Scaling-up Comprehensive School Safety Assessment in Laos and Indonesia

Global Alliance for Disaster Risk Reduction & Resilience in the Education Sector

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All Pillars of Comprehensive School Safety

Governments need standardised data to identify how well policies are being implemented at the school level, and to adjust course accordingly. Without efficient and standardised methods for collecting data on school exposure to hazards, the conditions of their facilities, their disaster management plans, and their knowledge of disaster risk reduction, governments cannot identify and prioritise their interventions to support school safety nor can national progress towards school safety be monitored over time. The Comprehensive School Safety (CSS) Assessment Suite is a package of methods and three digital tools that can assist governments in monitoring, evaluating, and intervening for school safety.

- CSS First Step is a simple smart phone app for students, teachers, and community members that encourages awareness of and interest in school safety. CSS First Step asks users to answer basic survey questions about the school site, relevant hazards, and local disaster management strategies. Based on the responses, the app automatically generates an e-mail back to the user with recommended next steps for action to improve school safety.

- CSS Safe Schools Self-Assessment Survey (SSSAS) uses a smart phone or tablet to guide school assessors, such as government officials or school management committees, in collecting in-depth, non-technical information and photos on school safety at a low cost. Users receive a summary report, along with recommendations for action. Separately, authorised government officials can use a web-based data portal to generate reports with summary data for the schools in their jurisdiction.

- VISUS CSS, which stands for the Visual Inspection for defining Safety Upgrades Strategies, is a multi-hazard school safety assessment methodology that focuses on technical assessment of school structures and facilities. Surveyors using VISUS must be trained and have expertise in construction or engineering. After surveyors have collected data at school sites, the data is sent for remote automated processing. The app returns individual school and collective summary reports, including budget estimations for safety upgrading.

The SSSAS tool was piloted at nearly 150 schools in Laos in 2015. Provincial reports generated by the SSSAS tool helped authorities understand school safety better. Teachers and representatives from the Ministry of Education and Sports indicated that the use of the visuals within the SSSAS tool makes the tool particularly useful for school management committees, as well as education and disaster management authorities. VISUS was piloted in Indonesia in a similar number of schools. Local surveyors from the engineering and architecture departments of local universities and from vocational schools were trained to operate VISUS and education sector authorities learned the VISUS assessment process.

The CSS Assessment Suite tools are still in the early stages of piloting. In adopting these technologies, countries must overcome challenges, such as identifying local stakeholders and subject-matter experts to guide country-level adaptation. Local stakeholders also need to be prepared to operate new technologies and sustain the process of data collection, analysis and decision-making.

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Assessing and Implementing Structural Interventions for Schools in China

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Global Alliance for Disaster Risk Reduction & Resilience in the Education Sector

Pillar 1: Safe Learning Facilities

In 2009, the Ministry of Education (MoE) developed a program that mandated the seismic assessment and, as needed, the retrofit or reconstruction of every primary and secondary school in China within three years. The National Primary and Secondary School Building Safety Project was developed a year after the 2008 Sichuan earthquake, also called the Great Wenchuan earthquake, which resulted in the deaths of approximately 87,000 people, including 10,000 schoolchildren (Shuanglin, 2016; Sheth, 2008). The M_s 8.0 earthquake revealed widespread seismic susceptibility among China's school building stock, with 7,444 school buildings damaged or destroyed (Chen & Booth, 2011).

Since the adoption of the Code for Seismic Design of Buildings in 1989, which was updated in 2001, China's written seismic building code has been consistent with international standards (Ministry of Construction of the People's Republic of China, 2001). Despite the presence of a robust seismic building code, the Sichuan earthquake revealed gaps between building code standards and building construction practices. The gap was particularly problematic in rural areas, where many buildings are older than the country's building code and were never subject to seismic regulations.

The year after the earthquake, the MoE established the School Building Safety Project, which mandated the assessment and retrofitting or reconstruction of weak primary and secondary schools nationwide, including those unaffected by the Sichuan earthquake. Note: the total number of school construction projects completed, as well as the number of projects remaining, is unavailable at the time of publication.

