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How can school education impact earthquake risk reduction in Lebanon?

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Abstract

Purpose – The purposes of this article are to outline the existing seismic risk in Lebanon and to identify the crucial role of Lebanese school education in advancing both a culture of safety and the resilience of Lebanese communities to destructive earthquakes.

Design/methodology/approach – This paper sets out to illustrate the exposure of Lebanon to seismic hazards and to investigate the current status of Lebanese public schools in terms of their preparedness for earthquake events. Interviews were conducted with principals from 17 different schools. From these interviews emerged the following four themes: curriculum deficiency, the structural vulnerability of school buildings, a lack of preparedness for natural hazards and the need for community engagement in this regard.

Findings – School principals in Lebanon confirmed the need for schools to engage in earthquake disaster preparedness and mitigation, as well as to show an enthusiastic attitude for earthquake hazard reduction in terms of hazard education, greater preparedness and community engagement.

Originality/value – As this article highlights the important role of school education in promoting earthquake disaster risk reduction, it has beneficial implications for educators, policymakers, administrators and government officials.

Keywords Education, Lebanon, Disaster risk reduction, Earthquake, School, Seismic mitigation

Paper type Research paper

Introduction

The uncontrollable social consequences, high number of fatalities, and massive amount of destruction induced by earthquakes are key challenges for every vulnerable community. Earthquakes can inflict damage not only to residential buildings but also to infrastructural elements such as roads, telecommunications, hospitals and schools. Recent earthquake destruction has shown that loss of life can only be effectively reduced through public education, awareness, preparedness and planned response action programs (Spence, 2007).

It is well documented that children are one of the most vulnerable demographics in the event of a disaster. At the end of the twentieth century, disasters affected an estimated 66.5 million children each year (Penrose and Takaki, 2006). This number is expected to triple throughout the second decade of the twenty-first century, with up to 175 million children affected yearly by disasters triggered by climate change (Save the children, 2008). As children are at high risk during disasters, integrating disaster risk education in school curricula represents an effective approach to enhance children's knowledge and awareness of potential disasters. Consequently, disaster risk



information may then be communicated to students' friends and family members (Ronan *et al.*, 2008; Wisner, 2006).

Earthquakes can destroy vulnerable school buildings and affect the functional capacity of educational systems, which may hinder students' academic progress and reduce educational outcomes. More than 10,000 school buildings collapsed as a result of the 2005 Pakistan earthquake (Hewitt, 2007), leaving surviving children without education. After Hurricane Katrina, hundreds of students in New Orleans were turned away from public schools due to a lack of space and shortage of teachers (United-Teachers-of-New-Orleans, 2007). As many as 1,150 schools in Indonesia were damaged or destroyed in the 2004 earthquake (UNICEF, 2006). Following Hurricane Katrina, displaced students suffered significant challenges (Casserly, 2006). Vital records were lost in the storm, resulting in delayed enrollment for some children (Picou and Brent, 2007). Although getting children back into school was a major concern among parents in the area (Fothergill and Peek, 2006), many families did not immediately enroll their children in new schools because they were unsure of how long they would be staying in their new community.

In most Middle Eastern countries, including Lebanon, schools are generally vulnerable to damage during moderate earthquakes due to poor construction methods and inadequate building codes. Recently occurred earthquakes in Morocco, Algeria, Iran and Egypt have evidenced such seismic vulnerability. The United Nations Center for Regional Development considers school education to be a necessity in facilitating the implementation of disaster training programs and building social capacities for disaster risk reduction. Among a variety of functions, schools can be used as community centers for earthquake disaster prevention and mitigation (Pandey and Okazaki, 2005).

Earthquake hazards in Lebanon

The geographical position and the geological formation of Lebanon, as well as the documented historical seismic activities along the eastern Mediterranean, evidence the area's exposure and vulnerability to earthquake disasters. Experts believe that Lebanon is not only vulnerable to earthquakes but is also due for a major earthquake in the future (Galey, 2010; Taylor, 2012). Seismic activity in Lebanon and along the Dead Sea Fault has been observed and documented for > 2,000 years. Strong earthquakes have ruined many cities and towns, transforming thousands of buildings into rubble and leaving hundreds of thousands of casualties in the Eastern Mediterranean region. The most notable and prominent in the region took place in 551 AD; 1,202 AD; and 1,759 AD, with magnitudes estimated to have reached 7.5 on the Richter scale. These earthquakes caused tremendous destruction in the coastal cities of Beirut, Tripoli, Jubail, Saida, Tyre and in the ancient city of Baalbek.

