

Disaster Risk Reduction and Risk Management in DepEd- DRRMS Panabo City

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ABSTRACT

This study aimed to determine the relationship between disaster risk reduction and risk management in DepEd DRRMS Panabo City. The study used a quantitative, descriptive-correlational research design in assessing the variables and utilized the mean and Pearson Product-Moment Correlation Coefficient to measure the variables. Information was gathered from the chosen respondents through a survey questionnaire with a total of 54 School Disaster Coordinators under DepEd Panabo City. Results showed that the level of disaster risk reduction in DepEd DRRMS Panabo City is very high, with an overall mean of 4.30. This implied that the respondents strongly agree that all aspects of mitigation and prevention, as well as emergency preparedness activities, are prioritized and well implemented. The results of risk management in DepEd-DRRMS with an overall mean of 4.16, which indicates that disaster risk management is generally efficient and well implemented. Moreover, the study revealed a strong positive relationship between disaster risk reduction and risk management in DepEd DRRMS Panabo City, with a correlation coefficient of 0.861. The findings confirmed that improved disaster preparedness leads to better disaster risk management in schools. The researchers recommend building on these programs, training, and activities to make them more effective and able to assist with school safety and preparedness in an ongoing and comprehensive way.

Keywords: Disaster Risk Reduction and Risk Management

SDG: Sustainable cities and communities; Climate Action and Partnership for Goals

INTRODUCTION

Hazards are inevitable; besides being situated in the Pacific Ring of Fire, the Philippines is also called an "Exporter of Typhoons." With the irreversible impacts of climate change, the country has long faced risks from both natural and human-induced hazards. Understanding and measuring present risks is the core foundation of disaster risk management. Disaster risk management is a structured process of planning and organizing proactive systems and guidelines that reduce disaster risk and enhance the community's ability to stand and recover from disasters (Sivakumar and Vanitha, 2024, p. 27). However, despite the inflow of disaster resources by the national government and other concerned groups, disaster mitigation and control measures in various affected communities have been insufficient. These continuous vulnerabilities in disaster management emphasize the need for a strong and well-coordinated framework (Mani, Sultan, Plummer, and Goniewicz, 2023, p. 874). In essence, adaptation to disaster management is increasingly perceived as a necessity that must be incorporated into policy (Hilario, Jara, Almagro, and Tapayan, 2024, p. 2).

Disaster risk management is crucial not just in minimizing the devastating impacts of the present disaster risks, but also in shaping the key outcomes of disaster risk reduction and preparedness efforts (Sivakumar and Vanitha,

2024, p. 35). Establishing a Disaster Risk Reduction and Management (DRRM) team enhances the education sector in terms of disaster risk reduction as it provides temporary and safe learning facilities after a disaster which promotes resiliency (Titko and Ristvej, 2020, p. 3). Effective risk management ensures that the Schools in Panabo City are better prepared for unforeseen events, thereby reducing potential losses and improving overall safety for its stakeholders.

Furthermore, the United Nations Office for Disaster Risk Reduction (UNDRR) stated, as adapted from the UNISDR Global Assessment Report 2015, "We need to manage risks, not just disasters." Disaster Risk Reduction (DRR) policy and Disaster Risk Management (DRM) practices reduce disaster risk, and even though there has been significant progress over the last 10 years, advancements in managing the underlying risk have been limited in most countries. In the Philippine Disaster Risk Reduction Management Act of 2010 (Republic Act 10121), the Department of Education created the Disaster Risk Reduction and Management Office through Department Order (DO) No. 50 series of 2011, which aims to reduce the risk and impact of natural and human-induced hazards.

Moreover, drawing on the concept of Assemblage theory, this study emphasizes that disaster risk management should not just focus on addressing the causes of the disasters, but also recognize and develop the interrelated systems, like social, political, technical, and ecological, that significantly influence the overall risk, vulnerability, and resilience in a certain society (McGowran and Donovan, 2021, p. 1615). This theory views risk management as an evolving framework that should be tailored to various actors, such as school heads, disaster coordinators, and local government units, and materials, like evacuation plans, early warning systems, and their network of connections. Despite ongoing initiatives and programs, these components and their relationships must be considered to effectively address such problems.

The independent variable of this study is disaster risk reduction. The increasing risk of natural disasters poses a significant challenge worldwide. Their destructive effects on humans and structure, including death, damage, and disease of individuals, as well as the destruction of property and other assets. All these can create harsh conditions favorable for the emergence of infectious diseases that can cause additional human and economic losses and disruption of the emergency and recovery process. This highlights the need to establish a safe learning environment through a proactive and prevention approach (Mavrouli, Mavroulis, Lekkas, and Tsakris, 2023, p. 2-3).