The National School Safety Office supervised the project and managed data on a nationwide scale and coordinated with local governments to direct their own project management and implementation. Provincial governments primarily played an administrative role, managing data, funds, and helping local governments with school assessments. City and county governments were responsible for coordinating the assessments with schools and technical teams, collecting and providing school data to provincial authorities, and implementing the retrofitting or reconstruction projects (Ministry of Education, 2009a). The central government allocated approximately 30 yuan billion over three years toward the School Building Safety Project while approximately 350 billion yuan came from provincial governments (Yinfu, 2014).

Professional teams assessed the schools using uniform technical standards outlined by the MoE. Assessment teams then recommended whether the school was safe, or should be retrofitted or demolished (Guo et al., 2014).

Based on these recommendations, the individual school worked with a design company to create a school design plan and accompanying project budget. The school then applied for the necessary funding from the local government (Guo et al., 2014). After the local government approved a school's design plan and budget proposal, the school would contract a private company to complete the construction plan.

High levels of organisation and coordination between governments and a large budget from the central and provincial governments helped the project develop quickly. Though the School Building Safety Project has already created thousands of safe schools, and can largely be considered a success story, China will need to ensure that the new standards of design, construction, and construction monitoring continue to be applied to new school construction. New and retrofitted schools, especially those in rural areas, will need sufficient funds for school maintenance and repair to ensure that the successes of the School Building Safety Project are sustained.

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Guiding Local Governments to Strengthen Unsafe Schools in Japan

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Global Alliance for Disaster Risk Reduction & Resilience in the Education Sector

Pillar 1: Safe Learning Facilities

In 1981, the Ministry of Land, Infrastructure, Transport, and Tourism heightened building standards to ensure the safety of building occupants even in high magnitude, rare earthquakes. School buildings constructed after 1981 and subject to these standards were considered safe. However, school buildings built prior to 1981 and not retrofitted were not.

In 1995, the national government made national subsidies available to all pre-1981 public and private schools for school assessment and retrofitting. However, many local governments did not take advantage of the subsidy program.

Realising that municipal governments needed guidance to implement school assessments and retrofitting, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) organised a working group of earthquake and planning experts, architects, and local government representatives to develop guidelines for the planning and implementation of school building retrofitting projects in late 2002. The resulting guidelines, published and distributed to local governments in 2003, described the basic concepts of structural earthquake safety in schools, how to prioritise retrofitting projects, and methods for planning and implementing retrofitting projects. These guidelines directed local governments to:

- Establish a steering committee consisting of relevant stakeholders in school safety and disaster prevention, including administrators, teachers, engineers, and academic experts.
- Conduct a baseline survey of school buildings inquiring about the condition of facilities, building design, presence of active fault, school status as an evacuation centre, and plans for closure or merger.
- Prioritise school buildings for vulnerability assessment and/or seismic diagnosis based on the number of floors, year built, and other estimates of structural integrity.
- Conduct a vulnerability assessment in cases where prioritisation surveys indicate a building was structurally weak or dilapidated. The vulnerability assessment scored a building's deterioration. Scores below a threshold had to be reconstructed; scores above it had to be further evaluated using a seismic diagnosis.
- Conduct a seismic diagnosis of buildings with certain prioritisation and vulnerability scores in order to calculate a seismic index of structure and a horizontal load-carrying capacity index. These two indices were then associated with a low, medium, or high risk of collapse in earthquake.
- Determine the urgency of projects using the results of the seismic diagnosis. Local governments were told to consider schools with high risk of collapse as cases with high urgency.
- Formulate an annual plan after reviewing the list of school facilities that require structural intervention in their jurisdiction. Local governments were told to consider the extent of work, associated costs, and number of high-risk buildings that required urgent attention.

Using the technical and planning guidance from the MEXT guidelines, as well as national subsidies available for school retrofit projects, municipal governments across the country began implementing school retrofits and reconstructions in their jurisdictions.

By 2015, approximately 52,000 elementary and junior high schools had been either assessed as seismically safe, retrofitted to be seismically safe, or torn down and reconstructed. Between 2002 and 2016, the percentage of earthquake-resistant public elementary and junior high school buildings in Japan increased from just 44.5% to 98%.

MEXT's development of comprehensive guidelines greatly facilitated program progress by providing local governments with detailed, step-by-step information for program planning and implementation.

