduction Management (DRRM) Coordinators who primarily served administrative roles on long-term leave during the data collection period were excluded. Additionally, Principals and DRRM Coordinators who were not actively involved in excluded from the study. These exclusion criteria were Implemented to maintain the study targeted group of Principals and Disaster Risk Reduction Program (DRRM) Coordinators who possessed the necessary experience and expertise to provide disaster prevention and mitigation, preparedness, disaster response, and recovery and rehabilitation.

Withdrawal criteria were established to accommodate unforeseen circumstances or changes in respondents' availability or willingness to continue their involvement in the study. Respondents were informed of their right to withdraw at any stage without facing consequences or penalties. Moreover, if Principals and Disaster Risk Reduction Management (DRRM) coordinators experienced significant personal or professional challenges that could potentially impact their participation or data quality, they were encouraged to communicate their concerns and withdraw if necessary. The withdrawal criteria aimed to prioritize the well-being and voluntary participation of the respondent, ensuring ethical considerations were upheld throughout the research process.

8.4 Research Instrument

The instrument of the study was adopted and modified from the National Disaster Risk Reduction and Management (NDRRM) Plan and the Hyogo Framework of Action of Wanner (2021). It comprised ten indicators divided into four categories: disaster prevention and mitigation, preparedness, disaster response, and recovery and rehabilitation. Experts, including graduate academics, school administrators, and DRRM personnel in the area, also validated the information. Finally, a pilot test was conducted to ensure the reliability of the questionnaire.

Table 1: Description and Verbal Interpretation

Scale	Interval	Interpretation
5	4.50-5.00	Very highly Implemented
4	3.50-4.49	Highly Implemented
3	2.50-3.49	Moderate Implemented
2	1.50-2.49	Implemented low
1	1.00-1.49	Implemented very low

Table 2: Cronbach's Alpha Internal Consistency

Cronbach's Alpha	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

It administered the retest method of the instrument to 27 different schools in South, West, and East districts of Polomolok, South Cotabato namely: Eugenio Llido Ranada ES, Eustacio Barcatan ES, Polomolok Central ES, Pagalungan ES, Palakasam IS, Tadyaw Ogan MES, Dole Cannery CES, Lamcaliaf ES, Perfecto B. Salada ES, Guaza ES, Kalyong IS, Kawit ES, Lamcuah ES, Maligo ES, Polo IS, Landan ES, Juan Bayan ES, Polomolok Creek IS, Silway-8 ES, Viray-Lising ES, Bentung ES- Main, Bentung ES-Annex, Koronadal Proper ES, Lumakil IS, Sulit ES, Sumbakil ES, and Pablo Valencia NHS.

Table 3: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
.901	.8901	40

The results showed that Cronbach's alpha was excellent for internal consistency: α =.901. The researcher can trust that all survey questions reliably assess the level of DRRM program implementation.

8.5 Data Collection

This study was conducted by initially asking permission from the Ethics and Review Committee and the Graduate School of Ramon Magsaysay Memorial Colleges. After granting the permission, permission to conduct the study was secured from the office of the Schools Division Superintendent, Schools Division Office of the Division of South Cotabato. The researcher prepared for reproduction according to the number of target respondents. The researcher explained the goal of the research and the process of gathering the data. It will be made clear that their participation is optional. Furthermore, they were informed of the confidentiality of their identities once they participated. After obtaining their consent, a link to the electronic survey was sent to their respective emails. The study respondents accessed and answered the survey, and their responses were automatically recorded. Finally, the researcher generated the data, which were further analyzed and discussed.

8.6 Statistical Tools

The researcher employed descriptive statistics to interpret the gathered data. Mean was used to determine the level of implementation of Disaster Risk Reduction Management (DRRM) in Polomolok, South Cotabato.

8.7 Ethical Consideration

There is a fundamental ethical issue that has particular ramifications for this quantitative study. The study adhered to the ethical requirements set forth by the RMMC Ethics and Review Committee regarding the population and data involved.

Voluntary Participation. The participants were granted the option to participate without any plan of repercussion, reparations, or loss of benefits. The study ensured that

respondent understood the purpose and benefits of the research before their consent was obtained.