Disaster risk reduction has changed the public perception and response to information about disasters and decisions taken by the government and other disaster management-related organizations (Izumi, Shaw, Djalante, Ishiwatari, and Komino, 2019, p. 15). Disaster risk reduction requires addressing the current issues and planning for upcoming ones. Planning for disaster preparedness and assessing its risks and vulnerabilities are crucial. Having a school disaster management plan that is practical and effective will serve as a roadmap for all stakeholders involved in building a safe and secure school. (Dela Cruz and Ormilla, 2022, p. 4).

The first Indicator of risk reduction is prevention and mitigation. These play an essential role in disaster risk reduction, as these efforts involved reducing the potential for severe damage. Given that these initiatives aimed to lower the likelihood of significant damage, they are crucial to disaster risk reduction. These refers to the mitigation or control of the negative consequences of natural disasters. Raising public awareness through better natural methods, encouraging self-development practices, and creating a more comprehensive disaster risk reduction plan in the pre-disaster phase through education that contributes to the effectiveness and efficiency of disaster prevention and mitigation (Lagrada and Santiago, 2025, p. 4-5).

The second Indicator is emergency preparedness. It is defined as the strategies to improve organizational capacity and capabilities to respond to an emergency. Preparedness includes planning, training, and exercising for events that cannot be mitigated, readiness to react constructively to environmental threats in a way that minimizes adverse effects on people's health and safety, and maintains the integrity and functionality of physical structures and systems. (Herstein, Schwedhelm, Vasa, Biddinger, and Hewlett, 2021, p. 2).

DepEd Order No. 044 will address this problem by offering them suitable and relevant educational programs, services, and interventions, regardless of their financial situation, gender, or culture. According to this policy,

schools must evaluate students with disabilities, identify their needs, and assist them in developing an educational plan based on their performance and aspirations. It also covers initiatives aimed at improving the capacity to carry out emergency measures to safeguard assets and limit the damage and disruption caused by disasters. It also includes actions designed to enhance the ability to undertake emergency actions to protect property and contain disaster damage and disruption (DepEd 2021).

On the other hand, the dependent variable of this study is risk management. This is the case of understanding disaster risk management as a social product intrinsically tied to the way that various groups define risk and how they “manage” or mitigate it at a given point in time. This is the use of strategies, regulations, and operational skills to mitigate the effects of natural disasters. A major factor in lessening the effects of natural disasters is the community’s and society’s capacity to adjust to these behaviors. To lessen the possibility of a major impact during disasters, it incorporates activities that are focused on both before and after the event. It is implied that this process is a product of historically determined societal relations and processes, as it is subject to the processes of social formation, institutionalization, and reutilization of daily life (Sandoval, Martin, Florchinger, Lorenz, and Jafari, 2023, p.334).

The first indicator for the dependent variable is emergency response. Each disaster is unique, so effective emergency response efforts can help to mitigate the impact of these emergencies, save lives, and minimize property damage. An initial response, needs, and assistance are provided by gathering information about the affected areas. Since relief and recovery take time. By having these protocols in place, the disaster risk reduction and risk management responders can act quickly and decisively, potentially preventing a crisis from escalating. Plans, processes, and improvisations about the prearranged reaction tactics comprise an emergency response. This is carried out to provide prompt aid that contributes to life preservation, secure the safety of individuals impacted, reduce the impact of secondary hazards, and guarantee ongoing education (Damaševičius, Bacanin, and Misra, 2023, p. 1- 2).

The second indicator is rehabilitation and recovery. As a key area in Disaster Risk Reduction and Management, disaster rehabilitation and recovery reestablish normalcy in communities affected by disasters (Decena, 2023, p. 78 & 80). These are post-disaster measures that restore, reconstruct, improve, and develop areas to mitigate the aftermath. Additionally, they include strategies and initiatives that help prepare the government and community for more severe disasters in the future. Nevertheless, the efficacy of rehabilitation and recovery responses varies among different communities or municipalities, which indicates a lack of monitoring of these initiatives. Therefore, accurate assessment could help reduce the emotional and physical impact of disasters. From SY 2009-2010 to 2017-2018, 43,810 schools were affected by natural hazards, and 21,949 were exposed to human-induced hazards (DepEd, 2019). Despite the nationwide implementation of disaster risk reduction and risk management in the education sector, the effectiveness of these measures at the division level remains unexplored. Therefore, the researchers are motivated to fill this gap by evaluating how disaster risk reduction and risk management are implemented in the schools under the DepEd Panabo City Division. The results of this study will help promote a safer and resilient school environment that aligns with Sustainable Development Goals such as sustainable cities and communities (SDG 11), climate action (SDG 13), and partnership for goals (SDG 17).

