www.idosr.org Atukunda, 2025

©IDOSR PUBLICATIONS ISSN: 2579-0773

International Digital Organization for Scientific Research DOSRJAH11300
IDOSR JOURNAL OF ARTS AND HUMANITIES 11(3):59-65, 2025.
https://doi.org/10.59298/IDOSRJAH/2025/1135965

Managing Natural Disasters: Policies for Schools

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ABSTRACT

Natural disasters pose a significant threat to the safety, stability, and functioning of educational institutions worldwide. As climate change intensifies the frequency and severity of disasters such as floods, earthquakes, fires, and storms, schools, particularly in vulnerable regions, remain ill-equipped to handle their impacts. This paper examines comprehensive policies and strategic frameworks aimed at mitigating disaster risks in educational settings. It assesses the effects of natural hazards on school infrastructure, student welfare, and educational continuity while proposing practical emergency preparedness and post-disaster recovery measures. Key focus areas include community involvement, communication strategies, policy frameworks, and case studies from countries like New Zealand and Fiji. The study emphasizes the need for proactive planning, policy innovation, and stakeholder collaboration to build resilient school systems that can serve not only as centers of learning but also as hubs of safety and recovery during crises.

Keywords: Disaster Risk Reduction, School Safety, Emergency Preparedness, Educational Resilience, Policy Framework, Post-Disaster Recovery, Community Involvement.

INTRODUCTION

Countries worldwide face extreme weather events due to environmental pressure, mismanagement, and climate change. These natural disasters disrupt essential services, particularly affecting children, by impacting markets, food production, medical care, justice systems, and schools. Effective disaster management and preparedness can reduce the damage caused by such events and aid in recovery. Disasters, whether natural or man-made, lead to serious economic and social issues. When storms, fires, earthquakes, or floods strike, infrastructure and communication fail, trapping children at school and shutting down educational facilities. Schools must be proactive in receiving timely disaster alerts and communicating swiftly with communities. However, many schools are often unprepared and lack essential resources, leading to dire reports of destruction post-disaster. School safety entails creating an environment free from fear and threats, focusing on nurturing a culture of safety for students. Schools must offer safe locations, shelters, and resources for emergencies, while disaster management centres should implement effective disaster awareness programs appropriate for children. Learners are particularly vulnerable to disasters like earthquakes, floods, and volcanic eruptions, making it crucial for educators to plan for prevention and management strategies. Human-error-related disasters, such as fires and bomb threats, also pose significant threats. The negative impacts of disasters on schools affect not just educational processes but also the psychological health of children. Emphasis should be on primary and secondary schools, where students spend extensive hours. Educating children about natural disasters is vital due to their susceptibility. This study aims to investigate teachers' and school heads' perceptions regarding the effects of these disasters on education and their recognition of the need for disaster management guidelines within schools [1, 2].

Types of Natural Disasters

The higher society of travelling communication, momentary speech, characterization, or social contact among business people, scientific people, engineers, business leaders, and community elders operating in all ways is now making modern materialistic time. To describe this pleasure, devilish Eden with ultra-modern human scientific creations, is unending, and yet, fruitful efforts are continually and lustily

engaged. Speed governing in life is now a necessity whether it is to attend office, reach school, market shopping, communicate with mobile, home seeking fish menus, or to amuse or political archery, to name a few. The orthographic projections reveal the dawn of a new Kolposhka as the most unthinkable pressurising opponents CHAOS gives birth to the rebirth of a little less than the first ever subcontinent-like vast state to live undeviated life in peace, pleasure, desire, thought, and academic freedom, and to return to word-Eden or Ark. The state is termed as DBBA because there is zero or near-zero requirement for anything to run an automotive life except human members. The life friends throughout thousands and millions of years unceasingly wanted to retreat there, detailing its eternal prosperity during the golden age. Its spirit, management quality, dominant price, colour of people, culture, attitude to life as good, honourable, quiet, would introduce to be astonish the Cultural World to recapture its love towards the city of the Future. Factors such as unnestled modernity, excessive over top telephone line, hoarders in life or society, film to television, introduced by television itself, have made it impossible to abide and see the branded, sonorous horrors yet unseen ignobility, and to dream, imagine and wanted by seeming good until able to see and illustrate. This inexpressible dreadfulness darkness dummy while the desired tables are priceless to recover. Modernity is determined by earning or destitute monetary tortures, rigid rules in a study, academic knowledge, and ways of amusement. These things, while separating men though unable to live freely, are displeased it want to undisturbed country abiding hills, forests, rivers by slumbering in every moment and periods [3, 4].