Unfortunately, the existing seismic hazards and high potential for future destructive earthquakes in Lebanon have received little attention from the Lebanese authorities and the local public, even though three of the recorded and documented earthquakes that occurred in Lebanon over the past 1,500 years had magnitudes exceeding 7.0 on the Richter scale. The last major earthquake, which occurred along the major Yamouneh ramifications fault system in 1759, measured 7+ on the Richter scale and killed 40,000 people in Beirut and Damascus (Elias *et al.*, 2007). Experts forecast that major earthquakes on this fault system occur every 250-300 years. In addition, the newly discovered Mount Lebanon thrust was blamed for the major destructive 7.5 magnitude

earthquake occurred in 551 AD which killed > 30,000 and generated a large tsunami that destroyed many of the major coastal cities in Lebanon (Elias *et al.*, 2007).

Regrettably, Lebanon currently has an insufficient infrastructure to manage such disasters, and there is limited disaster planning at both the government and local community levels. In fact, the country lacks policies and institutions for earthquake hazard preparedness and mitigation. As there is good reason to believe that Lebanon will experience a major catastrophe with shattering consequences in the future, the country should be on a higher state of alert than it currently is (Baytiyah and Naja, 2013).

Why should schools in Lebanon be involved in earthquake risk mitigation?

It has been confirmed through previous research that school education is one of the best methods to improve earthquake disaster awareness and preparedness in communities, especially when disaster education programs are integrated into school curricula at all levels (Izadkhah and Hosseini, 2005). However, school education programs in Lebanon do not cover earthquake disaster awareness and preparedness, and no commitment to seismic hazard reduction has been made over the past few decades. Although the country's school curricula are diverse and comprehensive, they fail to adequately address issues concerning the reduction of climate change and protection from earthquake hazards. There is also an obvious lack of collaboration between schools and communities in terms of encouraging the development of disaster mitigation strategies. Therefore, Lebanese students at all levels are traditionally ill-informed, unaware of and unprepared for the potential risks of seismic hazards.

Currently, > 75 per cent of the Lebanese population lives in areas at a moderate-to-high risk of an earthquake, and > 80 per cent of the building conditions in these areas do not meet the basic seismic design standards and requirements. Schools are included in this percentage, which are no safer than any other building in terms of their location, design and construction quality. The majority of the existing 1,280 public schools in Lebanon are concentrated in urban areas, while the rest are dispersed in rural areas.

The lack of both government intervention and the enforcement of seismic requirements in the designs of newly constructed buildings and essential facilities such as schools and hospitals has raised concern regarding the vulnerability of Lebanese communities to earthquakes. Over the past decade, the dearth of development programs, poor earthquake education opportunities and the poor quality of life conditions in rural regions of Lebanon have led to the movement and resettlement of many underprivileged citizens in the country to major coastal cities for better job prospects and improved living conditions. As a result of this, improperly constructed settlements have emerged and expanded along Lebanon's urban periphery that poses demographical, social and economical challenges. A high percentage of the migrant populations in these areas are low income and reside in shoddy, crowded dwellings that have been constructed without careful planning or consideration for environmental issues such as earthquakes, landslides and floods. Therefore, such new, quickly growing and poorly educated communities, in addition to most of the residential districts in Lebanon, are highly vulnerable to earthquake hazards, and may suffer heavy losses in the case of an earthquake occurrence unless they are properly educated and adequately prepared for such hazards.

The Lebanese government has thus far exhibited no effort to assume responsibility for or to invest resources in earthquake disaster education in the country's educational system. In addition, the mass media, especially television programs in the country, have poorly addressed this issue. Thus, how can unaware and unprepared Lebanese communities be taken as responsible for their own safety in the event of an earthquake? The Ministry of Education in Lebanon must, therefore, take the initiative to work collaboratively with educators and school administrators to establish a nationally recognized earthquake disaster risk education program that will enhance the ability of Lebanese communities to respond to and recover from future destructive earthquakes. If earthquake disasters are to be prevented in Lebanon, a national mitigation plan must be implemented as a part of a disaster risk reduction strategy in which educational institutions operate as key players in educating vulnerable communities on what to do in the case of a destructive seismic event.