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Designing and Building Earthquake-Safe Schools in Uttar Pradesh

Global Alliance for Disaster Risk Reduction & Resilience in the Education Sector

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Pillar 1: Safe Learning Facilities

Most of Uttar Pradesh, India's most populous state, sits within high seismic hazard zones – a problematic location because many buildings are poorly constructed and prone to collapse during large earthquakes. After the 2001 Gujarat earthquake, the Uttar Pradesh government developed a proactive approach to earthquake risk reduction in the education sector. In 2006, the government partnered with United Nations Development Programme (UNDP) Disaster Risk Management Programme and Sarva Shiksha Abhiyan (SSA), a national program aimed at expanding basic education access, to incorporate earthquake-resistant designs into all future school building plans.

The new designs were developed in a four-month period, in time to apply to 6,850 school buildings and 82,039 classrooms, planned for construction the following year through World Bank financing. Each new design came with a detailed construction manual and cost estimates. After the National Seismic Advisor and state officials evaluated and approved the designs, the Uttar Pradesh government revised its school construction budget to reflect the additional cost; adding earthquake-resistant design features caused only an 8% cost increase per unit.

To ensure proper construction, SSA held training workshops to teach thousands of masons about earthquake risks, show them new school design concepts, and give them hands-on practice with the new designs. Because the new school designs applied to all 70 districts of Uttar Pradesh, UNDP and SSA designed a cascade approach to training designed to reach as many local masons as possible.

In May 2006, UNDP introduced district-level education officials in all 70 districts to the new school designs. In June and July 2006, UNDP held master training workshops for engineers and education officials, with support from Orissa Development Technocrat's Forum. Four representatives came from each district. A month later, the master trainers taught training sessions in their respective districts with education officials, engineers, and local masons. District training sessions lasted two days. The first half focused on earthquake-resistant construction theory and methodology using photographs and manuals. In the second half, participants built their own earthquake-resistant models using techniques from the class.

Between 2006 and 2007, over 6,844 buildings were built using the new earthquake-resistant designs (Umrao, 2007), yet substantial challenges remain. Most notably, around 125,000 pre-existing elementary schools in Uttar Pradesh remain susceptible to earthquakes and await retrofit. A lack of funding impedes the implementation of a large-scale school assessment and retrofitting initiative through SSA (Umrao, 2007).

Uttar Pradesh was able to implement earthquake-resistant school designs in a relatively short period of time because the government already had a large-scale school construction program in place. One of the most challenging aspects of the SSA initiative was developing a labour force capable of implementing earthquake-resistant designs on the ground. However, using a cascade approach, in which the government relied on master trainers to train others in their respective localities, 10,000 masons were trained and certified within a period of a few months.

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Seismic Renovation and Reconstruction of Schools in Uzbekistan

Global Alliance for Disaster Risk Reduction & Resilience in the Education Sector

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Pillar 1: Safe Learning Facilities

Old Soviet-era buildings are widespread and seismically unsafe in Uzbekistan, including many school buildings that are prone to damage or collapse in an earthquake event.

In 1996, the United Nations International Decade for Natural Disaster Reduction secretariate launched the Risk Assessment Tools for Diagnosis of Urban Areas (RADIUS) to promote seismic risk reduction in urban areas. A RADIUS study of Tashkent's building stock generated increased awareness of seismic risk about Tashkent's building stock, including school buildings (Mirjalilov, 2000). This study stimulated the national government to make earthquake risk mitigation a policy priority.

In 2004, Uzbekistan established the National Programme on School Education Development for 2004–2009, which required unsafe school buildings be retrofitted or rebuilt. In response, the Cabinet of Ministers of Uzbekistan organised a working group of government agencies to oversee the project. The State Committee for Architecture and Construction established a design working group to assist the assessment process. The group included 11 state engineering and design institutes under the leadership of Uzbek Research and Design Institute of Standard and Experimental Design of Residential and Public Buildings (UzLITTI). The design group assessed the structural integrity of school buildings through questionnaires and field visits and assigned each school one of the following structural intervention categories:

1) Demolition and new construction – when it was more cost- and time-effective to demolish and reconstruct than restore or retrofit the building.