Furthermore, this study is of great significance to the Department of Education Division of Panabo City, as it will examine disaster risk management initiatives and offer avenues for more effective and efficient practices. Results of the study can help the School Disaster Risk Reduction Coordinators (SDRRC) and DepEd Teachers to develop and improve policies and strategies that can benefit the communities and students by providing enhanced safety and educational continuity opportunities, because effective disaster management practices ensure continuous learning with minimal disruptions even after disasters. Additionally, future researchers can benefit from this study as it provides a foundation for further studies.

This study aimed to find the relationship between disaster risk reduction and risk management in DepEd-DRRMS Panabo City. Specifically, this aimed to answer the following objectives: (1) to determine the level of disaster risk reduction in terms of prevention and mitigation, and emergency preparedness;

(2) to determine the level of risk management in terms of emergency response, and rehabilitation and recovery;

(3) Is there any significant relationship between the disaster risk reduction and risk management.

The study tested the null hypothesis at a 0.05 level of significance, which stated that there is no significant relationship between disaster risk reduction and risk management among School Disaster Risk Reduction Management Coordinators in Panabo City

METHOD

This section describes numerous data collection techniques used in the study. The research concept, approach, and the study's materials and tools were all considered part of the method.

Participants

The total number of respondents in this study is 54 school disaster coordinators from the DepEd Panabo City division, specifically those who were officially designated by the DepEd Disaster Risk Reduction and Management Service (DRRMS) office and were involved in the planning, implementation, and evaluation of DRRM policies and practices in their respective schools. The universal sampling technique was used, which means that all eligible school coordinators were selected to participate. This method was chosen because each coordinator plays a crucial role in providing precise and complete data (Ramoso & Dela Cruz, 2019, p. 3). Also, school disaster coordinators who actively engage in disaster risk reduction and risk management duties at the time of data collection were included, while coordinators who were on leave or unavailable during the data collection were excluded.

Materials/Instrument

The researchers utilized a standard questionnaire to collect the data from the DepEd-DRRMS in Panabo City. The collection of questions, which assessed the level of disaster risk reduction and risk management, was derived from (Robas, 2014). The survey questionnaire was divided into three sections: part one asked about the demographic background of the respondents, part two assessed the disaster risk reduction plans with their indicators, and part three evaluated the risk management with its indicators. The respondents were asked to choose a single option from a range of 5 to 1. To ensure the validity of the survey, the panel members validated the questionnaire. Also, a pilot test was conducted to assess the reliability of the standardized questionnaire. The independent variable demonstrated excellent reliability, registering a Cronbach's Alpha of 0.93, while the dependent variable exhibited excellent reliability, with a Cronbach's Alpha of 0.94.

The following scaling was used to determine the level of disaster risk reduction: 4.21-5.00 (very high), which means that the respondents strongly agree that disaster risk reduction is well implemented; 3.41-4.20 (high), which indicates that the respondents agree that disaster risk reduction is implemented; 2.61-3.40 (moderate), indicating that the respondents moderately agree that disaster risk reduction is often implemented; 1.81-2.60 (low), meaning that the respondents disagree that disaster risk reduction is rarely implemented; 1.00-1.80 (very low), means that the respondents strongly disagree that disaster risk reduction is not implemented.

Furthermore, the following scaling was used to assess the risk management: 4.21-5.00 (very high), which means that the respondents strongly agree that disaster risk management is well implemented; 3.41-4.20 (high), indicates that the respondents agree that disaster risk management is implemented; 2.61-3.40 (moderate), indicating that the respondents moderately agree that disaster risk management is often implemented; 1.81-2.60 (low), meaning that the respondents disagree that disaster risk management is rarely implemented; 1.00-1.80 (very low), means that the respondents strongly disagree that disaster risk management is not implemented.

Design and Procedure

The study employed a quantitative, descriptive-correlational design that is used to assess disaster risk reduction and risk management in DepEd- DRRMS Panabo City. Quantitative research collects measurable data and utilizes statistical tools to examine relationships and test hypotheses to answer research questions (Hassan, 2024). A descriptive correlational design explains and establishes the relationship between the variables without making

causation statements through the collected data (Thomas and Zubkov, 2023, p. 110). This design allows the researchers to explore how disaster risk reduction strategies are implemented and identify patterns in risk management practices.