The role of Lebanese schools in promoting earthquake risk mitigation

The educational role and curriculum adjustment

Education remains one of the most effective ways to convey disaster risk awareness in any vulnerable community and the fastest way to yield satisfactory results when it comes to disaster risk mitigation (Coburn and Spence, 2006). Drawing the conclusions of the Yokohama Strategy review, the World Conference on Disaster Reduction came up with five priorities for action under the Hyogo Framework 2005–2015 (Hyogo-Framework, 2005). The third priority of this framework was to “use knowledge, innovation and education to build a culture of safety and resilience at all levels”. By this standard, it is clear that the integration of earthquake disaster risk education in schools is key to building the resilience of Lebanese communities to earthquake catastrophes. A recent study of school children from different parts of Japan suggests that it is not an earthquake experience but a community's education that is most effective in motivating a person to take risk-reducing action (Shaw and Goda, 2004; Shaw *et al.*, 2004). Educating children and young adults about disasters can reduce injuries and fatalities in the event of a destructive earthquake.

Today, schools and youth education play a crucial role in raising awareness as to the effective management of natural hazards. Children learn fast and easily, and what they learn about natural hazard awareness can be transferred to their families. Thus, children should be encouraged by their schools and specifically by their teachers to actively engage in building a culture of safety against natural and man-made hazards. As 30 per cent of the Lebanon's population is under the age of 18 years, Lebanese schools possess great potential to affect the social attitudes of communities with regard to earthquake disasters (U.S. Global Health Policy, 2012). This article proposes three roles that schools can adopt to mitigate seismic risks:

- (1) an educational role through curriculum adjustment;
- (2) a protective role through seismic code enforcement; and
- (3) a social role through community engagement.

Aside from being responsible for delivering education and for creating effective learning environments for students to develop interpersonal skills and knowledge, schools should also be counted upon as primary institutions for educating on safety issues in communities. The integration of earthquake risk awareness and preparedness activities

in school programs is a necessity for both schools and their surrounding communities in Lebanon. Earthquake disaster education can take different forms and be made fun and interesting for students through the use of videos, posters, comic books, puzzles, activities, drills, competitions and computer games (Izadkhah and Hosseini, 2005). Technological tools can creatively transmit earthquake awareness knowledge to students in ways that are both engaging and interactive. However, to facilitate the transmission of earthquake disaster education to students, such information must be disseminated to teachers in public schools. Teachers in vulnerable communities also need to be educated on earthquakes and be trained so that they can teach earthquake awareness to their students.

The protective role supported and seismic code enforcement

Infants and young children represent a major segment of a population that suffers from the devastating consequences of disasters (Peek, 2008). Due to their partial or total dependence on adults, children are emotionally and physically vulnerable to sudden disasters such as earthquakes. Older children are equally at risk for injury or death, as well as serious psychological or developmental issues, in the event of an earthquake disaster. Thus, such potential for physical harm and emotional strain must be addressed by the school system and educators to protect the well-being of children. Disasters disturb children's daily lives, leading to school disruptions, poor academic progress and potentially destructive behaviors such as violence, alcohol and drug abuse (Silverman and Greca, 2002). Due to the loss of immediate family members as the result of a natural disaster, children may feel isolated or displaced in unfamiliar and unfriendly environments. These negative effects of earthquake disasters may have severe consequences on a child's physical health, emotional growth and academic performance.

Earthquakes commonly destroy vulnerable school buildings and affect the functional capacity of the educational system, which serves to hinder students' academic progress. As many as 1,150 schools in Indonesia were damaged or destroyed in the country's 2004 earthquake (UNICEF, 2006).

Approximately 90 per cent of earthquake fatalities occur in developing countries (OECD, 2008) due to a lack of knowledge, awareness and preparedness. Moreover, poor design and construction practices, as well as corrupt construction sectors, have contributed to a high number of earthquake victims (Escaleras *et al.*, 2007). While the vulnerability of school buildings and the safety of students have traditionally been ignored by most developing countries around the world, recent catastrophic earthquake disasters have made it clear that vulnerable communities must prioritize the safety of school buildings against such disasters. Since 2000, earthquakes have claimed the lives of > 28,000 children and teachers due to unsafe school buildings (Petal, 2008). The safety of schools requires proper site selection, design and construction for new schools, while existing unsafe schools should be rebuilt retrofitted. It is important to note that safety measures are inexpensive when taken into consideration during the design and construction of a new school. The retrofitting of schools and the implementation of new seismic designs that consider safety measures can promote the value of safe buildings in surrounding communities and, consequently, contribute to widespread earthquake disaster mitigation.