Privacy and confidentiality. Respondents have the right to privacy that should not be violated without informed consent to conform to the existing Data Privacy Act 2012, an act protecting the fundamental human right of privacy. One way of observing privacy and confidentiality in this quantitative research is to give options to the respondents for not indicating their names on the survey questionnaire.

Recruitment. The respondents were informed of why they had become part of the study. Then, for the respondents to understand what the study was all about, the researcher explained the purpose of the survey so that they could further infer from the researcher and also view the study's essence. Apart from the letter, the researcher gave the rationale of the research and its significance.

Risks. Research shall be conducted if there is an acceptable positive benefit-risk ratio. In this study, the need to protect the respondent from significant harm is equally essential. The study must be conducted with an acceptable positive benefit-risk ratio while prioritizing the welfare of participants and protecting them from harm. In this study, participant identity was kept confidential, and their safety and security were a top concern. Additionally, the researcher made sure that participants were physically, emotionally, and socially ready and did not feel discomfort or awkwardness while answering the survey questionnaire.

Benefits. By strengthening people, communities, society, and systems' capacity to withstand absorb, accommodate, and recover from multiple hazards and improve well-being, this study will be of global benefit. To cater to their constituents' needs, the school administrators plan to develop and enhance programs regarding disaster risk reduction management that may lead to realizing long-term goals and attaining DepEd's three primary education outcomes, namely: Access, Quality, and Governance. In addition, this study will help the teachers feel safe for their learners and themselves to facilitate learning at their optimum potential without feeling any threat or danger. Further, the parents and learners benefit from implementing disaster risk reduction and management to feel secure and safe in the learning environment. For other researchers, this research may strengthen further studies about disaster risk reduction and management implementation. Hence, this study could also give additional helpful information to other researchers to reinforce the present research. Furthermore, the researcher can use this in the field of education shortly, especially in implementing disaster risk reduction and management.

Plagiarism. The study had no trace or evidence of misinterpretation of someone else's work. The study was subjected to plagiarism detectors like Grammarly. As a researcher, there is a need to have that positive character and integrity, which are associated with moral virtues and values. In addition, the researcher must have better knowledge about the paradigm of plagiarism to have a credible research paper.

Fabrication. The study had no indication or cue of purposive misinterpretation of what had been done. There was no making up of data and results or purposefully putting forward conclusions that were not accurate. Instead, the researcher employed and integrated theories related to the information and other inferential concepts.

Falsification. The study had no trace of purposefully misrepresenting for theoretical expectation and had no evidence of overclaiming or exaggeration. However, this study needed to manage the data, which involved formulating statements or disregarding important details, maneuvering materials, tools, or methodologies that would mislead others.

Conflict of Interest (COI). The study was free of any indications of a conflict of interest, such as the disclosure of COI, which is a set of circumstances in which a professional's judgment regarding a primary interest, like the welfare of the respondent or the reliability of the research, tends to be impacted by a secondary interest, like monetary or academic gains or recognitions. Furthermore, the researcher had no control or influence over the respondents, forcing them to be part of the study.

Deceit. The study had no trace of misleading the respondents about any possible danger. There must be humongous protection for the rights of the participants in any investigation, especially since they have attained higher education, so balanced and appropriate principles shall have been adhered to. Permission from Organization/Location. The researcher of this study followed protocols. Upon receiving the signal from the panelists, the adviser, and the committee of the RMMCERC, the researcher sought approval from the school's division superintendents for the conduct of the study through a formal letter. After this, the researcher made a formal letter addressed to the district supervisor, school principal of the schools involved in the study, attaching the school's endorsed letter from the school's division superintendent.

Authorship. The researcher of the study is currently enrolled in the RMMC Graduate School. She had undergone a series of revisions for her thesis based on the suggestions and recommendations made by her adviser, who had guided the researcher throughout the completion of this paper. The refinement of the report was made possible through the guidance of her researcher. The researcher also followed the standards of the RMMC Ethics Review Committee for the guidelines of ethical consideration.