Moreover, the study involves a systematic process, and the survey questionnaire was developed and validated. Subsequently, permission was sought from the DepEd Division of Panabo City to carry out the study. The validated questionnaires were administered to the respective respondents. After collecting, the data was tallied and submitted to the statistician to ascertain the degree of disaster risk reduction and risk management using descriptive statistics such as mean and standard deviation. The study employed the following statistical tools to interpret the data: (1) the mean to determine the level of independent variable and dependent variable, and (2) the Pearson Product Moment Correlation coefficient (r) to determine if there is a significant relationship between the variable's disaster risk reduction and risk management in DepEd-DRRMS Panabo City.

RESULTS AND DISCUSSIONS

This section presents the analysis and interpretation of data for disaster risk reduction and risk management in DepEd-DRRMS Panabo City with logical descriptions of the results. The major topics in the study were as follows: the level of disaster risk reduction in DepEd-DRRMS in terms of prevention, Mitigation, emergency preparedness, and the level of risk management in DepEd-DRRMS in terms of emergency response, rehabilitation, and recovery.

Level of Disaster Risk Reduction

Presented in Table 1 were the results of risk reduction in DepEd-DRRMS with an overall mean of 4.30, which means very high, and a standard deviation of 0.85, indicating that the level of disaster risk reduction is well implemented. Disaster Risk Reduction is assessed through two indicators: prevention and mitigation, and emergency preparedness. The responses from the participants for each indicator were detailed and analyzed below.

Table 1: Level of Disaster Risk Reduction

| Indicators | Standard Deviation | Mean | Descriptive Equivalent |
|---------------------------|--------------------|-------------|------------------------|
| Prevention and Mitigation | 0.86 | 4.26 | Very High |
| Emergency Preparedness | 0.84 | 4.34 | Very High |
| Overall | 0.85 | 4.30 | Very High |

For the indicator prevention and mitigation, an overall mean of 4.26, which means very high, and a standard deviation of 0.86 were gathered. The highest item was number 1, with a mean score of 4.67, which indicates that the respondents strongly agree that the prevention and mitigation practices are well implemented. These efforts need to be sustained in schools, particularly those located in disaster-prone areas. This requires cross-sectoral coordination in realizing a safe disaster school, considering that disaster is a significant issue. School Disaster Risk Reduction Coordinators become the leading agents in prevention and mitigation activities because they are the front line in the face of future disasters. Because this training involves more discussion and debriefing, practices or disaster simulations, such as creating a disaster risk analysis around the school, and a self-sustaining simulation in case of a natural disaster. This finding is supported by (Mubarak, Amiruddin, and Gaus, 2019, p. 5).

On the other hand, question number 5 got the lowest mean score of 3.85, which is described as high. This indicates that funds for activities and programs related to prevention and Mitigation are implemented. In mitigating the effects of a natural disaster, building a more favorable learning environment or conditions must be maintained,

particularly against dangers and hazards that are considered. Relocating employees and students who attend schools in high-risk locations is still a concern because it necessitates sufficient funding from the government. School Disaster Risk Reduction Coordinators must be specifically incorporated into the core curriculum to ensure funding. This leads to policymaking at the Philippine Department of Education (Genizera et al., 2022, p.87).

Moreover, for the indicator of emergency preparedness, the overall mean of 4.34, which means very high, and a standard deviation of 0.84 were gathered. The highest item was number 1, with a mean score of 4.87, which is described as very high, indicating that disaster preparedness is well implemented. The respondents assessed that the community level is responsive and aware of the disaster risk factors. This strategy aims to convey information and empower school disaster risk reduction coordinators to be better prepared and more capable of responding to emergencies. This approach emerged in response to the uncertainty of the possibility of a disaster.

A School Disaster Risk Reduction Coordinator is very important in improving the preparedness of students, teachers, and staff. Good information allows all school members to understand the potential disaster threats around them and the actions that must be taken to protect themselves. Information is structured through drills (e.g., fire, earthquake) that are organized and practiced in every school, ensuring that everyone is aware of the emergency protocols and proper evacuation procedures. Through information boards or digital tools, schools can ensure that all involved individuals know the emergency response procedures, evacuation paths, and safe places (Kamaruddin, 2024, p.967).

On the other hand, question number 4 got the lowest mean score of 3.83, which is described as high. This indicates that the allocated budget for emergency preparedness is available and implemented, but there are still related problems. The lack of a specific allocation of funds for school disaster preparedness activities is why the school has not independently established a special program to form disaster preparedness teams or groups (Nurivita et al., 2025). The schools were generally not hampered by a lack of funding for the said programs.