Impact of Natural Disasters on Schools

Natural disasters are unavoidable calamities that cannot be diverted, but their consequences can sometimes be reduced through effective monitoring strategies. Natural disasters affect many essential services, particularly those serving children. When storms, extreme temperatures, fire, earthquakes, cyclones, droughts, floods, and desertification occur, millions of children are prevented from attending school. Natural disasters occur everywhere in the world: earthquakes in Asia, droughts in East Africa, volcanic eruptions in the Pacific, landslides in Europe, and floods in Latin America. Nevertheless, the media reports of catastrophes affecting cities and metropolitan areas often overshadow the chronic fragility of the rural populations worst affected by these calamities. Education systems are regularly overwhelmed and disrupted by hazards and disasters. The primary purpose of school is to provide education to children in a safe environment. Schools are financed by the government and owned by the government and communities. There are many forms and designs of schools. Schools not only provide educational services but also provide recreational opportunities for children. Schools can also act as safe havens for all community members during times of stress. The concept of schools as a haven can be developed during the planning, engineering, and design of new schools by incorporating multitasking facilities, reinforcing structures, designing safe access routes, and selecting suitable locations. A haven often becomes a gathering point during disasters. Schools can be used for first aid, cleaning centers, refugee housing, and caring centers. The ground surrounding schools is usually well-designed, socially controlled, and accessible, allowing for the assembly of many residents. These characteristics support schools as a disaster response and relief center. However, unless schools are designed and built to withstand the forces of disasters, they could severely threaten the safety of teachers, students, and local community members [5, 6].

Emergency Preparedness Planning

Education is vital in preparing for and managing disasters. Disaster preparedness aims to achieve a satisfactory level of readiness to respond to any emergency. In preparing for a disaster, strategic reserves of food, equipment, water, medicines, and other essentials are necessary. Adequate food supplies are necessary for those involved in rescue operations and those affected by the disaster. It is essential to store several weeks' stock in advance. Some items that should be stored include portable and dry food items such as biscuits, bread, milk powder, sugar, rice, peas, semolina, and noodles. It is also essential to store canned or packed items for ready-to-eat meals such as potato chips, baked beans, and meat pies. Food items that require boiling, frying, steaming, or baking must be avoided. The necessary cooking facilities include kerosene cooking stoves, smoke-free cooking stoves, kerosene or LPG, and a cooking container. Affected schools should have a storage place for food supplies with limited access. Natural predicaments greatly hinder education, hence the need to minimize such impacts. Disaster preparedness is two-fold: preventive and remedial. Preventive preparedness entails developing and implementing plans to save lives, minimize disaster damages, and enhance disaster response operations. This includes resource analysis and plan development. The plan drafted following the analysis stage specifies roles and responsibilities. It is most effective if the plan is developed through legal channels. A multi-hazard risk assessment should be carried out to determine the risk levels and vulnerabilities, followed by the preparation of a contingency plan. It is necessary to prepare careful plans that mitigate risks, develop

manuals of guidelines, standard operating procedures, and contingency plans. Preparedness plans for schools include emergency exercises or training, warning systems, emergency communications systems, emergency evacuation plans, resource inventories, emergency personnel contact lists, mutual aid agreements, using community resources aid and public information systems [7, 8].