9. Results and Discussions

9.1 Level of Disaster Prevention and Mitigation

Table 2 shows the level of disaster risk-reduction management implementation in terms of prevention and mitigation. Three schools were evaluated. District 1 got the highest mean score of 4.10, followed by District 3 with 4.06, while District 2 got the lowest of 4.02. The result implies that the district highly implemented hazard assessment, monitoring, and evaluation of infrastructure compliance with environmental ordinances or policies.

The data further revealed that the public elementary schools in the Districts of Polomolok, South Cotabato, regularly conducted a risk assessment and vulnerability analysis, integrated and mainstream Disaster Risk Reduction Climate Change Adaption; allocated funds for prevention & mitigation measures must provide advanced tools on risk assessment and risk transfer mechanism of the school. Therefore, schools are potent venues to increase awareness and stimulate the practice of DRRM by addressing the root causes of the vulnerabilities to disasters, thus playing a pivotal role in the success of DRRM program (Ferrer et al., 2021).

Table 2: Level of Disaster Prevention and Mitigation

Indicators	District 1		District 2		District 3	
	Mean	Description	Mean	Description	Mean	Description
1. Conduct of hazard assessment;	4.56	Very High	4.5	Very High	3.58	High
2. Conduct risk assessment and vulnerability analysis:	4	High	3.58	High	4.48	High
3. Involvement of the community during risk assessment vulnerability analysis;	3.5	High	3.49	High	4	High
4. Development of maps;	4.25	High	3.58	High	3.5	High
5. Integration and mainstreaming of Disaster Risk	4.38	High	3.53	High	4.5	High
6. Allocation of funds for prevention & mitigation measures;	4.4	High	4.32	High	3.5	High
7. Develop tools for risk assessment;	4.2	High	3.55	High	3.59	High
8. Risk Transfer Mechanism:	3.58	High	3.58	High	4.5	Very High
9. Compliant with the environmental ordinances/ policies;	3.59	High	4.5	Very High	4.53	Very High
10 Monitor and evaluate infrastructure resiliency	4.5	Very High	4.56	Very High	4.39	High
Overall Mean	**4.10**	**High**	**4.02**	**High**	**4.06**	**High**

9.2 Level of Preparedness

As shown in Table 3, the level of disaster risk-reduction management implementation in terms of preparedness gathered a high mean of 3.95 for District 1. In contrast, district 2 got 2.02, followed by District 3 with 2.76. The results indicated that among the three districts, district 1 got higher implementation in conducting a regular review of contingency plans and DRMM plans, which means that the school employed measures taken to prepare for and reduce the effects of disasters.

However, the two districts and District 3 imply that they need to develop more DRRM plans, Standard Operation Procedures for deployment and coordination with the rapid assessment team, search, rescue, retrieval, evacuation, etc. Information,

Management, System, and simulation exercises on various levels to test plans and skills, provide SAR (Search and Rescue) and Medical equipment, and conduct training on disaster preparedness and response, search, rescue, and retrieval operations. These programs are supported with a higher budget and needed to be attained by the schools. So, the involvement of the Local Government Unit (LGU), Non-Government Organizations (NGOs), and community donors is needed. Awareness on disaster preparedness people, must be educated on the importance of being prepared during emergencies and involve them in earthquake and fire drills and meetings on disaster risk management in the school.

Table 3: Level of Preparedness

Indicators	District 1		District 2		District 3	
	Mean	Description	Mean	Description	Mean	Description
1. Existing structure on DRMM;	4.1	High	2.43	Low	2.46	Low
2. Conduct of the DRMM regular Meeting	3.5	High	2.3	Low	2.49	Low
3. Develop DRMM Plans	4.31	High	1.48	Very Low	2.49	Low
4. Conduct regular review of contingency plans and other related DRMM plans	4.38	High	2.59	Low	2.48	Low
5. Develop Standard Operation Procedures for deployment and coordination with rapid assessment team, search, rescue and retrieval, evacuation, etc.	4.27	High	2.49	Low	3.27	Moderate
6. Conduct training on disaster preparedness and response, search, rescue, and retrieval operations	4.22	High	2.55	Moderate	3.49	Moderate
7. Conduct simulation exercises on various levels to test plans and skills	4.31	High	2.48	Low	3.49	Low
8. Develop an information, education, and communication (IEC) campaign	3.58	High	1.5	Low	2.48	Low
9. Develop Information, Management, and System	3.59	High	2.49	Low	2.49	Low
10. Provision of SAR (Search and Rescue) and Medical equipment	3.24	High	2.3	Low	2.49	Low
Overall Mean	**3.95**	**High**	**2.37**	**Low**	**3.05**	**Moderate**

9.3 Level of Disaster Response

Table 4 shows the disaster risk-reduction management implementation level regarding disaster response. As shown in Table 4, the data revealed that District 3 got the highest mean score of 4.41, followed by District 1 with a mean score of 4.10 and District 2 with a 4.01 mean score.