The division must ensure that sufficient funds are set aside to support the establishment of training facilities for risk reduction and disaster preparedness as well as the printing of training materials. Every school should also have disaster preparedness handbooks or guidelines available since they are important tools for students and staff to better identify potential hazards and help school communities adjust more successfully in the event of a disaster (Opabola, Galasso, Rossetto, Meilianda, Idris, and Nuridin, 2023, p. 4).

Level of Risk Management

Presented in Table 2 were the results of risk management in DepEd- DRRMS with an overall mean of 4.16, which means high, and a standard deviation of 0.91, indicating that disaster risk management is well implemented. Disaster Risk Management is assessed through two indicators: emergency response and rehabilitation and recovery. The responses from the participants for each indicator were detailed and analyzed below.

Table 2. Level of Risk Management

| Indicators | Standard Deviation | Mean | Descriptive Equivalent |
|---------------------------|--------------------|-------------|------------------------|
| Emergency Response | 0.93 | 4.04 | High |
| Rehabilitation & Recovery | 0.86 | 4.32 | Very High |
| Overall | 0.91 | 4.16 | High |

For the indicator emergency response, the overall mean of 4.04, which means high, and a standard deviation of

0.93 were gathered. The highest item was number 4, with a mean score of 4.50, indicating that disaster-related information dissemination is well implemented. Information dissemination during emergency responses includes warnings about the current situation and further instructions to ensure safety before, during, and after the disaster

Communication channels such as social media, text messages, and posters were commonly used to inform parents, students, and teachers (Fuentes, 2023, p.659). This means that the communication system among schools in the division of Panabo was clear and timely, and it significantly helped in preparing for a disaster and during disasters. It builds more solid recovery efforts because it helps the affected individuals not to panic because they are aware of what to do (Carpenter et al., 2022).

On the other hand, question number 1 got the lowest mean score of 3.66, which is described as high. This indicates that the provision of relief essentials is implemented. Provision of immediate relief, like food and water, right after the disaster is crucial to ensure survival among the affected individuals (Fuentes, 2023, p. 646). Though the relief operation at schools may be organized, minor issues like limited space for relief goods distribution, including storage and limited funding, occur and affect the whole operation (Firmase et al., 2021, p.77).

Moreover, for the indicator rehabilitation and recovery, an overall mean of 4.32, which means very high, and a standard deviation of 0.86 were gathered. The highest item was number 2, with a mean of 4.54, and is described as very high, indicating that damage and safety assessment in school facilities are well implemented. According to the World Bank, the vulnerability of school buildings changed after the disaster. Even after rehabilitating these affected buildings, risks are still present because disasters can still occur in the future. Thus, regularly assessing the infrastructure conditions in schools is crucial to recalculate the risk and adjust the initiatives to address the current conditions.

However, the item with the lowest mean score of 3.81 is number 1 and is described as high. This indicates that repairs on school facilities are done and implemented. The Quick Response Fund is provided to schools during emergencies to repair the damage and address structural problems (DepEd, 2020). The funding is mainly based on the level of priority, depending on how bad the conditions of those buildings are. However, Education Secretary Sonny Angara stated in a report last February 04, 2025, that the current quick response fund is insufficient to cover all expenses for fast and effective reconstruction of school facilities that were damaged by disasters each year (Sampang, 2025). Also, the strict procedure to request funds poses a challenge for most schools regarding preparing and responding to disasters.

The Significant Relationship between Disaster Risk Reduction and Risk Management

Table 3 presents a strong positive relationship between disaster risk reduction and risk management in DepEd DRRMS Panabo City. A correlation coefficient of 0.861, which is associated with a p-value of 0.000, which is below 0.05, means a statistically significant relationship exists between disaster risk reduction and risk management.