Policy Framework for Disaster Management

In conclusion, global pressures, coupled with the scope for almost all territories on Earth to be subject to a climate hazard, mean that it is imperative that schools are designed to resist all hazards. However, modelling potentially enormous losses caused by predictable hazards on a saved-life basis does not favour that goal. National and local strategies have emerged, but generally as an uneasy coalition between the safety and performance subcultures. Decision analysis can help inform and justify deliberative optimism bias against that coalition, providing a sound method to evaluate and explore ways to act beyond. Innovative policies that address a common problem, such as school safety against climate hazards, can be explored across the Pacific. Local policies addressing cross-border problems can then be examined for inclusion in multi-policy frameworks. New non-mandatory strategies, suitable for local use, can be iteratively tested through simple simulations that reveal their unlikely success under irrational assumptions. Methodologically robust modelling, beyond both mainstream global school safety modelling and analysis, can include the new national policies and modified forms of innovative policies that extend their goals to other territories, to better address transboundary problems. The early performance of the policies, after testing sensitivity to ignoring climate hazards, could be aggregated in a new way. Such modelling would further promote natural disaster risk reduction by exposing the enormous economic losses from crowding out 'future-ready primary schools by reactive 'disaster-proof' secondary schools in the world's most exposed nations. Implementing some new and/or tested successful innovative non-mandatory policies more widely could greatly reduce all climate hazard risks to education by the end of the century and beyond [9, 10].

Communication Strategies

Disaster management policies must recognize schools as key centers for disaster management and information dissemination. Given that students spend much time in schools, these institutions play a crucial role in alerting communities about impending disasters. Developing safety management strategies is essential to ensure schools can maintain communication with stakeholders and promote safety. Natural disasters negatively impact vital services, affecting children's education and health. They can disrupt learning programs and may traumatize students. Thus, schools should strive to maintain routines during catastrophic events. Policies should emphasize the importance of schools as centers for disaster awareness, urging them to prepare proactively against potential hazards. Many disasters result from human errors, such as fires and electrical faults, making it essential to incorporate schools into disaster awareness programs. Schools serve as platforms for disseminating vital information regarding safety and health risks, such as drug abuse. Furthermore, teachers and school managers should prioritize planning for disaster prevention and management strategies, acknowledging both human-induced and natural disasters. Safety audits should integrate disaster policies, while external service providers should contribute to safety plans. Effective safety strategies must encompass training, attitude, consistency, and implementation. Fire, a significant risk arising from human error, requires stringent measures, including fire codes and anti-arson protocols. Regularly monitoring safety mechanisms, such as signal detection, fire escapes, and extinguishers, should be a staple in school management discussions. Conducting fire drills unpredictably throughout the year is crucial, alongside integrating safety education into the syllabus, ensuring students know how to respond during such emergencies. Though some disasters are natural, their effects can be mitigated through awareness and precautions. Schools should embed safety management into their culture as a fundamental aspect of their operations [11, 12].

Post-Disaster Recovery

A literature review on post-disaster recovery highlights the necessity for schools to effectively respond after a disaster, focusing on restoring infrastructure and resuming teaching swiftly. This requires collaboration between school crisis response teams and the community, state, and national organizations to address the needs of affected children and families. Efficient disaster preparedness and rapid response are crucial for recovery, necessitating the availability of resources like counseling, food, and clothing. However, returning to the classroom does not guarantee that children are psychologically ready to engage with learning due to the trauma they experienced. Parents and school personnel need to support children in resuming normal activities and discussing their feelings about the incident, as unresolved trauma can lead to long-lasting physical and psychological issues. The perception of the event and the subsequent reactions from parents and school staff significantly impact a child's recovery. Community and school structures must provide mental health resources to ensure appropriate therapies are accessible for

children. Parents, being the most familiar with their child's feelings, play a critical role in facilitating conversations about the disaster. Schools can benefit from the involvement of parents and local community members in various supportive roles. Furthermore, school-based psychologists and social workers are key in aiding teachers by implementing healing activities, discussing disaster-related topics, promoting problem-solving skills, and fostering peer support. They also help ensure that teachers receive mental health support during this recovery period. A multidisciplinary team, including psychologists, social workers, community members, and religious leaders, should be involved in post-disaster therapy. These professionals must be trained to assist in trauma recovery and to help rebuild school and community structures. They should provide information about children's reactions to stress, effective therapeutic approaches, and guidance for conducting sensitive classroom discussions. Teachers should also prioritize their well-being and share their emotions to foster a supportive environment [13, 14].