The result shows that all districts highly implemented disaster response in their monitoring and reporting systems. They provided the necessary medical teams and medical assistance provided tents and other temporary shelter relief assistants to the victims, disseminated information, and issued public advisories following the protocol developed. It means that the school employs measures to the decisions and actions taken to deal with an emergency's immediate effects.

Moreover, the data noted that they highly implemented the school's critical method in responding to the risk situations, preventing fatalities and injuries, reducing damage to buildings, stock, and equipment, protecting the environment and community, and accelerating normal operations' resumption in schools' premises. Response to this situation must go in hand with knowledgeable individuals. This finding is supported by the study that school teachers must be knowledgeable enough to deal with the situation. The potential for disaster first-aid training needs to be evaluated. Knowledge and skills in first aid can reduce injuries, morbidities, and mortalities resulting from disasters and emergency crises by being aware and resilient in responding to the situation.

Table 4: Level of Disaster Response

Indicators	District 1		District 2		District 3	
	Mean	Description	Mean	Description	Mean	Description
1. Activation of Standard Operation	4.54	Very High	3.55	High	4.58	Very High
2. Coordination with appropriate agencies/ establishments/ institutions	3.5	High	3.58	High	4.38	High
3. Monitoring and Reporting system	4.53	Very High	4.5	High	4.51	Very High
4. Dissemination of information and issuance of public advisories under the protocol developed	4.51	Very High	4.32	High	4.51	Very High
5. Conduct rapid damage and needs	4.25	High	3.53	High	4.57	High
6. Timely, accurate, and reliable response	4.53	High	3.5	High	4.5	Very High
7. Provide relief assistants to the victims	3.5	High	4.49	Very High	3.57	High
8. Provide tents and another temporary	3.58	High	3.58	High	4.5	Very High
9. Provides the necessary medical teams and medical assistance	4.5	High	4.5	Very High	4.53	Very High
10. Provide small-scale entrepreneurial activities while in the evacuation centers	3.59	Very High	4.5	High	4.49	High
Overall Mean	**4.10**	**High**	**4.01**	**High**	**4.41**	**High**

9.4 Level of Recovery and Rehabilitation

Table 5 shows the disaster risk-reduction management implementation level in Recovery and Rehabilitation. The data revealed that District 3 got the mean score of 4.17, followed by District 2 with a 4.05 mean score, while District 1 got the lowest score of 2.95.

These indicators further noted that District 1 had the critical method in responding to the rehabilitation and recovery of the school. In times of disaster, it must be ready for a recovery plan and implement safety and resiliency standards on infrastructure. The

school must also strengthen multi-stakeholders' involvement, conduct a post-disaster debriefing of the affected community, and identify and provide suitable relocation sites for the affected population. The school builds the capacities of psychosocial care providers to respond quickly to the recovery and rehabilitation of the school and the community.

Additionally, the findings revealed that recovery and rehabilitation cover pre-post disaster activities from gathering disaster data, formulating a rehabilitation and recovery plan and its subsequent financing and implementation, facilitating emergency procurement, crafting a communications strategy, and instituting monitoring and evaluation mechanisms. The finding is supported by a strong suggestion on leveraging the schools' responses regarding planning and preparation measures, building integrity and safety designs, and training and education in hazard responses.