Table 3: The Significant Relationship between Disaster Risk Reduction and Risk Management in DepEd-DRRMS Panabo City

| Variables | Mean | Standard Deviation | Descriptive Equivalent | r-value | P-value |
|-------------------------|------|--------------------|------------------------|---------|---------|
| Disaster Risk Reduction | 4.30 | 0.85 | Very High | .861 | .000 |
| Risk Management | 4.16 | 0.91 | High | | |

The results of the study indicate that DRR provides a process that enables schools to minimize vulnerability, improve the safety of learners and staff, and address risk mitigation in planning for future disasters through the

incorporation of DRR actions into their day-to-day practices. The use of proactive means such as hazard identification, risk mapping, trigger early warning systems, and vulnerability analysis reduces exposure to risk and enhances institutional resilience (Ishiwatari, 2022, p. 3025). These methods of practice enable schools to anticipate, respond, and recover from disruption by natural hazards. The research further supports effective disaster risk reduction in many ways that assist long-term planning for risk management by nurturing a culture of preparedness, safety education, and community awareness. Schools that utilize management techniques in DRR are able to manage their operation effectively when responding to complexity during emergencies. Using progressive technologies, real-time data systems, by involving key stakeholders in collaboration through their decision-making efforts and risk mitigation (Rai et al., 2021, p. 88). Therefore, DRR contributes to not only reducing the tragedies associated with a disaster, but it also cultivates a more resilient educational setting that is adaptive and responsive to change.

CONCLUSIONS AND RECOMMENDATION

This chapter summarizes the researcher's findings, conclusions, and recommendations based on the data collected. The following are the study's findings.

Conclusion

Based on the gathered and measured data, the level of disaster risk reduction management in DepEd-DRRMS Panabo City was found to be very high, with emergency preparedness having the highest mean indicator. The level of risk management was assessed as high, with rehabilitation and recovery as the primary indicators. Also, the computed r -value of 0.861 with a P -value of 0.000 indicates a strong and significant positive relationship between disaster risk reduction and risk management. Since the p -value is less than 0.05, the null hypothesis is rejected, implying that the improvements in disaster risk reduction affect the implementation in risk management of DepEd-DRRMS Panabo City.

Recommendation

In connection with the findings and conclusion of the study, the following recommendations are suggested by the researchers: The DepEd Panabo City division should improve its communication system by establishing real-time communication platforms like group chats and school-based DRRM hotlines to ensure rapid response before, during, and after disasters. Also, enhancing the local DRRM team by creating a more collaborative network among multiple stakeholders, which is composed of school heads, teachers, disaster coordinators, LGU representatives, health officers, and parent leaders, can significantly increase disaster resilience and coordination for quicker preparation, response, and recovery.

Moreover, the division should localize its disaster preparedness measures based on each specific school context. Schools should assess and modify their DRRM strategies based on present probable disaster risk (e.g., flood-prone vs. earthquake-prone areas) to provide tailored disaster preparedness drills, emergency kits, and facilities accordingly. It is also ideal to conduct regular evaluations after drills or real disasters to adapt and improve plans.

Lastly, encouraging partnerships with local non-governmental organizations (NGOs) and the private sector can significantly increase resource availability. School-level DRRM should adopt a flexible funding mechanism to ensure that physical, financial, and human resources are adequately supported. Identifying available and lacking DRRM materials can reveal gaps and allow better mobilization and connectivity between resource hubs.

REFERENCES

1. Carpenter, D., Nieva, V., Albaghal, T., and Sorra, J. (2022) 'Dissemination Strategies for Emergency Preparedness and Response Evaluation Findings', Rural Health Information Hub. Available at: <https://www.ruralhealthinfo.org/toolkits/emergency-preparedness/5/dissemination-strategies> (Accessed: 26 April 2025)