2) Operating repair – when the school met the current building code requirements and did not require strengthening, but did require light repairs.

3) Rehabilitation – when the school required retrofitting.

4) Capital reconstruction – when a school building required both strengthening and new construction, such as the addition of classrooms or sports halls.

The design group then developed designs for each type of the structural intervention categories. The Ministry of Public Education began implementing the plans in summer of 2004, delegating most of the implementation to municipal and provincial governments. Local governments prioritised school interventions based on each school's level of need compared to other schools in the area. Construction proceeded, first prioritising demolition of unsafe schools, then reconstruction of those schools. Rehabilitation of weak schools followed, with schools that needed only operating repairs being prioritised last.

Local governments organised public tenders for construction work according to technical and budget requirements defined by UzLITTI. Local construction firms bid for contracts and those firms that won the tender consulted with the design working group for guidance. The local branch of the State Architectural Construction Supervision monitored contractors to ensure they were meeting the structural requirements. Between 2004 and 2009, 8,501 Uzbek primary and secondary schools were retrofitted, repaired, or rebuilt under the programme. A total of 351 schools were reconstructed, 2,470 schools underwent capital reconstruction, 3,608 schools were rehabilitated, and 2,072 underwent operating repairs (Akhmedov, 2013).

Since the beginning of the program, all structurally substandard primary and secondary school buildings in Uzbekistan have been retrofit or rebuilt to be seismically safe. The assessment and structural intervention demonstrates the national government's commitment to child safety and disaster risk reduction. Its mechanism for implementing large-scale retrofitting and reconstruction projects serves as a model for other countries to follow.

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Nationwide School Earthquake Drills in Iran

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Pillar 2: School Disaster Management

Iran sits atop the seismically active Alpine-Himalayan orogenic belt and has been struck by many destructive earthquakes (Hessami et al., 2003). During the International Decade for Natural Disaster Reduction in the 1990s, the Ministry of Education (MoE) and the International Institute of Earthquake Engineering and Seismology (IIEES) decided to work together to encourage formal and informal risk-reduction education, with an emphasis on community inclusion. The IIEES and the MoE concluded that schools were ideal places for conducting hazard awareness activities and began discussing how school sites could be appropriate venues for educating citizens about earthquake safety and preparedness.

In 1996, the MoE and the IIEES piloted Iran's first school earthquake drill, eventually scaling up the drills to the national level and making participation mandatory. By 2016, nearly 13.5 million children participated in earthquake drills across the country for the nation's 18th national drill.

The main objectives of the Earthquake and Safety Drills were to:

1) increase the knowledge of children and teachers about earthquakes
2) develop preparedness for appropriate responses during an earthquake
3) reduce the disastrous consequences of earthquakes
4) build a culture of safety in earthquake-prone communities.

On the day of the annual drill, the MoE coordinates the earthquake and safety alarm within schools, while the Islamic Republic of Iran Broadcasting sounds the alarm on the national radio. On cue, students, teachers, and all school staff perform "drop, cover, and hold'" for 30 to 60 seconds, followed by emergency evacuation (IIEES Brochure, 2004). Each year, one or two schools are selected as models of good implementation, and their drill, conducted with representatives from IIEES and the MoE, is also broadcast on the radio to encourage student enthusiasm.

Inspired by the successful expansion of Iran's national school drill program, in 2015, the IIEES expanded their work to engage the broader community in earthquake risk reduction measures. They initiated a new program called Safe Schools – Resilient Communities, which aimed to raise hazard awareness and build resilience in the communities surrounding schools. The program provides communities with broad DRR training and facilitates community participation in the annual earthquake and safety drill. For the three months prior to the earthquake and safety school drill, the Safe Schools – Resilient Communities program educates community members about earthquake mitigation and response strategies. IIEES representatives train local facilitators to hold workshops to teach community members appropriate responses to an earthquake event, sheltering and evacuation protocols, and methods for addressing structural and non-structural risks in houses. Workshop facilitators also guide community members in preparing risk maps of their neighbourhoods. Safe Schools – Resilient Communities has already been introduced in 60 communities.