Case Studies of Successful Policies

Two compelling cases vividly illustrate effective policies that significantly impact natural disaster response and education: New Zealand, which focuses extensively on addressing immediate needs such as the problem of teacher burnout following small-scale catastrophes, and Fiji, which highlights both the national and international efforts toward recovery in the face of disaster. The New Zealand case especially emphasizes the invaluable perspectives of educators and provides critical policy suggestions aimed at improving the entire spectrum of strategies from preparedness to recovery, thus offering insights that were largely absent in earlier literature regarding similar challenges. On the other hand, the Fiji case represents a broader application of national efforts, with a more recent emphasis on addressing the complexities arising from larger-scale disasters. This scenario proposes a series of near-term policies designed to facilitate and support students in their transition back to classrooms in the aftermath of a disaster. While the primary focus of this research centers on educational recovery, it is equally important to acknowledge that immediate response actions play a vital role in the overall process. Together, these two cases effectively enhance the understanding of current educational policy responses to the pressing challenges posed by natural hazards, providing key insights that can inform future strategies and interventions in this critical area [15, 16].

Role of Community Involvement

The community serves as a vital source of support after a natural disaster. Teachers often must step outside their expertise as daily incidents take precedence, requiring collaboration with the school crisis response team, community organizations, and state and national agencies. Effective disaster responses should originate from within communities, allowing the school crisis response team to partner with outside efforts to address the needs of children, families, and the community post-disaster. Following the 9/11 attacks, schools received a surge of phone calls from individuals seeking help, highlighting a crucial need for training and resources for school and community experts. Good disaster preparedness and prompt responses are essential for quicker recovery, emphasizing the importance of drills, simulations, and continuous protocol reviews to prevent injuries and facilitate recovery to a pre-disaster state. Enhancements in training involve customizing it for specific populations, engaging key emergency management representatives, conducting realistic drills, emphasizing repeated training, and ensuring swift information dissemination. Recovery mechanisms include providing counselors, educational support, food, clothing, and other resources by diverse professionals visiting schools. Parental and school involvement is critical in supporting children's return to normalcy, including opportunities for students to discuss their experiences of the disaster. Mental health resources should be accessible for community and school structures to determine suitable therapies for affected children and families. Community discussions are essential for children, parents, and schools to share thoughts on the recovery process. Post-disaster therapy strategies include supporting teachers, conducting healing activities, facilitating group discussions, providing problem-solving skills, fostering peer support, promoting resiliency, and ensuring comprehensive mental health support systems, all through a multidisciplinary team actively engaged in recovery efforts [17, 18].

Innovative Approaches to Disaster Management

Nearly a decade after the 2015 Sendai Framework for Disaster Risk Reduction was adopted, the Global Commission on Adaptation released a report emphasizing the urgent need for enhanced climate adaptation and resilience efforts. With increasing challenges to effective adaptation and disaster risk reduction, significant investments must be directed to vulnerable countries. It is crucial to develop the capacities of developing nations as partners in resilience-building. Additionally, an effective measurement system for progress in adaptation must be established and funded. This technical paper outlines an initial research agenda for the G-20 to tackle these challenges. It proposes the establishment of a G-20 Platform for Resilience, focusing on priorities for vulnerable countries and communities. Clear strategies and

deliverables are suggested to address these priorities. The platform's necessity is based on extensive consultation with experts and stakeholders from various sectors. The paper underscores the urgent need to transition to climate resilience actions to reduce vulnerabilities to climate risks amid runaway climate change. A vital mechanism in the G-20 for this transition is NAP/GI, which should be supported and scaled. To facilitate NAP/GI-based actions and financing, the Enhancing Development Bank Resilience and Action Plan is essential to ensure development banks' resilience [19, 20].