2. Damaševičius, R., Bacanin, N. and Misra, S. (2023) 'From sensors to safety: Internet of Emergency Services (IoES) for emergency response and disaster management', *Journal of Sensor and Actuator Networks*. 12(3), pp. 1-45. Doi: <https://doi.org/10.3390/jsan12030041>
3. Dela Cruz, R. and Ormilla, R. C (2022) 'View of Disaster Risk Reduction Management Implementation in the Public Elementary Schools of the Department of Education, Philippines'. Available at: <https://internationaljournalofdisasterriskmanagement.com/Vol11/article/view/54/35> (Accessed: June 18, 2025)
4. Decena, D. (2023) 'Disaster Rehabilitation and Recovery Response in the Aftermath of the Taal Volcano Eruption: Towards a Sustainable Disaster Program Implementation', *International Journal of Multidisciplinary Research and Publications*. 5(12). pp.78-82. Available at: <https://ijmrmap.com/wp-content/uploads/2023/05/IJMRAP-V5N12P62Y23.pdf> (Accessed: 21 September 2024)
6. Department of Education (2011) 'Creation of Disaster Risk Reduction and Management Office', DepEd Order No. 50. Available at: https://www.deped.gov.ph/wp-content/uploads/2011/07/DO_s2011_50.pdf (Accessed: 20 May 2025)
7. Department of Education (2021) 'Policy Guidelines on the Provision of Educational Programs and Services for Learners with Disabilities in the K to 12 Basic Education Program', DepEd Order No.44. Available at: https://www.deped.gov.ph/wp-content/uploads/2021/11/DO_s2021_044.pdf Accessed: 20 May 2025
8. Department of Education (2020) 'Programs and Projects of Department of Education'. Available at: https://www.deped.gov.ph/wp-content/uploads/2021/10/DepEd-Programs-and-Projects-Profile_2020.pdf (Accessed: 28 April 2025)
9. Department of Education (2021) 'DepEd Order No.033, s.2021'. Available at https://www.deped.gov.ph/wpcontent/uploads/2021/08/DO_s2021_033.pdf (Accessed: 20 May 2025)
10. Department of Education (2025) 'DepEd heeds PBBM call to enhance disaster response in education sector'. Available at: <https://www.deped.gov.ph/2025/02/04/deped-heeds-pbbm-call-to-enhance-disaster-response-in-education-sector/> (Accessed: 20 May 2025)
11. Firmase, JT., Eugenio, V., Bullo, MJ., Yi, LS., Gabriel, D. and Luna, E. (2021) 'Lessons and Challenges in Disaster Relief Operations For Families Affected By Typhoon Ondoy in Rizal Province'. Available at: https://cswcd.upd.edu.ph/wp-content/uploads/2021/10/PJSD-Vol-3-2011_Firmase.pdf (Accessed: 27 April 2025)
12. Fuentes, E. (2023) 'School Disaster Preparedness, Response and Recovery: Teachers in Focus', *Psychology and Education: A Multidisciplinary Journal*, 12. pp. 646-667. DOI: 10.5281/zenodo.8268675
13. Genizera, J. B., Tosino, W., Santacera, E.M. and Moncera, A. (2022) 'Implementation of Department of Education Programs, Projects, and Activities on Mitigating the Impact of Climate Change in the Philippines', *Journal of Learning and Development*, 2(1), pp. 35-39. DOI:10.32996/jlds.2022.2.1.4
14. Hassan, M. (2024) 'Quantitative Research — Methods, Types, and Analysis', *ResearchMethod.Net*, Available at: <https://researchmethod.net/quantitative-research/> Accessed: 23 September 2024)
15. Herstein, J., Schwedhelm, M., Vasa, A., Biddinger, P., and Hewlett, A. (2021) 'Emergency Preparedness: What is the future?', *Antimicrobial Stewardship & Healthcare Epidemiology*, 1(1), pp.1-6. Doi: <https://doi.org/10.1017/ash.2021.190>
16. Hilario, D., Jara, S., Almagro, R., and Tapayan, V. (2024) 'The Assessment on the Flood Mitigation Strategies of the Local Government Unit of Santo Tomas, Davao del Norte: A Basis for Policy Formulation', *International Journal of Research and Innovation in Social Science*, 7(12). pp. 835- 869. doi: <https://dx.doi.org/10.47772/IJRISS.2023.7012064>
17. Ishiwatari, M. (2022) 'Disaster Risk Reduction. In Handbook of climate change mitigation and adaptation'. Available at: https://link.springer.com/rwe/10.1007/978-3-030-72579-2_147 (Accessed: 18 June 2025)
18. Izumi, T., Shaw, R., Djalante, R., Ishiwatari, M. and Komino, T. (2019) '30 Innovations for Disaster Risk Reduction and Innovations', Elsevier: *Progress in Disaster Science*. doi: 10.1016/j.pdisas.2019.100033
19. Kamaruddin, S. (2024) 'Disaster Preparedness Design in Secondary School Environment', *JUPE Jurnal Pendidikan Mandala*, 9(4). Pp. 967-975. Doi:10.58258/jupe.v9i4.7821
20. Lagrada, H. and Santiago, A. B. (2025) 'An assessment of the effectiveness of government risk management on disaster prevention, mitigation, response, recovery, and rehabilitation in Metro Manila,