The social role and community engagement

Schools play a significant role in shaping the attitudes of young generations toward various aspects of life. Educators play a key role in infusing and supporting social attitudes that can contribute to the advancement of society. Thus, instruction in schools should not merely focus on conveying information, but encourage new ideas and discussions, help to shape and reform different views and to inspire values that impact the intellectual capacities of individuals and the well-being of their communities. The process of shaping and reforming values and attitudes in education begins in elementary school, where children are exposed to basic knowledge, and extends through high schools and university, in which students are challenged to build their intellectual and reasoning capabilities, gain new skills, sort out truths from superstitions and make positive life choices.

There is evidence that cultural misconceptions, as well as incorrect beliefs and attitudes, may lead to inadequate behaviors when preparing for or responding to suddenly occurring disasters (Alexander, 2007). Only through rational thinking and well-structured school educational programs on seismic risk reduction in communities can a community effectively survive the ferocity of a sudden earthquake. Contrarily, the absence of educational initiatives, the deficiency of curricula with regard to disaster knowledge and a lack of cooperation between communities and civil society organizations in addressing common misconceptions about natural hazards and earthquake risks will slow the progress of disaster risk reduction in vulnerable communities.

Case study. To closely examine the potential role of Lebanese schools in earthquake disaster preparedness, mitigation and prevention, the author chose a qualitative research approach to discern Lebanese school administrators' degree of concern toward future earthquakes in Lebanon. Among the 1,283 schools, 40 schools located in urban areas were contacted for potential interviews, and 17 school principals agreed to participate in an interview for a duration of 30–40 minutes. These interviews reflected the current awareness and preparedness of schools regarding disasters in general and earthquakes in particular. In addition, these interviews allowed the participants to express their concerns and give suggestions in their own words. The questions focused on the level of awareness and preparedness that teachers, staff members and students possess with regard to a potential earthquake disaster. The interview questions were based on previous research studies stressing the importance of integrating disaster education in the curriculum (Hyogo-Framework, 2005; Shaw *et al.*, 2004; Izadkhah and Hosseini, 2005). Other questions focused on the current status of schools' buildings and emergency response (Burling and Hyle, 1997; Naja and Baytiyeh, 2014; Petal, 2008). The interviews consisted of the following main questions:

- Does the curriculum involve formal disaster education regarding earthquake risks in Lebanon?
- Do teachers emphasize the social effects of natural hazards in science classes?
- Do you regularly perform educational activities outside of classrooms related to earthquake risk awareness (e.g. field trips, posters, presentations, etc.)?
- Is the school prepared for emergency events?
- Are the students, teachers and other staff members given instructions on how to respond in the case of an earthquake?

- Has the school building been inspected by experts in terms of its resistance capability to earthquakes?
- Does the school organize any activity to inform the community about the hazards of earthquakes?

After transcribing the interviews, the data were analyzed inductively using a constant comparative method (Bodgan and Biklen, 2007; Creswell, 2003). The data were coded for the key points and patterns that related to the concerns expressed by school principals on dealing with a potential disaster. The themes that emerged included the following:

- curriculum deficiency;
- the school buildings' structural vulnerability; and
- lack of preparedness and community engagement with regard to natural disasters.

The coded themes are detailed below using excerpts from the participants' comments.

Curriculum deficiency

Curriculum deficiency was a theme that was expressed by many participants.

One participant stated the following:

Our curriculum does not cover any aspects of disaster either in the sciences or the social sciences. It is extremely important for students to be exposed to knowledge that improves their awareness of earthquake hazards.

Another participant stated the following:

Our students are not aware of earthquake risks in Lebanon because the curriculum does not emphasize such subjects. We can't expect students and teachers to discuss disasters in classrooms if the curriculum does not cover such a concern.

Finally, yet another participant made the following statement:

The history books cover chapters about wars while neglecting local historical earthquakes that led to the destruction of major Lebanese cities in the past. These books should be re-written to highlight the possible risks of the near future.

School buildings' structural vulnerability

The majority of participants were dissatisfied with the quality of school buildings.

One of the participants noted the following:

The school building is old and poorly maintained. This building is not suitable to be a school, as it was originally designed as a residential building. I question its structural quality, and I notified the Ministry of Education about this concern.