Iran's expansion of school earthquake drills nationwide and its development of a cooperative and inclusive community risk reduction program are the products of the long-term partnership between the MoE and the IIEES, demonstrating the necessity of strong relationships between government institutions and expert advocate organisations. However, Iran's education sector still faces challenges with strengthening weak schools and measuring the effectiveness of its emergency management systems. Over 30% of Iran's school building stock is seismically unsafe. Furthermore, the effectiveness of the earthquake drill and community risk reduction programs will not be known until the next major earthquake occurs.

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Developing School Plans and Performing Drills in Los Angeles

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Pillar 2: School Disaster Management

In the past 100 years, several earthquakes have caused structural damage and disrupted educational activities in the Los Angeles region of California state. The Los Angeles Unified School District (LAUSD) Office of Emergency Services has in place some of the most comprehensive disaster management strategies in the United States.

The state-level Katz Act of 1984 required that all public and private elementary and high schools with 50 students or more develop an earthquake disaster plan. The act also required schools to hold regular "drop and cover" and evacuation drills. These regulations were later supplemented by California Education Code Sections 32280–32289, which mandated that all schools develop Safe School Plans, to include natural hazard risk, school and home violence, and traffic safety, with annual updates to be submitted to the governing board of their school district.

Over the next decade, California state emergency management requirements developed until ultimately the state created the Standardized Emergency Management System (SEMS), the set of requirements LAUSD school plans must comply with today. SEMS establishes inter-agency coordination to ensure rapid communication and decision-making, and a state mutual aid program, among fire departments, police departments, and health facilities.

The LAUSD guides the development of Safe School Plans for all schools in its jurisdiction, offering a Safe School Plan template, which addresses multiple natural and social hazards and has detailed emergency planning information and guidelines for plan completion.

Each school must establish a Safe School Committee in charge of reviewing and updating its Safe School Plan. In the LAUSD, Safe School Committees must include the principal, the United Teachers Los Angeles Chapter Chair, one non-teaching staff member, one student representative if the plan is for a high school, one parent representative of a current student, and one local law enforcement officer. In addition to mandatory members, the LAUSD Office of Emergency Services encourages schools to recruit staff members with diverse training backgrounds for the committee (Office of Environmental Health & Safety, 2009).

To further engage LAUSD students and staff in emergency planning, the LAUSD Office of Emergency Services released two apps based on the district's Safe School Plan template. The LAUSD Staff/Responder Emergency Plan app is available to all district employees and first responders and describes response protocols for emergencies. The LAUSD Community Emergency Plan app, which students, parents, and community members can download in English and Spanish, describes LAUSD emergency plans and protocols, including parent notification and reunification procedures.

Despite the LAUSD Office of Emergency Services' impressive work in emergency planning and hazard mitigation, significant challenges remain. One of the greatest obstacles to managing the development and maintenance of Safe School Plans in the LAUSD is the size of the district relative to the number of managers monitoring school plans.

Overall, the LAUSD Office of Emergency Services provides an excellent model of how a large school district or local government can guide schools in planning for emergencies. It is important to note that the LAUSD Office of Emergency Services emergency planning policy is strongly supported by California state law, and what is arguably a proactive hazard planning culture in California. Students benefit not only from the existence of emergency plans in school, but from hazard and emergency response education, provided through periodic school drills and the availability of emergency planning apps.

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Protecting Children in Emergencies by Law in the Philippines

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Global Alliance for Disaster Risk Reduction & Resilience in the Education Sector

Pillar 2: School Disaster Management

When Typhoon Haiyan struck Southeast Asia in 2013, it affected nearly 6 million children in the Philippines, leaving thousands dead and many more psychologically traumatised. The property damage and social disorganisation left by Typhoon Haiyan made educational continuity impossible in certain parts of the Philippines. This disruption left children without social structure or a physical place of belonging, especially in cases where they had lost their home or families. Orphaned or separated children were also highly vulnerable to the risk of abuse or trafficking after the typhoon.

A month after the typhoon struck, Save the Children, World Vision, the United Nations Children's Fund (UNICEF), and Plan International began a study in December 2013 investigating the self-identified needs of children affected by Typhoon Haiyan. The study assessed 286 children and completed 42 focus group sessions. The purpose of the study was to identify existing weaknesses in policy, with emphasis on those systemic weaknesses that affected children.