- Philippines', Public Administration and Policy Emerald Publishing Limited, pp. 1-11. Doi: 10.1108/PAP-03-2024-0046
21. Mani, Z.A., Sultan, M.A., Plummer, V. and Goniewicz, K. (2023) 'Navigating Interoperability in Disaster Management: Insights of Current Trends and Challenges in Saudi Arabia', *International Journal of Disaster Risk Science*, pp. 873-885. <https://doi.org/10.1007/s13753-023-00528-4>
 22. Mavrouli, M., Mavroulis, S., Lekkas, E. and Tsakris, A. (2023) 'The impact of earthquakes on public health: A narrative review of infectious diseases in the post-disaster period aiming for disaster risk reduction', *Microorganisms*, 11(2), pp. 1-38. Doi: 10.3390/microorganisms11020419
 23. McGowran, P. and Donovan, A. (2021) 'Assemblage theory and disaster risk management', *Progress in Human Geography*, 45(6), pp. 1601-1624. DOI: 10.1177/03091325211003328
 24. Mubarak, A., Amiruddin, R. and Gaus, S. (2019) 'The effectiveness of disaster prevention and mitigation training for the students in disaster-prone areas', *IOP Conference Series Earth and Environmental Science*, 235(1). doi:10.1088/1755-1315/235/1/012055
 25. Nurivita, N., Arsy, R. F., Hasan, H. R. and Suwarni, S. (2025) 'Disaster-Ready School Preparedness In Facing Flood Disasters At Sma Negeri 10, Sigi Regency', *Dinasti International Journal of Education Management And Social Science*, 6(4), pp. 3025–3025. <https://doi.org/10.38035/dijemss.v6i4.4367>
 26. Opabola, E.A, Galasso, C., Rossetto, T., Meilianda, E., Idris, Y. and Nurdin, S. (2023) 'Investing in Disaster Preparedness and Effective Recovery of School Physical Infrastructure', *International Journal of Disaster Risk Reduction*, 90, pp. 103623. Doi: <https://doi.org/10.1016/j.ijdr.2023.103623>
 27. Rai, P.K, Singh, P., Mishra, V.N. and Resilience, S.C. (2021) 'Recent technologies for disaster management and risk reduction'. Available at: <https://link.springer.com/book/10.1007/978-3-030-76116-5> (Accessed: 18 June 2025)
 28. Ramoso, MG and Dela Cruz, R. (2019) 'Relevance of The National Research Agenda to the Research Initiative of a Higher Education Institution in the Philippines', *ERIC Journals*. Available at: <https://files.eric.ed.gov/fulltext/EJ1238648.pdf>
 29. Robas, R. (2014) 'Flood Disaster Risk Reduction and Risk Management of Pasig City'. Available at: <https://www.researchgate.net/publication/269166941> (Accessed: 21 September 2024)
 30. Republic of the Philippines (2010) 'Philippine Disaster Risk Reduction and Management Act of 2010', Republic Act No. 10121. Available at: https://lawphil.net/statutes/repacts/ra2010/ra_10121_2010.html Accessed: 20 May 2025
 31. Sampang, D. (2025) 'DepEd Needs More Funds for Immediate Repair of Damaged Schools', *Inquirer.Net*, 04 February. Available at: <https://newsinfo.inquirer.net/2031385/fwd-deped-calls-for-increase-in-qrf-for-immediate-repair-of-damaged-school-buildings> (Accessed: 28 April 2025)
 32. Sandoval, V., Martin, V., Florchinger, V., Lorenz, S., and Jafari, P. (2023) 'Integrated Disaster Risk Management (IDRM): Elements to Advance its study and assessment', *International Journal of Disaster Risk Science*, pp. 343-356. Doi: <https://doi.org/10.1007/s13753-023-00490-1>
 33. Sivakumar, A. and Vanitha, V. (2024) 'Basic Concept of Disaster Risk Management'. Available at https://www.researchgate.net/publication/379996823_Basic_Concept_of_Disaster_Risk_Management (Accessed: 17 June 2025)
 34. Tikto M., and Ristvej, J. (2020) 'Assessing Importance of Disaster Preparedness Factors for Sustainable Disaster Risk Management: The Case of the Slovak Republic'. Available at: https://www.researchgate.net/publication/345904124_Assessing_Importance_of_Disaster_Preparedness_Factors_for_Sustainable_Disaster_Risk_Management_The_Case_of_the_Slovak_Republic (Accessed: 21 September 2024)
 35. Thomas, D. and Zubkov, P. (2023) 'Quantitative Research Designs'. Available at: https://www.researchgate.net/publication/370630979_Quantitative_Research_Designs (Accessed: 23 September 2024)
 36. UN Office for Disaster Risk Reduction (UNDRR) (2015) 'Understanding disaster risk'. Available at: <https://www.preventionweb.net/understanding-disaster-risk/key-concepts/disaster-risk-reduction-disaster-risk-management> (Accessed: 24 September 2024)



37. World Bank, 'Global Program for Safer Schools (GPSS)'. Available at: <https://gps.s.worldbank.org/en/roadmap-step/risk-and-resilience-assessment-school-infrastructure> (Accessed: 27 April 2025)