Table 5: Level of Recovery and Rehabilitation

Indicators	District 1		District 2		District 3	
	Mean	Descriptio	Mean	Descriptio	Mean	Descriptio
1. Formulation and Implementation of recovery Plans	2.49	Low	4.38	High	4.38	High
2. Conduct post-damage and needs assessment	3.5	High	4.27	High	4.51	Very High
3. Provide livelihood programs and projects	2.49	Low	4.48	High	4.51	Very High
4. Identify and provide suitable relocation sites for the affected	2.48	Low	3.49	High	4.57	High
5. Design/ construction of disaster resiliency housing facilities and infrastructure	3.49	Moderate	3.58	High	3.58	High
6. Undertake rehabilitation or repair of damaged Infrastructure	3.49	Moderate	4.5	Very High	3.59	High
7. Implement safety and resiliency standards on infrastructure projects	3.39	Low	4.5	High	4.5	Very High
8. Build capacities of psychosocial care providers	3.23	Low	3.55	High	4.48	High
9. Conduct post-disaster debriefing to the affected community	3.23	Moderate	3.58	High	3.31	High
10. Involvement of multi-stakeholders in the rehabilitation and recovery program	2.49	Low	4.12	High	4.27	High
Overall Mean	**2.95**	**Moderate**	**4.05**	**High**	**4.17**	**High**

10. Discussion

10.1 Level of Implement of Disaster Risk Reduction Management (DRRM)

The level of Disaster Risk Reduction Management (DRRM) implementation was high in terms of disaster prevention and mitigation, disaster response, and recovery and rehabilitation, while moderate in preparedness.

High disaster prevention and mitigation indicate that the level of implementation of Disaster Risk Reduction Management (DRRM) was highly implemented. It means that there is a high conduct of hazard assessment, a high conduct of risk assessment and vulnerability analysis, a high involvement of the community during risk assessment and vulnerability analysis, high development of maps, a high integration and mainstreaming of Disaster Risk, a high allocation of funds for prevention & mitigation measures, highly developed tools on risk assessment, a high-risk transfer mechanism, a high compliance to the environmental ordinances/ policies, and highly monitored and evaluated infrastructure resiliency.

In the first place, this assumption parallels the study of Delorino (2019), that mitigation reduces the severity of the disaster's human and material damage. The goal of prevention is to avoid disasters or emergencies caused by human actions or natural phenomena. Primary prevention is to reduce -avert- the risk of an event occurring by removing the hazard or vulnerability to avoid overcrowding, deforestation, and the provision of services. People who live in a healthy environment are less vulnerable to most risks. For example, immunizing people against smallpox made them less susceptible to the virus and gradually helped eradicate the disease.

As a matter of fact, a high disaster response indicates that the level of implementation of Disaster Risk Reduction Management (DRRM) was highly implemented. It means that high activation of standard operation, high coordination with appropriate agencies/ establishments/ institutions, high monitoring and reporting system, high dissemination of information and issuance of public advisories under the protocol developed, highly conducted rapid damage and needs, timely, accurate and reliable response, high provision of relief assistants to the victims, high provision of tents and another temporary shelter, high offering of the necessary medical teams and medical assistance, and high provision of small-scale entrepreneurial activities while in the evacuation centers.

In addition, this assumption parallels the study of Munsaka & Dube (2018), that Section 15 of the Act defines disaster operations as activities undertaken before, during, or after an event occurs to help reduce loss of human life, illness, or injury to humans, property loss or damage, or environmental damage, including, for example, activities to mitigate the event's adverse effects. While local governments are primarily responsible for managing events in their jurisdiction, the proactive mobilization of support and resources from the district and state levels ensures an integrated, active, and effective response to disaster-affected communities.

In addition, high recovery and rehabilitation indicate that the level of implementation of Disaster Risk Reduction Management (DRRM) was highly implemented. It means that there are high formulation and implementation of recovery plans, highly conducted post-damage and needs assessment, high provision of livelihood programs and projects, identity and provision of suitable relocation sites for the affected population, highly designed/ construction of disaster resiliency housing facilities and infrastructure, a high undertaking of rehabilitation or repair of damaged infrastructure, highly implementation of safety and resiliency standards on infrastructure projects, highly built capacities of psychosocial care providers, high conduct of post-disaster debriefing to the affected community, high involvement of multi-stakeholders on rehabilitation and recovery program.