Another participant had this to say:

Honestly, I don't know much about earthquakes, but I've been here for 18 years and no one came for building inspections or a structural evaluation.

Finally, one participant stated the following:

Our school building is similar in design and construction to the surrounding residential buildings. And as I know, they are not built to resist earthquakes.

Lack of preparedness

Many participants repeatedly mentioned the lack of preparedness for any type of emergency.

One participant stated the following:

No, we're not prepared. The school does not have the adequate resources to train teachers and students how to effectively respond during and after an earthquake. I believe that this is the responsibility of the Ministry of Education, and that we as administrators are left behind on our own to be responsible for emergencies with no support.

Another participant added the following:

We don't have the means to prepare for such concerns. In the end, god will protect us.

Finally, another participant gave the following statement:

Emergency preparedness is not on our priority list. Our concern is to prepare our students to pass national examinations.

Community engagement

Community engagement was a theme that repeatedly came up in our participants' statements.

One participant stated the following:

Interacting with the community on issues such as disasters and public awareness would be very beneficial for our students. However, the school curriculum is tight. We don't have time to devote to the community.

Another participant added the following statement:

There is a gap between the school and the community. Both parties should work together to enhance our educational goals.

Yet another participant commented as follows:

School activities within the community need financial resources. We don't have money to support such activities. I believe that the Ministry of Education should fund educational activities for communities on topics such as epidemics and emergencies.

Discussion of findings

The responses obtained from the interviews identified obvious deficiencies in the country's school curricula related to disaster risk education, as well as confirmed a lack of awareness as to earthquake hazards among school students and staff members in Lebanese public schools. Such a lack of awareness as to seismic activity is supported by previous studies in Lebanon (Baytiyeh and Naja, 2013). Thus, these findings should be urgently addressed by educational institutions and Ministry of Education (MOE) officials. According to the principals of this study, the "curriculum does not cover any aspects of disaster either in the sciences or the social sciences". This implies that schools in Lebanon only cover the social effects of climate issues and other earth science issues marginally because such issues are not part of the curricula. The principals expressed their willingness to integrate earthquake disaster hazard mitigation and community engagement in their curricula if it was requested and supported by the MOE. As such,

one principal quoted “These books should be re-written to highlight the possible risks of the near future”.

However, by the time the Lebanese Government realizes the need for curriculum reform to cover earthquake disaster reduction, a disaster may have already occurred. Therefore, a non-formal educational approach may yield quicker results in this regard. Non-formal education as described by Coombs (1985) refers to learning outside the formal educational system, which tends to be short-term and voluntary. For example, with the collaboration of the Lebanese Red Cross and local civil defense divisions, specific seminars and workshops could be designed to address the topic of disaster response. In the time being, however, schools in Lebanon should be alerted as to the urgent need to inform students about earthquake hazards and risks, as well as how to respond to potential earthquakes in the future. As one principal stated “we as administrators are left behind on our own to be responsible for emergencies with no support”. Training Lebanese teachers in this regard is a prerequisite and mandatory condition for any educational disaster program to help change community attitudes regarding earthquake hazard awareness and preparedness.

The principals of this study also gave firm responses concerning the negligence of the government with regard to the rehabilitation of school buildings. The participants stated their schools to be old, deteriorated and structurally questionable. For instance, one principal commented: “The school building is old and poorly maintained [...] I question its structural quality”. The miserable conditions of certain schools in the country call for immediate action. Given the potential threat of an earthquake in the future, students at all levels should be informed as to the structural safety of their schools, as well as be encouraged to work with teachers and community members to minimize risks in the case of a destructive earthquake. On March 21, 2013, the Lebanese Minister of Education held a media conference and issued a warning about the structural integrity and safety of public schools, urging the cabinet to release the necessary funds for a rehabilitation project to ensure school safety. He also asserted that there are a large number of public schools that have been classified as unsafe and structurally unsound, which may lead to catastrophic consequences. It is obvious that public schools in Lebanon are aging, poorly maintained and unable to protect children in terms of seismic resistance. It would be ironic to promote earthquake risk education in schools while allowing children to attend school in highly vulnerable buildings subject to collapse during an earthquake.