Challenges in Policy Implementation

China is developing the Earthquake Preparation Demonstration School (EPDS) project for primary and secondary education. However, implementation remains a significant challenge, as effective policies cannot enhance students' earthquake preparedness without proper execution. This requires collaboration among various organizations and individuals, who may have differing opinions on educational priorities, such as the conflict between earthquake education and college exam preparation in Japan. To ensure successful implementation, it is essential to communicate policy expectations clearly to schools. Effective information sharing and communication are crucial yet complex; for example, the EPDS project involves coordination between earthquake agencies and education administrations. This interplay can complicate implementation, often categorized as a "wicked problem." In selecting individuals for project interviews, we allowed district leaders to choose principals, recognizing potential selection bias based on personal preferences. Preparing for risks can ease teachers' burdens during actual natural disasters. Our findings indicate that educators are committed to supporting students and colleagues post-event, but a solid emergency disaster plan is vital for protection and recovery facilitation. School leaders significantly influence staff attitudes and must be equipped with strategies well in advance of potential disasters. Regularly updating and sharing emergency plans with all staff will ensure better preparedness, helping school communities return to normalcy swiftly while addressing emotional traumas for both educators and students [21, 22].

Future Directions in Disaster Management for Schools

Much remains to be done before all stakeholders in the education sector are equipped with the tools that guarantee schools become disaster-resilient spaces. To this end, several research avenues could be worth pursuing. Chiefly, the application and validation of the frameworks and methodologies in new contexts are paramount. If the goal of disaster management scholars is to positively impact education-disruption governance and resilience post-natural-hazard events and to protect the trust funds of children and their families, the proposed methodologies must be field-tested and appropriately adjusted in numerous institutional contexts beyond Central Sulawesi. This includes both more developed and less developed countries, settings in which steps towards disaster management have already been taken, though few build better, and in which institutional and financing opportunities are limited. Additionally, the scenarios need to be complemented with more focalized analyses. For instance, the examination of the effect of the same recovery and reconstruction policies on education facilities in a single district rather than five municipalities could provide higher-resolution data in terms of the ranking of intervention policies across districts. Ethnographic methodologies focused on both education and disaster management policies, and how the former could benefit from robust governance of the latter, merit further exploration. In many developing countries, education agency experts are rarely consulted until a natural disaster strikes, yet the quality, durability, and resilience of school facilities significantly depend on education policy and the funding afforded by the central government. Implementing a vision for disaster-resilient infrastructure must be grounded not only in assessment but also in the knowledge and experience of local practitioners over time, a challenge made vivid by the contrast between the hypothetical scenario and expected damages if the GSP policies were indeed in place. Further qualitative analysis would be invaluable in understanding stakeholder interests in education post-events and the crafting and implementation of resilience policies. Finally, a more comprehensive scenario analysis encompassing political, economic, and demographic shocks will shed further light on the complicated interdependencies affecting the resilience of the health and education sectors post-natural hazard events [23, 24].

CONCLUSION

The increasing prevalence of natural disasters requires a paradigm shift in how educational institutions approach risk management. Schools must be seen not only as centers of learning but also as critical actors in disaster preparedness, response, and recovery. Effective policies should mandate risk assessments, structural safety reinforcements, emergency training, and communication systems that include all stakeholders: students, teachers, parents, and community members. Countries like New Zealand and Fiji exemplify how policy-driven strategies can be successfully implemented to protect educational systems from disruptions and trauma. Furthermore, innovative and inclusive approaches that integrate local knowledge, government resources, and international support are crucial for sustaining resilience in

schools. By embedding disaster risk reduction into education policy and practice, nations can ensure that schools remain safe havens in times of crisis and catalysts for long-term community resilience.

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CITE AS Atukunda Lucky (2025). Managing Natural Disasters: Policies for Schools. IDOSR JOURNAL OF ARTS AND HUMANITIES 11(3):59-65.
https://doi.org/10.59298/IDOSRJAH/2025/1135965