In the same way, this assumption parallels with the study of Gummesson (2019), that recovery from disasters could be a complicated and time-consuming process, with different communities recovering at different rates. The recovery component of the comprehensive disaster management approach - Prevention, Preparedness, Response, and Recovery (PPRR) - can be the most complicated and time-consuming. The best results are obtained when recovery strategies are aligned with community needs and are led by the affected community. It necessitates a collaborative, coordinated, adaptable, and scalable approach in which disaster recovery responsibility is shared by all sectors of society, including individuals, families, societal groups, businesses, and all levels of government.

To a moderate preparedness indicates that the level implementation of Disaster Risk Reduction Management (DRRM) was moderately implemented. It means that there are moderate conduct of hazard assessment, moderate conduct of risk assessment and vulnerability analysis, moderate involvement of the community during risk assessment and vulnerability analysis, moderate development of maps, integration, and mainstreaming of disaster risk, allocation of funds for prevention & mitigation measures, moderately developed tools on risk assessment, moderate risk transfer mechanism, moderate compliance to the environmental ordinances/ policies, and moderately monitored and evaluated infrastructure resiliency.

This assumption parallels with the study of Chacko et al., (2019), that preparedness actions include creating plans, stockpiling supplies, and conducting exercises and drills to mitigate the effects of a disaster. These actions have been translated into checklists, recommendations, and activities that organizations provide to households, communities, and workplaces to be disaster-prepared. Response organizations advise that these actions be assessed and evaluated regularly.

Again accordingly, the review's findings included recommendations for enhancing teachers' and students' knowledge of DRR, determining the needs of the school, developing and putting into practice suitable strategies, integrating curriculum, collaborating with other organizations, and foreseeing potential difficulties and obstacles. While schools have been putting a lot of effort into utilizing their disaster risk

plans, it was suggested that teaching methods be enhanced to increase disaster hazard preparedness among students and other school personnel.

And they implemented disaster risk reduction and management program components in disaster-prone primary schools. However, according to the findings, the respondent schools had many issues with their performance, including a poor serving entry for schoolchildren and a lack of training among school disaster risk reduction and management program administrators. In addition, a study employed the state-designed Local Government Unit Disaster Preparedness Journal: Checklist of Minimum Actions for Mayors to assess the natural disaster readiness of 92 municipalities in the central Philippines, which are home to 2.4 million people. It set its preparedness in four areas: systems and structures, policies and plans, building competencies, and equipment and supplies—all based on the Hyogo Framework for Action 2005–2015.

11. Recommendation

Based on the results of the study, the following conclusions are made:

The Department of Education may establish a well-managed disaster management development program. It is required to enhance school administrators' strategies for disaster risk reduction in their schools and communities. Moreover, school DRRM coordinators and administrators' excellent indicated disaster risk-reduction management techniques may be maintained and expanded. A more intensive training program should be planned, formulated, and executed to improve school DRRM coordinators' and administrators' skills and competence in managing disaster risk reduction in the school and community.

Furthermore, other studies may work into other aspects of disaster risk reduction management using variables in the broader scope. It is recommended that future research be geared towards replicating the research procedure in a more significant sample, preferably involving a teacher with little to no disaster-related training. Further research could investigate the same context among private elementary schools. Private schools are also encouraged to follow guidelines for their DRRM measures. The findings are viewed from the response of the school DRRM coordinator's administrator. Future research may conduct another investigation to examine teachers' knowledge and skills, specifically in first aid, which can reduce injuries, morbidities, and mortalities that result from disasters and emergency crises. In addition, disaster risk reduction management councils can use the findings as a basis for policies and intervention programs to prepare all stakeholders for disasters.

Finally, this research hopes the government may invest in research and development towards disaster preparedness among school establishments, such as safe infrastructures, advanced technologies, and innovations.

12. Conclusion

Based on the results of the study, the following conclusions are made:

The Disaster Risk Reduction and Management levels in Districts 1 and 2 was high in terms of disaster prevention and migration. In terms of preparedness, the level of implementation of DRRM was high in District 1, moderate in District 3, and low in District 2. Regarding disaster response, the level of implementation of DRRM in Districts 1, 2, and 3 was high. In terms of recovery and rehabilitation, the level of implementation of DRRM was high in Districts 2 and 3 while moderate in District.

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Conflict of Interest Statement

The authors declare no conflicts of interest.

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