Just as for schools located in other earthquake-prone regions, schools in Lebanon should be evaluated to ensure their structural integrity, as well as seismically retrofitted to enhance their seismic resistance, to ensure the safety of students and personnel. Previous studies on the structural vulnerability of public school buildings in Lebanon have expressed an urgent need to strengthen such facilities to prevent catastrophic collapses during future earthquakes. The majority of schools in Lebanon share similar architectural and structural features that are significantly vulnerable to an earthquake’s lateral and twisting actions. The government has not been helpful in this regard. For instance, Decree No. 646 (for seismic design regulations in Lebanon), which was issued in 2005, exempts buildings composed of three floors or less from having to comply with seismic requirements, and this includes schools and hospitals. Such a strange exemption should be reconsidered, as it is not based on consolidated facts or scientific verification. The decree fails to consider observed and documented structural collapses induced by

previous earthquakes in Turkey, Iran, China and Haiti. Two devastating earthquakes in Turkey in 1999 led to the destruction of 22 elementary schools and 21 secondary schools, while another 267 basic education schools and 114 secondary schools received minor to moderate damage (Erdik, 2000).

The lack of seismic retrofitting observed in Lebanese public school buildings is the responsibility of the government and the community. Such neglect is due to poor seismic risk awareness among government officials and clearly reflects the absence of any national earthquake mitigation plan to protect essential facilities. When structural safety is ensured, schools can maintain their educational roles following an earthquake disaster, and even provide relief support in the form of shelter for earthquake victims (Shaw and Kobayashi, 2001). However, there is an unfortunate lack of interest in Lebanese schools to advocate for earthquake disaster mitigation or local earthquake awareness campaigns. This is perhaps due to the way Lebanese communities perceive and value schools as social institutions. Communities in Lebanon fail to understand the social capabilities of an educational institution beyond merely offering a student a diploma. Public schools in Lebanon contribute to such a perception in failing to assert their social role in community advancement and reforming misconceptions inherited by false beliefs or traditions. These schools have yet to require their students to engage in community services or volunteer activities. Students in public schools have never been taught the value of such engagement or the importance of collaboration with community groups and other social organizations. One principal quoted “the school curriculum is tight. We don’t have time to devote to the community”. This implies that public schools in Lebanon have never strived to develop their social role and status beyond being reputable and competitive educational curricula providers.

Therefore, public high schools in Lebanon should be urged to partner with families and community organizations to become more responsive and supportive with regard to facing the threats and the challenges of potential earthquakes in the future. As one principal elaborated “Interacting with the community on issues such as disasters and public awareness would be very beneficial for our students”. School officials should be encouraged to establish good relations with a range of community partners, including businesses, universities, Lebanese Government agencies, healthcare facilities, religious institutions and volunteer organizations to promote the resilience of communities to earthquake disasters. Schools in Lebanon should be judged and evaluated not only by their academic successes but also by their community services and successful partnerships with community organizations. Activities and programs initiated by Lebanese school officials can serve to unite local communities to work on earthquake disaster risk reduction, and may even have an influence on the existing apathy toward earthquake risk mitigation. Such collaborations should be driven by the ideal of strengthening Lebanese communities and protecting school children against earthquake disasters (Ronan and Johnston, 2005).

Conclusion

Due to the fact that Lebanon is on the verge of a destructive earthquake with cataclysmic consequences, school administrators in Lebanon are here urged to integrate earthquake disaster risk education into their curricula and to show enthusiasm with regard to the dissemination of earthquake knowledge in their communities. This paper outlined the prospective educational, protective and social roles that Lebanese public schools can

play in earthquake disaster risk reduction, and emphasized the need for strong collaboration between schools and community organizations for better earthquake disaster mitigation. The interviews of this study revealed four themes:

- (1) curriculum deficiency;
- (2) structural vulnerability of school buildings;
- (3) lack of preparedness for earthquake disasters; and
- (4) the need for community engagement in this regard.

Such themes should be considered in any future attempt to reduce the seismic vulnerability of schools or to improve the resilience of Lebanese communities to earthquake hazards. If Lebanon is to be saved from such an imminent disaster, the MOE should prioritize both disaster risk education and the safety school buildings. Although safety cannot be guaranteed during an earthquake, education, planning and preparedness can surely save lives, drastically reduce injuries and protect properties. The engagement of Lebanese communities in disaster preparedness activities will also facilitate the reform of negative social attitudes toward earthquake mitigation, as well as help to disseminate earthquake knowledge and disaster information throughout the country's population.

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