The study found that, as of June 2014, over 10,000 children affected by Typhoon Haiyan remained in precarious situations with unstable access to education and health resources. In September 2014, based on the data from the post-Haiyan study and analysis of the existing policy framework, Save the Children developed a draft bill. Based on the draft bill, Representatives and Senators authored their own version of the bill, HB 5062, which eventually became The Children's Emergency Relief and Protection Act. In 2016, after several amendments in the Senate and House of Representatives, President Aquino signed the Act into law. The Act outlines specific measures to ensure the safety of children in disasters, including:

- establishment of evacuation centres
- establishment of child and women-friendly transitional shelters, and a referral mechanism for orphaned, unaccompanied and separated children
- assurance for immediate delivery of basic necessities and services
- stronger measures to ensure the safety and security of affected children
- delivery of health, medical and nutrition services
- plan of action for prompt resumption of educational services for children
- establishment of child-friendly spaces; and promotion of children's rights.

The Act directs the Department of Social Welfare and Development to develop a Comprehensive Emergency Programme for Children. The program will activate upon declaration of a state of calamity or any other emergency situation.

Save the Children's involvement in policy advocacy, development, and implementation highlights how important researchers and partner organisations can be in advocating for, and ensuring lawmakers pass, evidence-based policies. However, existing support and advocacy for children's welfare within the House of Representatives and Senate were integral in passing the law. The timing of policy advocacy was also important in passing the Children's Emergency Relief and Protection Act. Typhoon Haiyan had occurred less than a year prior when HB 5062 was first introduced. The devastation from the storm was still fresh in the minds of both citizens and lawmakers, making the political climate ripe for policy change.

Passing a comprehensive bill addressing the wellbeing of children in disasters is a substantial accomplishment for the Philippines. However, it remains to be seen how effective the law will be in practice. Ensuring the full support and participation of all government agencies involved in the Comprehensive Emergency Programme for Children is something that can be continued in the present. Civil society organisations should maintain their support of government agencies, and should offer their resources where needed.

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Students Leading Communities in Disaster Risk Reduction through Informal Education in Cuba

Global Alliance for Disaster Risk Reduction & Resil in the Education Sector

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Pillar 3: Risk Reduction & Resilience Education

In Cuba, environmental education and the prevention of disasters are directly related. From pre-school education through secondary school, the national curriculum directly addresses the protection of the environment. Classes focus on ecological problems and natural hazard risk with attention to methods of mitigation and disaster prevention.

However, officials within the Ministry of Education (MINED) consider formal school-based disaster risk reduction (DRR) and environmental education insufficient because it excludes the adult and out-of-school population and school-based education also cannot be rapidly updated with new knowledge. For this reason, the MINED has developed informal education programs that include the whole community in the DRR educational process in partnership with international non-governmental organisations, such as the United Nations Children's Fund (UNICEF), Save the Children, and the United Nations Educational, Scientific and Cultural Organisation (UNESCO). Based on its current priorities and evaluation of need, the MINED develops and distributes terms of references for environmental education projects that are consistent with their education policy and model of development. Organisations answer to these terms of references, thereby developing partner projects with the MINED. While the duration of a single project may be finite, its lessons are often used for changes to permanent policy through incorporation into curricular content or teacher training content.

In 2013, the MINED with UNICEF Cuba and more than 15 interdisciplinary ministries and institutes in the sectors of education, civil defense and DRR, developed the project Education, Leadership and Gender. The project's aim was to strengthen the leadership roles of children and adolescents, their families, and their communities in learning and pursuing new knowledge and skills in the realm of disaster mitigation and prevention. The program centres on the inclusion of girls and women as active decision-makers and project leaders. Education, Leadership, and Gender is principally carried out in primary and secondary schools in between 25 and 30 communities each year.

Project activities are divided into two categories: those that are carried out in the schools and in which only students participate; and those carried out in community workshops and, in which everyone in the community participates, including students. The school activities train students in skills for the mitigation and prevention of disasters. The creation of risk maps of the school and its vicinity are a major component of the project. These activities are permanently incorporated into classroom activities from May throughout the rest of the school year. After finishing the school-based project activities, students present their new knowledge to their families and the rest of the community in public workshops, which are led by teachers, administrators, and community leaders. Children are encouraged to continue spreading DRR and environmental knowledge to their families and community members and serve as agents of change and liaisons between schools and the rest of the community.

Since its initiation in 2013, the Education, Leadership, and Gender project has been carried out in five provinces in Cuba. Between 2013 and 2016, over 14,000 children and over 1,800 teachers have participated in the project, in 128 schools and 107 communities. In April 2017, the project was initiated in the province of Ciego de Ávila and the results of the project are pending.

Despite the impacts of hurricanes and flooding in Cuba, the number of related fatalities is minimal, in large part due to the political will of preserving human lives through both formal and informal hazard education.

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Mainstreaming Road Safety Education for Children in South Korea

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Global Alliance for Disaster Risk Reduction & Resilience in the Education Sector

Pillar 3: Risk Reduction & Resilience Education

In South Korea, the journey to school is an everyday hazard for children. Growth in car ownership in the 1980s led to an increase in traffic accidents and related fatalities throughout the decade. Traffic fatalities peaked in 1991, killing 13,429 people, including 1,566 children. Most fatal road accidents involving children in South Korea were vehicle-to-pedestrian collisions in urban areas. The death of these children highlighted a need to improve safety protocols for children who walk to and from school, especially in cities (Sul et al., 2014).

Between the years of 1988 and 2014, South Korea made a series of policy changes that lowered child traffic fatalities in South Korea by nearly 97%. These policy changes began in 1995 and included both formal and informal educational approaches to roadside safety for children and adults.

In 1996, the Ministry of Education, Science and Technology (MoEST) began mandating kindergartens to teach 30 hours of road safety education, and that elementary, middle, and high schools teach 21 to 23 annual hours of road safety education. However, the directive lacked a strong legal basis for enforcement. To address this legal gap, the national government amended the School Health Act in 1998 and the Child Welfare Act in 2000. Both amendments outlined the responsibility of school administrators to provide traffic education. The amendment to the Child Welfare Act also outlined road safety education guidelines for each age group:

- Kindergarten education focused on using sidewalks, crossing roads, and riding school buses.
- Elementary education focused on finding safe routes to school, understanding traffic rules, and using different forms of transportation.
- Middle and high school education focused on using and maintaining bicycles, understanding traffic rules, and preventing accidents.

In 1997, the President made a pledge to further strengthen road safety education. In response, the Ministry of Education and the Road Traffic Authority developed content for the 7th National Educational Curriculum between 1998 and 2000, and curricular changes were incorporated into textbooks.

Children also learn about road safety outside the classroom. In 2002, the national government developed facilities called “traffic parks” or “road safety experience centres” for kindergarten and elementary students to test hands-on learning approaches to safety education. Traffic parks are confined areas that mimic real roadways to help train children in a safe environment. Children learn how to use crosswalks, interpret traffic signs, and safely ride in vehicles.

South Korea has drastically reduced child traffic fatalities since the early 1990s: the number of child roadside deaths dropped from 1,766 in 1988 to 53 in 2014 (Sul et al., 2014). Classroom-based approaches contributed to the reduction in child traffic fatalities by teaching children skills to protect themselves on the street. Non-educational policies passed during the same period also played a large role, such as school zones and increased traffic penalties. In 1995, the government introduced the school zone system nationwide, which imposed stricter traffic rules in areas around schools. Traffic fines in school zones are double the normal amount. The new school zones and higher traffic violation penalties were also influential in making roads safer for children (Sul et al., 2014).

Despite South Korea’s impressive strides in reducing the rate of child traffic fatalities, its overall pedestrian fatality rate remained the highest among OECD countries in 2014 (OECD/ITF, 2015). Such a high pedestrian fatality rate indicates the country must take further measures to ensure roadside safety for all. Experts suggest the problem comes from a high rate of alcohol consumption, a fast-paced culture, lack of sidewalks, and relatively high speed limits (Yan & Kim, 2003; OECD/ITF, 2016). Developing measures to addres the root causes of traffic accidents will benefit children and reduce the rate of child fatalities even further.

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